2014

Economic Impact Assessment

Task Force for Business & Stability Operations (TFBSO) in Afghanistan

~~SENSITIVE BUT UNCLASSIFIED~~

Vestige Consulting, LLC
Acertas, LLC
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Context

After three decades of conflict, the fabric of Afghanistan's economy has been torn leaving the government with little capacity to function and bestowing the country with the unenviable title of the quintessential conflict-affected fragile state.

Figure 1 TFBSO Project Implementation Map

Receiving nearly $100 billion of aid in the last decade, Afghanistan has seen limited but measureable progress. However, the planned drawdown of international security forces by the end of 2014 will remove revenue streams from support services, and significantly decrease civilian aid. Stabilization through private sector growth is imperative with this "aid cliff" approaching.

Objective

The mission of the Task Force for Business and Stability Operations (TFBSO) is to promote stability in Afghanistan by encouraging international investment, sustainably developing the country's natural resources, and assisting industrial development and revitalization. Figure 1 (above) depicts the location of Task Force projects throughout Afghanistan. As illustrated, TFBSO has implemented business and stability operations in nearly every province in Afghanistan.

The objective of the economic impact assessment (EIA) model is to enable key stakeholders to make informed decisions about future economic interventions in Afghanistan and to develop an awareness of policy reforms that are most likely to benefit the economy. The EIA model provides a comprehensive state-of-the-art economic approach to capture the most relevant parts of Afghanistan's economy, and a best-in-class political feasibility-weighted cost-benefit analysis of Task Force projects. It is hoped that this model will further enable the international community to implement more effective economic interventions and policy reforms in Afghanistan and other conflict-affected fragile states to promote long-term economic stability.

Afghanistan's Economy with and without TFBSO Projects

The Task Force implemented projects across four primary programs between 2010 and 2014, to include: Energy Resource Development, Indigenous Industries, Investments & Entrepreneurship, and Minerals Resource Development. In addition, the Task Force implemented a series of projects that concluded between 2010 and 2013; these "Historic" projects are categorized as Banking & Financial System Development, Agricultural Diversification & Revitalization, Industrial Development, and Women's Advancement projects.

The short-, medium-, and long-term macroeconomic multiplier impact of every Task Force project was quantified both independently and collectively. Figure 2 presents the Task Force's estimated impact to Afghanistan's gross domestic product (GDP) between 2010 and 2025.[1] As illustrated below, the EIA model forecasts Afghanistan's GDP potential with and without Task Force projects. Macroeconomic modeling presents Afghanistan's GDP to be approximately $107.8 billion in 2025 as a result of TFBSO's business and stability projects; compared to a GDP of $53.3 billion in 2025 without those projects.

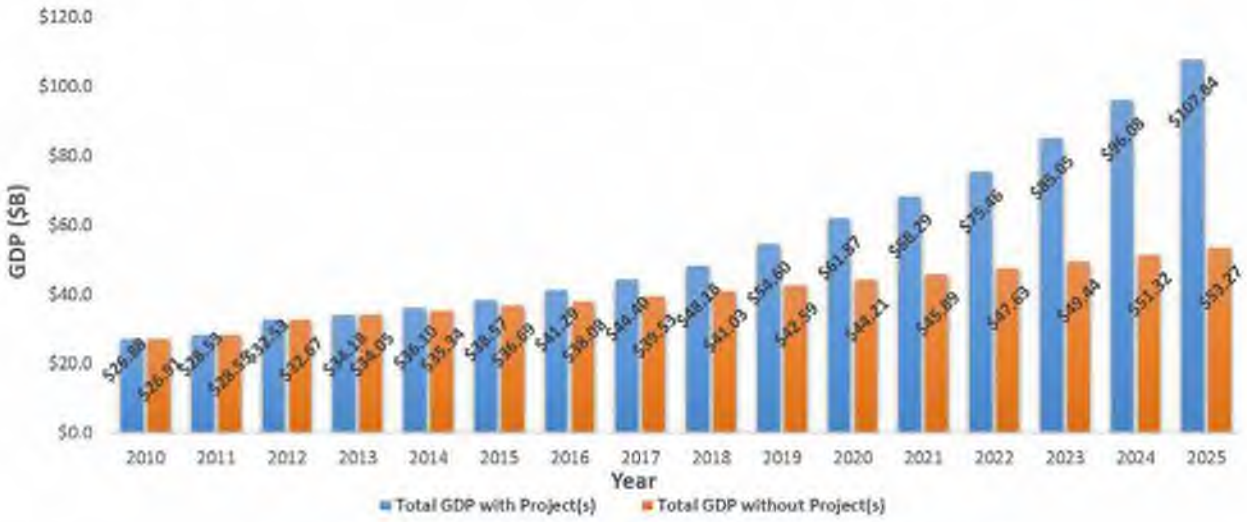


Figure 2. Afghanistan's Economy with and without TFBSO Projects

The data collection techniques, macro- and microeconomic data, and modeling methodologies and assumptions are described in detail in the subsections that follow. Thus, under this model, a potential doubling of the GDP by 2025 is possible given Task Force efforts as seen with a gain of $54.6 billion.

[1] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors.

TFBSO Share of Afghanistan's Economic Growth

While the Task Force was instrumental in catalyzing long-term economic growth in Afghanistan, and some of the projects initiated by the Task Force would not have been realized had the Task Force never existed, the $54.6 billion increase in the economy is not solely attributable to Task Force efforts. Nevertheless, the Task Force was typically only one of a few key implementers leading economic development projects in Afghanistan, including, but not limited to private sector companies and donor agencies such as the Asian Development Bank, USAID, and the World Bank. The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $54.6 billion in GDP by 2025. The Task Force was allocated $23.0 billion of the total $54.6 billion as a result of the key role it played as an enabler across multiple sectors of Afghanistan's economy.

Figure 3. TFBSO Share of Afghanistan's Economic Growth

Afghanistan's Economy with and without the Task Force Adjusted Share

It is reasonable to assume that some economic development projects would have been implemented without the Task Force. The following figure presents Afghanistan's economy with the adjusted Task Force share (blue bar) and without the Task Force (orange bar). The "without Task Force" scenario assumes that many of the Task Force's economic development projects would have started without the Task Force albeit at a later date (many after 2025). As illustrated below, Afghanistan's GDP is estimated to equal $55.24 billion without the Task Force in 2025.

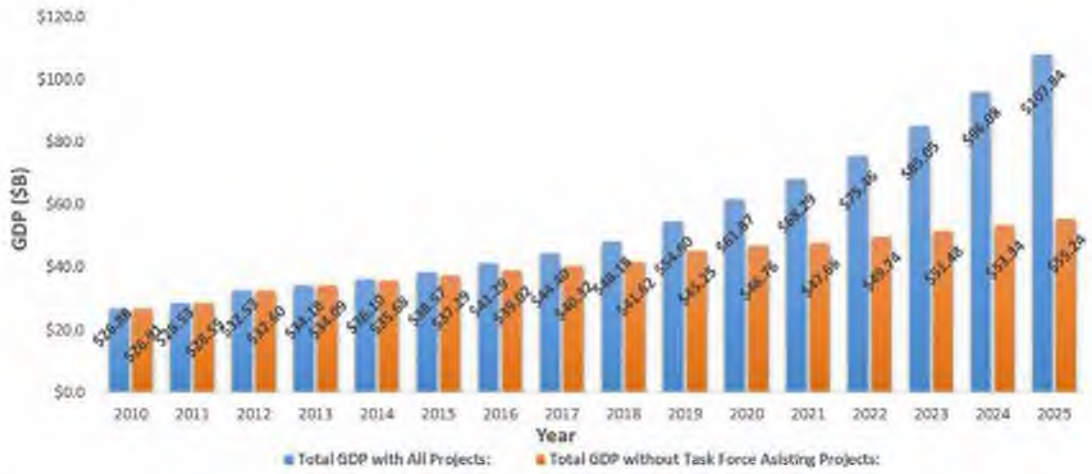


Figure 4. Afghanistan's Economy with and without the Task Force

TFBSO Program-Level Economic Impact Summary

Table 1 presents the macroeconomic multiplier impact of TFBSO programs (including historic projects). In addition, the table identifies those projects with the most significant contribution to Afghanistan's GDP by program. The EIA model forecasts the Energy Resource Development program to have the greatest contribution to Afghanistan's GDP by 2025 while Minerals Resource Development will have a more significant impact than the Energy program after 2025. The increase to GDP by program assumes the program was implemented independently (meaning all other programs do not exist). The "blue bars" presented in the macroeconomic bar graphs above illustrate TFBSO program synergies, meaning the collective economic impact of TFBSO programs is $400 million greater than the sum of each program implemented in isolation.

Table 1. TFBSO Program-Level Macroeconomic Multiplier Impact Summary

Program	Increase to GDP in 2025	Project with the most Significant GDP Impact	Explanation
Minerals	$23.4 billion	Round I (Badakshan, Balkhab, Shaida, & Zarkashan)	USGS mineral resource data identified the potential for world class deposits at that the Round I areas of interest.
Energy	$27.4 billion	Afghan Tajik I (Sanduqli & Mazari Sharif Blocks)	Afghan Tajik I could produce up-to 157 million barrels of oil between 2017 and 2037.
Investments	$3.4 billion	Hospitals	Facilitated partnerships between a private entity and GIRoA will advance healthcare in Kabul.
Historic	-	Nangarhar Agriculture College	Capacity improvements to the agriculture college will lead to long-term human capital improvements and advanced farming techniques.
Indigenous	-	Cashmere	The Cashmere industry will continue to grow as new techniques are introduced to farmers and manufacturers.

Note: The "-" symbol indicates that the economic activity change is negligible.

TFBSO Project-Level Cost-Benefit Summary

Table 2 presents forecasted project-level costs and benefits. These project-level cash flows, presented as discounted and aggregated values between 2010 and 2030, contribute to the macroeconomic multiplier effects presented in Table 1 (above). The Total Cost column includes the costs incurred by TFBSO and the Afghan private sector. The Total Benefit column includes the revenues earned by the Afghan public and private sectors.

Table 2. TFBSO Project-Level Cost-Benefit Summary, Discounted Totals for the Period 2010-2030

Program	Project Group	Discounted Total Cost	Discounted Total Benefit	Impact Summary
Minerals	Upstream Development	$10,264,631,113	$10,527,682,444	Transforms the economy.
	Transmission via Rail	$3,393,978,685	$1,257,814,805	Removes transportation bottlenecks.
	Training & Capacity Building	$23,532,955	$4,798,052	Enhances the technical and managerial capabilities of Afghanistan's natural resource stewards.
	Village Stability Operations	$3,861,844	-	Cancelled during execution per the government of Afghanistan's request.
Energy	Upstream Development	$7,301,902,936	$7,401,574,286	Supports energy independence.
	Gas Policy & Transmission	$88,486,485	$267,695,052	Catalyzes long term domestic gas transmission capacity and policy.
	Downstream Gas Utilization	$32,540,195	$1,214,587	Initiates domestic market for consumption of compressed natural gas.
	Micro-Hydro Power	$10,792,492	-	Cancelled before gains were realized.
Indigenous	Cashmere	$10,175,673	$33,340,096	Improves the quality and quantity of cashmere and enhances Afghanistan's international profile.
	Carpets	$9,442,582	$5,990,577	Creates more than 9,500 jobs.
	Artisanal Industries	$9,700,253	$6,320,876	Creates work for 1,200 artisans in Northern Afghanistan.
Investments	Public-Private Partnerships	$300,733,862	$350,143,710	Minimizes investment risks across multiple sectors.
	Private Investment	$162,233,384	$217,454,297	Reduces small-medium sized enterprises transaction costs.
	Business Advisory	$190,140,312	$196,901,972	Improves Herat and Kabul business efficiency.

Program	Project Group	Discounted Total Cost	Discounted Total Benefit	Impact Summary
Historic	Banking	$65,144,986	$71,254,355	Improves the capabilities of the formal financial sector.
	Agriculture	$34,288,221	$24,352,026	Shifts at-risk rural, informal workers to formal employment
	Industrial Development	$5,426,311	$32,022,266	Enhances transportation and education infrastructure.
	Women's Advancement	$9,693,065	$9,798,120	Supports women's economic equality.

Task Force for Business & Stability Operations (TFBSO)

The FY14 National Defense Authorization Act directs the Task Force for Business and Stability Operations to "carry out projects to assist the Commander of US Forces-Afghanistan and the Ambassador of the US Mission in Afghanistan to reduce violence, enhance stability, and support economic normalcy in Afghanistan through strategic business and economic activities." In short, the mission of TFBSO is to promote stability in Afghanistan by stimulating private sector growth.

TFBSO recognizes that a sustainable economy is one of the key end states necessary for stabilization of Afghanistan. It focuses on private sector development and draws upon unique skills to complement the aid, governance, and rule of law initiatives handled by other agencies. Specifically, TFBSO focuses on three conditions necessary for a sustainable economy: market economy sustainability, employment generation, and assistance with management of economic-based threats to peace.

TFBSO enables and supports the market-based economy by nurturing and strengthening the private sector and Afghanistan's human capital. A robust market-based economy creates a rewards-based meritocracy, improves economic efficiency, and facilitates the movement of goods and services. Strengthening the economy improves the quality of life of the Afghan people and gives them confidence that Afghanistan is moving in the right direction. Additionally, improved integration in the regional and global economy integrates Afghanistan's future with that of its neighbors perpetuating stability.

A strong private sector can also create numerous jobs for the population. TFBSO creates job opportunities that form the foundation for sustainable livelihoods. When possible, this is quick impact and demonstrates progress while providing opportunities for individuals vulnerable to insurgent enticements. Employment opportunities give people a stake in the peace process by providing alternatives to violence. The Task Force explores opportunities in to increase the human capital of Afghanistan through training and education. Additionally, TFBSO encourages all foreign enterprises to maximize the amount of work handled by the local people rather than ex-patriots.

The Task Force's work is responsive to feedback from the International Security Assistance Force (ISAF) as they monitor the effects on security. It is conducted in a transparent and accountable manner that encourages the government of Afghanistan to establish laws, institutions, and capacity to manage its resource wealth responsibly. Implicit is the need to understand the context before designing project strategies related to natural resources. The Task Force engaged daily with the Afghans to develop this understanding while coordinating with international partners and other US agencies.

Several lines of effort were developed to support the development of these conditions. The most significant involve the extractives industry, indigenous industries, and general foreign direct investment.

The extractives industry is seen as Afghanistan's bid for success in establishing economic independence because resources appear plentiful. The hydrocarbons and minerals sectors can provide diversification, job creation, infrastructure development, tax revenue, and energy independence. TFBSO supports exploration efforts, advises Afghan ministries, attracts investors, and coordinates support from other agencies such as the US Geological Survey (USGS).

Indigenous industries represent existing skill sets in Afghanistan and are more promising for rapid development and impact. Many have recognizable international market potential and TFBSO helps facilitate access to international markets, strengthen business practices, and raise awareness of Afghan industries and products.

TFBSO's general investment initiative is committed to identifying business opportunities for domestic and foreign investors, and helping to establish financing vehicles for those investments. Rather than simply providing grants, TFBSO makes deals possible by providing professional consulting services that reduce transaction costs for international and Afghan companies. Using business consulting and entrepreneurship training, the Task Force promotes the growth of small and medium-sized businesses. This in turn serves to enhance the international competitiveness of Afghan businesses.

TFBSO provides a fundamentally different approach to post-conflict economic development. It accepts that recruiting subject matter experts useful to the mission will be costly in this environment; getting the right people remains a priority. Second, TFBSO achieves greater flexibility through a thorough understanding of the security environment combined with the risk tolerance required for conflict zones. Next, it emphasizes direct project management on-site, which rarely exists in a conflict zone, to ensure the responsible use of government funds on schedule. Finally, timely contracting enables TFBSO to respond to opportunities as they arise.

TFBSO is not a donor agency and approaches its activities by focusing on outcomes, including measuring the revenue generated for the Afghan government, the number of businesses started or expanded, and the number of jobs created. Metrics such as profitability, return on investment, and net present value are not typically employed by development organizations.

The work TFBSO conducts in Afghanistan is grounded in important cross-cutting principles of stabilization. TFBSO's work emphasizes host-nation ownership, political primacy, legitimacy, and unity of effort with other non-governmental, national and international organizations.

TFBSO promotes the long-term stabilization of Afghanistan by creating the conditions necessary for a sustainable economy. It uses the private sector as the primary lever by emerging local entrepreneurship and attracting international investment. Ultimately, Afghanistan is gradually reducing its dependence on international donors, integrating with regional and international partners, and improving access to opportunity for the Afghan people.

Post-Conflict Stabilization

Afghanistan's Case

After over thirty years of near incessant conflict, the fabric of Afghanistan's economy and government was decimated.[2] The government lacked the capacity to address the country's development problems. Moreover, Afghanistan's social capital was almost non-existent. Between the 1978 Communist Coup and the aftermath of the September 11 attacks, "Afghanistan lost $240 billion in infrastructure and opportunities" (Ghani & Lockhart, 2008, p. 75). It is one of the most impoverished, conflict-prone states in the world and is ranked near the bottom of all "human development indicators" and "fragile states" (Fund for Peace, 2013). It is for this reason experts view Afghanistan as the "quintessential fragile state" (Sigsgaard, 2009, p. 10).

> "Economic problems are linked to governance and security concerns. If the citizenry is not secure or the government does not function, the economy cannot develop. Sound economic stabilization policies create conditions for economic growth, which alleviates underlying tensions and addresses the chronic social conditions that can fuel insurgency or conflict." (Crane, et al., 2009, p. 2)

The 2001 UN Security Council's Resolution 1378 (United Nations Security Council , 2001) paved the way for international engagement. According to the Afghanistan Ministry of Finance Development Cooperation Report (2012), the international community committed US$85 billion in assistance to Afghanistan between 2002 and 2011. By December 2011, US$70 billion had been disbursed to the Afghan government, which has resulted in measurable progress. For example, the GDP has risen seven-fold, a national treasury has been instituted with domestic revenues of $2 billion, maternal and infant mortality have plummeted, life expectancy rose by six years, there are two girls in school for every three boys and the number of students at public and private universities increased from 4,000 to 75,000 (Starr & Farhadi, 2012, p. 13).

Afghanistan's recovery will be affected by the planned drawdown of North Atlantic Treaty Organization (NATO) / ISAF troops and the accompanying reduction of international aid post-2014. The drawdown of most international troops and aid by the end of 2014 from Afghanistan will have a significant and lasting effect on the country's economic foundations. The international community's aid assistance to Afghanistan is expected to decline gradually over the next four years by as much as 75% in some sectors according to the World Bank - other sources expect a less dramatic decline of aid but all agree that the peak has been reached (Ministry of Finance, GIRoA, 2012, p. 24). Donors' aid is allocated in its majority to security (68% in 2011), but the reductions in civilian aid, which is in the billions of dollars, historically follow the withdrawal of foreign forces

[2] *See* (Farhadi, 2014) for further discussion of the economy of Afghanistan and post-conflict stabilization of fragile states using Political Economy Cost-Benefit Analysis (PECBA) which comprised the conceptual and theoretical underpinning of the Economic Impact Assessment provided herein.

from conflict-affected countries and typically suppress economic growth, employment, government income, and service delivery (e.g., Iraq, Kosovo, and Bosnia) (Cordeman, Gold, & Hess, 2013, p. 38). Stabilization efforts through private sector growth are even more critical with this "aid cliff" approaching.

Complementing Capacity-Building

Much of the stabilization efforts in Afghanistan are engaging the economy by reforming and restructuring public institutions and fiscal policies (Farhang, 2013). As such, these interventions are principally designed to build capacity in public-sector institutions. In turn, competence and capacity of a functioning government will foster private sector growth.

> "When stability operations are integrated with their complementary U.S. government sectors or with other key partners, they represent a comprehensive effort to reestablish or create a safe and secure environment that provides for the livelihood of the citizens and the state." (Crane, et al., 2009, p. 2).

Increasingly, experts are recognizing that private sector growth and public sector capacity-building can and should occur concurrently (Duffield, 2001, pp. 99-100). In this respect, joblessness among ordinary people and a government's inability to deliver public services undermine the government's legitimacy and threaten democratic governance (Farhang, 2013). This is based on the understanding that stability and security will always be a short-term and unsustainable objective if ordinary people do not have something to lose (personal investment in the well-being of the country through jobs and opportunities). In other words, if the ordinary populace has sustainable jobs, they will have a stake in seeing to it that their locality doesn't revert to violence (Ghani & Lockhart, 2008, p. 24).

Moreover, private sector growth will ensure that jobs created through donor-funded capacity-building projects can be transitioned once funding diminishes. This phenomenon known as "Dutch Disease" is well-recognized in development communities as a by-product of well-intentioned development efforts (Stijns, 2003). This is one of the fears of adding capital intensive industries related to natural resources extraction such as mining, which manifest in a higher exchange rate and increase in export prices, also known as a "resource curse" (Sachs & Warner, 1995). On the other side of the labor-capital spectrum, indigenous industries are very labor intensive and if in the right path and with the right incentives it will shift the operations to the formal economy. In order to soften the transition from an aid-dependent state to a self-sustaining government and economy, private sector growth is needed to create jobs that will grow the country's GDP even after aid has ceased. Private sector growth is also a means of complementing donor priorities and addressing unmet needs (Rosenberger, "The New Silk Road" Speech presented at National Defense University, 2011a). For example, many long-term public sector projects require strict controls on how funding is utilized. The donor's objectives and level of funding may not reach all those in need of employment. Private sector investment can serve to complement these efforts by producing jobs

in the near term whereas the capacity building efforts will create an enabling environment so that the private sector can flourish in years to come.

Government Employment

Governments are major employers in developed countries (Schiavo-Campo, Tommaso, & Mukherjee, 1997). In many Middle Eastern countries, the government stands as the single largest employer. In post-conflict countries this presents a dilemma since opposition forces with ties to the government may exert undue influence over its policies (Crane, et al., 2009, p. 10). In these instances, government employment may actually destabilize reconstruction efforts. Moreover, in post-conflict and conflict-affected states such as Afghanistan, low government wages and poor oversight of civil servants foster bribery and extortion from private enterprises (and consumers) to the neglect of public service. (Crane, et al., 2009, p. 94) (SIGAR, 2014b, p. 144). Therefore, the Task Force implemented Afghanistan government training projects to enhance the Afghanistan government's understanding of internationally recognized laws and governance best practices.

Landlocked Economies

Understanding the geographic context of Afghanistan can further improve stabilization efforts. The geography of Afghanistan is both its greatest asset and its greatest liability. Historically, the region functioned as the nucleus of the ancient "Silk Road" trade routes. However, in its recent history, the country's landlocked position has served to further isolate it from world markets. Afghanistan faced many of the unique challenges of being a "least developed" and a "landlocked country" before the last thirty years of conflict, (LLDC) (UN-OHRLLS, 2014). The largest obstacle to landlocked countries is the very high cost of transportation, which, in some countries, can exceed 80% of export value (Mtesa, 2007, p. 3).

> Until (trade) impediments are removed, Afghanistan will remain the cork in the bottle, a barrier to continental transport via road, railroads, oil and gas pipelines, and electrical transmission lines … The resulting isolation from the world of commerce condemned Afghanistan and its neighbors to backwardness and extreme poverty with little prospect of a better future." (Starr & Kuchins, 2010, pp. 10-11)

Thus, economic interventions tailored to the challenges and opportunities present in Afghanistan's landlocked location in Central Asia can act as a catalyst towards bringing Afghanistan into the center of the Central Asian trade economy.

Stages of Post-Conflict Recovery

Initially, the populations in conflict ridden areas need to reconstruct their homes, villages, farms and businesses. With a heavy influx of foreign aid, a spike in economic activity is typical particularly in the service sector to support foreign aid workers. At this stage, immediate impact

public infrastructure projects such as road and bridge repair and power supply projects are critical to restoring some semblance of normalcy (Crane, et al., 2009, p. 12).[3]

Within a year to eighteen months, local businesses that survive expand to capture market share of those that didn't. These businesses invest for expansion and soon warehouses, trucking companies, internet and cell phone service providers and construction companies are developed. In this phase, the most effective strategies focus on "improving the investment climate and creating an environment where private enterprise can thrive" (Ibid, p. 13).

Once critical mass is reached, the private sector will need enhanced services which will open the door for foreign investors to build telecommunications networks, warehousing and dry port distribution centers, mines and natural gas fields. This later stage also sees the greatest progress in donor-based capacity building for local government, education and health care. Thus, private sector development and public sector capacity building work hand in hand (Ibid. p. 14).

Afghanistan's Economy

Before 1979

Before 1979, Afghanistan's economy was rural and agriculture-based. From 1912 through 1979, of the estimated 14 to 20 million citizens, approximately 85 percent of the population lived in rural settlements; 5 to 7 percent lived as nomadic herders, called *kuchis*; and the remaining portion lived in urban areas (Barfield, 2010, pp. 32-35). During this period, the majority of Afghans were engaged in subsistence-level production of crops and livestock. Rural households produced wheat primarily for their own consumption, selling the minimal surplus in nearby towns (Ibid). This self-sufficiency isolated the people from the reach of the central government, leading to three major implications: (1) it weakened central government, (2) it created a cultural divide between rural and urban areas, and (3) it left rural communities vulnerable to food insecurity in years when the harvest was small (Ibid, pp. 35-38).

Light Industrialization

Beginning in the 1930's, the government, under the Durrani dynasty, introduced light industrialization and developed public works to provide infrastructure for agricultural production and trade. One of the government's first projects was to develop a cotton export industry, centered near Kunduz in the north which installed irrigation that increased the production of cotton approximately 25-fold by the mid-1940s (Ibid, p. 203). After World War II, the Afghan government invested further in state-led industrialization. As part of its plan to modernize the economy, the government developed textile manufacturing plants, cement and fertilizer plants, and food processing facilities (Guimbert, Structure and Performance of the Afghan Economy, 2004, p. 20).

[3] A large influx of donor aid can result in so many simultaneous projects that the price of cement, lumber, and construction materials can rapidly increase and burden the donors and private enterprises with increased building costs.

These state-owned facilities were located mainly in Kabul and provided employment for a small percentage of the population in urban areas. Irrigation was also introduced more widely, including in the Helmand Valley, and irrigated land grew to supply the majority of produce by the mid-1970s (Central Statistics Organization, GIRoA, 2010) (USAID, 1976).

Cold War Aid

Much of the government's investments in agriculture and industry were made possible by foreign aid inflows, beginning in the 1930s and growing in importance through the 1970s (Barfield, 2010, p. 209). Early donors included Germany, Japan, and Italy. Beginning in the 1950s, with the advent of the Cold War, the government generated aid flows from the former Soviet Union and the United States by leveraging the rivalry between them. By 1973, two-thirds of government revenue came from foreign grants and loans (Ibid).

While foreign aid was a major portion of government revenues, the allocation was channeled through the Afghan government, which spearheaded the modernization agenda with foreign governments acting as funders and collaborators. Aid-funded projects provided the necessary infrastructure for the country to produce agricultural exports and develop industry, to include: roads, irrigation systems, hydroelectric power, airports, and industrial processing facilities. These productive assets generated revenue for farms and industry, increasing incomes of both households and state-owned enterprises. This broadened the government's tax base and provided revenue to the government through taxes on agricultural exports (Ahady A. , 2013) (Farhang, 2013).

Ring Road

Up until the 1960s, most of Afghanistan's domestic and international trade was limited because of the lack of roads between northern and southern Afghanistan (Farhang, 2013). This changed in 1964, when a paved ring road linking all of Afghanistan's major cities was completed. The road linked the nation's capital and its southern regions with the northern regions of the country, marking the first time in Afghanistan's modern history that agricultural produce and other goods could be readily traded between these areas (Barfield, 2010, p. 203).

With the completion of the ring road, the demand for transportation and trade services increased. A sustainable cycle developed: as domestic and international commerce increased, the government taxed merchants and used this revenue to finance further small-scale industrialization and agricultural development. The improved transportation networks facilitated the movement of crops throughout the country, and, in combination with the state-built irrigation systems, brought Afghanistan closer to self-sufficiency in food production just before the Soviet invasion of 1979 (Guimbert, Structure and Performance of the Afghan Economy, 2004, p. 23) (Central Statistics Organization, GIRoA, 2010).

Overall, the economy was stable and relatively sustainable with per-capita income growth on par with other countries in South Asia (Guimbert, Structure and Performance of the Afghan Economy, 2004, p. 3). Given more time, it is likely that Afghanistan would have further developed its

agricultural export industry. Unfortunately, extreme political upheaval initiated a period of violence and unrest in which the Afghan economy was virtually eliminated. All progress was lost in the conflict that disrupted transportation linkages, destroyed infrastructure, and reduced the labor force through migration, injury, and death (Farhang, 2013).

From 1979-2001

Dynasties

Afghanistan was relatively stable economically through the 1970s; however, substantial political tensions grew throughout the decade. King Zahir Shah was removed from power in a coup led by his cousin, Mohammed Daud Khan, in 1973. In 1978, Afghanistan Communist forces, which had begun receiving support from the former Soviet Union, killed Daud, ending 230 years of rule by the Durrani dynasty (Ansary 2012, p. 178). On April 27, 1978, Daud, his whole family, and his two thousand bodyguards went to their graves, and the House of Dost Mohammed came to an end (Ansary, 2012, p. 178). These forces were aligned with the People's Democratic Party of Afghanistan (PDPA), which took power and established a communist regime (Farhang, 2013).

Peoples Democratic Party of Afghanistan

The communist government instituted radical economic policies aimed at breaking down the traditional local economic and social networks. The PDPA's policies included abolishing the existing systems of land rentals, sharecropping, and hired labor, and replacing these systems with rural cooperatives led by government officials (Barfield, 2010, pp. 230-233). The PDPA employed repression and violence to implement these reforms, and consequently, they were quickly faced with strong opposition. In order to stabilize the situation and prevent the downfall of the Communist regime, the Soviet Union invaded Afghanistan in December 1979 and established control of urban areas and key transportation links (Farhang, 2013).

Resistance by the majority Afghan populace was constant. However, the Islamic factions, called *mujahedeen*, were largely fragmented along ethnic, religious, and tribal lines which prevented the cohesiveness necessary to mount a wholly united front against the Communist power (Ibid). The Soviets carried out air bombardments and spread land mines throughout the countryside to cut off *mujahedeen* supply routes. During this time, more than 1 million Afghans were killed, 3.2 million were disabled or wounded, 5 million fled as refugees mainly to Pakistan and Iran, and between 7 and 8 million people were internally displaced (Barfield, 2010, pp. 244-245) (Oxfam, 2009, pp. 3-4). Cities grew as rural residents sought safety there; in fact, the population of Kabul tripled during this time (Barfield, 2010, p. 253). Most educated Afghans, business people, landed elites, and religious leaders fled the country as refugees, depleting the human capital available to run businesses and the government (Farhang, 2013).

War-torn Economy

The violence severely disrupted economic activity and changed the composition of the labor force. Land mines and bombardments curtailed the ability of rural residents to tend to their fields, and

agricultural activity drew to a standstill. Public works that had provided a foundation for economic growth in previous decades were destroyed. The area under irrigation was also significantly reduced. Roads and power infrastructure were severely damaged or destroyed (Levin, 2009, p. 7).

Damage from conflict, shortages of raw materials, and other difficulties related to these disruptions made many industrial facilities inoperable. The Communists, true to their state-led industrial economic paradigm, did, however, maintain some industrial facilities in urban areas; however, production was minimal (Farhang, 2013).

Afghanistan's economy nearly came to a halt. Production and trade slowed to minimal levels, the government had no sources of domestic revenue, and there were little to no sources of legitimate employment. Analyses of the sparse macroeconomic data available show a steady decrease in GDP between 1979 and 1990, including a severe contraction in the late 1980's (Guimbert, Structure and Performance of the Afghan Economy, 2004, p. 7). The Soviet occupation was accompanied by high inflation, at times reaching hyperinflation levels (Farhang, 2013).

The population became dependent on imported food that was provided by humanitarian aid organizations; the food came mostly to the cities, in sharp contrast to the Durrani period (Barfield, 2010, p. 33). All the economic progress that Afghanistan had made prior to 1979 was now reversed (Farhang, 2013).

Illegal Economy

Although formal economic activity stopped during the Soviet occupation, the illegal and criminal economy flourished. Large-scale opium cultivation in Afghanistan began in the late 1980s as the state weakened, and this opium cultivation grew even more in the 1990s as the state fully disintegrated. Meanwhile, the global economics of the opium sector were changing; production bans were imposed in Turkey, Iran, and Pakistan, which significantly increased the demand for land on which to produce opium. Afghanistan's climate, the weak reach of the state, and the existence of extensive processing facilities in nearby Pakistan made the region amenable to the global illicit opium supply chain (Mazza, 2006). In the absence of legitimate funding sources and governmental control of rural areas, some insurgent movements and warlords depended on revenue from opium production to fund their insurgencies.

Smuggling increased along with opium production. Smuggling was based on informal networks established by mujahedeen, warlords, and their spheres of influence, with contacts in Pakistan that were based on common history, ethnicity, and decades of established relationships. Some resistance fighters who controlled important roads became involved in smuggling as a way to generate revenue for their resistance movements. Arms were smuggled into Afghanistan; meanwhile, goods smuggled out of Afghanistan, including opium, gems, timber, and antiques, provided additional revenue to the warlords and mujahedeen (Farhang, 2013).

Civil War

The Soviets withdrew from Afghanistan in 1989, but the Communist Afghan government remained in power. Mujahedeen continued their insurrection against the government, and the communist government collapsed in 1992 (Ibid). A civil war among various mujahedeen and warlord factions raged between 1992 and 1996, as groups competed for power and control. This period of continual violence further decimated the economic base and the labor force. One account describes the events of early 1990s in Afghanistan as follows:

> Human rights violations, including executions, abduction, imprisonment, sexual violence and other forms of torture, were committed by all factions. The death toll is difficult to determine but by one estimate, 10,000 individuals were killed in 1993 alone. The struggle for control of Kabul, which included bloody street battles and random rocketing, left hundreds, if not thousands, dead or wounded. (Oxfam, 2009, p. 10)

Taliban

In 1993, the Taliban movement began to acquire strength and influence.[4] The Taliban instituted a strict version of the Islamic Sharia law and most of the licit economic activities came to a standstill. Production continued its steep decline in all agricultural sub-sectors, including the production of crops, horticulture, and livestock. Afghans became heavily dependent on external support for basic nutrition; by 2000, approximately half of Kabul's population relied on food aid delivered by humanitarian agencies (Oxfam, 2009, p. 11). In the late 1990s, the effects of violence and economic hardship were compounded by drought. Factors of production continued to erode, and the quality of human capital was further diminished by a lack of education (Farhang, 2013).

During the 1990s, inflation skyrocketed; the limited data available on prices show the price index increased from one to 280 during the 1990s. This increase was accompanied by a depreciation of the currency, from 400 Afghani to 4,000 Afghani per U.S. dollar (Guimbert, Structure and Performance of the Afghan Economy, 2004, p. 4). This number is merely illustrative, as the various insurgent movements used different versions of the Afghani currency. By the end of the decade, Afghanistan was not merely a failed state; it had become the poorest country in the world (Ibid). As the economy and basic services lay in shambles, opium production and smuggling continued to expand. International smuggling of opium was facilitated by the break-up of the Soviet Union, which opened new routes through Central Asia. Afghanistan's share in world opium production increased dramatically from 1995 to 1999 (Mazza, 2006). During the 1990s, other illicit and illegal activities, such as the logging industry, grew, and smuggling of gems and antiques spiked (Lister & Karaev, 2004, p. 36).

According to a World Bank study of Afghanistan, "[e]ven though the fabric of families, kinship groups, and other traditional clusters has held together rather well (demonstrated concretely by the large volume of inward remittances), the penetration of the 'warlord' and 'commander' culture at the local level has had deleterious effects. In sum, Afghanistan was essentially left out of the

[4] It took control of Kandahar in November 1994, and by 1996, it had gained control of most of the country. The group established a government in Kabul but maintained the headquarters of their movement in Kandahar (Farhang, 2013).

last 25 years of global development, with virtually no increase in per capita income during this period and average life expectancy of only 43 years." (World Bank, 2005, p. xvi).

From 2001-2011

September 11, 2001

The events of September 11, 2001, precipitated the downfall of the Taliban regime. On October 7, 2001, just a few weeks after the attacks, the U.S. military and other international forces, together with the Northern Alliance, began an offensive to overthrow the regime. The Taliban fled Kabul on November 12, 2001, and the regime fell quickly without major fighting in urban areas. In early December, the stronghold city of Kandahar fell and the Taliban dispersed throughout the countryside without surrendering (Farhang, 2013).

Overall, conditions in Afghanistan in 2002 were very different from those that the Soviets had confronted in 1979; Afghanistan was a failed state. The institutions of the central government had ceased to function, and the government barely had control over its territory. The nation ranked second-to-last on the poverty component of the Human Development Index (HDI) in 2001 (Fukuda-Parr, 2001, p. 151). This was the only component of the HDI for which data on Afghanistan were available that year.[5] Afghanistan's infrastructure was completely decimated, and the legal economy had ceased to function. Its nominal GDP was only three-quarters of its 1981 level (World Bank, 2014a); however, given the high inflation that had occurred in the 1980s and 1990s, the GDP of Afghanistan in 2001 was actually smaller than its 1980s level in real terms (Farhang, 2013).

Finally, the end to internal conflict and violence provided the pre-conditions for economic growth to resume. The international community took on the cause to rebuild Afghanistan, providing billions of dollars in foreign aid. An estimated three million Afghans who had been in exile returned to the country after 2001, bringing with them a new set of knowledge and experiences (Barfield, 2010, p. 273). An estimated 600,000 internally displaced people returned to their homes between late 2001 and 2005 (World Bank, 2005, p. 56). The country also underwent a political transformation to a democratically elected government. Between December 2001 and 2005, a Constitution was adopted, a transitional administration headed by Hamid Karzai took power, and Parliamentary elections were held (Farhang, 2013) (Delawari, 2013).

The Formal Economy

In recent years, the new government's commitment to economic stability and the significant influx of aid from international donors contributed to Afghanistan's most dynamic period of economic growth. The services sector has grown significantly, and the number of enterprises has greatly increased. Security spending and foreign aid have had enormous impact, especially in the service sector. Levels of inflation have varied from year to year without a significant impact on the economy. The exchange rate has fluctuated somewhat, with periods of appreciation and depreciation (Delawari, 2013).

[5] The last-place country, Niger, was experiencing a disease epidemic at the time.

The structure of the Afghan economy is complex, consisting of formal, informal, and illegal activities; all three categories can be considered an economy in itself. The macroeconomic data reported by the Afghan Government Central Bank (Da Afghanistan Bank), International Monetary Fund (IMF), and donors captures the formal economy; however, the informal and illegal economies provide the livelihoods for millions of Afghan households (Ibid). The National Risk and Vulnerability Assessment (NRVA) suggests that as much as 50% in urban areas and 90% in agricultural areas work in the informal sector, not including all of the seasonal farmers employed in the opium sector (Central Statistics Organization, GIRoA, 2012). The illegal economy breeds instability and conflict, and it perpetuates a vicious cycle that undermines government legitimacy, and keeps households trapped in poverty (Pain, 2008, p. 49). The informal sector also undermines government legitimacy and perpetuates a cycle of poverty and human underdevelopment.

The formal economy consists of all legal economic activities carried out by enterprises that are registered with the government. This economy forms the tax base of the Afghan government and is the source of most jobs that pay regular, consistent wages. The Integrated Business Enterprise Survey carried out by the ADB and the Central Statistics Organization in 2009, although utilizing a targeted sampling system, identified 402,000 enterprises registered as part of Afghanistan's formal economy (Central Statistics Organization, GIRoA, 2011). Formal GDP was US $20.7 billion in 2013 (World Bank, 2014c).

The formal economy plays a key role in generating government revenue and providing stable livelihoods for a segment of the population. Expanding the formal economy and the opportunities it provides for Afghan citizens is the primary focus of the private-sector development strategy in the Afghanistan National Development Strategy (ANDS). Donors' assistance is mainly channeled through the formal sectors, helping with registration, access to training and capital.

In 2004, activity in the informal and illegal economies was estimated to be equivalent to roughly 80 to 90 percent of formal GDP (World Bank, 2005, p. 122). It is likely that the proportion remains in this range today because the basic economics of the informal and illegal economies have not changed (Farhang, 2013).

The Informal Economy

As defined by World Bank, the informal economy encompasses licit non-monetized and unregistered activities (World Bank, 2005, p. 67). Unregistered activities are legitimate economic activities that are not registered as businesses with government authorities, and thus do not pay business taxes or abide by other regulations (Delawari, 2013). Non-monetized activities include subsistence agriculture for a household's own consumption, barter transactions between households or between households and service providers, and sharecropping in which a laborer receives a share of agricultural production in exchange for his or her labor. Another form of non-monetized activity occurs when members of a community cooperate in harvesting, threshing, or milling crops. Examples of unregistered activities are those associated with small shops and traders, small manufacturing, small-scale construction, animal product production and sale by the nomad

population, and the transfer of legally obtained earnings through the informal money exchange (*hawala*) system (Thompson, 2006, p. 43). From a political perspective, the informal economy marginalizes the population by keeping wages low and blunts civic participation.

Some of the World Bank reports estimate the size of Afghanistan's informal economy at approximately 45 to 55 percent of GDP (Blunch, Canagarajah, & Raju, 2001, p. 125) but others go as high as 85 to 90 percent including the illegal economy (Guimbert, Structure and Performance of the Afghan Economy, 2004). The largest proportion of the informal economy is in subsistence agriculture and livestock, where an estimated 90 percent of the working population earns a living (Central Statistics Organization, GIRoA, 2011-2014).

Approximately 90 to 100 percent of cereal production, livestock-related activities, horticulture, and other crop production occur in the informal sector. Industrial sectors have a high share of informality as well; approximately 50 to 90 percent of manufacturing, construction, and artisanal mining are estimated to be informal. Trade and other services include less informal activity, with only 10 to 50 percent of the activity in trade, transport, power, telecommunications, and other services estimated to be informal (Ibid).[6]

Although informal activities are legitimate, their informal nature has several disadvantages for both the government and individuals. First, these activities are not included in the government's tax base, meaning they do not contribute to public services. Second, they are not subject to government regulations that aim to protect consumers - for instance, food safety or sanitary regulations. Third, they are likely to be excluded from government assistance programs to the private sector, either because the government does not have a way to reach out to the participants or because they opt out, fearing fines or other types of penalties because they are not registered to do business, further marginalizing this group. Fourth, over time, informal businesses tend to be less productive, to grow more slowly, and to provide less stable employment than formally registered businesses (Blunch, Canagarajah, & Raju, 2001) (Leal-Ordóñez, 2010) (Loayza, 1997).

The Illegal Economy

The illegal economy encompasses the illicit treatment of legal goods and the outright production of illegal goods. Illicit treatment of legal goods includes the illegal trade (smuggling) of gems, antiques, and other goods and resources that are produced or extracted legally, as well as illegal trade that aims to circumvent existing laws and regulations, for example, by re-exporting imports into the country of origin to enable producers to avoid paying certain taxes (Delawari, 2013). The production of illegal goods includes the production and trade of opium, and the trafficking of arms and human beings. Additionally, informal money exchangers (*hawalas*) that represent the bulk of financial services provided in Afghanistan are also involved in the illegal economy through the laundering of revenue earned in the illegal economy (Ibid).

[6] The economic impact assessment model employed a conservative estimate for modeling a realistic economy, where 50% of total economic activity includes 35% in the informal economy and 15% in the illegal economy.

The most prominent components of the illegal economy are opium production and trade. These activities have continued to flourish since 2001. In 2000, just before losing power, the Taliban placed a ban on opium production, declaring poppy cultivation to be "un-Islamic." The ban was extremely effective in the short term; cultivation dropped from 82,000 hectares (ha) in 2000 to 8,000 ha in 2001 (UNODC, 2011, p. 2). However, opium poppy production increased in the aftermath of September 11, 2001, under the post-Taliban government. Market prices of opium skyrocketed during the ban, which provided a strong incentive for households to begin cultivating the crop.

When the Taliban left power, their ban on opium cultivation was no longer valid, so farmers began replanting their crops. By the time the interim Afghan government was established in 2002 and re-issued the ban on opium poppy cultivation, most poppy fields were already producing their first crop (Asian Development Bank, 2004, p. 23). Despite efforts to reduce poppy cultivation, it has remained at higher levels than at any time during the Taliban regime (UNODC, 2011).

The illegal economy has grown in the years following the fall of the Taliban. The production in hectares has more than doubled since 2002 from 80,000 to 209,000, but the income from opium has fluctuated much more as international prices have changed. In spite of the fact that Afghanistan has increased their world market share from 75 percent to almost 90 percent, Afghanistan opium producers continue to be price takers (UNODC, 2014a).

The value of opium exports in 2002/03 was estimated to be US $2.5 billion (Asian Development Bank, 2004, p. 23), and the value reached US $3.1 billion in 2013 (UNODC, 2013). Opium exports have remained high as a percentage of GDP in the informal economy, but they have declined as a percent of the formal economy as formal economic activity has grown. Opium exports were equivalent to 60 percent of GDP in 2002/03, 45 percent of GDP in 2007/08 (UNODC, 2009), and 15 percent of GDP in 2013 (UNODC, 2013). Afghanistan remains the world leader in opium production, accounting for 70 percent as of 2013 (UNODC, 2014b). Smuggling and other components of the illegal economy represent smaller shares of GDP, but are still substantial.

The impacts of the illegal economy are far-reaching; the illegal economy poses challenges for state building, governance, security, and economic development because opium and smuggling operations bring with them criminality, corruption, and violence. Revenue from opium production and smuggling strengthens warlords who collect 10 percent of the smuggler price of opium (Peters G. , 2009). These warlords undermine the state through violence and drug-related corruption and employ militias to protect themselves (Ahady A. , 2013). Afghanistan, as a fragile state, has been unable to establish the security necessary to diminish the opium economy.

On the other hand, opium production provides income and credit for many asset-poor households in Afghanistan. Rural residents engaged in the opium economy tend to participate in this activity when they do not have other options. For instance, when farmers' plots of land are too small to provide a subsistence living for their families from licit crops, they cultivate opium or work as laborers in opium fields (Farhang, 2013). Wages for laborers in the opium sector are roughly five

times higher than in other agriculture sectors, and opium is the only crop against which it is relatively easy to obtain credit (Asian Development Bank, 2004, p. 38). The illegal economy spills into the formal economy by increasing aggregate demand. Farmers and laborers earn income and wages that they can spend in formal sectors of the economy. The illegal economy also contributes to inflation through higher rural wages locally, and it contributes to currency appreciation when foreign currency earned in the illegal economy is exchanged for local currency (Delawari, 2013).

As specified in the ANDS, one of the top priorities of the Afghan government is to reduce opium production and the illegal economy (GIRoA, 2006, updated 2008). Afghanistan needs to transition back to a stable, trade-based economy in order to break the vicious cycle that the illegal economy has created.

International Trade

With respect to Afghanistan's international trade, broadly speaking, Afghanistan imports industrial goods and exports agricultural and natural resource-based goods. Major shares of imports are devoted to intermediate and capital goods, although virtually all non-food consumer goods are also imported. This is a pattern common to many developing countries, where much investment is aimed at displacing imports in the domestic market - an import substitution strategy. Unfortunately, Afghanistan does not currently have the underlying economic conditions or government capacity to implement a successful import substitution strategy (Farhang, 2013).

Afghanistan imports far more than it exports (Central Statistics Organization, GIRoA, 2013). In fact, the balance of trade is in deficit even after accounting for opium exports. In 2008, imports totaled approximately three times what exports totaled; in 2009, this doubled to six times exports; and the gap has continued to increase. Different sources include re-exports in their estimates rendering the ratio of imports to exports as high as 17:1 and as low as 8:1 for 2011 (still a significant imbalance). The growth in imports was concentrated in inputs for construction, energy, mainly transportation vehicles and machinery and to a lesser extent, intermediate goods; the imports in the agricultural sector are cereal for domestic consumption. It is important to note that the growing trade deficit was accompanied by an equivalent growth in the capital account; offsetting capital flows were always present to balance trade flows. During these years, there were significant influxes of aid and increased military expenditures, which would have led to increased imports (Farhang, 2013) especially vehicles and machinery.

A detailed examination of Afghanistan's imports and exports provides useful insights into the nature of economic activity taking place in the country, and more importantly in this context, the potential for gains from expanded trade within the region and beyond. The most characteristic of these statistics is that three or four types of exports accounted for approximately 70 percent of total exports. These were edible nuts, dried fruit (raisins), and hand-woven carpets. In 2013, high quality carpets represented 17 percent of total exports. This industry, often home based, constitutes a large employment base (Central Statistics Organization, GIRoA, 2013-2014). The most viable potential exports in the short term remain to be carpets and cash crops, including, saffron,

nuts and dried fruit. Edible nuts and dried fruit (raisins) account for 27 percent of formal exports (Ibid.). Anecdotal information shows that a large number of these commodities are exported to Pakistan off the books where they are re-exported to the rest of the world.

One of the largest import categories is for petroleum and fuel, accounting for 20 percent of total recorded imports in 2013 (Ibid.). This data indicates a sharp increase in the value of oil imports, from $409 million (2008) to $728 million (2009), and $1.7 billion (2013) (Ibid). Vehicles and machinery accounted for 14 percent of the imports in 2013, slightly less than the 15 percent from the year before. Additionally, a significant share of Afghanistan's import bill is consistently devoted to food and general consumer goods, such as edible oils, flour, tea, soap, cigarettes, milk, chocolate, and eggs constituting 18 percent of the imports in 2013, a third of which was wheat. The other main categories of imported goods are industrial goods and capital, including machinery, tires, cement, iron angles, chemicals, and electronic equipment. It is unlikely that Afghanistan will be able to produce many of these goods competitively for the foreseeable future and therefore will have to continue to import.

As was the case for exports, a relatively short list of 20 reasonably narrowly defined goods captures virtually all of Afghanistan's imports. Trade in Afghanistan, like the economy as a whole, is not highly diversified. As the country grows, the variation in the goods that it imports can be expected to increase more rapidly than the diversification of its exports. This is because countries that are successful specialize in the production and export of those goods for which they can be most competitive (i.e., in which they have a relative comparative advantage) (UN Comtrade, 2014).

A significant amount of imports are not passing through official channels; as a result, they enter Afghanistan unrecorded and untaxed and thus do not contribute to the Afghan government's revenue (Ahady A. , 2013).[7] Such informal trade is particularly active along the borders with Pakistan and Iran. Indeed, it is likely that the economy around Herat in western Afghanistan and along the Pakistan border in the eastern part of the country are considerably more closely integrated with the neighboring economies than with the rest of Afghanistan. Thus, establishing infrastructure that will more effectively integrate the disparate elements of the national economy will at the same time provide greater economic integration within the region and with the rest of the world.

Like many landlocked developing countries, Afghanistan has exports that are concentrated among a relatively small number of trading partners. Almost two-thirds of Afghanistan's exports (i.e., its average exports for 2008-2010) went to South Asia, in particular Pakistan and India. Most of the rest of the country's exports went to neighbors and near-neighbors, including Russia, Iran, Turkey, the Central Asian countries, China, and the Middle East (Ministry of Commerce, GIRoA, 2012) (UN Comtrade, 2014). The largest portion of the global economy, namely high-income, developed

[7] Customs revenue is a major component of Afghanistan's national budget. For the last three fiscal years customs revenue collections produced $698 million-$1.1 billion annually, accounting for 44-48 percent of total domestic revenue collection (SIGAR, 2014a).

countries (primarily the EU at 2.8 percent and the US at 1.7 percent), accounts for only a very small share of exports.

Afghanistan's largest source of imports is Central Asia, which accounted for 27.8 percent of total imports (i.e., average for 2008-2010), followed by the high-income developed countries, mainly Japan, the European Union, the US, South Asia, and China (UN Comtrade, 2014) (Ministry of Commerce, GIRoA, 2012). The high share for Central Asia was driven by a significant increase in imports from Uzbekistan, primarily of coal (i.e., $652 million in 2009 and $788 million in 2010) (UN Comtrade, 2014). Uzbekistan is the single largest source of imports, accounting for 18.5 percent of total average imports; Kazakhstan with 5.7 percent; Turkmenistan and Tajikistan, each with 1.8 percent, and Kyrgyzstan with less than one percent (Ministry of Commerce, GIRoA, 2012).

Afghanistan's total recorded exports fell from $540.1 million (2008) to $515.0 million (2013), a decline of 4.6 percent. The largest export categories tend to experience the highest rates of decline, mainly dried fruit and nuts, and carpets. (UN Comtrade, 2014)

Nearly one-half of Afghanistan's recorded exports went to Pakistan (45.6 percent), although during this period the amounts of exports declined sharply, at an average annual rate of 24.3 percent (UN Comtrade, 2014). India was the second most important destination for Afghan exports, with 20.5 percent of the total, but these too have been declining in recent years (Ministry of Commerce, GIRoA, 2012).

Despite declining markets, Afghanistan's exports to a number of other major markets have been growing: the United States at 316.7 percent, Turkey at 204.4 percent, the European Union at 166.2 percent, and China at 155.2 percent (Ibid). These markets offer Afghanistan significant scope for expansion and/or diversification of exports. Details of Afghanistan's exports to these countries reveal several useful insights. First, for each of these trading partners, there are significant levels of exports that are "not elsewhere classified (NEC)" under one of the SITC headings. Approximately one-half of Afghanistan's reported average exports to the EU and 80 percent of the average exports to China are NEC (UN Comtrade, 2014). Secondly, the year-to-year amounts of exports show a degree of volatility (UN Comtrade, 2014). Third, while the growth in goods exported to these countries generally is comprised of Afghanistan's traditional exports, this represents an expansion of the country's foreign markets and suggests that export-led economic strategies could have potential if pursued effectively with a new approach.

Monetary Policy Reform

In the last decade, the Afghan government focused on creating a sound macroeconomic environment to spur economic growth, with assistance from international donors. The government has undertaken reforms to introduce fiscal and monetary stability and to improve trade policy. Of the three components of Afghanistan's economy—the formal, the informal, and the illegal—the Afghan government's macroeconomic policies only directly impact the formal economy. However, the government's policies have indirect impacts on the informal and illegal economies because

these policies affect the broad incentives with which households and enterprises are presented. The Afghan government has pursued the establishment of a sound macroeconomic framework in order to increase the size of the formal economy and, in part, to give households and enterprises that currently participate in the informal and illegal economies incentives to engage in legal activities carried out in the formal economy.

To safeguard fiscal stability, the government has instituted a "no overdraft" policy, prohibiting the printing of currency to finance the government's deficit. The government introduced taxes, raising domestic revenue from negligible levels to over 4 percent of GDP in 2003 (Delawari, 2013). While this was not a sustainable strategy in the long run, in the early recovery years, it helped to establish macroeconomic stability, a pre-condition for economic growth. By the end of 2011, domestic revenues were 10.9 percent of GDP ((Ministry of Finance, GIRoA, 2014).

In the area of monetary and foreign exchange policy, the first major success of the Central Bank was to implement a currency reform. Between October 2002 and January 2003, the multiple currencies that had circulated since 1979 were replaced with a new *Afghani*. In a managed floating exchange rate regime, the Central Bank allows the exchange rate to fluctuate in line with market conditions. The Central Bank intervenes in the exchange market to smooth volatility, but it does not attempt to resist underlying trends of appreciation or depreciation. The major foreign exchange rate policy tool is the foreign exchange *auction*; such *auctions* were at first held weekly and are now held twice a week (Delawari, 2013).

Additional foundations for monetary stability were introduced in 2003 when the central bank was made legally autonomous from the government and introduced tools for targeting inflation. The bank established open market operations through which to manage the money supply and interest rates, thereby controlling inflation (Da Afghanistan Bank, 2006). The bank auctions overnight notes to commercial banks on a daily basis and 30-day notes on a weekly basis. The central bank has two additional tools at its disposal: the reserve requirement and overnight deposits and lending for commercial banks. However, it does not actively use these. The reserve requirement has remained steady at 8 percent, and overnight deposit and lending rates are set at a specified margin below (for deposits) or above (for lending) rates on capital notes (Delawari, 2013).

To stimulate international trade, the Afghan government rationalized customs tariffs and signed trade agreements with neighboring countries. Tariff rationalization included eliminating export duties, using the market exchange rate to value imports, and simplifying the tariff structure. Trade agreements were signed or renewed with India, Pakistan, Iran, Tajikistan, the U.S., and the European Union. The government has also undertaken an "accession" process towards joining the World Trade Organization, a process that is still ongoing.

The initial reforms enacted by the government established a more stable economic environment to restart growth after the previous decades of conflict. Real GDP grew at a compound annual rate of 9.0 percent from 2002 through 2011 (World Bank, 2014a). By definition, reported economic data only includes the formal economy.

The Central Bank has also demonstrated its ability to allow the *Afghani* (AFN) to U.S. dollar exchange rate to fluctuate in line with market conditions while remaining in a relatively stable range. The exchange rate has fluctuated within the ten-point band during the past eight years, and it does not appear to be under significant pressure (OANDA, 2014). Recently, at AFN 56.51 per U.S. dollar, it is above its 2004 level of AFN 46 per U.S. dollar, and the Afghani has appreciated slightly against other currencies such as the Pakistani Rupee and the Indian Rupee (Delawari 2013) (OANDA, 2014).

GDP Growth

Growth rates in the three main productive sectors of the economy, namely agriculture, industry, and services, have followed different trends in the post-Taliban period. Foreign aid has been an important driver of the service sector and one component of the industrial sector. Figure 5 below presents real GDP growth in *Afghanis* (MM) by year and sector (Central Statistics Organization, GIRoA, 2014).

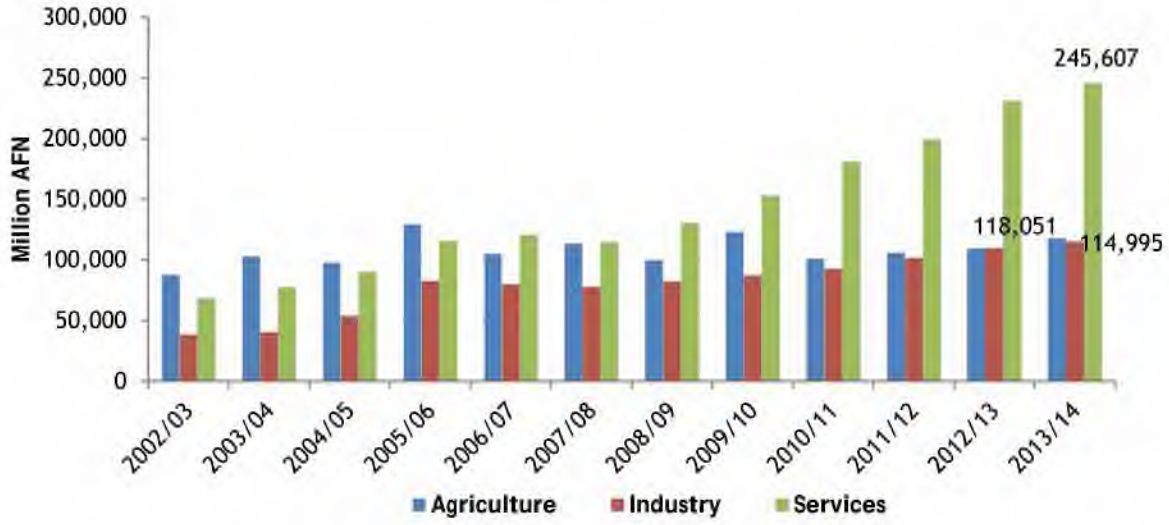


Figure 5. Afghanistan GDP in Constant (2002-03) Prices

In 2002, the agriculture sector contributed the most to economic recovery accounting for 45 percent of total GDP. The agriculture sector grew through 2005 as a result of favorable weather conditions, Afghan refugees returning to their homes in rural areas, and efforts by international aid agencies to increase the availability of better seeds and fertilizers (Rameen, 2013).

Between 2002 and 2013, the agriculture sector remained vulnerable to weather and contributed to overall GDP fluctuations. Agriculture in Afghanistan continues to be primarily subsistence-level, with less than six percent of agricultural land irrigated; most crop production is rain-fed (Ibid). Furthermore, the few existing irrigation networks depend on seasonal rain and snow. Afghanistan was affected by droughts in 2006 leading to a reduction in production (Ibid). Record precipitation led to a record harvest in 2009, which resulted in high GDP growth for that year.

In the industrial sector, construction has been the main driver of growth. Growth in construction is primarily due to the increase in public works such as roads, highways and irrigation systems, funding from international donors, and spending on projects for the military and security forces, such as NATO/ISAF military installations. Refugees returning from foreign countries have created additional demand for construction. The industrial sector has experienced consistent growth; however, it remains the smallest sector of the economy; approximately 24 percent of GDP in 2013 is attributable to the industrial sector.

In comparison to the other components of the industrial sector, manufacturing and mining have contributed very little to economic growth. Manufacturing activity, which is concentrated in small-scale processing of agricultural products (food, beverages, and textiles), is growing very slowly (Ibid). Mining currently accounts for less than one percent of GDP (Ibid).

The service sector was the main driver of GDP growth between 2002 and 2013. This growth trend, or "boom," is largely unsustainable because it depends on large inflows of foreign aid. Although a proportion of foreign aid was revenue to foreign companies, the aid had a substantial multiplier effect, increasing demand throughout the service sector. Donor representatives visiting the country increased the demand for lodging and restaurants. This, in turn, increased demand in wholesale and retail trade for the supplies, food, and beverages necessary to these establishments. Further, more goods flowing into the country to support donor projects increased the demand for transportation and storage services. Security spending also drove growth in the service sector through government-provided security forces as well as private security services (Central Statistics Organization, GIRoA, 2011) (Farhang, 2013).

A proportion of service-sector demand has come from domestic sources as economic activity has resumed and goods have been transported and traded around the country; however, the main driver of the sector is foreign aid. For example, security spending under the government's 2014 budget amounts to US $3.4 billion (Ministry of Finance, GIRoA, 2014).

Foreign Aid

Foreign aid played a critical role in Afghanistan's economy before the 1979-2001 conflicts, but it played an even more critical role in Afghanistan's post-2001 economic recovery. According to the Afghanistan Ministry of Finance Development Cooperation Report (2012), the international community committed US $85 billion in assistance to Afghanistan between 2002 and 2011. By December 2011, US $70 billion had been disbursed to the Afghan government. Even as Afghanistan's GDP increased, the amount of aid received grew at a faster rate, increasing from 55 percent of GDP in 2003 to approximately 93-97 percent by 2011 (Ministry of Finance, GIRoA, 2013).

The United States has led the international community's development efforts in Afghanistan. Other top donors were the United Kingdom, the World Bank, and the European Union/European Community, each of which donated four percent of disbursements. Additional donors providing more than US $1 billion in disbursements to Afghanistan from 2002 through 2011 include: Japan,

Canada, the Asian Development Bank, and the Netherlands (Ministry of Finance, GIRoA, 2012). Foreign aid flows often leak outside the country; some studies have shown that in certain cases up to 90 percent of the donors off-budget assistance to Afghanistan is not spent in the country (Ibid.).

Most international aid flows through security. Security-related sectors combined received 68 percent of the aid disbursed in Afghanistan in 2011, including within the external and the core budgets (Ibid). Over 90 percent of aid to the security sector is spent on operating costs, including salaries, supplies, and training (Ibid). The remaining 10 percent is spent on longer-term investment, such as building infrastructure. While a small portion of security sector spending is channeled through the core budget and funded by mechanisms such as the Law and Order Trust Fund (LOTFA), more than 92 percent of security sector spending comes directly through the external budget (Ibid). The international community is bearing the cost of Afghanistan's security sector: the U.S. government disbursed 95 percent of Afghanistan's external security assistance in 2011 (Ibid.).

The governance sector received the second-largest share of aid, with 9 percent of disbursements in 2011. These funds have been used to enhance government institutions. Infrastructure was the third-largest share of spending with 6 percent of aid spending. These funds have been used to construct roads, establish power, and rebuild the infrastructure associated with water supply and irrigation (Ibid).

The production and trade networks that sustained economic growth between 1930 and 1970 have not been fully rebuilt (Ministry of Mines, GIRoA, 2011). The ease of access to and the reliability of electricity remains a top constraint on private sector growth (World Bank and Department for International Development, 2009, p. 12). Trade and transit frameworks are not yet fully functional. The Afghanistan-Pakistan Transit Trade Agreement (APTTA), reached in 2010, has not yet been fully implemented. Afghan trucks were allowed to travel across Pakistan for the first time in June 2011, but only under a waiver that expired 60 days later. More work is needed to fully rebuild the ring road; a portion of the road in the west and the Salang Tunnel still require repair. Construction on many planned north-south and east-west roads has not yet begun, and railroad infrastructure is in its infancy. Irrigation, which played a key role in the development of export agriculture from the 1930s through 1970s, has not been revived. After a slight increase in the mid-2000s, the portion of agricultural land under irrigation as of 2009 was 5.8 percent, virtually the same level as it had been in 2001 (Rameen, 2013).

At present, Afghanistan's economy is heavily dependent upon foreign aid. It is possible that, when foreign aid is reduced in 2014 as part of the drawdown, a large driver of demand will be removed, and growth prospects will be seriously reduced. Some estimates assume that the growth rate will be cut in half (cutting growth rates from 10 to 5 percent), but other estimates assume an utter collapse in the economy with a 41 percent drop in GDP (World Bank, 2014b) (Rosenberger, 2011b, p. 3).

The president of the World Bank, Robert Zoellick, has warned that Afghanistan's economy is at risk of a "negative multiplier," which occurs when a withdrawal of funds precipitates an abrupt slowdown. While Afghanistan has been growing strongly over the past five years, this performance has been fueled by massive inflows of international military spending and aid. As the troops withdraw, these inflows of money from military spending and aid, as well as much closely linked private consumption, will shrink (Zoelick, 2011). This drastic decrease in spending could cause economic activities to slow or cease, resulting in increasing unemployment and destabilization with the state. These elements feed insurgency and provide incentives for citizens to engage in illegal economic activities. Increased insurgency and renewed violence could cause serious deterioration in the fragile security and governance institutions, which could lead to negative growth, throwing Afghanistan back into a downward spiral and aggravating the vicious cycle of the illegal economy.

Promising Sectors

Despite these bleak possibilities, Afghanistan and its donors can draw lessons from the country's past to rebuild a more sustainable economy and attract households and enterprises away from the illegal economy into the formal economy. Foreign aid received from the 1930s to the 1970s helped to establish a stable economy through the development of facilities and infrastructure that allowed Afghanistan to increase its domestic production, increase domestic trade internally across regions, and increase exports externally with its neighbors and international markets. The same productive sectors that drove growth in that period - agriculture and light manufacturing - show potential for growth today. Mining also shows potential, mainly as a source of government revenue that can help fund public services and other development initiatives. Services and construction may continue to grow if domestic drivers of growth can be fully cultivated.

In the agriculture sector, the production of fresh and dried fruit has been the most dynamic sub-sector over the past four years. In 2013, exports for dried fruit reached $137M (USD) and fresh fruit reached $18M (USD) (Central Statistics Organization, GIRoA, 2013). If productivity and market access can be improved, these cash crops can be a promising source of growth in the future. The U.S. government estimates that investments in market access infrastructures such as roads, cold storage and input provision, as well as increased technical assistance in quality assurance, could more than double the production of high-value crops by 2020 and increase the value of agricultural production by US$1 billion annually (USGS, 2011, p. 15).

In industry, most manufacturing is carried out by small and medium-sized enterprises. Manufacturing employment and revenue is concentrated in a few sectors. The food products and textile manufacturing industries account for over 80 percent of business establishments and 80 percent of jobs in the manufacturing sector (Central Statistics Organization, GIRoA, 2010). Given that these industries make up such a large share of activity in the manufacturing sector, there is potential to increase the sector's performance through initiatives that focus on developing the productivity of small and medium-sized enterprises.

Additionally, Afghanistan has a wide variety of fuel and mineral resources, including natural gas, oil, copper, iron, gold, silver, rubies, emeralds, lapis lazuli, asbestos, limestone, and other metals and minerals (USGS, 2011, pp. 45-63). The infrastructure to extract this mineral wealth is still in its infancy, but several large tenders have been awarded or are under Cabinet review, and many more are planned. The government expects mining, gas, and oil projects to generate revenues of US $1.5 billion in 2016, growing steadily each year to reach US $3.8 billion by 2026 (Ministry of Mines, GIRoA, 2011). The World Bank has estimated that the Aynak copper mine and the Hajigak iron ore project could create 120,000 jobs, and that as the mining sector is developed, an additional 165,000 jobs could be created in upstream and downstream activities (World Bank, 2014a) (USGS, 2011, p. 7). While this would represent strong growth in the sector, these employment numbers are small in comparison to the 17.5 million people engaged in agriculture. The mining sector holds strong potential as a source of government revenue and GDP growth, but is not expected to be a large driver of sustainable employment.[8]

The service and construction sectors have been important engines of growth to date for the private and public sectors, but they are currently supported by unsustainable foreign aid flows. The future of the service and the construction industries will depend on establishing sustainable growth in agriculture, manufacturing, and mining, which will in turn create demand for transportation and wholesale trade services, as well as for construction of facilities. The future of the service industry will also depend on growth in household incomes, which drives demand for goods and services sold through retail trade, financial services, personal services, and others.

The Silk Road

Geography has isolated Afghanistan from world markets in modern times, but historically, the region formed the center of the trade routes that constituted the ancient Silk Road. In 2011, the "Silk Road" framework for re-establishing Afghanistan as the trading hub for Central Asia was instituted by the U.S. State Department Under Secretary of State Hillary Clinton (U.S. Department of State, 2014). This framework centered around a regional economic integration strategy to stabilize and develop a sustainable economy for Afghanistan and to re-establish this landlocked nation as the hub of the trade routes forming the New, or Modern-day, Silk Road.

The Ancient Silk Road

For more than 1,000 years, the Silk Road was a trading network that linked the peoples of Europe and the Middle East with the vast riches of China. Regardless of their rulers, religions, or ethnicities, the towns and way stations along the routes—including the Afghan cities of Herat, Kabul, and Mazar-i-Sharif—grew rich from trade. Merchants invested their earnings in these cities, and local rulers raised palaces and monuments with the taxes and tariffs they collected. Industries sprouted up to serve the commercial hubs: inns, blacksmiths, and livestock herders (Farhang, 2013). The story of Herat, which bestrode several trading routes, is a good example of how the Silk

[8] Since 2010, TFBSO has enabled the Afghan Government to monetize its natural resources through private investment in exploration, development and extraction (see also the Minerals Resource Development section of this report).

Road could bring wealth to a city. Goods moved north to Merv and Bukhara, south to Iran, east to Balkh and China, and west to Rome and Byzantium. Medieval visitors described a prosperous town whose fields, watered by *qanats* (Persian-style underground irrigation systems), produced wheat, grapes, and apricots. The city had four gates, numerous shopping bazaars, a massive mosque, and a citadel. Islam was the religion, but a local Zoroastrian temple, a Jewish synagogue and a Christian church bespoke Herat's cosmopolitan atmosphere. The trade route also facilitated the spread of Islam and Buddhism into China from Central Asia (Ibid). With the end of Mongol rule in the 1300s, trading became difficult under the lawless rule of warlords and bandits. In the east, China's Ming dynasty (1368-1644) adopted isolationist policies that discouraged long-distance trade. The biggest blow came in the late 15th century, though, when the discovery of sea routes to India and China ended the reign of the Silk Road as a major trade corridor for Europe. No longer was it economical to carry goods along a land route when spices and silks could be transported less expensively by ship (Ibid). As trade volume diminished, local commerce in traditional products such as horses and spices endured, and some new trading patterns emerged, driven in part by demand for Indian tea. Cities like Samarkand, Bukhara, Herat, and Balkh remained centers of trade, culture, and craft, but the fabled Silk Road continued its long and gradual slide into insignificance (Waugh, 2007, p. 3).

The Silk Road made Afghanistan prosperous in the early years of its existence, although the clash of ancient and medieval empires kept the country divided: India's Moghal Empire controlled Kabul and the east; Uzbek emirs ruled the north (Kunduz, Maimana, and Mazar-i-Sherif); and western Afghanistan was more or less Persian territory, with Herat forming part of the Shiite Safavid Empire (Farhang, 2013). In the mid-18th century, an Afghan soldier named Ahmad Shah Durrani united the region politically and militarily in what historians consider the first Afghan state, although the region included parts of modern-day Pakistan, Iran, and the Central Asian republics. This Afghan "empire" began to crumble at Durrani's death, and by the early 19th century it had devolved into the Kingdom of Kabul, which was little more than a rump state picked over by resurgent Indian, Central Asian, and Iranian princes (Ibid). It was British and Russian expansion, however, that relegated Afghanistan to the role it played as a buffer state consistently for the next 200 years. As the British advanced into northwestern India, the Russians consolidated their hold on former Silk Road centers such as Bukhara and Samarkand. In two separate expeditions (first in 1839-42 and again in 1878-80), British commanders tried to seize and dismember Afghanistan, but both campaigns ended in failure. Returning British soldiers spread lurid tales of castration and torture that reinforced the image of Afghanistan as a harsh and lawless land (Ibid). During an 1894 truce in their century-long "Great Game" rivalry, the British and Russian governments agreed that Afghanistan best served their interests as a buffer state bounded by the Amu Darya River in the north and the Durand Line to the south and east. The Durand Line would ultimately form the boundary between Afghanistan and Pakistan (then British India), leaving Pashtun tribal territory on either side of the border, with repercussions for later Afghan history (Ibid).

Buffer State

British and isolationist native rulers neglected Afghanistan's transportation network even as railroads multiplied across India. No railroad development schemes, British or Russian, ever moved

beyond the planning stages. The reformist King Amanullah (r. 1919-1929) tried to advance the idea in the 1920s, but to no avail (Ibid). The 20th century increased the country's isolation still further. The emergence of the Soviet Union centralized Russian power in Moscow. Even before the Soviet invasion in 1979, Afghanistan was stagnating under a state-controlled economy and sporadic interventions from Cold War rivals the U.S. and U.S.S.R. A few roads, power lines, and other infrastructure projects had been built, but the country remained largely undeveloped, its people reliant on subsistence agriculture (Ibid). With the Red Army invasion in 1979, Afghanistan went from a buffer zone to a conflict zone. Private trade was forbidden, and a black-market shadow economy typical of communist regimes took hold, splintering commerce into legal and illegal domains. Educated Afghans fled to the West, and millions of refugees vanished into neighboring countries. As NATO's Civil-Military Fusion Center noted in a 2010 report, the results were disastrous:

> After the Soviet invasion, flights between Afghanistan and Western Europe were suspended. This, combined with the inability to sell surplus goods and an increasing reliance on Soviet staple commodities, exacerbated trade relations with the West and caused an almost 50 percent decline in total imports and exports. (Nijssen, 2010)

Soviet withdrawal and the elimination of the Russian-backed government in Kabul in 1992 fractured even those economic links that had survived the occupation. Any chance to reorient the Afghan economy toward the newly independent nations of Central Asia was thwarted by the country's descent into civil strife. A "war economy" based on narcotics trafficking and predation by local commanders emerged. Ironically, the devolution of central authority during this period boosted transnational trade as borders became more permeable (Farhang, 2013).

The Taliban, which seized Kabul in 1996, generated revenue by taking over roads, towns, airports, and border crossings. Andreas Wimmer and Conrad Schetter, German experts at the University of Bonn, calculated that by imposing a 6 percent tariff on imports, the Taliban was able to earn $2.1 billion in 1997 alone (Wimmer & Schetter, 2002). Although the Taliban regime was deposed in 2001, the cumulative damage done during the previous two decades has been difficult to reverse.

The New Silk Road

The New Silk Road Strategy was developed to address concerns that, despite successes that were measured in terms of hundreds of new schools and clinics, the country lacked an overarching development strategy that would move it towards economic sustainability and prevent an economic collapse after the military drawdown in 2014.

With this in mind, the U.S. and its allies can promote peace and stability in the region by helping to open new markets that connect Afghanistan to Central Asia, Pakistan, India and the global marketplace. Countries in the region are aware that in order to prosper economically, they must cooperate rather than exclude. While promoting connectivity in a landlocked state such as Afghanistan is challenging, the benefits will be transformative and the cost of failure too great to measure. Accordingly, the United States is promoting the New Silk Road initiative linking Central and South Asia in four key areas:

(1) Regional Energy Markets: With a population of more than 1.6 billion people, South Asia's economies are growing rapidly, and South Asia's demand for inexpensive, efficient, and reliable energy is growing in turn. At the same time, Central Asia is a repository of vast energy resources - including oil, gas, and hydropower. Directing some of these resources southward from Central to South Asia, through Afghanistan, would be advantageous for the region's energy suppliers and energy users alike. The U.S. has provided:

- Support for CASA-1000 regional electricity grid, including a $15 million contribution following the March 2014 World Bank commitment of $526 million and support for the CASA Secretariat;
- More than $1.7 billion in support of energy transmission lines, hydropower plants, and associated reforms in Afghanistan since 2010; and
- Adding 1,000 megawatts to Pakistan's power grid, supplying power to more than 16 million people.

(2) Trade and Transport: Improving trade and transit in South and Central Asia means improving the "hardware" of reliable roads, railways, bridges, and border crossing facilities. But it also means harmonizing national customs systems, bringing states into multilateral trade institutions, and getting neighbors to work together to break down institutional and bureaucratic barriers to trade. The U.S. has provided:

- More than 3,000 kilometers of roads built or rehabilitated in Afghanistan;
- Support for Kazakhstan and Afghanistan's accession to the WTO;
- Technical assistance for the passage of the 2010 Afghanistan-Pakistan Transit-Trade Agreement (APTTA), and support for the Cross-Border Transport Agreement (CBTA) between Kyrgyzstan, Tajikistan, and Afghanistan.

(3) Customs and Border Operations: Profitable regional trade depends in large part on speedy and efficient transit. It also depends on border security and good governance that prevents transit of weapons, drugs, and human trafficking. The U.S. works with regional partners to reduce border wait times, increase cooperation at key checkpoints and crossings, and prevent transit of illegal and dangerous material. With U.S. support:

- Since 2009, intraregional trade in Central Asia has increased by 49 percent;
- Since 2011, the average cost of crossing regional borders decreased by 15 percent;
- Customs procedures have been streamlined at seven Afghan border crossing points, resulting in expedited trade with average release time down from eight days in 2009 to three and a half hours in 2013, saving $38 million annually.

(4) Businesses and People-to-People: Regional economic connectivity is more than infrastructure, border crossings, and the movement of goods and services. Sharing ideas and expansion of economic markets also creates opportunities for youth, women, and minorities and enhances regional stability and prosperity. The U.S. has:

- Funded university studies for hundreds of Afghan students across Central Asia;

Methodology

Overview

A best practice, Economic Impact Assessment (EIA) was performed by combining a bottom up project investment-based assessment with a top down macroeconomic impact analysis. The methodology used to assess Task Force projects first employed a conventional macroeconomic Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE) model to assess the economy-wide impact and multiplier effect of Task Force projects. Second, Task Force performed project-specific cost-benefit analyses (CBA) along with proprietary Senturion political risk modeling to understand both the political and economic risks for more accurate project valuation. Finally, the model maps project specific CBA's into their macroeconomic multiplier impact across several sectors using an innovative "macro-micro data bridge". This integration of models and data directly between the business-level input and their macroeconomic impact combines the flow and output to yield micro and macroeconomic data that may enable policy makers and key stakeholders to make decisions with greater clarity.

The CBA examined the investment return of Task Force projects. These results were then subjected to Senturion modeling to determine how political factors would affect economic viability of any given project. These two modules can be employed as stand-alone methods to analyze the merit of any given individual project. The next step is to see how these individual projects are likely to perform over time in the larger Afghan economy, subject to economic growth and fiscal policies, focusing on broad components of the economy such as investment, savings, donor resources, informal and illegal economies, government expenditures / revenue and international trade. This analysis is performed by the macroeconomic components of the EIA model, *i.e.,* CGE and SAM resulting in the final outputs of Gross Domestic Product (GDP) and Government Revenue. Thus, the analysis will not only ascertain the profitability of any given project (or group of projects) based on a Senturion-risk adjusted cost benefit analysis, it will be followed by a determination of how this group of projects will affect the greater economy as reflected in GDP and Government Revenue.

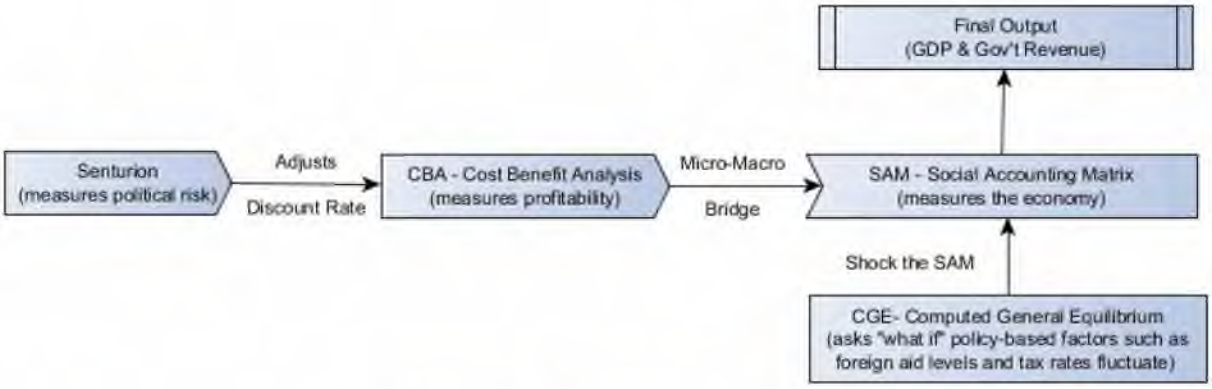


Figure 6. EIA Methodology Overview

Data Collection

This Economic Impact Assessment model relies on comprehensive macroeconomic and microeconomic data. The macroeconomic data referenced throughout this report is Afghanistan country-level GDP at the sector level, National Budgets Monetary, Fiscal, Price, Trade, Demographic, and Foreign Aid data. Macroeconomic data also incorporates information on Afghanistan's opium market. The microeconomic data referenced throughout this report is TFBSO project-level data from on the ground sources and expert studies. Multiple sources were utilized to collect the requisite macroeconomic and microeconomic data. The following subsections present the macroeconomic and microeconomic data collection process, data sources, and data limitations. Structured qualitative data was also utilized for political risk forecasting and modeling. This qualitative data was obtained from TFBSO, Afghan, and US Government Subject Matter Experts (SME's) familiar with the political and security risks of each project.

Macroeconomic Data Collection Process

Macroeconomic data collection began in September of 2013. The initial scope was to collect data for every year between 1960 and 2013. Not all variables were collected with the same level of success; Afghanistan macroeconomic data starts to become more consistent starting in 2002. Research was conducted over several months to determine macroeconomic data availability from the following sources: the Asian Development Bank (ADB), the International Monetary Fund (IMF), the Organization for Economic Cooperation & Development (OECD), the United Nations (UN), and the World Bank. Primary online databases include: the UN's Conference on Trade Development (UNCTAD), the UN's Food & Agriculture Organization (FAOSTAT), the UN's Office on Drugs and Crime (UNODC), and the World Bank's Economic Indicators.

In addition, research was conducted to determine macroeconomic data availability via Afghanistan online databases, to include data published by the Afghanistan Central Statistics Office (CSO), Da Afghanistan Bank (DAB), and the Ministry of Counter Narcotics (MCN). The Annual Statistical Yearbook published by the CSO is one of the primary data sources incorporated within the model. In

addition, the macroeconomic database incorporates data from the National Risk and Vulnerability Assessment (NRVA) (2007, 2011 and 2014) and the Integrated Business Enterprise Survey (IBES).

An on-site presence was required to collect historic data and current but non-digital data from the IMF and the Afghanistan CSO. Historic CSO Annual Statistical Yearbooks were collected from the CSO in Kabul, Afghanistan. Hard copies of historic and current but non-digital copies of the IMF's Government Financial Statistics Yearbook and International Financial Statistics Yearbook were collected from the IMF in Washington, DC. Often, the published data did not correlate between sources, raised theoretical questions about their validity or in other cases did not exist. In the cases of questionable data integrity, we consulted several experts to consistently build, reconcile and vet the necessary information to run the models. Once the data collection was completed, several methods of quality control were employed, from simple correlations to time series growth patterns, percentage allocations to the different components of GDP as well as comparisons to countries with similar economic profiles to ensure that the structural indicators were realistic (to include Myanmar which has an opium-based economy, although not to the extent of Afghanistan; Mozambique because of the donor dependency and conflict environment; Kosovo because of its trade imbalance; Kenya, Mozambique, Rwanda, and Sudan due to their agricultural-based economies; and Chad because of its literacy rate).

Macroeconomic Data Sources

The following table presents a summary of the macroeconomic data collected for the EIA model, to include the data variables, the years of data available for analysis, and the data source.[9] The data was collected in constant US dollars (several years), current US dollars, and current Afghanis.

Table 3. Macroeconomic Time series Data Summary

Economic Component	Data Variables	Years of Data[1]	Sources
GDP	Consumption, expenditures, gross capital formation, income, investment, production, remittances, savings, and wages.	1960-2013	ADB, CSO, DAB, UN, & World Bank,
Monetary	Broad money, foreign assets and liabilities, narrow money, outstanding loans and deposits, quasi money, and reserve money.	1960-1991; & 2003-2012	IMF
Fiscal	Government Grants, Taxes, including Income, Tariffs and Consumption, Other Government Revenue, Social Contributions and Taxes. Rates for individual goods and income levels were also collected.	2006-2012	CSO & IMF

[9] The data variables presented in the table include many subcomponents, and the "Years of Data" column presents a summary for the consolidated list of Data Variables. This means that GDP data may be available for all years between 1960 and 2013; however, 53 years of data may not be available for the savings subcomponent of GDP. Moreover, not all series were fully populated.

Economic Component	Data Variables	Years of Data[1]	Sources
Trade	Exports and imports by commodities, price, quantity, and country of origin and destination.	1960-2013	CSO, IMF, UN, & World Bank, UNODOC, UNCTADT
Foreign Aid	Foreign aid committed and disbursed, on and off budget.	1960-2013	CSO & OECD
Opium	Cultivation, prices at different levels of the value-chain, production, and yield.	1990-2013	MCN & UNODC
Prices	Consumer Price Index (CPI), exchange rate, interest rate, and the price of specific commodities.	1960-2013	CSO, IMF, & World Bank
Demographic	Birth rate, education achievement, employment, fertility rate, labor force, life expectancy, literacy rate, mortality rate, population, and unemployment.	1960-2012	CSO, IMF, UN, & World Bank

Macroeconomic Data Limitations

The following timeline summarizes Afghanistan's macroeconomic data limitations:

- 1960-1978: The quality of the data is mainly on par with other developing countries.
- 1978-1992: The Soviet occupation altered the system of accounting.
- 1992-2002: Data collection was limited during the reign of the Mujahedeen and the Taliban regimes.
- 2002-2014: Afghanistan data collection is more robust for some but not all economic indicators.

The most significant data limitation is the lack of technical coefficient data. Most countries have at least one Input-Output study; these studies are usually conducted in conjunction with economic surveys and censuses. However, Afghanistan has never conducted an Input-Output study and therefore technical coefficient data is not available for the country. The Eora MRIO Database publishes Input / Output (I/O) matrices for every country in a time series with different degrees of reliability according to the availability of studies and data. (Lenzen, Kanemoto, Moran, & Geschke, 2012) (Lenzen, Moran, Kanemoto, & Geschke, 2013). The 2011 Afghanistan I/O was adjusted and incorporated into the EIA model.

Records and capacity to construct country data for Afghanistan has improved tremendously since 2005. At the micro-level it was often a challenge to have records kept by the individual business, let alone the businesses that work in the informal and illegal economy that do not file information with the government. To compound this problem, there are some provinces that have not been

surveyed for many years due to security concerns; partly for the same reasons a census has not been conducted in decades.

The data collected for this project has been triangulated with many sources and vetted with many experts, local and international whenever questions arose. For example, the cultivated opium area in 2000 was 82,171 ha and, in 2001 it was only 7,606 ha according to UNODC and corroborated by other sources. The data was correct; Taliban was making a point. Another example, knowing that Afghanistan has mostly imported energy through the years, the data showed a period in the 1980s and 1990s when the country was exporting energy. This was during the Russian occupation as they were removing resources. In some cases decisions had to be made about conflicting information. Trade information showed ratios of imports to exports that could vary from 8 to 17 for the same year. This discrepancy was due to exchange rates, to re-exporting, to informal imports, to not including opium in some export statistics according to different experts. All their answers were considered and analyzed before reaching a consensus. Furthermore, even some CSO data was not detailed enough to inform the model. For example, in 2011 "change in inventory is in the same line with data discrepancies" and the total is a higher number than fixed investments. Experts provided information that the change of inventories should be no more than 3 percent of fixed investments.

The data set compiled in this study as well as the lack of data in key sectors should serve as a baseline for further analysis and data collection for the government of Afghanistan, as well as investors and academics. The inclusion of illegal, informal and donors on and off budget in the data helps paint the most realistic picture of the Afghan economy, even after selecting conservative assumptions about the size. For example, illegal is assumed to be 15 percent, informal 35 percent, and leakage of donor's off-budget 70 percent. The CBA data collected should serve as an example of the benefits that this type of effort offers to the decision makers.

Microeconomic Data Collection Process

Microeconomic data (TFBSO project-level data) collection also started in September of 2013. TFBSO government and contractor personnel provided the majority of microeconomic data. Task Force project data includes quantitative cost and benefit data as well as qualitative stakeholder data.

Stakeholder data for political risk was not collected for cancelled and completed TFBSO projects. Stakeholder data was also not collected for TFBSO human capital projects (human capital projects include training projects and projects that increase the technical capabilities of the Afghanistan labor force; to include Afghanistan government employees). Input data for Human Capital projects was collected in the form of individuals trained, or given the opportunity to attend and study in Afghanistan schools (K-12 and college).

The Task Force Comptroller Office provided all TFBSO cost data. The end-of-April 2014 financial report was collected to estimate the cost of all active and historic TFBSO projects. It was assumed that open contracts from fiscal year (FY) 2013 and FY2014 would have a total disbursement rate of approximately 86% before they were officially closed (the 86% burn rate was calculated using

historic contract expenditures). The Task Force financial report incorporates Other Contingency Fund (OCO) and National Defense Authorization Act (NDAA) funds.

Microeconomic Data Sources

This section presents a summary of the microeconomic data collected for the EIA model, to include a description of the data element and source.[10] Energy Program microeconomic cost and benefit data was provided by TFBSO oil and gas industry SMEs. These SMEs provided forecasted oil and gas production and prices for all four hydrocarbon tenders (Amu Darya, Totimaidan, Afghan Tajik I, and Afghan Tajik II). Additionally, TFBSO SMEs provided data on the long-term cash flows associated with domestic and international gas transmission, manipulation, and consumption.

Data for the Minerals Program was provided by the United States Geological Survey (USGS) and US Central Command (CENTCOM). USGS provided cash flow forecasts for the mining industry given estimated resource levels throughout the country. CENTCOM provided cost and benefit data associated with developing and maintaining a country-wide railroad for the benefit of mineral transmission.

Data for Indigenous Industries was collected from TFBSO project managers and SMEs. Forecasted carpets, cashmere, and artisanal cash flows were based on realized returns and anticipated industry growth rates.

The Investments Program provided detailed financial models for those companies receiving private investment support. In addition, the Investments Program provided feasibility studies for those industries and companies receiving Public Private Partnership assistance. Actual company revenue and cost data was collected from those Afghan businesses receiving Business Advisory support.

Long-term benefit and cost data for Historic projects was collected from agricultural SMEs, TFBSO project managers, Special Investigator for Afghanistan Reconstruction (SIGAR) reports, and open source research.

Microeconomic Data Collection Limitations for Projects

Limited-to-no human capital or revenue data is available for the following projects:

- Energy Program: Kashkari Demining, Kushka Seismic, and Micro-Hydro Power.
- Investments Program: Most of the companies that received Business Advisory assistance lack long-term financial data.
- Minerals Program: Village Stability Operations.
- Historic: Limited data is available on the outcome of the following historic projects:

[10] More detailed information on microeconomic data assumptions can be found in the Assumptions section in the Appendix.

- Agricultural Diversification & Revitalization: Data is not available on the current status of the Pomegranate Cold Storage facility. The Gereshk Facility and the Raisin Facility are currently closed; therefore, data is not available on the potential economic benefit of these projects.
- Industrial Development: The number of teachers impacted by the construction of the Herat Teacher's Training Institute is unknown. The human capital impact of enhancing the security infrastructure at a Judicial Building in Herat is also unknown.
- Banking & Financial System Development: The Economic Roundtable Conference project helped to train U.S. military personnel prior to deploying to Afghanistan; however, data is not available on the number of U.S. military personnel that participated in the training.
- Women's Advancement: Information on the benefit of the Women's Vocational School is not available.

Qualitative Data

Structured qualitative data was utilized for Senturion political risk forecasting and modeling. This data was obtained through consultations with subject matter experts that attempted to enumerate the political and security risks of TFBSO projects.

Cost-Benefit Analysis

The Cost Benefit Analysis (CBA) examined the economic viability of various Task Force projects based on best practice CBA analysis generally used for finance, policy and projects using Guidelines for the Economic Analysis of Projects (Asian Development Bank, 1997). These guidelines base the analysis only on the financial costs and benefits in the national economy in which a project is located (i.e., Afghanistan) to be included in the analysis (Adhikari & Weiss, 2003). Thus, the Internal Rate of Return (IRR) shows the return on national resources committed to the project, and Net Present Value (NPV) captures the change in national income for the economy (Ibid.).The CBA model computes benefit-cost ratio (BCR), NPV, and IRR as well as key input variables such as initial capital investment, operating and maintenance (O&M), and expected revenues. The analysis separates payments to government to analyze the project's impact on government income. This report presents time horizons from both a macroeconomic and specific project perspective.

Net Present Value

NPV is the discounted present value of all project benefits, net of costs. All present value calculations were computed beginning in 2010 (the inaugural year of TFBSO projects in Afghanistan). This approach allows comparisons between all TFBSO projects using project-specific discount rates derived from a consistent temporal viewpoint. Undiscounted costs and benefits were also reported to allow analysis of future cash flow projections without discount assumptions.

Technically, all projects with positive NPV should be initiated from a corporate finance perspective. However, as estimates are subject to a margin of error, it is a worthwhile exercise to study differences in NPVs between projects. Utilizing a base year is necessary for drawing

comparisons, as moving through time entails changing not only the exponential discounting factor (i.e., the number of time periods in the future before which a cash flow occurs), but also changing the discount rate itself as underlying credit conditions and other relevant factors shift the basis on which the discount rate is computed at a given point in time.

Benefit-Cost Ratio

Benefit-Cost Ratio (BCR) is calculated as the discounted value of present and future benefits divided by the discounted value of present and future costs. "The BC ratio is a useful measure because when there are a large number of proposals, there may not be enough resources available to undertake them all, even if they all have net present values greater than zero. As a rule of thumb, picking the projects with the highest BC ratios can lead to maximum value for money invested in terms of contributing to outcomes" (Ibid.). If the BCR is greater than 1, the project is an economically viable candidate. This report presents B/C ratios using discounted total benefits and discounted total costs on a 2010 basis, as these reflect the current value of expected benefits. The presentation of undiscounted costs and benefits allows the calculation of BC ratios on the basis of any other year and discount rate assumptions (or with no discounting depending on the type of project).

Discount Rate

All else being equal, a higher discount rate reduces the net present value of a project, and selecting a lower discount rate increases the net present value. The discount rate includes the following:

- Financial uncertainty and risk. There is necessarily some degree of uncertainty as to the relative risk associated with the realized returns on a given project. The higher the risk, the higher the discount rate. (New Zealand Treasury Department: Business Analysis Team, 2005, p. 27).
- The "rate of time preference." Most people prefer consumption now rather than later. Thus, a dollar available now is more highly valued than one received later.

In the context of Afghanistan, it can be argued that the relatively high risk level, insecurity, and instability should be reflected in a higher discount rate. The Asian Development Bank uses a base case financial discount rate of 12 percent in evaluating projects in post-conflict fragile states.

Risk-Adjusted Discount Rate

Although CBA best practices capture financial uncertainty and risk well, they do not take into account the political dynamics and risk inherent in a post-conflict Afghanistan. Used by the World Bank and the US Government, Senturion analysis of political and security variables revealed risks that called for adjusting the discount rate. (World Bank, 2005) (Nunberg, Abdollahian, Green, & Perlman, 2010) and (Abdollahian, Baranick, Efird, & Kugler, 2006). For example, if the political risk is 13.0% (in the Upstream Hydrocarbon Project Afghan Tajik I), the total discount rate is adjusted to

25.0% from the baseline 12% financial discount rate. For historical projects, there is no need to account for political dynamics and apply political risk as these projects have been completed.

Internal Rate of Return

IRR is the discount rate that could be paid for a project that would leave enough money to cover investment and operating costs while still allowing the investor to break even. In other words, IRR is the discount rate for which the present value of total benefits equals the present value of total costs (Shively & Galopin, 2009). If the IRR exceeded the Senturion Risk-Adjusted discount rate, the project could be profitably undertaken.

Senturion Model

A major criticism of development projects is that they seldom adequately take into account various external effects on projects, such as political or social conditions, uncertainty and risk (Nunberg, Abdollahian, Green, & Perlman, 2010) (Abdollahian, Baranick, Efird, & Kugler, 2006, p. 3). Many project CBA's in feasibility studies are often overly optimistic because they ignore some intangible risks or challenges, such as political hurdles to implementation. It is also important to acknowledge the limitations of quantitative analysis, which cannot easily come to grips with intangibles, such as the economic gains from activities that contribute to increased security and stability or that engender the environment for private sector investment. This is particularly important in a conflict-affected fragile state such as Afghanistan. Senturion modeling remedies these deficiencies by simulating the political dynamics within regional, domestic, and international contexts and by predicting how the positions of key groups and actors will evolve over time (Abdollahian, Baranick, Efird, & Kugler, 2006, p. 4).

Senturion fuses advances in predictive analytics with SME inputs to anticipate political outcomes in advance. Senturion maps and tracks political, social, economic and military stakeholders' interests, to accurately predict how these interests will act, react and interact with each other to determine political outcomes. Using this baseline, Senturion can identify successful courses of action to shape political outcomes, simulate multiple hypothetical scenarios of interest, and identify early warning events for significant change (Abdollahian, Kugler, Nicholson, & Oh, 2010).

Working with SMEs, Senturion's first generates a 'snapshot' of the current political landscape on an issue selected for analysis (e.g. political support/opposition for a particular TFBSO project). SMEs provide structured inputs on individuals, groups and entities, on the different political positions they adopt, their potential to influence outcomes, and how important the issue is to them. Using proprietary Agent Based Modeling, spanning game theory, network and risk analysis, Senturion simulates stakeholders' round-by-round political interactions, animating the picture into a 'movie' to show the dynamics of how political interests and outcomes will likely evolve. Using this base that reflects current conditions, analysis can explore implications of different strategies, courses of action, or policy approaches. Senturion can help determine if and how political outcomes can be shaped in advance. Senturion can simulate outcomes from hypothetical scenarios that might take place. The baseline assessment, policy shaping and hypothetical scenarios directly address changes

along the specific issue of interest. At each step the interaction among issues and the coalition among agents emerge, providing specific insights about individual interactions and potential opportunities to alter them.

In 2005, the US Defense Intelligence Agency (DIA) selected Senturion as the world's premier software capability on both predictive functionality and ability to execute (Defense Intelligence Agency, Research and Requirements, 2005). In 2007, the Joint Warfare Analysis Center verified and validated Senturion. Over the last 10 years, Senturion has been deployed to over 35 different enterprises, including the US Intelligence Community, Department of State, DoD, the World Bank, the United Nations as well as private sector companies. This methodology has been applied across diverse disciplines, including diplomacy, military campaigns, economic accords, and business negotiations (Ibid.). In the current Afghan context, where the potential for intense political conflict remains high, it is important that TFBSO best practice economic analysis be augmented with realistic political impact assessments.

Senturion Processes

The Senturion computer simulation analysis was conducted in six steps (Ibid.):

1. Framing of the issue. Asking the correct question is arguably the most pertinent step to getting the best predictive answer to any problem.
2. Identifying the issue. The issue must be linear and monotonic, *i.e.*, arranged from the worst possible outcome on one end to the best possible outcome on the other end.
3. Developing a continuum by defining the range of possible outcomes pertaining to the issue.
4. Inputting the data. The data on stakeholders were obtained by either interviewing subject matter experts or obtaining information through open-source media reports combined with academic knowledge.
5. Identifying the individual stakeholders and the groups to which they belong.
6. Identifying the level of group influence. Level of individual influence, individual salience in regard to the issue, and individual position were defined on the issue continuum.

These six steps were undertaken in four phases: 1) framing, 2) input, 3) modeling, and 4) output (Ibid).

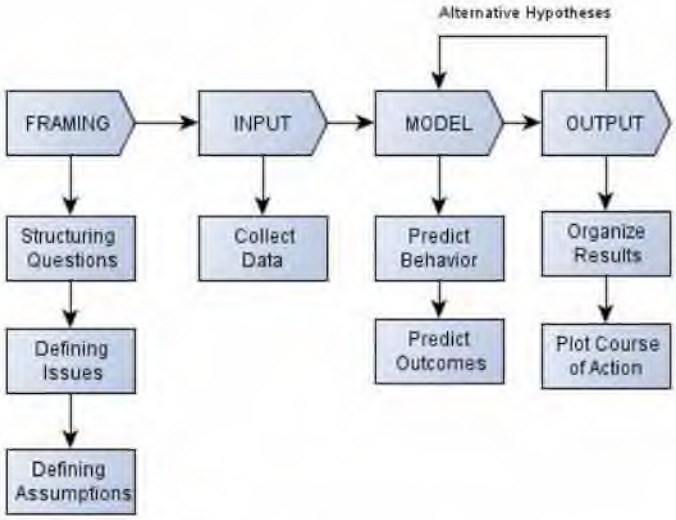


Figure 7. Four Phases of Senturion

Framing provides an opportunity for analysts and SMEs to challenge factual underpinnings before inputting into the model. Inputting involves a collaborative contribution of data by SMEs to populate the model. First, the stakeholders and the groups to which they belong must be identified; this is followed by SME determination of individual and collective policies, power, and salience. The group and stakeholder modeling require the prioritization of divisive issues, probable outcomes, and available solutions. The output provides forecasting of complex dynamics while permitting SMEs to introduce additional variables to identify successful courses of action.

Position, Power and Importance

The model defines the political landscape based on stakeholders, position, influence, and importance. For any given issue, the first task in defining the political landscape is to identify the stakeholders. The second is to identify the position each stakeholder has adopted. Third, one must assess which stakeholders are in a position to influence the outcome. Fourth, the importance of the issue to the stakeholder must be determined (Ibid.). These phases are illustrated below in Figure 8:

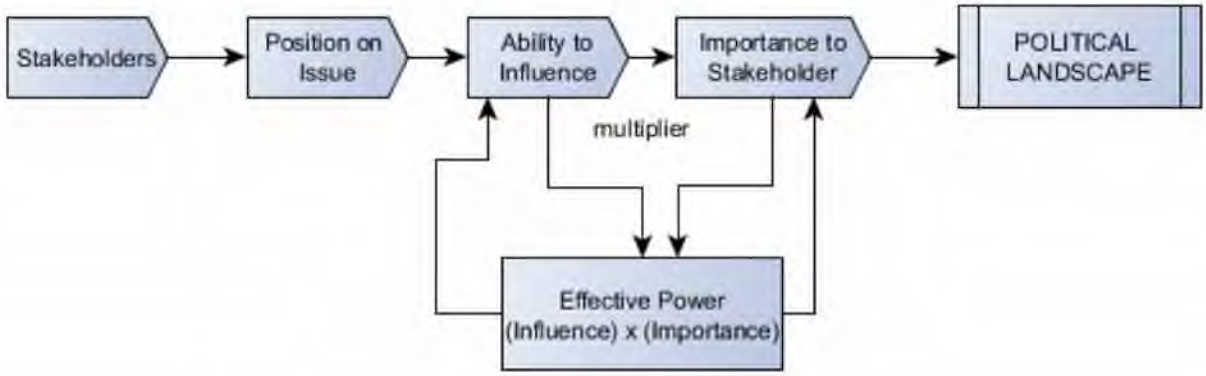


Figure 8. Senturion Stakeholders

Position on Issue (Policy): This is the stakeholders' preferred or stated position based on the defined range of positions on the issue continuum. The following scale was implemented specifically for this analysis:

- *0–20: Actively Oppose:* Publicly voices opposition and actively seeks to prevent implementation through political means or by force.
- *21–40: Passively Oppose:* Voices opposition in private.
- *41–60: Neutral:* Indifferent such that the stakeholder may be persuaded to adopt alternate positions depending on external influences or incentives.
- *61–80: Passively Support:* Voices support in private.
- *81–100: Actively Support:* Publicly voices support and actively seeks to ensure successful implementation.

Ability to Influence (Power): The group having the most power and the individual within the group are indexed at 100. Each stakeholder is assigned a value relative to the most powerful stakeholder. For example, two stakeholders with influence scores of 30 and 70 combining their power will be equal to the most powerful player at a score of 100 (Acertas, 2013).

Importance to Stakeholder (Salience): This defines how important the issue is to each stakeholder. It measures the stakeholder's willingness to achieve the desired policy position. Table 4 presents the data collected from TFBSO SMEs on stakeholder position, influence, and importance related to the Upstream Hydrocarbon project group.

Table 4. Senturion Stakeholder Values, Upstream Hydrocarbon Project Group

Stakeholder	Group	Position	Indiv Influence	Grp Influence	Importance
President Ghani	President	75	100	100	30
Presidential Economic Advisor	President	75	90	100	30
Presidential National Security Advisor	President	75	90	100	30
Presidential Legal Advisor	President	75	80	100	30
Prime Minister Abdullah Abdullah	Prime Minister	75	100	100	30
Former President Karzai	Former President	75	100	30	30
Upper House	Parliament	50	65	85	30
Lower House	Parliament	50	100	85	30
Abdullah - Ministry of Commerce & Industry	Council of Ministers	90	30	85	70
Abdullah - Ministry of Defense	Council of Ministers	50	10	85	30
Abdullah - Ministry of Foreign Affairs	Council of Ministers	50	10	85	30
Abdullah - Ministry of Mines & Petroleum	Council of Ministers	100	100	85	88
Ghani - Ministry of Economy	Council of Ministers	50	10	85	30
Ghani - Ministry of Finance	Council of Ministers	90	70	85	80
Ghani - Ministry of Interior Affairs	Council of Ministers	50	10	85	30
Ministry of Agriculture Irrigation & Livestock	Council of Ministers	50	10	85	30
Ministry of Energy & Water	Council of Ministers	90	70	85	70
Ministry of Health	Council of Ministers	50	10	85	30
Ministry of Justice	Council of Ministers	50	10	85	30
Ministry of Public Works	Council of Ministers	50	10	85	30
Afghan Gas	Other Afghan Government	75	1	75	50
Afghan Petroleum Authority	Other Afghan Government	100	100	75	94
Geological Survey	Other Afghan Government	100	30	75	50
Central Bank	Other Afghan Government	100	10	75	80
Provincial Governors	Other Afghan Government	50	30	75	30
Dragon Oil TPAL and Ghazanfar Investment Ltd	Private Sector	100	100	100	87
Afghanistan Chamber of Commerce	Private Sector	75	10	100	30
Environmental Groups	Civil Society	50	75	10	30
Media - TOLO TV	Civil Society	50	38	10	30
NGOs	Civil Society	50	38	10	30
Religious Leaders	Civil Society	50	100	10	30
Think Tanks (Johns Hopkins School of Advanced Internatinoal Studies)	Civil Society	50	38	10	30
Tribal Elders	Civil Society	50	75	10	30
Asian Development Bank	Donor Agencies	100	50	20	30
United Nations Assistance Mission in Afghanistan	Donor Agencies	50	1	20	30
United States AID	Donor Agencies	75	20	20	30
United States Department of State	Donor Agencies	90	20	20	30
TFBSO	Donor Agencies	100	100	20	90
World Bank	Donor Agencies	90	20	20	30
India	International Community	50	33	19	30
Iran	International Community	50	100	19	30
Pakistan	International Community	50	100	19	30
Russia	International Community	50	67	19	30
Turkmenistan	International Community	50	1	19	30
Central Asia Regional Economic Cooperation	Regional Organizations	50	100	7	30
Economic Cooperation Organization	Regional Organizations	50	100	7	30
Shanghi Cooperation Organization	Regional Organizations	50	100	7	30
South Asian Association for Regional Cooperation	Regional Organizations	50	100	7	30
Taliban	Insurgents	50	100	20	30
Haqqani	Insurgents	45	1	20	30
Hezb-e-Islami	Insurgents	50	65	20	30

Senturion structured SME inputs create a current snapshot of the political landscape as shown below.

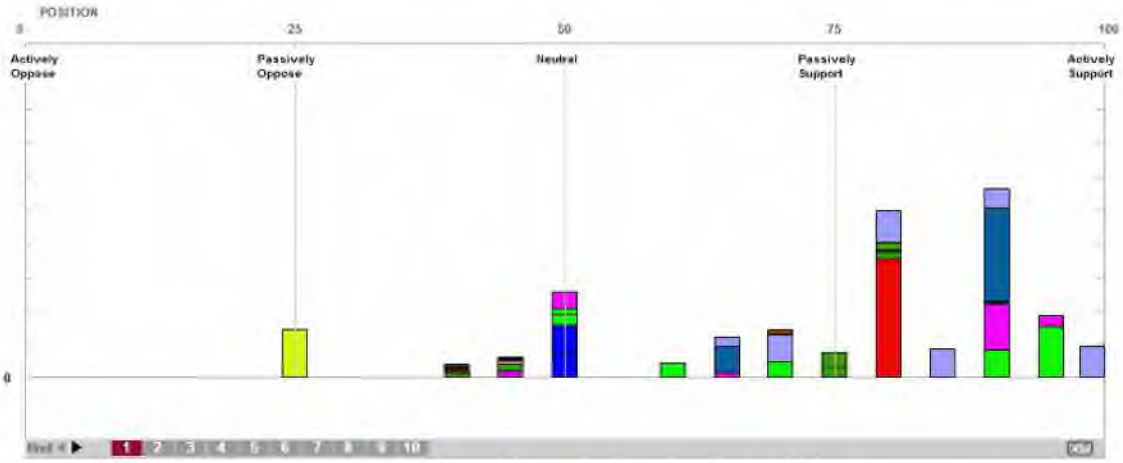


Figure 9. Upstream Project Senturion Initial Run

Subsequent modeling and simulation allows the animation and anticipation of political dynamics - how stakeholders are likely to act, react and interact - over time (Abdollahian, Baranick, Efird, & Kugler, 2006) and (Acertas, 2013). The first round is a feedback of the model inputs, which is followed by an "animation" of the political landscape (Figure 9) through the issue continuum into a dynamic simulation that depicts how the political interests will shift over time. Each round is an interaction among groups and stakeholders, modeling the pulling and hauling of the political process. The final round (Figure 10) is arrived at when the cost of political negotiating exceeds the benefit of continuing. As is evident, over time, the model forecasts that more key stakeholder groups will consolidate towards actively supporting the project.

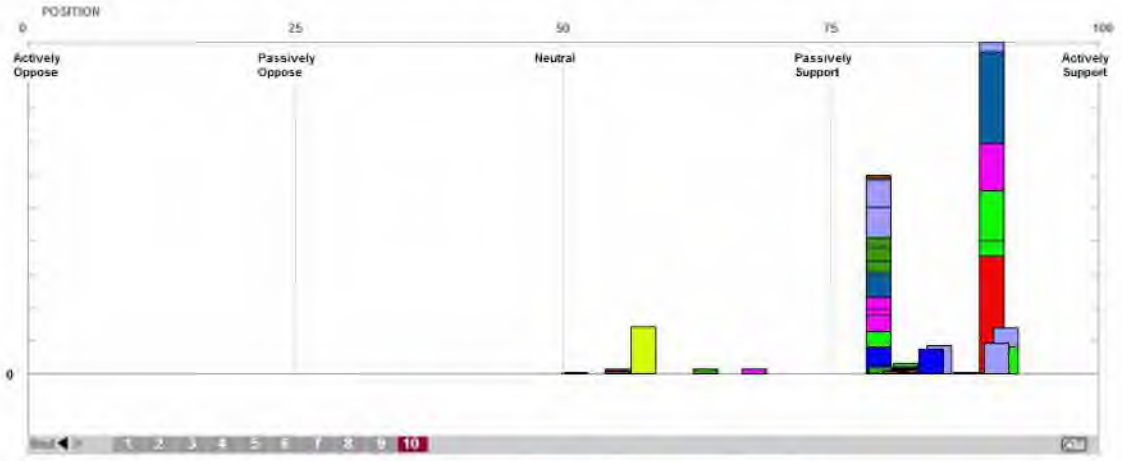


Figure 10. Upstream Project Senturion Final Run

Macroeconomic Analysis

A macroeconomic model of the Afghan economy was required in order to quantify the medium and longer-term macroeconomic impact of TFBSO projects. An approach marrying Computable General Equilibrium (CGE) modeling and dynamic Social Accounting Matrices (dySAMs) pinned to World Bank forecasts from parsimonious forecasting models was chosen to analyze cross-sectoral and economy wide impacts of the Task Force projects. This approach allows exploration of macroeconomic scenarios across time under assumptions of different Task Force project ensembles, and subject to a variety of potential exogenous shocks and growth rate assumptions.

At the national level, macroeconomics analyzes economic growth and fiscal and monetary policies, usually focusing on broad components of the economy reflected in the National Accounts. For example, key macroeconomic indicators include aggregate employment, investment, savings, government expenditures, monetary measures, and aggregate international trade and capital flows (Niimi, 2008, p. 3). The scope of our macroeconomic analysis in the context of Afghanistan as a post-conflict society, focused on macroeconomic analysis of donor's assistance, employment, government revenues and GDP.

Afghanistan's Social Accounting Matrix (SAM) represents the flow of income and expenditures across the national accounts. The SAM was created using Afghan CSO and international data as main sources. The SAM includes informal and illegal sectors, and depicts the donors sector as a separate entity. The agents include households (urban, rural, formal and informal), firms, government income and payments, investment and rest of the world. Year 2011 is the benchmark year due to breadth and depth of data availability. The activity sector includes 21 sectors which is the most detailed macroeconomic model of the Afghan economy currently in the public domain. The information presented is in millions of 2011 AFN (exchange rate = 47.7).

Furthermore, this approach addresses well-known limitations of CGE modeling. The SAM's granular mapping of sector specific inputs and outputs captures realistic Afghanistan economic activity, which enables it to dovetail well with TFBSO projects. Unless otherwise noted, macroeconomic and project level data throughout this report is in 2011 current US dollars and the projections use that as a base. Project level CBA data is in current 2011 US dollars. No adjustments are made for inflationary changes in prices; fluctuations are due to changes in quantities produced or sold and exported or payment received.

Employment Creation/Generation

This analysis considered the following classifications of employment: 1) direct, 2) indirect, and 3) induced. Direct employment consists of jobs created during the construction, operations, and maintenance phases of the project—that is, the employment generated by the project itself. The indirect and induced employment figures were calculated on the basis of multipliers that were derived and calibrated on sectoral comparison in other contexts and similar projects. Indirect employment was generated through spending and expenditures from the supply chain. Induced employment was generated through spending by direct and indirect employees, including taxation.

The SAM matrix through its flow affects impact the economy starting with training- considered human capital and employment generation through sectoral multipliers and productivity corrections (Cohen & Soto, 2002). These projections were assessed to ensure that the underlying assumptions were consistent with the assumptions made in similar projects.

Revenue Generation

Government revenue projections were derived from project studies, interviews and the Afghan Ministries of Finance, Commerce, Transport, and Mines, as well as the Central Bank. The calculations were made in net terms for those projects that contributed to revenues in royalties, tariffs, fees, customs, taxes, and trade revenue flow. All figures are reported in 2011 constant US dollars.

Gross Domestic Product

Economic growth is indicated by an increase in the overall size of a country's economy measured by output. GDP measures the economic output of goods and services produced within a country during a given year. All figures are reported in 2011 constant US dollars.

The predicted impact on Afghanistan's GDP growth by any project is driven mainly by shifts in exogenous factors such as increased exports or government revenues. Usually, GDP is calculated at the national level. This analysis used quantitative data from the CSO and the Ministries of Finance and Commerce and attempted to measure the impact of each project on nominal GDP using the Expenditure Approach (demand = supply) (Niimi, 2008, p. 6). According to Gillett, "It must be kept in mind that GDP is an estimate of economic activity; it is seldom a precise calculation" (Gillett, 2009, p. 7). The GDP calculations presented herein were undertaken in full recognition of the complexity of the task of calculating GDP at a national level. Thus, ascertaining the nexus between any given project and GDP should be viewed conservatively as estimations.

Social Accounting Matrices

The Social Accounting Matrix (SAM) is a tool used to capture varied components of Afghanistan's economy such as government and private consumption and savings, etc. Social Accounting Matrices capture the structure of the macro economy by identifying the relevant agents in the economy (households, government, industries, the rest of the world, etc.) and quantifying all of the economic flows between these agents. An accurate and detailed representation of the Afghan economy has been created through SAMs to evaluate the impact of Task Force projects on the overall economy in Afghanistan.

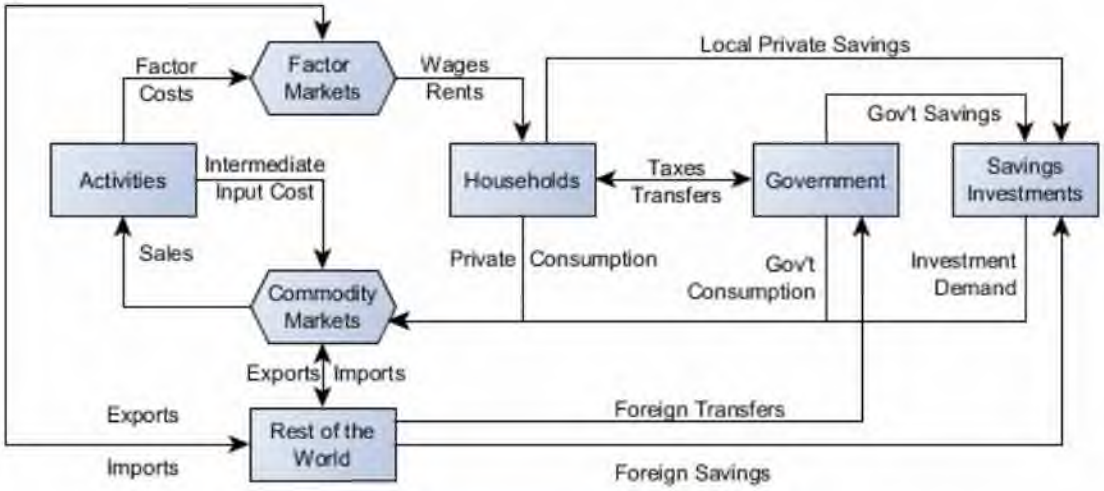


Figure 11. Representative SAM Matrix Inputs

In Table 5 below, every agent is represented in both a column (tracking all of the expenditures by the agent) and a row (tracking all the receipts of the agent). These accounts must balance such that the sum of a row's inputs is equal to the sum of a corresponding column's outputs. For example, the Households row shows income from Labor & Capital, subsidies and social security. The households' column shows how that income was used by households for example, household consumption and paying income taxes or tax penalties. Thus the household income and consumption must balance. This approach gives a snap shot of the economic flows within that year and is useful to understand the relative performance of the sectors in a country, how they interact, as well as any data issues which need to be addressed by the country's statistical offices to improve future analysis.

Table 5. SAM matrix for Afghanistan depicting the flows of income and expenditures[11]

	Activities	Commodities	Factors	Households	Government	NGO	Savings	RoW	TOTAL
Activities	INTERMEDIATE CONSUMPTION	PRIVATE CONSUMPTION OF MARKETED COMMODITIES			GOV. CONSUMPTION	NGO INVESTMENT	PRIVATE AND PUBLIC INVESTMENTS	EXPORTS (fob)	
Commodities				HH CONSUMPTION					
Factors	VALUE ADDED								
Households			LABOR AND CAPITAL INCOME		SUBSIDIES				
Government	TOTAL TAXES	TOTAL TAXES		TOTAL TAXES					
Consumption Taxes		CONSUMPTION TAXES							
Taxes on Production	TAXES ON PRODUCTION								
Import Tariffs	IMPORT TARIFFS								
Income Taxes				INCOME TAX					
Foreign Aid								**AID IN BUDGET**	
Penalties				PENALTIES FOR TAX EVASION					
NGO								NET CAPITAL OUTFLOW	
Savings				HH SAVINGS	PUBLIC SAVINGS				
RoW	IMPORTS (cif)					NGO SAVINGS			
TOTAL	-	-	-	-	-	-	-	-	

Computable General Equilibrium Modeling

The Computable General Equilibrium (CGE) modeling approach was chosen for analyzing the macroeconomic impacts of TFBSO projects. It builds upon the high-resolution picture of the economy provided by the best available current data and SAM by specifying a system of equations that track the relationships between the accounts of an economy's actors. The accounts are further rebalanced using a cross entropy method and the parameters are calibrated such that in equilibrium, all economic relationships interact. These equations then serve to describe how the economy is likely to change across sectors in response to exogenous shocks such as foreign aid or fiscal policy changes.

A CGE model consists of equations describing model variables and a very detailed database consistent of input/output matrix and sectors, household's commodities and primary factors and elasticities of substitutions (Armington) and expenditures, consistent with the equations. The equations respond to neo-classical assumptions, assuming cost minimizing behavior by producers, average cost pricing, elasticities to capture behavioral responses, and household demands based on optimizing behavior (Lofgren, Harris, Robinson, Thomas, & El-Said, 2002).

These models are a more sophisticated and flexible version of early Leontieff and Johansen models and allow to estimate the effects of changes in one part of the economy upon the rest, for example the effects of policies such as changes in taxes, donors assistance or project investments on GDP growth (Dixon & Jorgenson, 2014).

[11] Factors and Households include Labor and Capital, Urban and Rural, Formal and Informal in separate Categories. Activities and Commodities include 21 sectors. CIF (Cost, Insurance, and Freight) and FOB (Free on Board).

Dynamic SAM manipulation and the "Micro-Macro Data Bridge"

The dynamic SAM approach provides the highest-resolution picture of realistic Afghan economic activity currently possible. The Macro-Micro bridge models the impact of TFBSO projects across various sectors of the Afghan economy, capturing for example the economic multiplier of capital intensive mining projects across the public and private sectors. The approach allows for changes to the SAM over time using exogenous forecasts as well as across different possible futures by incorporating TFBSO project level CBA assessments into the SAM. TFBSO projects impact very specific parts of the Afghan economy, and therefore impact specific accounts in the SAM for the most detailed and realistic exploration of macroeconomic impacts currently available.

> If the Micro-Macro Data Bridge were not employed, the direct and indirect impact from the individual projects on the macro economy would not be available. This analysis allows decision makers to trace the projects' impact on trade, household consumption and government revenue among others.

The integration of TFBSO project-level CBAs, the Afghan SAM, macroeconomic CGE model and macro-micro bridge is illustrated in the figure.

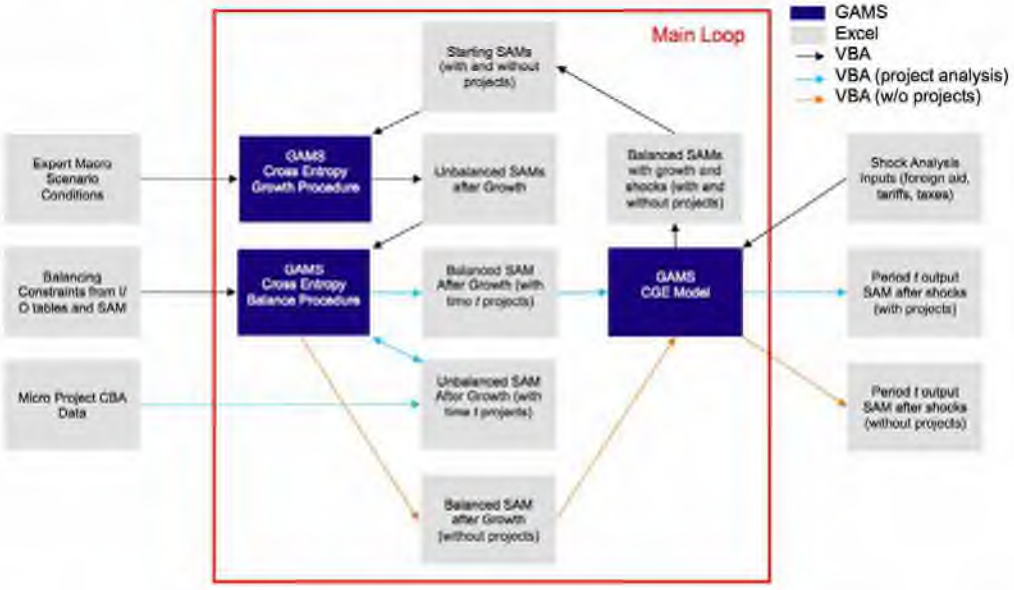


Figure 12. GAMS/Excel Integrated Engineering Flow Chart

Exogenous growth forecasts and other policy constraints are inputted in every iteration and intermediate data is extracted. The main process is one of changing and rebalancing the SAM according to any exogenous economic flows, as well as subjecting the model to any economic, policy or exogenous shocks that have been specified. Intuitively, this allows for a comprehensive and accurate economic impact assessment of TFBSO projects in a politically uncertain Afghan context.

To illustrate, the integrated model may begin with a starting SAM representing the Afghan economy in 2013. On an expert macro forecast assumption that does not take into account TFBSO projects, the economic activity represented in the starting SAM will be increased by a specific percentage, then rebalanced to correct any distortions. This new SAM will then become the basis for two alternative 2014 SAMs, one of which is further increased in specific accounts to capture the additional economic growth expected to result from the continuation of a given TFBSO project or set of projects. This "with project" SAM is similarly rebalanced to correct distortions. This allows direct and accurate comparisons of Afghan economic resilience to foreign aid decreases for example, with and without project continuity, as each of these SAMs ("with" and "without" projects) would then be subjected to an exogenous shock in the CGE model, and new SAMs representing the resulting economy would be created. From each of these SAMs, the integrated model can then extract GDP and other pertinent economic metrics for that year. [12] Furthermore, these two "with" and "without" SAMs then become the basis for the same loops in 2015 and can be repeated.

[12] The CGE and other operations were performed using General Algebraic Modeling System (GAMS) a high-level modeling system for mathematical optimization.

Minerals Resource Development

Background

Objectives

TFBSO's programs in the mining sector are focused on assisting the Afghanistan Ministry of Mines and Petroleum (MoMP) conclude economically viable contracts with international mineral companies in a manner that meets worldwide standards for transparency and social responsibility. Additionally, TFBSO supports Afghanistan with building a sustainable minerals program through training and IT infrastructure development at MoMP and at the Afghanistan Geological Survey (AGS).

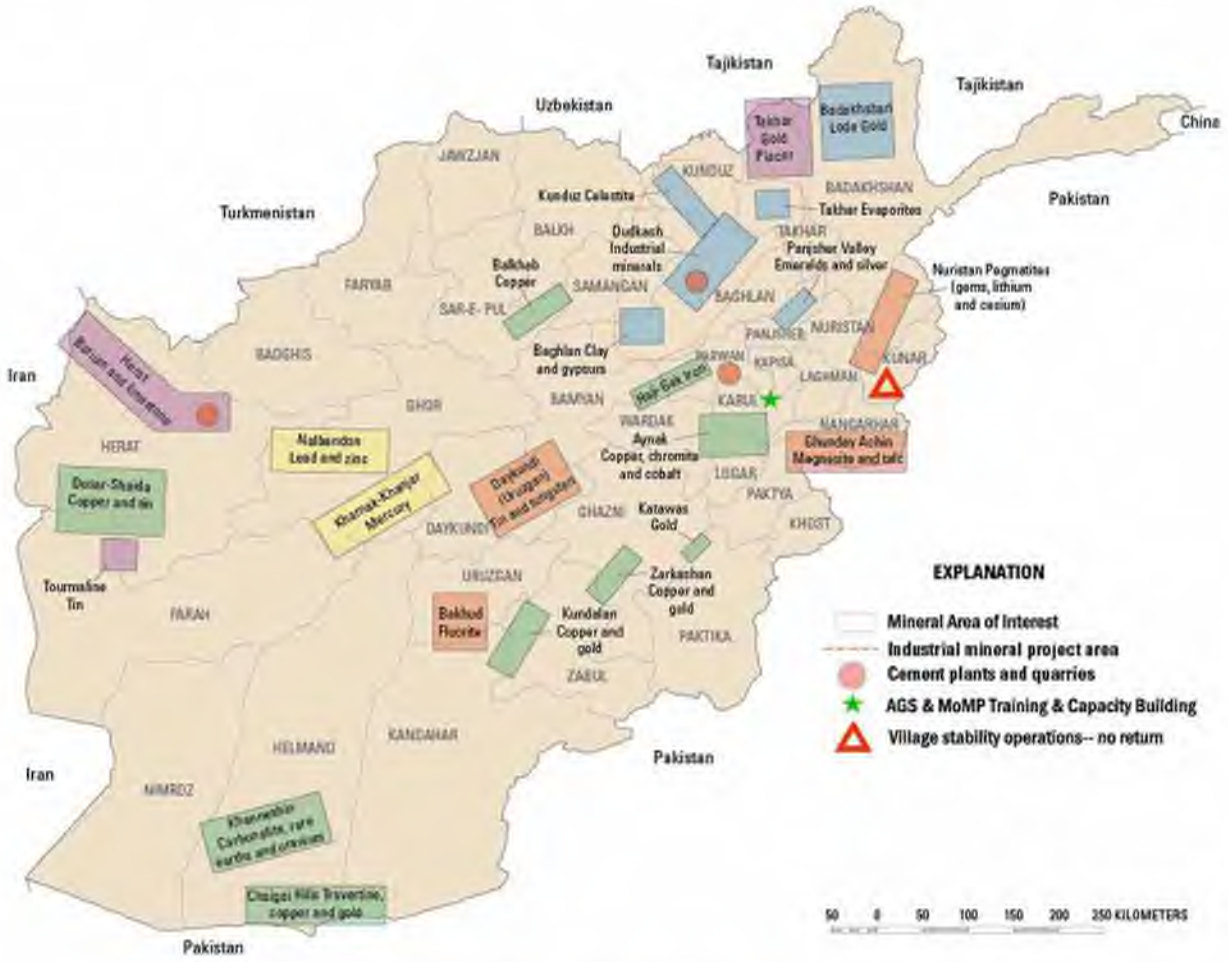


Figure 13. Minerals Sector Map

Activity Overview

The mining sector is a key component of Afghanistan's long-term economic development. Afghanistan's minerals represent tremendous wealth - very little of which has ever been developed for the benefit of the Afghan people. Development of this industry has the potential to yield millions of dollars in royalties, fees and taxes to the Afghan government. In addition, the development of this industry will contribute to billions in capital expenditures within the country. Exploration and eventual mine development will also create jobs, not only directly at the mine but in secondary support industries such as geological testing, mining equipment and construction which will bolster the economy in communities surrounding the mines.

Figure 14. Mineral Project Categories

The Task Force supports MoMP by helping it to (1) identify and quantify Afghanistan's mineral resources; (2) build a strategic plan for exploration and development of these resources; (3) tender prospective mineral sites in a transparent manner; and (4) develop the capability to publish technical information to attract mineral investors. The Task Force partners with the MoMP, the United States Geological Survey (USGS), the AGS, and international legal and technical experts to bring world class processes and standards to the Afghan mining industry. The Task Force employs a "learn by doing" approach to capacity building, where the MoMP and the AGS personnel work alongside TFBSO subject matter experts.

> The Task Force rapidly deployed international mining experts to assess the key value chain gaps in the Afghanistan mining industry. These experts developed and implemented an executable strategy to attract foreign investment in Afghanistan's minerals sector - successfully administering five mineral tenders.

Expected Outcomes

The goal of these programs is to encourage private investment which will in turn build a base for revenue generation by the Afghan Government through fees, royalties, and taxes. Under current scenarios, mining exploration will start at some locations in 2016. It is assumed that mining

operations will begin after four years of exploration and four years of construction, assuming commercial viability.

Contribution to Stabilization Strategy

This program supports the stabilization of Afghanistan by building ties to international markets through announcement and promotion of tender areas of interest. Improving revenues to the Afghan Government by improving the transparency of ministerial policies and procedures is also critical to the long-term outlook for this sector. The objective is to foster economic growth by spurring job creation in primary and secondary markets. Broadening the skill level of the AGS personnel and the MoMP will be essential if the Afghan government (and potentially any Afghan-owned business) is to explore/exploit its own areas of interest.

Program Transition

All of TFBSO's work with the MoMP and AGS was oriented toward teaching its staff how to execute the development of Afghanistan' s mineral resources on its own. The MoMP's staff has been included in most of the work done by TFBSO, and the experience they have gained was demonstrated in their near-independent execution of the cement tender at Jabul Seraj. The Task Force's work with the MoMP ends on 31 December 2014. At that time, much of the minerals tender and contract management support will be provided by the World Bank and USAID.

Interventions

Data Acquisition

USGS, in partnership with TFBSO, acquired untapped natural resource data via wide-spread collaborative fieldwork, drilling and coring, satellite remote sensing, airborne geophysics, and extensive studies in ground and surface water quality and quantity. Newly collected data have enhanced and broadened Afghanistan's existing natural resource datasets. The Task Force provided on-site training in basic geophysical logging and passive seismic methods for hydrological studies and a field water-quality and isotope sampling training course designed for low-technology environments. These data sets are vital for both short-term and long-range planning. Published scientific research reduces information risk for prospective bidders, improving the value of the terms of any new contract.

Information Management

In addition to gathering data, the Task Force and USGS developed an integrated Geographic Information System (GIS) data framework for Afghanistan that consists of geologic and topographic map data, satellite imagery, data documentation and a system for the efficient archiving, retrieval, and distribution of data to a wide user community.

> Afghanistan is the only country that has been completely mapped using hyperspectral data. As a result of the work of the USGS and the Task Force, Afghanistan has the largest hyperspectral dataset in the world.

The Task Force designed and built a web enabled data warehouse at the AGS in order to archive and publish Afghanistan's robust mineral datasets. The secure data warehouse has more than 50 years' of geological data compiled by geologists from the United States, Russia, Britain, Germany and Afghanistan. The Task Force also provided training for data interpretation, GPS post-processing, seismic, electromagnetic, and method selection. The Afghanistan GIS data framework and the AGS' ability to interpret such data is an essential skill set for conducting assessments of minerals, and water resources, evaluating earthquakes and other hazards, analyzing ecosystem management strategies, and supporting a wide variety of other activities related to the country's reconstruction.

Tender Support

The Task Force assisted MoMP with developing its capacity to plan and execute tenders in accordance with international standards. Building transparent legal processes will increase international confidence in the industry and increase the number of contracts. The Task Force was responsible for marketing the areas of geological interest to the international mining community through mining conferences to maximize bidder participation. TFBSO's involvement increased the likelihood that tenders achieved optimal commercial terms. TFBSO also drafted model contracts, provided transaction advisory teams that assisted in contract negotiations and developed financial forecasts.[13]

Natural Resource Management

In its mission to promote minerals development in a socially, environmentally and fiscally responsible way, TFBSO Minerals Program provided natural resource and cultural heritage preservation planning support to MoMP. In addition to assisting MoMP with identifying future environmental and cultural impacts at mineral areas of interest, TFBSO helped to develop broad-based mitigation strategies to employ during the mineral exploration and exploitation phases. TFBSO also helped to define inter-/intra-ministerial roles and responsibilities that will enable effective communication, coordination, and minerals contract management in support of protecting natural and cultural resources.

Upstream Mineral Development Project

TFBSO prioritizes areas of interest (AOIs) and provides technical, legal, and financial advice to assist MoMP in establishing international criteria and standards for tenders, bid evaluations, and contract awards in a legal and transparent manner. TFBSO has facilitated the demarcation of market areas of geological interest to the international mining community to maximize bidder participation and to ensure that the tenders are conducted in a transparent manner to achieve optimal commercial terms.

The Upstream Mineral Development project group includes the following project activities:

- Plan, implement, and oversee field data collection in selected target areas.

[13] The Task Force does not have the authority to lobby the Afghanistan government to approve these contracts.

- Conduct studies via Advanced Space borne Thermal Emission and Reflection Radiometer (ASTER), LANDSAT, and Hyperspectral.
- Develop mineral data packages and information packages.
- Prioritize mineral AOIs and provide technical, legal, and financial advice to assist MoMP with establishing international criteria and standards for bid evaluations and contract awards in a fully legal and transparent manner.
- Market four mineral AOIs and one cement AOI to the international community to maximize bidder participation, and assist with monitoring the tender of these locations to ensure the tender will achieve optimal commercial terms.

The following figure illustrates the AOI's incorporated into the Upstream analysis.

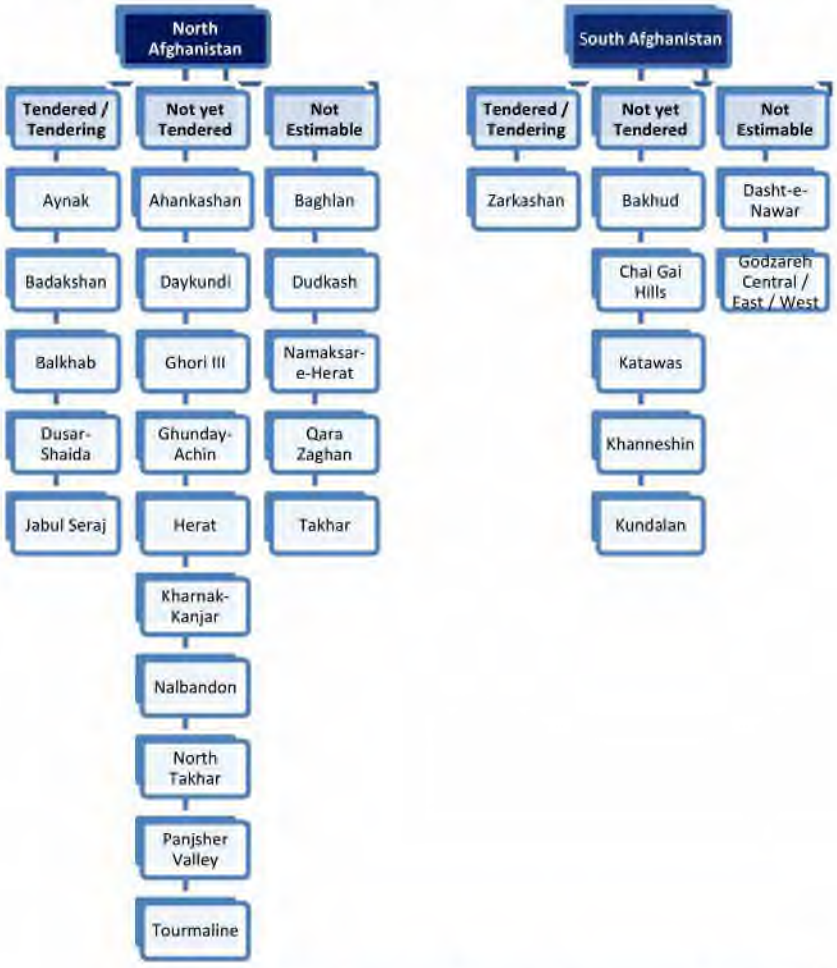


Figure 15. Upstream Mineral Development Projects[14]

[14] Figure 15 does not include Haji-Gak because the Task Force did not support data collection, data analysis, tendering, or project management at this location.

Summary of Results

The Upstream Mineral Development Project represents a long-term economic investment assuming that most mineral areas of interest (AOIs) will be producing by 2029. The following figure showcases the tremendous macroeconomic impact of upstream mineral projects. It presents Afghanistan's GDP with and without Task Force Upstream Mineral projects between 2010 and 2025. As illustrated, TFBSO's Upstream Mineral projects create an additional $8.1 billion in GDP in 2025.

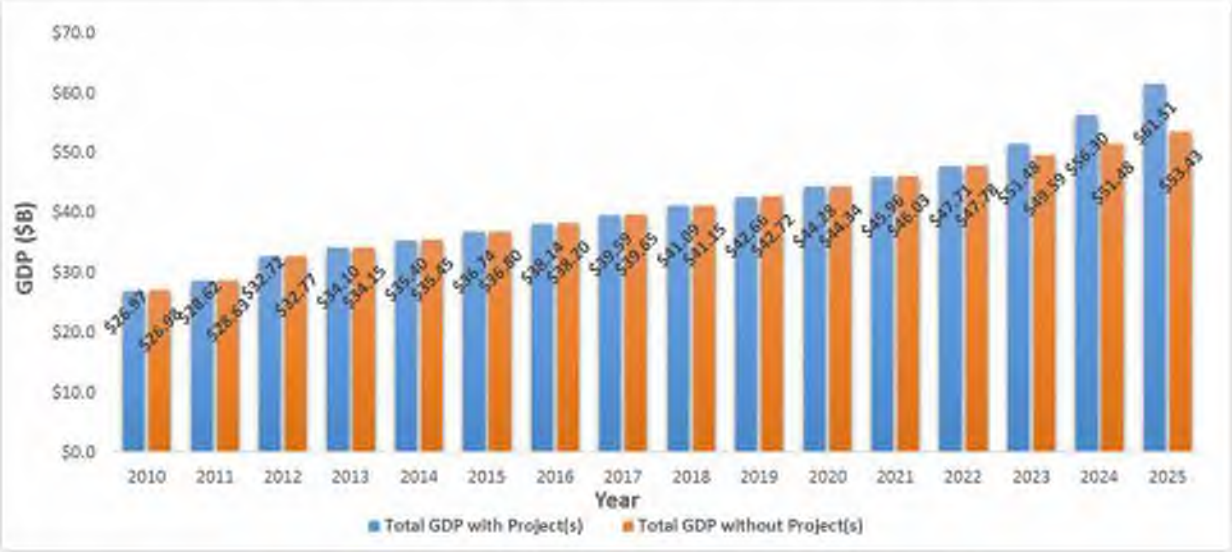


Figure 16. Upstream Mineral Development Projects Effect on GDP

The Task Force spent $174,519,629 between 2010 and 2014 to implement upstream minerals projects in Afghanistan (approximately $88.2M in direct costs and $86.3M in overhead costs[15]). The results presented in the table below display the difference in cumulative totals for the specified period for all mineral areas of interest. For example, cumulative government revenue between 2010 and 2025 is expected to be $1.6 billion greater with the addition of upstream mineral projects. Countrywide, these projects are forecasted to add $14.5 billion to economic activity between 2010 and 2025. These amounts assume that only a handful of mining operations will have started by 2025; therefore, government revenue in the form of royalties will be limited; however, significant economic multiplier effects are immediate.

[15] Direct TFBSO costs are those costs that contribute directly to project execution. Overhead costs are those costs related to project support functions (e.g. back office support, life support, housing in Afghanistan, etc.). Please refer to the Methodology section for additional data definitions.

Table 6. Upstream Mineral Development Projects Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	-	$1.6 B	$1.6 B
Difference in Cumulative "GDP"[16] due to Projects	-$0.4 B	$14.5 B	$14.1B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $8.1 billion in GDP in 2025. The Task Force was allocated $3.2 billion of the total $8.1 billion as a result of its role as a key enabler across multiple AOIs.

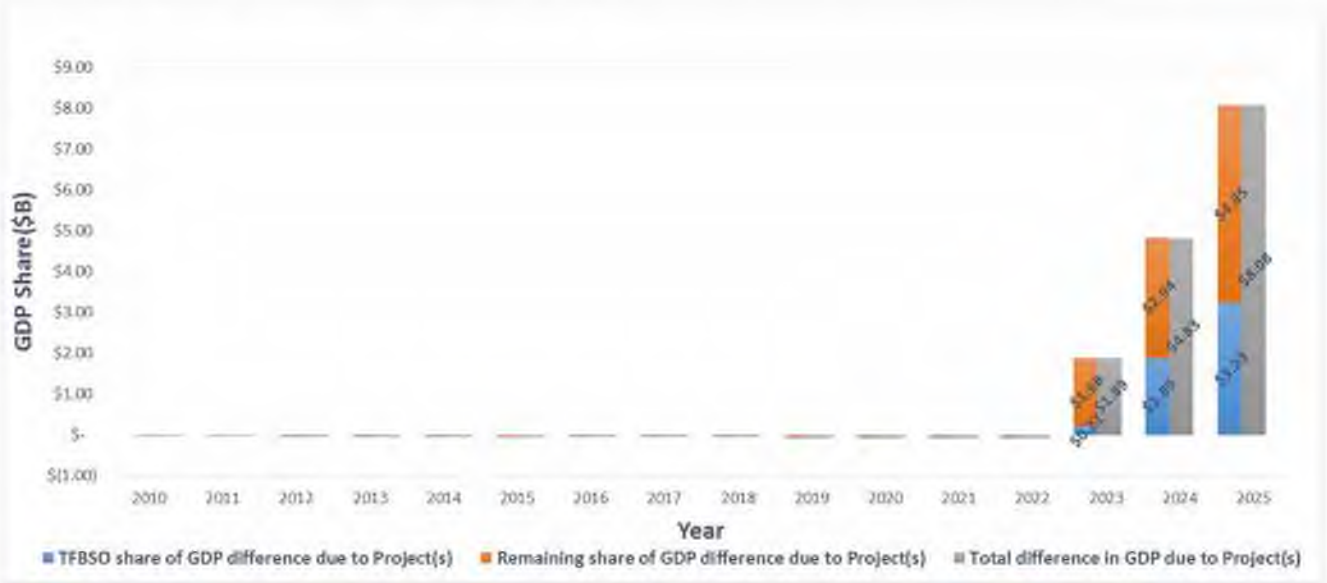


Figure 17. TFBSO's Share of Upstream Mineral Development Projects Effect on GDP

Upstream mineral projects from a mining operator's investment perspective are lucrative; however, these projects are also risky especially in the remote locations of Afghanistan. An analysis of discounted cash flows between 2010 and 2030 leads to a benefit-to-cost ratio of 1.0 with a positive Net Present Value (NPV).

Senturion Analysis

The Senturion Analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 58 stakeholders assigned to 12 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, Donor Agencies, International Community,

[16] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

Regional Organizations, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicates strong project support by a majority of stakeholders. The Afghanistan Government stakeholders identified as the most ardent supporters of mineral development include the MoMP, the Ministry of Finance, and the Provincial Governors. Mineral projects have historically exposed incipient projects to a lot of controversy, often because of their sheer size of anticipated economic benefits. Worldwide, governments are careful about drafting the laws and contracts, private business are aware of the large sums of capital needed, and many organizations are aware of potential environmental effects and the consequences on the labor sector are often not large enough.

In Afghanistan, the government has been slow to proactively address mineral development. For example, the Cabinet has been slow in approving the four most recent minerals tenders; therefore, they were identified as passive supporters in the analysis. Regional organizations, to include: the South Asian Association for Regional Cooperation (SAARC); the Central Asia Regional Economic Cooperation (CAREC); and the Economic Cooperation Organization (ECO) are also passive supporters. These regional organizations recognize the potential returns to the region from minerals development, but they have not actively supported development like other donor agencies (to include the Asian Development Bank and the World Bank).

The international community is not opposed to upstream mineral development, but they also do not actively support these projects for various environmental sustainability reasons. Their position of neutrality demonstrates that the mineral industry is mature and Afghanistan's development will not lead to dramatic price fluctuations in the international market.

Environmental organizations and insurgents actively oppose mineral development in Afghanistan. The environmental organizations are concerned about the environmental degradation caused by mining operations, and the insurgents have demonstrated their willingness and ability to disrupt mining operations in Afghanistan.

The influence of the insurgent population varies by province; therefore, discount rates were developed by province. The Senturion discount rate increases the financial discount rate by 9% in the less risky provinces (i.e. the Nalbandon AOI located in Ghor Province) and by 13% in the more risky provinces (i.e. the Chai Gai Hills AOI located in Helmand Province).

Cost Benefit Analysis

The CBA of the Upstream Minerals project covers more than 100 years as some of the mineral deposits are assumed to last generations; [17] however, the results presented in the graph and table below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for

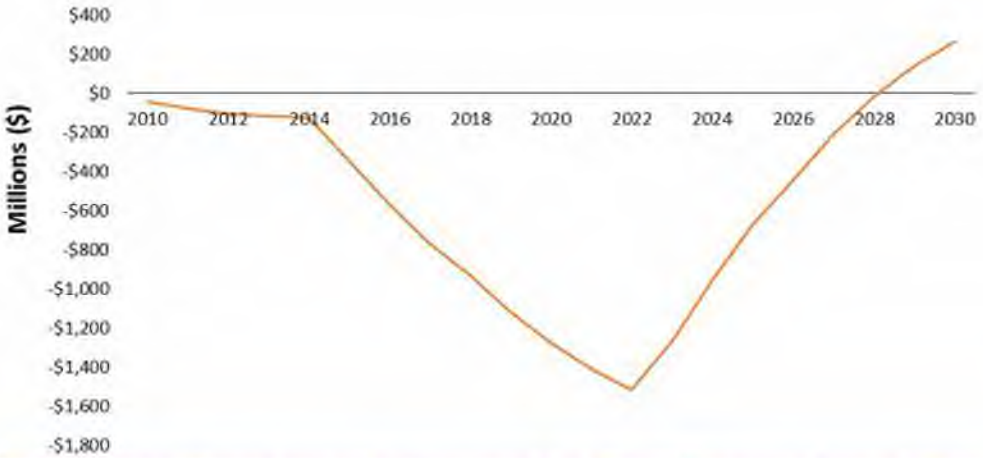
[17] See Assumptions for the range of dates related to every mineral area of interest.

this project is estimated to be $10.5 billion while the total discounted value of costs is estimated to be $10.3 billion (between 2010 and 2030).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$10,264,631,113	$10,527,682,444	Range: 21.2% - 25.0%

Figure 18. Upstream Mineral Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.0, suggesting the project as a standalone investment is fiscally neutral. The discounted net project return is estimated to be $263.1 million. The IRR using undiscounted cash flows is estimated to be 25.9% (more than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$263,051,332	1.0	25.9%

Figure 19. Upstream Mineral Discounted Payback

Macroeconomic Analysis

Given the estimated mineral resource levels, implementation of an upstream minerals strategy can lead to considerable investment in large-scale mining operations. Mining will play a major role in achieving long term, high rates of economic growth and increased government revenues. Increased government revenues will be derived from mining royalties, taxes, licenses, permits, and customs revenues from the import of capital goods.

Mining projects will generate employment opportunities in remote areas where alternative legal productive opportunities are few. In addition, mining will bring with it access to advanced technology that can be of benefit in many areas of the economy. Finally, there will be major indirect benefits from mining, including the construction of roads, bridges, housings, health clinics, mosques, and schools.

As presented in the table below, Upstream Minerals projects significantly impact the greater Afghan economy, adding $173 to Afghanistan's per capita GDP by 2025. Exports are forecasted to increase by approximately $69.4 billion, and total household income is forecasted to increase approximately $7.1 billion with the addition of Upstream Mineral projects.

Table 7. Upstream Mineral Development Projects Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,057.8	$1,310.8
	Without Projects	$1,059.4	$1,138.6
Exports	With Projects	$4.7 B	$75.2 B
	Without Projects	$4.7 B	$6.1 B
Household Income	With Projects	$41.0 B	$60.3 B
	Without Projects	$41.0 B	$53.2 B

Minerals Transmission via Rail Project

This project was designed to support US Central Command's (CENTCOM's) New Silk Road project, Department of States' (DoS) Afghanistan Economic Transition Strategy, and the Government of the Islamic Republic of Afghanistan's (GIRoA) National Development Strategy by enabling GIRoA's development of rail infrastructure. The completed assessment resulted in a Commercial Market Feasibility Analysis Report, a Technical Feasibility Analysis Report, and a Legal & Regulatory Framework Report for the development of a

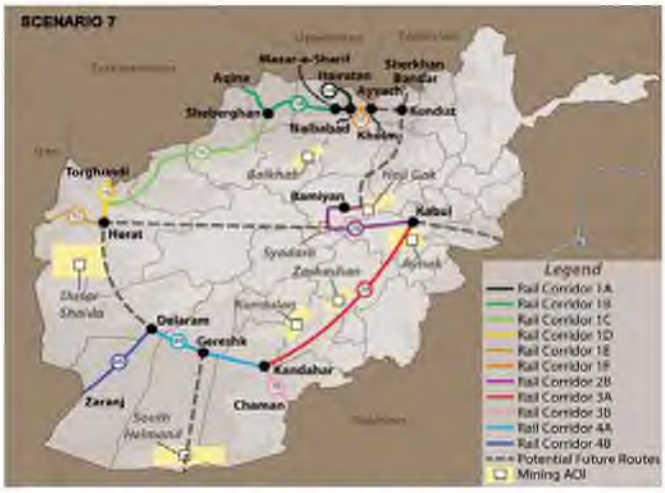


Figure 20. Strategic Rail Plan

countrywide railroad as illustrated in the figure to the right.

Summary of Results

The Assessment of Minerals Transmission via Rail Project represents a major infrastructure project with long-term economic benefits. The following figure presents Afghanistan's GDP with and without the Task Force rail project between 2010 and 2025. As illustrated, TFBSO's rail project will lead to an additional $15.2 billion in economic activity in 2025.

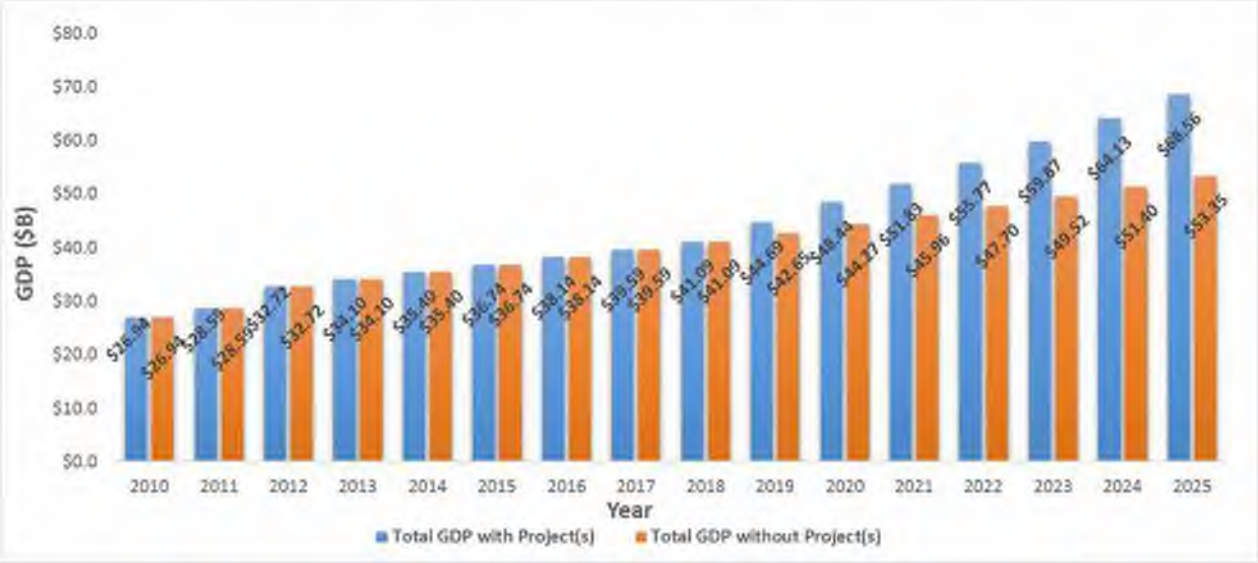


Figure 21. Minerals - Rail Transmission Effect on GDP

The Task Force spent $4,705,884 between 2011 and 2013 to implement the minerals transmission project (approximately $2.1M in direct costs and $2.6M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period. For example, cumulative government revenue between 2010 and 2025 is expected to be $50.2 billion greater with the addition of a railroad for mineral transmission. Country-wide, this project is forecasted to add $58.4 billion to economic activity between 2010 and 2025.

Table 8. Minerals - Rail Transmission Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	-	$50.2 B	$50.2 B
Difference in Cumulative "GDP"[18] due to Projects	-	$58.4 B	$58.4 B

[18] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $15.2 billion in economic activity in 2025. The Task Force was allocated $1.5 billion of the total $15.2 billion as a result of the role it played in establishing the framework for a cost effective railroad in Afghanistan.

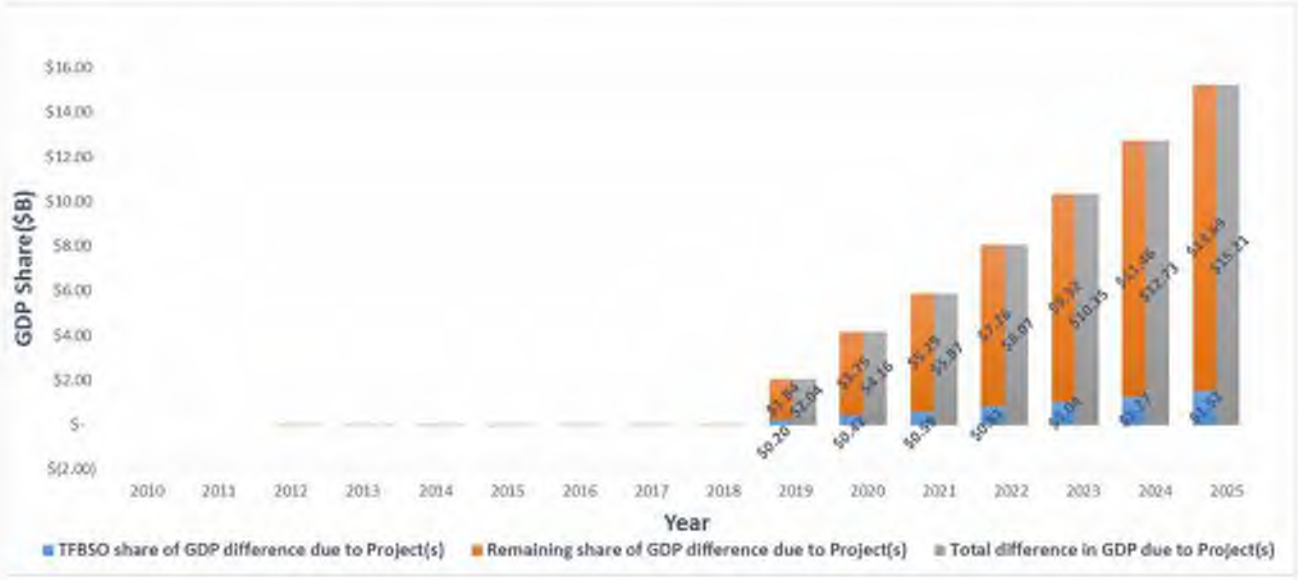


Figure 22. TFBSO's Share of Minerals Rail Transmission Project Effect on GDP

A minerals transmission project of this scale can be lucrative from an investment perspective; however, this project is also risky as the proposed railroad must cross remote terrain. An analysis of discounted cash flows between 2010 and 2030 leads to a benefit-to-cost ratio of 0.4 and a negative Net Present Value (NPV). [19]

Senturion Analysis

This project was completed before a stakeholder analysis could be conducted. However, this project is similar in scale and location to mining operations in southern Afghanistan. Therefore, the Senturion analysis incorporated the data collected for southern mineral AOIs. The Senturion analysis led to an additional 15.1 percentage points (on top of the baseline financial discount rate of 12.0%).

Cost Benefit Analysis

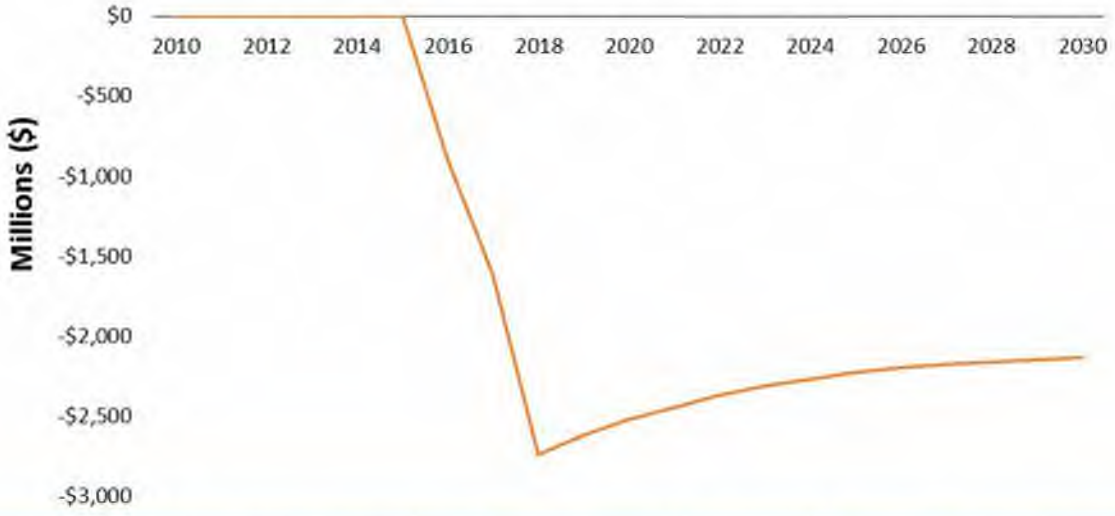
The CBA of the Rail project covers more than 30 years. However, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $1.3 billion while the total discounted value of costs is estimated to be $3.4 billion (between 2010 and 2030).

[19] New economic geography theory requires that landlocked countries such a Afghanistan must devote significantly more resources to the transportation sector (Krugman, 1991).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$3,393,978,685	$1,257,814,805	27.1%

Figure 23. Minerals Transmission Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 0.4, suggesting the project as a standalone investment is not fiscally viable. The discounted net project return is estimated to be -$2.1 billion. The IRR using undiscounted cash flows is estimated to be 0.0% (less than the risk adjusted discount rate which leads to a negative NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$2,136,163,880	0.4	0.0%

Figure 24. Minerals Transmission Discounted Payback

Macroeconomic Analysis

As Afghanistan seeks to reduce its dependence on foreign assistance and rebuild its economy based on sustainable growth, a key to success is leveraging the vast iron ore expected at Haji-Gak and Syadara. Competitive analysis indicates current low-cost producers of iron ore, including Brazil and Australia, are able to extract, rail, and ship to Asian markets for as little as $39 USD per metric ton. To successfully compete in the global iron ore market, Afghanistan will need to approach the level of efficiency achieved by low-cost producers. Freight railway transportation must leverage the most expeditious routing to seaport and American Railway Engineering and Maintenance-of-Way Association (AREMA) heavy haul standards, and avoid breaks of gage and trans-loading requirements. For Afghanistan, the mining and railway sectors are integrally linked: mining requires a railway to efficiently transport bulk minerals to market, and sustainment of railway operations requires the demand from mining to be economically viable.

The mineral rail transmission project will employ many Afghans with a subsequent increase in household income in rural and urban households. As presented in the table below, the Rail project's macroeconomic impact is forecasted to add $324.2 to Afghanistan's per capita GDP by 2025, and total household income is forecasted to be $55.1 billion by 2025.

Table 9. Minerals - Rail Transmission Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,057.8	$1,461.1
	Without Projects	$1,057.8	$1,136.9
Exports	With Projects	$4.6 B	$6.0 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$41.0 B	$55.1 B
	Without Projects	$41.0 B	$53.2 B

Training & Capacity Building Project

The Task Force Training & Capacity Building project group is designed to: (1) enhance the capabilities of MoMP and AGS employees, and professors from Kabul Polytechnic University (KPU), and (2) improve the technical infrastructure of MoMP and AGS. The Task Force designed training to help staff and administrators gain the technical and managerial skills necessary to make sound, science- and technology-based decisions about resource use and hazard mitigation. In addition, improved technical infrastructure will help to establish an AGS capable of independently creating information and data packages for future mineral contracts.

Figure 25 Drilling Training at North Aynak

Summary of Results

Training & Capacity Building Projects are designed to enhance the capabilities of the Afghan workforce. The following figure presents Afghanistan's GDP with and without Task Force Training & Capacity Building projects between 2010 and 2025. As illustrated, TFBSO's Training & Capacity Building projects lead to little-to-no GDP impact. Proper and effective training has long lasting effects even when specialized skills can be employed in other industries; however, the long-term effects are marginal. This project is expected to have a negligible impact on government revenue as well

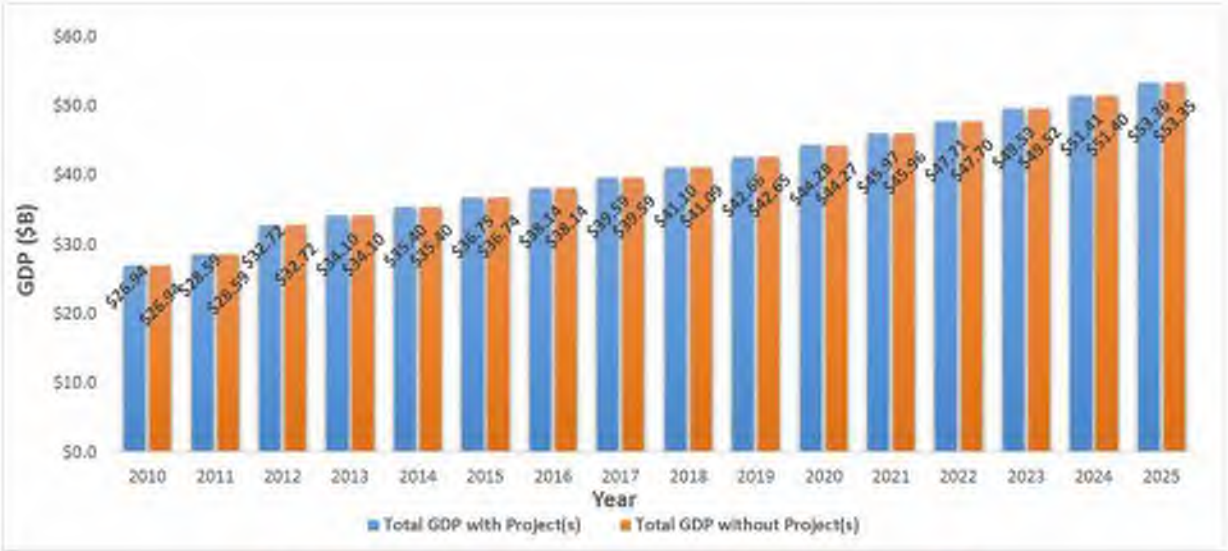


Figure 26. Minerals - Training & Capacity Building Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable. In addition, training projects often result in a negative return as considerable funding is spent paying for the services, lodging and security of subject matter experts who earn salaries greater than the Afghan workforce. The Task Force spent $28,603,851 between 2010 and 2014 to provide training and to build capacity at MoMP, AGS, and KPU (approximately $15.7M in direct costs and $28.6M in overhead costs). This project group has a benefit-to-cost ratio of 0.2, and the Net Present Value (NPV) is negative.

Senturion Analysis

A stakeholder analysis was not conducted since this group of projects impacts human capital only.

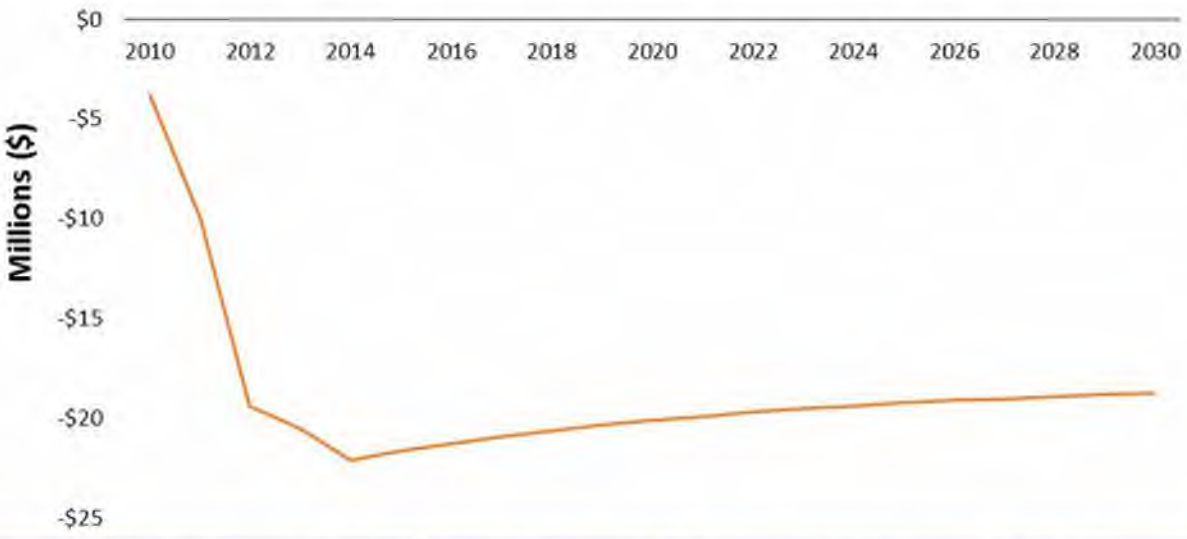
Cost Benefit Analysis

The CBA of the Training & Capacity Building project covers more than 40 years; however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total value of benefits for this project is estimated to be $4.8 million while the total value of costs is estimated to be $23.5 million (between 2010 and 2030).

Discounted Total Cost	Discounted Total Benefit	Discount Rate
$23,532,955	$4,798,052	12.0%

Figure 27. Training & Capacity Building Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 0.2, suggesting the project as a standalone investment is not fiscally viable. The discounted net project return is estimated to be -$18.7 million. The IRR using undiscounted cash flows is negative.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$18,734,903	0.2	-6.7%

Figure 28. Training & Capacity Building Discounted Payback

Macroeconomic Analysis

Assessments of natural resources and natural hazards require a technically trained workforce and adequate facilities. The Task Force provided capacity building to sustain the nation's reconstruction efforts by transferring state-of-the-art expertise to Afghan counterparts. This project was designed to ensure that staff and administrators at MoMP, AGS, and KPU have the technical and managerial skills to make sound, science- and technology-based decisions about resource use and hazard mitigation now and into the future. Over the long term this training adds transferable human capital to the economy; however, the macroeconomic impacts are negligible.

Village Stability Operations Project

Summary of Results

The objective of this project was to establish a fully functional small-scale chromite mining operation in Kunar Province. The project was designed to enhance stability through job creation and a demonstrated benefit of cooperating with coalition forces. Additionally, the Task Force initiated this project in order to enhance the legitimacy of the Afghan government through the generation of tax revenue and through the connection of locals with provincial and national government. Chromite was processed and an international buyer was identified during project execution; however, the first truck did not get to Karachi for further transport. MoMP did not license the artisanal miners involved, and without proper licensing, chromite mining is not legal.

Energy Resources Development

Background

Objectives

The goal of TFBSO's Energy Program was to provide energy security by meeting domestic energy demands, attracting foreign direct investment and monetizing Afghanistan's oil and gas resources over the long term.

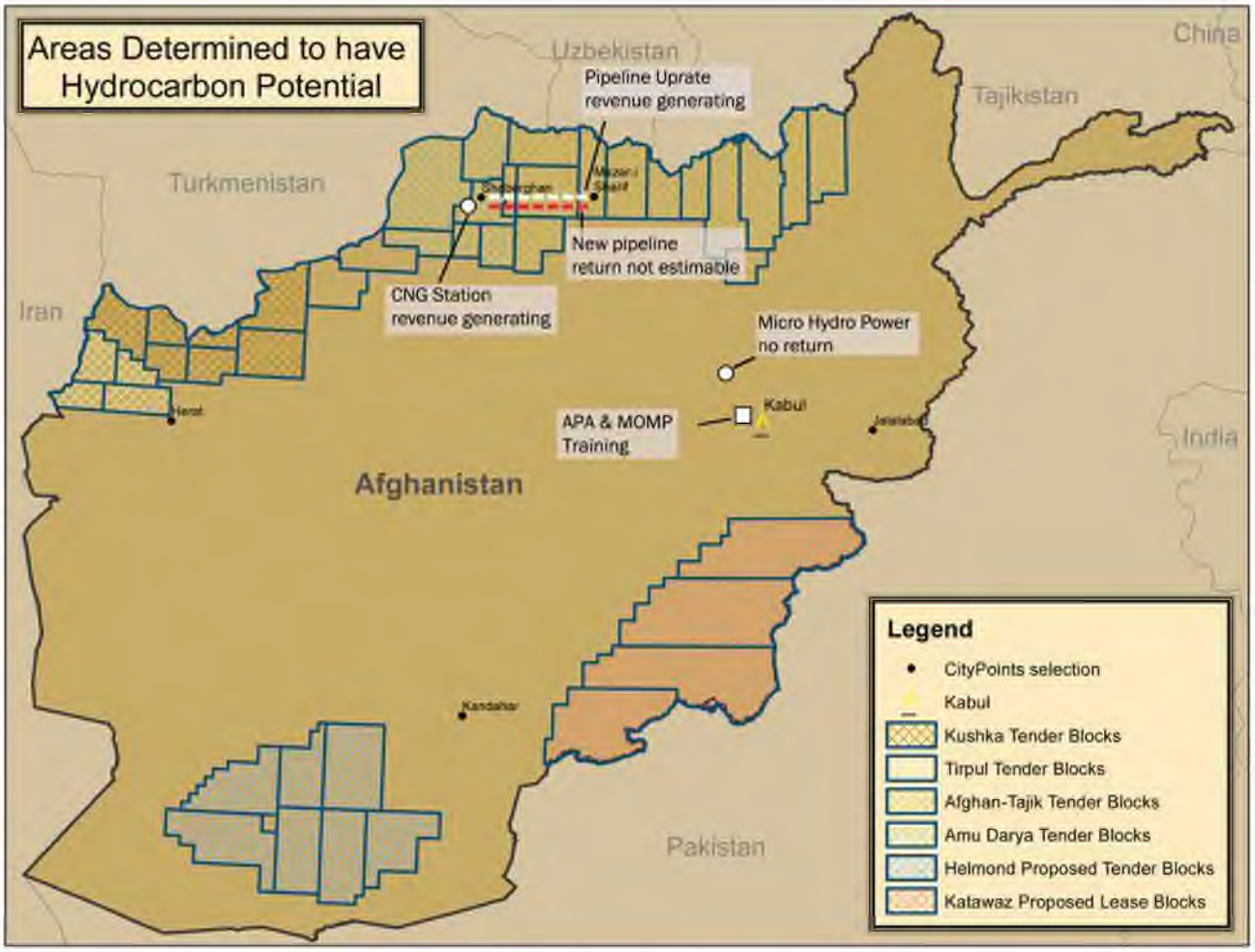


Figure 29. Energy Resources Development Map

Activity Overview

The two areas of greatest long-term wealth in Afghanistan are minerals and hydrocarbons (oil and natural gas). Development of the petroleum sector will have multiple positive, impacts on the Afghan economy by providing a significant stream of revenue to the Afghan government from royalties, fees, and taxes; providing energy to fuel new industries; and reducing dependence on expensive imported fuels. Although a nascent natural gas and oil sector is developing, billions of dollars of hydrocarbon resources remain inaccessible, jeopardizing energy security as Afghanistan continues to be dependent on imported oil, gas, and electricity. The Afghan National Army (ANA) and the Afghan National Police (ANP) currently consume more than $200M of imported fuel every year, funded mainly by the U.S. Department of Defense through the Afghan Security Forces Fund. In addition, the industrial, mining and agricultural sectors are extremely dependent on affordable and reliable energy. Domestically produced fuel and energy sources are a pillar of economic and political stabilization and will help move the country away from foreign dependency. Using these resources for domestic purposes will also help diversify the economy, lessening the deleterious effects of Afghanistan's dependency on commodity exports.

TFBSO in partnership with the US Geological Survey (USGS) helped the Afghan Ministry of Mines and Petroleum (MoMP) identify and quantify its oil and gas resources, build a strategic plan for long-term development of these resources, tender known and prospective oil fields and gas blocks to international and domestic investors and operators, and develop means of harnessing these resources.

In 2014, TFBSO continued to (1) support MoMP on ways to monetize its hydrocarbon assets, including providing transaction advisors to assist the MoMP in tendering key oil and gas blocks; (2) assist the MoMP with identifying and quantifying additional oil and gas blocks fields by providing seismic data collection and other site preparation activities as needed; (3) support Afghan Gas initiatives to make natural gas resources available for domestic fuel and power, to include assisting MoMP to establish a Compressed Natural Gas industry; (4) strengthen the MoMP's capabilities to manage contracts and effectively-regulate Afghanistan's oil and gas industry and (5) assist the Ministry of Commerce and Industries (MoCI) attract and regulate industries that utilize natural gas. The following figure illustrates the Task Force project categories.

Figure 30. Energy Project Categories

Expected Outcomes

Task Force projects were designed to provide a long-term source of revenue to the Afghan government through hydrocarbon royalties and taxes; reduce dependence on imports; and enable industrial development, thereby creating a new industry for Afghan labor.

Contribution to Stabilization Strategy

The Task Force's Energy program supports the stabilization strategy by unlocking a reliable source of revenue to the Afghan government to enable it to fund security requirements and other governmental functions. Furthermore, it promotes economic sovereignty and energy security through domestic production of hydrocarbons thereby catalyzing economic activity in new areas and building ties to international markets through exports of petroleum and industrial products. This will create new skilled and non-skilled jobs and encourage better governance by enhancing the capabilities of the Afghan government.

Program Transition

Having gained invaluable experience and skills during the four years working with TFBSO, MoMP has the basic building blocks required to responsibly manage Afghanistan's hydrocarbon resources. MoMP employees have demonstrated their ability to adapt quickly and apply new skills and methodologies. The international community, especially the World Bank and the United Kingdom's Department of International development (CDFID), will continue to provide critical support services to maintain MoMP operations after the Task Force ceases operations.

Interventions

TFBSO provided advisory services, technical assessments, training materials, industry relations support, and other non-personnel services in support of developing the oil and gas industry in Afghanistan.

Tender, Legal, and Regulatory

TFBSO assisted MoMP with developing its capacity to plan and execute tenders and manage contracts in accordance with international best practices. Building transparent, auditable processes will increase international confidence in the industry and increase the number of hydrocarbon contracts. TFBSO provided advisors to draft model contracts, assisted in contract negotiations and contract management, developed financial forecasts, and reviewed budgets. The project team also assisted with the implementation of royalty and tax regimes. Finally, the project team also conducted marketing trips to attract a greater number of bids.

A model Gas Purchase Agreement for Afghan Gas was developed to act as a reference during negotiations with potential off-takers. This agreement provided an "allocation methodology" through which Afghan Gas can prioritize which off-takers have priority for natural gas purchase.

The Task Force supported the Afghan government with the creation of the Afghan Petroleum Authority to manage contracts. This division of MoMP manages Exploration and Production Sharing Contracts (EPSCs). Moreover, the APA has engaged the local communities to address and mitigate

concerns with oil and gas activity in order to prevent a destabilizing influence in the associated areas.[20]

Tender, legal, and regulatory support promoted commercial offtake and domestic consumption of gas, thereby moving MoMP and Afghan Gas to address the previously existing legal and regulatory hurdles for commercial off-takers.[21]

The Task Force's instrumental role in providing legal advisors to Afghanistan in TAPI negotiations will allow the country to position itself to ensure that any agreement to TAPI will produce positive results for Afghanistan. A primary goal of this project was to show that Afghanistan is capable of entering into and successfully participating in transnational energy projects.

Seismic Data Collection

TFBSO provided technical assistance regarding hydrocarbon sources and management of seismic data collection/analysis. Moreover, this activity demonstrated that seismic data of high integrity can be acquired in Afghanistan. These data were also provided to bidders to enable them to more accurately value the hydrocarbon resources. This in turn reduced their concerns over investing and improved the quality of bids.

> 50 km of 2D seismic data was obtained in the Kushka Basin in support of future tender opportunities.

Pipeline Construction and Services

The Task Force assisted in the rehabilitation of the existing pipeline from Sheberghan to Mazar-i-Sharif in order to increase the flow of gas. This includes setting the conditions for construction of a new parallel pipeline paid for by the Task Force that will be constructed after the Task Force ceases operations. The uprating of the existing Soviet pipeline enabled Afghan Gas to confidently construct and manage a project of this scale. Pipeline equipment and training (welding) were also provided to Afghan Gas employees. Subject Matter Experts were retained to assist with operations and maintenance for gas processing components (compressors, dehydration unit and amine plant). Additionally, the pipeline project served as an impetus for establishing the natural gas pricing methodology, allocation methodology, and regulations.

> The Project Team upgraded the pipeline from Sheberghan to Mazar which resulted in a 20% increase in gas.

The Task Force also funded and assisted in the management of the first ever operating Compressed Natural Gas (CNG) station and provided training and support to Afghan Gas for station operation with 0% operational loss. Afghan locals received training on all operational areas related to the operations and maintenance of the station. TFBSO also assisted MoMP and MoCI with establishing regulations that will benefit the future growth of the CNG industry.

[20] TFBSO did not hire MoMP staff or lead negotiations.
[21] The goal is to enable Afghan Gas to sell gas to off-takers and operate as a commercial entity.

Upstream Hydrocarbon Project

This project was implemented to identify, prioritize, and tender oil and gas investment opportunities in Afghanistan. The Project Team supported the Afghanistan Petroleum Authority (APA) with the technical, financial, managerial, and legal aspects of the end-to-end Exploration and Production Sharing Contract (EPSC) management process. The Task Force assisted with monitoring project implementation by providing advisors on contract management, budget and technical programs, and financial management. These project activities are expected to increase international confidence and facilitate more oil and gas investment.

> The Task Force's work with the Afghan Government supported the first tender for oil in Afghanistan in 30 years.

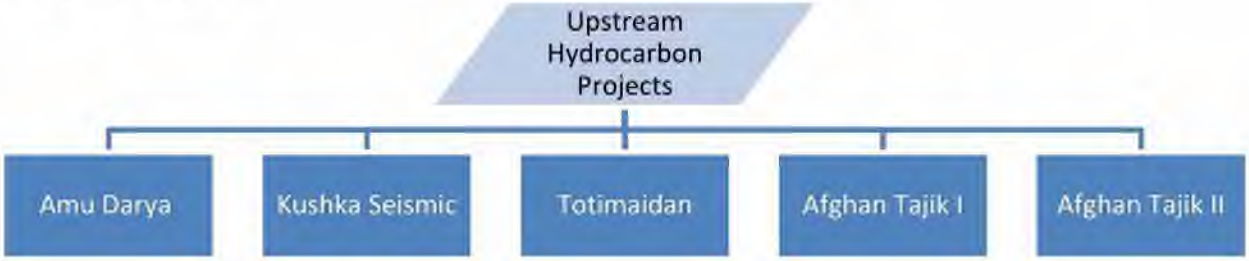


Figure 31. Upstream Hydrocarbon Projects

Summary of Results

The Upstream Hydrocarbon Projects represent a sound economic investment in Afghanistan. The following figure presents Afghanistan's GDP with and without Task Force Upstream Hydrocarbon projects between 2010 and 2025. As illustrated, TFBSO's Upstream Hydrocarbon projects lead to an additional $24.4 billion in economic activity in 2025. Future upstream project profitability depends on the success of piecing together upstream, mid-stream, and down-stream activities.

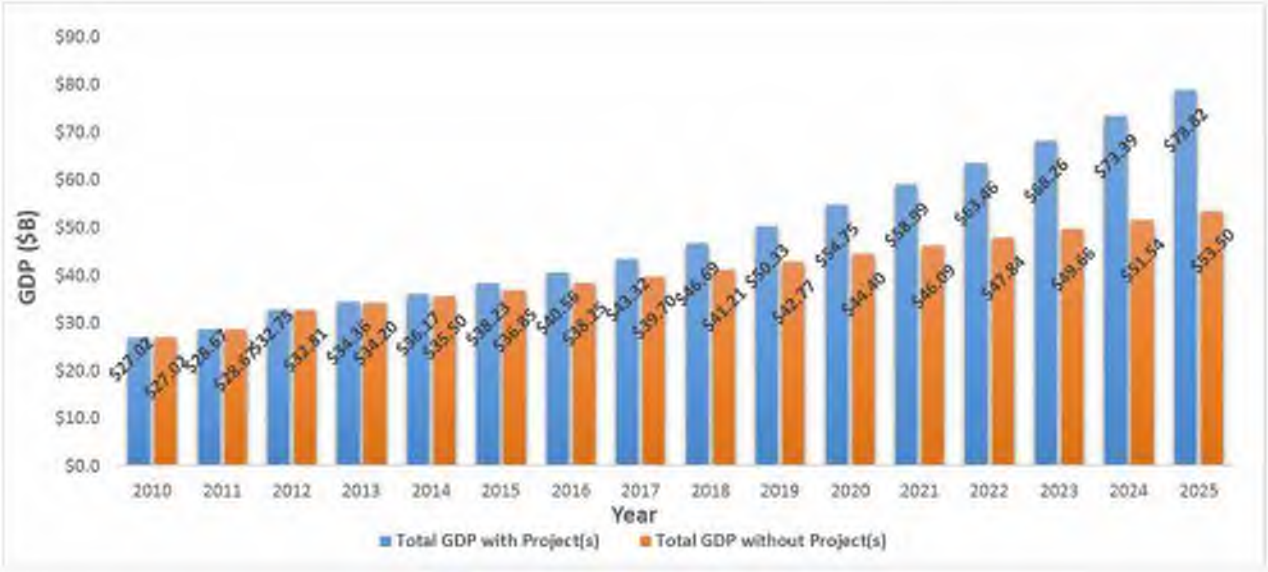


Figure 32. Upstream Hydrocarbon Effect on GDP

The Task Force spent $223,736,462 between 2010 and 2014 to implement upstream minerals projects in Afghanistan (approximately $71.3M in direct costs and $152.5M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period for all upstream hydrocarbon projects. For example, cumulative government revenue between 2010 and 2025 is expected to be $12.8 billion greater with the addition of upstream hydrocarbon projects. Country-wide, these projects are forecasted to add $125.8 billion to economic activity between 2010 and 2025.

Table 10. Upstream Hydrocarbon Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	$0.9 B	$11.4 B	$12.8 B
Difference in Cumulative "GDP"[22] due to Projects	$8.1 B	$112.2 B	$125.8 B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $25.3 billion in GDP by 2025. The Task Force was allocated $23.6

[22] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

billion of the total $24.4 billion as a result of the key role it played as an enabler across four hydrocarbon tenders.

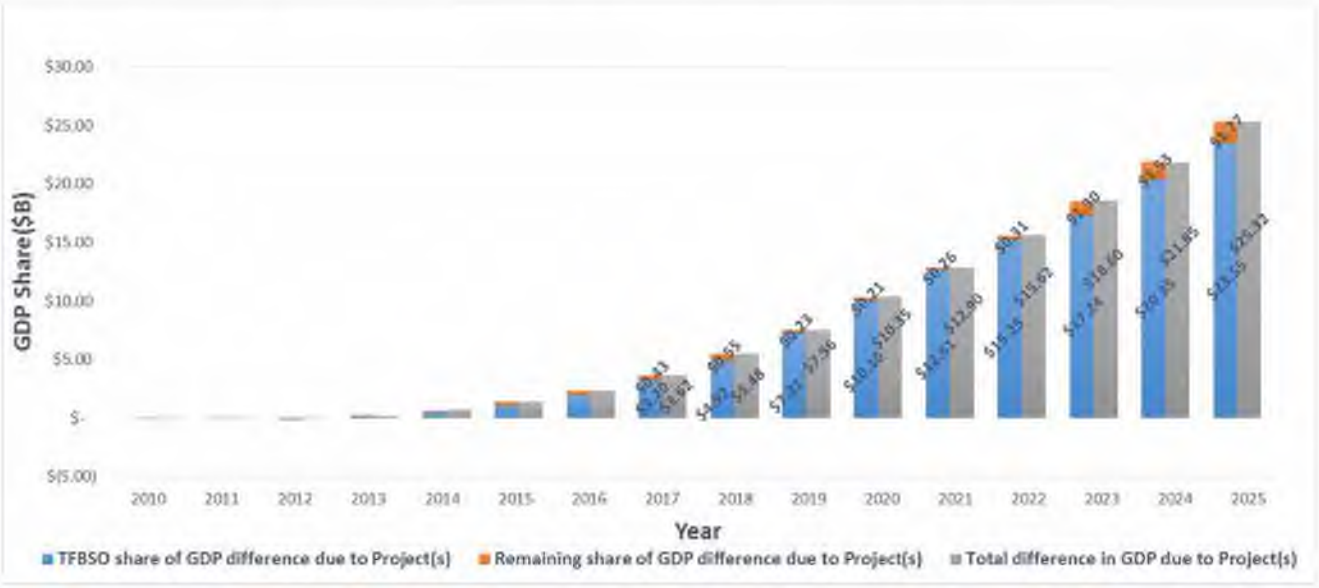


Figure 33. TFBSO's Share of Upstream Hydrocarbon Projects Effect on GDP

The group of Upstream projects include: Amu Darya, Kushka Seismic, Totimaidan, Afghan Tajik I, and Afghan Tajik II, which combined have a benefit-to-cost ratio of 1.0, a positive NPV, and an IRR greater than the discount rate for all parameter ranges examined as part of the sensitivity analysis.

Senturion Analysis

The Senturion Analysis included 51 stakeholders assigned to 12 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, Donor Agencies, International Community, Regional Organizations, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

These projects are key to sustainable, long term development of Afghanistan's energy sector. In general, security risks pose a major issue to these types of investments worldwide, especially in these early phases. However, additional analysis of subject matter expert data input suggests that security poses a minimal threat to upstream hydrocarbon development projects.

The analysis indicates strong support from within the council of ministers (in particular MoMP), other Afghan governments (to include strong support from the Afghan Petroleum Authority). The government is keenly aware of the positive consequences of energy independence. The donor community has also devoted many resources to foster these projects, in particular the Asian Development Bank. As expected, private sector international oil and gas companies favor both opportunities and potential return from Afghanistan upstream hydrocarbon industry development.

The international community, specifically neighboring countries who are donating or selling energy at bargain prices, see little threat in the development of the oil and gas industry in Afghanistan, and the civil society is in the same position, although they are not willing to invest themselves in the success of these projects. The position of neutrality of these groups of stakeholders demonstrates their limited vested interest in Afghanistan oil and gas production.

Expected minimal security risk is overcome by the support of the Afghanistan government, donor agencies, and demonstrated interest from international oil and gas companies. The discount rate incorporates these factors and increases the financial discount rate from 12% to 14.5%.

Cost Benefit Analysis

The CBA of the Upstream Hydrocarbon project covers more than 40 years;[23] however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $7.4 billion while the total discounted value of costs is estimated to be $7.3 billion (between 2010 and 2030).

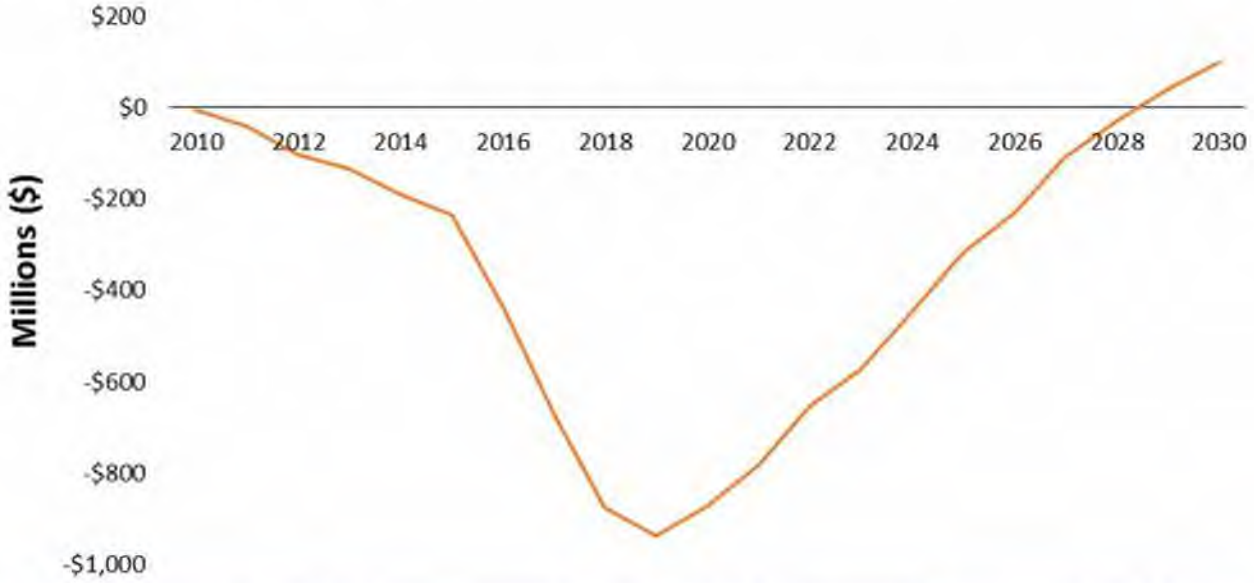
Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$7,301,902,936	$7,401,574,286	Range: 14.5% - 14.6%

Figure 34. Upstream Hydrocarbon Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.0, suggesting the project as a standalone investment is fiscally neutral. The discounted net project return is estimated to be $99.7 million. The IRR using

[23] Amu Darya 2010-2018, Kushka Seismic 2012-2015, Totimaidan 2013-2054, Afghan Tajik I 2010-2037, Afghan Tajik II 2011-2037.

undiscounted cash flows is estimated to be 15.8% (greater than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$99,671,351	1.0	15.8%

Figure 35. Upstream Hydrocarbon Discounted Payback

Macroeconomic Analysis

Initial oil and gas consumption will be localized; however, domestic oil and gas production will alleviate one of the key roadblocks to development (especially in the current Afghan situation where the balance of trade is negative). Upstream energy projects are the first link in a value-chain that contributes to energy self-sufficiency.

As detailed in the table below, upstream hydrocarbon projects are forecasted to add $539.6 to Afghanistan's per capita GDP by 2025 (in a country where the GDP per capita is around $650 in 2013). Exports are forecasted to remain unchanged with the addition of upstream hydrocarbon projects, and total household income is forecasted to be approximately $22.1 billion higher than in forecasted scenarios without upstream hydrocarbon projects. The increase in household income showcases the multiplier effects from these important projects where the majority of income sources will be disbursed in the formal sector.

Table 11. Upstream Hydrocarbon Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,201.9	$1,679.7
	Without Projects	$1,060.8	$1,140.1

		2018	2025
Exports	With Projects	$4.6 B	$6.0 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$45.9 B	$75.3 B
	Without Projects	$41.0 B	$53.2 B

Domestic Gas Policy & Transmission Project

Development of Afghanistan's energy sector is paramount to Afghanistan's sustainable development. Most households do not have electricity; in fact, only 28% of the population was on the grid in 2011 (Mo Quayoni- Afghanistan National Electricity Strategy, July 2013). Without direct access to reliable electricity, manufacturing industries will be disadvantaged. In addition, economic activity in the agricultural sector is thwarted as producers cannot store and refrigerate their products for future domestic consumption, making costly temporary export and re-imports the only option.

The Task Force provided advisory and construction support to four projects under this group, to include: Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline negotiations; the construction of the Sheberghan to Mazar-e-Sharif pipeline uprate; the purchase and shipment of pipe for a new Sheberghan to Mazar-e-Sharif pipeline; and on-the-job training to Afghan Gas employees. These projects help demonstrate that Afghan Gas is capable of maintaining domestic gas flow, thereby improving Afghanistan's chances of monetizing the country's gas resources over the long term.

> The Task Force's freedom to move and provide onsite management facilitated the delivery of gas to Mazar-e-Sharif.

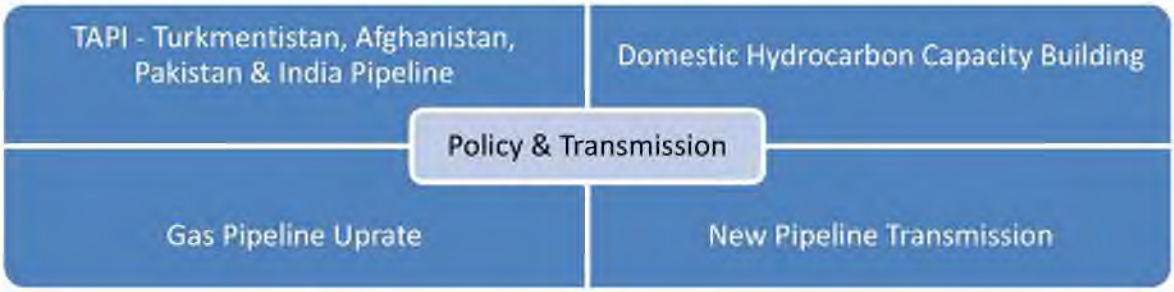


Figure 36. Domestic Gas Policy & Transmission Projects

Summary of Results

Domestic Gas Policy & Transmission Projects were designed to enhance domestic gas transmission and to improve the capabilities of Afghan government employees responsible for governing gas distribution. The following figure presents Afghanistan's GDP with and without Task Force Domestic

Gas Policy & Transmission projects between 2010 and 2025. As illustrated, these projects lead to an additional $2.1 billion in economic activity in 2025.

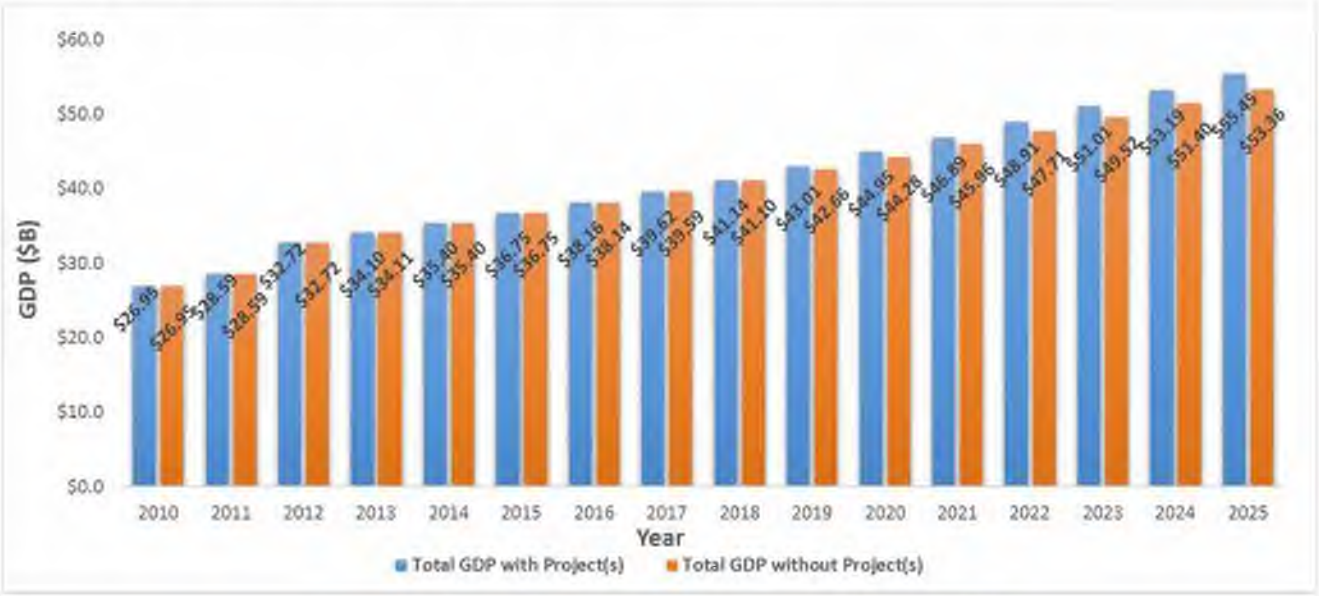


Figure 37. Domestic Gas Policy & Transmission Effect on GDP

The Task Force spent $122,892,756 between 2010 and 2014 to implement domestic gas policy and transmission projects (approximately $53.4M in direct costs and $69.5M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period for the project. For example, cumulative government revenue between 2010 and 2025 is expected to be $4.3 billion greater with the addition of upstream mineral projects. Country-wide, these projects are forecasted to add $8.6 billion to economic activity between 2010 and 2025.

Table 12. Domestic Gas Policy & Transmission Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	$0.0 B	$4.3 B	$4.3 B
Difference in Cumulative "GDP"[24] due to Projects	$0.0 B	$8.5 B	$ 8.6 B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $2.1 billion in economic activity in 2025. The Task Force was allocated $1.6 billion of the total $2.1 billion as a result of the key role it played as an enabler in the domestic gas sector.

[24] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

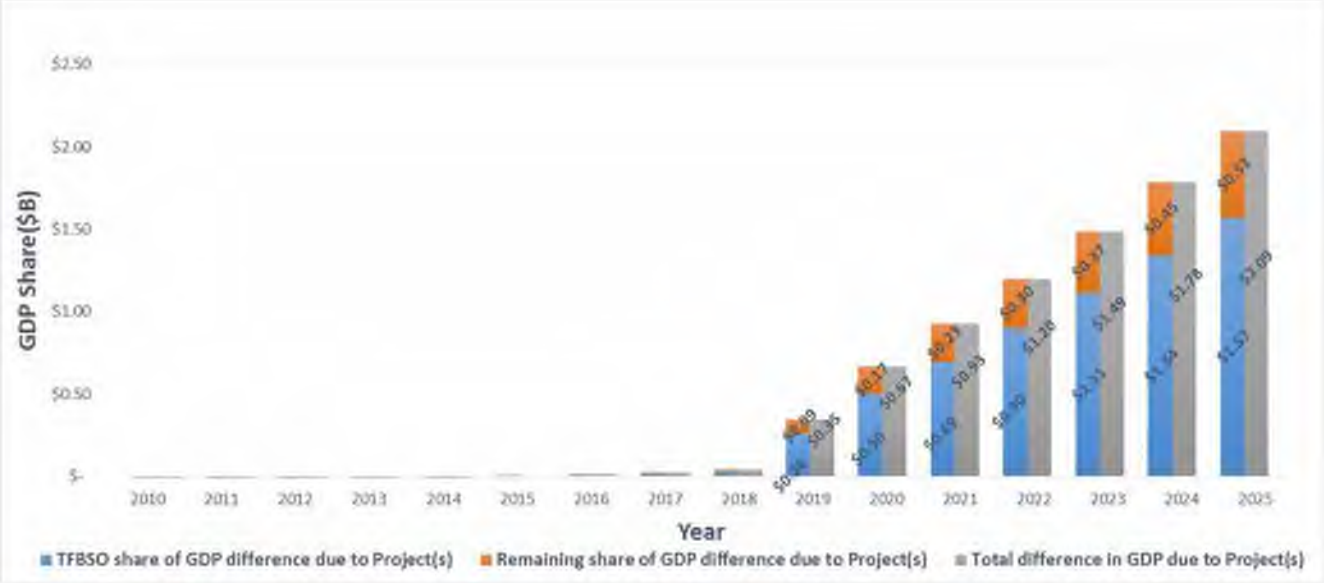


Figure 38. TFBSO's Share of Domestic Gas Policy & Transmission Projects Effect on GDP

The benefit-to-cost ratio is 3.0, and the Net Present Value (NPV) is positive for all parameter ranges examined as part of the sensitivity analysis. The Internal Rate of Return (IRR) is positive and greater than the politically risk adjusted discount rate.

Senturion Analysis

The Senturion analysis incorporated political risk factors to determine any change to the baseline financial discount rate of 12%. Senturion analysis included 41 stakeholders assigned to 10 categories, including: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, Donor Agencies, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicates project support by a majority of stakeholders. In addition, security poses a minimal threat to domestic gas policy and transmission projects. All stakeholder groups hold a position greater than or equal to neutral (no stakeholders actively or passively oppose the projects).

The analysis indicates support from within the Council of Ministers (in particular MoMP), other Afghan governments (to include strong support from Afghan Gas), and the donor community (in particular the Asian Development Bank and World Bank). In addition, the Afghanistan Chamber of Commerce is a staunch supporter of domestic gas transmission.

Civil society is relatively neutral towards domestic gas policy and transmission projects. The Sheberghan to Mazar-e-Sharif pipeline uprate is currently operational in Afghanistan and the pipeline's impact to civil society remains minimal; therefore, civil society does not yet have a

vested interest in downstream gas utilization. In addition, TAPI pipeline discussions occur at the executive level and the placement of the TAPI pipeline remains under negotiation; therefore, local religious leaders and tribal elders are not yet firmly behind (negatively or positively) these projects.

Despite the minimal security risk and support of the Afghanistan government, donor agencies, and demonstrated interest from international oil and gas companies, some local political risk remains. The discount rate incorporates these factors and increases the financial discount rate from 12% to 22.1% for the pipeline uprate project and to 22.7% for the TAPI project. The TAPI project is riskier since the pipeline will cross more remote area.

Cost Benefit Analysis

The CBA of the Domestic Gas Policy & Transmission project covers more than 30 years; [25] however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $267.7 million while the total discounted value of costs is estimated to be $88.5 million (between 2010 and 2030). The return to uprating the pipeline, purchasing a new pipeline, training Afghan government employees, and collecting revenue from TAPI is greater than the cost.

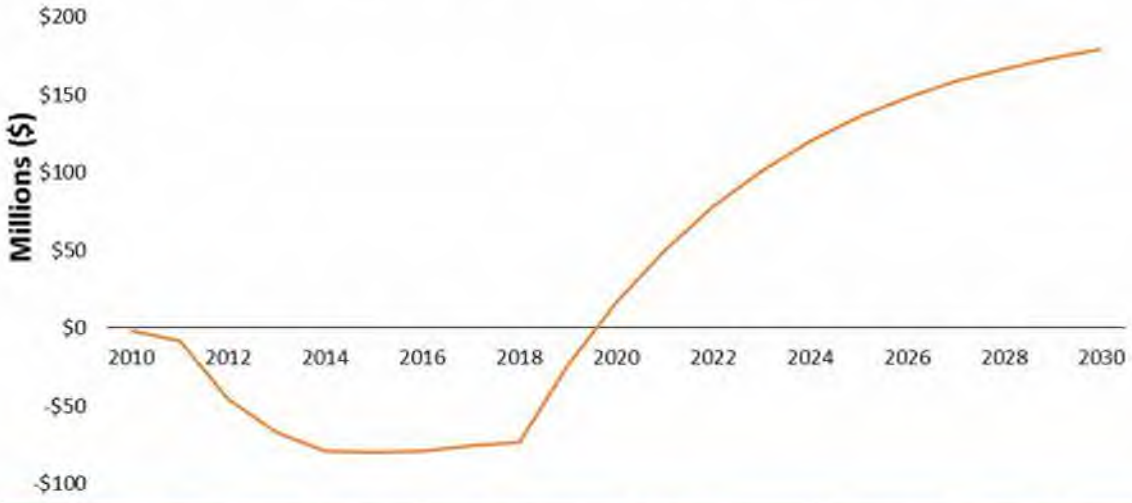
Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$88,486,485	$267,695,052	Range: 12.0% - 22.7%

Figure 39. Domestic Gas Policy & Transmission Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2020 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis).

[25] TAPI 2010-2040, Domestic Hydrocarbon Capacity Building 2010-2019, Gas Pipeline Uprate 2012-2030, and New Pipeline Transmission 2012-2013.

The discounted B/C Ratio is 3.0, suggesting the project is fiscally sound. The discounted net project return is estimated to be $179.2 million. The IRR using undiscounted cash flows is estimated to be 40.1% (greater than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$179,208,568	3.0	40.1%

Figure 40. Domestic Gas Policy & Transmission Discounted Payback

Macroeconomic Analysis

The Task Force EIA model estimates the macroeconomic impact of this project group across various sectors of the Afghan economy. As presented in the table below, Domestic Gas Policy & Transmission projects add $44.60 to Afghanistan's per capita GDP by 2025. Exports are forecasted to remain unchanged with the addition of these projects, and total household income is forecasted to be $0.9 billion higher than in forecasted scenarios without these projects.

Table 13. Domestic Gas Policy & Transmission Projects Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,059.0	$1,181.6
	Without Projects	$1,057.9	$1,137.0
Exports	With Projects	$4.6 B	$6.0 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$41.0 B	$54.1 B
	Without Projects	$41.0 B	$53.2 B

Downstream Gas Utilization Project

This project group includes the Compressed Natural Gas (CNG) Station project only. The CNG Station project led to the first CNG station in Afghanistan. The CNG Station included a fully-functional fueling station, two dispensers, one CNG trailer filling point, a car conversion center, an administrative office building, and gas compression and processing equipment. The CNG Station Project was designed to establish a market for the consumption of energy.

The CNG station has resulted in economic opportunity in a new industry, enabling the creation of a domestic fuel source independent of expensive imports. This project also minimizes carbon footprint and enables the monetization of domestic natural gas reserves, generating revenue for the Afghan Government, and creating fuel savings for consumers (as CNG costs 50 percent less than gasoline in Afghanistan at the time of the analysis).

Summary of Results

The following figure presents Afghanistan's GDP with and without the Downstream Gas Utilization project between 2010 and 2025. As illustrated, this project leads to little-to-no GDP impact.

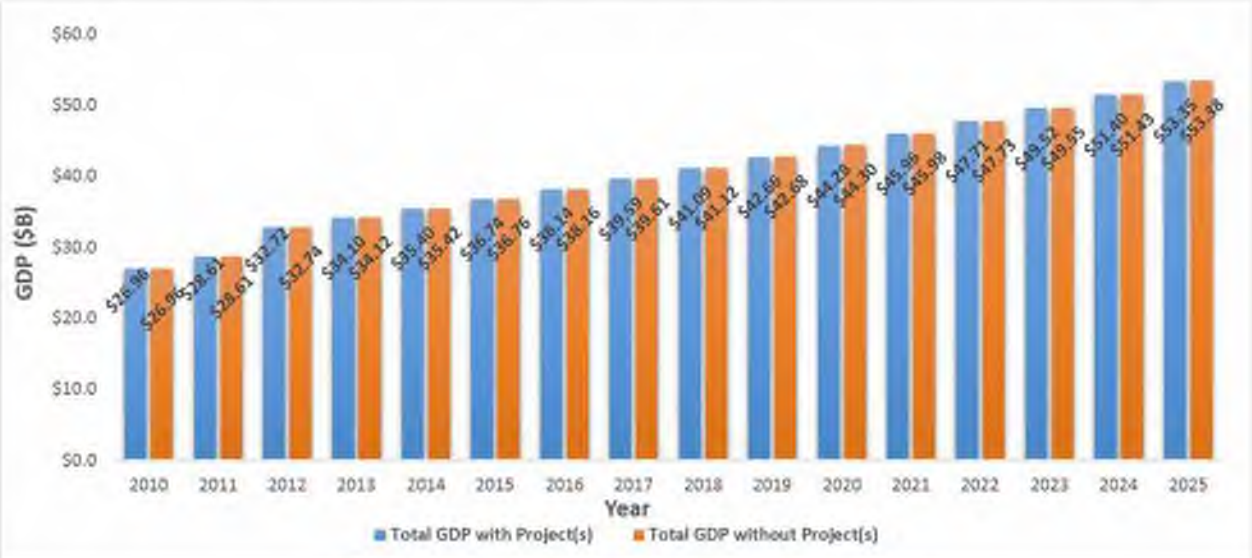


Figure 41. Downstream Gas Utilization Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable. However, Converting domestic gas to CNG for use in vehicles and power generation can catalyze growth in the natural gas industry, creating new employment and revenue-generation opportunities through private sector investment. The Task Force spent $42,718,739 between 2011 and 2014 to fund the construction and to supervise the initial operations of the CNG station (approximately $12.3M in direct costs and $30.0M in overhead costs). This project group has a benefit-to-cost ratio of 0.0, and the Net Present Value (NPV) is negative.

Senturion Analysis

Senturion Analysis incorporates political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 42 stakeholders assigned to 10 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, Donor Agencies, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicates project support by a majority of stakeholders. In addition, security poses a minimal threat to downstream gas utilization projects. All stakeholder groups hold a position greater than or equal to neutral (no stakeholders actively or passively oppose the project).

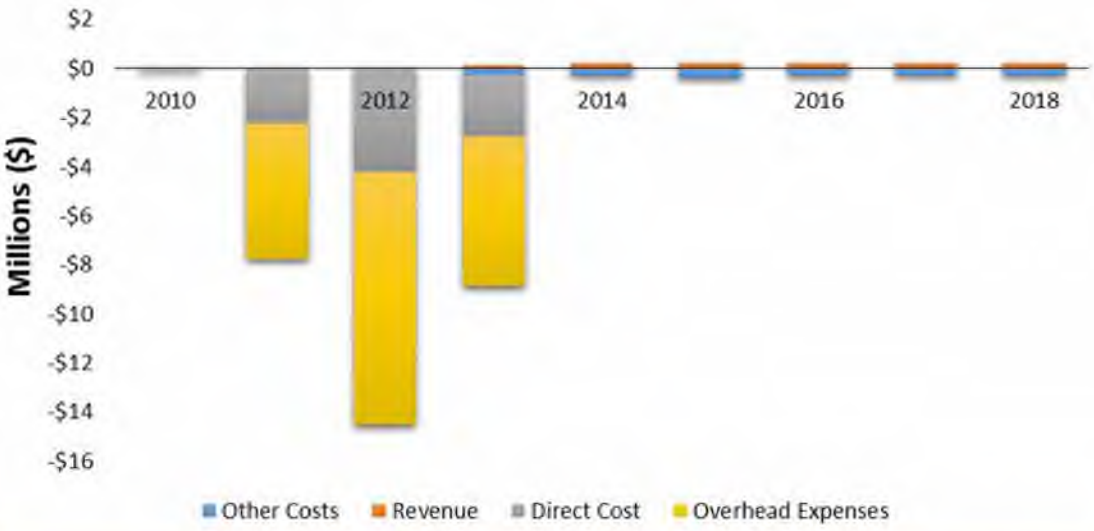
The analysis indicates support from within the council of ministers (in particular MoMP), other Afghan governments (to include the Ministry of Commerce and Industry), and the donor community (in particular the Asian Development Bank). In addition, the Afghanistan Chamber of Commerce and private sector gas companies favor the opportunities and potential return from domestic gas consumption.

Civil society is not opposed to, nor does it support, downstream gas utilization projects. The market for downstream gas utilization, and in particular compressed natural gas stations, remains relatively small; therefore, civil society does not yet have a vested interest in downstream gas utilization. For example, local religious leaders and tribal elders are not yet impacted (negatively or positively) by these projects and therefore they do not have a strong position on future development.

The demonstrated support from the government of Afghanistan, donor agencies, and the private sector all outweigh the minimal security risk. The discount rate incorporates these factors and increases the financial discount rate from 12% to 16.4%.

Cost Benefit Analysis

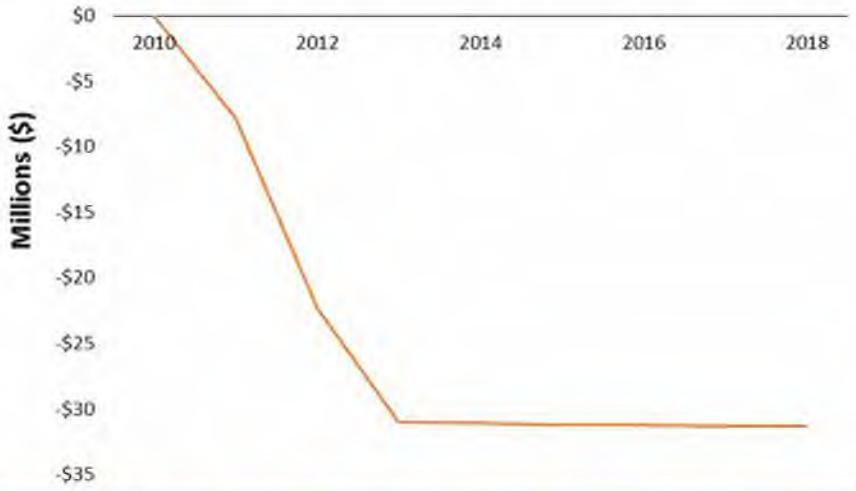
The CBA of the CNG Station project covers 8 years, from 2011 to 2018. The total discounted value of benefits for this project is estimated to be $1.2 million while the total discounted value of costs is estimated to be $32.5 million (between 2011 and 2018).



Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$32,540,195	$1,214,587	16.4%

Figure 42. Downstream Gas Utilization Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive. The discounted B/C Ratio is 0.0, and the discounted net project return is estimated to be -$31.3 million.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$31,325,608	0.0	N/A

Figure 43. Downstream Gas Utilization Discounted Payback

Macroeconomic Analysis

Prior to the launch of Afghanistan's first CNG station, 100% of Afghan fuel was imported from neighboring countries at high prices that fluctuate due to transportation costs. Furthermore, an under-developed natural gas distribution infrastructure has limited the potential of Afghanistan's northern gas fields. The CNG Station will enable the transport of gas as CNG in tanks, to areas beyond Sheberghan without the need for a gas pipeline.

In order to establish a downstream market in Afghanistan, the Task Force first had to prove that there could be commercial consumption of natural gas in Afghanistan, and that there was a market for natural gas vehicles. This project proved there is interest in investing in Afghanistan's natural gas industry by creating a market value for a CNG station.

The downstream projects do not show macroeconomic gains but acknowledge the need to try innovative approaches to becoming less energy dependent by substituting with gas as an alternative source of energy for consumption.

Micro-Hydro Power Project

Summary of Results

The objective of this project was to connect the Tira Koh pumping station to a standard, stable micro hydroelectric grid with technical capacity to integrate with other micro hydro grids. The Micro-Hydro Power project was cancelled before the Task Force realized gains. The total cost to execute the project was $10,792,492; this project does not have an estimable return to the government of Afghanistan. No additional analysis was performed since this project concluded before tangible benefits could be realized.

Indigenous Industries

Background

Objectives

The Task Force seeks to create economic opportunities for the people of Afghanistan by strengthening indigenous industries for which the value chain is weak or suboptimal.

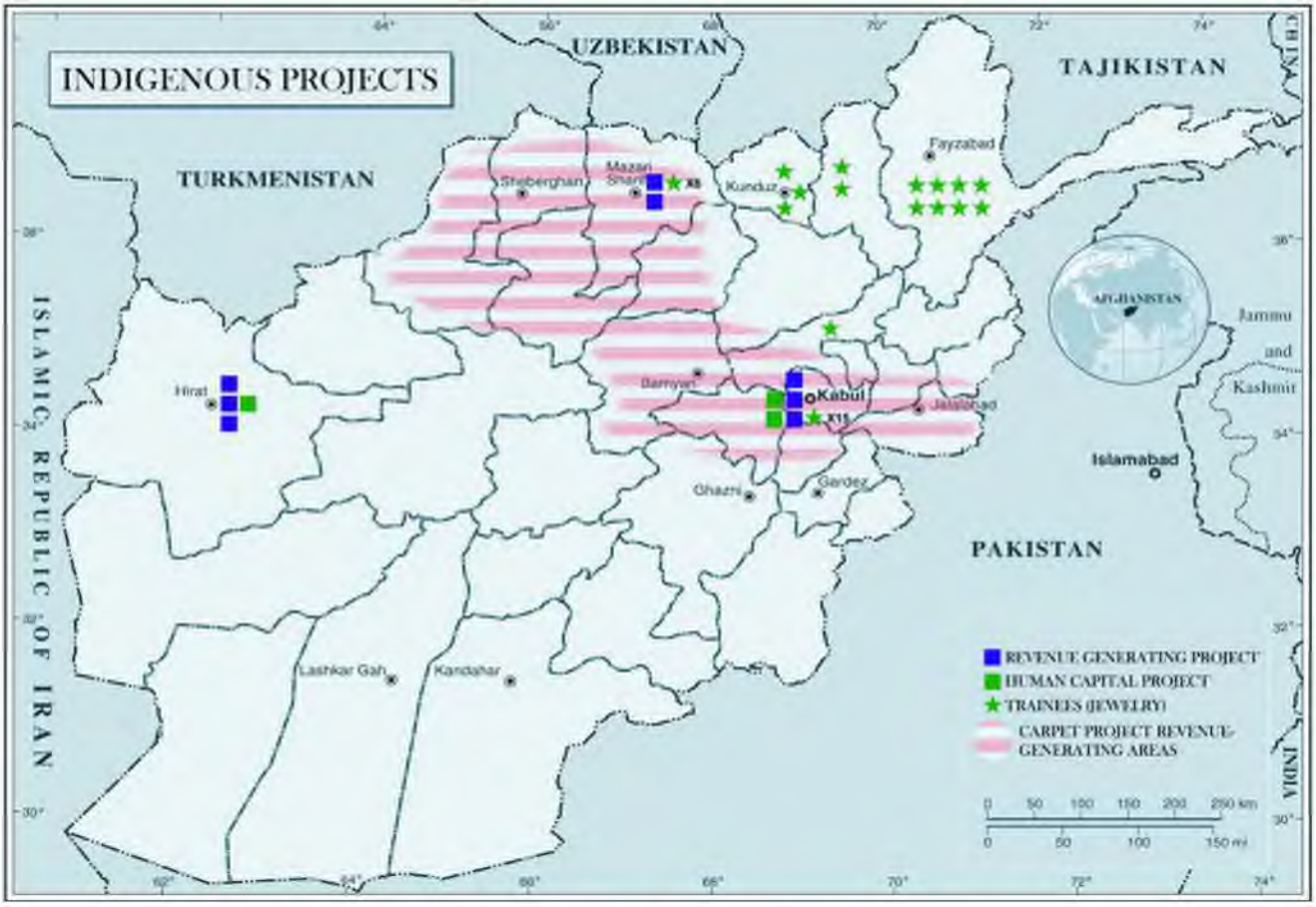


Figure 44. Indigenous Industries Project Map

Activity Overview

Indigenous Industries secures new international sales outlets for high-end artisanal products, develops and defines product lines, reaches international market standards in quality and design, and establishes production infrastructure (vendors, logistics, quality control, order fulfillment standards) capable of supplying international demand.

Due to decades of war, Afghanistan has been unable to keep pace with global quality control standards and value-added infrastructure, precluding the export of finished goods directly to lucrative foreign markets and resulting in dependence on neighboring countries to add value and

access customers. These initiatives by the Task Force are intended to increase the value and volume of Afghan exports, to create and strengthen Afghan businesses, and to raise worldwide awareness of Afghan industry and products.

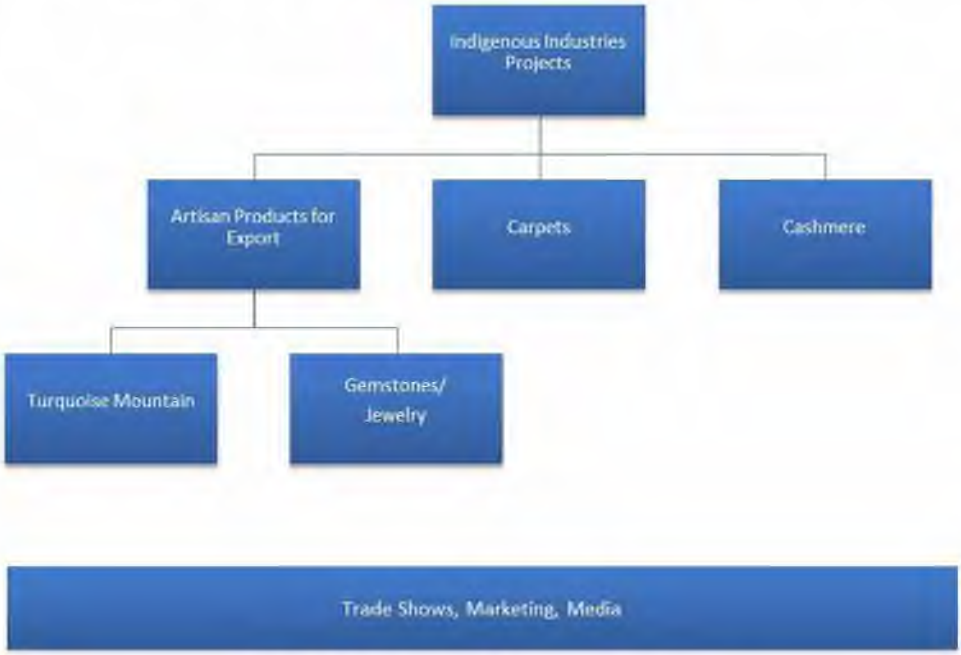


Figure 45. Indigenous Industries Projects

While development of natural resources and industry can take several years, rapid expansion of indigenous industries brings revenue and jobs to Afghanistan in the near-term. The Task Force is helping revitalize traditional Afghan industries, such as hand-knotted carpet weaving, cashmere production and artisan crafts and jewelry production, in order to reintroduce these high-value goods to the international market. The Task Force works closely with Afghan businesses to bring their products up to international standards and facilitates access to international buyers. In parallel, TFBSO connects international companies with opportunities for sourcing new goods and products in Afghanistan. The Task Force uses subject matter experts, strategic investment, and foreign and domestic investor support to strengthen capacity and quality of products and to connect Afghan producers with new domestic and international markets through tradeshows and media campaigns. By reintroducing these traditional Afghan products to the international market under an AfghanMade brand, TFBSO seeks to reengage Afghan producers throughout the supply chain, amplifying the effect of international demand on domestic production throughout the country.

Expected Outcomes: Carpets

On-site Task Force visits to carpet businesses throughout villages in Afghanistan with international vendors and investors contributed to the success of the project by permitting them to view inventory and place orders.

Currently, there are 15 international carpet investors and nine Afghan carpet producers involved with the AfghanMade initiative. The matchmaking initiative has resulted in almost $2 million in revenue to the Afghan carpet companies since its inception. This initiative has generated more than 9,500 jobs. The cut and wash facilities in Mazar and Herat have state of the art finishing capabilities and are processing orders from the local markets. The establishment of these two facilities has enabled Afghan carpet producers to finish their rugs in Afghanistan as opposed to Pakistan, keeping the full value chain in-country.

Cashmere

Flexible and responsive hiring and retention of skilled workers for the Cashmere project created efficiency and stability.

Interventions along the supply chain will improve the quality and quantity of Afghan cashmere and raise Afghanistan's international profile. New processing facilities have the potential to create 200-250 direct jobs with the cross-breeding businesses creating an additional 50-100 jobs. The Task Force has been coordinating with the Afghan Ministry of Commerce and Industry to pass a ban on the exports of raw/greasy cashmere. Additionally, TFBSO is helping potential investors evaluate existing but unused cotton and wool spinning and weaving facilities in Afghanistan; reopening these facilities could create over a hundred jobs and generate over $15 million in annual private sector revenue. In the short run, exports of raw (washed) cashmere could increase by more than 1,000 metric tons, adding more than $1.3M of revenue annually to the Afghan economy.

Artisan Products

Revitalizing traditional Afghan industries and connecting the best of Afghanistan's handmade artisan products and gemstones to the global marketplace will result in new artisan jobs in jewelry (cutting, polishing, inlay, and design), woodworking and ceramics, and enable craftsmen and women to launch entrepreneurial ventures. This will also raise Afghanistan's international business profile as a country of great natural and human resources, helping to attract broader investment.

Contribution to Stabilization Strategy

The Indigenous program will directly generate new jobs and increase revenue in small and rural communities. The impact of these projects is immediate, unlike the longer timeframe of industrial development. The increased access to international markets and greater revenue to producers for high-quality goods will position Afghanistan on the world stage as a producer of high quality products, attracting positive attention and potential investment. These products will also help restore Afghans' pride in their capabilities, link them more closely with the world economy, and

offer stronger incentives for them to participate in legitimate and legal economic activities, thus decreasing support for the insurgency.

Program Transition

The Task Force incorporates sustainability as a central element of all projects. The objective is to promote lasting sustainability through the development of long-term relationships with international markets and investors and through the development of enduring skills and capabilities that the Afghans will continue to grow and leverage.

Interventions

Skills Training

Afghan artisans' skills were enhanced and certified by the Indian Institute of Gems and Jewelry Jaipur on international standards in order to ensure that products met "fine jewelry" standards. This training enabled them to act as Master Trainers when they returned to Afghanistan. The Task Force also developed capacity in vendors to meet international orders. The Afghan carpet businesses were trained in new weaving and dyeing techniques. This created for more efficient production and enabled the businesses to be competitive in the international rug market.

Figure 46. Indigenous Industry Interventions

Branding

The Task Force assisted in collecting information on a list of preferred suppliers, showcasing the skill and talent of Afghan artisans in tradeshows, branding, identifying high-quality domestic vendors and securing international sales outlets for artisanal products under the AfghanMade brand.

Quality Control

The Task Force implemented quality control programs throughout its projects in Indigenous Industries. For example, in the Cashmere Project, the Task Force facilitated bringing in downstream processing facilities, establishing a pilot herd improvement program, and first ever cashmere quality testing laboratory to pave the way for branding Afghan cashmere in the international markets. They also developed a certification program which will guarantee grades of shipped cashmere.

Cashmere Project

Afghanistan is the third largest producer of cashmere in the world behind China and Mongolia. This industry has a high potential to increase exports as well as employ many resources in the country. For example, 95% of Afghanistan's 7 million goats are cashmere producing which makes Afghanistan the only major available resource in the world for raw material (USAID).

TFBSO facilitated the involvement of expertise at the farm level to increase the quality of cashmere farming, harvesting, color sorting and improvement, bleaching trials and animal breeding to obtain international quality level cashmere. To this end, they focused on obtaining certification for technicians and companies, as well as improving processing machines. TFBSO also increased the visibility of the product by presenting it in trade shows and other media outlets.

The value of Afghan cashmere will increase as the quality of the fiber improves. The ban on raw/greasy cashmere will prevent the export of contaminated cashmere bringing this sector in line with global standards.

Figure 47. Cashmere Value Chain

Based on USAID's 2009 estimates, the above graphic displays the percentage/value of raw/greasy cashmere compared to the potential if it is sold at retail.

Summary of Results

The following figure presents Afghanistan's GDP with and without Cashmere projects between 2010 and 2025. As illustrated, Cashmere projects lead to little-to-no GDP impact.

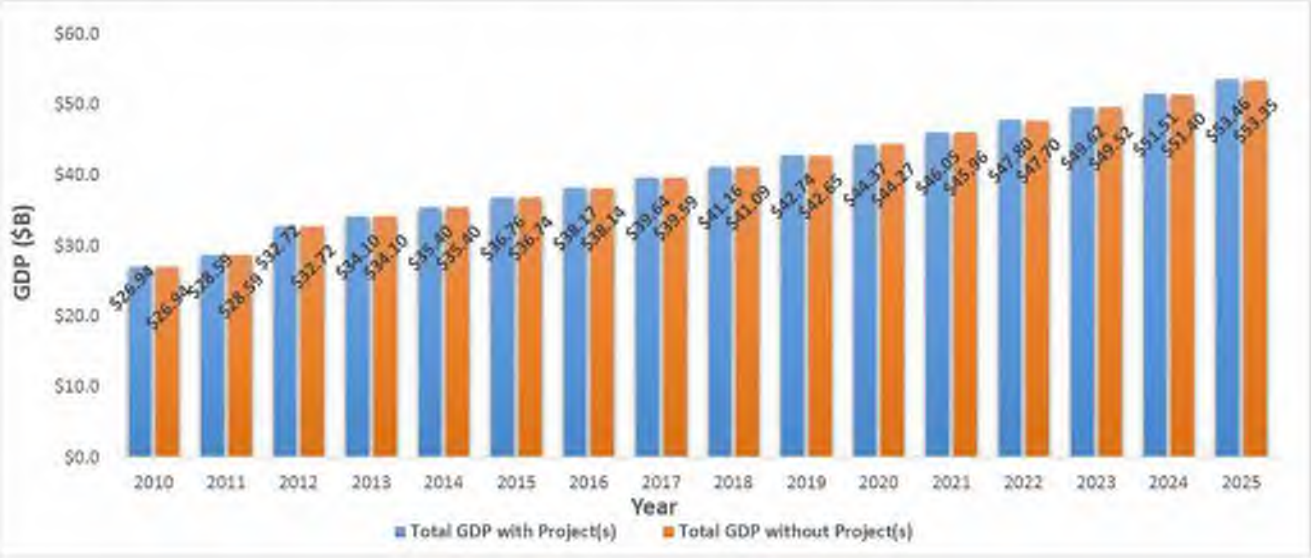


Figure 48. Cashmere Project Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable. Although the macroeconomic impact is negligible, this industry has large effects on a sizable portion of the rural and kuchi population. The vertical integration of this industry will increase the potential for GDP growth as well as utilize the increased supply of domestic energy.

The Task Force spent $6,093,137 between 2012 and 2014 to implement its cashmere projects (approximately $2.6M in direct costs and $3.5M in overhead costs). This project group has a benefit-to-cost ratio of 3.3, and a positive Net Present Value (NPV).

Senturion Analysis

Senturion analysis incorporates political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 54 stakeholders grouped in 12 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector-International, Private Sector-Afghanistan, Academic Institutions, Civil Society, International Community, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicated that there is strong support for the project by a majority of stakeholders and that security poses little to no threat to the projects. Although the Armed Opposition holds a position of opposition, the analysis found that the Armed Opposition's Influence was not significant in that region and the Importance of the project to them is low.

The analysis indicates that strong supporters are scattered within the international community, ministry offices, and private sector. There are some private sector businesses in Afghanistan who oppose the project because of the changes it will present to their own work stream. One of the concomitant issues is that it is simpler to export raw/greasy fibers in spite of the aggregate value lost. Opposition comes from the success of this ban. However, many other international and private Afghan businesses strongly support the project and a ban on the exports of raw/greasy cashmere. The international private sector sees the value in investing in additional machinery and working directly with businesses in Afghanistan, thus they strongly support the project. The Ministry of Commerce & Industry as well as the Ministry of Agriculture and Livestock have strongly supported this project because improving and expanding the Cashmere sector is one of their top priorities.

The Cashmere project has been successful working with the different stakeholders within the industry. The international, private sector, and ministry support has resulted in the success of the project thus far. Although, some neighboring countries, namely China and Iran are opposed to the project because of the increased competition, their overall influence and prioritization is low. Although these competitors oppose potential industry growth, the international market has room to accommodate more supply.

The low security risk and support from the ministries and private sector outweighs the minimal disapproval from specific Afghan private sector businesses and neighboring countries. As a result, the financial discount rate is politically adjusted from 12% to 15.2%.

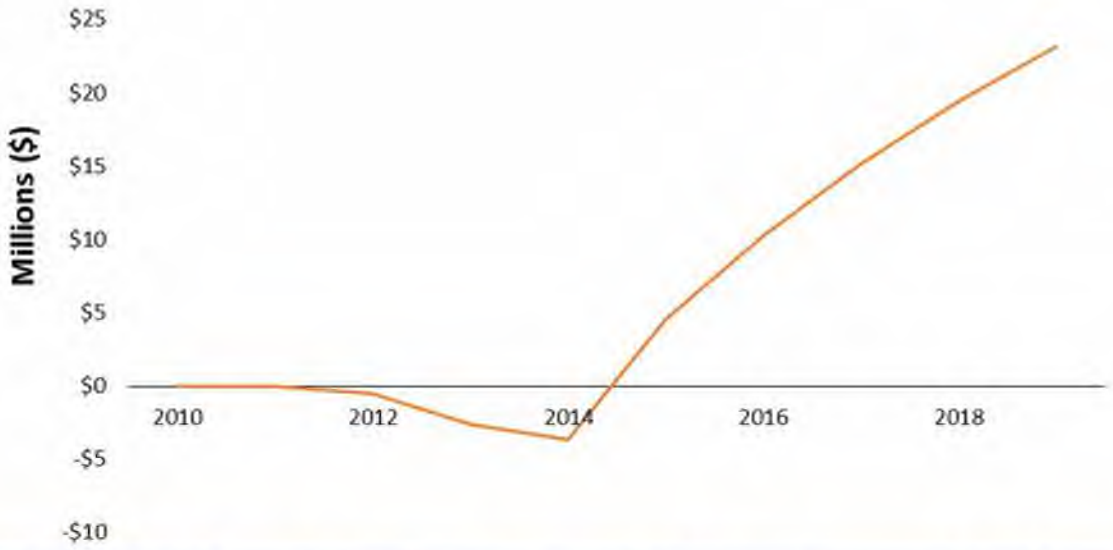
Cost Benefit Analysis

The CBA of the Cashmere project covers 8 years. The total discounted value of benefits for this project is estimated to be $33.3 million while the total discounted value of costs is estimated to be $10.2 million (between 2012 and 2019).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$10,175,673	$33,340,096	15.2%

Figure 49. Cashmere Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2015 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 3.3, suggesting the project as a standalone investment is fiscally sound. The discounted net project return is estimated to be $23.2 million. The IRR using undiscounted cash flows is estimated to be 120.4% (significantly greater than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$23,164,423	3.3	120.4%

Figure 50. Cashmere Discounted Payback

Macroeconomic Analysis

Despite Afghanistan being the world's third largest producer of raw cashmere, only 30% of the nine million cashmere-producing goats in Afghanistan are harvested for cashmere production. Herders in Afghanistan have the ability to double the output of cashmere via improved animal husbandry and breeding practices, training, and grade certification. Given that raw cashmere comprises most of overall cashmere exports, the industry will benefit from additional value-added processing machines that will create additional jobs and bring more revenue to the private sector. The overall macroeconomic impacts of this project are negligible.

Carpets Project

Carpet projects have responded to vertical integration needs to ensure that all links of the value chain are attended to, from inputs for production to exports. TFBSO has improved domestic capacity by facilitating the opening of new facilities. For example, the Task Force built two state-of-the-art cut/wash facilities to create finished carpets in Afghanistan, established market linkages for Afghan businesses to the international market, and trained new weaving techniques to Afghan businesses for efficient production. TFBSO also promoted the Afghan carpet industry under the AfghanMade brand at prominent international tradeshows and events.

Figure 51 Carpet Projects

Summary of Results

The following figure presents Afghanistan's GDP with and without Carpet projects between 2010 and 2025. As illustrated, Carpets projects lead to little-to-no GDP impact.

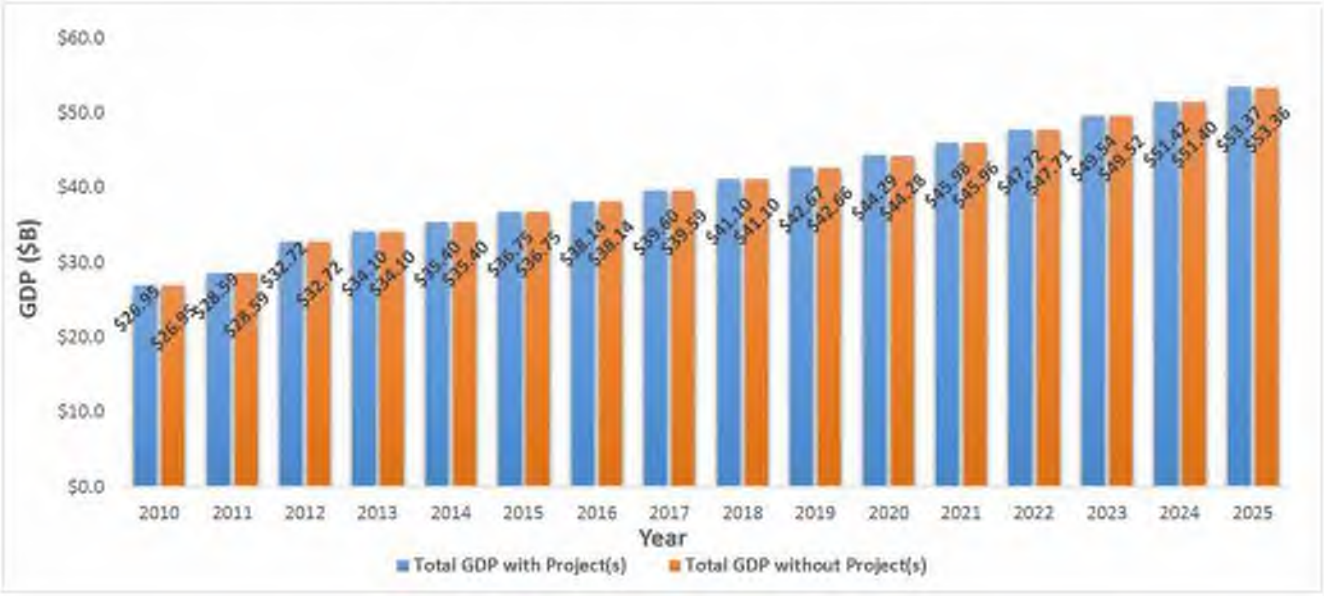


Figure 52. Carpet Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable. The model assumes there are no tariffs on exports and that the salaries of carpet employees are low enough to avoid income

taxes. It is also assumed that all production is exported and there are no consumption taxes; therefore, direct government income does not change.

The Task Force spent $7,560,758 between 2011 and 2014 on carpets projects (approximately $3.2M in direct costs and $4.4M in overhead costs). This project group has a benefit-to-cost ratio of 0.6, and the Net Present Value (NPV) is negative.

Senturion Analysis

The Senturion Analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 36 stakeholders grouped in 10 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, International Community, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The Carpets project is mostly influenced by the international community and private sector. The prevalence of stakeholder influence outside of the private sector and international donor community is minimal given the industry has existed for centuries independent from government agency support.

The analysis indicates that there is strong support for the project by a majority of stakeholders and that security poses little to no threat to the projects. Although the Armed Opposition holds a position of neutrality, the analysis found that the Armed Opposition's Influence was not significant in that region and the Importance of the project to this group is low. The reason for this is that most of the production takes place in the northern provinces of Afghanistan where the security situation isn't as heightened as in other areas.

The analysis indicates that the only stakeholder who passively opposes the project is Pakistan due to the potential disruption to Pakistan's carpet trade advantage. However, Pakistan's influence is minimal in comparison to the positive position and influence of all other international stakeholders. The international private sector and local Afghan businesses support the project due to the increase in revenue it will bring to their businesses and the direct linkages it creates between the investor and the Afghan producer. The Afghan Investment and Support Agency (AISA) and Carpet Unions are also supportive of the carpet project due to the increase it brings to the carpet industry domestic capacity. The discount rate incorporates these factors and increases the financial discount rate from 12% to 17.7%.

Cost Benefit Analysis

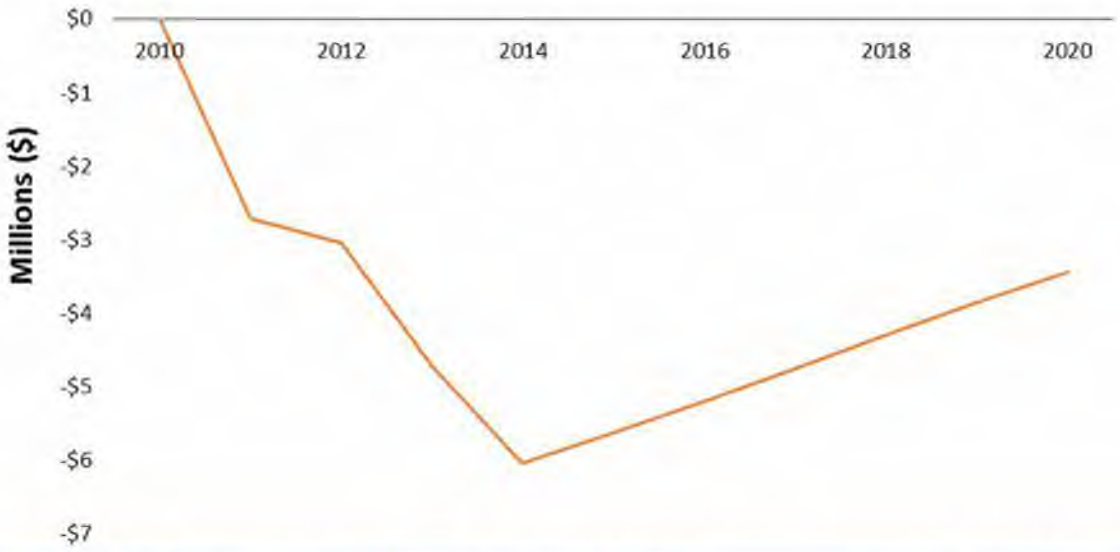
The CBA of the Carpet projects covered 10 years from 2011-2020. [26] The total discounted value of benefits for this project is estimated to be $6.0 million while the total discounted value of costs is estimated to be $9.4 million (between 2011 and 2020).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$9,442,582	$5,990,577	Range: 12.0% - 17.7%

Figure 53. Carpets Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive return by 2020 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 0.7, suggesting the project as a standalone investment is not fiscally viable. The discounted net project return is estimated to be -$3.3 million. The IRR using undiscounted cash flows is estimated to be 0.7% (less than the risk adjusted discount rate which leads to a negative NPV).

[26] Carpets Hub 2011, Carpets 2011-2020, and GoodWeave 2011.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$3,452,006	0.6	0.7%

Figure 54. Carpets Discounted Payback

Macroeconomic Analysis

Over one million Afghans are employed directly or indirectly in the carpet sector including wool production, weaving, and cut/wash. This industry helps sustain many households and it is poised for revitalization. Decades of war isolated the Afghan carpet industry from the international marketplace and impacted the producers' ability to meet market needs and realize additional market value from their goods. Carpets have the potential to provide direct, immediate benefits to rural households. In fact, over 9,500 jobs were added in the carpet industry as a result of the Carpets projects. As the country's largest legal export and largest employer, the industry can benefit immensely from modernized techniques and designs, additional private sector investment, international branding, and finishing facilities. The overall macroeconomic impacts of this project are negligible.

Artisanal Industries Project

Figure 55 Artisanal Products

Afghanistan's artisanal industries can support sustainable economic growth throughout the country. TFBSO's approach to enabling artisanal industries included implementing two projects called Jewelry Development and Turquoise Mountain. The project group focused on four objectives to accelerate long term and sustainable growth: (1) train semi-skilled Afghan jewelry artisans to attain international industry standard skills, (2) create market exposure for Afghan jewelry, (3) develop an Afghanistan-branded line of jewelry and promote it at international trade shows, and (4) generate employment and sustainable new market linkages for new graduates. This project group sought to first create and validate demand for indigenous Afghan products in international markets and then invest in developing associated supply chains at a level that meets demand.

TFBSO facilitated the development of Afghan made jewelry through Aayenda Jewelry. Aayenda is a social enterprise owned by 501c3 charity Future Brilliance that is designed to provide sustainable benefit to Afghan artisans through ongoing skills and business training and apprenticeships, the introduction and oversight of quality standards, as well as through marketing and sales strategy enhancements.

Turquoise Mountain Arts is located in the historic Murad Khane district of Kabul. TFBSO focused on securing new international sales outlets for high-end artisanal products, developing and defining product lines, reaching international market standards in quality and design, and establishing production infrastructure (vendors, logistics, quality control, order fulfillment standards) capable of supplying international demand. Turquoise Mountain is involved in the sale, marketing and brokering of commissions for Afghan artisans. Products include a variety of materials including gold, silver, copper, gems, various woods, clay, glazes and natural pigments.

Summary of Results

The following figure presents Afghanistan's GDP with and without artisanal projects between 2013 and 2025. As illustrated, these projects lead to little-to-no GDP impact.

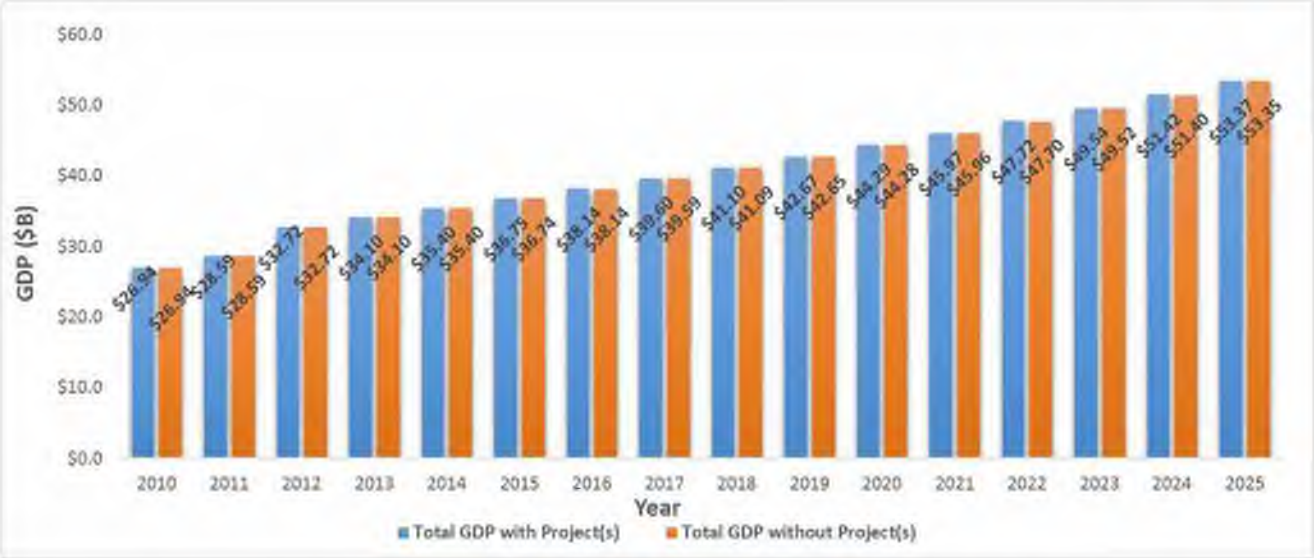


Figure 56. Artisanal Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable. However, TFBSO Artisanal projects supported over 300 temporary and permanent jobs in the sector. The Jewelry Development project trained and certified 36 individuals in jewelry production, gem cutting, and design at the Indian Institute of Gems and Jewelry in Jaipur. Khala Zainab, one of the training program's participants, has a business based in Badakhshan that has created an estimated 1,000 jobs in bead carving as a result of the orders placed for the Aayenda jewelry line.

The Task Force spent $7,316,112 between 2011 and 2014 to implement artisanal industries projects (approximately $4.0M in direct costs and $3.3M in overhead costs). This project group has a benefit-to-cost ratio of 0.7, and the Net Present Value (NPV) is negative.

Senturion Analysis

The Senturion Analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 35 stakeholders grouped in 10 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, International Community, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

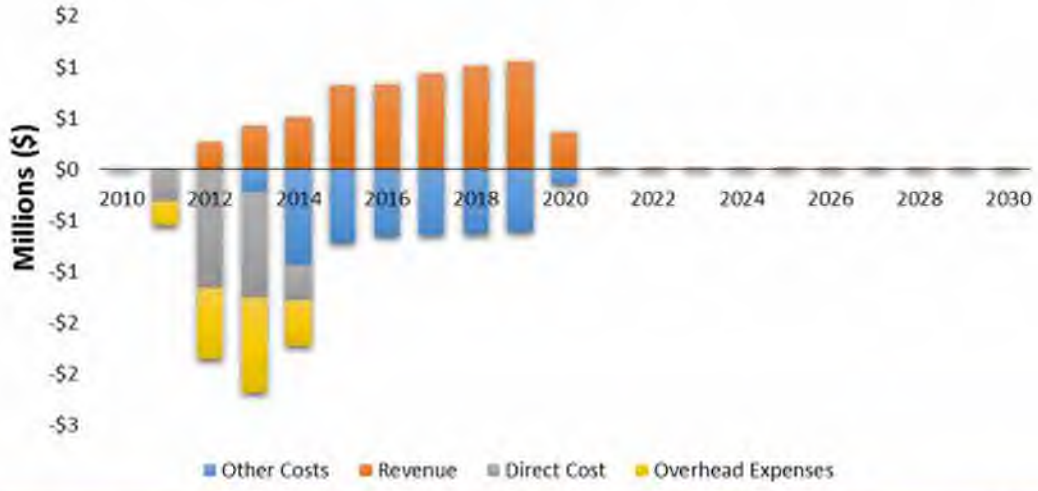
The analysis indicated that there is strong support for the project by a majority of stakeholders and that security poses little to no threat to the projects. Although the Armed Opposition holds a position of passive opposition, the analysis found that the Armed Opposition's Group Influence was not significant and the Importance of the project to them is low.

Turquoise Mountain has received support from numerous stakeholders in the international community as well as positive media coverage from civil society members. Additionally, the Non-Governmental Organizations (NGO) have received positive support from the Afghan government and were requested, on numerous occasions, to furnish artwork, woodwork, and other artisanal crafts for government and presidential facilities. The Murad Khane district in Kabul is a strong supporter of the NGO and considers them to be very important given the community redevelopment initiatives that Turquoise Mountain has undertaken and local business support they offer. The international donor community sees value in investing in the handicraft sector, providing additional skills development and offering support to the businesses involved with Turquoise Mountain.

The Jewelry Business Development project was primarily involved in working with the international and Afghan private sectors within the industry. The analysis indicates that strong supporters include the private sector, civil society, and most ministries. However, the overall importance of the project is relatively low for many of the stakeholders with the exception of the Afghan private sector. The international donor community sees value in investing in additional skills development in the Afghan producers. The discount rate incorporates these factors and increases the financial discount rate from 12% to 14.5% for the Turquoise Mountain project, and to 15.7% for the Jewelry Develop project.

Cost Benefit Analysis

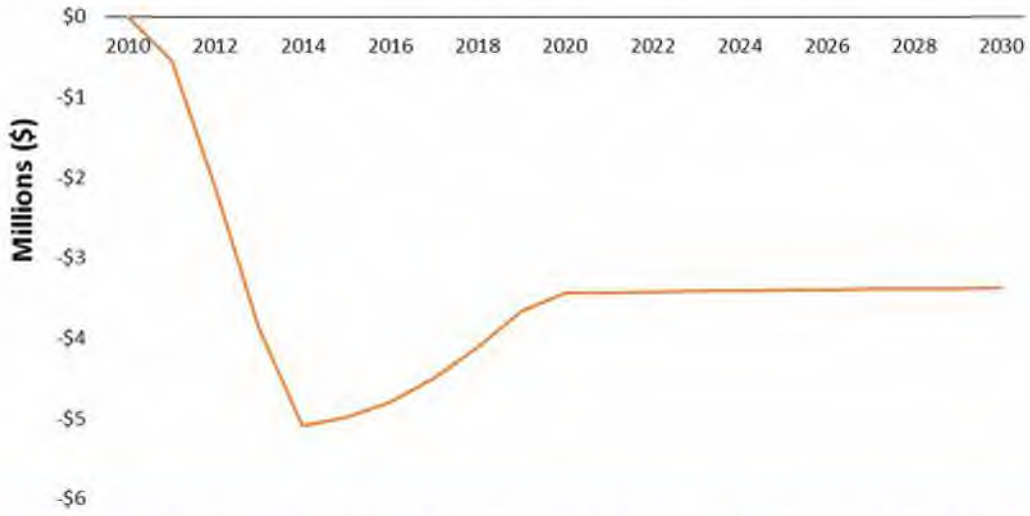
The CBA of the artisanal project covers more than 40 years; however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $6.3 million while the total discounted value of costs is estimated to be $9.7 million (between 2011 and 2030).



Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$9,700,253	$6,320,876	Range: 12.0% - 15.7%

Figure 57. Artisanal Development Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 0.7, suggesting the project as a standalone investment is not fiscally viable. The discounted net project return is estimated to be -$3.4 million. The IRR using undiscounted cash flows is estimated to be -5.4%.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$3,379,377	0.7	-5.4%

Figure 58. Artisanal Development Discounted Payback

Macroeconomic Analysis

Growth in the artisanal industry is hindered due to the lack of highly skilled professionals, proper finishing equipment, and international perceptions of poor quality. Few Afghans are trained in the processing and polishing of gemstones which leads to most of the finishing taking place in Pakistan. Afghanistan is losing approximately 45% of the value of uncut stones and 200% of the value of finished jewelry due to the current lack of artisanal skills and tools in-country. Providing additional training to artisans and supplying them with the necessary tools and equipment will both raise Afghanistan's image within the global marketplace as a source of quality skilled labor and natural resources as well as increase the confidence of Afghan artisans.

Turquoise Mountain is well positioned to supply international orders with additional mentorship, quality control, and marketing. Revitalizing indigenous Afghan industries and connecting them with the global marketplace can result in additional jobs and new private businesses. Exports are imperative to foster Afghanistan's development and Turquoise Mountain represents one of the avenues to increase the inflow of currency. Furthermore, as the mineral industry sees positive outputs, the indigenous industries will use some of those gems for added value production that can remain in Afghanistan, showing another potential for growth.

Investments & Entrepreneurship

Background

Objectives

The goal of the Investment and Entrepreneurship program is to accelerate the growth of the Afghan economy by facilitating investment, encouraging entrepreneurship, and lowering the transaction costs of deals through investment advisory services.

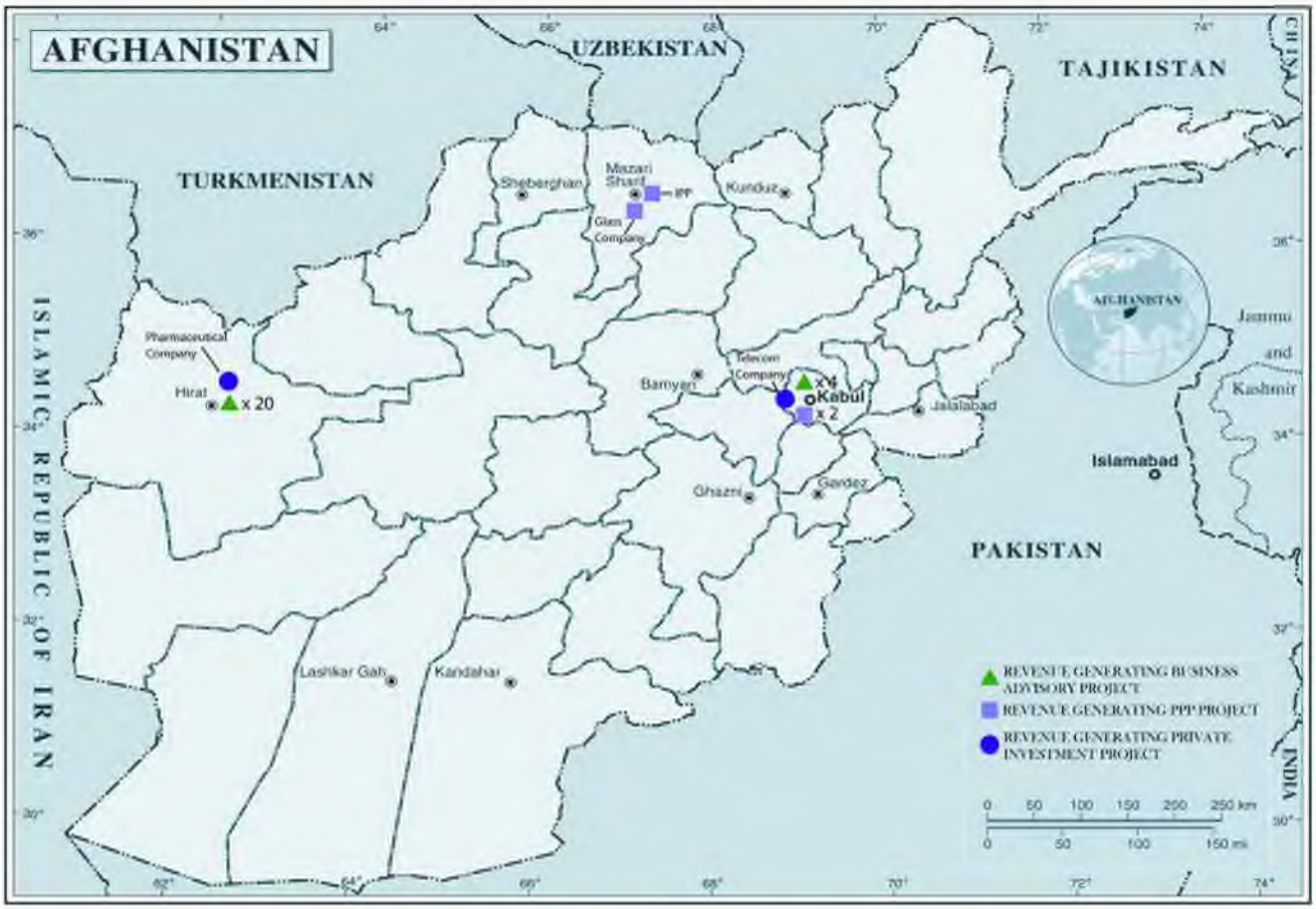


Figure 59. Investments and & Entrepreneurship Projects

Activity Overview

The Investment & Entrepreneurship Program promotes small and medium enterprise growth and entrepreneurship by providing business advisory services, facilitating private investment, and promoting public private partnerships in Afghanistan. The program is committed to increasing deal flow between responsible investors and legitimate Afghan firms; setting the conditions for sustainable and responsible development of the Afghan economy; and, enhancing the efficiency of Afghan companies through professional consulting services, including business management,

engineering, and food processing. These critical TFBSO services will enable small and medium-sized firms in Afghanistan to attract needed capital and expand their businesses.

Contribution to Stabilization Strategy

These programs support the stabilization strategy by strengthening, diversifying, and democratizing the economy. They enable the entry of new businesses into multiple industries supported by a broad set of investors and build ties to international financial markets through investments in Afghan businesses. Critical to the success of this strategy is the creation of better business practices through deals between responsible investors and vetted local firms, ultimately laying the foundation of a legitimate business class to demand better and more transparent governance.

Program Transition

Because the majority of the Investments and Entrepreneurship program's projects consist of advising and facilitation services, only the Herat Business Accelerator and AUAF Business Innovation Hub involve formal project oversight - and in both cases active government participation will come to an end at the end of 2014 with the closure of the Accelerator and the beginning of the Hub's self-sustainment. Deal facilitation services will be continued as appropriate and practicable through the end of TFBSO's operations and phase out, leaving private sector actors to continue business operations. TFBSO remains committed to working with the Department of State and USAID to transmit project information throughout the shutdown process.

Interventions

The Task Force Investments and Entrepreneurship program removed artificial barriers to investment and business activity by several means. The program worked with the Government of Afghanistan, improving the capability of Afghan government entities to tender and operate public-private partnerships, and assisted with strategic outreach to viable partners, facilitating informational visits by those that expressed interest. Additionally, TFBSO paved the way for international investment and joint ventures by providing detailed information about both broad sectors and specific opportunities to potential investors, as well as by preparing Afghan firms to work with international companies. Finally, the program also stimulated economic activity to actively mentoring those companies that had the potential to grow, but were not yet ready for major deals with international actors.

Government Mentoring on Private Sector Activities

TFBSO offered private sector consulting to the Government of Afghanistan's public private partnership (PPP) tendering processes. By coaching government officials on the concerns and needs of private sector individuals, as well as by assisting with investor outreach and communication, the Investments and Entrepreneurship team enabled the Afghan government to attract the attention of the most promising potential partners and streamline the tender processes.

Market Research and Deal Facilitation

The Investments and Entrepreneurship program facilitated investment deals and joint ventures between Afghan and international companies by vastly reducing the uncertainty faced by firms considering business opportunities in Afghanistan. Over the course of 2011, 2012, and 2013, the team developed deep market knowledge across numerous sectors, enabling it to provide both broad analysis and specific, vetted opportunities for potential investors. It concurrently worked with those Afghan businesses that were of investment grade to prepare them for interaction with international partners. The Investments and Entrepreneurship program finally enabled partners to connect, facilitating meetings and deal structuring as appropriate.

> The Task Force involvement in the Pharmaceutical Sector resulted in the development of one of the largest pharmaceutical factories in Afghanistan, with gross annual revenues of $105.8 million and a net annual income of $19.3 million.

Coaching to Develop Best Management Practices

The Task Force assisted SMEs that were not yet ready to receive investment or enter into joint ventures with international companies by providing in-depth mentoring and training on business management practices. These services revolved around pairing clients with dedicated consultants who worked with them over the course of several months to realize specific business objectives.

Private Sector and Public Private Partnerships Project

TFBSO facilitated a number of large investment projects by private sector actors that involved varying degrees of cooperation with the Government of Afghanistan. These work streams were fundamentally different than the linear processes typically associated with project management in that they were driven not by the Task Force, but by independent, private businesses with their time line and valuation methods. While TFBSO personnel were able to guide and influence many parts of these processes, all decisions were ultimately made by outside actors. The Investment and Entrepreneurship program therefore developed a philosophy of remaining flexible and adjusting efforts to reflect changes in investor focus.

The Independent Power Producer (IPP) project brought international investors from several companies together with multiple government ministries. The Investment and Entrepreneurship team's coordination among these diverse actors with varying goals drove the group to reach a consensus and sign a Memorandum of Understanding, outlining the path toward harnessing Afghanistan's new natural gas resources.

The Glass Company project provided funding for preliminary development of a space earmarked for industrial use. The developer prepared an area sufficient for both its own use as a glass tempering facility and other businesses that may take advantage of the space. Located near the future IPP, the area will benefit from reliable, clean electricity.

The Task Force also conducted extensive market research on Afghanistan's scrap steel industry. Outreach to regional steel companies revealed substantial interest by investors to establish a steel

factory in Afghanistan, to at first revolve around the recycling of scrap, and then to eventually transition to steel production as Afghanistan's iron ore resources become available.

Finally, the Investments and Entrepreneurship program responded to a need identified by USAID for private sector experience in the Ministry of Public Health's tender of several donor-constructed hospitals. The team provided private sector perspectives to the Ministry, communicated the opportunities to top-tier potential investors, and facilitated information gathering and site visits by interested candidates.

Summary of Results

The following figure presents the macroeconomic impact on Afghanistan's GDP with and without Task Force PPP projects between 2012 and 2025. As illustrated, TFBSO's PPP projects lead to an additional $1.9 billion in GDP in 2025. In this analysis, the aggregation of investments in different areas reinforces the value of partnerships, helping to minimize investment risks.

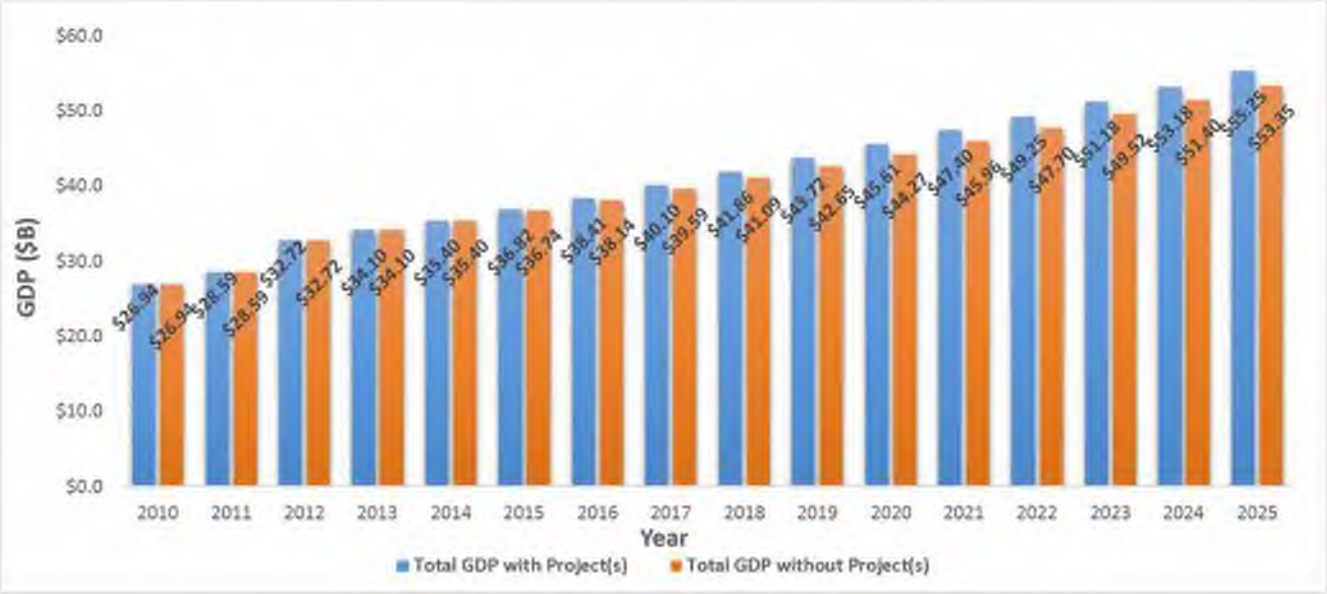


Figure 60. Public Private Partnership Effect on GDP

The Task Force spent $27,876,331 between 2012 and 2014 to implement PPP projects in Afghanistan (approximately $8.7M in direct costs and $27.9M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period for the PPP project. For example, cumulative government revenue between 2010 and 2025 is expected to be $8.8 billion greater with the addition of PPP projects. Country-wide, these projects are forecasted to add $12.4 billion to economic activity between 2010 and 2025.

Table 14. Public Private Partnership Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	$0.6 B	$7.6 B	$8.8 B
Difference in Cumulative "GDP"[27] due to Projects	$0.9 B	$10.7 B	$12.4 B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $1.9 billion in GDP by 2025. The Task Force was allocated $0.6 billion of the total $1.9 billion as a result of the key role it played establishing PPPs in Afghanistan.

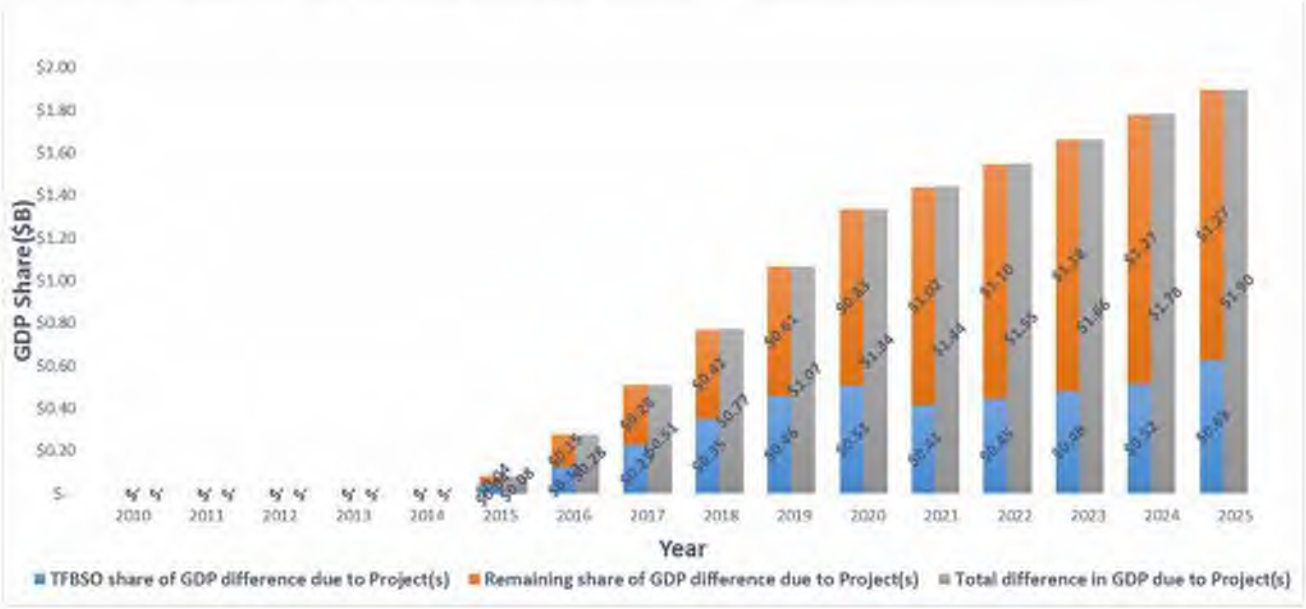


Figure 61. TFBSO's Share of Public Private Partnership Projects Effect on GDP

The PPP Project represents a sound economic investment in Afghanistan. The group of PPP projects has a benefit-to-cost ratio of 1.2, and a positive Net Present Value (NPV).

Senturion Analysis

The Senturion Analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 50 stakeholders assigned to 10 categories, the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, International Community, and Insurgents. Senturion data

[27] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicated near universal support across stakeholders, including the international community (to include the Overseas Private Investment Corporation and the Small Enterprise Assistance Funds' Afghan Growth Finance) and elements of the Afghan national government (with overwhelming support from Afghanistan's Ministry of Commerce and Industry).

The Steel component of the project group is viewed as a tremendous win-win opportunity by nearly all stakeholders. Regional steel companies are keen to enter the Afghan market and they view the scrap steel that exists, after decades of war and turmoil, to be a potentially lucrative and untapped resource. Elements of GIRoA and civil society are supportive of the numerous jobs and economic development that will come to pass as a result of the project.

The nature of the Hospitals component of the project group invites little dissent. The hospitals in question have already been constructed and must be tendered to international private sector entities to operate. The landscape is devoid of stakeholders dissenting from that overall aim as it is universally acknowledged that GIRoA does not have the expertise to operate the facilities. The private sector and the government are in accord.

Industrial programs that create jobs as well as provide inputs to the Afghan construction industry are difficult to oppose. Additionally, the fact that the Independent Power Producer project uses natural gas to generate necessary power adds to the non-objectionable nature of the project.

The only opposition that can be inferred stems from environmental NGOs and insurgents. While environmental NGOs have not been vocal, it can be expected that concerns with regard to environmental impact from steel manufacturing will be raised as the project progresses.

Given the support these projects enjoy across the public and private sector, the financial discount rate increases from 12% to 20.6%.

Cost Benefit Analysis

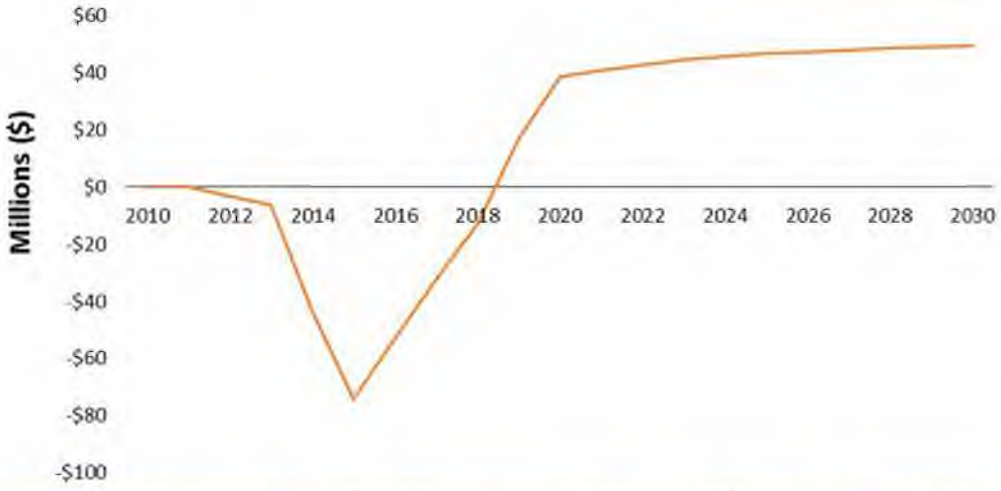
The CBA of the PPP project covers more than 30 years; [28] however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $350.1 million while the total discounted value of costs is estimated to be $300.7 million (between 2010 and 2030).

[28] Glass Company 2012-2024, Steel 2012-2020, Independent Power Producer 2013-2029, and Healthcare 2013-2040.

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$300,733,862	$350,143,710	Range: 19.6% - 20.6%

Figure 62. Public Private Partnership Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2019 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.2, suggesting the project as a standalone investment is fiscally sound. The discounted net project return is estimated to be $49.4 million. The IRR using undiscounted cash flows is estimated to be 36.3% (greater than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$49,409,848	1.2	36.3%

Figure 63. Public Private Partnership Discounted Payback

Macroeconomic Analysis

The PPP projects will accrue benefits to the Afghan economy in a number of ways. Foremost, the construction of a 50 MW, natural gas based, independent power producer will help overcome one of the largest barriers to industrial development in Afghanistan: access to reliable power. In addition, the tender of three major hospitals in Kabul for private operation will decrease the flow of medical spending to neighboring countries as well as help bring about the conditions necessary for a healthy, productive, workforce.

As presented in the table below, Public Private Partnership projects impact the macro economy by adding $40.35 to Afghanistan's per capita GDP by 2025. The change to Afghanistan's exports are forecasted to be negligible; however, total household income is forecasted to be $0.5 billion higher than in forecasted scenarios without Public Private Partnership projects. Additional value is added to the economy with higher consumer spending and health care provisions. PPPs also deter the exporting of domestic value chains, saving hard currency. Thus partnerships such as these help respond to the specific needs of Afghanistan's economy by combining business acumen with long term sustainable growth.

Table 15. Public Private Partnership Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,077.6	$1,177.3
	Without Projects	$1,057.8	$1,136.9
Exports	With Projects	$4.6 B	$6.0 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$41.2 B	$53.7 B
	Without Projects	$41.0 B	$53.2 B

Private Investment Project

The Investments and Entrepreneurship program sourced and surveyed more than 600 Afghan SMEs, developing a robust understanding of Afghanistan's business communities between 2011 and 2013. This enabled the team to source, vet, and market viable small-to-medium sized enterprises (SME) to the international investor community. By removing the often prohibitively high transaction costs associated with conducting market research in Afghanistan, the team enabled investors to identify those opportunities that met their investment goals ~~but~~ which would have otherwise remained inaccessible.

At the same time, TFBSO assisted Afghan companies that were ready to accept investment in connecting with sources of finance. It assisted SMEs with loan applications, financial models, valuation and pitch decks, and the marketing of events and products.

Throughout this two-pronged approach, the Task Force supported the deal making process with introductions, due diligence, term sheet and commitment letter preparation, and deal structure advising. This unique approach brought greater transparency to both sides of deals, allowing private sector actors to make informed decisions. These activities support Afghan firms through four basic mechanisms: decreased costs, increased efficiency, improved branding, and expanded operations.

As with the PPP projects described above, TFBSO's Private Investment projects are driven by investor decisions, which can accelerate, decelerate, re-conceptualize, or abort an initiative entirely. The Task Force team found it necessary to maintain flexibility, respond to investors' visions (occasionally to the exclusion of their own), and at times step away from sunk costs in order to focus on facilitating the deals with the greatest impacts and chances of success.

In this group of projects, the Task Force helped a pharmaceutical company acquire $27.5 million in funding to complete construction of a production plant in Afghanistan and assisted a media company in acquiring financing to consolidate their footprint while networking with potential investors, foundations, and non-bank financial institutions to market a private equity fund in Afghanistan. Furthermore, it facilitated in-country visits for frontier market private equity firms to conduct due diligence and feasibility studies and introduced firms to Afghanistan's viable sectors and investment opportunities, as well as key government and business leaders. The Task Force also helped investors establish strategies involving country, sector, and risk analyses.

Summary of Results

The following figure presents Afghanistan's GDP with and without Task Force Private Investment projects between 2010 and 2025. As illustrated, TFBSO's Private Investment projects lead to an additional $0.9 billion in GDP in 2025.

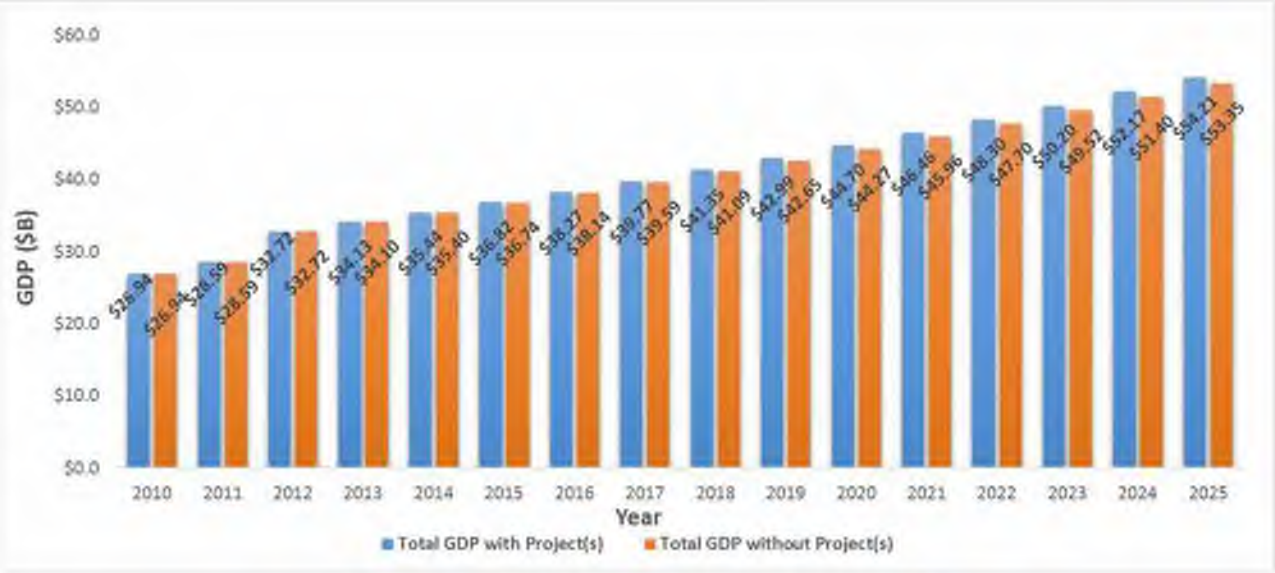


Figure 64. Private Investment Projects Effect on GDP

The Task Force spent $9,815,901 between 2013 and 2014 to implement private investment projects in Afghanistan (approximately $3.8M in direct costs and $6.0M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period for all private investment projects. For example, cumulative government revenue between 2010 and 2025 is expected to be $0.5 billion greater with the addition of private investment projects. Country-wide, these projects are forecasted to add $4.9 billion to economic activity between 2010 and 2025.

Table 16. Private Investment Projects Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	$0.1 B	$0.4 B	$0.5 B
Difference in Cumulative "GDP"[29] due to Projects	$0.5 B	$4.2 B	$4.9 B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $0.9 billion in GDP by 2025. The Task Force was allocated $0.5 billion of the total $0.9 billion as a result of the key role it played in facilitating financing agreements in Afghanistan.

[29] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

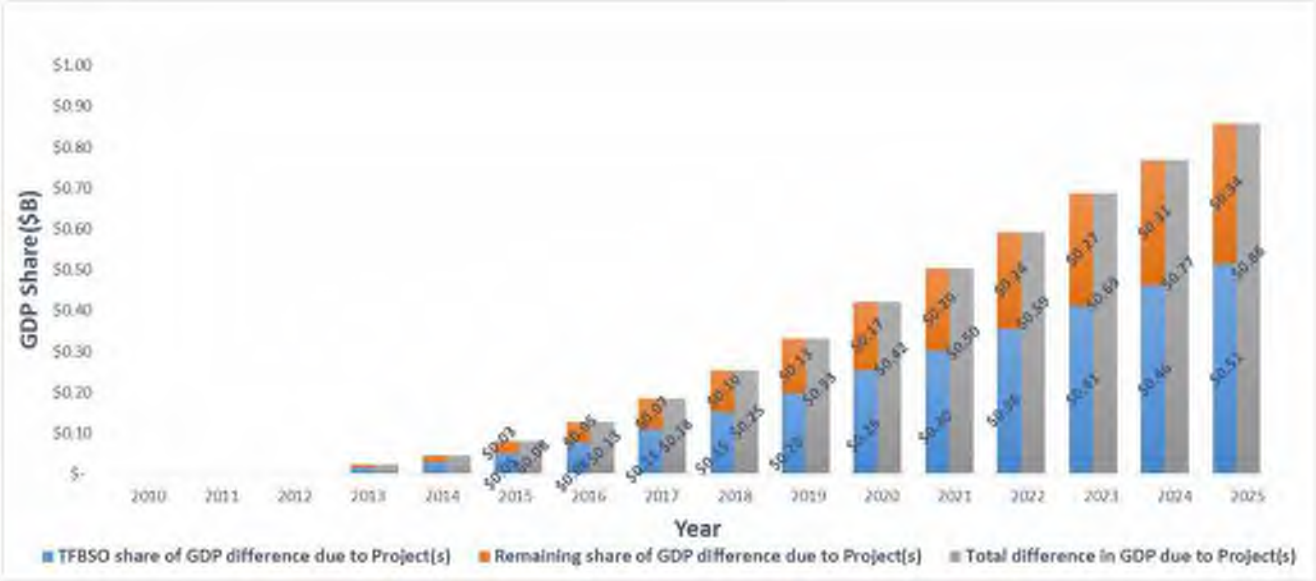


Figure 65. TFBSO's Share of Private Investment Projects Effect on GDP

The Private Investments Project represents a sound economic investment in Afghanistan with a benefit-to-cost ratio of 1.3, and a positive Net Present Value (NPV).

Senturion Analysis

The Senturion Analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 36 stakeholders assigned to 9 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, International Community, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicated near universal support across stakeholders, including the international community (to include the Overseas Private Investment Corporation and the Small Enterprise Assistance Funds' Afghan Growth Finance) and elements of the Afghanistan government (in particular the Ministry of Commerce and Industry).

The development of a pharmaceutical manufacturing facility in western Afghanistan is wholly uncontroversial and receives either active or passive support from all stakeholders. In addition, private investment includes acquiring financing for and constructing a consolidated studio for Afghanistan's largest media outlet. Both international and domestic stakeholders recognize the need for a healthy media.

Given the overwhelming support the project enjoys across the public and private sector as well as the minimal opposition, the financial discount rate increases from 12.0% to 14.6%.

Cost Benefit Analysis

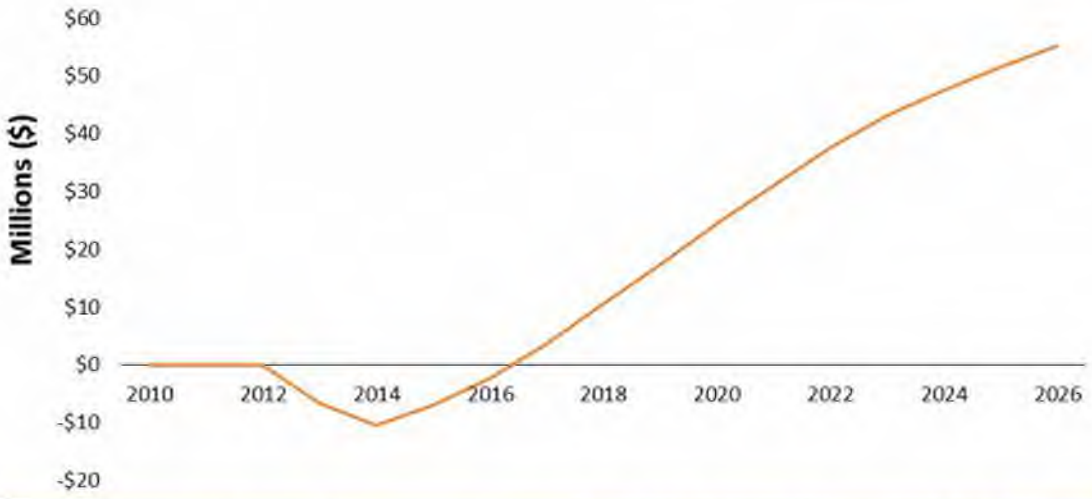
The CBA of the Private Investment projects covered 14 years from 2013 to 2026. [30] The total discounted value of benefits for this project is estimated to be $217.5 million while the total discounted value of costs is estimated to be $162.2 million (between 2013 and 2026).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$162,233,384	$217,454,297	Range: 14.5% - 14.8%

Figure 66. Private Investment Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2017 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.4, suggesting the project as a standalone investment is fiscally sound. The discounted net project return is estimated to be $55.2 million. The IRR using undiscounted cash flows is estimated to be 59.2% (greater than the risk adjusted discount rate which leads to a positive NPV).

[30] Telecom #8 2013-2023 and Chemical #1 2013-2026.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$55,220,913	1.4	59.2%

Figure 67. Private Investment Discounted Payback

Macroeconomic Analysis

The main challenge the Investments and Entrepreneurship program faced was the reluctance of international investors to be first movers in Afghanistan. The opportunity was clear; however, the risk was beyond the appetite of most. Now that the team has secured several first mover successes, a large pharmaceutical factory in Western Afghanistan and a major construction project to build the country's largest media studio, the uphill battle of securing a groundswell of major deals is now moot. This program has set in motion private equity funds to secure the necessary clearances, such as through OPIC, to be able to operate in Afghanistan. These benefits will likely continue to accrue to the Afghan economy after TFBSO ceases operation in Afghanistan.

As presented in the table below, Private Investment projects add $18.30 to Afghanistan's forecasted per capita GDP by 2025. The increase in per capita income shows that these investments support higher than average paying jobs. Exports are not forecasted to increase with the addition of Private Investment projects, but total household income is forecasted to be $0.7 billion higher than in forecasted scenarios without Private Investment projects. These projects reflect both the importance and possibilities of attracting private investments to Afghanistan household income.

Table 17. Private Investment Projects Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,064.3	$1,155.2
	Without Projects	$1,057.8	$1,136.9

		2018	2025
Exports	With Projects	$4.6 B	$6.0 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$41.2 B	$53.9 B
	Without Projects	$41.0 B	$53.2 B

Business Advisory Project

In 2011, the Task Force began the process of screening more than 600 Afghan SMEs to assess their levels of sophistication, stages of growth, and appetites for investment. While this research directly informed both the PPP and Private Investment project groups, its original purpose was to identify suitable startup candidates for participation in a Silicon Valley-modeled Information and Communication Technology (ICT) Incubator.

As the Incubator grew, its emphasis shifted to SMEs (as opposed to startups) that were better equipped to take advantages of the services it offered. The ICT sector focus broadened, expanding to other areas from food processing to auto part manufacturing to marble production. Services evolved as well. Consultants established close working relationships with their clients, identifying goals for expansion or process improvements and coaching firms throughout the processes of business plan creation and execution. Clients that "graduated" from the program remained a part of the Accelerator's network of local partners and occasionally participated in training, or even business partnership, with newer clients. Eventually, the decision was made to rebrand the ICT Incubator a "Business Accelerator" to reflect its sector-agnostic approach and shift away from pure startup companies.

In 2013, in anticipation of the end of TFBSO operations, the Investments and Entrepreneurship program secured funding to help the American University of Afghanistan (AUAF) establish a similar program at its campus in Kabul. This project, known as the Business Innovation Hub, provides services very similar to those provided by the Business Accelerator in Herat. And after the Business Innovation Hub's successful launch in 2013, the Task Force secured additional funding to enable AUAF to open the Hub's first branch office in Herat, providing the business community with continuing high-quality business management mentoring after TFBSO operations cease. The

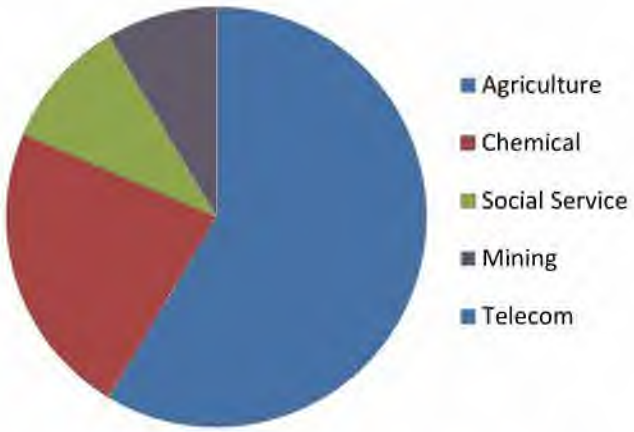


Figure 68. Business Advisory Projects in each Sector

pie chart illustrates the breadth of sectors supported by TFBSO's Business Advisory project.

Summary of Results

The following figure presents Afghanistan's GDP with and without the Business Advisory project group between 2011 and 2025. As illustrated, this project group will lead to an additional $0.7 billion in economic activity in 2025.

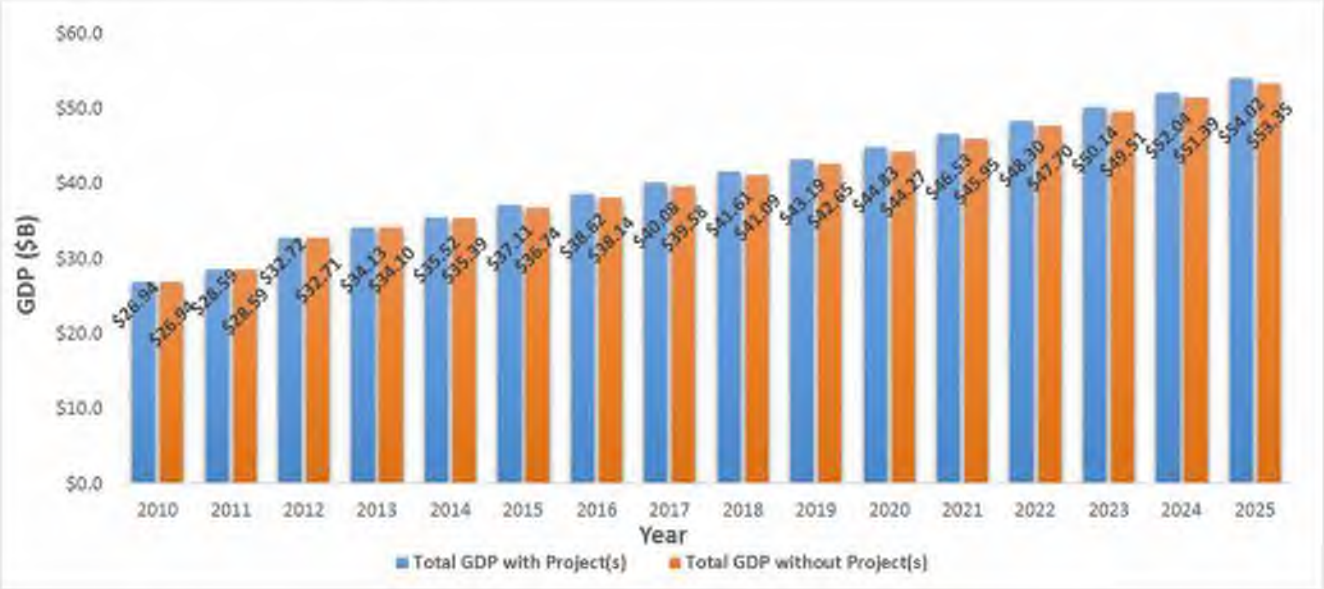


Figure 69. Business Advisory Services Effect on GDP

The Task Force spent $42,352,992 between 2011 and 2014 to implement business advisory projects (approximately $25.9M in direct costs and $16.5M in overhead costs). The results presented in the table below display the difference in cumulative totals for the specified period for all mineral areas of interest. For example, cumulative government revenue between 2010 and 2025 is expected to be $3.0 billion greater with the addition of business advisory projects. Country-wide, these projects are forecasted to add $6.3 billion to economic activity between 2010 and 2025.

Table 18. Business Advisory Services Summary of Results

	2010-2018	2019-2025	2010-2025
Difference in Cumulative Gov't Rev due to Projects	$0.7 B	$2.0 B	$3.0 B
Difference in Cumulative "GDP"[31] due to Projects	$1.5 B	$4.2 B	$6.3 B

The following figure presents the Task Force's share of the forecasted economic growth illustrated above. As presented in the graph below, the Task Force projects will lead to an additional $0.7 billion in GDP by 2025. The Task Force was allocated 100% of the long-term economic activity as a result of the key role it played in funding and enabling the Business Innovation Hub in Kabul.

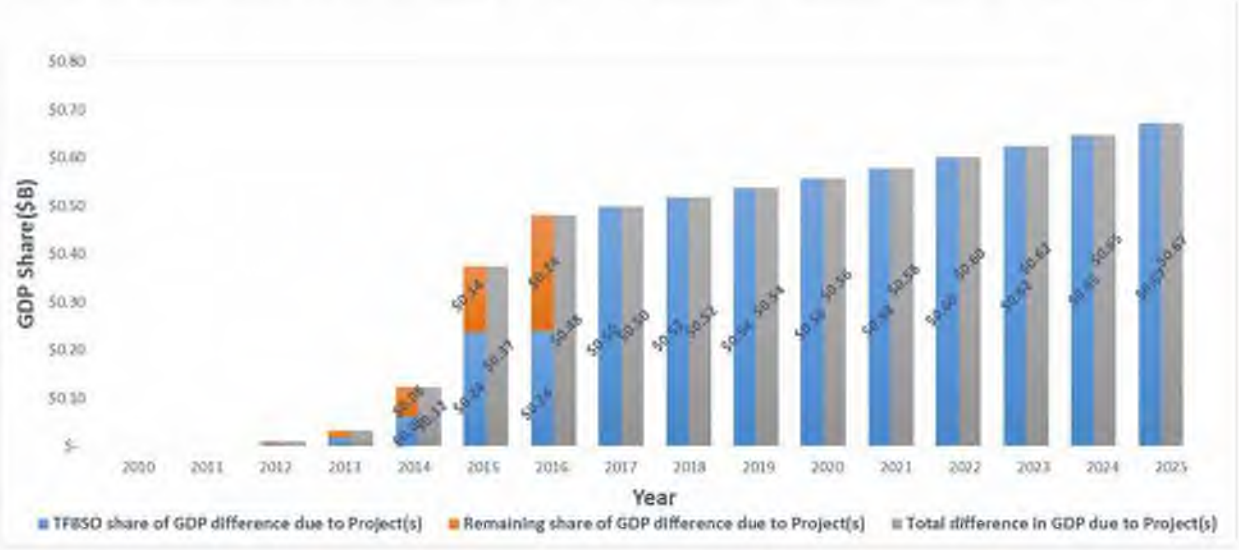


Figure 70. TFBSO's Share of Business Advisory Projects Effect on GDP

The Business Advisory Project represents a sound economic investment in Afghanistan with a benefit-to-cost ratio of 1.0, and a positive Net Present Value (NPV).

Senturion Analysis

Senturion analysis incorporated political risk factors to determine any change to the financial discount rate of 12%. The Senturion Analysis included 30 stakeholders assigned to 10 categories, to include: the President, Chief Executive, Former President, Parliament, Council of Ministers, Other Afghan Government, Private Sector, Civil Society, International Community, and Insurgents. Senturion data inputs were provided by multiple subject matter experts (SMEs) from both within

[31] "GDP" as used herein refers to economic activity that includes the formal, informal and illegal sectors. This calculation also assumes no other TFBSO projects took place before 2013, which is why growth numbers appear lower than those represented in graph of GDP (which does include TFBSO projects before 2013).

and outside TFBSO, including the relevant Program Mangers, DoD and external Afghan political economy experts familiar with TFBSO projects.

The analysis indicated that there is broad support for the project across the range of stakeholders. However, given the size and profile of the majority of businesses that comprise the Business Advisory portfolio, most place little-to-no importance on the success of the overall project. Insurgents are the most opposed to such advisory programs.

The analysis indicates that strong supporters are concentrated more closely to the Herat community. The Herat Industrial Union, which is generally the body that comprises the majority of the Accelerator businesses, is the strongest supporter. Tribal and religious leaders who have a strong interest in seeing their local constituents fully employed are also strong supporters.

With regard to national and international bodies, the Business Advisory project has little visibility to most bodies outside Herat. In fact, in many cases the businesses would rather not publicize their involvement. However given development of SMEs is a generally agreeable topic, it is surmised that most bodies at that level would be at least supportive in principle while not in deeds.

Despite the general agreeability of relevant project stakeholders, this is a low visibility issue. The discount rate incorporates these factors and increases the financial discount rate from 12.0% to 22.5% (depending on the location of the business).

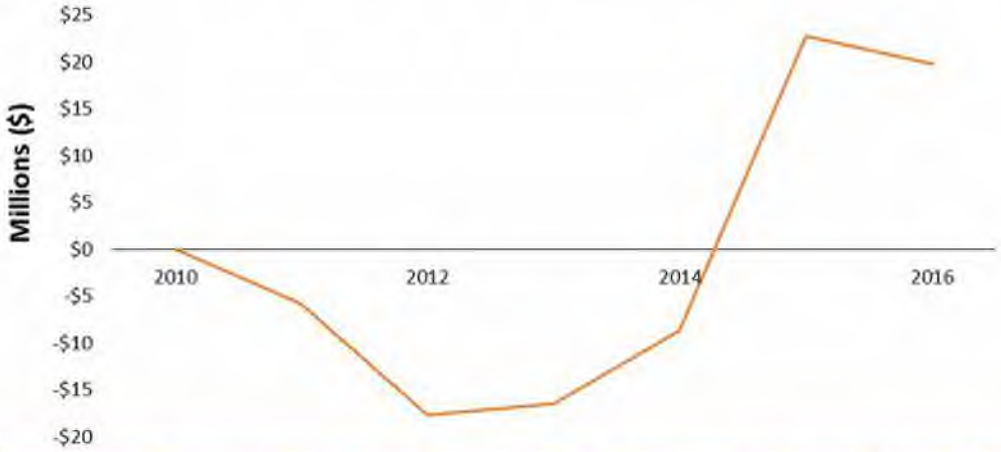
Cost Benefit Analysis

The CBA of the Business Advisory project covers 6 years. The total discounted value of benefits for this project is estimated to be $196.9 million while the total discounted value of costs is estimated to be $190.1 million (between 2011 and 2016).

Discounted Total Cost	Discounted Total Benefit	Senturion Discount Rate
$190,140,312	$196,901,972	Range: 21.0% - 22.5%

Figure 71. Business Advisory Services Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2015 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.1, suggesting the project as a standalone investment is fiscally sound. The discounted net project return is estimated to be $9.9 million. The IRR using undiscounted cash flows is estimated to be 37.2% (greater than the risk adjusted discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$6,761,660	1.0	31.7%

Figure 72. Business Advisory Services Discounted Payback

Macroeconomic Analysis

TFBSO has had a significant impact through its Business Advisory project by creating a business environment that attracts investment as well as sustains and grows economic activity. This project imparted business acumen directly to small and medium sized business entrepreneurs that resulted in increased revenue and jobs. However, the project's most lasting and most meaningful impact is affected through the means by which it has grown that business advisory capability in the American University of Afghanistan. Through the sustainable service that AUAF provides, Afghan entrepreneurs will have access to proven advisory services that will continue to help create the business environment necessary to develop the Afghan economy long after TFBSO has ceased operating in Afghanistan. The long term impact of business advisory is the reduction of the informal economy as the business sector realizes the incentives of joining the formal sector of the economy.

As presented in the table below, Business Advisory projects impact the macro economy by adding $14.3 to Afghanistan's per capita GDP by 2025. Exports are forecasted to remain relatively unchanged, and total household income is forecasted to be $0.2 billion higher than in forecasted scenarios without Business Advisory projects.

Table 19. Business Advisory Services Macroeconomic Results

		2018	2025
"GDP" per Capita	With Projects	$1,071.0	$1,151.1
	Without Projects	$1,057.7	$1,136.8
Exports	With Projects	$4.7 B	$6.1 B
	Without Projects	$4.6 B	$6.0 B
Household Income	With Projects	$41.2 B	$53.4 B
	Without Projects	$41.0 B	$53.2 B

Historic Projects

Background

The historic category includes the Task Force projects implemented between 2010 and 2013 that are distinct from the activities executed by the Energy, Indigenous Industries, Investments, and Minerals Programs (those programs with active projects through 2014). As stated in the National Defense Authorization Act, the Task Force was authorized to carry out "industrial development, banking and financial system development, and agricultural diversification and revitalization".

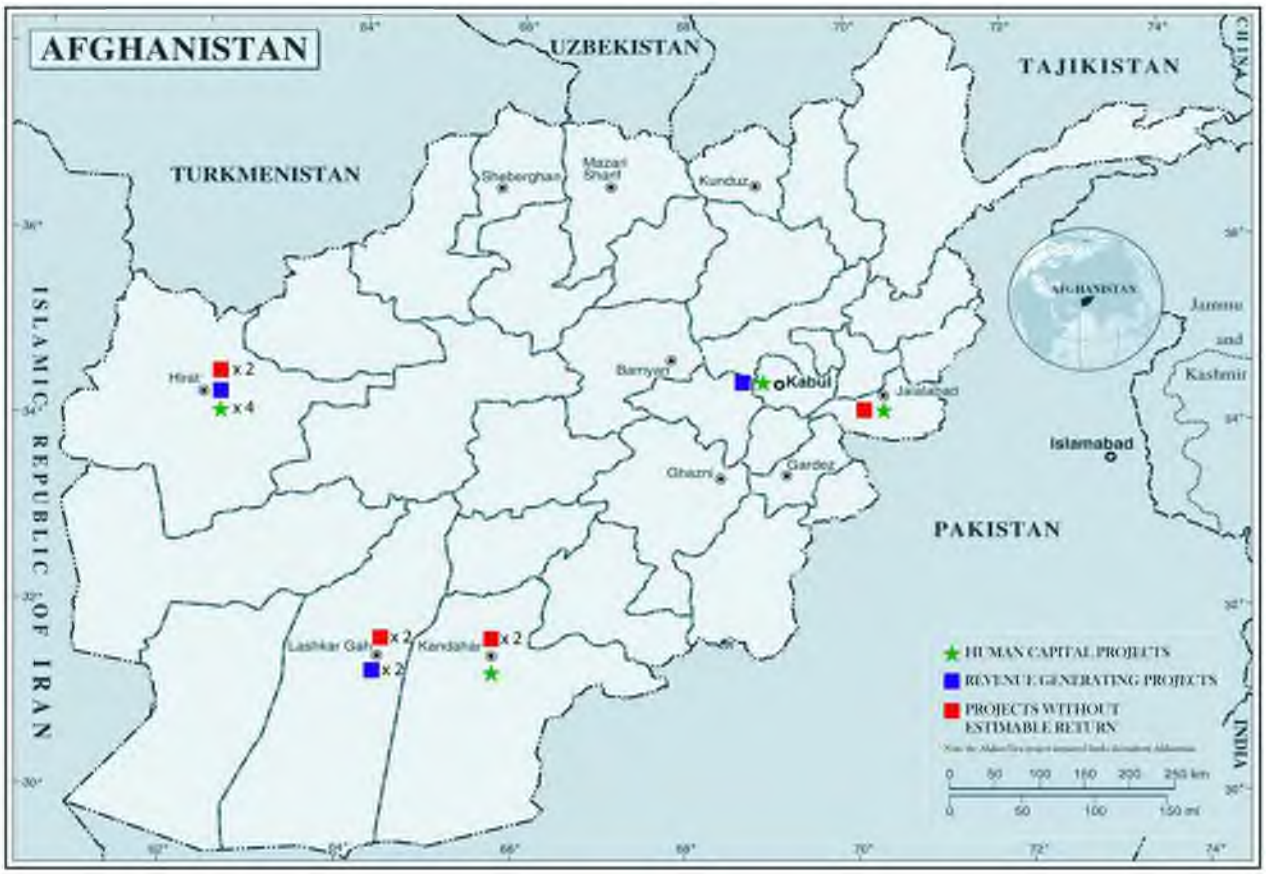


Figure 73. Historic Project Map

The projects categorized as historic were initiated in 2010 (with authorization from the OSD Comptroller) and 2011 (with authorization from the NDAA and concurrence from the Department of State). Historic Projects comprise four work streams, to include (1) Agricultural Diversification & Revitalization, (2) Banking & Financial System Development, (3) Industrial Development, and (4) Women's Advancement.

Figure 74. Historic Projects

Agricultural Diversification & Revitalization

The Task Force engaged in a number of key agricultural projects designed to improve yields, quality, and distribution processes. By providing equipment, completing unfinished facilities, and providing state of the art training, the agricultural programs at Herat Agricultural College and Nangarhar Agricultural College have been able to increase efficiency and improve farmer's income and agribusiness productivity.

Figure 75. Agricultural Diversification & Revitalizations Project Objectives

The Task Force advanced Afghanistan's food safety objectives by providing materials, equipment, and training to enable the Afghanistan workforce to implement effective food safety practices on grapes and raisins in Kandahar province. Kandahar farmers were taught how to properly dry grapes into raisins and to operate and repair raisin-cleaning and grading machines. In addition, the Task Force was responsible for enhancing potato processing in Bamyan Province. The Task Force also established intercropped orchards, vineyards with trellis posts and high tunnels in the Marjeh district of Helmand province. Finally, the Task Force enhanced vegetable production and implemented wheat processing quality control in Herat. The Afghanistan agriculture industry

infrastructure was further developed when the Task Force completed a cold storage facility for pomegranates.

Banking & Financial System Development

The Task Force was involved with the Afghan First Initiative (AFI) with the objective to encourage the international community to use Afghan goods and services to carry out their project work. The goal of this project was to simplify interaction between Afghan business and the international community's contracting professionals who purchase materials in support of their respective missions. It created a platform for Afghan companies to compete for the North Atlantic Treaty Organization (NATO) and the International Security Assistance Force (ISAF) funded work in Afghanistan. In addition, this project led to the development of a tool that enabled the electronic transfer of funds (EFT) from government agencies through Afghan banks and to Afghan businesses. Prior to the completion of this project, Afghan vendors had no choice but to accept payments in cash and then transport that cash at great risk to their personal safety. EFT resulted in fewer cash movements on the street which significantly reduced the risk of cash being diverted for unlawful purposes.

Industrial Development

The Task Force engaged in a number of industrial development projects aimed at expanding Afghanistan's educational infrastructure, improving the physical security of key institutions, and outfitting industrial manufacturers with necessary equipment.

Security infrastructure enhancements to the Herat Judicial Building and Herat Airport included reinforcing parking areas, and building perimeter walls and checkpoints. The Herat airport is now capable of accommodating international flights.

Figure 76. Industrial Development Projects

Educational and vocational training institutions constructed included the Emaar Girls School in Herat, the Herat Teacher's Training Institute, and the Herat University Women's Dormitory.

In addition, the Task Force outfitted the Lashkar Gah Marble Factory with a grinding machine capable of manufacturing of concrete tiles imbedded with marble chips.

Women's Advancement

Task Force Women's Advancement projects were designed to engage the international and Afghan public and private sectors in an effort to improve women's rights, increase their educational opportunities, and provide employment skills. The Economic Development Center for Women, an

institution funded by the Task Force to promote education and economic opportunities for women, links international and domestic organizations working on behalf of Afghan women. The Economic Development Center for Women is designed to bring together and house the services provided by the U.S. / Afghan Women's Council, various nongovernmental organizations committed to women's issues in Afghanistan, the Goldman Sachs 10,000 Women Initiative, and the University's professional development programs devoted to women's empowerment.

Banking & Financial System Development Project

The Banking & Financial System Development project group includes two distinct projects: (1) Afghan First and (2) the Economic Roundtable Conference. The Afghan First Initiative (AFI) was designed to create jobs and inspire long-term economic growth and stability in Afghanistan by encouraging the international community to use Afghan goods and services to carry out their projects. The Task Force supported the initiative by designing and developing the capability for U.S. government agencies to transfer funds electronically; thereby simplifying interaction between Afghan businesses and the international community's contracting professionals who purchase materials in support of their respective missions. The Economic Roundtable Conference project was designed to prepare deploying U.S. military divisions for the challenges of the total business environment and to ensure those divisions understand the importance of a holistic approach to business transformation in Afghanistan.

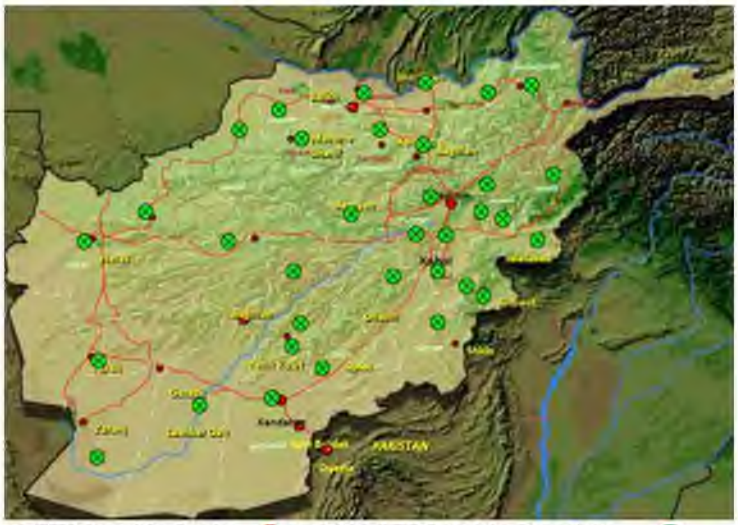


Figure 77 Afghan First EFT Locations

Summary of Results

The following figure presents Afghanistan's GDP with and without Task Force Banking projects between 2010 and 2025. As illustrated, this project leads to little-to-no GDP impact.

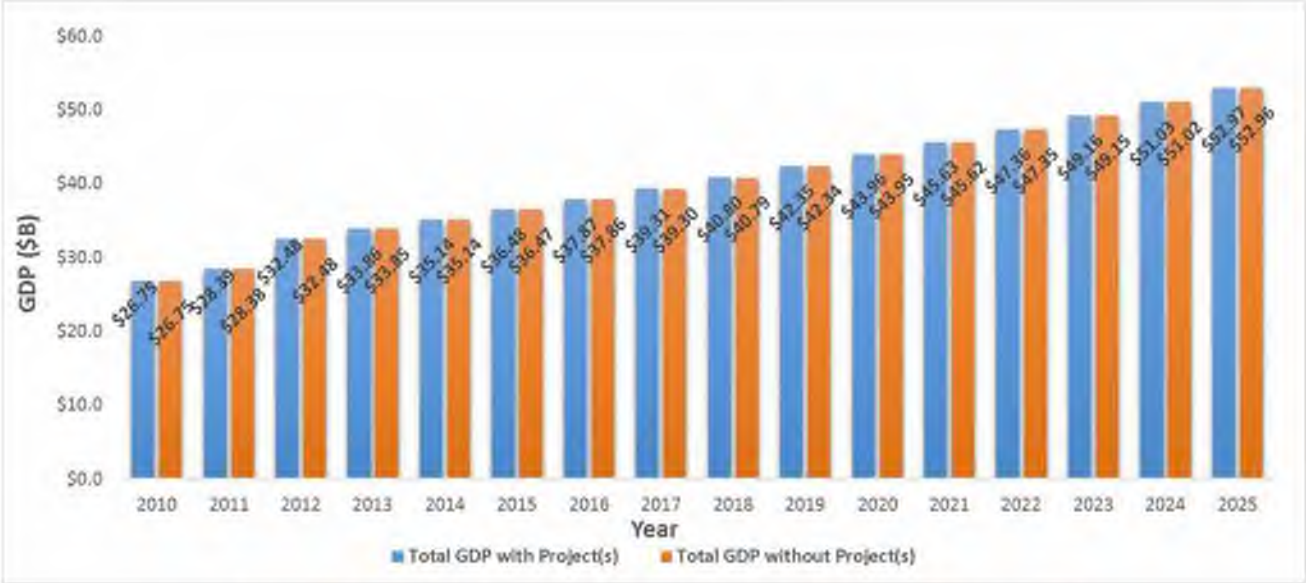


Figure 78. Banking & Financial System Development Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable.

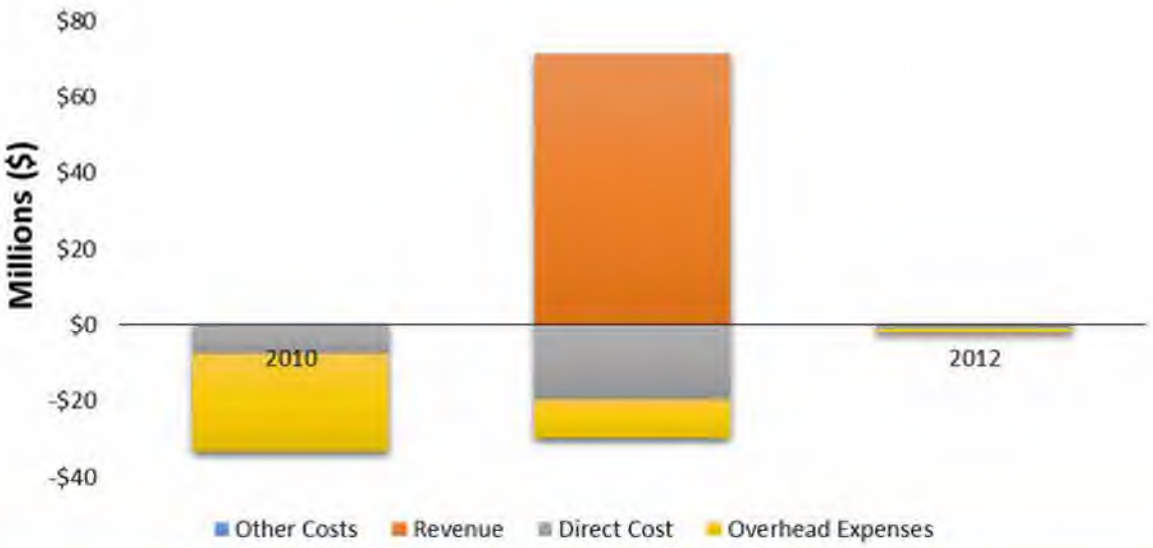
The Task Force spent $69,219,230 between 2010 and 2012 on banking projects (approximately $30.6M in direct costs and $38.6M in overhead costs). This project group has a benefit-to-cost ratio of 1.1, and a positive Net Present Value (NPV).

Senturion Analysis

This project was completed before a stakeholder analysis could be conducted.

Cost Benefit Analysis

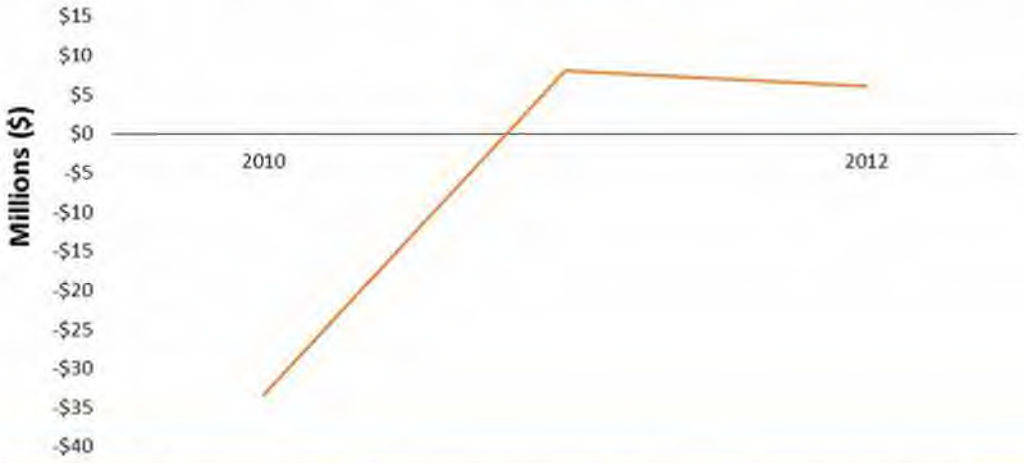
The CBA of the Banking & Financial System Development projects covered 3 years from 2010 to 2012. The total discounted value of benefits for this project is estimated to be $71.3 million while the total discounted value of costs is estimated to be $65.1 million (between 2010 and 2012).



Discounted Total Cost	Discounted Total Benefit	Discount Rate
$65,144,986	$71,254,355	12.0%

Figure 79. Banking & Financial System Development Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2011 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.1, suggesting the project as a standalone investment is fiscally sound. The discounted net project return is estimated to be $6.1 million. The IRR using undiscounted cash flows is estimated to be 33.6% (greater than the discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$6,109,370	1.1	33.6%

Figure 80. Banking & Financial System Development Discounted Payback

Macroeconomic Analysis

The Afghan First Initiative (AFI) objective was to help create jobs and inspire long-term economic growth and stability in Afghanistan by encouraging the international community to use Afghan goods and services to carry out their project work. The goal of this project was to simplify interaction between Afghan business and the international community's contracting professionals who purchase materials in support of their respective missions.

The financial system in Afghanistan is not sophisticated and continually competes with hawala for cultural reasons as a large percentage of the economy operates unofficially or illegally (the State Department estimates that 80% to 90% of the financial transfers are made through hawala). Entering the banking system as a client requires a transformation of standard business operations to a more transparent system.

Agricultural Diversification & Revitalization Project

The Agricultural Program worked with the Norman Borlaug Institute of International Agriculture, the Howard Buffet Foundation, and other partners to revitalize the Afghan agriculture sector by improving farmer outputs, filling gaps in the agribusiness processing chain, and driving demand for agriculture sector jobs. The program implemented farming training sessions, established food processing procedures, developed cold storage and distribution centers, and provided funding to construct agricultural colleges in Herat and Nangarhar to increase the capability of Afghan farmers.

Gaps across the agriculture value chain exist throughout Afghanistan, including challenges with farmer development and quality inputs, lack of value-add processing capacity, insufficient linkages from farmer to markets (local, regional and global), and lack of long-term academic institutional capacity, specifically, physical infrastructure, staff, equipment, analytical capability, and curriculum. To address these challenges and opportunities, the Task Force implemented a suite of interconnected activities to enhance agricultural capabilities and capacity.

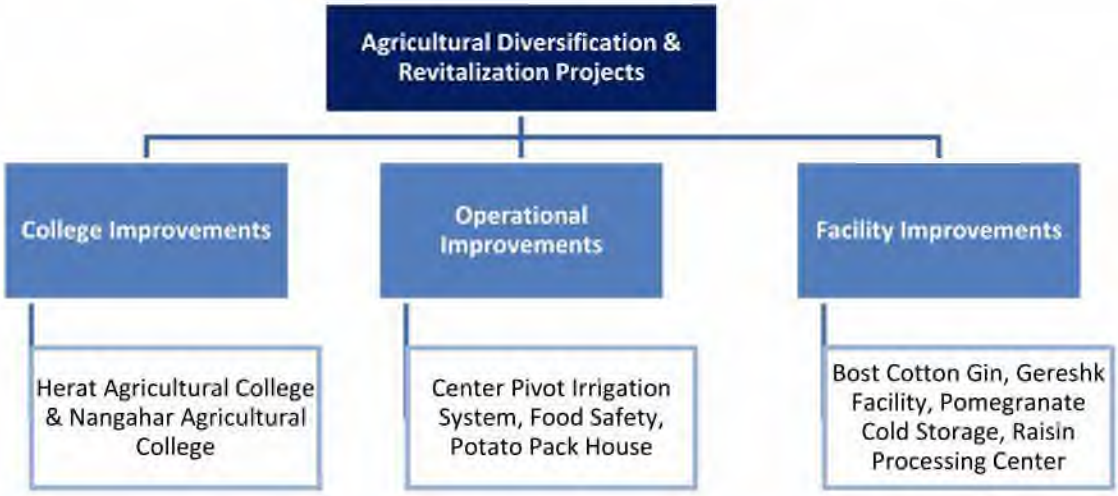


Figure 81. Agricultural Diversification & Revitalization Projects

Summary of Results

Agricultural Diversification & Revitalization Projects were designed to improve agricultural facilities by purchasing better farming equipment and providing training to farmers and food processors. The following figure presents Afghanistan's GDP with and without agriculture projects between 2010 and 2025. As illustrated, these projects lead to little-to-no GDP impact.

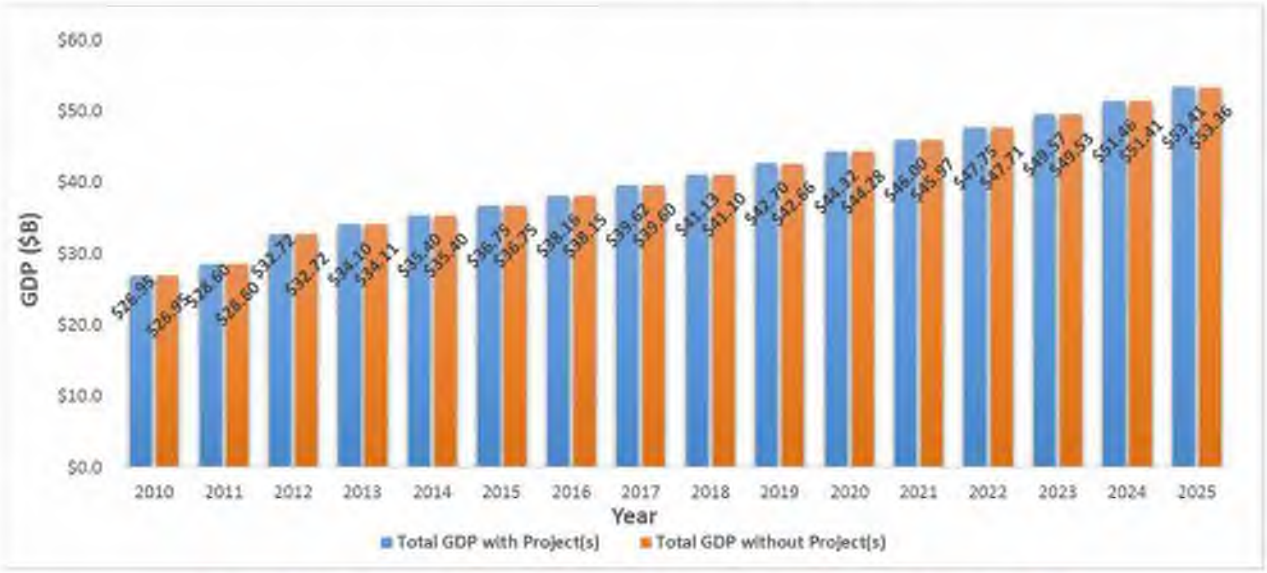


Figure 82. Agricultural Diversification & Revitalization Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable.

The Task Force spent -$28,425,689 between 2010 and 2013 to implement agriculture revitalization projects (approximately $17.4M in direct costs and $11.0M in overhead costs). This project group has a benefit-to-cost ratio of 0.7, and a negative Net Present Value (NPV).

This project has a negative net return because the Gereshk Facility and Raisin Processing Center are not being used. In addition, the individuals that received training were farmers and laborers who earn relatively small salaries (compared to the experts providing the training). However, investment on agricultural education and on infrastructure has a signaling effect on other industries; as well as the future agricultural policy of the country.

Senturion Analysis

This project was completed before a stakeholder analysis could be conducted.

Cost Benefit Analysis

The CBA of the Agricultural projects covered 16 years from 2010 to 2025 while the human capital projection impact goes until 2056; [32] however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $24.4 million while the total discounted value of costs is estimated to be $34.3 million (between 2010 and 2030).

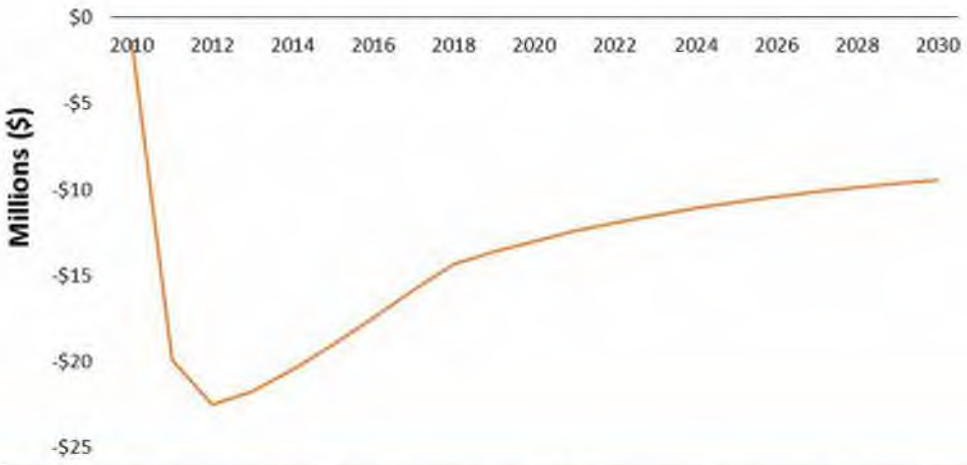
Discounted Total Cost	Discounted Total Benefit	Discount Rate
$34,288,221	$24,352,026	12.0%

Figure 83. Agricultural Diversification & Revitalization Discounted Cash Flow

The discounted payback demonstrates that this project does not realize a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the

[32] Boston Cotton Gin 2011, Center Pivot Irrigation 2011-2012, Food Safety 2011-2012, Gereshk Facility 2011, Herat Ag College 2011-2025, Nangahar Ag College 2011-2025, Pomegranate Facility 2011, Potato Pack House 2013-2018, and Raisin Facility 2010-2011.

analysis). The discounted B/C Ratio is 0.7, suggesting the project as a standalone investment is not fiscally viable. The discounted net project return is estimated to be -$9.9 million. The IRR using undiscounted cash flows is estimated to be 4.5% (less than the discount rate which leads to a negative NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
-$9,936,195	0.7	4.5%

Figure 84. Agricultural Diversification & Revitalization Discounted Payback

Macroeconomic Analysis

Agriculture is the main source of income for the Afghan family. Over eighty percent of Afghanistan's population is involved in farming or herding, even though only 12 percent of the country's land area is arable, and less than 6 percent is currently cultivated. An analysis of developing economies indicates that the agricultural sector is a primary driver of growth in most of those economies, and the leading driver for employment growth, helping to create self-sufficiency and foreign currency savings. This helps substitute imported wheat for internal consumption and increases exports of higher priced agricultural goods. The increase in exports is paramount as one of Afghanistan's key development strategies.

Industrial Development Project

The lack of infrastructure is often cited as one of the main hurdles in Afghanistan; therefore, donors and the Afghan government have invested heavily in construction. The Industrial Development project group focused on enhancing the infrastructure at schools, public facilities, and in the private sector (as illustrated in the figure below). The Task Force managed a number of construction projects to enhance the capacity and capabilities of the public and private sector. These construction projects started in 2010 and continued through 2013.

Figure 85. Industrial Development Projects

Summary of Results

The following figure presents Afghanistan's GDP with and without Industrial Development projects between 2010 and 2025. As illustrated, these projects lead to little-to-no GDP impact.

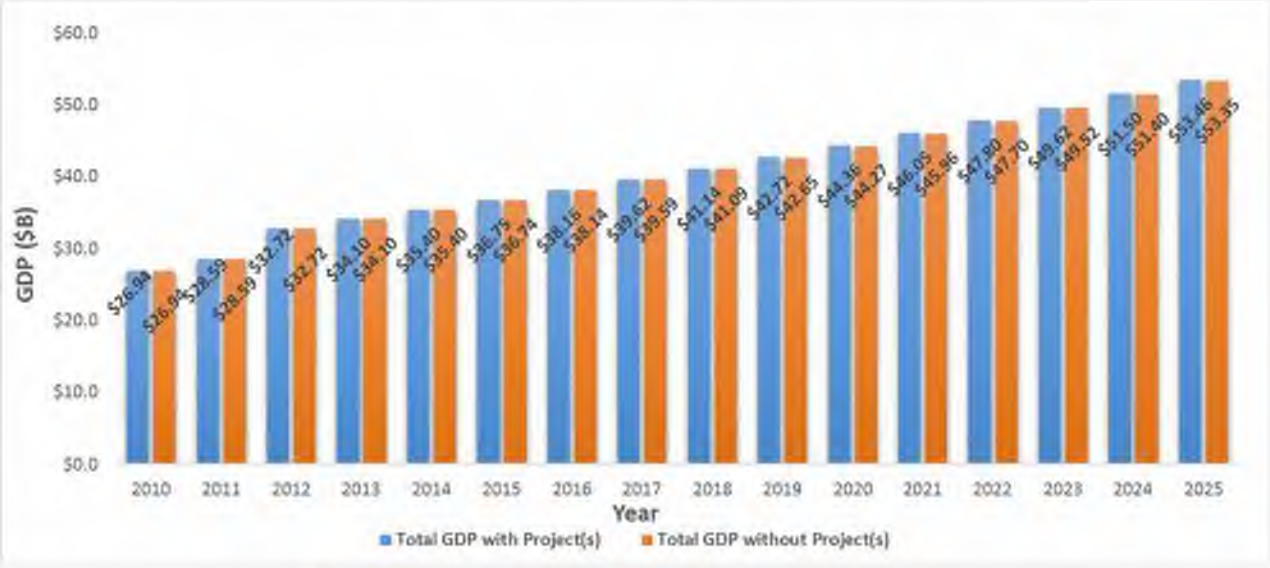


Figure 86. Industrial Development Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable.

The Task Force spent $451,760 between 2010 and 2012 to implement and monitor industrial development projects throughout Afghanistan. This project group has a benefit-to-cost ratio of 5.9, and a positive Net Present Value (NPV).

Senturion Analysis

This project was completed before a stakeholder analysis could be conducted.

Cost Benefit Analysis

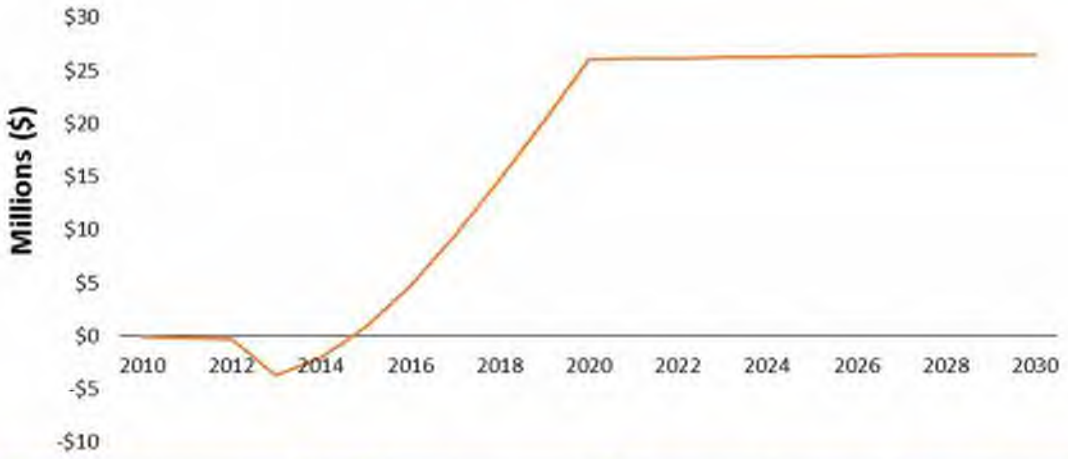
The CBA of the Industrial Development projects covered 16 years from 2010 to 2025, and the human capital projection is extended through 2063; [33] however, the results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $32.0 million while the total discounted value of costs is estimated to be $5.4 million (between 2010 and 2030).

Discounted Total Cost	Discounted Total Benefit	Discount Rate
$5,426,311	$32,022,266	12.0%

Figure 87. Industrial Development Discounted Cash Flow

The discounted payback demonstrates that these projects realize a positive return by 2015. The cash flow and payback graphs do not present the impact to Afghanistan's GDP - these graphs only represent the estimated cash flows of the Task Force, future salaries of the students impacted by these projects, and the cash flows of the companies that received support.

[33] Emaar Girls School 2011-2025, Herat Airport 2012-2020, Teacher's Training Institute 2012, Herat University Dorm 2012-2025, Judicial Building Upgrade 2012, Marble Factory 2011-2020, and Naw Zad Motorcycle 2010-2011.



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$26,595,955	5.9	86.5%

Figure 88. Industrial Development Discounted Payback

Macroeconomic Analysis

Public and private sector infrastructure development is critical to enhancing the efficiency of business operations in Afghanistan. In addition to enhancing the infrastructure of core public facilities like airports and judicial buildings, the Task Force increased the capacity of schools in Afghanistan. Additional capacity at public schools will improve the educational attainment of Afghanistan's future workforce.

Women's Advancement Project

The American University of Afghanistan's International Center for Afghan Women's Economic Development is designed to generate economic opportunities to enhance women's involvement in Information and Communications Technical Development, and Indigenous Industries (to include the supply chain development and logistics needed to bring these industries to market, both within the country and internationally). The center leads and coordinates both international and Afghan public and private sector efforts to advance the role of women in the economic stabilization of Afghanistan.

Figure 89 Women's Advancement Projects

The establishment of the International Center for Afghan Women's Economic Development Center at the American University of Afghanistan (AUAF) will bring together and house the services provided by the US/Afghan Women's Council, various nongovernmental organizations committed to women's issues in Afghanistan, the Goldman Sach's 10,000 Women Initiative, and the University's professional development programs devoted to women's empowerment. The center will generate economic opportunities to enhance women's involvement in Information and Communications Technical Development, and Indigenous Industries.

Summary of Results

Women's Advancement Projects were designed to improve women's rights, increase their educational opportunities, and provide employment skills. The following figure presents Afghanistan's GDP with and without Women's Economic Development projects between 2010 and 2025. As illustrated, these projects lead to little-to-no GDP impact.

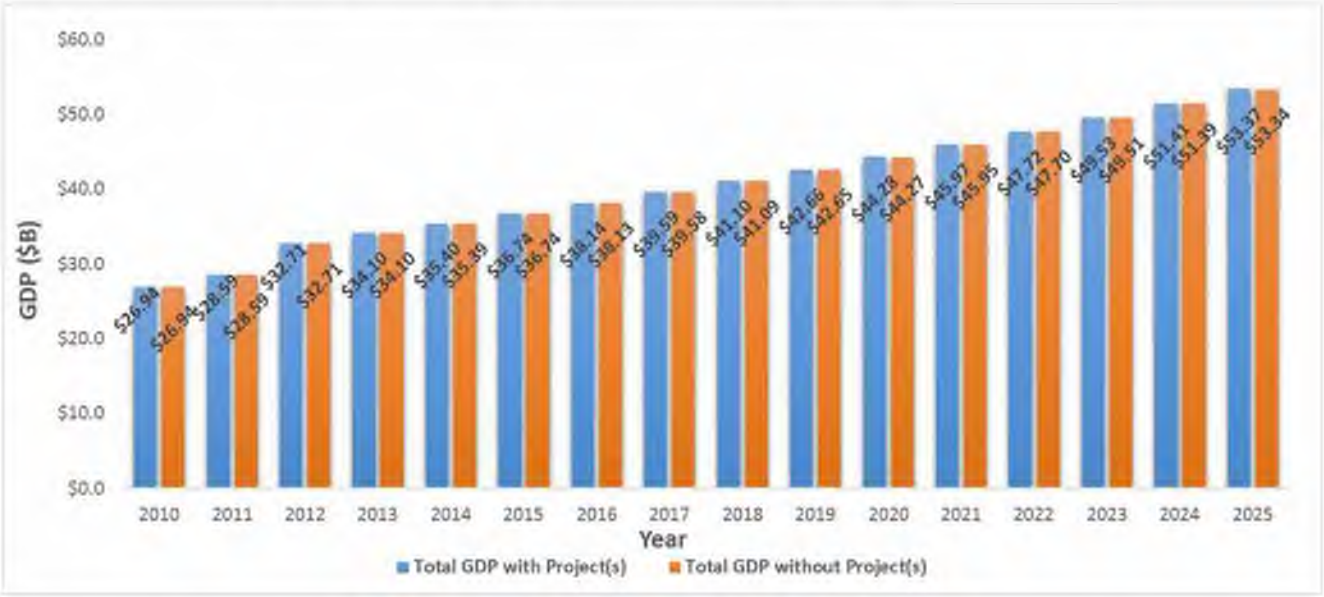


Figure 90. Women's Advancement Projects Effect on GDP

This project does not lead to gains in GDP above the baseline trend; therefore, a graphic illustrating the Task Force's share of economic growth is not applicable

The Task Force spent $10,856,233 in 2011 on women's advancement projects (approximately $6.2M in direct costs and $4.6M in overhead costs). This project group has a benefit-to-cost ratio of 1.0, and a positive Net Present Value (NPV).

Senturion Analysis

This project was completed before a stakeholder analysis could be conducted.

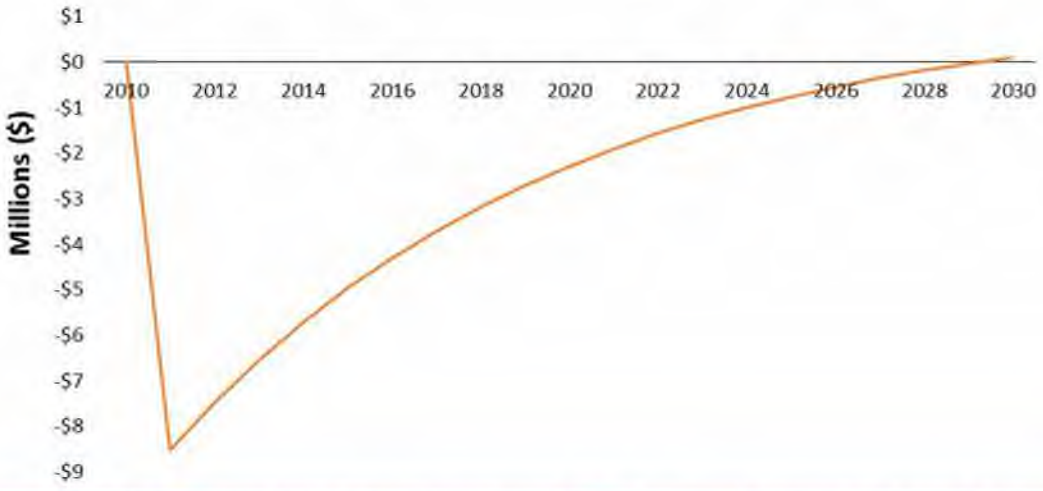
Cost Benefit Analysis

The CBA of the Women's Advancement projects covered 1 year (2011); however, human capital projections extend through 2047. The results presented in the graph below represent cash flows between 2010 and 2030 only. The total discounted value of benefits for this project is estimated to be $9.8 million while the total discounted value of costs is estimated to be $9.7 million (between 2010 and 2030).

Discounted Total Cost	Discounted Total Benefit	Discount Rate
$9,693,065	$9,798,120	12.0%

Figure 91. Women's Advancement Discounted Cash Flow

The discounted payback demonstrates that this project realizes a positive return by 2030 (when only direct benefits are quantified, meaning sectoral multipliers are not included in the analysis). The discounted B/C Ratio is 1.0, suggesting the project as a standalone investment is fiscally neutral. The discounted net project return is estimated to be $105.1 thousand. The IRR using undiscounted cash flows is estimated to be 12.2% (slightly greater than the discount rate which leads to a positive NPV).



Discounted Net Present Value	Discounted B/C Ratio	Internal Rate of Return
$105,055	1.0	12.2%

Figure 92. Women's Advancement Discounted Payback

Macroeconomic Analysis

A number of nongovernmental organizations work in Afghanistan to improve women's rights, increase their educational opportunities, and provide employment skills. However, the efforts of these organizations are mainly directed from outside Afghanistan. In addition, these efforts lack coordination and mutual reinforcement, and they tend to be short-term projects funded only for limited periods. In such an environment, an important role was filled by the Economic Development Center for Women.

Developing skills in the workforce is a long-term goal of all developing countries. Women in Afghanistan have access to limited formal education, so training will increase their productivity. The Economic Development Center for Women is the first of its kind to lead and coordinate both international and Afghan public and private sector efforts to advance the role of women in the economic stabilization of Afghanistan.

Key Uncertainties Moving Ahead

Sensitivity analyses were conducted to model Afghanistan's economic stability. The following "what if" scenarios were used to shock the Afghan economy and to model Afghanistan's economic stability with and without Task Force projects:

- Foreign aid changes +/- 10 percent to 20 percent
- Tariffs change +/- 10 percent to 20 percent
- Alternative insurgency power sharing
- Reduced ISAF troop presence
- Lifting Iran sanctions
- Increased instability in Pakistan

Foreign Aid Changes

It is likely that foreign aid to Afghanistan will change over the next several years. The following table presents the impact to GDP with and without Task Force projects assuming four alternative foreign aid shocks. The relative impact to GDP illustrates that Afghanistan's economy is more stable as a result of TFBSO's business and stability operations. For example, a 20% foreign aid reduction will lead to a 3.6 percentage point reduction in GDP by 2025 in the "with TFBSO" project scenario; however, the same shock will lead to a 11.5 percentage point reduction in GDP by 2025 in the "without TFBSO" project scenario.

Table 20 Alternative Future, Foreign Aid Shock, GDP in 2025[34]

Foreign Aid Shock	GDP w/ TFBSO Projects	GDP w/ out TFBSO Projects	Difference
-20%	$104.2 B	$41.8 B	$62.4 B
-10%	$105.8 B	$41.4 B	$64.4 B
Baseline	$107.8 B	$53.3 B	$54.5 B
+10%	$109.2 B	$54.7 B	$54.5 B
+20%	$110.1 B	$54.9 B	$55.2 B

Tariffs Change

Trade policies may change overtime and negatively or positively impact Afghanistan's economic growth. The following table presents the impact to GDP with and without Task Force projects assuming four alternative tariff shocks. Tariff increases or decreases (up to 20%) have little to no

[34] A 20% increase in foreign aid will not have as significant of an impact as a 20% reduction in foreign aid due to Afghanistan's inability to effectively absorb additional aid.

effect on GDP (total economic activity decreases to $107.4 billion with a 20% reduction in tariffs, and increases to $108.1 billion with a 20% increase in tariffs in the "with TFBSO" scenario).

Government revenue also remains largely unaffected by tariff shocks, indicating two scenarios:

1. If tariffs are reduced, imports will increase and the government will be able to collect taxes on additional items.
2. If tariffs increase, some importers will use informal channels for trade to bypass customs.

Table 21 Alternative Future, Tariff Shock, GDP in 2025

Tariff Shock	GDP w/ TFBSO Projects	GDP w/ out TFBSO Projects	Difference
-20%	$107.4 B	$52.4 B	$55.0 B
-10%	$107.6 B	$52.3 B	$55.3 B
Baseline	$107.8 B	$53.3 B	$54.5 B
+10%	$108.1 B	$52.5 B	$55.6 B
+20%	$108.1 B	$52.4 B	$55.7 B

Alternative Insurgency Power Sharing

ISAF and Afghan National Security Force (ANSF) troops have been successful to-date in controlling the insurgency in Afghanistan and they remain generally unpopular among the Afghan populace (Schroden, Asfura-Heim, Norman, & Meyerle, 2014). However, there is no evidence that the "surge" has defeated the Taliban, and the international community won't know the balance of power until US and ISAF military are largely gone and the new government is fully established (Cordesman, The Security Transition: in Afghanistan: 2014-2016, 2014). As British Defense Secretary Philip Hammond and many other observers conclude, nobody can say "with certainty" what the future for Afghanistan will be (Oskarsson, 2013).

With that information in mind, it is important to forecast the potential economic impacts of varying levels of insurgency. This alternative future analysis analyzed the economic impact of an Afghanistan insurgency high risk and a low risk scenario.

The low risk scenario assumes that the insurgent population is more willing to negotiate and work with newly elected President Ashraf Ghani. In this scenario, the insurgents identify a benefit associated with negotiating and joining the existing and official Afghan government. In that regard, the insurgent population associates a lower level of importance with disrupting Task Force economic development projects. The baseline stakeholder importance score for every insurgent group is reduced by 20% or 30% depending on the insurgent group's proximity to the national capital (Kabul). It is assumed that the incentive to negotiate with the President is greater for the groups that are closer to the nation's capital.

The following table presents those provinces where the insurgent group importance score is reduced by 20% or 30%. The insurgent population is opposed to Task Force projects in the baseline scenario; therefore, a lower importance score will reduce the overall level of opposition which will lead to less risk (and as a result a lower discount rate).

Table 22 Insurgent "Importance" Decreases by Province using a Low Risk Scenario

Provinces with 20% Reduction	Provinces with 35% Reduction
• Badakshan • Takhar • Kunduz • Samangan • Balkh • Sar-e-Pul • Jawzjan • Faryab • Ghor • Badghis • Herat • Farah • Nimroz • Helmand • Kandahar • Zabul • Urozgan • Daykundi • Paktika • Khost	• Baghlan • Panjshir • Nuristan • Kunarha • Laghman • Kapisa • Kabul • Parwan • Bamyan • Wardak • Logar • Nangarhar • Paktya • Ghazni

The high risk scenario adjusts the baseline insurgent strength data to account for the province's historic levels of violence and instability. The high-risk scenario assumes insurgent strength will increase by 20%, 35%, or completely overwhelm a province. Insurgency strength under the high-risk scenario will completely overwhelm those provinces located in the south and southeast. Insurgency strength will increase by 35% in those provinces that border the southern and southeastern provinces and insurgency strength will increase by 20% in northern provinces. It is assumed that the northern provinces will be impacted under the high risk scenario as groups affiliated with ISIS gain strength.

Table 23 Insurgent Influence Outcome using High Risk Scenario, by Province

Insurgent Influence Increases 20%	Insurgent Influence Increases 35%	Insurgent Influence Permanently Delays Projects
• Badghis • Faryab • Sar-e Pul • Jawzjan • Balkh • Samangan	• Herat • Ghor • Bamyan • Parwan • Kabul • Nangarhar	• Farah • Ghazni • Helmand • Kandahar • Khost • Logar

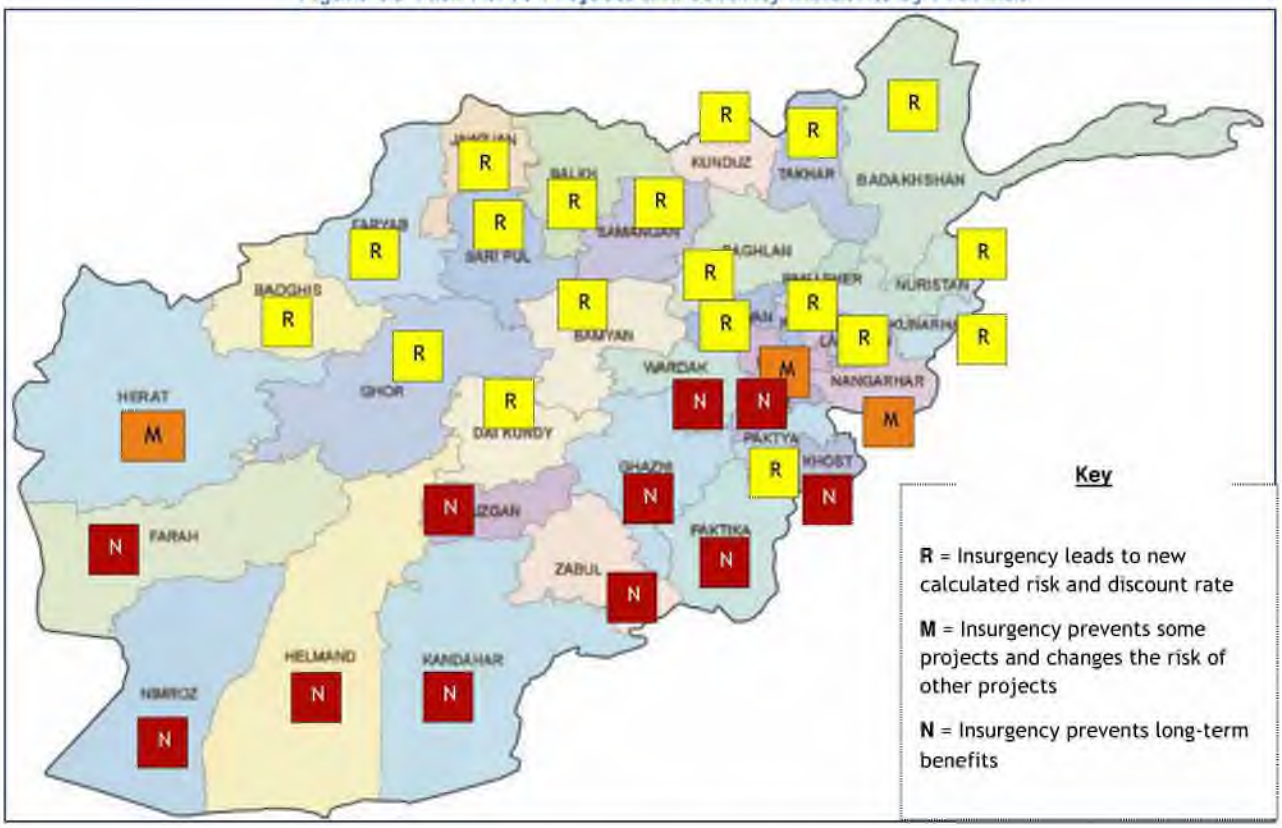
Insurgent Influence Increases 20%	Insurgent Influence Increases 35%	Insurgent Influence Permanently Delays Projects
• Baghlan • Kunduz • Takhar • Panjshir • Kapisa • Laghman • Kunarha • Nuristan • Badakshan	• Paktya • Daykundi	• Nimroz • Paktika • Urozgan • Wardak • Zabul

There are three provinces where specific projects will be targeted in the increased insurgency scenario and therefore permanently delayed, to include:

- Herat's Dusar-Shaida area of interest (AOI) project.
- Kabul's Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline, Hospitals, Steel, and Minerals Rail Transmission projects.
- Nangarhar's Ghunday-Achin AOI project.

The figure below illustrates the High Risk Scenario outcomes.

Figure 93 Task Force Projects and Security Incidents by Province



After including the high and low risk insurgency scenarios in the EIA/CGE model, the forecasted results show that the base line and low risk insurgency projected to 2025 show small differences in the level of economic activity (GDP and informal/illegal sectors combined). But in a high-risk scenario, where projects in the south would be delayed indefinitely, including over 30% of the mining projects, economic activity is projected to be 23% lower than in the baseline scenario where insurgency will continue at the current levels. The effects of the different scenarios are strongly felt in the government coffers. The high-risk scenario shows a 50% lower fiscal income than the baseline, while the difference between the low-risk and base line is negligible. The government income would suffer in a scenario of high-insurgency due to the combined effect of an increase in the size of the informal/illegal economy and a decrease in the income derived from royalties and export taxes of mining products. The following table presents gross domestic product and government revenue estimates in Afghanistan incorporating the Task Force's projects under a low risk and a high risk scenario.

Table 24 Alternative Future, Alternative Afghanistan Insurgency, Low-Baseline-High Risk Scenarios

	Year / Timeline	Low Risk	Baseline Risk	High Risk
Gross Domestic Product (Millions USD)	2025	$108.4 B	$107.9 B	$82.8 B
Government Revenue (Millions USD)	2025	$31.6 B	$31.1 B	$15.4 B

Afghanistan faces challenges related to uncertainties about the security and political transitions, which are slowing economic activity. Security and political uncertainties, and weak institutions have constrained growth and weighed on social outcomes. Macroeconomic stability, structural reforms, and political and security stability are needed to ensure inclusive growth. Risks, mostly on the downside, are related to adverse domestic or regional security developments, political instability, inadequate implementation of economic policies, and donor fatigue (IMF, 2014).

There is some hope that an adequately resourced ANSF layered defense and U.S. "four quarter" advisory strategy could succeed in providing the necessary security in key populated areas and for key lines of communication, even if Pakistan continues to provide Taliban sanctuaries and comes to dominate less populated areas in the east and south. Afghanistan is, however, very much a nation at war and success is extremely uncertain given the limited size and duration of the U.S. advisory effort (Cordesman, The Security Transition: in Afghanistan: 2014-2016, 2014).

Reduced ISAF Troop Presence

In June of 2013, ANSF assumed the primary security role across Afghanistan, and U.S. and NATO military forces changed their mission to training, advising, and assisting. The number of U.S. and NATO troops will decline from a height of over 130,000 in 2011 to a total international force of 12,600 personnel in 2015.

The U.S. contributed $65.5 billion in security funding between 2002 and 2014, or in other words half of the annual GDP from the formal sector per year during the same period. After providing more than $5 billion a year to fund security requirements, NATO allies and ISAF partners recently reaffirmed their commitment to provide approximately $1 billion annually for ANSF sustainment through 2017.

Donor funding was spent on Afghanistan but not necessarily in Afghanistan. Many resources were spent in capital and consumer goods, salaries, etc. that ultimately leaked back to the international economic system as imports or transfers or payments that never made it to the monetary flow of Afghanistan. Therefore, the decline in funding will affect the operational and development expenses in government budget that come from donors' aid (roughly 50% of the total budget is financed by donors). The government expenses on domestic security, government employees' wages, and their consumption will decrease. Additionally, the reduced funding may impose a reduction in the employment multiplier.

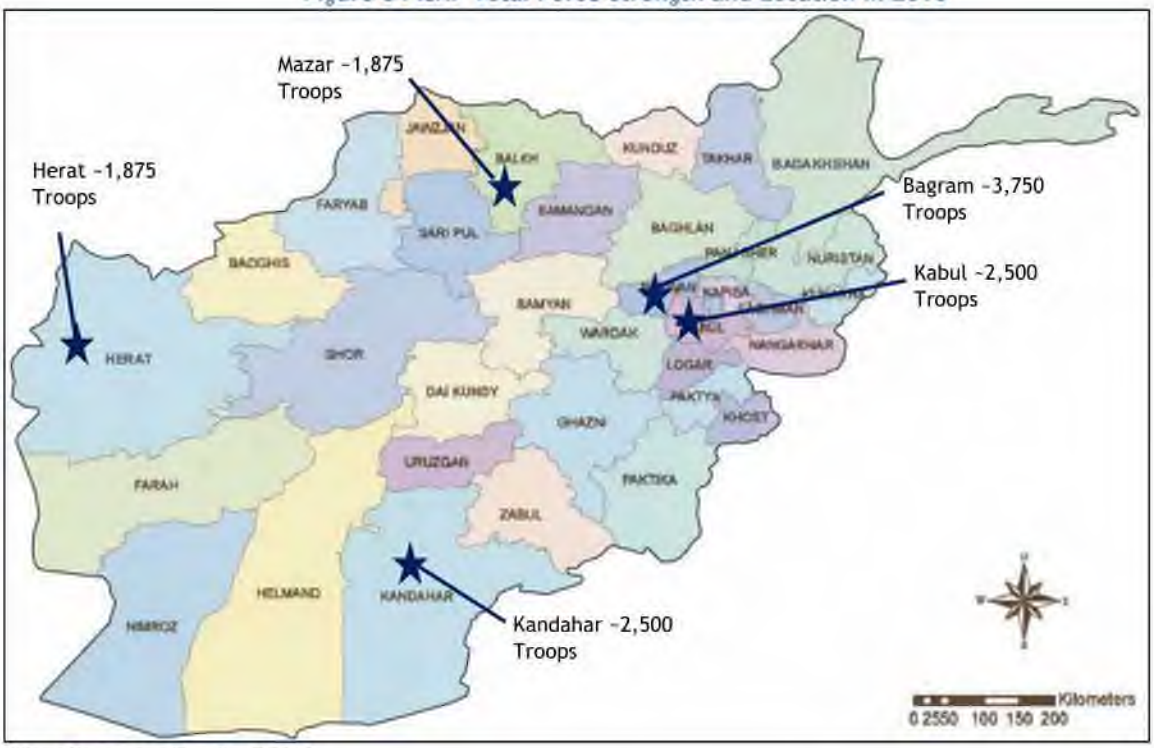
Some assume that the change of mission will create fewer incentives for the Taliban and other insurgent groups to attack foreigner financed targets in Afghanistan. A contrary hypothesis states that foreign troop presence provides a certain level of deterrence on attacks and also increase the opportunities in the labor market (Iyengar, Monten, & Hanson, 2011). Others hypothesize that reconstruction projects reduce insurgent recruitment by providing an alternative source of employment. Alternatively, reconstruction projects might foster more capital intensive insurgent attacks.

ANSF training effectiveness has not reached ISAF goals as demonstrated in the latest capability scorecards. In addition, attrition remains high (15% of personnel in 2014). A smaller and less capable ANSF may lead to a diminished insurgency containment, which could lead to more informal workers, additional illegal activities, and a greater number of attacks. Underemployed individuals are a good feeder for insurgency, and the wages paid by insurgent forces are higher than market wages (policemen get paid approximately $60 a month while Taliban recruits get paid approximately $200 a month). To make matters worse for the government budget, increased insurgent attacks, especially attacks on soft targets, will require additional government resources for repairs; further diminishing the Afghan government's capacity to fund security forces and equipment.

Finally, the allocation of police resources to military targets prevents ANP from supporting local law enforcement efforts which makes the delivery of public goods less effective, and diminishes the public's trust of official government institutions.

This "what-if" scenario quantifies the Task Force economic impact under a high risk scenario. The high risk scenario assumes the baseline non-insurgent influence (for example, the influence of the official government, private investors, and the international community, etc.) will decrease. The level of reduction to non-insurgent influence is based on two factors: (1) the project's proximity to the ISAF security forces, and (2) the existing capabilities of ANA and ANP troops near the project location. The figure below illustrates the location of ISAF troops given an estimated total force structure of 9,500 U.S. troops and 3,000 NATO troops in 2015 (12,500 total U.S./NATO troops).

Figure 94 ISAF Total Force Strength and Location in 2015



Map Source: (Davis, 2014)

The table below presents the reduction to non-insurgent group influence after evaluating ISAF troop location and ANA and ANP capabilities. As presented for Badakshan, the non-insurgent group influence will be reduced by 95% for all projects in this province under the high risk scenario. The 95% reduction was calculated by adding a 10% drop since the closest ISAF troops are two borders away in Parwan province, and an 85% drop since Badakshan does not have ANA or ANP personnel.

Table 25 Provincial-Level Non-Insurgent Influence Update, High Risk Scenario

Province	Distance from ISAF Risk	Low Risk Justification	ANA Capability Risk	High Risk Justification	Non-Insurgent Influence Reduction
Badakshan	-10%	Two borders away from the troops at Bagram	-85%	No ANA or ANP presence	-95%
Badghis	-5%	One border away from the troops at Herat	-0%	ANA is fully capable in all categories	-5%
Baghlan	-5%	One border away from the troops at Bagram	-85%	No ANA or ANP presence	- 90%
Balkh	-0%	Troops are located in Mazar	-50%	ANA is partly capable in two	-50%

Province	Distance from ISAF Risk	Low Risk Justification	ANA Capability Risk	High Risk Justification	Non-Insurgent Influence Reduction
				categories and capable in four categories	
Daykundi[35]	N/A	N/A	N/A	N/A	N/A
Faryab	-10%	Two borders away from the troops at Herat and Mazar	-75%	ANA is developing in one category	-85%
Ghazni[36]	N/A	N/A	N/A	N/A	N/A
Ghor[37]	-5%	One border away from the troops at Herat	-85%	No ANA or ANP presence	-90%
Helmand[38]	-5%	One border away from the troops at Kandahar	-50%	ANA is partly capable in three categories and capable in three categories	-55%
Herat	-0%	Troops are located at Herat-2%	-25%	ANA is capable in two categories	-25%
Jawzjan	-5%	One border away from the troops at Mazar	-85%	No ANA or ANP presence	-90%
Kabul	-0%	Troops located in Kabul	-75%	ANP is developing in one category and capable in five categories	-75%
Logar	-5%	One border away from the troops in Kabul	-85%	No ANA or ANP presence	-90%
Nangarhar	-5%	One border away from the troops in Kabul	-50%	ANA is partly capable in one category and	-55%

[35] Due to its remote location in the center of the country, it is assumed that the risk will be too high for an investor under a high risk scenario; therefore, economic development projects are not implemented in this province.
[36] Due to its remote location, it is assumed that the risk will be too high for an investor under a high risk scenario; therefore, economic development projects are not implemented in this province.
[37] Mineral areas of interest in the eastern half of this province are not exploited due to their remote location. It is assumed that the risk will be too high for an investor under a high risk scenario; therefore, economic development projects are not implemented in the east.
[38] Mineral areas of interest in the southern half of this province are not exploited due their remote location. It is assumed that the risk will be too high for an investor under a high risk scenario; therefore, economic development projects are not implemented in the south of this province.

Province	Distance from ISAF Risk	Low Risk Justification	ANA Capability Risk	High Risk Justification	Non-Insurgent Influence Reduction
				capable in five categories	
Paktika	-10%	Two borders away from the troops in Kandahar	-75%	ANA is developing in one category and capable in four categories	-85%
Panjshir	-5%	One border away from the troops at Bagram	-75%	ANA is developing in one category and capable in three categories	-80%
Parwan	-0%	Troops are located at Bagram	-75%	ANA is developing in one category and capable in three categories	-75%
Sar-e-Pul	-5%	One border away from the troops in Mazar	-85%	No ANA or ANP presence	-90%
Takhar	-10%	Two borders away from the troops at Bagram at Mazar	-85%	No ANA or ANP presence	-95%
Urozgan	-5%	One border away from the troops in Kandahar	-75%	ANA is developing in one category and capable in two categories	-80%
Zabul	-5%	One border away from the troops in Kandahar	-75%	ANA is developing in one category and capable in one category	-80%

Note: only those provinces with current and successful Task Force projects are presented in the above table.

The assumption embedded in the high risk scenario is that troop withdrawals, coupled with a government that is finding its own political balance, will create opportunities for insurgents to become more active. It is assumed under the high risk scenario that the two TFBSO projects spanning multiple Afghan Provinces in the South (TAPI and Afghan Rail) would result in too much risk (due to a lack of fully capable security forces); therefore, both projects are permanently delayed.

The following table presents gross domestic product and government revenue estimates in Afghanistan incorporating the Task Force's projects under two alternative risk scenarios. The high-risk scenario shows an economic activity 16% lower than the baseline, this change can be partly attributed to the projects that are discontinued due to the security issues. Government revenues are reduced by 45% from the baseline scenario. The multiplier effects of the projects in the formal

economy are weakened and at the same time the informal and illegal sector, who do not contribute fiscally, might be expanding.

Table 26 Alternative Future, ISAF Troop Reduction, Low-Baseline-High Risk Scenarios

	Year / Timeline	Baseline Risk	High Risk
Gross Domestic Product	2025	$107.9 B	$90.2 B
Government Revenue	2025	$31.1 B	$17.0 B

Lifting Iran Sanctions

Despite ongoing concerns over Iran's nuclear program and allegations of arming militants in the region, General David H. Petraeus, former commander of US forces in the region, says Washington and Iran could coalesce around stabilizing Afghanistan. Admiral Mike Mullen, former chairman of the Joint Chiefs of Staff, echoed the sentiment in late January 2009. A number of experts stress that Iran wants stability and prosperity on its eastern doorstep for commercial and trade reasons (Bruno & Beehner, 2009).

Iran has positioned itself as an important regional actor in Central Asia and is committed to playing a role in neighboring Afghanistan. While the future of US-Iranian relations remains unclear, any improvement in the relationship would facilitate the success of US-supported initiatives in Afghanistan: the "New Silk Road" strategy, which seeks to improve Afghanistan's economic ties with Central and South Asia, and the "Heart of Asia" confidence-building process, which fosters high-level dialogue on security, political, and economic cooperation among Afghanistan and its neighbors. Both are catchwords for Washington's policy of trying to shift more responsibility for Afghanistan's reconstruction to the states of the region (Olcott, 2013).

The election of Hassan Rouhani as Iran's president and a potential breakthrough in nuclear negotiations could herald greater cooperation between Iran and the US in Afghanistan. Both Iran and the US share an interest in thwarting the Taliban's victory and ensuring a more stable Afghanistan, and both Tehran and Washington could pursue their respective interests in ways that are mutually beneficial (Nader, Scotten, Rahmani, Stewart, & Mahnad, 2014).

The following adjustments were made to the economic impact assessment model in order to account for lifting Iran sanctions:

- Afghanistan's agriculture production increases by 50%. Agriculture production increases in Afghanistan as Iran's economy matures and transitions to providing more services and enhancing its industrial sector. Afghanistan becomes the "bread-basket" for Iran's growing economy.

- A total of 50% of commodity imports from Pakistan are replaced with commodity imports from Iran. Iran is capable of exporting more commodities to Afghanistan as the Iran's economy grows. Afghanistan's ability to absorb additional imports is limited; therefore, Afghanistan substitutes Pakistan goods with Iran goods.
- Afghanistan receives an additional $70 million in aid from Iran every year. Iran has a history of providing aid and they will be more willing to secure Afghanistan with additional revenue as their own economy grows.

Afghanistan's economy is estimated to be 0.5% greater than in the baseline scenario if US sanctions on Iran are lifted. Additionally, the Afghan government is expected to collect an additional $0.1 billion as the Afghan economy reacts to Iran's economic growth.

Table 27 Alternative Future, Lifting Iran Sanctions, Economic Impact Results

	Year / Timeline	Baseline Scenario	Lifting Iran Sanctions
Gross Domestic Product	2025	$107.9 B	$108.4 B
Government Revenue	2025	$31.1 B	$31.2 B

Increased Instability in Pakistan

The allegedly complacent attitude of the Pakistan establishment toward, and even harboring of, pro- Taliban and Al Qaeda elements, and the current socio- economic and political crisis within Pakistan due to internal political strife has led many to question the future of Pakistan's role in Afghanistan (Parto, Winters, Saadat, Usyan, & Hozyainova, 2012). Pakistan's contribution to post-2014 Afghanistan will be directly proportional to Pakistan's own security, stability and economic welfare (Dogan, 2014).

A massive growth in militancy in the Pakistani-Afghan border area interacts with growing threats in the heartland of the Punjabi, Sindhi and Baloch interior. Additionally, Pakistan pursues its own agenda in Afghanistan in ways that prolong the fighting and cause serious US, ISAF, and Afghan casualties. Being its immediate neighbor, Afghanistan is bound to be affected by the spill-over effects of any destabilization that may take place in Pakistan.

Trade engenders and deepens specialization and specialization in turn assures economies of scale, especially for those countries with relatively modest domestic economies. Through increased economic integration, trading economies can acquire and diffuse new technologies from more advanced countries and help reduce poverty (Aziz, 2007). Afghanistan and Pakistan can work together and achieve mutual economic growth as trading partners.

However, insurgent threats from Pakistan remain very real as the Afghan Taliban continue to take refuge in neighboring Pakistan. As long as the Taliban and other insurgent groups have sanctuary in Pakistan, the risk of warfare and economic instability will remain (Cordesman, The Security Transition: in Afghanistan: 2014-2016, 2014). The following adjustments were made to the economic impact assessment model to account for increased instability in Pakistan:

- Heavy construction projects that require imported materials and equipment in the south, southeast, and eastern regions of Afghanistan are delayed by 10 years. These heavy construction projects include:
    - Aynak mineral area of Interest (AOI) located in Logar Province.
    - Bakhud mineral AOI located in Urozgan Province.
    - Chai Gai Hills mineral AOI located in Helmand Province.
    - Ghunday-Achin mineral AOI located in Nangarhar Province.
    - Jabul Seraj mineral AOI located in Parwan Province.
    - Katawas mineral AOI located in Paktika Province.
    - Khanneshin mineral AOI located in Helmand Province.
    - Kundalan mineral AOI located in Zabul Province.
    - Minerals rail that is proposed to begin in Parwan Province and cross the eastern and southern regions of Afghanistan.
    - Panjshir Valley mineral AOI located in Panjshir Province.
    - Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline that is proposed to cross the northern parts of Helmand and Kandahar provinces.
    - Zarkashan mineral AOI located in Ghazni Province.
- Afghanistan's formal imports and exports decrease by 50% as all of the import/exports with Pakistan are cut off and 50% of the commodities are redirected to neighboring countries.
- Opium production increases by 50% as the formal trade with the east is replaced by illegal/drug trade.

Afghanistan's economy is estimated to decline by 28% if trade with Pakistan is cut off as a result of increased instability in Pakistan. Additionally, Afghan government revenue is expected to be 58% lower than in the baseline scenario.

Table 28 Alternative Future, Increased Instability in Pakistan, Economic Impact Results

	Year / Timeline	Baseline Scenario	Increased Insecurity in Pakistan
Gross Domestic Product	2025	$107.9 B	$77.5 B
Government Revenue	2025	$31.1 B	$13.0 B

Appendices

Works Cited

Kashmir Monitor. (2011, October 1). *Pakistan never backed haqqani network: ISI chief.* Retrieved November 29, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/895051543?accountid=10639

Abdollahian, M., Baranick, M., Efird, B., & Kugler, J. (2006). *Senturion: A Predictive Political Simulation Model.* Washington, D.C.: National Defense University: Center for Technology and National Security Policy.

Abdollahian, M., Kugler, J., Nicholson, B., & Oh, H. (2010). Politics and Power. In A. Kott, & G. Citrenbaum, *Estimating Impact: A Handbook of Computational Methods and Models for Anticipating Economic, Social, Political and Security Effects* (p. Chapter 3). New York: Springer Science & Business Media.

Acertas. (2013). *Senturion: Strategy Analytics for Complex Negotiations and Transactions.* Los Angeles: Acertas, LLC.

Adhikari, R., & Weiss, J. (2003). *A Methodological Framework for the Economic Analysis for Sub regional Projects.* Asian Development Bank.

Adhikari, R., & Weiss, J. (2003). *A Methodological Framework for the Economic Analysis for Sub-regional Projects.* Manilla: Asian Development Bank.

Afghanistan Public Policy Research Organization. (2011). *Customs Reform in Afghanistan: Moving between Introduced and Pre-existing Structures.*

Afghanistan Public Policy Research Organization. (2014). *Afghanistan and Regional Trade: More, or Less, Import from Central Asia?*

AFP. (2014, 18 November). *Musharraf warns of proxy war with India in Afghanistan.* Retrieved November 18, 2014, from The Express Tribube: http://tribune.com.pk/story/792985/musharraf-warns-of-proxy-war-with-india-in-afghanistan/?utm_source=Sailthru&utm_medium=email&utm_term=*AfPak%20Daily%20Brief&utm_campaign=2014_The%20South%20Asia%20Daily%2011-18

Ahady, A. (2012 йил 26-January). Speech presented at Johns Hopkins University School of Advanced International Studies.

Ahady, A. (2013 йил 25-June). Minister of Transportation and Commerce. (A. Farhadi, Interviewer) Kabul, Afghanistan.

Akulov, A. (2013). *Will Afghanistan Follow Syria's Scenario?* Strategic Culture Foundation.

Alexander, H. (2014, August 24). *The ISIL Battle Plan*. Retrieved November 19, 2014, from The Sunday Telegraph: http://search.proquest.com.jproxy.lib.ecu.edu/docview/1555434786?accountid=10639

Ansary, T. (2012). *Games without rules: the often-interrupted history of Afghanistan*. Public Affairs.

Asia News Monitor. (2014, October 28). *Statement as Chair of Ministerial Debate of the UN Security Council on Iraq*. Retrieved November 19, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1616620694?accountid=10639

Asian Development Bank. (1997). *Guidelines for the Economic Analysis of Projects*. Manilla: ADB: Economic and Development Resources Center.

Asian Development Bank. (1997). *Guidelines for the Economic Analysis of Projects*. Asian Development Bank Institute.

Asian Development Bank. (2004). *Post-conflict reconstruction: the Afghan economy*. Manila: Asian Development Bank Institute.

Asian News International. (2014, November 8). *Hizb-e-islami afghanistan chief hikmatyar agrees to give up armed resistance*. Retrieved November 20, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1621850504?accountid=10639

Atlantic Council. (2014, October 29). *Washington Ideas Forum*. Retrieved November 18, 2014, from Proquest: http://search.proquest.com.jproxy.lib.ecu.edu/docview/1617964056?accountid=10639

Atlas, T. (2014). *Afghan Opium Poppies thrive Despite $7 Billion from U.S.* Bloomberg.

Aziz, M. (2007). *The New Silk Roads: Transport and Trade in Greater Central Asia*. Johns Hopkins University.

Bakhtar News Agency. (2014, November 1). *First VP receives delegations of some provinces*. Retrieved November 20, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1619110225?accountid=10639

Baldor, L. C., & Pace, J. (2014 йил 22-November). *Obama broadens mission in Afghanistan*. From Associated Press News: http://m.apnews.com/ap/db_289563/contentdetail.htm?contentguid=UvkEDTyw

Barfield, T. (2010). *Afghanistan: A Cultural and Political History*. Princeton: Princeton University Press.

Barzegar, K. (2014). *Iran's Foreign Policy in Post-Taliban Afghanistan*. The Washington Quarterly.

Besley, T., & Persson, T. (2009). *The Logic of Political Violence.* Oxford University Press.

Blunch, N., Canagarajah, S., & Raju, D. (2001). *The informal sector revisited: a synthesis across space and time.* Washington D.C.: World Bank.

Brinkley, J. (2013). Money Pit: The Monstrous Failure of US Aid to Afghanistan. *World Affairs.* Retrieved June 17, 2014, from http://worldaffairsjournal.org/article/money-pit-monstrous-failure-us-aid-afghanistan

Brun, J.-F., Carrere, C., Guillaumont, P., & de Melo, J. (2005). *Has Distance Died? Evidence from a Panel Gravity Model.* The World Bank.

Bruno, G., & Beehner, L. (2009). *Iran and the Future of Afghanistan.* Council on Foreign Relations.

Burki, S. J. (2013). *Economics of Pak-Afghan Relations.* Institute of South Asian Studies.

Byrd, W. (2008). *Responding to Afghanistan's opium challenge: lessons and policy implications from a development perspective.* Washington, D.C.: World Bank.

CASA 1000. (2014, November 25). *CASA 1000.* Retrieved from http://www.casa-1000.org

Center for European Policy Studies. (2009). Promoting Regional Cooperation and Development in Central Asia. *Central Asia Regional Economic Cooperation Program,* (p. 11).

Central Statistics Organization, GIRoA. (2010). *Statistical Yearbook.* From Central Statistics Organization, GIRoA: http://cso.gov.af/en

Central Statistics Organization, GIRoA. (2011). From http://cso.gov.af/en Central Statistics Organization, GIRoA: http://cso.gov.af/en

Central Statistics Organization, GIRoA. (2011-2014). *National Risk and Vulnerability Assessment.* Kabul: (unpublished).

Central Statistics Organization, GIRoA. (2012). *National Risk and Vulnerability Assessment.* Kabul: GIRoA.

Central Statistics Organization, GIRoA. (2013). From Central Statistics Organization, GIRoA: http://cso.gov.af/en

Central Statistics Organization, GIRoA. (2013-2014). *Statistical Yearbook.* Kabul: Central Statistics Organization, GIRoA. From Central Statistics Office, GIRoA: http://cso.gov.af/en

Central Statistics Organization, GIRoA. (2014). *Statistical Yearbook.* Kabul: Central Statistics Organization, GIRoA.

Cohen, D., & Soto, M. (2002). *Why are some countries so poor? Another look at the evidence and a message of hope.* Paris: OECD Development Centre, Technical Paper 197.

Collier, P. (2004). *The Bottom Billion.* New York: Oxford Press.

Collier, P. (2007). *The Bottom Billion.* New York: Oxford University Press.

Cordeman, A., Gold, B., & Hess, A. (2013). *The Afghan War in 2013: Meeting the Challenges of Transition:.* Washington, D.C.: Center for Strategic & International Studies.

Cordesman, A. (2014). *The Security Transition: in Afghanistan: 2014-2016.* Washington, DC: Center for Strategic & International Studies.

Cordesman, A., Burke, A., & Vira, V. (2011). *Pakistan: Violence v. Stability.* Center for Strategic & International Studies.

Cordesman, A., Shelala II, R., & Kasting, N. (2013). *U.S. and Iranian Strategic Competition: The Impact of Afghanistan, Pakistsan, India, and Central Asia.* Center for Strategic & International Studies.

Correspondent, O. (2014, November 8). *On the cards: Hekmatyar poised to give up resistance.* Retrieved November 14, 2014, from The Express Tribune: http://tribune.com.pk/story/787458/on-the-cards-hekmatyar-poised-to-give-up-resistance/)

Crane, K., Oliker, O., Bensahel, N., Eaton, D., Gayton, S. J., Lawson, B. S., . . . Williams, a. K. (2009). *Guidebook for Supporting Economic Development in Stability Operations.* RAND Corporation.

Da Afghanistan Bank. (2006). *Monetary Policy Department Quarterly Economic and Statistical Bulletin (Combined Issue 1384).* Kabul: Ministry of Finance.

Davin, E., & Majidi, N. (2008). *Research Study on Afghan Deportees from Iran.* United Nations High Commissioner for Refugees.

Davis, U. o. (2014, November). *Afghan Agriculture.* Retrieved from http://afghanag.ucdavis.edu/

Dawn.com. (2014, December 1). *India Approves Plan to Develop Iran's Chabahar Port.* Retrieved from Dawn.com: http://www.dawn.com/news/1138878/india-approves-plan-to-develop-irans-chabahar-por

Defense Intelligence Agency, Research and Requirements. (2005). *Predictive Analysis Business Case.* Washington, D.C.: Defense Intelligence Agency, Research and Requirements.

Delawari, N. (2013 йил 12-March). Governor, Central Bank of Afghanistan. (A. Farhadi, Interviewer)

Devroy, E. (2014). *Conflict in the Middle East: Afghanistan and the Arab Spring.* Prezi.

Dixon, P., & Jorgenson, D. (2014). *Handbook of Computable General Equilibrium Modeling. Vols 1 and 2.* North Holland: Elsevier B.V.

DoD. (2014). *Progress Toward Security and Stability in Afghanistan.* Department of Defense.

DoD. (2014). *Report to Congress: Progress Toward Security and Stability in Afghanistan, October 2014.* Washington, DC: Pentagon, DoD.

Dogan, S. (2014). *Pakistan-Afghanistan Relations in the Post 2014-Era.* Turkish Daily News.

Dressler, J. (2010). *The Haqqani Network.* Washington, DC: Institute for the Study of War.

Duffield, M. (2001). *Global Governance and the New Wars: The Merging of Development and Security.* London: Zed Books.

Edwards, D. B. (2002). *Before Taliban : Genealogies of the Afghan Jihad.* Berkeley: University of California Press. . Retrieved from Berkeley, CA, USA: University of California Press. Retrieved from http://www.ebrary.com

Farhadi, A. (2014). *Stabilization for Sustainable Economic Growth in Fragile States: The Case for an Afghanistan Trade-Based Regional Economic Integration "Silk Road" Strategy.* Canberra: University of Canberra.

Farhang, A. (2013, March 14). Political Economy Analyst. (A. Farhadi, Interviewer) Kabul, Afghanistan.

FARS News Agency. (2014 йил 11-August). *Afghanistan rejects infiltration of taliban operatives into army forces.* From http://search.proquest.com.jproxy.lib.ecu.edu/docview/1552492839?accountid=10639

Faye, M., McArthur, J., Sachs, J., & Snow, T. (2004). *The Challenges Facing Landlocked Developing Countries.* Carfax Publishing.

Fukuda-Parr, S. (2001). *Human development report 2001: making new technologies work for human development.* New York: Oxford University Press.

Fund for Peace. (2013). *Fragile States Index.* Retrieved June 17, 2014, from Fund for Peace: http://ffp.statesindex.org/

Ghani, A., & Lockhart, C. (2008). *Fixing Failed States: A Framework for Rebuilding a Fractured World.* Oxford University Press: USA.

Gillett. (2009). *Fisheries in the Economies of the Pacific Island Countries and Territories.* Manilla: Asian Development Bank.

GIRoA. (2006, updated 2008). *Afghanistan National Development Strategy (2008-2013): A Strategy for Security, Governance, Economic Growth, and Poverty Reduction.* Kabul: GIRoA.

GIRoA. (2009). *Afghanistan National Development Strategy.* Kabul: GIRoA.

GIRoA Central Statistics Organization. (2014). *Statistical Yearbook.*

GIRoA Ministry of Commerce & Industries. (2014, November 25). *APTTA Agreement.* Retrieved from Ministry of Commerce & Industries Islamic Republic of Afghanistan: http://moci.gov.af/en/page/8604

GIRoA Ministry of Mines & Petroleum. (2014, November 26). *Turkmenistan-Afghanistan-Pakistan-India (TAPI) Pipeline.* Retrieved from Ministry of Mines and Petroleum Islamic Republic of Afghanistan: http://mom.gov.af/en/page/4717

Gopal, A. (2009, June 1). The Most Deadly US Foe in Afghanistan. *Christian Science Monitor.*

Government of the Islamic Republic of Afghanistan. (2010). *Development Cooperation Report.* Ministry of Finance.

Government of the Islamic Republic of Afghanistan. (2012). *Development Cooperation Report.* Ministry of Finance.

Government of the Islamic Republic of Afghanistan. (2014). *Statistical Yearbook.* Central Statistics Office.

Grigorou, C. (2007). *Landlockness, Infrastructure and Trade.* Washington, DC: The World Bank.

Guimbert, S. (2004). *Structure and Performance of the Afghan Economy.* Washington, D.C.: World Bank.

Guimbert, S. (2004). *Structure and Performance of the Afghan Economy.* Washington, D.C.: World Bankk.

Gupta, A. (2014). *India's Opportunity in Iran Port.* The New Indian Express.

Hakimian, H. (2012, May 23). *How Sanctions Affect Iran's Economy.* Retrieved from Council on Foreign Relations: http://www.cfr.org/iran/sanctions-affect-irans-economy/p28329

Hizb-i-Islami Gulbuddin (HIG). (2014). Retrieved from Terrorism Research & Analysis Consortium: http://www.trackingterrorism.org/group/hizb-i-islami-gulbuddin-hig

House of Representatives 112th Congress 2nd Session. (2012). Combating the Haqqani Terrorist Network. *Hearing before the Subcommitte on Terrorism, Nonproliferation, and Trade of the Committe on Foreign Affairs.* Washington, D.C.: U.S. Government Printing Office.

ICG. (2011). *The Insurgency in Afghanistan's Heartland.* International Crisis Group.

ICG. (2012). *Afghanistan: The Long, Hard Road to the 2014 Transition.* International Crisis Group.

ICG. (2014). *Afghanistan's Insurgency after the Transition.* Brussels, Belgium: International Crisis Group.

ICG. (2014). *Afghanistan's Insurgency after the Transition.* Brussels, Belgium: International Crisis Group.

IMF. (2014). *Islamic Republic of Afghanistan: Staff Report for the 2014 Article IV Consultation.* International Monetary Fund.

Institute for the Study of War. (2014, November 24). *Pakistan and Afghanistan.* Retrieved from Understanding War: http://www.understandingwar.org/print/647

Iran Tracker. (2010, April 8). *Afghanistan-Iran Foreign Relations.* Retrieved from Iran Tracker.org: www.irantracker.org/print/130

Iyengar, R., Monten, J., & Hanson, M. (2011). *Building Peace: The Impact of Aid on the Labor Market for Insurgents.* NBER Working Paper Series.

Jane's Intelligence Weekly. (2014, June 27). *ISIL conflict with iraqi sunni opposition likely but will not affect ISIL's aspirations beyond iraq, syria.* Retrieved November 19, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1538361178?accountid=10639

Kapoor, D. (2013). Instability in Pakistan. *Journal of Defence Studies*, Vol-7, Issue-1. pp-5-8.

Katzman, K. (2014). *Iran Sanctions.* Congressional Research Service.

Khan, E. M. (2014, November 25). *Conflict Transformation by Pakistan Army: The Central Trade Corridor.* Retrieved from Inter Services Public Relations: https://www.ispr.gov.pk/front/main.asp?o=t-article&id=95

Khan, H. (2014, October 26). *Capture of taliban leaders strikes major blow.* . Retrieved November 19, 2014, from The Statesman : http://search.proquest.com.jproxy.lib.ecu.edu/docview/1617241219?accountid=10639

Kirkpatrick, D. D. (2014, November 11). *Militant group in egypt vows loyalty to ISIS. New York Times Retrieved from* . Retrieved November 18, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1622190310?accountid=10639

Krugman, P. (1991). Increasing Returns and Economic Geography. *American Economic Review*, 483-499.

Kutty, S. N. (2014). Iran's Continuing Interestes in Afghanistan. *The Washington Quarterly*, 139-156.

Lakshmanan, I. (2014). *Islamic State Now Resembles the Taliban with Oil Fields.* Bloomberg.

Leal-Ordóñez, J. (2010). Informal sector, productivity and tax collection. *Centro de Investigación y Docencia Económicas.*

Lenzen, M., Kanemoto, K., Moran, D., & Geschke, A. (2012). Mapping the Structure of the World Economy. *Env. Sci. Tech 46(15)*, 8374-8381.

Lenzen, M., Moran, D., Kanemoto, K., & Geschke, A. (2013). Building Eora: A Global Multi-regional Input-Output Database at High Country and Sector Resolution. *Economic Systems Research 25:1*, 20-49.

Levin, A. (2009). *Agriculture and Stability in Afghanistan.* Fort Leavenworth: School of Advanced Military Studies, U.S. Army Command and General Staff College.

Lister, S., & Karaev, Z. (2004). *Understanding markets in Afghanistan: a case study of the market in construction materials.* World Bank.

Loayza, N. (1997). *The economics of the informal sector: a simple model and some empirical evidence from Latin America.* Washington, D.C.: World Bank.

Lofgren, H., Harris, R. L., Robinson, S., Thomas, M., & El-Said, M. (2002). *A Standard Computable Generable Equilibrium (CGE) Model in GAMS.* Washington, D.C.: Microcomputers in Policy Research: International Food Policy Research Institute.

Malaquias, A. (2001). *Diamonds are a guerrilla's best fried: the impact of illicity wealth on insurgency strategy.* Third World Quarterly.

Marek, E. (2013, January 13). *On Patrol in Afghanistan: Always "Pushing Out".* Retrieved from Talking Proud: Service & Sacrifice: http://www.talkingproud.us/Military/AfghanPatrol/AfghanPatrol.html

Mazza, J. (2006 йил 7-December). Afghanistan's Opium Crop at an All-time High. *Global Research Online Journal.* From http://www.globalresearch.ca/afghanistan-s-opium-crop-at-an-all-time-high/4102

Ministry of Commerce, GIRoA. (2012). *Quarterly Report.* Kabul: Ministry of Commerce, GIRoA.

Ministry of Finance, GIRoA. (2009). *Donor Financial Review: Report 1388.* Kabul: Ministry of Finance, GIRoA.

Ministry of Finance, GIRoA. (2012). *Annual report 1389.* Kabul: Ministry of Finance, GIRoA.

Ministry of Finance, GIRoA. (2012). *Development Cooperation Report.* Kabul: Ministry of Finance, GIRoA.

Ministry of Finance, GIRoA. (2013). *1392 National budget.* Kabul: Ministry of Finance, GIRoA.

Ministry of Finance, GIRoA. (2014). *1393 National Budget.* Kabul: Ministry of Finance, GIRoA.

Ministry of Mines, GIRoA. (2011). *National and regional resource corridors program. Infrastructure Development Cluster.* Kabul: Ministry of Mines, GIRoA.

Mtesa, L. (2007). Challenges of Landlocked Developing Countries and Possible Solutions. Mongolia.

Myre, G. (2014). *America's Middle East Scorecard: Many Interventions, Few Successes.* National Public Radio.

Nader, A., Scotten, A., Rahmani, A., Stewart, R., & Mahnad, L. (2014). *Iran's Influence in Afghanistan: Implications for the U.S. Drawdown.* RAND.

NATO. (2014, November). *Afghanistan International Security Assistance Force.* Retrieved from http://www.isaf.nato.int/

New Zealand Treasury Department: Business Analysis Team. (2005). *Cost Benefit Analysis Primer.* Wellington: New Zealand Treasury Department.

New Zealand Treasury Department: Business Analysis Team. (2005). *Cost Benefit Analysis Primer.* New Zealand Treasury Department.

Niimi, Y. (2008). *Understanding Macroeconomic Indicators.* Manilla: Asian Development Bank.

Nijssen, S. (2010 йил October). *Special Report on Economic Development in Afghanistan: The Afghan Economy—A Brief History (Civil-Military Fusion Centre).* From www.cimicweb.org

Nunberg, B., Abdollahian, M., Green, M., & Perlman, D. (2010). *At the Frontier of Practical Political Economy: Operationalizing an Agent-Based Stakeholder Model in the World Bank's East Asia and Pacific Region.* Washington, D.C.: World Bank.

OANDA. (2014 йил 30-June). *Historical Exchange Rates.* From OANDA: http://www.oanda.com/currency/historical-rates/

Olcott, M. B. (2013). *Iran's Unavoidable Influence over Afghanistan's Future.* Carnegie Endowment.

Opium harvest in Afghanistan hits new high in 2014 - UN. (2014). Retrieved from UN News Centre: www.un.org/apps/news/story.asp?NewsID=49316#.VGjh3_TF-Rg

Oskarsson, K. (2013). *Prospect for a Crisis in Post-2014 Afghanistan.* Civil-Military Fusion Centre.

Oxfam. (2009). *The Cost of War: Afghan Experiences of Conflict, 1978-2009.* Oxfam.

Pain, A. (2008). *Opium poppy and informal credit.* World Bank (Afghanistan Research and Evaluation Unit).

Pajhwok Afghan News . (2014, October 25). *Gilani suggests parleys with insurgents.* Retrieved November 19, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1616260954?accountid=10639

Parthasarathy, G. (2014, October 24). *Time to turn the heat on pakistan.* . Retrieved November 20, 2014, from Businessline: http://search.proquest.com.jproxy.lib.ecu.edu/docview/1615924353?accountid=10639

Parto, S., Winters, J., Saadat, E., Usyan, M., & Hozyainova, A. (2012). *Afghanistan and Regional Trade: More, or Less, Imports from Central Asia.* Bishkek, Kyrgyz Republic: University of Central Asia.

Peters, G. (2009). *How Opium Profits the Taliban.* Washington, D.C.: United States Institute of Peace.

Peters, G. (2012). *Combating Terrorism Center: Haqqani Network Financing: The Evolution of an Industry.* Council on Foreign Relations.

Peterson, S. (2012). *Iran's Deteriorating Economy: An Analysis of the Economic Impact of Western Sanctions.* International Affairs Review: The Elliott School of International Affairs at George Washington University.

Posch, W. (2014). *Afghanistan: the view from Iran.* European Union Institute for Security Studies.

Radelet, S., & Sachs, J. (1999). *What have we Learned, so far, from the Asian Financial Crisis?* Harvard Kennedy School.

Rameen, O. (2013 йил 12-February). Minister of Agriculture, GIRoA. (A. Farhadi, Interviewer)

Reno, W. (2002). *Armed Rebellion in Collapsed States.* Southeast Asian Studies.

Right Vision News. (2013, April 20). *Pakistan: 'ISI has links with haqqani network'.* Retrieved November 19, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1329491031?accountid=10639

Rosenberger, L. (2011a йил 8-June). *"The New Silk Road" Speech presented at National Defense University.* Washington, D.C.

Rosenberger, L. (2011b). Economic transition in Afghanistan: how to soften a hard landing. *United States Army War College, Strategic Studies Institute.*

Sachs, J., & Warner, A. (1995). *Natural Resource Abundance and Economic Growth (NBER Working Paper No. 5398)*. Cambridge: National Bureau of Economic Research.

Schiavo-Campo, S., Tommaso, G. d., & Mukherjee, a. A. (1997). *An International Statistical Survey of Government Employment and Wages*. World Bank.

Schroden, J., Asfura-Heim, P., Norman, C., & Meyerle, J. (2014). *Were the Afghan National Security Forces Successful in 2013?* CNA Analysis & Solutions.

Shah, A. (2014 йил 7-August). *U.S. general killed in afghanistan named*. From Prince George Citizen: http://search.proquest.com.jproxy.lib.ecu.edu/docview/1552092317?accountid=10639

Shively, G., & Galopin, M. (2009). *An Overview of Benefit-Cost Analysis*. From http://www.agecon.purdue.edu/staff/shively/COURSES/AGEC406/reviews/bca.htm

SIGAR. (2014a). *Afghan Customs: U.S. Programs Have Had Some Successes, but Challenges Will Limit Customs Revenue as a Sustainable Source of Income for Afghanistan*. Kabul: Special Inspector General for Afghanistan Reconstruction.

SIGAR. (2014b). *Special Inspector General for Afghanistan Reconstruction (Quarterly Report to the U.S. Congress)*. Arlington: Special Inspector General for Afghanistan Reconstruction.

SIGAR. (October 30, 2014). *Quarterly Report to the United States Congress*. Washington, DC: Special Inspector General for Afghanistan Reconstruction.

Sigsgaard, M. (2009). *Education and Fragility in Afghanistan: a Situational Analysis*. Paris: International Institute for Educational Planning.

South Asian Media Net. (2014, September 5). *Hizb-e-islami afghanistan denies joining islamic state*. Retrieved November 20, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1560094641?accountid=10639

Starr, S. F., & Farhadi, A. (2012). Finish the Job: Jump-Start Afghanistan's Economy. *Johns Hopkins University School of Advanced International Studies*.

Starr, S., & Kuchins, A. (2010). *The Key to Success in Afghanistan: A Modern Silk Road Strategy*. Central Asia-Caucus Institute Silk Roads Studies Program.

Stijns, J. (2003). An Empirical Test of the Dutch Disease Hypothesis Using a Gravity Model of Trade.

Tahir, A. (n.d.). *Pak - Afghanistan Trade Relationship*. Rawalpindi Chamber of Commerce and Industry.

TFBSO. (2014). *Economic Impact Assessment.* Washington, DC: Vestige Consulting, LLC | Acertas, LLC.

The Express Tribune. (2014, January 6). *Vicious Year: Terrorism Surged in 2013, says report.* Retrieved from The Express Tribune with the International New York Times: http://tribune.com.pk/story/655329/vicious-year-terrorism-surged-in-2013-says-report/

The Gold Coast Bulletin. (2014, November 11). *ISIS leader victim of air strike.* Retrieved November 18, 2014, from http://search.proquest.com.jproxy.lib.ecu.edu/docview/1622145578?accountid=10639

The Iraq ISIS Conflict. (2014, June 12). Retrieved from The New York Times: http://www.nytimes.com/interactive/2014/06/12/ world/middleeast/the-iraq-isis-conflict-in-maps-photos-and-video.html?_r=0

The World Bank. (2014, December 5). *Pakistan Overview.* Retrieved from The World Bank: http://www.worldbank.org/en/country/pakistan/overview

Thompson, E. (2006). The nexus of drug trafficking and hawala in Afghanistan. In D. Buddenberg, & W. Byrd, *Afghanistan's drug industry: Structure, functioning, dynamics and implications for counter narcotics policy* (pp. 155-187). Washington, D.C.: World Bank.

Trading Economics. (n.d.). Retrieved November 2014, from Afghanistan GDP: http://www.tradingeconomics.com/afghanistan/gdp

Turkish Daily News. (2014, December 1). *Iran Hampers Trade Link between Turkey and Afghanistan.* Retrieved from Todays Zaman: http://www.todayszaman.com/newsDetail_openPrintPage.action?newsId=328718

U.S. Department of State. (2011, May 23). *Fact Sheet: Comprehensive Iran Sanctions, Accountability, and Divestment Act (CISADA).* Retrieved from http://www.state.gov/e/eb/esc/iransanctions/docs/160710.htm

U.S. Department of State. (2014 йил 25-June). *U.S. Support for the New Silk Road.* From U.S. Department of State: http://www.state.gov/p/sca/ci/af/newsilkroad/

UN Comtrade. (2014 йил 20-June). From UN Comtrade Database: http://comtrade.un.org/

UNAMA. (2014). *Afghanistan Midyear Report 2014: Protection of Civilians in Armed Conflict.* United Nations Assistance Mission in Afghanistan.

UNDOC. (2011). *Afghanistan opium survey 2011: Summary Findings.* Vienna: United Nations Office on Drugs and Crime.

United Nations. (2013). *Millenium Development Goals Report.*

United Nations High Commissioner for Refugees. (2014, December 1). *2014 UNHCR Country Operations Profile - Islamic Republic of Iran.* Retrieved from UNHCR: The UN Refugee Agency: www.unhcr.org/pages/49e486f96.html

United Nations Office on Drugs and Crime. (2014, December 1). *Triangular Initiative.* Retrieved from Islamic Republic of Iran: http://www.unodc.org/islamicrepublicofiran/en/triangular-initiative.html

United Nations Security Council . (2001). United Nations Security Council Resolution on the Situation in Afghanistan.

UNODC. (2009). *Afghanistan Opium Survey.* United Nations Office on Drugs and Crime: Kabul.

UNODC. (2010). *World Drug Report.* United Nations Office on Drugs and Crime.

UNODC. (2011). *Afghanistan opium survey 2011: Summary Findings.* Vienna: United Nations Office on Drugs and Crime.

UNODC. (2011). *The Global Afghan Opium Trade: A Threat Assessment.* United Nations Office on Drugs and Crime.

UNODC. (2013). *Afghanistan Opium Survey.* Kabul: United Nations Office on Drugs and Crime.

UNODC. (2013). *Afghanistan Opium Survey.* United Nations Office on Drugs and Crime.

UNODC. (2014a йил 16-August). *Data and Analysis.* From United Nations Office on Drugs and Crime: http://www.unodc.org/unodc/en/data-and-analysis/

UNODC. (2014b). *World Drug Report.* Vienna: United Nations Office on Drugs and Crime.

UN-OHRLLS. (2014, June 19). Retrieved from UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States: http://unohrlls.org/

USAID. (1976). *Helmand River Basis Soil and Water Survey Study Report.*

USAID. (n.d.). *Cashmere Value Chain Analysis Afghanistan.* United States Agency for International Development.

USGS. (2011 йил September). *Summaries and data packages of important areas for mineral investment and production opportunities in Afghanistan.* Retrieved 2014 йил 1-July from USGS: http://pubs.usgs.gov/fs/2011/3108/fs2011-3108.pdf

Waugh, D. (2007). *The Silk Roads in History. Expedition 53 (3).* From http://penn.museum/documents/publications/expedition/PDFs/52-3/waugh.pdf

Wimmer, A., & Schetter, C. (2002). *State-Formation First: Recommendations for Reconstruction and Peace-Making in Afghanistan (Discussion paper 18740)*. Bonn: University of Bonn, Center for Development Research.

World Bank. (2005). *Afghanistan – State Building, Sustaining Growth, and Reducing Poverty. A World Bank Country Study*. Washington, D.C.: World Bank.

World Bank. (2005). *Afghanistan - State Building, Sustaining Growth, and Reducing Poverty*. Washington, D.C.: World Bank.

World Bank. (2013). *Afghanistan in Transition, MAMS for Afghanistan: Model Structure and Simulations (Appendix A)*. Washington, D.C.: World Bank.

World Bank. (2014, October). *The World Bank*. Retrieved from http://www.worldbank.org/en/country/afghanistan/overview

World Bank. (2014a йил 30-June). *Country and region specific forecasts and data*. From World Bank: http://www.worldbank.org/en/publication/global-economic-prospects

World Bank. (2014b йил 30-June). *Afghanistan Data*. From World Bank: http://data.worldbank.org/country/afghanistan

World Bank. (2014c йил 16-August). *World Development Indicators*. From World Bank: http://data.worldbank.org/data-catalog/world-development-indicators

World Bank and Department for International Development. (2009). *The Afghanistan investment climate in 2008: growth despite poor governance, weak market factors, and lack of innovation*. Washington, D.C.: The World Bank, Finance and Sector Development, South Asia Region.

World Future Fund. (2014, December 2). *Afghanistan and Pakistan Historical Maps*. Retrieved from Worldfuturefund.org: http://www.worldfuturefund.org/wffmaster/Reading/Maps/afghan.map.htm

World Trade Organization. (2013). *Brainstorming Meeting on the Priorities of a New Development Agenda for the Landlocked Developing Countries*.

Zahur, S. (2011, September 29). *Haqqani network?* . Retrieved November 20, 2014, from Pakistan Observer: http://search.proquest.com.jproxy.lib.ecu.edu/docview/895336171?accountid=10639

Zoelick, R. (2011 йил 22-July). *Afghanistan's biggest need: a flourishing economy (Washington Post)*. From World Bank: http://go.worldbank.org/LDUXIM6CT0

Abbreviations

ADB	Asian Development Bank
AFI	Afghan First Initiative
AFN	Afghani currency
AGS	Afghanistan Geological Survey
ANA	Afghan National Army
ANDS	Afghan National Development Strategy
ANSF	Afghan National Security Force
ANP	Afghan National Police
AOI	Area of Interest
APTTA	Afghanistan-Pakistan Transit Trade Agreement
AUAF	Afghanistan Women's Economic Center and Vocational School at the American University of Afghanistan
BCR	Benefit Cost Ratio
CASA-1000	Central Asia South Asia Transmission & Trade Project
CBA	Cost Benefit Analysis
CBTA	Cross-Border Transport Agreement
CDFID	United Kingdom's Department of International development
CENTCOM	U.S. Central Command
CGE	Computable General Equilibrium
CGFM	Certified Government Financial Manager
CIF	Cost, Insurance & Freight
CNG	Compressed Natural Gas
CSO	Afghan Central Statistics Office
DAB	Da Afghanistan Bank (Central Bank)
DIA	U.S. Defense Intelligence Agency
DoD	U.S. Department of Defense
DoS	Department of State
dySAMs	Dynamic Social Accounting Matrices
EFT	Electronic Funds Transfer
EIA	Economic Impact Assessment
EPSC	Exploration and Production Sharing Contract
FAOSTAT	Food & Agriculture Organization of UN
FOB	Free on Board
GDP	Gross Domestic Product
GIRoA	Government of the Islamic Republic of Afghanistan
GIS	Geographic Information System
ha	Hectares
HDI	Human Development Index
IBES	Integrated Business Enterprise Survey
IMF	International Monetary Fund
IOC	International Oil Company
IRR	Internal Rate of Return
ISAF	International Security Assistance Force
LLDC	Landlocked Least Developed Country
LOFTA	Law and Order Trust Fund
MCN	Ministry of Counter Narcotics
MIDAS	Mining Investment and Development for Afghanistan Sustainability Project
MoMP	Ministry of Mines and Petroleum
NATO	North Atlantic Treaty Organization
NDAA	National Defense Authorization Act
NEC	Not Elsewhere Classified
NPV	Net Present Value
NRVA	National Risk and Vulnerability Assessment
O&M	Operations & Maintenance
OCO	Overseas Contingency Operations / Other Contingency Fund
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation & Development
OUSD(C)	Office of the Under Secretary of Defense Comptroller
PDPA	People's Democratic Party of Afghanistan
PECBA	Political Economy Cost Benefit Analysis
SAM	Social Accounting Matrix
SIGAR	Special Inspector General for Afghanistan Reconstruction
SITC	Standard International Trade Classification (United Nations)
SME	Small & Medium Sized Enterprise; Subject Matter Expert
SRAP	Special Representative for Afghanistan and Pakistan
TAPI	Turkmenistan-Afghanistan-Pakistan-India Pipeline
TFBSO	Task Force for Business & Stability Operations
UN	United Nations
UNCTAD	UN's Conference on Trade Development
UNODC	UN's Office on Drugs and Crime
US ARCENT	United States Army Central
USAID	United States Aid
USD	United States Dollar
USGS	U.S. Geological Survey
WB	World Bank
WTO	World Trade Organization

Assumptions

General Assumptions

The sections that follow present a summary of assumptions associated with the Cost-Benefit Analyses (CBA) and Economic Impact Assessment (EIA) modeling techniques. Please contact the Task Force for Business & Stability Operations (TFBSO) technical representative, Ms. Janet Lam Ho, for more detailed information on these topics. Ms. Lam Ho can be contacted via the following email address: Janet.lamho.civ@mail.mil The following table presents a summary of the baseline assumptions used in the Task Force CBAs. More detailed CBA assumptions are explained in the Program subsections that follow.

Table 29. General Assumptions

TFBSO Contribution / Investment	The Task Force disbursed funds to support projects in Afghanistan between 2010 and 2014. All Task Force project-level costs include direct costs (the cost of subject matter experts to support the project and the cost of materials related to the project), and overhead costs (e.g. the cost of lodging / security / transportation in Afghanistan, front / back office support, etc.). Task Force project cost data was derived from official accounting records
Inflation	The price changes presented in the subsections below include increases in nominal prices due to inflation (unless otherwise noted)
Revenues	Revenues are calculated on a per project basis - refer to the contact above to request detailed information about revenue components
Costs	Increase in wages correlate with increases in revenue unless otherwise noted in the subsections below Operating and capital costs vary by project - refer to the contact above to request detailed information about cost components
Exchange Rate for base year 2011	47.7 Afs

Program Assumptions

Table 30. General Assumptions for Upstream Energy Projects

TFBSO Contribution / Investment	The Energy Program received 41% of TFBSO's overhead costs
General Assumption for Energy Projects	**Revenue:** Revenue correlates with production. All marketed production is sold resulting in zero inventories **Operating Costs:** Operating costs remain relatively stable over time and correspond with estimated equipment and staffing requirements based on the size of the operation **Capital Costs:** Exploration capital costs are incurred between the first one to seven years, and infrastructure capital costs start in the middle of the exploration phase. The ratio of capital-to-operating costs is as follows at the four upstream fields:

	Afghani Tajik I (1.9 to 1), Afghan Tajik II (2.2 to 1), Amu Darya (2.5 to 1), and Totimaidan (1.2 to 1) **Government Payments:** Government payments include royalty payments, profit share payments, land use rent payments, and tax payments. The royalty rate changes by location and ranges between 9.0% and 14.6%. The corporate income tax remains constant across all locations at 20%

Table 31. Detailed Upstream Energy Project Assumptions I

Upstream Fields	**Amu Darya:** Angot, Aqdarya, Bazarkamki, Kashkari, and Zamurdsay **Totimaidan:** Block 1, Block 2, and Juma and Bashikurd **Afghan Tajik I:** Sanduqli and Mazari Shari **Afghan Tajik 2:** Amad Abad / Balkh and Mohammad Jan Dagar
Resource and Estimated Operations Timeline	**Amu Darya:** 2012-2018 (oil) **Totimaidan:** 2015- 2054 (gas) **Afghan Tajik I:** 2017-2037 (oil and gas) **Afghan Tajik 2:** 2018-2037 (oil and gas)
Oil Production in No. of Barrels	All production estimates are derived from United States Geological Survey (USGS) data, and seismic studies conducted by the Afghan government. These sources provided data on potential total yields and Task Force Oil & Gas subject matter experts estimated the amount of oil and gas production per year **Amu Darya:** 318,150 in 2012, peaks in 2017 to 11,014,830 **Afghan Tajik I:** 3,806,352 in 2017, peaks in 2021 to 11,782,960 **Afghan Tajik 2:** 2,537,568 in 2018, and peaks in 2021 at 9,106,925
Oil prices	Oil price forecasts were calculated by Task Force subject matter experts. Oil prices are the same every year in Afghan Tajik I and Afghan Tajik II. Oil prices are assumed to be slightly lower in Amu Darya **Amu Darya:** $91 in 2012 decrease to $72 in 2018 (prices decline as oil quality declines) **Afghan Tajik I and Afghan Tajik II:** $81 in 2017 to $121 in 2037 (approximately 2% increase per year)
Associated Gas Production in MCF	**Afghan Tajik I:** 2,883,600 in 2017 and peaks in 2020 to 9,198,914 **Afghan Tajik 2:** 1,922,400 in 2018, peaks in 2021 at 6,899,185
Associated Gas Price per MCF	**Afghan Tajik I and 2:** $5 per MCF in 2017 and 2018 increasing to $7 at the end of the projects
Non-associated Gas Production in MCF	**Totimaidan:** Sales begin in 2017 at 9,217,152 MCF, peaking in 2027 to 160,016,346 **Afghan Tajik I:** Sales begin in 2019 at 44,892,000 and peaks in 2028 at 211,790,785 **Afghan Tajik 2:** Sales begin in 2019 at 22,230,000 and peaks in 2030 at 97,297,569

Non-Associated Gas Price per MCF	**Totimaidan:** $5 per MCF in 2017. The price increases to $11 in 2053 **Afghan Tajik I and 2**: $4.50 for gas, $75 for oil
Non- Associated Gas Condensate Production in No. of Barrels	**Totimaidan:** Sales begin in 2023 at 151,200 and peak in 2025, steadily decreasing to 215,142 in 2054 **Afghan Tajik I:** Sales begin in 2019 at 68,400 and peak in 2025 at 296,668 **Afghan Tajik 2:** Sales start in 2019 at 444,600 and peaks in 2030 at 1,945,951
Non- Associate Gas Condensate Price per Barrel	**Totimaidan:** $88 per barrel in 2023 increasing to $159 in 2053 **Afghan Tajik I:** $81 in 2017 to $121 in 2037 **Afghan Tajik 2:** $4.5 for gas, $75 for oil
Associate Gas Condensate in No. of Barrels	**Afghan Tajik I:** Sales begin in 2017 at 109,577 peak in 2020 to 349,559 **Afghan Tajik 2:** Sales begin in 2018 at 73,051 peak in 2021 at 262,169
Associate Gas Condensate Price per Barrel	**Afghan Tajik I and 2** : $81 in 2017 , $83 in 2018 increasing to $121 in 2037 **Totimaidan**: Only contains non-associated gas.

Table 32. Midstream & Downstream Energy Project Assumptions

Compressed Natural Gas Station	**Source:** TFBSO SMEs were involved in constructing and operationalizing the CNG station. These SMEs provided forecasting capacity and price estimates. **Conversions:** 72 cars converted in 2013, increasing to 192 in 2018 at a subsidized rate of $400 to $500 per car and a market price of $680 from 2018 on **Gas Sold:** CNG sold for vehicles and other uses: 221,911 in 2013 increasing to 587,959 kg by 2018 (165% increase) **Gas Price:** $0.68 /kg in 2013 increasing to $0.78 by 2018 **Other revenues:** Include selling snack and other large convenience store items (revenues from these sales are minimal)
TAPI Pipeline	Afghan government collects transit fees only between 2019 and 2040; total transit fee per year is $300,000,000 per recent negotiations between countries
Domestic Hydrocarbon Capacity Building	46 employees received training. adjusted by multiplier (6.9) and productivity (0.27)
Gas Pipe Uprate Project	**Revenue:** The Afghan government generates revenue through the sale of excess gas transmitted via the pipeline from Sheberghan to Mazar-i-Sharif: 69.6 thousand cubic meters per year through 2030 at $190 per thousand cubic meters. Additional government revenue generated by the Independent Power Producer project (which is an Investments Program project) **Cost:** 100 Afghan Gas; 2% increase in wages annually. Training costs in the first two years of the projects.
New Pipeline Project	No revenue data; however, TFBSO costs are recognized in the CBA

Kushka Seismic	No execution due to security concerns; however, TFBSO costs included in the CBA
Micro-Hydro Power	Cancelled; however, TFBSO sunk costs included in the CBA

Table 33. Indigenous Industries Assumptions

TFBSO Contribution / Investment	The Indigenous Industries Program received 6% of TFBSO's overhead costs.
Carpets	**Time period:** 2013-2020 2013: 8 manufacturers; adding 2 per year through 2020 2 cut and wash facilities and 12 new carpet households between 2015 and 2020 **Revenues**: Baseline earning from accounting records. New facilities $25,000 /year. Revenues increase 15%/year until 2018 and 10% thereafter. Cut and Wash Facilities increase one, 15% and the other, 20% **Operating Costs:** Operating costs increase 13%/year. **Capital Costs:** Capital costs increase 10% year. **Government Payments:** Government payments increase 8%/year
Carpet Hub	No revenue data available; however, TFBSO costs are recognized in the CBA
Cashmere	**Time Period:** 2013-2019 **Revenue:** Fibers increase 20%/year; goats increase 20%/year; matchmaking remains constant; ban on exports of raw/greasy cashmere will increase by 50% the official exports. **Operating Costs:** Operating costs increase at a rate of 13.65%/year. Operating costs for the Certification Lab increase at a rate of 15.5%. **Government Payments:** Government payments are zero.
Jewelry Development Project	**Time Period:** 2014-2019 **Revenue:** Sales double in 2014 and then increase 27%/year **Operating Costs:** Operating costs increase at a rate of 63%/year, **Government Payments:** Government payments increase at 71%/year.
Jewelry Human Capital	36 Artisans participated in Digital Literacy and Business Skills training
Turquoise Mountain Project	**Time Period:** 2011-2020 **Revenue:** Sales increase 10%/year **Operating Costs:** Operating costs increase at a rate of 5%/year **Government Payments:** Government payments increase at 10%/year
Other Indigenous Projects	Insufficient revenue information exists to forecast returns from the GoodWeave project; however, TFBSO costs are included in the CBA

Table 34. Investment Project General Assumptions

TFBSO Contribution / Investment	The Investments Program received 10% of TFBSO's overhead costs.
General Assumption for investment projects	Unless noted: Revenues and costs were provided by the company while in operation. Limited financial information is available for most of the companies that received Business Advisory support; therefore, the CBA does not incorporate cost or revenue forecasts.

Table 35. Investment Project Specific Assumptions

Agricultural #1	Time period: 2013
Agricultural #2	Time period: 2014
Airline	The Airline financial forecasts were provided by the Task Force subject matter expert providing business advisory services to the Airlines Company. **Time Period:** 2013-2016 **Revenue:** Increases 4%/year **Costs:** Operating costs fluctuate as additional planes are purchased
Chemical #1	**Time Period:** 2013-2026 **Revenue:** Increase 11%/year as the price and quantity of pharmaceutical goods increases **Operating Costs:** Operating costs increase at a rate of 16%/year as the Company adds capacity and increases the workforce and consumption of goods for the purpose of manufacturing pharmaceuticals. **Loan:** The loan duration is 10 years with an interest rate of 6% per year **Capital Costs:** Total Capital Costs remain constant through 2026 at $1,094,529 per year **Government Payments:** Government payments increase at 27%/year as the Company becomes more profitable. The government earns revenue from a 20% corporate income tax and a 2% business receipts tax
Chemical #2	Time period: 2012-2014
Chemical #3	Time period: 2013
Glass Company	**Time Period:** 2015-2024 **Revenue:** Revenues increase 36% in 2015, 15% in 2016 and remain constant through 2024. The Glass Company's sales price is $600 per ton, and production starts at 26,280 tons a year **Operating Costs:** Operating costs increase at 0.2%/year **Loan:** Other non-operating costs include repayments of interest; the debt term is 10 years with a 7% annual interest rate **Government Payments:** Government payments increases correlate with

	profitability
Health Care	**Time Period:** 2013-2040 **Revenue:** Increases 95%/year in 2015, 30% 2017 and between 2% and 7% until 2039. It is assumed that capacity utilization will rise steadily and product/service price increases of roughly 5% will increase revenues. **Total Costs:** Total cost increases of 53% in 2015, 20% in 2016 and between 2% and 6% through 2040
Independent Power Producer	**Time Period:** 2015-2029 **Revenue:** Remains constant as the IPP sells the same amount of electricity (140 million kWh) to DABs at the same price ($7.26 per kWh) between 2015 and 2029 **Operating Costs:** Operating costs remain relatively constant through 2020. Funding prevision escrow account costs no longer exist after 2020, and all debt is repaid by 2024. **Loan:** Debt term is 10 years with a 10% interest rate **Capital Costs:** Capital costs to build the power plant are incurred in 2014 only **Government Payments:** Government payments remain constant. The model assumes the contract with the government will conclude with a promise to pay the government for the same amount of gas at the same price for the next 15 years
Social Services #1	Time period: 2012
Steel	**Time Period:** 2016-2024 **Revenue:** Revenues increase 20% in 2016, and 2017, 17% in 2018 and 2019 and between 13% and 14% for the rest of the forecast. Steel growth rates incorporate additional demand created by infrastructure, mining, and urban development requirements. Revenue forecasts incorporate a price of $750 per metric ton of steel (per TFBSO designed feasibility study) **Loan:** The loan payment assumes a 6% interest rate with a 5-10 year term **Operating Costs:** Operating costs increase at 10%/year **Capital Costs:** Capital costs are incurred in 2015 only **Government Payments:** None
Telecom #1	Time period: 2013-2014
Telecom #2	Time period: 2011-2013
Telecom #3	Time period: 2011-2014
Telecom #4	Time period: 2011-2013
Telecom #5	Time period: 2013-2014
Telecom #6	Time period: 2013-2014
Telecom #7	Time period: 2013-2014

Telecom #8	**Time period:** 2013-2023 **Revenues:** Revenues remain relatively constant between 2013 and 2023 as the company sells approximately the same type and amount of services **Operating Cost:** Operating costs decrease slightly overtime time (at a rate of 2% per year) primarily due to rental cost savings **Loan:** AIB loan annual interest rate is 8.5% which is paid over 10 years **Capital Cost:** None **Government Payments:** Government revenue remains relatively constant; government revenue is collected from a 20% tax on income.
Telecom #9	Time period: 2012
Telecom #10	Time period: 2011
Telecom #11	Time period: 2012
Wholesale / Retail #1	Time period: 2013-2014
Wholesale / Retail #2	Time period: 2011-2014
Wholesale / Retail #3	Time period: 2013-2014
Wholesale / Retail #4	Time period: 2013-2014
Wholesale / Retail #5	Time period: 2013-2014
Wholesale / Retail #6	Time period: 2013-2014
Wholesale / Retail #7	Time period: 2013-2014

Table 36. Minerals Projects General Assumptions[39]

TFBSO Contribution / Investment	The Minerals Program received 29% of TFBSO's overhead costs.
Overall Assumptions	**Revenue:** Most revenue (90%) is generated in the first half of the mine life. The mining company begins generating revenue two years after exploration starts **Operating Costs:** Operating costs follow the same pattern as revenue **Capital Costs:** Capital costs are highest in the first two years (during the exploration and mining facility construction phase). Capital costs remain constant during mining operations **Government Payments:** Government payments are estimated to be 20% of profits. Royalty rates are still under Ministry and Executive-level review; therefore, a 20% corporate tax rate is the only government payment included in the model at this time

[39] All data and calculations related to Mineral Area of Interest (AOI) costs and benefits were developed in consultation with the United States Geological Survey (USGS).

Table 37. Minerals Projects Specific Assumptions

Ahankashan	Resource Type: Copper and gold reserves Estimated Mine Life: 35 years Exploration Starts: 2017 Construction Starts: 2021 Operations Start: 2025
Aynak	Resource Type: Copper reserves Estimated Mine Life: 35 years Operations Start: 2023
Badakhshan	Resource Type: Gold reserves Estimated Mine Life: 20 years Exploration Starts: 2016 Construction Starts: 2020 Operations Start: 2024
Bakhud	Resource Type: Fluorite reserves Estimated Mine Life 25 years Exploration Starts: 2019 Construction Starts: 2023 Operations Start: 2027
Balkhab	Resource Type: Copper reserves Estimated Mine Life 10 years Exploration Starts: 2016 Construction Starts: 2020 Operations Start: 2024
Chai Gai Hills	Resource Type: Copper, gold, silver and building stones reserves Estimated Mine Life 35 years. Exploration Starts: 2019 Construction Starts: 2023 Operations Start: 2027
Daykundi	Resource Type: Tin, tungsten and potentially lithium reserves Estimated Mine Life 50 years. Exploration Starts: 2023

	Construction Starts: 2027 Operations Start: 2031
Dusar-Shaida	Resource Type: Copper and tin reserves Estimated Mine Life 35 years. Exploration Starts: 2016 Construction Starts: 2020 Operations Start: 2024
Ghori III	Resource Type: Limestone and other industrial mineral reserves Estimated Mine Life 65 years. Exploration Starts: 2017 Construction Starts: 2021 Operations Start: 2025
Ghunday-Achin	Resource Type: Magnesite and talc reserves Estimated Mine Life 100 years Exploration Starts: 2023 Construction Starts: 2027 Operations Start: 2031
Herat	Resource Type: Limestone and other industrial mineral reserves Estimated Mine Life 65 years. Exploration Starts: 2017 Construction Starts: 2021 Operations Start: 2025
Jabul Seraj	Resource Type: Limestone and other industrial mineral reserves Estimated Mine Life 65 years Exploration Starts: 2016 Construction Starts: 2020 Operations Start: 2024
Katawas	Resource Type: Gold reserves Estimated Mine Life 10 years Exploration Starts: 2021 Construction Starts: 2025 Operations Start: 2029
Khanneshin	Resource Type: Carbonatite reserves Estimated Mine Life 25 years

	Exploration Starts: 2019 Construction Starts: 2023 Operations Start: 2027
Kharnak-Kanjar	Resource Type: Silver reserves Estimated Mine Life 13 years Exploration Starts: 2021 Construction Starts: 2025 Operations Start: 2029
Kundalan	Resource Type: Copper and gold reserves Estimated Mine Life 35 years Exploration Starts: 2017 Construction Starts: 2021 Operations Start: 2025
Nalbandon	Resource Type: Lead and zinc reserves Estimated Mine Life 30 years Exploration Starts: 2019 Construction Starts: 2023 Operations Start: 2027
North Takhar	Resource Type: Gold reserves Estimated Mine Life 15 years Operations Start: 2023
Panjsher	Resource Type: Emerald, iron and silver reserves Estimated Mine Life 35 years Exploration Starts: 2021 Construction Starts: 2025 Operations Start: 2029
Tourmaline	Resource Type: Tin reserves Estimated Mine Life 25 years Exploration Starts: 2021 Construction Starts: 2025 Operations Start: 2029
Zarkashan	Resource Type: Copper and gold reserves Estimated Mine Life 30 years Exploration Starts: 2016

	Construction Starts: 2020 Operations Start: 2024
Strategic Rail	**Source:** CENTCOM **Time Line:** 2016-2040 **Revenues:** Estimates based on freight amounts and route length; revenues increase through 2040 **Operating Costs:** Operating costs remain relatively constant **Capital Costs:** Capital costs include infrastructure and fleet costs; Infrastructure costs are incurred between 2016 and 2018, and again between 2026 and 2028; Fleet costs are incurred in 2016 only. **Government Payments:** Government payments include a 20% tax on profits
Minerals Capacity Building	99 AGS, MoMP, and KPU staff received training from TFBSO and USGS
Other Mineral projects	Baghlan, Dudkash, Qara Zaghan, Takhar, Dasht-e-Nawar, Godzareh Central / East / West, and Namaksar-e-Herat: Insufficient information is available to generate revenue and cost forecasts

Table 38. Historic Project Assumptions

TFBSO Contribution / Investment	The Historic Projects received 14% of TFBSO's overhead costs.
Afghan First	Time period: Revenue recognized in 2011 only
Boston Cotton Gin (Human Capital)	A total of 80 laborers (employment multiplier 2.5; productivity adjustment 0.27) were able to keep their jobs in 2011 as a result of this project
Center Pivot Irrigation System (Human Capital)	A total of 30 farmers (employment multiplier 1.5; productivity adjustment 0.27) benefitted from this project by the end of 2012
Emaar Girls (HK)	Time period: 2017-2025 350 girls graduate annually (employment multiplier 2.0; productivity adjustment 0.27)
Food Safety	Time period: 2010 -2012
Herat Agricultural College	Time Period: 2017-2025 500 students will graduate annually (employment multiplier 1.5; productivity adjustment 0.27)
Herat Security Airport Upgrade	**Time period:** 2013-2020 **Revenue:** Revenues assigned to the one company that can fly internationally; $250 per ticket for 124 passengers with 79% occupancy **Operating Cost:** Unknown

	Capital Cost: Spain and Italy funded additional infrastructure improvements at the airport ($5M in total) **Government Payments:** The Afghan government collects a 10% business receipt tax on the sale of every ticket
Herat University Women's Dorm	Time period: 2019-2025 93 students graduating annually
Marble Factory Equipment	**Time period:** 2010-2020 **Revenue:** The tile manufacturer earns an additional $1,000 per year for 10 years as a result of the new equipment **Total Cost:** The additional equipment doesn't require additional labor. The operations and maintenance cost for the equipment is negligible
Nangarhar Agricultural College	Time period: 2017-2025 450 students graduating annually (employment multiplier 1.5; productivity adjustment 0.27)
Potato Pack House	**Time period:** 2014-2018 **Revenue:** Revenue generation begins in 2014 and doubles in 2015. Revenue increases by 50% between 2015 and 2016; 11% between 2016 and 2017; and 7% between 2017 and 2018. Company revenues increase every year as the amount of packaged potatoes increases. The total amount of packaged potatoes is 7.2 million Kg in 2014. In 2018, the Company sells 25.6 million Kg of packaged potatoes **Direct and Operating Cost:** Direct and operating costs (to include production costs, sorting costs, washing costs, grading costs, and packing costs) increase at the same rate as revenue **Interest Expense:** Interest expense remains constant between 2014 and 2018 ($99,810 per year)
Other Historical Projects	Additional historic projects with insufficient information to forecast revenue and costs include: Economic Roundtable Conference, Herat Teachers Training Institute, Judicial Building Security Upgrade Herat, Naw Zad Motorcycle, Gereshk Facility, Pomegranate Cold Storage, Raisin Facility, American University in Afghanistan Women's Economic Center, and Vocational School However, Task Force costs are known and accounted for.

Table 39. Micro-Macro Bridge Assumptions[40]

Accounting method	Costs and benefit from CBA flow into the SAM matrix affecting the individual accounts
Allocation	95% is allocated from CBA accounts to specific SAM cells and 5% is rescaled to the rest of the economy

[40] Table 39. Micro-Macro Bridge Assumptions presents the accounting and allocation methods for transferring the CBA data to the Social Accounting Matrix (SAM)

Table 40. SAM Matrix Assumptions[41]

Agriculture	Opium (cultivation, prices at different levels of the value chain, production and yield estimates)
	Forestry, Fishing & Other Agricultural Products
Manufacturing	Mining & Quarrying
	Petroleum, Chemical & Chemical Products, Non-Metallic Mineral Products
	Metal Products
	Electrical & Machinery
	Transport Equipment
	Food, Beverages & Tobacco
	Textiles & Wearing Apparel
	Wood & Paper
	Other Manufacturing
Services	Electricity, Gas & Water, Recycling
	Construction
	Wholesale Trade
	Retail Trade
	Hotels & Restaurants
	Transport
	Post & Telecommunications
	Financial Intermediation & Business Activities
	Public Administration & Security
	Other Services

Table 41. Sub-Matrices Assumptions & Baselines

Sub-matrix	Data

[41] In accordance with ISIC Rev. 2.0

Sub-matrix	Data
I/O	Mapped according to *MRIO* 2011; adjusted for opium, electrical and machinery, transport equipment and financial intermediation and rebalanced thereafter
Factors	Labor formal and illegal/ informal allocated by rural and urban *NRVA* (2007 and 2011) and IBES distribution of labor force: employees, employers, own account family workers and unpaid family workers. Rural includes Kuchi. Capital assumed to be 8% (per expert information). Opium sector payment to farmers constitutes payment for labor (UNODOC). Table 4:08 number of employees by sectors and average salaries by economic sector for formal and informal sectors provided by expert
Government income	
Taxes on production	The country did not have taxes in 2011. We assume that the non tax revenue (CSO 2011-12) is paid by the production sector
Import Tariffs	CSO - Ministry of Finances and WTO from sources. They range from 0 % to 16%
Consumer Taxes	Total from CSO. Mapping from Law on Consumer Goods, Official Gazette. No taxes on opium are paid
Penalties	Total "Fines, Penalties and Forfeits" in GFSY
Subsidies	Total "Pensions and Subsidies " in the National Budget Table 7.1
Foreign Aid in Budget	Operating expenses and development projects accounts for 18% of all donors' assistance. Data recalculated for Gregorian Calendar
Foreign Aid Off Budget (NGO)	Accounts for 82% of donors' assistance allocated as follows: 6% infrastructure, 9% governance, 2% education, 4% health, 5% agricultural and rural development, 1% social protection, 2% private sector , 68% security and 3% others
Household Consumption	The total includes official and informal consumption allocated to rural and urban sectors, according to *NRVA* distribution of occupations, consumption of goods by income level. Rural informal includes Kuchi and accounts for 80.1% and Rural Formal; 19.9%. Urban Informal; 59.1% and Urban Formal; 40.9% Informal urban non-agricultural sector; and 55.6% and informal urban agriculture. Informal rural non-agriculture 52.5%.
Government Consumption	Official data from table 7.1 CSO
Investment/Savings	CSO table 7-3, shows Gross Domestic Fixed Investment = 141,792 million Afghanis and Change in inventories and data discrepancies (added) = 151,452 million Afghanis. That number is too high to correspond to change of inventory, therefore we used a 3% average as per expert opinion
Imports	Total official imports plus 17% of unrecorded imports - allocated to vehicles for transportation
Exports	Total official exports from CSO, which includes re-exports plus illegal exports. A conservative assumption was chosen to measure opium exports: payments at

Sub-matrix	Data
	traffickers price level of dry opium

Table 42. General Assumptions & Baselines

Data Element	Notes
Baseline 2011	Rationale: most data available and vetted at the time of the study
Fiscal Year	Starts March 21st Gregorian Calendar
Currency	Millions of Afghanis
Informal and Illegal	The literature suggests (World Bank for example) that the illegal and informal sectors account for an extra 80% to 90% of the GDP (Official GDP = 896,163 million Afghanis in 2011- CSO, table 7.1). We chose a conservative assumption of 50%, as follows: the illegal sector adds 15% and the informal sector adds 35% to economic activity

Table 43. Summary Modeling Assumptions for Computable General Equilibrium

Urban Formal Household	$\max \sum_{j_c^{U_F} \in G_c^{U_F}} \theta_{j_c}^{U_F} \log c_{j_c}^{U_F}$
Subject to	$\sum_{j_c^{U_F} \in J_c^{U_F}} p_{jc} c_{jc}^{U_F} = \left(1-\tau_d^U\right)\left(w^U \bar{l}^{U_F} + r\bar{k}^{U_F}\right) + \mathrm{T}^{U_F}; c_{j_c}^{U_F} \geq 0$
Urban Informal Household	$\max \sum_{j_c^{U_I} \in G_c^{U_I}} \theta_{j_c}^{U_I} \log c_{j_c}^{U_I}$ Penalty is twice tax owed $\phi\tau_d^U\left(w^U \bar{l}^{U_I} + r\bar{k}^{U_I}\right)$
Subject to	$\sum_{j_c^{U_I} \in G_c^{U_I}} p_{jc} c_{jc}^{U_I} = \pi\left[w^U \bar{l}^{U_I} + r\bar{k}^{U_I}\right] + (1-\pi)\left[\left(1-\phi\tau_d^U\right)\left(w^U \bar{l}^{U_I} + r\bar{k}^{U_I}\right)\right]; c_{j_c}^{U_I} \geq 0$
Rural Formal Household	$\max \sum_{j_c^{R_F} \in G_c^{R_F}} \theta_{j_c}^{R_F} \log c_{j_c}^{R_F}$ No capital ownership
Subject to	$\sum_{j_c^{R_F} \in G_c^{R_F}} p_{j_c} c_{j_c}^{R_F} = \left(1-\tau_d^R\right) w^R \bar{l}^{R_F} + T^{R_F}; c_{j_c}^{R_F} \geq 0$
Rural Informal Households	$\max \sum_{j_c^{R_I} \in G_c^{R_I}} \theta_{j_c}^{R_I} \log c_{j_c}^{R_I}$
Subject to	$\sum_{j_c^{R_I} \in G_c^{R_I}} p_{j_c} c_{j_c}^{R_I} = w^R \bar{l}^{R_I};\ c_{j_c}^{R_I} \geq 0$
Final Goods Producers	$\min p_j^d y_j^d + \left(1+\tau_j\right) e p_j^f y_j^f$

Subject to	$\gamma_j\left[\delta_j\left(y_j^d\right)^{\rho_m}+\left(1-\delta_j\right)\left(y_j^f\right)^{\rho_m}\right]^{\frac{1}{\rho_m}} \geq y_j$
Domestic Goods Producers	$y_j^d=\min\left\{\frac{x_{1,j}^d}{a_{1,j}^d},\ldots,\frac{x_{i,j}^d}{a_{i,j}^d},\ldots,\frac{x_{n,j}^d}{a_{n,j}^d},\beta_j K_j^{\alpha_{j,K}}\left(L_j^U\right)^{\alpha_{j,L}^U}\left(L_j^R\right)^{\alpha_{j,L}^R}\right\}$
Consumption Goods Producers	$y_j^c=\min\left\{\frac{x_{1,j}^c}{a_{1,j}^c},\ldots,\frac{x_{i,j}^c}{a_{i,j}^c},\ldots,\frac{x_{n,j}^c}{a_{n,j}^c}\right\}.$
Investment Good Producers	$y_{inv}=\min\left\{\frac{x_{1,inv}}{a_{1,inv}},\ldots,\frac{x_{i,inv}}{a_{i,inv}},\ldots,\frac{x_{n,inv}}{a_{n,inv}}\right\}$
Government **Subject to**	$\max\sum_{j\in G_p}\theta_j^g\log c_j^g+\theta_{inv}^g\log c_{inv}^g$ $\sum_{j\in G_p}p_j c_j^g+p_{inv}c_{inv}^g+T^{U_F}+T^{R_F}$ $\leq\tau_d^U\left(w^U\bar{l}^{U_F}+r\bar{k}^{U_F}\right)+(1-\pi)\left(\phi\tau_d^U\left(w^U\bar{l}^{U_I}+r\bar{k}^{U_I}\right)\right)+\tau_d^R\left(w^R\bar{l}^R\right)+\sum_{j\in G_p}t_j^p p_j^d y_j^d+\sum_{j\in G_c}t_j^c p_j^c.$
Donors **Subject to**	$\max\sum_{j\in G_p}\theta_j^{ngo}\log c_j^{ngo}+\theta_{inv,f}^{ngo}\log c_{inv,f}^{ngo}$ --- $\sum_{j\in G_p}p_j c_j^{ngo}+e\bar{p}_{inv}^f c_{inv,f}^{ngo}\leq eI^{ngo}$; $c_j^{ngo},c_{inv,f}^{ngo}\geq 0$ $eT^{ngo}=eI^{ngo}$
Foreign Trade Partner	$\max\left[\sum_{j\in G_p}\theta_j^f\left(x_j^f\right)^{\rho_x}+\theta_f^f\left(x_f^f\right)^{\rho_x}-1\right]/\rho_x;$ $\sum_{j\in G_p}\left(1+\tau_j^f\right)p_j x_j^f+ex_f^f+e\left(T^f+T^{ngo}\right)=eI_f$

Where:

U : Urban workers

$c_{j_c}^{U_F}$: Consumption goods

p_{j_c} : p_j^d Domestic price level of consumption goods, final goods

$\bar{l}^{U_F}$: Inelastic labor supply of urban workers

$\bar{k}^{U_F}$: Capital

τ_d^U : Income taxes,

T^{R_F} T^{U_F} : Government aid

$(1-\pi)$: Probability of detection

τ_d^R : Tax rate

τ_j : Tariffs

e : Bilateral real exchange rate

γ_j : Factor Productivity

y_j^c Output of the consumption good $j \in G_c$ & G_c is the set of consumption goods

$x_{i,j}^c$ Is the intermediate input of final production good i $j \in G_c$; $a_{i,j}^c$

Table 44. Forecasting Assumptions at the Macro Level (World Bank, 2013)

	GDP Growth Decomposition			Value Added		
2010-2025	**Base Scenario**	**Donors Allocation Modification**	**Agricultural Historical**	**Base Scenario**	**Donors Allocation Modification**	**Agricultural Historical**
Agriculture	1.3	1.3	0.7	6.4	3.9	6.2
Opium	0	0	0	0.1	0.1	0.1
Mining	2.4	2.4	2.4	60.1	60.1	60.1
Industry (non mining)	0.9	0.9	0.6	4.9	4.3	5
Services				0.4	0.2	0.4
Private	3	3.1	1.9	0.3	0.2	0.4
Government						
Security	3.9	4.2	4.2	0.1	0.1	0.2
Non Security	4.5	6.4	4.7	0.1	0.1	0.1
Donors						
Security	-35.1	-38	-35	-0.2	-0.1	-0.2
Non Security	-4.2	-8.6	-4	0	0	0

Table 45. Percentage Annual Growth

2010-2018	Base Scenario	Donors Allocation Modifications	Agricultural Historical
GDP factor cost	5.9	6.1	4.9
consumption			
Private	5.7	6	4.6
Donors	-14.1	-21.3	-13.9

2010-2018	Base Scenario	Donors Allocation Modifications	Agricultural Historical
Government	1.6	7.4	2
Fixed Investment			
Private	3.5	4.3	2.4
Donors	-10.2	-17.7	-10.1
Government	1.3	9.8	1.2
Exports	10.1	9.2	8.9
Imports	-2.2	-2.8	-2.9
Absorption	0.1	0.3	-0.7
Real X Rate (index)	2.8	2.3	3.4

The two main scenarios historical agricultural historical where chosen for baseline without TBFSO and donors allocation modification was included under the assumption that civil service and government will become more efficient at utilizing and allocating resources. Growth rates changed much more specifically with the injection of micro projects, shocks etc.

Donors Allocation Modifications: "50% of aid budget would decrease budget" (World Bank)

Agriculture:" Applying historical rates to agriculture" (World Bank)