

Qosh Tapa Canal Impact On Economic Development: Historical Significance And Assessing SDGs 2030 In Afghanistan

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ABSTRACT

Aim: This study explore economic development, Historical importance and achieving the SDGs 2030 in the country.

Methods: The research methodology employed a qualitative approach, used semi-structured questionnaires and focus group discussions for data collection, followed by thematic analysis to identify patterns and themes. We implemented rigorous measures such as purposive sampling, data triangulation, reflexivity, and ethical considerations to enhance the credibility and validity of the research.

Results: The results show that through effective management, the Qosh Tapa Canal can bring sustainable prosperity to the lives of Afghans in the form of economic development, historical significance, and achieving some of the SDGs 2030 in Afghanistan.

Conclusion: In conclusion, the construction of the Qosh Tapa Canal in Afghanistan has significant implications for economic development, historical significance, water management, and the achievement of various Sustainable Development Goals. It has the potential to revolutionize agriculture, attract investment, create employment, enhance export potential, address water shortages, and contribute to poverty reduction, food security, decent work, sustainable infrastructure, responsible consumption, and the preservation of land ecosystems.

Recommendation: The Afghan government should prioritize continued support, investment, and effective management of the Qosh Tapa Canal to ensure sustained economic, social, and environmental benefits.

Keywords: Qosh Tapa Canal, Economic Development, Historical Significance, SDGs 2030

Introduction:

The Amu Darya (Amu River) is the largest river in northern Afghanistan, with a water flow rate of 2,525 cubic meters per second. It forms the common border between Afghanistan and the three countries of Tajikistan, Uzbekistan, and Turkmenistan. The Amu Darya, with its high volume of water and its flow through Uzbekistan and Turkmenistan, plays a crucial role for these two Central Asian countries. The agricultural economy cycle of Uzbekistan and Turkmenistan heavily relies on the water from this river. According to statistics, these two countries consume about 90% of Amu water throughout the year.

According to statistics, Afghanistan is one of the Amu River's water partners, providing 25–30% of its water while receiving the least benefit. The Qosh Tapa Canal construction in northern Afghanistan has the potential to significantly alter this situation. This channel, whose initial plan was laid during the rule of Mohammad Dawood (1973–1978), has been given the opportunity to be implemented under the current government. This channel starts in Kaldar district of Balkh province, passes through the port town of Haritaan, Daulatabad district of Balkh province, and Aqcha district of Jawzjan province, and ends in Andkhoy district of Faryab province.

The presented plan calls for the completion of this canal in three phases. This canal spans 285 kilometers, with an average width of 80 meters and a depth of approximately 8.5 meters. Its purpose is to channel approximately 668.4 cubic meters of water, equivalent to 25% of the water in the Amu River, into Afghanistan, along with 550,000 irrigated hectares of land. Tolonews. (2024).

Completing this megaproject will undoubtedly lead to a significant economic transformation in Afghanistan and near self-sufficiency in certain agricultural items, particularly wheat. In comparison, the Qosh Tepe canal can be considered parallel to the Qaraqor canal in Turkmenistan, which also branches off from the Amu River. Review of Afghanistan Developments. (2024).

Research Questions:

What is the historical significance of the Qosh Tapa Canal in Afghanistan's economic development, and how has it influenced the region over time?

How does the Qosh Tapa Canal contribute to the achievement of specific Sustainable Development Goals (SDGs), such as SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land)?

What are the economic outputs and export potential resulting from the construction of the Qosh Tapa Canal, and how does it contribute to agricultural transformation, employment generation, and revenue generation in the region?

How does the Qosh Tapa Canal serve as an engineering achievement and contribute to rural settlements, migration patterns, and sustainable water management practices, and what are the implications of these factors for achieving specific SDGs?

Research Objective:

This study conducted for the below objective:

The objective of this research is to explore the historical significance of the Qosh Tapa Canal in Afghanistan's economic development and its regional impact over time. Additionally, it aims to assess the contributions of the Qosh Tapa Canal towards specific Sustainable Development Goals (SDGs). Furthermore, the research seeks to know the economic outputs and export potential resulting from the canal's construction. In spite of this, it aims to know the engineering achievements, agricultural transformation, rural settlements, migration patterns, and water management aspects associated with the Qosh Tapa Canal, along with their implications for the achievement of SDGs.

Literature Review:

According to Jalalzai, F. (2023). In Afghanistan, a country plagued by poverty, hunger, and climate change, the construction of the Qosh Tapa canal brings a glimmer of hope for a better future. An Afghan educator in his 70s, the author's father, finds solace in closely following the progress of the canal, which has the potential to address pressing issues such as food scarcity and unemployment. The canal holds historical significance, harkening back to Afghanistan's past and its first president, Mohammad Daud, who initiated the project in the 1970s. However, political turmoil and the Soviet invasion disrupted its completion. Now, 36 years later, the ambitious canal project sparks concerns among Afghanistan's northern neighbors, who rely on the Amu Darya River's water resources. Climate change exacerbates the region's water scarcity, with Afghanistan being the most vulnerable. The completion of the canal could provide irrigation for arid lands and alleviate poverty for farmers, freeing children from labor-intensive jobs like carpet weaving. While the project faces challenges like lack of international recognition and economic strain, the Taliban government actively shares updates, fostering hope and anticipation among the war-weary population. The author's father remains steadfast in his hope for a peaceful and stable future for Afghanistan.

According to tolonews.(2024).The construction of the Qosh Tapa Canal in Afghanistan is progressing steadily. Officials from the National Development Corporation report that the intake structure of the canal is 50% complete, and work on Phase Two and the intake structure is ongoing. The completion of the canal is expected to bring significant economic progress to Afghanistan and lead to self-sufficiency in wheat production. Experts believe that once the canal and its subsidiary canals are finished, it could generate an annual revenue of \$470 to \$550 million for the country. However, they also note that the impact of the project may not be immediately visible and that proper management is crucial for its success. The excavation work for Phase Two, which aims to reach Andkhoy district in Faryab, is estimated to cost 20 billion Afghanistan.

According to Mushtaq, B. K. (2024). The Qosh Tapa irrigation canal in Afghanistan is a significant project that aims to transform arid land into productive agricultural areas. Spanning 285 kilometers in length and diverting water from the Amu River to the Balkh province, this canal has the capacity to convert 550,000 hectares of dry land into fertile farmland. The completion of the canal is planned in three phases, with the ultimate goal of achieving agricultural self-sufficiency and becoming an agricultural exporter. This article provides an overview of the canal's specifications and highlights its economic value and importance for Afghanistan.

According to the Abdurazzokov, D. (2024). Examines the Qosh Tapa Canal in Afghanistan, its hydro-political impact on Central Asia, and the need for efficient water usage and mutual agreements among countries in the region.

Construction is underway on the Qosh Tapa canal, the Taliban-led government's first major infrastructure project in northern Afghanistan. The canal, stretching for 285 km, aims to provide relief to the country's arid farmland, which has been severely affected by an ongoing drought and humanitarian crisis. The project plans to revitalize more than 500,000 hectares of currently arid agricultural land, offering hope for the local population. However, the canal is controversial due to its potential impact on neighboring countries. Diverting water from the Amu Darya River, Uzbekistan and Turkmenistan, downstream from Afghanistan, are concerned about water shortages worsening as a result. Environmental risks and construction quality also raise concerns among experts. Despite these challenges, the Taliban-led government remains committed to the project and claims that it will not exceed the country's available water resources. The first phase of the canal has been completed, and work on the second stage has begun. The project is scheduled to be finished by 2028, barring any setbacks. Radio free Europe. (2024).

Despite Afghanistan's history of war, violence, and poverty, the country has embarked on its first mega project, the Qosh Teppa Canal. This artificial river has the potential 650 meter cubic per second, aims to address water and food shortages in northern Afghanistan, which has suffered from drought and a decline in agricultural productivity. The canal is being constructed in three phases and is managed by the Afghani National Development Corporation, fully funded by the government. The project has faced concerns from neighboring countries that share the Amu Darya River, but Afghanistan has assured that it will not negatively impact their water supply. The canal is crucial for the people of northern Afghanistan, providing water to over one million residents and enabling the revival of agriculture. The impossible build. (2023).

In Afghanistan, the Taliban plans to build the canal to transform arid lands into fertile farmland, but it raises concerns about water diversion from the Amu Darya river and its impact on downstream countries. Uzbekistan and Turkmenistan fear agricultural losses and increased water pressures. Afghanistan's involvement in water management projects requires collaboration with neighboring countries, but the lack of international agreements. The water scarcity situation has led to border conflicts and increased tensions between the countries. Resolving these issues with the Taliban may prove challenging. Looking4En. (2023).

Qosh Tepe Canal control high water levels and prevent destruction. The canal main purpose of supplying water for agriculture in northern regions of Afghanistan. The project is divided into three phases, including canal digging and the installation of water irrigation systems. The construction of the canal was done by the Afghan government with the help of thousands of workers and private contractors. The project not only provides water for agriculture but also strengthens the economy of local areas and creates employment opportunities. The completion of the canal will lead to the conversion of over 550,000 hectares of land into agricultural fields, with a focus on grain and wheat production. The project demonstrates the ability to solve serious problems and implement large-scale projects with determination and effort. It has economic and social effects, improves living conditions, and has the potential to make Afghanistan a major exporter of wheat in the region. The Qesh tepe Canal project showcases the engineering capabilities of Afghanistan and offers scenic beauty and cultural experiences for visitors. SHKamran. (2023).

Afghanistan is going to surprise the whole world very soon. No one had ever thought that Afghanistan, which has been surrounded by poverty, hunger, and war 40 years, could achieve something like the Qosh tepe canal. Afghanistan is going to build the world's largest artificial canal, which will change the fate of Afghanistan. Hassan Rana. (2024).

Research Methodology:

This study utilized a qualitative research approach, the methodology involves the use of semi-structured questionnaires and focus group discussions for data collection, in addition the data analyze through thematic analysis.

1. Data Collection:

A. Semi-structured Questionnaires: The questionnaires designs semi-structured to gather individual perspectives and insights from participants. The questionnaires consist of a combination of closed-ended and

open-ended questions, allowing for flexibility and the opportunity for participants to provide detailed responses. The questions are carefully crafted to align with the research objectives, exploring the historical context, significance of the Qosh Tepa Canal, its impact on economic development and Assessing the SDG's in the Country.

B. Focus Group Discussions: The researcher organized focus group discussions with a select group of participants. The discussions are facilitated by a moderator who guides the conversation and encourages participants to share their thoughts, opinions, and experiences related to the Qosh Tepa Canal. The focus group discussions provide a platform for participants to interact, exchange ideas, and generate insights from the collective experiences and perspectives of the group.

2. Data Analysis:

The collected data from the semi-structured questionnaires and focus group discussions undergoes thematic analysis. Thematic analysis involves identifying patterns, themes, and recurring ideas within the data. Carefully reviews the responses, transcribes and codes the data, and identifies key themes and sub-themes that emerge. This process allows for a comprehensive exploration of the data and helps in uncovering meaningful insights related to the historical context, significance, and economic impact of the Qosh Tepa Canal and Assessing the SDG's in the country.

3. Research Rigor:

To ensure the rigor and validity of the research, several measures are taken:

A. Sampling: The selection of participants for both the semi-structured questionnaires and focus group discussions is done through a purposive sampling technique. This ensures that participants have relevant knowledge and experiences related to the Qosh Tepa Canal, enhancing the credibility of the data collected.

B. Data Triangulation: Multiple sources of data, including semi-structured questionnaires and focus group discussions, are used to ensure data triangulation. This approach strengthens the reliability and validity of the findings by cross-verifying information obtained from different sources.

C. Reflexivity: The researcher maintains reflexivity throughout the research process by critically reflecting on personal biases, and potential influences on data collection and analysis. This promotes transparency and objectivity in the research.

4. Ethical Considerations:

Ethical guidelines are followed throughout the research process. Informed consent is obtained from participants, and their privacy and confidentiality are ensured. The researcher adheres to ethical standards in data collection, analysis, and reporting, maintaining the anonymity of participants and handling sensitive information with care.

4. Result:

Themes:

1. Economic Development:

Sub- Themes:

Irrigation:

According to the majority of participants stated that Afghanistan is land locked country, through the geographical location it will become land linked country, the northern side of Afghanistan (Balkh, Faryab, Jawzjan) faced with drought special Jawzjan province *"The Qosh Tepa canal serves as a significant irrigation system, providing water to agricultural areas in northern side. It enables the cultivation of crops in arid regions, contributing to increased agricultural productivity and food security"* few of them narrated that the Qosh tepa Canal has the potential to revolutionize agriculture in northern Afghanistan by providing water for irrigation on a large scale. *"It is expected to irrigate up to 550,000 hectares of land, enabling the cultivation of crops, moreover the canal's floor and sides are not lined with concrete slabs, allowing for natural irrigation and higher groundwater reservoir levels. Concrete bridges and an extensive network of irrigation pipelines have been built, benefiting nearby villages and towns"*.

Agricultural Production:

According to the usual participants narrated that farmers will grow a variety of crops and vegetable, *"including cotton, wheat, fruits, and vegetables, which contribute to the country's agricultural output and export potential along with this Afghanistan will achieve a great transformation economically and will be close to self-sufficiency in some agricultural items, especially wheat."* some of the participants stated that *"Amu Darya plays a vital role for these two Central Asian countries due to its high volume of water and its flow in Uzbekistan and Turkmenistan, and the agricultural economy cycle of Uzbekistan and Turkmenistan largely depends on the water of this river. According to statistics, these two countries consume about 90% of Amu water throughout the year"*. Few of them believe on that *"The Qosh Tepa canal will also attracted attention of the international investors who see the potential for agricultural growth and increased trade opportunities, more over The canal will support agricultural activities, leading to increased food production"*

and self-sufficiency. It will also create opportunities for agribusiness and export industries, boosting the country's revenue and reducing its dependence on foreign aid”.

Economic output:

According to the majority stated that the Qosh Tapa Canal created the huge number of jobs opportunities for worker currently, even though make the opportunities for the contractors as well to run their machinery, and save the machinery from script in this tough situations, as we know different types of bans are executed on the country and not recognized internationally” some of them believe the Qosh Tapa Canal will change the fate of Afghanistan “ *it will create employment opportunities, particularly in rural areas. Farmers, laborers, and workers engaged in farming, irrigation, and related activities find employment in the agricultural sector. This has helped combat rural unemployment, alleviate poverty, and improve living standards for local communities*”.

Export Potential:

The most of participants stated that “*when completed the sub canal of Qosh tepa Afghanistan will never import the wheat, even it will be export the wheat and generate more than hundred million dollar more over the country will export surplus agricultural products to regional and international markets, generating foreign exchange earnings and improving the trade balance. This contributes to economic growth, fosters trade relationships, and diversifies the economy*”.

2. Historical Significance:

Sub-Themes

Infrastructure Engineering Achievement:

The most of Participants stated that we have observe and listen and see from international media and colleagues “*during the sanction and the country who's not recognized, it make the largest artificial canal, without any foreign aid, and use their own resources like technological resources, Human resources, and financial resources due to this the world is wonder, the canal create the historical image*”. Some of them stated that “*The construction of the Qosh Tapa Canal stands as a remarkable engineering achievement. It involved extensive planning, engineering expertise, and labor-intensive efforts to divert water from the Amu Darya River to the arid regions of northern side of Afghanistan. The canal's construction showcases the determination and technical capabilities of Afghanistan in undertaking large-scale infrastructure projects*”.

Agricultural Transformation:

The majority participants stated that this canal will be “*change the shape of desert to greenery, and make the opportunity for national and international tourist*” more over the some of them stated that “*The Canal will brings a transformative change in Afghanistan agricultural landscape. It allowed for the cultivation of previously arid and unproductive lands, leading to increased agricultural productivity and the expansion of cultivated areas*”. This transformation will profound impact on the region's food production, rural livelihoods, and overall economic development. The historical significance of the canal also lies in the lessons learned from managing such a large-scale irrigation system.

Rural Settlements and Migration:

Some of the participants stated that “*before the construction of the canal they have faced with the hardship and the keen to migrate to other province, but now the construction of the Qosh Tapa Canal led to the establishment of new rural settlements along its route. People will be migrated to these areas to engage in agricultural activities support by the canal's water supply. The canal will play a role in shaping settlement patterns and demographic changes in the region*”.

Water Management:

Most of the participants stated that Afghanistan is one of the few countries in the world where Seventy Present of the area is covered by hills, Eighty percent of water supply comes from the snow-clad mountains of Hindukash in addition Afghanistan has four major rivers that provide water. Forty percent of Afghanistan's water supply comes from the Helmand River, which starts from Hindukash, crosses the whole of Afghanistan, the rest of Afghanistan's water supply comes from Kabul Harirud and Panj River, “*all these rivers are insufficient to meet Afghanistan's water requirements, due to the lack water management and that is why Afghanistan has always suffered from severe water shortages. There is a huge shortage of water in the entire northern region of Afghanistan, and to overcome this shortage, the Afghan government has thought of a solution: building an artificial canal from the Oxus River that will connect this entire region for 285 km. This canal will supply water to the northern area*”. Some of them stated that “*the Qush tepa Canal has the potential to revolutionize agriculture in northern Afghanistan by providing water for irrigation on a large scale. Qush tepa Canal project will improve the living conditions of the local population by providing a reliable source of water for drinking and household use. This will enhance access to clean and safe water more over the canal's*

floor and sides are not lined with concrete slabs, allowing for natural irrigation and higher groundwater reservoir levels”.

3. SDGs 2030

Sub- Themes

SDG 1: No Poverty

According to the majority of participants stated that The Qosh Tepa Canal has the potential to contribute to the achievement of Sustainable Development Goal 1 (SDG 1), which aims to end poverty in all its forms everywhere. By providing access to water for irrigation and agricultural purposes, *“the canal can help improve agricultural productivity and increase food security in the region. This, in turn, can contribute to poverty reduction by enhancing livelihoods and creating economic opportunities for local communities. Additionally, the canal can support the development of sustainable infrastructure and promote inclusive and sustainable industrialization, which are also key aspects of SDG 1”.*

SDG 2: Zero Hunger

The most of the participants stated that through the canal can achieve SDG 2 (Zero Hunger) *“The Qosh Tepa Canal plays a crucial role in achieving SDG 2 by promoting food security and ending hunger. It provides a reliable water source for irrigation, enabling the cultivation of crops and increasing agricultural productivity. This contributes to improved food production, availability, and access to nutritious food, thereby reducing hunger and malnutrition”.*

SDG 8: Decent Work and Economic Growth:

According to majority of participants narrated that through the canal can achieve SDG 8 (Decent Work and Economic Growth) *“The Qosh tepa Canal supports the growth of the agricultural sector, which creates employment opportunities in rural areas. It generates jobs for farmers, laborers, and workers involved in farming, irrigation, and related agricultural activities. By promoting economic growth and providing decent work, the canal contributes to SDG 8”*

SDG 9: Industry, Innovation, and Infrastructure:

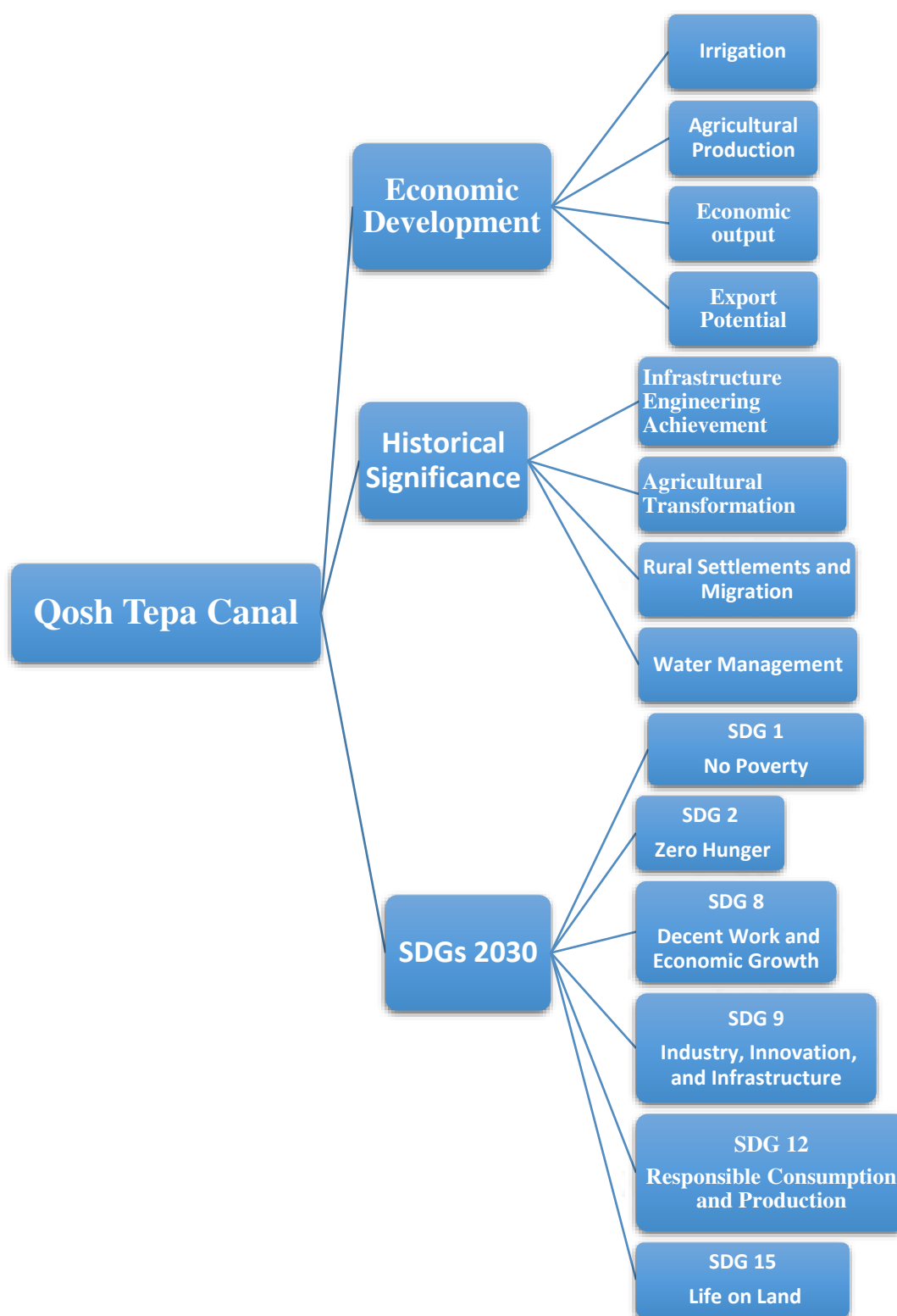
According to majority participants stated that, through canal can achieve SDG 9 (Industry, Innovation, and Infrastructure) *“The construction and maintenance of the Qosh Tepa Canal involve infrastructure development, including transportation networks, water distribution systems, and related facilities. This contributes to SDG 9 by enhancing infrastructure, promoting industrialization, and fostering innovation in agricultural practices and water management”.*

SDG 12: Responsible Consumption and Production:

The most of Participants narrated that, through the Canal can achieve SDG 12 (Responsible Consumption and Production) *“The Qosh Tepa Canal facilitates increased agricultural production, leading to enhanced local consumption and reduced dependence on food imports. By promoting sustainable agricultural practices and responsible water management, the canal supports SDG 12’s goal of promoting sustainable consumption and production patterns”.*

SDG 15: Life on Land:

The most of participants stated that, through the canal can achieve SDG 15 (Life on Land) *“The Qosh Tepa Canal’s irrigation activities contribute to the preservation and restoration of terrestrial ecosystems. By supporting agriculture, it helps prevent land degradation, desertification, and soil erosion. Sustainable land management practices encouraged by the canal contribute to SDG 15’s objective of protecting and restoring land ecosystems”.*



Conclusion:

In conclusion, the construction of the Qosh Tapa Canal in Afghanistan has significant implications across various themes. In terms of economic development, the canal has the potential to revolutionize agriculture in the northern regions, contributing to increased agricultural productivity and food security. It also attracts international investors, creates employment opportunities, and enhances export potential, thereby boosting the country's revenue and reducing dependence on foreign aid.

From a historical perspective, the canal represents an impressive engineering achievement, showcasing Afghanistan's determination and technical capabilities. It brings about an agricultural transformation, turning arid lands into productive areas, and promotes the establishment of rural settlements along its route. The canal's management serves as a valuable lesson in handling large-scale irrigation systems.

Regarding water management, the canal addresses Afghanistan's water shortage by connecting the northern region to the Oxus River, providing a reliable water source for irrigation and household use. It also supports natural irrigation and higher groundwater reservoir levels, contributing to improved living conditions and access to clean water.

In terms of the Sustainable Development Goals (SDGs), the Qosh Tapa Canal aligns with several objectives. It contributes to SDG 1 (No Poverty) by enhancing agricultural productivity, creating economic opportunities, and reducing poverty. SDG 2 (Zero Hunger) is advanced through improved food security and increased availability of nutritious food. SDG 8 (Decent Work and Economic Growth) is supported through job creation in the agricultural sector. SDG 9 (Industry, Innovation, and Infrastructure) is promoted through infrastructure development and innovation in agricultural practices. SDG 12 (Responsible Consumption and Production) is addressed by promoting sustainable agriculture and responsible water management. Lastly, SDG 15 (Life on Land) is promoted through the prevention of land degradation and the restoration of terrestrial ecosystems.

Recommendation:

Continued Support and Investment:

Given the transformative impact of the Qosh Tapa Canal, it is crucial for the Afghan government to continue supporting and investing in the project. Adequate financial resources, technological expertise, and human capital should be allocated to ensure the completion, maintenance, and effective operation of the canal. This will help sustain the economic, social, and environmental benefits it offers.

Strengthen Water Management:

Since Afghanistan faces water shortages, it is essential to prioritize efficient and sustainable water management practices. The government should develop comprehensive strategies for water conservation, including the implementation of modern irrigation techniques, water recycling, and the promotion of responsible water usage. This will ensure the long-term viability of the canal and address water scarcity issues in the country.

Promote Agricultural Training and Research:

To maximize the agricultural potential enabled by the Qosh Tapa Canal, it is recommended to invest in agricultural training programs and research initiatives. This will empower farmers with the knowledge and skills necessary to optimize crop cultivation, enhance productivity, and adopt sustainable farming practices. Collaborations with local and international agricultural institutions can provide valuable expertise and resources.

Foster Public-Private Partnerships:

To leverage the economic opportunities created by the canal, the Afghan government should actively encourage public-private partnerships. This will attract domestic and international investors, leading to the development of agribusinesses, processing industries, and export-oriented ventures. Such partnerships can drive innovation, technology transfer, and market access, strengthening the agricultural sector and contributing to economic growth.

Monitor and Evaluate Impact:

It is crucial to establish a robust monitoring and evaluation system to assess the impact of the Qosh Tapa Canal over time. Regular assessments should be conducted to measure changes in agricultural productivity, employment rates, poverty levels, food security, and environmental sustainability. These evaluations will provide valuable insights for informed decision-making, policy adjustments, and potential replication of successful practices in other regions of Afghanistan.

Promote Sustainable and Inclusive Development:

Throughout the implementation and management of the Qosh Tapa Canal, it is essential to prioritize sustainable and inclusive development. Environmental safeguards should be in place to ensure the preservation of ecosystems and prevent any adverse ecological impacts. Additionally, efforts should be made to include and empower local communities, particularly those directly affected by the canal, by involving them in decision-making processes, providing training and employment opportunities, and addressing potential social and cultural concerns.

It's important to note that achieving these SDGs through the Qosh Tapa Canal requires effective management, environmental sustainability, and considering the social and economic aspects of agricultural development. Additionally, the canal's impact on other goals, such as gender equality (SDG 5) and clean water and sanitation (SDG 6), may depend on specific implementation strategies and policies.

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