

Government Support for Sustainable Agricultural Development and Farmer's Satisfaction Level in Afghanistan: An Empirical Investigation

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ABSTRACT— Agriculture holds immense significance in safeguarding food security, alleviating poverty, and fostering economic advancement. It serves as a pivotal source of employment, promoting social stability and overall well-being, especially in less developed countries like Afghanistan. Therefore, this study scrutinized the effect of government support for sustainable agricultural development and farmers' satisfaction levels in Afghanistan. The study was based on primary data analysis, and a survey was conducted to collect data from farmers and other stakeholders involved in the agricultural sector. The result of the study showed that government financial facilities positively impacted cereal crop production, horticulture, livestock, and extension services. However, regarding farmers' satisfaction with government financial support, it indicates that farmers were dissatisfied with support for all agricultural sub-sectors. Therefore, the government should increase funding for the agriculture sector, implement projects, ensure transparent resource use, provide financial facilities to aid farmers for higher productivity, and modernize the agricultural sector to ensure sustainable growth.

KEYWORDS: Government Expenditure, Agriculture, Growth, Afghanistan

1. INTRODUCTION

Agriculture holds great significance in ensuring food security, poverty reduction, and economic progress. It serves as a major source of employment, promoting social stability and overall well-being. The agricultural sector is particularly decisive for numerous countries, especially in less developed countries such as Afghanistan, where it plays a vital role in generating employment opportunities and guaranteeing access to food [7]. And agriculture plays a fundamental and dynamic role in agrarian economies and countries where other sectors may be less developed [5].

To ensure the long-term viability of this sector, it is crucial to integrate new technologies, research, and extension services in alignment with government agricultural policies. This approach can facilitate the growth and progress of agriculture. In less developed nations such as Afghanistan, the government places momentous emphasis on the development and sustainability of agriculture [22]. And they have to provide various incentives and subsidies to support extension services, ensure stable prices, and invest in irrigation infrastructure, with the aim of introducing innovative methods to enhance productivity. The importance of agriculture in Afghanistan's sustained growth is acknowledged by the government, particularly the Ministry of Agriculture, Irrigation, and Livestock (MAIL), and focus to enhance agricultural productivity and

promoting rural development, which is vital for job creation and ensuring food security within the country. The agricultural sector makes a significant contribution to economic growth, employment opportunities, poverty reduction, and food security in Afghanistan. The majority of the rural population, which comprises over 80 per cent, depends on agriculture for their livelihoods while facing challenges posed by Afghanistan's predominantly dry continental climate and limited rainfall on cultivable land. To support the advancement and modernization of the agricultural sector, the government of Afghanistan consistently allocates a substantial portion of its national budget, amounting to billions of Afghanis, each year. This recognition of the sector's pivotal role extends to contributions from donor organizations, off-budget sources, and the private sector, which also provides significant funding to the agricultural sector on an annual basis [4].

The agricultural sector itself plays a crucial role in the country's GDP, with a value-added contribution of 410.71 billion Afghanis in 2020, accounting for 27.01 per cent of the total GDP. Given its substantial impact on the national economy, ensuring the sector's sustainability and productivity will be key to harnessing its potential for the overall prosperity and welfare of Afghanistan. Therefore, more investigation and analysis of the agricultural sector are necessary to identify opportunities for growth and development. In Afghanistan, farmers cultivate various cereal crops throughout the country's provinces, with wheat, rice, and maize being substantial ones, and these crops are grown annually on both irrigated and rain-fed land. In 2020, wheat production reached 5.2 million tons, rice production was 0.44 million tons, barley production stood at 0.13 million tons, and maize production was 0.27 million tons. The total land area dedicated to cereal and grain cultivation was 3.1 million hectares nationwide [20].

Wheat is a vital staple food in Afghanistan, but due to fluctuating food production ranging from 2.6 to 5.2 million tons over the past decade, the country has had to rely on imports to feed its population of around 35 million people. Access to new and improved seed varieties, including those resistant to diseases, has not been an issue, as Afghanistan has introduced more than 35 new varieties since 2000. Despite Afghanistan's favorable climate for rice cultivation and production, inadequate post-harvest handling, processing management, improved seeds, cultivation systems appropriate technologies, and irrigation systems led to low yields and unacceptable quality in rice grains. In contrast, a substantial amount of rice grain is imported from Pakistan, India, and Iran to meet the nation's needs for rice consumption. High-yielding rice cultivars' introduction and adaptation of new techniques, cooperative systems, access to credit, and the use of demonstration farms may help spread improved rice cultivation methods in the future in the main cultivating provinces and to surrounding regions. Therefore, to increase rice productivity and grain quality, as well as the income of rice farmers, it is essential to provide opportunities for collaboration between the research and extension sectors and to provide farmers with affordable access to high-quality inputs and services [20].

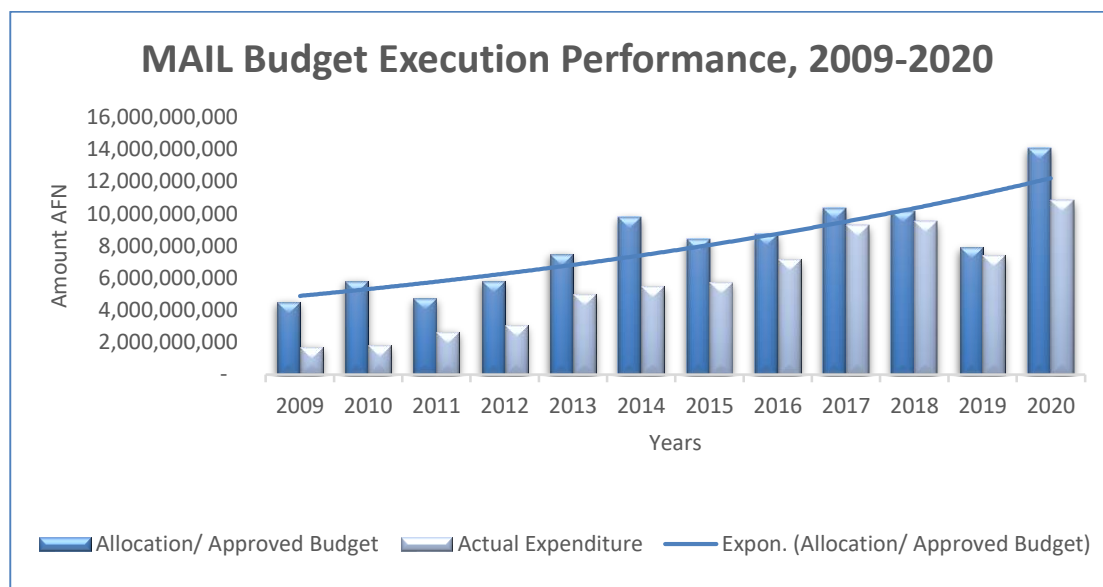
Agricultural finance through the national agricultural budget refers to the provision of financial services and products specifically designed to meet the needs of farmers, agricultural businesses, and rural communities. It includes a wide range of financial activities, including lending, insurance, investment, and risk management, all aimed at supporting agricultural production, improving productivity, and promoting sustainable rural development. The agricultural budget is the allocation of funds by a government or organization for numerous agricultural activities. It includes financial provisions for agricultural development, farmer support, food security, and the implementation of agricultural policies and programs. Subsidies and financial aid are frequently provided by governments to farmers to increase output, improve agricultural practices, and mitigate hazards. Direct payments, crop insurance, price supports, and loans are all examples of subsidies. Agricultural research, innovation, and technological development are often funded using a percentage of the agricultural budget. This contributes to increased agricultural yields, the development of sustainable farming practices, and the addressing of difficulties such as pests, diseases, and climate change. Funds may be granted for the

construction and upkeep of agricultural infrastructure such as irrigation systems, storage facilities, and rural roads [19].

In Afghanistan, domestic revenues and funding from donors are the two ways through which the budget is financed. The following categories apply to the total domestic revenue: Revenue from taxes, fixed taxes, income taxes, property taxes, sales taxes, excise taxes, customs charges, and other taxes are a few examples of sources of tax revenue. Social contributions, income from capital assets, sales of products and services, royalties, non-tax fines and penalties, and sales of land and buildings are some examples of non-tax incomes. However, the amount of domestic revenue generated is insufficient to cover the operational expenses. Donor funding is essential for Afghanistan's budget to survive. Mostly, the development budget is funded by the donors, and also a portion of its operating and recurring budget as well. The budget is externally funded in a variety of ways, including international and bilateral funds. The Afghanistan budget shows substantial multilateral funding sources such as the Afghanistan Reconstruction Trust Fund (ARTF), the Law and Order Trust Fund (LOFTA), and the Combined Security Transition Command-Afghanistan (CSTC-A). The World Bank, IMF, ADB, Islamic Development Bank, and United Nations Development Program make up the management council that oversees ARTF, which is the largest contributor to the Afghan national budget. The Afghan government strictly prohibits domestic borrowing and non-concessional international borrowing for fiscal purposes. Borrowing is only done on favorable terms and solely to finance development projects. Current loans come from the World Bank, the Asian Development Bank, the Islamic Development Bank, and the Saudi Fund for Development, and the loans received by Afghanistan from many financial institutions are primarily used for various development purposes. These loans aim to support and finance projects and initiatives that promote economic growth, social development, infrastructure improvement, and poverty reduction in Afghanistan [19].

The MAIL is allocating its own budget to the sub-sectors of agriculture such as livestock, horticulture, extensions, research, natural sources, and irrigation across the countries based on the agricultural development strategy of the government of Afghanistan for the objectives of achieving sustainable agriculture in the country and making the agricultural sector mechanized and for the development of agricultural land, planting, harvesting, and initial processing. This concept includes the manufacturing, distribution, and use of a variety of tools, machinery, and equipment. Agricultural practices should also be improved to increase the sustainability of the entire agricultural system. Mechanization, which is defined as the economic application of engineering technology to boost labor productivity and efficiency, appears to have a significant impact on the demand and supply of farm labor, agricultural profitability, and a shift in the rural landscape. Labor will be cut by agricultural mechanization and modernizing executive operations to increase productivity and obtain greater power, raising the nation's level of development, and Afghanistan can ensure food security and reduce poverty. By allocating substantial budgets to agriculture, specifically targeting cereal crops, horticulture, and the livestock sector, the government of Afghanistan aims to enhance food security, promote economic growth, and improve the livelihoods of rural communities [15].

Figure 1 indicates the allocated budget for the agricultural sector, which shows an upward trend and the country allocating more funds compared to the previous year. This gradual increase in budget allocation is accompanied by a rise in the expenditure execution rate, indicating that more money is being effectively spent in the agricultural sector. This presents a positive opportunity and holds great potential for the agricultural sector's growth and development. However, these expenditures must be carried out transparently and with careful consideration to ensure optimal benefits and positive outcomes for the agricultural sector.

**Figure 1**

Source: Ministry of Agriculture, Irrigation and Livestock

In the past several years, public and corporate investments in agricultural research have led to significant advances in agricultural GDP, with significant implications for the poor nations in the countries. In the past, high-income countries dominated agricultural output and public agricultural research, but both agricultural production and agricultural research have declined in relative importance for these countries globally. In contrast, while the importance of middle-income nations has increased in terms of both agricultural production and agricultural research currently, these nations have drastically diminished the proportional importance of agriculture in their economies, echoing the situation of today's high-income nations 50 years ago. Many of the world's poorest nations. However, we are still lagging in terms of agricultural productivity, research, and the general economic shift away from agriculture. And this will be the primary reason that the world's poorest nations will depend on middle-income nations for agricultural output.

From the world perspective of food and agriculture between 2000 and 2019, the value-added what was created by forestry, agriculture, and fishing increased by 73 per cent in real terms, reaching USD 3.5 trillion in 2018. Comparing this to 2000, there has been an increase of USD 1.5 trillion. Africa saw a value addition that increased from USD 170 billion to USD 404 billion throughout that time. Given its size, Asia contributed the majority of the world's agricultural, forestry, and fishery value added in 2019, making up 64 per cent of the total. From 2000 to 2019, the continent's economy grew by 84 per cent, from USD 1.2 trillion to USD 2.2 trillion. Figure 2 depicts the growth rates of Afghanistan's total GDP and its agricultural GDP for the years 2003 to 2020. The country's total GDP growth rate during the aforementioned time was not negative; it only turned negative in the year 2020. However, the rate of growth of the agricultural GDP has experienced more ups and downs over time; at one point, it was over 40 per cent; at another, it was negative and decreased to over 20 per cent; this suggests that the agriculture sector's gross domestic product is not stable and has been negatively impacted more than other sectors in the country. Therefore, it is important for the government to consider this sector as an important sector in terms of contribution to the country's gross domestic product and sensitivity of this sector to drought, disease outbreaks, and other climatic disasters and allocate more financial sources to maintain a stable agricultural growth rate over time.

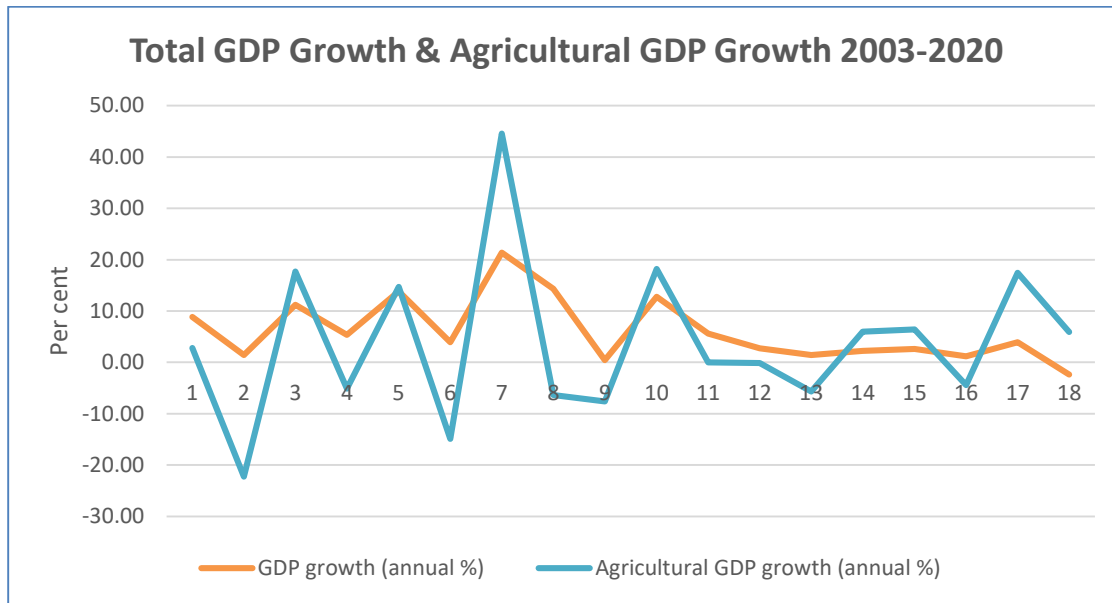


Figure 2

Source: World Bank Indicators

2. Review of Literature

Agriculture is one of the substantial sectors of the Afghan economy; most of the country's population is directly or indirectly engaged in agricultural activities. It also serves as a provider of the basic requirements of life desirable by the people living in the country, Besides fulfilling the needs of life and providing food to the people, it plays a vital role in the growth and development of the industrial sector as it is preparing raw materials and other requirements of the industrial sector. It is an unavoidable fact that agricultural growth should be greater than population growth and be rapid to tackle the problems of poverty and unemployment in the country.

Numerous studies have been conducted on the impact of government expenditure on agriculture and economic growth. However, [26] investigated the impact of public expenditure on agricultural growth in South Africa and Zimbabwe from 1981 to 2006 for Zimbabwe and from 1983 to 2011 for South Africa with time series data. After the empirical analysis of the data, it was found that both countries allocate extra budget to the current intensive expenditures for agricultural activities and have less budget allocation to the capital intensive expenditures. Consequently, capital expenditures have a positive relationship and impact on agricultural growth, and current expenditures have a negative impact on agricultural growth in both countries. Moreover, allocation of budget and spending on non-agricultural activities both have a negative and positive impact on agricultural growth. It depends on the economic situation and background of the country's economy, a country with a good economic situation like South Africa can increase its overall expenditure. However, Zimbabwe as a less developed country should not expand the non-agricultural expenditures, and shifting more financial sources from the agriculture sector to other sectors would result in greater opportunity costs. Several constraints were hindering agricultural growth and development in Nigeria. These included a lack of certified seeds and varieties, a reliance on traditional farming systems, low productivity, weak irrigation infrastructure, and limited access to road transportation in rural areas. These factors have had a negative impact on agricultural development and growth in Nigeria. Therefore, [6] also examine the growth of agricultural output and government spending in Nigeria from 1981 to 2018. The empirical analysis revealed both short and long-run effects of government spending on agricultural growth and output in the country. It was found that government spending has a positive impact on agricultural output. However, the productivity and output of

agricultural production have been negatively affected by policy implementation issues. Often, due to corruption, agricultural policies are not properly implemented, which in turn affects agricultural output in the country. This has been a primary cause of the poor growth of agricultural output in Nigeria for a significant period.

Nigeria has historically focused on the oil sector, which has been the main source of government and economic growth. However, recent research by [16], [25] found a positive relationship between government expenditure on agriculture and economic growth in Nigeria from 1985-2015. The study also found that total spending on agriculture has a positive impact on economic growth, with capital agricultural expenditure having a significant positive impact. The authors suggest that increasing capital agricultural expenditure could lead to positive changes in the agricultural sector and increased gross domestic products.

In the context of India [24] investigate the impact of public expenditure on agricultural growth in the Punjab state. Empirical evidence was collected for the period from 1990-91 to 2019-20. After analyzing the data, it was revealed that expenditure on crop husbandry, dairy development, and agricultural research & education had a positive and significant impact on agricultural growth in the state. However, expenditure on soil and water management, as well as forestry & wildlife, showed no impact on agricultural growth. Consequently, [8] examines the relationship between public investment in agriculture and irrigation and agricultural growth in India for the period 1981-82 to 2013-14 with time series data collected for seventeen major states of the country, for the empirical analysis of the data the OLS and GMM techniques were used and the empirical analysis of the data reveals that in the less developed state, the agricultural productivity has been increased by the private investment in the agricultural sector, and in the developed state has a low investment in the agricultural sector since the last decades which negatively impacts the agricultural productivity, and the analysis explained that spending in agricultural and irrigation has a positive and significant impact on agricultural growth. However, the result of the GMM shows the coefficient of public spending on agricultural R&D and irrigation is much higher than 0.05 and 0.19 respectively, and impacts agricultural income.

The government of Mali has implemented numerous projects and policies to sustain the agricultural sector, and the government has prioritized agricultural investment by allocating significant funds towards the development of the sector. This includes investment in agricultural infrastructure, such as irrigation systems, storage facilities, and rural roads. Therefore, [18] examine the effect of government spending on agricultural growth in Mali from 2000 to 2019 through the autoregressive model. After the analysis of the data, the result showed that public expenditure has a positive and significant effect on agricultural growth. However, the agricultural employability rate and fertilizer consumption have negative effects on agricultural growth in Mali.

In the country, Pakistan [2] investigated the impact of government spending on agricultural growth using time series data that has been received from various sources in the country for the years 1972-2014. The analysis aimed to explore the relationship between agricultural value added per worker and public spending on education, health, road length, tube wells, and improved seed distribution. The empirical analysis of the data revealed that all the variables, including agricultural value added per worker as the dependent variable, and public spending on education, public spending on health, road length, number of tube wells, and improved seed distribution as independent variables, exhibited a long-run relationship. Consequently, public spending on education, health, and road length has a positive impact on agricultural value addition in Pakistan. Also, [9] investigate the impact of government expenditure on the agricultural sector and economic growth in Pakistan for the period 1983 -2011. The study described the relationship between government expenditure in agriculture, agricultural output, and economic growth, and the results indicated that a positive relationship exists among the variables and that government expenditure in agriculture has a positive and significant effect

on economic growth in the country.

In the context of Indonesia [3] conducted an analysis of the impact of public spending on the growth of agriculture from 1976 – 2006. The econometric techniques of the ordinary least square and general method of moments of time series data have been accomplished, and the data was collected from different data sources. The empirical analysis of the data indicates that spending on agriculture has a significant and positive effect on the agricultural growth rate of the country, based on the distinguishing of the development spending for agriculture & irrigation and public agricultural spending in fertilizer, the empirical analysis presented that agriculture public spending on public goods has a positive and significant effect on agricultural growth while agricultural public spending in fertilizer has a significant negative effect on agricultural growth, in conclusion, it can be written that spending in irrigation and development of agriculture sector has a positive impact on agriculture gross domestic product in the country. And also, [3] also investigated the public spending in the agricultural sector in Indonesia, the impact and evaluation of public spending on agricultural growth, the experimental analysis of the data in other countries showed that public spending on agricultural growth has a positive impact whereas public spending in fertilizer subsidies in the agriculture sector has a negative impact on agricultural growth.

In the context of China, [27] investigated the impact of public expenditure on agricultural sector productivity for the period 1988–2018 with time series data collected from different data sources within the country. For the empirical analysis of the secondary data, the auto-regressive distributed lag model (ARDL) was employed to examine the relationship between the dependent and independent variables: agricultural output as a dependent variable and government expenditure, number of state farms, and cultivated area of state farms as independent variables. The empirical analysis showed that there is a positive relationship between dependent variables and independent variables. Considering the test results in the long run, the dependent and independent variables have significant results less than five present and a negative result between the number of state farms and agriculture sector output with the result more than five present. Finally, the study also found that a strong error correction model with a value ($ECM = -1.56$) exists among both dependent and independent variables in the models.

The agricultural sector's contribution to the national economy varies across countries, depending on factors like agricultural development, economic structure, and its importance in GDP. However, agriculture remains vital for food security, employment, and economic stability. [1] studied the contribution of the agricultural sector in Nepal, revealing that government expenditure on agriculture significantly impacts GDP, while domestic saving and foreign direct investment have insignificant impacts. [11] investigated the impact of government expenditure on agriculture and allied activities in Meghalaya, finding that crop husbandry expenditure has a positive impact on GDP, while forestry and irrigation expenditure has a negative impact. Public spending on dairying and agricultural research has no significant impact on GDP.

In conclusion of the empirical literature, we discovered that most of the studies found that government agricultural spending has a positive influence on agricultural growth and the agricultural gross domestic product has a significant contribution to the country's economy.

Afghanistan is primarily an agrarian economy, with the government placing a significant emphasis on the agricultural sector. Annually, the government, in collaboration with donor organizations and the private sector, invests billions of Afghanis in this sector. Surprisingly, there has been a notable absence of studies dedicated to the topic of "Government Support for Sustainable Agricultural Development and Farmer's Satisfaction Levels in Afghanistan: An Empirical Investigation." Moreover, the majority of international studies focus on

secondary data analysis, leaving a scarcity of research centered on primary data collection directly from farmers to gauge their satisfaction levels concerning public expenditures in the agricultural sector. This study aims to fill the literature gap in our country.

3. Objectives of the Study

The following specific objectives were put forward:

1. To ascertain the level of government support to agricultural stakeholders in agricultural technology, horticulture, livestock, and the extension sector.
2. To evaluate the level of farmers' satisfaction with government support to promote agricultural growth and improve their economy through farming.

4. Research Methodology

In this study, primary data was collected from farmers and individuals engaged in the agricultural sector within the country through a structured questionnaire. The research methodology for the study, titled "Government Support for Sustainable Agricultural Development and Farmer Stratification in Afghanistan: An Empirical Investigation," was designed and executed in accordance with established research practices. Data collection and analysis were conducted systematically and rigorously.

4.1 Sources and Collection of Data

The study employs a questionnaire to gather primary data from agricultural staff, farmers, and beneficiaries of government projects and financial services in the agricultural sector. The questionnaire comprises 19 closed-ended and multiple-choice questions, as well as 30 Likert scale questions, covering the provinces of Kabul, Wardak, Laghman, Paktya, and Balkh. The scope is limited to these territories, ensuring a comprehensive understanding of government expenditure in the agricultural sector. Secondary data for the study, pertaining to agricultural government expenditure and agricultural domestic products, were collected from various sources. The following are some sources from which secondary data was collected for this study:

- Ministry of Agriculture, Irrigation, and Livestock MAIL website.
- Ministry of Finance website
- National Statistics and Information Authority (NSIA) website
- World development indicators WDI
- Da Afghanistan Bank DAB website
- Food and agricultural organization FAO website

5. Empirical Analysis

5.1 Data Analysis and Interpretation

The survey was conducted using a questionnaire from the target population to collect primary data. Close-ended questions (dichotomous questions, multiple-choice questions, Likert questions) related to various aspects of agriculture expenditure were asked of farmers and government and non-government employees involved in the agriculture sector. The collected data have been analyzed province-wise. In this study, mainly five provinces of Afghanistan, i.e., Kabul, Wardak, Laghman, Balkh, and Paktya, are covered. Information capacity building, project effectiveness, and efficiency have been collected and analyzed. In this study, out of 250 target populations, only 204 have responded. Following is the response rate of this data collection process: $\text{Response rate} = \frac{\text{number of respondents}}{\text{total number of target population}} * 100$ The number of respondents was 204. Total number of target population = 250 $\text{Response rate} = \frac{204}{250} * 100 = 81.6$ percent

The analysis of primary data involves cleansing, converting, and modeling data to determine relevant

information, test hypotheses, and answer research questions. Using analytical and logical reasoning, data from various sources is collected, examined, and analyzed to generate logical findings. Statistical analysis tools, such as IBM SPSS Statistics 26, are used for both qualitative and quantitative data analysis.

5.2 Reliability Test

Prior to conducting data analysis, the researcher chose to verify the internal consistency and reliability of the gathered data by utilizing the developed questionnaires. Reliability is the measure of the internal consistency of the construct in the study. A construct is reliable if the Alpha(α) is greater than 0.7 [13] construct reliability was assessed using Cronbach's Alpha. The results revealed that the agriculture finance with (5) items ($\alpha=0.861$), agriculture and agricultural technology with (5) items ($\alpha=0.866$), cereal crops with (5) items ($\alpha=0.858$), horticulture sector with (5) items ($\alpha=0.841$), livestock sector with (5) items ($\alpha=0.898$) and extension services with (5) items ($\alpha=0.853$). Reliability results are summarized in Table 1.

Table 1

Cronbach Alpha Reliability Test		
Constructs	No. of Items	Alpha(α)
AF	5	0.861
AAT	5	0.866
CC	5	0.858
HS	5	0.841
LS	5	0.898
ES	5	0.853

Source: Authors' calculations by using SPSS Statistical Software.

5.3 Regression Analysis

Government financial facilities impact cereal crops cultivation in the country.

Hypothesis

H₀: There is a significant impact of government financial facilities on cereal crops production

H₁: There is no significant impact of government financial facilities on cereal crops production

The hypothesis tests if government financial facilities carry a significant impact on cereal crop cultivation. The dependent variable (CCP) was regressed on the predicting variable (GFF) to test the hypothesis. GFF significantly predicated CCP. $F(1,202) = 215.032$, $p < 0.001$, which indicates that the GFF can play a significant role in shaping CCP ($\beta = 0.773$, $p < 0.001$). The result directs the positive effect of the CCP, Moreover the $R^2 = 0.516$ depicts that the model explains 51.6 per cent of the variance in CCP. The table shows the summary of the findings. The result is indicated in Table 2.

H₀: There is a significant impact of government financial facilities on the horticulture sector

H₁: There is no significant impact of government financial facilities on the horticulture sector

The hypothesis tests if government financial facilities carry a significant impact on the horticulture sector. The dependent variable (HS) was regressed on the predicting variable (GFF) to test the hypothesis. GFF significantly predicated HS. $F(1,202) = 193.292$, $p < 0.001$, which indicates that the GFF can play a significant role in shaping HS ($\beta = 0.725$, $p < 0.001$). The result directs the positive effect of the HS, Moreover the $R^2 = 0.489$ depicts that the model explains 48.9 per cent of the variance in HS. The table shows the summary of the findings. The result is indicated in Table 2.

H₀: There is a significant impact of government financial facilities on the livestock sector

H₁: There is no significant impact of government financial facilities on the livestock sector

The hypothesis tests if government financial facilities have a significant impact on the livestock sector. The dependent variable (LS) was regressed on the predicting variable (GFF) to test the hypothesis. GFF significantly predicted LS. $F(1,202) = 176.448$, $p < 0.001$, which indicates that the GFF can play a significant

role in shaping LS ($\beta=0.757$, $p<0.001$). The result directs the positive effect of the LS, Moreover the $R^2=0.466$ depicts that the model explains 46.6 per cent of the variance in LS. The table shows the summary of the findings. The result is indicated in Table 2.

H₀: There is a significant impact of government financial facilities on extension services

H₁: There is no significant impact of government financial facilities on extension services

The hypothesis tests if government financial facilities carry a significant impact on extension services. The dependent variable (ES) was regressed on the predicting variable (GFF) to test the hypothesis. GFF significantly predicated ES. $F(1,202)=167.195$, $p<0.001$, which indicates that the GFF can play a significant role in shaping ES ($\beta=0.711$, $p<0.001$). The result directs the positive effect of the ES, Moreover the $R^2=0.453$ depicts that the model explains 45.3 per cent of the variance in ES. The table shows the summary of the findings. The result is indicated in Table 2.

Table 2

Hypothesis	Regression Weights	Beta Coefficient	R^2	F	p-value	Hypothesis Supported
H ₀	GFF→ CCP	0.773	0.516	215.032	0.000	Yes
H ₀	GFF→ HS	0.725	0.489	193.292	0.000	Yes
H ₀	GFF→ LS	0.757	0.466	176.448	0.000	Yes
H ₀	GFF→ ES	0.711	0.453	167.195	0.000	Yes

Source: Authors' calculations by using SPSS Statistical Software.

5.4 Non-Parametric Test for Hypotheses Testing

Hypotheses for objectives one to three were examined using secondary data, while hypotheses for objectives four and five were assessed using Kruskal-Wallis Tests, as shown in the accompanying illustrations. The aim was to assess the level of satisfaction among agricultural stakeholders regarding government support for promoting sector growth and enhancing the economy through farming in the country.

5.4.1 Kruskal-Wallis Test

Hypothesis

H₀: Farmers were not satisfied with government support for cereal crop production.

H₁: Farmers were satisfied with government support for cereal crop production.

Table 3: Mean Ranks and Kruskal-Wallis Test results for government support for cereal crop production.

Mean Ranks			
Description	Satisfaction level	N	Mean Rank
Government Support for cereal crop production	Extremely Dissatisfied	45	114
	Dissatisfied	64	102
	Natural Satisfied	69	93
	Satisfied	24	105
	Extremely Satisfied	2	144
	Total	204	
Kruskal-Wallis Test			
Sig. Value		6.151	

Source: Authors' calculations by using SPSS Statistical Software.

Interpretation: Based on the results from Table 3, where the p-value surpasses 0.05, the null hypothesis cannot be rejected. Consequently, it can be inferred that farmers in the country were not satisfied with the

government's support of cereal crop production in the country.

H0: Farmers were not satisfied with government support in the horticulture sector.

H1: Farmers were satisfied with government support in the horticulture sector.

Table 4: Mean Ranks and Kruskal-Wallis Test results for government support in the horticulture sector.

Mean Ranks			
Description	Satisfaction level	N	Mean Rank
Government support in the horticulture sector	Extremely Dissatisfied	48	111.63
	Dissatisfied	63	103.02
	Natural Satisfied	69	93.24
	Satisfied	22	106.41
	Extremely Satisfied	2	143.50
	Total	204	
Kruskal-Wallis Test			
Sig. Value	5.423		

Source: Authors' calculations by using SPSS Statistical Software.

Interpretation: Based on the results from Table 4, where the p-value surpasses 0.05, the null hypothesis cannot be rejected. Consequently, it can be inferred that farmers in the country were not satisfied with the government's support in the horticulture sector in the country.

H0: Farmers were not satisfied with government support in the livestock sector.

H1: Farmers were satisfied with government support in the livestock sector.

Table 5: Mean Ranks and Kruskal-Wallis Test results for government support in the livestock sector.

Mean Ranks			
Description	Satisfaction level	N	Mean Rank
Government support in the livestock sector	Extremely Dissatisfied	47	110.95
	Dissatisfied	64	98.88
	Natural Satisfied	60	97.60
	Satisfied	33	106.41
	Extremely Satisfied	204	
	Total	204	
Kruskal-Wallis Test			
Sig. Value	2.443		

Source: Authors' calculations by using SPSS Statistical Software.

Interpretation: Based on the results from Table 5, where the p-value surpasses 0.05, the null hypothesis cannot be rejected. Consequently, it can be inferred that farmers in the country were not satisfied with the government's support in the livestock sector in the country.

H0: Farmers were not satisfied with government support on extension services.

H1: Farmers were satisfied with government support on extension services.

Table 6: Mean Ranks and Kruskal-Wallis Test results for government support on extension services.

Mean Ranks			
Description	Satisfaction level	N	Mean Rank
Government support for extension services	Extremely Dissatisfied	48	111.63
	Dissatisfied	80	102.70

	Natural Satisfied	52	94.46
	Satisfied	22	97.14
	Extremely Satisfied	2	143.50
	Total	204	
Kruskal-Wallis Test			
Sig. Value	4.518		

Source: Authors' calculations by using SPSS Statistical Software.

Interpretation: Based on the results from Table 6, where the p-value surpasses 0.05, the null hypothesis cannot be rejected. Consequently, it can be inferred that farmers in the country were not satisfied with the government's support in the extension services in the country.

H0: Farmers were not satisfied with government support for the mechanization of the agricultural sector.

H1: Farmers were satisfied with government support for the mechanization of the agricultural sector.

Table 7: Mean Ranks and Kruskal-Wallis Test results.

Mean Ranks			
Description	Satisfaction level	N	Mean Rank
Government support for the mechanization of the agricultural sector	Extremely Dissatisfied	59	108.59
	Dissatisfied	63	93.06
	Natural Satisfied	36	106.35
	Satisfied	34	92.25
	Extremely Satisfied	11	133.77
	Total	203	
Kruskal-Wallis Test			
Sig. Value	9.075		

Source: Authors' calculations by using SPSS Statistical Software.

Interpretation: Based on the results from Table 7, where the p-value surpasses 0.05, the null hypothesis cannot be rejected. Consequently, it can be inferred that farmers in the country were not satisfied with the government's support for the mechanization of the agricultural sector in the country.

6. Conclusion

Agriculture has played a crucial role in Afghanistan's economic history, serving as the primary source of employment and income for approximately 85 per cent of the population, particularly in rural areas. It not only ensures food security but also provides raw materials for industries and contributes to foreign exchange earnings. The agricultural sector has a significant share in the country's GDP, reducing poverty and achieving sustainable economic development. Hence, this study focuses on assessing the impact of government support for sustainable agricultural development and farmers' stratification level in Afghanistan from 2002 to 2020.

The results of the study indicate that government financial support has a positive impact on cereal crop production, the horticulture sector, the livestock sector, and extension services. However, regarding farmers' satisfaction levels with government financial support, it shows that farmers were not satisfied with the government's support for cereal crop production, the horticulture sector, the livestock sector, and extension services. Therefore, to achieve sustainable agricultural growth and improve farmer satisfaction levels, the government should prioritize the distribution of disease-resistant crop varieties to farmers, ensuring their access to high-quality seeds capable of withstanding various diseases and environmental challenges. Additionally, the implementation of horticulture projects, including the establishment of new orchards, should

be carefully planned and supported, providing farmers with the necessary resources and equipment to set up and maintain their orchards successfully.

To improve the livestock sector, the government must extend its support to farmers those they establish new livestock farms. This could involve providing financial assistance, technical expertise, and guidance on best practices for animal husbandry. Additionally, the distribution of vaccines and the establishment of accessible veterinary services across the country are crucial for preventing and controlling livestock diseases, thereby improving the overall health and productivity of the livestock sector.

To foster continuous growth in the agricultural sector, the government should prioritize projects focused on enhancing the capacity of farmers. This could be achieved through training programs and workshops, where farmers can learn about new and advanced farming methods, techniques, and technologies. By empowering farmers with the latest knowledge and skills, they can adapt to changing circumstances and optimize their yields more effectively.

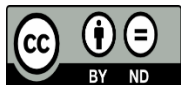
Furthermore, the impact of severe drought on agricultural production cannot be underestimated. In light of this challenge, the government needs to invest in water conservation infrastructure, such as constructing dams and canals, to store and manage water during the winter season. By having a reliable water supply, farmers can better withstand drought conditions and reduce the negative impact on agricultural productivity.

7. References

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