



ROLE OF AGHA KHAN RURAL SUPPORT PROGRAM IN SUSTAINABLE AGRICULTURE DEVELOPMENT IN SUB DIVISION ROUNDU

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Abstract

The study investigates the role of the Aga Khan Rural Support Program (AKRSP) in promoting sustainable agriculture development in the Sub-Division Roundu of Gilgit-Baltistan. The research aims to evaluate the socio-economic status of farmers, analyse yield improvements following the adoption of the AKRSP model, and identify the socio-economic constraints hindering its implementation. A quantitative research approach was employed, utilizing purposive sampling to select a representative sample of 120 farmers. Primary data was collected through structured questionnaires, ensuring a comprehensive understanding of the farmers' experiences. Data analysis was conducted using SPSS to draw meaningful insights and trends. Findings are expected to highlight the effectiveness of the AKRSP model in enhancing agricultural productivity and improving the socio-economic well-being of farmers. The study also identifies key barriers faced by farmers, such as financial limitations, lack of technical knowledge, and insufficient access to resources, which restrict the widespread adoption of sustainable agricultural practices. Based on the findings, research-based recommendations was be proposed to optimize the implementation of AKRSP initiatives, contributing to the overall goal of sustainable agriculture development in the region. This research aims to inform policy-makers, stakeholders, and agricultural support programs to better address the needs of local farmers and ensure long-term agricultural sustainability.

Keywords: Sustainable Agriculture; Socio-Economic Development; Agricultural Productivity; Socio-Economic Constraints; Rural Development; Agricultural Sustainability; Technical Knowledge; Resource Accessibility

Article Details:

Received on 24 Nov, 2025

Accepted on 28 Dec, 2025

Published on 31 Dec 2025

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INTRODUCTION

Agriculture remains one of the most imperative economic sectors in most economies around the globe. It is because it provides more than a billion people with the majority means of livelihood, and it is mostly found in the rural areas. It also plays an important role in food security, economic growth, and sustainable development. Most importantly, agriculture has a great influence in conserving the environment due to soil management and optimum utilization of available water resources. There is other globally, sectoral issues such as climate change, land degradation, and fluctuating market conditions that require innovative and sustainable farming practices (FAO, 2021). Agricultural development refers to ways to develop agricultural systems, methods, technologies, and infrastructure that may advance productiveness, sustainability, and economic returns of the agricultural sector. This includes a host of tactics ranging from investing in current-edge farming methods, funding R&D, effective resource use, and inputs to rural communities. According to FAO, all these issues relate to achieving food security, reducing poverty, and fostering economic growth (FAO, 2019).

Sustainable agriculture development is an important issue in the wake of increasing environmental hazards all over the globe and food insecurity. Agriculture remains the central backbone of the rural economy of Gilgit-Baltistan, so sustainable agriculture should be promoted for the sustainable development of such regions. Aga Khan Rural Support Program has emerged as a key factor in developing sustainable agriculture in such areas. It enhances the agricultural productivity and conserves natural resources while ensuring food security for improving livelihoods of local communities. Such an approach will resonate with global sustainable development goals, especially within the region of developing regions like Sub-Division Roundu, Gilgit-Baltistan, where subsistence farming practices lead to a dominant landscape. According to the United Nations, sustainable agriculture should respond to the needs of the current generation without compromising the ability of successive generations to meet their needs (United Nations, 2020).

The Aga Khan Rural Support Program was initiated in 1982 and has since been making giant strides toward the improvement of agricultural practices in rural Pakistan, including Gilgit-Baltistan. AKRSP works based on a community-based model of development, focusing on building capacity, resource management, and sustainable livelihood strategies. This program has hugely contributed to the innovations in agricultural technique, including water conservation, crop diversification, and organic farming that remain basic for sustainable agriculture. Such projects try to reduce the dependency on traditional farming systems, which generally hamper the natural resources locally (Khan et al., 2021). The AKRSP has been very interested in changing agriculture practices in Sub-Division Roundu, providing the farmers with modern and technical facilities, training, and some financial inputs. High-yielding crop varieties and modern irrigation facilities have also been made commonly used to boost productivity and ensure food security. Moreover, AKRSP has also actively involved women in agricultural activities that have enhanced their economic and social empowerment in rural areas. Women in sustainable agriculture guarantee better management of resources, thus facilitating gender balance towards improved rural development.

The approach of AKRSP is eco-sustainable in agriculture. In the program, soil conservation and reforestation, along with water management, is used for the ecological balance of the area. Organic farming is promoted by recommending organic methods that limit the use of chemical fertilizer and pesticides, thus conserving biodiversity and healthy soils. Such measures are very crucial, particularly in weak areas like Roundu, where

unsustainable farming can initiate degradation of soil, loss of biodiversity, and long-term environmental injury (Ali & Hussain, 2023).

Objectives

- To know the socioeconomic status of the respondents.
- To analyze the yield improvements after AKRSP model adaptation.
- To examine the role of the AKRSP model in enhancing income-generating opportunities for the respondents.
- To assess the impact of the AKRSP model on the overall standard of living of the respondents.

LITERATURE REVIEW

The Aga Khan Rural Support Programme (AKRSP) has been recognized as a leading rural development initiative in Gilgit-Baltistan, with agriculture forming one of its central pillars. Established in 1982, AKRSP employs a community-centered approach that integrates village organizations, participatory planning, and locally driven initiatives to enhance agricultural productivity and livelihoods. Studies highlight that AKRSP has played a significant role in improving farm incomes, promoting food security, and building social capital across the region, laying the foundation for sustainable agricultural development in areas such as Roundu (AKDN, n.d.; World Bank, n.d.).

A key element of AKRSP's strategy is natural resource management (NRM), including terracing, irrigation infrastructure, soil conservation, and pasture management. Such measures have proven critical for stabilizing yields in fragile mountainous environments. AKRSP has promoted small-scale irrigation schemes, water channels, and lift irrigation systems, which have reduced the risks of water shortages and improved the reliability of cultivation cycles. Evidence from AKRSP progress reviews shows that these initiatives strengthen the resilience of local farming systems and contribute to long-term sustainability (AKRSP, 2020; AKDN, n.d.).

AKRSP has also emphasized value-chain development and market integration for agricultural producers. By introducing improved seed varieties, post-harvest training, and linking farmers with markets, the program has facilitated income diversification and improved access to higher-value crops such as apricots, walnuts, and vegetables. IFAD's supervision reports indicate that when market-based interventions are paired with organizational strengthening, farming households are more likely to adopt innovative practices and achieve greater income stability (IFAD, 2018; AKRSP, 2020).

Evaluations of AKRSP's regional impacts demonstrate tangible improvements in agricultural productivity and livelihoods. For example, farm incomes in AKRSP-supported areas of Gilgit-Baltistan rose significantly during the 1990s and 2000s, and village organizations enhanced collective action in resource management. However, literature specific to Roundu sub-division is limited, and most studies assess broader district or regional outcomes. This highlights a research gap in understanding the localized impacts of AKRSP interventions in Roundu and adapting strategies to its unique agro-ecological conditions (World Bank, n.d.; Hussein, 2003). Despite its successes, AKRSP's model has faced criticisms regarding sustainability and inclusivity. Scholars argue that village organizations often experience attrition once external support ends, and participation of women and marginalized groups remains uneven. Furthermore, the challenges of scaling technical innovations across diverse and fragmented mountain terrains persist. These issues underscore that sustainable agricultural development requires not only technical interventions but also continuous

capacity-building, gender-sensitive programming, and adaptive management (Murad, 2019; Hussein, 2003).

In recent years, AKRSP has increasingly focused on climate resilience and youth engagement in agriculture. The program has promoted climate-smart agricultural practices, water harvesting techniques, and training for youth in agribusiness to enhance adaptability. Partner reports emphasize the importance of embedding climate resilience into agricultural strategies, particularly in regions vulnerable to changing weather patterns like Roundu. Donors also stress the need for robust monitoring systems and participatory evaluation to ensure the sustainability of these agricultural gains (IFAD, 2018; AKRSP, 2020). In conclusion, the literature consistently highlights AKRSP's pivotal role in promoting sustainable agriculture across Gilgit-Baltistan through integrated natural resource management, institutional development, and value-chain linkages. However, evidence specific to Roundu remains scarce, calling for targeted studies that assess local agro-ecological challenges and socio-economic dynamics. Future research should focus on context-sensitive approaches, gender inclusivity, and climate resilience to optimize AKRSP's role in ensuring long-term agricultural sustainability in Roundu (AKDN, n.d.; World Bank, n.d.).

METHODOLOGY

This study employed a **quantitative research methodology** to examine the role of the Aga Khan Rural Support Program (AKRSP) in promoting sustainable agricultural development in the Roundu sub-division of District Skardu. A quantitative approach was chosen as it allows systematic collection and analysis of numerical data, ensuring precision, reliability, and generalizability of results. The universe of the study was District Skardu, with Roundu selected as the focused area. According to the 2021 census, Roundu's population exceeded 100,000, distributed across four union councils: Istak (30,000), Mendi (30,000), Tormik (25,000), and Gunji (25,000). A purposive sampling technique was applied to select **120 respondents**, proportionally representing each union. A structured questionnaire was used as the main instrument, covering demographics (age, gender, marital status, education, and income) and variables such as awareness of AKRSP programs, agricultural productivity, income, and women's empowerment. Both closed and limited open-ended questions were included, and the tool was pre-tested to ensure clarity and validity.

The study was guided by specific hypotheses, assuming that older respondents would show greater familiarity with AKRSP's programs, higher-income participants would demonstrate more confidence in farming decisions, and marital status would influence agreement on AKRSP's role in women's empowerment. After coding and tabulation, data were analyzed using the **Statistical Package for Social Sciences (SPSS)**. Descriptive statistics such as frequencies, percentages, and mean scores summarized responses, while bivariate analyses, including chi-square tests and correlations, examined relationships between independent and dependent variables. Cross-tabulations further highlighted variations across demographic groups. This methodological framework ensured reliability and validity of results, providing a strong empirical basis for assessing AKRSP's contribution to sustainable agricultural development in Roundu.

RESULTS AND DISCUSSION

In this chapter, present the results of the study. The data is primarily represented through frequency tables and percentage measures, which deliver a clear and comprehensive understanding of the current level of agha khan rural support program.

Table 4.1: The Percentage Distribution of the Respondents with their Genders

Sr.	Description	Frequency	Percent
1	Male	62	51.7
2	Female	58	48.3
	Total	120	100.0

Table 4.1 The gender distribution analysis of the respondents shows that 61.7% of participants identified as male, and 48.3% as female. This means that the sample's gender distribution shows that men make up the majority of the respondents, with the number of female respondents being somewhat lower.

Table 4.7: The Percentage Distribution of the Respondents with their Income

Sr.	Description	Frequency	Percent
1	Less than 20,000	18	15.0
2	20001 30001	39	32.5
3	30001 to 4000	15	12.5
4	more than 41000	48	40.0
	Total	120	100.0

Table 4.7 This research about the respondents, of course reveals pretty much disparate incomes.40 percent said that their yearly salary topped 41,000 a year. The ranking is 32.5 percent of the individual fall in between the figures range 20,001-30,001 12.5 percent further made up the respondent keeping yearly amount between 30,001 and 40,000 Further in percentage, the figures reveal, that at an income level, a meagre amount 15.0 percent of at amount 20000.

Table 4.21: The Percentage Distribution of the Respondents that their Participation in the Programs has Given them Greater Confidence to Make Farming Decisions

Sr.	Description	Frequency	Percent
1	strongly agree	41	34.2
2	Agree	50	41.7
3	Disagree	22	18.3
4	strongly disagree	7	5.8
	Total	120	100.0

Table 4.21 More than 43.52 percent of the respondents highly agree that participation in these programs has enhanced their self-confidence to take farm-level decisions. Again, the opinion that 41.7 percent share on the fact indicates that the major beneficiaries have found it worth to make themselves feel powerful due to these programs. Conversely, 18.3 percent disagree and another less percentage of 5.8 percent disagree in stronger words that all are having some gain.

Table 4.22: The Percentage Distribution of the Respondents that the Favorable Impact of Innovation in Agricultural Methods and Instruments on Agricultural Yield

Sr.	Description	Frequency	Percent
1	strongly agree	45	37.5
2	Agree	56	46.7
3	Disagree	15	12.5
4	strongly disagree	4	3.3
	Total	120	100.0

Table 4.22 Most respondents (84.2%) believe that innovation in agricultural methods positively increases output, with 37.5% strongly agreeing and 46.7% moderately agreeing.



However, 12.5% prefer traditional techniques due to regional suitability, while only 3.3% firmly oppose innovation.

Table 4.23: The Percentage Distribution of the Respondents that they Used the Financial Services Provided by the Program to Buy Farming Supplies or Equipment

Sr.	Description	Frequency	Percent
1	strongly agree	47	39.2
2	Agree	42	35.0
3	Disagree	16	13.3
4	strongly disagree	15	12.5
	Total	120	100.0

Table 4.23 Majority of the respondents, that is 74.2% said that they strongly agreed or agreed to use the financial services of the program in buying supplies or equipment for farming. Smaller portions of the respondents said that they disagreed. Particularly, 13.3% disagreed and 12.2% of the respondents strongly disagreed.

Table 4.24: The Percentage Distribution of the Respondents that the Agriculture Initiatives by the Aga Khan Rural Support Programmed (AKRSP) Contribute to Women Empowerment

Sr.	Description	Frequency	Percent
1	strongly agree	57	47.5
2	Agree	44	36.7
3	Disagree	17	14.2
4	strongly disagree	2	1.7
	Total	120	100.0

Table 4.24 The most common response was strong agreement by 47.5%, which stated that AKRSP's agricultural initiatives empowered women. In fact, 36.7% agreed with a statement that indicated a general positive view of the impact of such initiatives. Only 14.2% disagreed, and 1.7% were reported to have strongly disagreed with the statement. Thus, this section reveals that the vast majority of respondents consider AKRSP's agricultural initiatives very important for the empowerment of women.

Table 4.25: The Percentage Distribution of the Respondents that they Still Employ Conventional Farming Expertise in Addition to the Methods Taught by the Program

Sr.	Description	Frequency	Percent
1	strongly agree	27	22.5
2	Agree	46	38.3
3	Disagree	28	23.3
4	strongly disagree	19	15.8
	Total	120	100.0

Table 4. A majority of respondents (25%) affirmed reliance on both traditional and modern farming skills, while 22.5% strongly favored traditional methods over new ones. In contrast, 23.3% disagreed and 15.8% strongly disagreed, indicating a portion of farmers who reject conventional practices.

Table 4.26: The Percentage Distribution of the Respondents that Specific Metrics Were Used to Evaluate Yield Improvements Following the AKRSP Model Change

Sr.	Description	Frequency	Percent
1	strongly agree	29	24.2
2	Agree	11	9.2



3	Disagree	33	27.5
4	strongly disagree	47	39.2
Total		120	100.0

Table 4.26 The majority of respondents disagreed or strongly disagreed that specific metrics were used to evaluate yield improvements following the AKRSP model change. A noteworthy 39.2% of participants expressed severe disagreement, and 27.5% disagreed, contributing to a total of 66.7% who voiced an unfavorable opinion. However, a lesser percentage of respondents 24.2% strongly agreeing and 9.2% agreeing—agreed with the adoption of such parameters, making up a minority of 33.4%.

Table 4.27: The Percentage Distribution of the Respondents that there is Oversight in the Implementation of the AKRSP Model for Improving Yields

Sr.	Description	Frequency	Percent
1	strongly agree	58	48.5
2	Agree	32	26.7
3	Disagree	15	12.5
4	strongly disagree	15	12.5
Total		120	100.0

Table 4.27 Majority, 48.5%, strongly agrees that over sight is in place in the AKRSP model for the increase of yields. Moreover, 26.7% of respondents agreed to this statement, summing up the total in agreement to 75.2%. On the other hand, fewer respondents disagreed to the statement. Thus, 12.5% and 12.5% respectively disagreed and strongly disagree, which makes up a total of 25% responses in opposition.

Table 4.28: The Percentage Distribution of the Respondents that Farmers go Through Training Before Applying the AKRSP Model

Sr.	Description	Frequency	Percent
1	strongly agree	16	13.3
2	Agree	33	27.5
3	Disagree	44	36.7
4	strongly disagree	27	22.5
Total		120	100.0

Table 4.28 Most of the respondents, 36.7%, disagreed with the statement that farmers undergo training before implementing the AKRSP model. This is followed by 27.5% who agreed with the statement. A smaller percentage, 22.5%, strongly disagreed, while only 13.3% strongly agreed.

Table 4.29: The Percentage Distribution of the Respondents that the AKRSP Model Uses Agricultural Crops for Improvement

Sr.	Description	Frequency	Percent
1	strongly agree	37	30.8
2	Agree	50	41.8
3	Disagree	23	19.2
4	strongly disagree	10	8.3
Total		120	100.0

Table 4.29 A large proportion, 41.8% agreed to the statement of use of agricultural crops improvement for AKRSP. Coming to this, respondents showed that they strongly agree 30.8 percent on this particular statement; whereas 19.2 per cent participants opposed the respective



views on using agricultural crop improvements for the AKRSP model and 8.3 per cent completely opposed to this statement about agricultural crop improvements for AKRSP model.

Table 4.30: The Percentage Distribution of the Respondents that the AKRSP'S Model After their Aid and Support Ended, Indicating Concerns about its Affordability or Sustainability

Sr.	Description	Frequency	Percent
1	strongly satisfied	29	24.2
2	Satisfied	20	16.7
3	dis satisfied	34	28.3
4	strongly dis satisfied	37	30.8
Total		120	100.0

Table 4.30 A large percentage of the respondents, 30.8%, expressed that they are highly dissatisfied with the AKRSP's model since its aid and support have ended, which gives the impression that it was unaffordable or unsustainable. Likewise, 28.3% of the participants are dissatisfied. In contrast, 24.2% of the respondents were highly satisfied. A smaller percentage of 16.7% expressed general satisfaction with the model, indicating a much better experience than the dissatisfied groups.

Null Hypothesis (H₀): Income level has no significant association with confidence in making farming decisions after participation in AKRSP programs.

Alternate Hypothesis (H₁): Higher income significantly goes with higher confidence for agricultural decisions after participating in AKRSP programs.

		strongly agree	agree	disagree	strongly disagree	total
Monthly income	10000	6	7	3	2	18
	20001 30001	11	18	9	1	39
	30001 to 4000	5	4	3	3	15
	more than 41000	19	21	7	1	48
Total		41	50	22	7	120

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	51.570a	1	0.00**
Gamma	.768	...	0

The results of the Pearson Chi-Square test ($\chi^2 = 51.570$) indicate a statistically significant association between **income levels** and **confidence in agricultural decision-making** after participation in AKRSP programs. This finding rejects the null hypothesis and accepts the alternative hypothesis, confirming that farmers with higher income levels tend to report greater confidence in making farming-related decisions. This suggests that the AKRSP programs may enhance decision-making capacity more effectively among higher-income groups, highlighting the role of economic stability in building agricultural confidence.

FINDINGS

- Majority of the respondents 61.7% were men.
- 33.3% of the participation were of age 16 to 30 years.
- Most of the respondents, 40% earn above \$41,000 yearly.

- It shows that the outcome that the majority of the respondents know about Aga Khan Rural Support Program (AKRSP) and its projects/activities regarding sustainable agriculture is 68%.
- Majority of 60.8% involved stated not to have carried out agriculture projects or activities.
- Majority of the 57.5% individual utilize farming practices developed by AKRSP with which the practice is considerably taken for improving agricultural productivity.
- 85% of the respondents believe the program has positively impacted agricultural sustainability in their area.
- Show the result 85% of respondents reported a positive change in their socioeconomic status due to the program.
- Majority of the respondents 87.5% reported an increase in their income or means of subsistence due to their activities.
- Majority of the respondents 77.5% believe the initiative has better the quality of life in agricultural communities.

SUGGESTION

- Increase women's participation and encourage even more participation of women in future initiatives.
- Motivate married people through agricultural projects that are family orientated.
- Focus on engaging youth, targeting to promote participation by targeting the next younger age group.
- Offer specific support to the nuclear family to cater their specific needs.
- Expand school-based education programs to take education to a higher primary school level to promote tertiary education in agriculture.
- Work with the government to strengthen those engaging in public sector employment
- Organize financial management workshops for high-income clients to improve investment decisions made on agriculture
- Accommodate other home preferences through personal house choices
- While there is emphasis today on urban sites, strive to extend more to the rural locations.
- Ensures more Awareness-Reach people who are not aware of AKRSP.
- Conduct more people-friendly agriculture programs among the people who are less engaged in the sector.

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