



The Resilience Synergy: When Climate Actions Enhance Livelihood Opportunities

A Case Study on NAC's Livelihood and Climate Adaptation
Initiatives in Shahrstan, Daikundi, Afghanistan

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 **Afghanistankomiteen**
Norwegian Afghanistan Committee
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The Norwegian Afghanistan Committee

Founded in 1980, the Norwegian Afghanistan Committee (NAC) is a member-based solidarity organization with activities in Norway and Afghanistan and an elected Board and Secretariat based in Norway.

The purpose of the organization is to work together with the Afghan people to contribute to the development of an independent, peaceful, and democratic Afghanistan; promote knowledge about Afghanistan in Norway; and promote friendship between the Norwegian and Afghan people.

Our Vision

NAC shall contribute to a peaceful Afghanistan, free from poverty, where rural communities are empowered and resilient, valuing equality and diversity.

Our Mission

NAC shall support the Afghan people in the development of a peaceful, just, and egalitarian society where universal human rights are respected. NAC shall be a nexus for knowledge of, interest in, and engagement with Afghanistan in Norway, promoting Afghan voices and perspectives in Norwegian public debate and advocating for informed and responsible policies towards Afghanistan.

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Table of Content

1	Introduction
2	The Vulnerability and Interconnected Problems
2	Near the River but Lacking Water
4	Losing Livestock
5	Social Strain and Displacement
6	Our Initiatives and Approach
6	Program Initiation and Beneficiary Selection Criteria
8	Establishing and Training Grassroot Level Structures
11	Construction of Drought-Resilient Water Storage Infrastructure
14	Cross-Cutting Theme: Dialogue and Conflict Transformation
15	From Challenges to Progress
15	Increased Agricultural Productivity
18	Saving Horticulture at Risk
19	Revival of Livestock
20	Social Cohesion, Local Peace & Dialogue
22	Conclusion and Recommendations

Introduction

The Norwegian Afghanistan Committee's (NAC's) presence in Daikundi province is relatively recent, beginning in 2023 after the establishment of our Central Highlands Regional Office in Nili – the centre of the province – with the aim of reaching communities that are the most deprived and vulnerable to climate change and poverty in Daikundi and the neighbouring Highlands. Entering a new geographical area to begin operations is never without its challenges; it requires overcoming numerous obstacles, from community mobilization to securing the support of key stakeholders at various national, provincial, and district levels. Despite the challenges, NAC is successfully implementing both humanitarian and development projects, targeting the districts of Nili, Shahrستان, and Pato as part of NAC's 'Empowering Rural Development' (ERA II) program, 'Mitigating the Negative Impacts of Climate Change' (EU funded project), and a number of humanitarian projects, including FAO funded interventions. Since 2023, we have supported over 200 rural communities in Daikundi province with initiatives focused on food security, natural resource management (NRM), disaster risk reduction (DRR), and dialogue and conflict transformation.

As part of our project evaluation process, the regional program and monitoring and evaluation (M&E) team based in Nili, conducted a rapid review of NAC interventions towards building resilience to the impact of climate change (with focus on drought and water scarcity) and improving livelihood opportunities. The review evaluated key outputs such DRR and NRM support including an agro-based infrastructure project implemented in Shahrستان, one of the largest districts in Daikundi. This report presents key findings from the review, exploring the challenges and results of NAC's interventions.

2

Vulnerability and interconnected problems



Spring Water Source: Long-used water sources dried due to drought

Near the river but lacking water

Shahristan, a remote district located at least 60 kilometres from Nili, the center of Daikundi in Afghanistan's Central Highlands, is home to an estimated 100,000 residents. The district's topography is characterised by its elevated terrain which makes the area vulnerable to multiple natural shocks and disasters including avalanches, floods, and drought.

Despite the flow of the Helmand river, the longest river in Afghanistan, throughout the district, the local communities struggle with chronic scarcity of water and drought. This is because although the Helmand river is geographically close to the Sharistan's villages, the river runs far below these highland communities, making it difficult to access and utilize. The district's rugged, mountainous landscape adds to the challenges faced by Shahristan's communities, making agriculture difficult. Nevertheless, the households remain heavily dependent on agriculture as their primary source of livelihood. One of the findings

from the review, conducted in late 2023, indicates that 95.2% of the population rely on agriculture and livestock as their primary and secondary income sources. However, this dependency is less a matter of choice and more a consequence of the absence of the alternatives for sustaining livelihoods within the district.

In the first part of the review, we delved into the issue of drought and water scarcity in Waragha, a village in the Western part of Shahristan with nearly 150 households (an estimated 1,500 population) to learn how climate change, specifically impacts such as drought, have affected the livelihood situation of community members.

Although drought has plagued Afghanistan for more than two decades now, during the review, residents of Waragha report that the disaster has worsened and reached the most severe level in their community since 2018. One of the primary consequences has been a significant decline in agricultural productivity and the conversion of previously cultivated land to uncultivated land.



Severe drought impact: Desiccation cracks in soil showing extensive soil moisture depletion and structural damage due to prolonged water scarcity.

According to community members, in 2022 for instance, the drought caused about half of available agricultural land to remain uncultivated, leaving nearly 225 jeribs out of the estimated 450 jeribs of agricultural land unused.

However, in 2023, by using strategies such as plastic pipes for channeling irrigation water, digging deep wells (though these are not always considered as a sustainable approach for long-term agricultural recovery), and transporting water by tanker trucks and rental vehicles from a river located about 15 kilometers away - an option that is significantly costly for the smallholder farmers at community level - the community managed to bring a percentage of their agricultural land back into cultivation. Nevertheless, they had already lost a significant number of their trees, particularly fruit trees that had taken years to mature.

Rohullah is a farmer from Waragha who, over the past four years, lost fifty of the two hundred almond trees he had cultivated due to a lack of water. He said, *"I chose to plant almond trees because I believed they required less water. But, despite this, I lost most of my efforts because the severe drought made it impossible for me to irrigate them even once a month"*. Planting almond trees was adopted by farmers around 20 years ago in the district as a climate-smart planting practice, given that almonds are relatively drought-resistant and well-suited to Daikundi's climate. For many years, these trees served as a primary source of income for most of the farmers but recently this once-reliable source has been collapsing. Mohammad Nabi, a smallholder farmer from the village reported that, *"Before 1397 [2018],*

I would harvest almost 100 ser [700 KG] of almonds each year. But in 2022, my yield dropped to just 37 ser [259 KG], roughly one-third of what I used to produce... the almonds were light and often hollow".



Almond trees with reduced fertility and leaf die-off due to water scarcity

As can be understood from Mohammad Nabi's comments, droughts have not only caused many fruit trees to die but also, for those that have survived, limited access to sufficient water has diminished their fertility and negatively impacted the quality of the final product. This decline in output is not only evident in horticultural products, with smallholder farmers also noticing similar drops in crop production in the community. For example, as reported by smallholder farmers in Waragha, the average annual wheat yield per KG dropped from about 9-12 KG before 2018 to just 5-7 KG in 2022, and in some cases, farmers lost all their wheat yield. Although water shortage is not the sole cause of this decline, it is likely a key factor, particularly during the critical late-summer irrigation phase, which is essential in preparing crops for harvest.

Losing livestock

Like many other regions in Afghanistan, in the Central Highlands the people traditionally keep animals alongside their farming activities to serve them financially through selling dairy products, skins, meat, or raising and selling the animals.

Since livestock is heavily dependent on agriculture – particularly for winter feeding – any interruption in agriculture has a direct impact on maintaining livestock during winter. This has been the case in Waragha village for many years due to the ongoing drought and consequent drop in agricultural productivity. Many farmers have been forced to sell their livestock because they could no longer produce enough fodder, such as alfalfa which can be stored and has been a traditional source of nutrients for animals in winter. Rahmatullah, a head of a household in Waragha, recalls having 3 cows and 25 sheep five years ago, but recently he could only keep 1 cow and 5 sheep - and even maintaining this small number was still a challenge for him.



Sheep grazing on barren land with sparse vegetation due to low precipitation

Social strain and displacement

Drought is a crisis multiplier; beyond the devastating impact on the economy and livelihoods of communities, drought and climate change have far-reaching consequences on the social and psychological fabric of society, including increased population mobility and displacement, as recently documented by UNHCR¹, and disruptions to community level cohesion and peace, which is an issue not just in Afghanistan but globally².

In the review, we collected evidence of multiple cases of community-level conflicts and tensions rooted in drought and water scarcity over the past few years. Among the cases we gathered evidence of, tensions and conflicts over water distribution were the most commonly reported by community members. In one case, a farmer stated, *“Every night, 20 to 25 farmers [who shared a water resource] would gather near the water source, which led to heated arguments and conflicts over how it should be divided”*. In the same case, another farmer added, *“During the night shift, when it was the turn of those whose lands were located in the lower downstream areas, they had to regularly commute and monitor the channel path to ensure that no one upstream diverted the water to their own lands. In some cases, this even led to physical violence due to the theft of water outside of one’s designated turn”*.

In addition, water scarcity and prolonged drought conditions in the district have forced many, especially adult male members of the community, to leave their homes and village to travel to other provinces or neighbouring countries, particularly Iran, in order to support the livelihood needs of their families back home. Although we do not currently have access to statistical records of the area’s displaced population, according to the community members, one third of households have left the village over past two decades, partly as the result of drought.

In response to the challenges discussed above, with funding from Norad and other donors, NAC has supported the target community to implement multiple interventions to address the problems in Waragha. In the following sections we delve into details and review the results of community actions towards mitigating the impact of drought and enhancing agricultural productivity and resilience and how climate actions can work to improve livelihood opportunities.

1. UNHCR (2024). Climate change and displacement: <https://www.unhcr.org/what-we-do/build-better-futures/climate-change-and-displacement>

2. UNU (2023). Climate- Security and Peacebuilding: https://www.un.org/peacebuilding/sites/www.un.org.peacebuilding/files/documents/climate_security_tr_web_final_april10.pdf

6

Our Initiatives and Approach

Program initiation and beneficiary selection criteria

The effective initiation of the program required multi-level efforts and coordination, from navigating the complex bureaucratic processes for obtaining necessary permits and approvals (signing MOUs) at the national level, to mobilization, coordination, and trust-building efforts at the provincial, district, and community levels. This process is particularly complex and challenging during a phase of political shift, with changes of regulations and policies, often also accompanied by changes in staffing and local administrative procedures.

With a long history in Afghanistan and a strong reputation across multiple provinces, NAC has successfully initiated its programs in Daikundi province, thanks to our Central Highlands regional staff. However, the process was not straightforward as we had to overcome multiple challenges, including the need to adhere to new government laws and regulations while maintaining our values, and principles. Strict restrictions imposed by local government sectorial departments on foreign NGOs and poor coordination between district, provincial, and national level authorities posed significant obstacles. Additionally, the geographic remoteness of the province, and the targeted districts and communities, along with challenging mountainous terrain and poorly maintained roads, complicated travel and operations. The limited availability of resources, including construction supplies, coupled with inflated costs in the local market and high transportation costs for supply delivery, further exacerbated these challenges.



Identify vulnerable households for the program - Living conditions household survey.

To effectively reach the most vulnerable populations in the province, we employed a comprehensive beneficiary selection process to identify and select targeted districts and communities. Our selection criteria included socioeconomic status of target communities such as low income, needs, limited job opportunities, and food insecurity. We also assessed environmental and climate related vulnerabilities, focusing on communities prone to natural disasters and poor natural resource management.

Community engagement was vital, as we aimed to ensure community contribution, participation and ownership. By integrating these criteria into our selection process, we aimed to ensure that the NAC program not only met immediate needs but also enhanced long-term productivity and resilience within the communities we work with.

Building on the beneficiary selection criteria outlined above, Waragha was selected as one of the targeted communities. In Waragha we currently implement projects focused on food security, natural resource management, climate change, disaster risk reduction (DRR), and some educational activities. In this review, however, our focus was solely on the evaluation of select activities in Waragha aimed at improving agricultural productivity and enhancing community resilience.



Community engagement was vital, as we aimed to ensure community contribution, participation and ownership.

Establishing and training grassroots level structures

To better manage natural resources and build resilience against natural disasters at community level, NAC support grassroots level structures such as disaster risk reduction committees (DRRCs) and natural resource management committees (NRMCs) and lead-and follow-farmer groups and associations (NAC's 'lead farmer extension program').

Despite being highly prone to natural disasters and in need of effective management and governance of community resources, Waragha lacked any such structures prior to NAC's support. Community members reported that the absence of these structures added to their increased vulnerabilities, not only related to natural resources and climate change impacts but also in managing collective efforts and addressing social strains within the community, such as conflicts over water distribution.

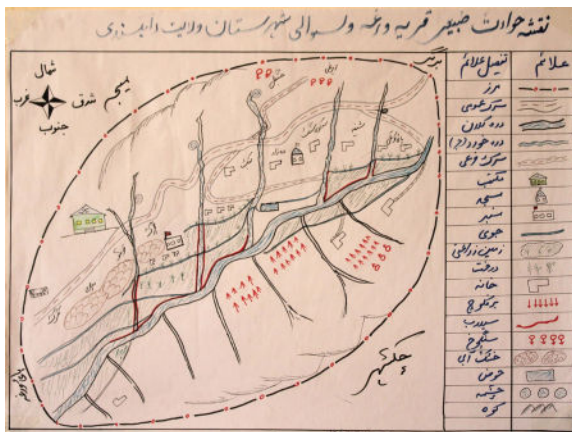
In the first instance, NAC supported the community in establishing a community disaster management committee (CDMC) by engaging community elders, leaders, and youth from various parts of the village and providing continuous support. As a result, Waragha now has a functional CDMC with 14 members active in sub committees such as 'search and rescue', 'early warning', 'communication' and 'first aid'. To enhance their knowledge of mitigating natural disasters and effective response mechanisms, all CDMC members were trained by NAC's Disaster Risk Reduction (DRR) trainers. The training was conducted in two rounds. The first round focused solely on disaster preparedness and response, while the second covered broader topics, including dialogue skills, communication, and first aid.

Despite facing multiple challenges and barriers to women's participation in Afghanistan – which has increased significantly in recent years, NAC ensures women's involvement through a strong emphasis on the inclusion of women and women headed households in our work. Notably, one-third of the NRMCM members in Waghana are women who are trained and supported alongside their male counterparts in environmental protection and NRM 'best' practices. These women NRMCM members play a crucial role in disseminating environmental protection messages to their families and other women and children in the community, ensuring broader community engagement in natural resource management.

As part of capacity building, the CDMC in Waragha also supported conducting hazard mapping of their communities by providing them with the tools, techniques and methods that NAC has initiated in other provinces, such as Badakhshan and Ghazni, over the past decade. Through this mapping process, the CDMC members mapped areas prone to different types of natural disasters by highlighting locations using the hazard codes and also mapped their existing community resources and assets which can be utilized locally to mitigate against disasters.

The resulting map, pictured below, features a legend identifying various community assets and hazard zones, with red markings indicating high-risk areas. The oval-shaped village layout shows key features including water channels, settlement clusters, and natural boundaries, demonstrating local knowledge in community-based disaster risk assessment.

The detailed Dari map below provides a comprehensive overview of the village's disaster vulnerability and resource distribution.



Hazard Vulnerability and Resource Map: CDMC members in Waragha have developed their village map highlighting areas vulnerable to drought, avalanche, and flood risks along with available resources and capacities.

Following the development of a hazard map, CDMC members worked on a comprehensive village disaster management plan (VDMP) to identify community priorities and propose solutions to address risks and potential impacts. As shown in the plan snapshot below, the members agreed on several measures aimed at reducing the impacts of natural disasters and enhancing community resilience.

لړلیک	نام پروژه	تقدیر مستفیدین	تطبیق لوست:
۱	حوض آب زراعتی	۱۹۰ خانه	مردم د کیمت ناروغي
۲	سټکه جباراج	۲۰۰۰ خانه	د دولت د شکت کار مهارت
۳	بند زهیره آب	۴۰۰ خانه	د دولت د موسسات
۴	برق سولگري	۱۵۰ خانه	د دولت د موسسات
۵	سورخانه	برای حوز قریه جداگانه	د دولت د موسسات
۶	پايب اسکيم	۱۹۰ خانه	د دولت د موسسات
۷	سر بند کانال	برای تمام کانالها	د دولت د موسسات
۸	دیلوار استنادی	سا حات آب پلیر	د دولت د موسسات
۹	میدان در نرشی	مركز قریه	د دولت د موسسات

The plan outlines nine priority actions and projects for disaster prevention, including the construction of a water storage facility, check dams, canal intakes, and protection walls. Among these priorities, the construction of a water storage facility in a new location was ranked as being the first priority, as the previous facility was highly vulnerable to flash floods and water loss. CDMC members believed that addressing the challenges identified in the VDMP would not only improve their community's resilience to natural disasters but also boost agricultural productivity and yields.

Both the hazard map and the VDMP have been displayed on the wall of the community's mosque, which also serves as the community meeting hall. The documents serve as guides for the collective community work and outline the responsibilities of the committees and their members. Muhammad, a CDMC member, explained, "The community hazard map and our village development plan have helped us identify areas prone to disasters, which will be useful not only during disaster response but also for informing external supporters, such as NGOs and government agencies about our priorities and the high-risk areas they should focus on if they want to assist us".

In addition to the DRR and NRM committees, NAC provided training and support to smallholder farmers through our lead- and follow-farmer extension program.

Village Development Plan: Committee members have identified their needs and prioritized them from one to nine and ranked construction of water storage as their top priority.

Since the beginning of the program in 2023 in Daikundi, NAC has supported over 1,870 smallholder farmers (through development of agro-based infrastructure, training and other agricultural initiatives like creation of demonstration plots) including those from Waragha. The farmers received training on various critical topics such as climate-smart agricultural techniques, integrated pest management, contouring and terracing, surface ploughing, mulching, composting, and line cultivation. Dawod, one of the smallholder farmers trained in climate-smart agriculture, shared his experience, explaining, *"I learned how to make home-made pesticides from locally available materials to control pests, instead of using chemical pesticides that harm our environment"*.

Furthermore, the smallholder farmers were also provided with other agricultural inputs such as certified seeds and farming tools. Further, NAC supported women in the community with the establishment of a nursery to raise and grow fruit saplings (like almonds) and non-fruit saplings (like pine, tuja, and russian willow) for later sale and distribution. This initiative serves multiple purposes: it involves women in horticulture adaptation processes, increases their environmental awareness, and provides potential economic benefits when NAC purchases the mature saplings after two years. Through this activity, women are actively participating in climate adaptation while gaining knowledge about the importance of non-fruit trees in preventing soil erosion and maintaining a healthy environment.

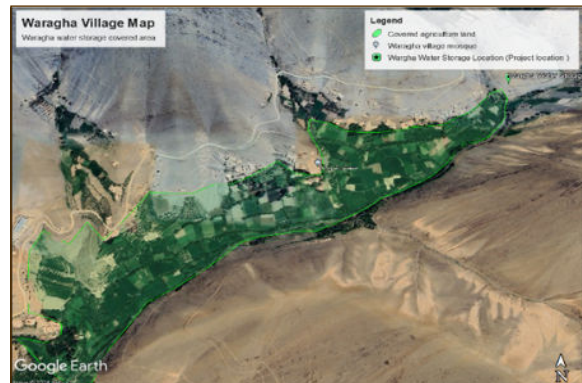


NAC support the establishment of home-based nursery to raise and grow fruit saplings and non-fruit saplings.

Construction of drought-resilient water storage infrastructure

Following the development of the village disaster management plan (VDMP), initiated by the village's CDMC, subsequent vulnerability assessment and technical survey conducted by NAC's field engineers, NAC supported the construction of a climate-resilient water storage facility in Waragha. The project was implemented using a community-driven approach, in which we emphasized mobilizing local resources, engagement, and community ownership. As part of this approach, the community contributed with the allocation of land, provision of locally available construction materials such as stone and sand, and with labor from within the community, as well as committing to long-term maintenance of the facility.

The previous water storage facility in Waragha was facing numerous challenges, making intervention essential. It was prone to flooding due to its location in a flood-prone area of the village, had suffered significant water loss, and was too small to meet the irrigation needs of the community's farmers – severely limiting cultivation capacity. To address these issues, the new facility was strategically positioned on elevated terrain, representing a significant climate adaptation measure. This new location helps to protect the structure from flooding and optimizes gravitational irrigation distribution to downstream areas. Mohammad, a smallholder farmer, explained, "This smart positioning ensures sustainable water access for our agriculture".



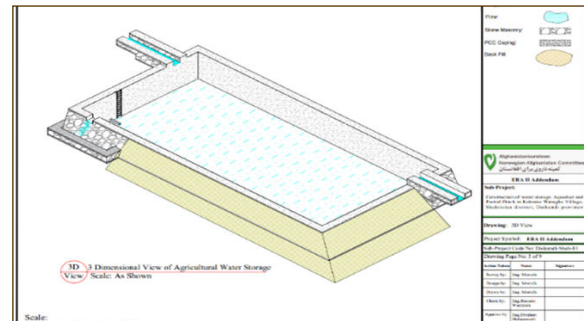
The highlighted area shows the agricultural lands (including fruit and non-fruit trees) covered and benefited by constructed water storage facility in Waragha.



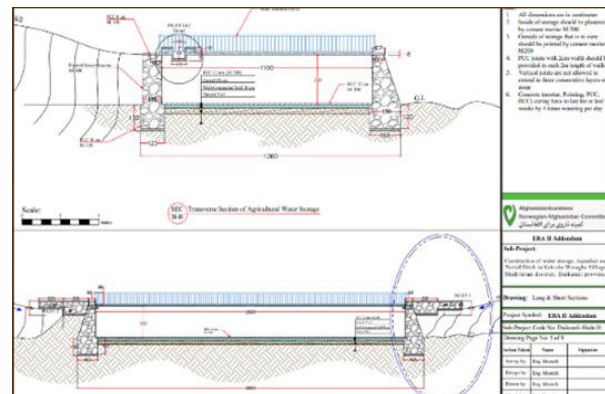
Smart planning in water storage construction: the new water storage location is in higher location which helps with the better flow of water.

Drawing from technical surveys and community inputs, the facility was designed with enhanced capacity specifications: 25.4 meters in length, 11.4 meters in width, and 3 meters in height, yielding a total storage capacity of 868 cubic meters. This represents a 250% increase in water harvesting capacity compared to the previous infrastructure. The technical specifications, as illustrated in the model below, incorporate climate-resilient features including reinforced intake structures, a controlled outlet mechanism, overflow mitigation systems, and maintenance access points. A key improvement in the new design is its focus on water conservation. Unlike the previous structure which suffered from significant water loss, the new facility features concrete construction with drought-resistant specifications to minimize seepage. The engineered reservoir bed and reinforced walls, detailed in the longitudinal and cross-sections, are specifically designed for water retention and long-term durability.

The construction of the water storage facility created job opportunities for at least 120 community members over a period of nearly four months.



Climate adaptive design of water storage facility with zero seepage & well-designed inlet and outlet.



Reinforced water storage drawing with technical specifications of stone masonry walls, protecting handrail, overflow, inlet and well-designed outlet.



Infrastructure project helped local youth & unemployed community members through providing job opportunities and enhancement of their knowledge and skills in masonry in safe environment.

This provided temporary job opportunities for jobless community members from within the village. Mohammad Nabi, head of a household with eight members, was one of the workers who benefited from this project. For Nabi, this aspect of the project was especially important, as the wages he earned through his work on the project allowed him to support his family without the burden of leaving the village in search of work outside the district.

Throughout the construction process, quality assurance was maintained through regular supervision by NAC's regional teams and other stakeholders including community members. NAC's Infrastructure Officer emphasized the community's active role in the process, explaining, *"At every stage of construction, the local community was involved, from mapping and site selection to supervision during implementation and ensuring everyone had a role"*. Salimi, a community elder, confirmed this by noting, *"The CDMC members were visiting the project twice a week to monitor its progress"*.

Completed and handed over to the village, the water storage facility now serves as critical climate-resilient infrastructure for more than 95 of the 150 farmer households in Waragha, enhancing the community's adaptive capacity and agricultural water security for at least 190 jeribs (out of 450) of agricultural land, including fruits and non-fruit trees.

Water storage facility constructed by NAC functions beyond only storage of water for irrigation but also as a social structure for washing clothes, carpets and crops.



Cross-cutting theme: Dialogue and conflict transformation

Dialogue and conflict transformation is a cross-cutting theme across all NAC programs, aiming to promote dialogue and address local-level conflict that commonly emerge from poverty and tensions over community resources such as water and land in Afghan rural communities.

Since our work in Daikundi began in 2023, we have trained over 750 people, both men and women, on dialogue skills and conflict transformation in this province. In Waragha village, where water scarcity and ineffective management had led to significant tensions over distribution, dialogue training was deemed essential as part of the broader livelihood and drought response project intervention. We conducted training sessions for community members, including the CDMC and NRM committee members, to transform the existing tensions and enhance their capacity in managing and transforming any potential conflicts in the future. The training was designed to address key aspects of effective communication and conflict transformation. Participants engaged in activities of effective communication, mapping and understanding conflict, and conflict analysis. These topics were specifically chosen to equip the CDMC

and NRM committees and other community members with practical skills for mediating the reported water-related disputes and promoting dialogue within their community.

During the data collection for this review, we interviewed several dialogue and conflict transformation training participants. One participant, Ebrahim, reflected on his experience, *"We learned the importance of being open to others' perspectives, especially when their reasoning is sound, as a way to avoid conflict. This approach has changed how we handle disagreements in our community"*.

This is also evidenced through our pre – and post – test evaluation. The data shows that participants' knowledge on key dialogue and conflict transformation concepts and techniques increased from an average of 36% in the pre-test to 94% in the post-test, demonstrating a 58% improvement. This substantial increase suggests that community members are now better equipped to address community level conflicts constructively, potentially leading to more effective water resource management and reduced community tensions.



We provide trainings for both men and women community members on dialogue skills and conflict transformation.

From challenges to progress

NAC's program and its approach to tackling drought in Waragha not only supported efforts to combat climate change but also significantly improved agricultural productivity and strengthened overall community resilience. This section of the report presents the results observed and reported across various domains of community livelihood and resilience, including water resource management, agricultural productivity, resilience to the impact of climate change, and social cohesion.

Increased agricultural productivity

Re-converting land from uncultivated to cultivated

Previously, drought conditions had forced Waragha's farmers to abandon approximately half of their farmland. The situation improved this year when the community managed to reclaim their land for cultivation through various initiatives supported by NAC during the last two years.

Amongst the initiatives, the construction of the water storage facility marked a turning point in this shift. Farmers who previously struggled to maintain even 50% of their farming land in single-season cultivation now report the ability to cultivate their entire available land during the spring season. More significantly, they have begun implementing second-season cultivation on 30-50% of their farmland, a practice that had been impossible due to water scarcity conditions and lack of information and knowledge about second-season cultivation.



The highlighted area shows the agricultural lands (including fruit and non-fruit trees) covered and benefited by constructed water storage facility in Waghana.

The impact of this transformation is clearly illustrated through individual farmers' experiences. Salimi, a smallholder farmer who owns 3 jeribs of land, previously harvested only 70 Ser [490 KG] of wheat from his single-season cultivation. Following the intervention, while maintaining the same first-season yield, he now cultivates half of his land for a second season, increasing an additional 50% harvest of diversified crops such as beans. The economic significance of this change becomes apparent when considering the market values - 7 KG of beans sold for 800 AFN compared to 7 KG of wheat at 200 AFN, representing a substantial increase in household income.

Crop productivity

Similar to many other areas of Afghanistan, the drought in Waragha has severely impacted crop productivity over the past few years. For example, a jerib of land that previously yielded up to 70 Ser, in 2022 had been reduced to only 30 Ser, primarily due to severe water shortages during crucial stages of crop growth. In upper hill areas, where irrigation water could not reach, the situation was even more dire, with fields experiencing complete crop failure.

While it has not yet returned to pre-drought levels, project interventions - including improved farming techniques, introducing new and certified crop varieties, and water storage facilities and practices - have contributed to a significant recovery, with yields increasing from approximately 30 Ser to 50 Ser per jerib, representing a 66.7% improvement.

One significant outcome of these interventions, as noted previously, has been the enabling of second-season cultivation, which had been nearly impossible during the drought years. In this second season, farmers have diversified their crops, growing beans, maize, and fodder

for livestock. This diversification has reduced reliance on a single crop and increased farming households' incomes. For example, Hussain, a smallholder farmer, cultivated beans during the second season this year and earned 20,000 AFN by selling 25 sirs of his harvest, in addition to using the by-products as feed for his livestock.

However, challenges still remain. First-season wheat yields, though improved from 30 Ser to 50 Ser per jerib, are still below the pre-drought average of 70 Ser and the national benchmark for the Central Region of Afghanistan which has a very similar climate. In addition, while the second season saw significant diversification, the first season remains heavily reliant on wheat and a narrow range of traditional crops and seeds. In addition, issues such as pests and diseases, including rust (سرخی), continue to threaten productivity as reported by smallholder farmers, and need to be addressed.

Crop diversification

Water scarcity and lack of access to agricultural support programs had led farmers in Waragha, like many other places in Afghanistan, to the cultivation of a highly restricted variety of crops. Smallholder farmers like Rohullah could only maintain basic crops such as wheat and corn. This limited diversity was not always a choice, but a restraint imposed by persistent drought and hunger, along with poor access to agricultural innovation learning opportunities.

The NAC smallholder farmer support program including our extension program has changed this landscape, enabling farmers to diversify crop varieties and cultivation patterns that were previously impossible.

The change is evident in both the revival of traditional crops that had been abandoned due to water scarcity and as well as the introduction of new varieties with their growing, cultivation, and processing techniques and methods. Farmers have regained the ability to grow carrots, turnips, onions, tomatoes, and maize, while also venturing into new crops like beans and peas. This diversification represents not merely an increase in crop numbers, but a fundamental shift in how farmers approach their agricultural practices and manage their risks.

Second season harvest resulted from having enough water after construction of water facility and development of an efficient water management system.



The experience of Musa, a 74-year-old smallholder farmer with 4 jeribs of land, illustrates the scale of this shift. Previously limited to basic wheat and bean cultivation, he now maintains his traditional spring wheat yield of 170 Ser [1,190 KG] while adding an impressive array of second-season crops: 10 Ser (70 KG) each of beans, peas, and maize, plus 7 Ser (49 KG) of *Pisum sativum* and additional fodder crops for his animals.

Beyond the immediate economic outcomes reported by many of the supported farmers, the diversification of crops has strengthened community food security in multiple ways. Different crops mature at varying times, providing more consistent diversified food items throughout the year for the communities' households. The combination of cereals, legumes, and vegetables ensures a more balanced nutritional profile and healthy diet for household consumption³. Moreover, growing multiple crop types reduces the risk of total crop failure, as different plants show varying resilience to climactic conditions and pests⁴.

This shift from subsistence-focused farming to diverse, drought-resilient and market-oriented agriculture represents not just an improvement in food security of supported households but a fundamental change in how our partner communities perceive and pursue their agricultural productivity in the future.

3. WHO (2019). Thirteenth General Programme of Work 2019-2023: <https://www.who.int/about/general-programme-of-work/thirteenth>

4. FAO (2012). Building resilience for adaptation to climate change in the agriculture sector: <https://www.fao.org/4/i3084e/i3084e.pdf>

Saving horticulture at risk

Reportedly many of the trees in Waragha were dying before the water storage project saved them. According to the local farmers, this has saved approximately 50,000 trees, both fruit and non-fruit, in the village, providing significant income and environmental benefits to community members. Almond trees are especially important, as farmers planted them during the last two decades knowing they are drought resilient and could survive with less water.

The severity of the recent drought had threatened this long-term horticultural investment, with farmers like Rohullah losing 50 of his 200 almond trees over just four years despite selecting them for their drought resistance. For Mohammad Nabi, the issue was, however, not only survival but also the productivity of his remaining trees. He reported a massive decline in his annual almond harvest from 700 KG in 2018 to just 250 KG in 2022.

The support provided to the farmers in this village, including the construction of the water storage facility and water management system, have fundamentally altered this trajectory of lose and decline - and this arrived at a critical moment. As Mohammad noted, *"If the water storage was not constructed, almost half of these trees were at risk of being severely affected or dying"*. This is because the project has improved the irrigation of the established orchards. Shir Husain reported that, *"Now we can irrigate our trees every 12 days because the water is enough after construction of water storage, while in the past, in severe cases, the trees were irrigated almost every 32 days which was not enough"*.

Regular irrigation is important because and has implications beyond mere survival. Consistent irrigation is key to restoring tree health and productivity, including for the almond trees that farmers typically pay less attention to as they have seen as being a relatively drought resilient type of tree. Furthermore, the ability to irrigate during daylight hours has also improved the efficiency of water use. As NAC-supported smallholder farmers in the community explained, nighttime irrigation often resulted in significant water waste as they could not properly monitor water flow in the darkness. The new system allows them to irrigate more land during the day, ensuring water reaches tree roots effectively rather than being lost to evaporation or runoff.

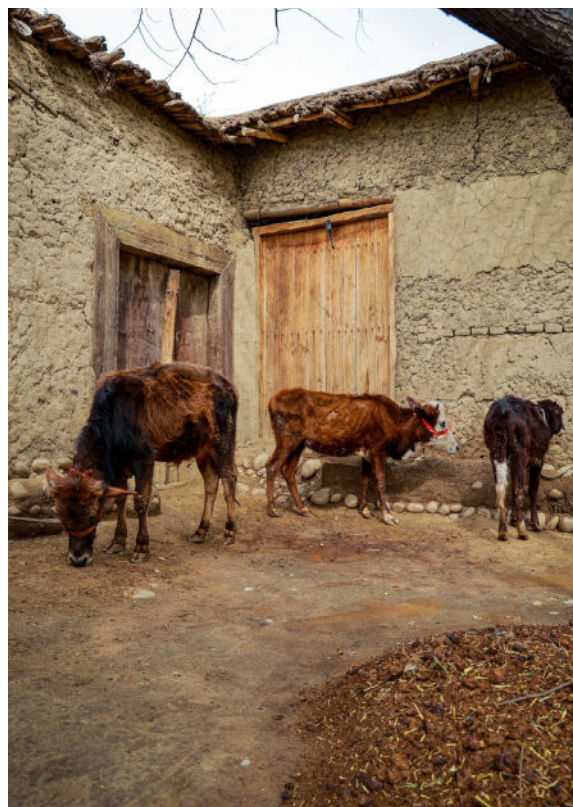
Looking forwards, we believe that the stabilization of tree health has renewed our smallholder farmer's confidence in long-term horticulture engagement. The regular irrigation now possible through the water storage system provides the foundation, not just for maintaining existing trees, but potentially for expanding the cultivation of fruit and non-fruit trees, supporting both economic resilience and environmental sustainability in the face of ongoing climate challenges and food insecurity in the country.

Revival of livestock

As a result of increased access to regular irrigation water and its effective management, the availability of fodder has reportedly improved in Waragha. Smallholder farmers are now able to cultivate crops during the second growing season, which was previously not done due to drought. This has allowed them to allocate at least one-third of their farmland, mostly in the second growing season, to produce animal fodder, as reported frequently by community members. Additionally, by-products from other crops grown alongside the main harvest are also used as animal fodder, further increasing availability.

With more fodder, community members can now keep larger numbers of animals and benefit from their products. For instance, Ali Jan, a smallholder herder in Waragha, increased his herd from 4 goats in 2022 to 18 goats in 2023. He shared that, beyond using milk and other dairy products for household consumption, he now sells some of his products to support his household's living expenses.

Among the households supported by the program, at least 9% are headed by women, reflecting the presence of particularly vulnerable households in the community. In Afghan households, women traditionally play a central role in livestock management, even when they are not heads of households. Through improved fodder availability, the program has enhanced livestock productivity, with female household members reporting increased milk production and better animal health. Sakina, a female herder and a mother of four children, explained, "...I milk her [the cow] three times a day with larger quantities, compared to last year's when she could only give milk twice a day and smaller amounts".



Animal husbandry revival as a result of sufficient cultivation of animal fodder in first and second harvesting seasons

Social cohesion, local peace & dialogue

Working with communities is often a double-edged sword - it has the potential to foster peace but can also inadvertently exacerbate conflict. In many instances, poorly planned interventions have inadvertently ignited disputes, particularly when they fail to address pre-existing community level dynamics (including local power relations) or overlook the needs of diverse community members. This has been observed in various contexts where competition over limited resources, unclear project goals, or lack of community involvement has led to tension and conflict⁵.

Our work in Waragha stands out as a positive example of how an intervention and community engagement can promote local peace and social cohesion. In Waragha, a key factor in community tensions had been the scarcity of irrigation water, as discussed in the problem section of this report, this has frequently led to disputes among community members. The construction of water storage facilities helped mitigate water scarcity, a root cause of long-standing disagreements among farmers. For Ahmad, a community elder in Waragha, the peacebuilding aspect of the project was vital because she had seen how conflicts over water scarcity were dividing the community and harming relationships.

Importantly, NAC recognized that simply increasing water availability would not automatically eliminate community-level conflicts. The way water is managed and shared is equally critical to making and keeping peace.

To this end, NAC supported Waghan's NRM committee in establishing an inclusive and transparent water management system. A key innovation was the installation of a gauge with metric markings inside the water reservoir, enabling accurate measurement of water levels. This tool helps the farmers share water fairly and transparently among themselves, in a systematic way.

In addition to infrastructure improvements, NAC conducted dialogue and conflict transformation training to community members in Waragha, following the Nansen Handbook for Trainers in Dialogue and Conflict Transformation. 32 male and female community members were trained in dialogue and conflict transformation, equipping them with the skills to address conflict constructively and collaboratively. The post-evaluation of the training in this community indicated that the majority of participants were using the skills they learned during the training within their households and the wider community.

"Since NAC started working here, the conflicts over water within our community has gone down a lot. The regular meetings to manage the shared water storage and as well as the training we received, really helped us to build trust. Before, when we met, it often ended in arguments, but now we work together much better, and our relationships have really improved". Hasan Ali, a participant of the dialogue skill training in Waragha.

5. ODI (2000). Conflict Management in Community-Based Natural Resource Projects: Experiences from Fiji and Papua New Guinea: <https://media.odi.org/documents/2738.pdf>

Conclusion and recommendations

Our experience in Daikundi's Sharistan district shows that smart, and well-designed climate actions can bring lasting improvements in rural households' livelihoods, food security, and overall community resilience. What started as a drought mitigation effort through construction of a water storage facility became something much bigger – smallholder farmers who had been struggling to grow even basic crops (traditionally wheat) in a single season are now harvesting twice a year with a significant increase in diversity of crop variety. The numbers tell part of the story – the supported smallholder farming households can now grow over ten crop varieties, as reported, from wheat to beans to various types of vegetables. This agricultural productivity and revival have reportedly increased household incomes, as seen in cases like Husain's earnings of 20,000 AFN from second-season beans alone. Beyond crop production, over 50,000 fruit and non-fruit trees that were at risk have been saved, preserving a vital long-term income source. Livestock keeping has also recovered, with training and improved water management enabling fodder cultivation. For instance, Ali Jan's goat herd grew from 4 to 18, and Sakina has increased milk production.

However, challenges remain. While communities are still recovering from the severe drought of 2018-2023, alarmingly low snow levels in the Hindu Kush Himalayan region, reported in June 2024, raise concerns about future water scarcity and increased risk of hydrological and agricultural drought in coming years. This is expected to be aggravated by the likely development of the La Niña climate pattern, which typically brings below-average precipitation across Afghanistan.

As such, looking ahead, there is still a lot of work to do as the persistent challenges and emerging climate threats require continued attention. Building on the documented experiences in this study and our experience in other provinces where we have been working for a long period of time, the review has led NAC to make the following recommendations:

- Farmers have reported persist struggles with poor quality seeds– although they have tried seeds from some NGOs, but the yields often dropped due to poor quality of seeds provided or the issue of seed degradation over time. NAC could help by connecting the farmers in partner communities with reliable seed suppliers and using its good reputation to ensure quality and timely access.
- Establish a community-based resource mobilization and savings mechanisms in Waragha as part of current community development efforts to address future infrastructure needs, including maintenance of recently constructed projects. The rehabilitation of the existing 800-meter irrigation canal to minimize water losses, a key community concern, can be sustainably achieved through this community contribution and resource mobilization mechanism. NAC can provide technical capacity building and support the establishment of self-sustaining financial mechanisms for long-term infrastructure maintenance in the community.
- The livelihood options and opportunities in these communities are still relatively limited for households. NAC can strengthen diversification of livelihoods also through supporting alternative forms of livelihood opportunities which are less dependent on agriculture, such as animal husbandry including poultry, beekeeping, and small ruminants.
- Several community members requested support with knowledge development. In particular, the farmers suggested capacity building and training on dialogue and communication skill development, climate-smart farming, pest management, and modern irrigation techniques.
- Soil quality and fertility remain key concerns, as reflected in this report. NAC can enhance climate-smart agriculture in its partner communities through:
 - supporting partner communities to initiate and implement agroforestry integration to improve soil quality and prevent erosion;
 - supporting mulch application for better moisture retention and improved soil life – a practice that NAC’s technical NRM team has promoted in many other provinces.
 - promoting compost making as a low-cost and environmentally friendly fertilizer;
 - building the capacity in our partner communities for implementing conservation tillage methods – no- or low-tillage farming to improve soil fertility;
 - introducing more climate-resilient crop varieties and linking our partner smallholder farmers with certified seed providers within and outside the province.

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