



Results and Impact

Green Badakhshan Initiative

Afghanistan

Rupani Foundation



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Chairman's message



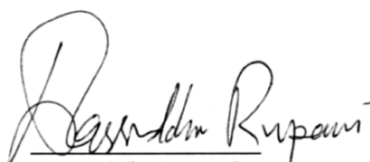
Development is ultimately about people. It is about enabling people to participate fully in processes affecting their lives and to make informed choices and decisions for their futures. With our projects in Afghanistan, I have been amazed at the capacities of illiterate people to express themselves and their priorities, and their willingness to work together. This enables them to achieve great results.

The Pamir plateau, where our projects are concentrated are characterized by high mountains, most extreme climatic variation and natural hazards – earthquakes, avalanches, rock-slides, and mudslides endangering human lives, herds of livestock, and roads and infrastructure. The lives of the impoverished are, by definition, precarious. The population experience extremes of poverty, isolation, and constraints on opportunities and choice.

At the same time, they sustain and show remarkable resilience in the face of extraordinarily harsh circumstances.

The Rupani Foundation aims to function as a catalyst for holistic human development and to establish vibrant mountain communities. Our objectives are to create economic opportunities and knowledgeable leadership. In order to accomplish this, the Rupani Foundation invests in sustainable rural development and early childhood care and education with special focus on empowering mothers. By education we mean a life-long experience in which qualities such as integrity, mental discipline, humility and honesty are formed, particularly during the early years.

Our work is predicated on the generous support of our donors, especially the World Food Programme and other UN entities, including the UNDP-GEF Small Grants Programme and UN Environment. The Foundation cooperates closely with communities and government counterparts. I would like to extend to them my sincere gratitude.

A handwritten signature in black ink, reading "Nasrudin Rupani". The signature is fluid and cursive, with the first letter 'N' being particularly large and stylized.

Nasrudin Rupani
Chairman, Rupani Foundation

Acronyms

CDC	Community Development Council
GEF	Global Environment Facility
GICA	Green Ishkashim Community Association
UNDP	United Nations Development Programme
UN Environment	United Nations Environment Programme
WFP	World Food Programme

Wakhan Valley, Kizget Village 2018



Photo: Christian Jepsen

1 Executive Summary

The Rupani Foundation was established in 2006 in order to create employment, promote equity participation, and reduce poverty in mountain communities of South Asia. The Rupani Foundation has been present in Afghanistan since 2008, working in border districts in eastern Badakhshan. Since 2014, the Rupani Foundation's engagement in Afghanistan has focused on two programs, namely the Green Badakhshan Initiative and Agah Walidain Early Childhood Development. This report presents and assessment of the outcomes and impacts (realized and anticipated) of the Green Badakhshan Initiative.

The vast majority of the population in Eastern Badakhshan depends on subsistence agriculture and livestock production due to the remoteness with limited access to markets and jobs. Hence, the families depend wholly on natural resources (land, water, vegetation) for their livelihoods. Poverty, food and nutrition insecurity, and poor access to health services, education and markets are major challenges. Erosion, loss of topsoil and loss of vegetative cover due to overgrazing and cutting of plants are major challenges which are negatively affecting agricultural and livestock productivity. The population is highly vulnerable to natural hazards, such as droughts, earthquakes, and flash floods. Climate change is anticipated to further exacerbate these challenges. Ecosystem degradation also threatening the unique biodiversity of the region.

The Green Badakhshan Initiative started in June 2014 and aims to promote sustainable livelihoods with enhanced food security, improved access to nutrition, increased incomes, enhanced resilience to shocks and reduced risk of disaster, and halting of environmental degradation. The underlying philosophy is that by enhancing and diversifying the agricultural productivity and access to wood and fodder resources in the valleys and around villages, the dependency on the fragile resources in the mountains will be lowered and thereby the trend of environmental degradation can be reduced. The initiative has annually established assets benefitting 20,000 to 40,000 people, thereby on average reaching more than a third of the entire population in the districts covered each year.

Partnerships are a central feature of the Green Badakhshan Initiative. First and foremost, the communities are key partners. The choice of activities and the identification of appropriate project locations in a given community is driven by the communities themselves; and the work is also carried out by the communities themselves, thereby ensuring strong buy-in and cost effectiveness. The solutions promoted are based on local capacities, so the communities are fully able to maintain the investments made. Some plantation and garden projects have specifically targeted women. District authorities provided advisory to communities on the establishment of plantations and gardens; the Rupani Foundation facilitated their participation by providing transport and thereby enhanced their ability to provide support to communities, as they do not have sufficient means to travel to the rural communities.

The Rupani Foundation has implemented Green Badakhshan activities in partnership with international organisations. The World Food Programme (WFP) has been catalytic for the initiative through its Food Assistance for Assets initiative. The provision of food meant that community members did not have to seek paid employment in order to purchase food;

thereby enabling community-members to engage in asset creation. Other partners include the UNDP-GEF Small Grants Programme, which provided funding for the establishment of fruit and vegetable gardens. Finally, UN Environment has been a partner in environmental education activities.

165 community plantations, covering approximately 2,000 hectares with almost 4.8 million trees (native species) have been established. The strategy for plantation establishment is to implement at scale, where a substantial proportion of the population is reached, and positive environmental impacts are achieved at the landscape level. The watershed plantations provide multiple environmental benefits, including land restoration, erosion control, and reduced pressure on natural vegetation. The livelihood benefits will mainly emerge as the trees mature, and include: fodder and grazing for livestock, fuelwood, construction materials, and income from selling timber and sea buckthorn berries.

792 fruit and vegetable gardens with a total of 20,000 fruit trees, a range of vegetables and alfalfa have been established in 19 villages. Both men and women have been supported in the establishment of fruit and vegetable gardens. The fruit and vegetable gardens have a number of benefits. The vegetables contribute to a more diverse and nutritious diets and can also be sold. The alfalfa is a nutritious livestock fodder and enhances soil fertility. As the fruit trees mature, their fruits will further improve the livelihoods and nutritional status through home consumption and selling. The fruit gardens have been very well received by farmers.

Farmer weeding his garden, Ishkashim 2018



Photo: Christian Jepsen

346 kilometers of irrigation canals, 191 kilometers of roads and trails, and 4,503 meters of protection walls have been constructed. The infrastructure has been selected, planned and constructed by the communities themselves. The irrigation canals provide water for the watershed plantations, and some of the canals are also irrigating agricultural lands. The roads and trails have significantly improved access to the benefitting villages and made it easier and faster to reach health clinics and markets. The protection walls are protecting houses, fields and plantations from flash floods.

Fuel-efficient stoves have been provided to 1,100 households, reducing their fuelwood consumption and the exposure of women and children to hazardous smoke. Local craftsmen have also been trained on the production of fuel-efficient stoves, and thereby been provided a new income opportunity. The Green Badakhshan Initiative has also facilitated the establishment of the Green Ishkashim Community Association (GICA) which promotes community-based sustainable natural resource management, through the development of village natural resource management plans. Moreover, environmental education activities have been implemented with 5,000 children and parents to create environmental awareness.

The Green Badakhshan Initiative has reached a large proportion of the population in eastern Badakhshan and will thus over time make a substantial contribution to an overall improvement of people's lives and a general reduction of the environmental degradation in the districts covered.

Villagers in women's plantation, Pak village 2018



Photo: Christian Jepsen

The economic impact is increased incomes from the selling of firewood, fruits and vegetables, and enhanced livestock production from the improved access to fodder.

The social impacts include improved food security with access to fruit and vegetables, improved health with easier access to health clinics via the roads constructed and access to nutrition from fruits and vegetables, and empowerment of women through their engagement in economic activities such as watershed plantations and fruit and vegetable gardens.

The environmental impact is a reduced pressure on the natural mountain vegetation as a result of the availability of alternative firewood and fodder resources from the watershed plantations, which in turn is expected to reduce erosion and human-wildlife conflicts.

Resilience to environmental hazards, such as floods and droughts, is also enhanced due to a more diversified agricultural production, improved access to irrigation, and flood protection.

The focus on community-led development, where communities identify their priorities and carry out the work enhances the ownership and ensures the ability of the communities to maintain the assets created.

2 The Rupani Foundation

The Rupani Foundation was established in 2006 in order to create employment, promote equity participation, and reduce poverty in mountain communities of South Asia.

Vision: *Sustainable society for future generations*

Mission: *To promote the holistic development of children (0-8 years) by providing essential early childhood development services at household and community level and to create lasting solutions to poverty by creating skills development and value addition in local production with the partnership of local, national and international agencies*

The Foundation's objective is to create economic opportunities, knowledgeable leadership, and 'aristocracies of merit' for marginalized communities, particularly women and youth. In order to accomplish this, the Rupani Foundation mobilizes the required technology and financial and human resources to facilitate market access and support the transition to a market-based economy. The foundation's primary approach revolves around the development of local human resources in terms of entrepreneurial, managerial, technical, marketing and financial skills. It provides seed capital to carry out research, conduct pilots and initiate projects in value-adding sectors. The Rupani Foundation also functions as a catalyst for the holistic development of an economic and social infrastructure to establish vibrant mountain communities. The Foundation cooperates closely with communities, governmental and non-governmental organizations to achieve sustainability, accountability and effectiveness in its work.

The Rupani Foundation has been present in Badakhshan, Afghanistan since 2008. Initially, the engagement comprised the establishment of gem cutting and polishing training centers and early childhood education centers. Since 2014, the Rupani Foundation's engagement in Afghanistan has focused on two programs, namely the Green Badakhshan Initiative and Agah Walidain Early Childhood Development.

3 About this report

This report presents and assessment of the outcomes and impacts (realized and anticipated) of the Green Badakhshan Initiative. The methodology applied is briefly described in the following. Quantitative monitoring data and documents provided by the Rupani Foundation were reviewed and analysed. A field visit to Ishkashim and Wakhan Districts was carried out in June 2018 to gather more in-depth qualitative information. Focus group discussions and semi-structured interviews were carried out with beneficiary women and men, Community Development Council (CDC) members, Rupani foundation staff, and representatives from Ishkashim District Government and the World Food Programme (WFP). Selected project sites

were visited, covering the main types of community projects implemented: watershed plantations, fruit and vegetable gardens, and roads and canals constructed. Please refer to the annex for a of data sources, mission programme and sites visited.

4 Overview of the Green Badakhshan Initiative

The Green Badakhshan Initiative is implemented in border districts in eastern Badakhshan: Ishkashim, Shughnan, Wakhan, and Zebak. Before 2016, the initiative also covered Warduj¹. The vast majority of the population in Eastern Badakhshan depends on subsistence agriculture and livestock production due to the remoteness with limited access to markets and jobs. Hence, the families depend wholly on natural resources (land, water, vegetation) for their livelihoods; agriculture and horticulture, for livestock rearing, for fuel for cooking and heating, and for construction materials. The main crops are wheat, barley, and vegetables; and the livestock are mainly sheep, goats, cows, yaks, donkeys, horses, and Bactrian camels.

Kret village 2018



Photo: Christian Jepsen

The ecosystems in the districts covered by the Rupani Foundation, especially in Wakhan, are relatively healthy compared to other parts of Afghanistan, but erosion, loss of topsoil and loss of vegetative cover due to overgrazing and cutting of plants are still major challenges which are negatively affecting agricultural and livestock productivity – and causing ever-increasing workloads, e.g. vis-à-vis the collection of firewood. Poverty, food insecurity, insufficient access to nutrition, and poor access to health services, education and markets are major challenges for the majority of the population.

Moreover, the population is highly vulnerable to natural hazards, such as droughts, earthquakes, and in certain locations flash floods. Climate change is anticipated to further exacerbate these challenges in the medium-long term, with changes in weather patterns, and increasing water scarcity as the glaciers retreat and snowfall is reduced. Ecosystem degradation also negatively affecting the unique biodiversity of the region (the entire Wakhan is the

¹ Activities in Warduj were discontinued due to growing insecurity, which has hampered access to project sites.

second national park gazette in Afghanistan), including flagship species such as snow leopard, Marco Polo sheep, urial, ibex, brown bear, and wolf.

Upper Wakhan Valley 2018



Photo: Christian Jepsen

The Green Badakhshan Initiative started in June 2014 and aims to promote sustainable livelihoods with enhanced food security, improved access to nutrition, increased incomes, enhanced resilience to shocks and reduced risk of disaster, and halting of environmental degradation. This is in particular sought through the expansion of agriculture and forestry assets and optimizing resource use and management opportunities. The initiative in particular focuses on creating forest and agriculture assets and promotes their sustainable use. The underlying philosophy is that by enhancing and diversifying the agricultural productivity and access to wood and fodder resources in the valleys and around villages, the dependency on the fragile resources in the mountains will be lowered and thereby the trend of environmental degradation can be reduced. Hence, the Green Badakhshan Initiative promotes tree planting in combination with grazing, fodder production, and vegetable production. Moreover, targeted rural infrastructure is put in place, such as irrigation canals, rural roads, and protection walls.

As can be seen from table 5.1.1; the initiative has each year directly involved from 3,000 to 5,000 people in the implementation; and thereby annually established assets benefitting 20,000 to 40,000 people (i.e. the laborers and their families). This corresponds to 29-42 per cent of the entire population in the districts covered (94,312 persons in five districts, 70,466 without Warduj²) being reached each year. The declining number of beneficiaries is caused by two factors, a) the withdrawal from Warduj District, and b) a gradual decline in the volume of food support provided by WFP (see table 5.2.1).

² Central Statistics Organization, Afghanistan: Estimate Population of Afghanistan 2018-19
<http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>

Table 5.1.1: Number of people benefitting from the assets created by year

Year	Labor (persons)	Beneficiaries of the assets (persons)*
2014	5,678	39,746
2015	5,071	35,497
2016	4,086	28,602
2017	2,955	20,685

*Estimated, the average household in Afghanistan comprises seven members

Source: Rupani Foundation

5 A partnership approach

Partnerships are a central feature of the Green Badakhshan Initiative. First and foremost, the communities are key partners. The Rupani Foundation mobilizes communities, using the Community Development Councils (CDCs) as an entry point, and works with community associations, women's groups, and individual community members. The choice of activities and the identification of appropriate project locations in a given community is driven by the communities themselves; and the work is also carried out by the communities themselves, thereby ensuring strong buy-in and cost effectiveness. The solutions promoted are based on local capacities, so the communities are fully able to maintain and further expand the investments made. Some plantation and garden projects have specifically targeted women. Most of the Rupani Foundation staff comes from the communities with whom the Rupani Foundation works. This approach has dual benefits: a) it facilitates trust and a strong partnership with communities, and b) it provides job opportunities to skilled and educated community-members, including women.

Villagers and Rupani Foundation staff, Abgarch village 2018

Photo: Christian Jepsen

Moreover, district authorities have been key partners in the initiative: They have provided extension and agronomic advisory to communities on the establishment of plantations and

gardens; and the Rupani Foundation has facilitated their participation by providing transport, mobilizing communities, and coordinating project activities. Hence, the Green Badakhshan Initiative has enhanced the ability of district authorities to provide support to communities, as they do not have sufficient means to travel to the rural communities themselves.

Moreover, the Rupani Foundation has implemented Green Badakhshan activities in partnership with international organisations. The most important partner, which has been catalytic for the initiative, is WFP's Food Assistance for Assets Creation, where food assistance has enabled community-members to engage in project activities (see section 5.2); WFP provided 4,432 metric tons of food (with a value of USD 2,371,168) and US\$ 436,445 for food transport and storage in 2014-17. Other partners include the UNDP-GEF Small Grants Programme, which has contributed financially to the establishment of fruit and vegetable gardens (see section 5.4), e.g. for the purchase of tools provided to the communities; UNDP-GEF provided a grant of US\$ 49,980. Finally, UN Environment has been a partner in "Green Village" resource planning and environmental education activities (see section 5.6), providing a grant of US\$ 30,000. The Rupani Foundation invested in 2014-17 US\$ 28,000 of its own core funding in the initiative for the establishment of fruit and vegetable gardens, as well as staff resources, office facilities, transport, communication costs, and security.

6 Food Assistance for Assets

In total, 4,432 tonnes of food provided by WFP were distributed in 2014-2017 to the families who provided labour. The food package for each family contains wheat, lentils, vegetable oil and salt and is provided in three installments over a three-month period. Table 5.2.1 below provides an overview of the amount of food provided and number of beneficiaries annually.

Table 5.2.1: People benefitting from food assistance per year

Year	Food (tonnes)	Labor (persons)	Beneficiaries (persons)*
2014	1,582.5	5,678	39,746
2015	1,413.3	5,071	35,497
2016	939.7	4,086	28,602
2017	496.6	2,955	20,685

*Estimated, the average household in Afghanistan comprises seven members.

Source: Rupani Foundation

The food assistance has been essential for enabling the communities to engage in Green Badakhshan projects. All community-members interviewed gave the same explanations of why this was the case. Firstly, the food assistance was an incentive for community-members to engage and invest in the establishment of mainly communal assets; without food assistance, it can be difficult to convince community-members to invest in large communal projects. Perhaps more importantly, the provision of food during the "hungry months" (the months before harvest, where most or all of the grains from previous harvest have been consumed) also meant that community members did not have to seek paid employment in order to purchase food for their families; thereby releasing time for working on the

establishment/construction of plantations, gardens, roads, canals, and protection walls. Furthermore, the availability of food also helped by providing the necessary calories and nutrition for community-members to engage in physically demanding labor.

Moreover, all interviewees indicated a strong preference for food assistance over cash. The reasons being that food items are not readily available in remote villages, which means they have to travel to district centers to purchase food. Such journeys take times and food prices are high due to the remote location of the districts – as is the transportation of the food purchased back to the village. Moreover, the food items available on the market are not always of a good quality. The food provided by WFP is of good quality and delivered in the village, so the community-members save both time and money. Families often have to sell some of their scarce and important assets during “the hungry months”, such as livestock and timber, or they have to lend money to purchase food. One very poor farmer explained that he the previous year borrowed money to purchase food and he now faced difficulties in repaying and therefore considered to repay with his only bull, which he would otherwise need to plough his land. Such difficulties were avoided in years where food assistance was provided, thereby contributing to maintaining a somewhat higher level of resilience in following years. One CDC mentioned that the food assistance had enabled them to establish and maintain a communal granary, saving parts of their harvest to support vulnerable families during difficult times. But last year (2017) the harvest was poor, and they had no food assistance, so the granary had been depleted.

Food distribution, Ishkashim 2018



Photo: Christian Jepsen

The Food Assistance for Assets and the Green Badakhshan Initiative partnership has thus enabled communities to invest in medium-long term improvements of their livelihoods and resilience through the establishment of assets. This is a marked difference from earlier food assistance, which was either handed out for free, or provided under the WFP Food for Work initiative, where people were engaged in labor such as repairing or cleaning the main roads, but not in enhancing the asset base. The Rupani Foundation engaged significantly in community mobilization and awareness creation to facilitate this change of paradigm.

7 Watershed plantations

During 2014-17, 165 community watershed plantations have been established, covering approximately 2,000 hectares with almost 4.8 million trees (see table 5.3.1). The Rupani Foundation's strategy for plantation establishment under the Green Badakhshan Initiative is to implement at scale, where a substantial proportion of the population is reached, and positive environmental impacts are achieved at the landscape level. Indeed, watershed plantation establishment is the activity type that has reached most people under the Green Badakhshan Initiative. As can be seen from table 5.3.1; plantation establishment has each year directly involved around 2,300-3,300 people in the implementation; and thereby assets have been created for approximately 16,000-23,000 people (i.e. the laborers and their families) annually. This corresponds to 17-27 per cent of the entire population in the districts covered (94,312 persons in five districts, 70,466 without Warduj³) being reached each year.

Table 5.3.1: Watershed plantation data

Year	No of trees planted	Area planted (hectares)	Food (tonnes)	Labor (persons)	No. of trees planted by each person	Area planted by each person (hectares)	Beneficiaries (persons)*
2014	840,545	339	913	3,275	257	1.3	22,925
2015	1,168,523	566	632	2,268	515	1.1	15,876
2016	1,731,914	743	610	2,761	627	1.2	19,327
2017	1,036,587	373	326	2,280	455	0.8	15,960
Total	4,777,569	2,021	2,481				
*Estimated, the average household in Afghanistan comprises seven members.							

Source: Rupani Foundation

While tree plantations are normally established and managed by men, the Rupani Foundation has more recently also specifically supported the establishment of women's plantations; 1.1 million trees have been planted by 1,872 women over a two-year period (2016-17).

Women planting trees, Pak village 2016



Photo: Rupani Foundation

³ Central Statistics Organization, Afghanistan: Estimate Population of Afghanistan 2018-19
<http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>

The trees planted are native species suited for the local environment i.e. poplar, willow, tamarisk, and sea buckthorn. Some plantations are also intercropped with fodder such as alfalfa for short-term benefits.

Willow and irrigation canal in plantation, Pak village 2018



Photo: Christian Jepsen

The watershed plantations serve multiple environmental and livelihoods purposes. Environmental benefits include: a) restoration of soil fertility and rehabilitation of barren wastelands; b) stabilization of slopes and erosion control (in the case of uphill plantations); c) improved water retention; d) reduced pressure on natural vegetation (e.g. fuelwood collection and fodder/grazing); e) windbreaks, shade and shelter (for people and livestock); and f) habitats for birds. Moreover, the increased tree cover sequesters carbon and thereby contributes to mitigating climate change at the global level.

Large-scale plantation, Reg-e-Jorum 2017



Photo: Rupani Foundation

The plantations are still young and thus not yet providing the full range of intended livelihood benefits, but the relatively older plantations are already providing supplementary fodder for livestock for autumn and winter months as well as fuelwood (which is a scarce resource) for cooking as well as heating during winter. In the medium term, further livelihood

benefits will be realized, such as larger volumes of fodder and fuelwood; construction materials for houses and tools; and new income from selling timber and sea buckthorn berries for oil production for cosmetics (the Rupani Foundation is planning to support women in getting into the cosmetics value chain). Moreover, livestock will be allowed to enter for grazing, once a plantation reaches around ten years of age. The dependency on scarce natural resources is thus reduced and new income opportunities created, thereby contributing to enhancing the resilience of rural families. Local jobs as forest caretakers (*baghban*) are also created for some community-members. Moreover, the plantations have an aesthetic value in an otherwise mostly dry and barren landscape. The awareness creation and engagement of the communities has also led to a mindset shift, where trees are now considered worth planting as valuable assets for the future.

Case: Watershed plantation, Kret village

Kret is a village in the upper Wakhan Valley with 50 households. The villagers of Kret established two community watershed plantations (in 2014 and 2015) with support from the Rupani Foundation and food assistance from WFP. The two plantations cover 32 hectares in total with 25,000 trees planted (500 trees per household). The trees planted are willow, tamarisk, poplar and sea buckthorn. The plantation from 2014 has grown particularly well.

A caretaker has been selected and is responsible for watering the trees. Each household pays him 14 kilos of wheat annually for his services. The caretaker only has little land, so this job is an important livelihoods opportunity for him. All households are engaged on an annual basis in the cleaning and maintenance of the irrigation canals watering the plantations.



The villagers are already collecting fuelwood from the plantations, under careful regulation by the village CDC. During winter, the plantations are open for three days for fuelwood collection where each family is allowed to collect three donkey loads, corresponding to 150 kilos. Mainly dead branches are collected as they burn well. Sea buckthorn leaves and twigs are also collected and used for livestock fodder. The other trees are still growing and not yet ready for felling or cutting of branches. The plantation has reduced the need to collect fuelwood in the mountains, thereby releasing time for other purposes and reducing the pressure on the natural vegetation, which has been significantly depleted over the years. Fodder is not yet collected from the plantations, but will be in the future, which will further reduce the dependency on the mountain vegetation.

The community-members find the plantations highly beneficial and would like to further expand the plantation area.

Photo: Christian Jepsen

8 Fruit and vegetable gardens

The Rupani Foundation has since 2016 under Green Badakhshan promoted fruit and vegetable gardens. 792 gardens with a total of 20,000 fruit trees have been established in 19 villages in the four districts currently covered by the Rupani Foundation, as of mid 2018. A fruit tree nursery has been established in Ishkashim. In 2016, 107 pilot gardens with 5,000 fruit trees were planted and 2,470 trees grafted. Their establishment was supported with a UNDP-GEF small grant, which paid for tools and planting material. The following upscaling in 2017-18 has been supported with WFP food assistance. Both men and women have been supported in the establishment of fruit and vegetable gardens.

The fruit trees promoted are well suited to the local soil and climate conditions; apple, apricot, cherry, mulberry, peach, and walnut trees have been provided to farmers. Vegetable seeds, such as carrot, onion, spinach, cabbage, tomato, and coriander, have also been provided. Moreover, alfalfa seeds have been distributed.

Weeding of fruit and vegetable garden, Futur village 2018



Photo: Christian Jepsen

The fruit and vegetable gardens have a number of benefits. On the short term, the vegetables contribute to ensuring a more diverse and nutritious diets – and the vegetables can also be sold at the market. Hence, the gardens are already making a contribution to improving the livelihoods, food security and resilience of the garden owners. Moreover, the alfalfa is a nutritious livestock fodder, and it also fixates nitrogen, thereby contributing to improving the soil fertility. The fodder produced also contributes to reducing the pressure on the natural vegetation in the mountains. As the fruit trees mature, the fruits harvested will further improve the livelihoods, food security and nutritional status through home consumption and selling. The trees planted in 2016 are now slowly beginning to yield fruits. Communities in Wakhan previously had the perception that fruit trees could not grow in Wakhan due to the cold climate, but the Green Badakhshan Initiative and other projects have shown that it is possible to diversify the agricultural system and diet with fruit trees.

The fruit gardens have been very well received by farmers as welcomed sources of food diversification, leading to improved nutrition, not least for their children, as well as a new

source of income. They also appreciate alfalfa as a high-quality fodder that has contributed to their animals becoming healthier and more productive, e.g. with increased milk production. Based on the encouraging reception and early results, the Rupani Foundation is planning to further promote and upscale fruit production in the four districts.

Apple from first harvest, Ishkashim 2018



Photo: Rupani Foundation

Case: Ms. Lola Bigum, Pak village

Ms. Lola Bigum, 65 years, is a widow living with her 29 years old son Palawan, his wife and five grandchildren. They have one hectare of land, where they grow wheat, barley, and vegetables (grass pea, spinach, green onion). Their livestock consist of one bull, two cows, and one sheep. They are unable to produce enough food for their needs, and also have to purchase food on credit, which is difficult for them to repay.

With support from the Rupani Foundation and the UNPD-GEF Small Grants Program, they established a 0.1-hectare fruit and vegetable garden in 2016 with apple, apricot and cherry trees, and carrots, beans*, and turnips. They grew potatoes on the plot before the garden was established. Under the Green Badakhshan Initiative, they were provided with saplings, seed, barbed wire for fencing, and tools (spade, scissors) and trained on grafting and cultivation of fruit trees and vegetables. A 12th grade student from the village helped them writing an application for receiving fruit and vegetable garden support, as she is illiterate. Lola Bigum was selected for support by the CDC because her family is one of the poorest in the village.



Lola Bigum finds it easy to manage the garden, although it does require extra work. She now works mainly in the garden, sometimes with the help of her daughter-in-law, and she also tends their livestock with the help of her grandchildren. Her son mainly works in their fields.

Lola Bigum is very happy with the garden – “*who would not be happy with improving their lives?*” she says, and continues, “*the vegetables are good for our health, and my grandchildren will eat the fruits*”. The entire production used for home consumption, but Lola Bigum would like to further expand the garden, so that they would have enough to sell and earn an income. When asked why they had not established such a garden themselves, she explains that the saplings and vegetable seeds were unavailable.

**Not provided by the Rupani Foundation*

Photo: Kris B. Prasada Rao

9 Infrastructure

The decades of war and neglect have badly affected rural infrastructure in Badakhshan and in Afghanistan in general. An important component of the Green Badakhshan Initiative is thus support for the construction of rural infrastructure. Three main types of infrastructure are supported: irrigation canals, rural roads and trails, and flood protection walls. The infrastructure has been selected, planned and constructed by the communities themselves, using local skills and knowledge about their environment. WFP has provided food assistance for the labor the communities have put into the infrastructure construction. Infrastructure has been constructed in five districts, but in 2018, infrastructure investments were focusing on seven villages in Shughnan.

Irrigation canals

In total, 346 kilometers of irrigation canals were constructed in 2014-17, see table 5.5.1. This work directly engaged around 400-1,150 people annually whereby assets have been created for an estimated 2,800-9,000 people annually, corresponding to four to ten per cent of the entire population in the districts covered⁴.

Table 5.5.1: Irrigation canal data

Year	Canal (km)	Food (tonnes)	Labor (persons)	Beneficiaries (persons)*
2014	119	319	1146	8,022
2015	89	360	1292	9,044
2016	62	101	406	2,842
2017	76	117	470	3,290
Total	346	898		

*Estimated, the average household in Afghanistan comprises seven members.

Source: Rupani Foundation

Most of the irrigation canals constructed mainly serve the purpose of watering the watershed plantations established under the Green Badakhshan Initiative. However, there are also a few cases of irrigation canals established for other purposes. In Gos Khun village, the main canal was repaired in 2014, which increased the water flow, thereby improving the irrigation

⁴ 94,312 persons in five districts, 70,466 without Warduj. Source: Central Statistics Organization, Afghanistan: Estimate Population of Afghanistan 2018-19 <http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>

and productivity of agricultural lands, and also enabling the establishment of a micro-hydro-power plant supplying the village with power and watermills used for milling flour. It also enabled the establishment in 2017 of a watershed plantation.

Construction of irrigation canal



Photo: Rupani Foundation

Case: Irrigation canal, Kizget village

Most houses and fields of Kizget are located on an alluvial fan, and highly vulnerable to flash floods. Several houses and fields were washed away by flash floods in 2006; no human lives were lost, but some livestock were lost during the floods.

With the support of the Rupani Foundation and WFP, the community has been able to establish a four-kilometer up-hill irrigation canal, which allows the villagers to construct new houses and terraced fields in safe hillside locations, which are not prone to flooding. This support will thus directly reduce the risk of loss of lives, and also enhance general resilience by ensuring that the villagers have fields and crops in case the fields in the valley are damaged or destroyed by floods.



Photo: Kris B. Prasada Rao

Roads and trails

In total, 191 kilometers of roads and trails have been constructed in 2014-17, see table 5.5.2. This work directly engaged around 70-1,250 people annually, thereby assets have been created for an estimated 500-8,200 people annually, corresponding to 1-9 per cent of the entire population in the districts covered⁵.

⁵ 94,312 persons in five districts, 70,466 without Warduj. Source: Central Statistics Organization, Afghanistan: Estimate Population of Afghanistan 2018-19 <http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>

Table 5.5.2: Road and trail data

Year	Road/trail (km)	Food (tonnes)	Labor (persons)	Beneficiaries (persons)*
2014	68	350	1257	8,799
2015	60	352	1263	8,841
2016	55	122	491	3,437
2017	9	18	74	518
Total	191	842		

*Estimated, the average household in Afghanistan comprises seven members.

Source: Rupani Foundation

The roads and trails constructed and repaired have significantly improved access to the benefitting villages. For example, it is now easier and faster to transport sick people to health clinics and to access markets to sell and purchase items, as people can now travel with cars instead of on donkeys or horseback. A notable example is the 28 kilometers of road constructed from Gos Khun village and to Ali Su on the way to the highly remote Big Pamir Valley.

Road construction, Sast Village 2015*Photo: Rupani Foundation***Case: Road, Abgarch village**

52 households with 175 families live in Abgarch, located uphill from the Wakhan valley. Hence, travelling to the valley was by donkey, horseback or yak, making it difficult and slow to travel. Reaching the main road or fields in the valley took around two hours. Moreover, the trail was narrow and on a steep slope, and occasionally donkeys and horses fell off the trail and got injured or killed.

In 2016-17, the community themselves planned and constructed four kilometers of road, connecting the village to the main road with the support of the Rupani Foundation and WFP. All households participated in the construction

With the new road, it is now possible to travel by car, and reach the main road in 30 minutes. Moreover, travelling by animal has become easier and safer for the animals. The benefits of improved access are multiple, according to the villagers. In particular, it has become much easier to transport sick people to the nearest health clinic in Khandud, the district center of Wakhan. Furthermore, it has become much easier and faster to transport produce and food items to and from the market, and also to reach fields in the valley. An added benefit is that with the easier access, NGOs are now more willing to visit and work in the village.



Photo: Christian Jepsen

Flood protection walls

In total, 4,503 meters of flood protection walls have been constructed or repaired in 2015-17, see table 5.5.3. This work directly engaged between 35 and 106 people annually, thereby assets have been created for 900 to 3,000 people each year, corresponding to one to four per cent of the entire population in the districts covered⁶. Some of the protection walls were constructed in connection with the watershed plantations to protect them from floods. Other walls were put up to protect villages and fields at risk from flash floods coming down from the mountains.

Table 5.5.3: Flood protection wall data

Year	Wall (meters)	Food (tonnes)	Labor (persons)	Beneficiaries (persons)*
2015	900	69	248	1,736
2016	2,900	106	428	2,996
2017	703	35	131	917
Total	4,503	211		

*Estimated, the average household in Afghanistan comprises seven members.

Source: Rupani Foundation

Case: Flood protection wall, Kret village

Kret is located on an alluvial fan, and parts of the village is vulnerable to flash floods. Indeed, part of the village and its fields were destroyed by a flash flood in 2014. In response, the villagers with support from the Rupani Foundation and WFP constructed two flood protection walls in 2015 and 2017, each 500 meters long. While there have been no flash floods since the wall was constructed, the river flow is high every summer, and the wall has so been effective in diverting the water away from the village. Hence, the wall has enhanced the disaster resilience of the community.

Construction of gabions for flood protection, Surkdara 2015

⁶ 94,312 persons in five districts, 70,466 without Warduj. Source: Central Statistics Organization, Afghanistan: Estimate Population of Afghanistan 2018-19 <http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>



Photo: Rupani Foundation

10 Other engagements

The Rupani Foundation has also engaged in a range of smaller activities under the Green Badakhshan Initiative such as the distribution of fuel-efficient stoves, establishment of a community-based natural resource management association, and environmental education.

Fuel-efficient stoves

The use of traditional open fire stoves has a profound negative impact on both the health of women and children, and on the environment. Women and children spend a considerable amount of time cooking and are exposed to hazardous smoke, which can lead to respiratory diseases. Moreover, the need for firewood is a major driver of loss of vegetation, which in turn leaves the soil on slopes exposed and causes erosion, and also has a negative effect on the availability of food for both wild ungulates (urial, ibex) and livestock.

Woman using fuel-efficient stove



Photo: Rupani Foundation

In 2017, the Rupani Foundation with financial support from the UNDP-GEF Small Grants Programme distributed fuel-efficient stoves to 1,100 households in Ishkashim district and trained them on proper use of the stoves. This has reduced fuel consumption, and thereby

reduced the exposure of women and children to hazardous smoke, as well as contributed to reducing the pressure on the natural vegetation and the related negative environmental impacts. Local craftsmen have also been trained on the production of in-expensive fuel-efficient stoves, and thereby been provided a new income opportunity.

Community-based natural resource management association

In 2016-17, the Rupani Foundation with UNDP-GEF small grant funding supported the establishment of the district-wide Green Ishkashim Community Association (GICA), comprising representatives from 44 CDCs and a representative of the Ishkashim District Women's Committee. The purpose of GICA is to promote community-based sustainable natural resource management. 132 GICA members were trained in natural resource mapping and planning, and community-based natural resource management, and GICA has developed village natural resource management plans. Community forest stewards (Baghbans) were trained and equipped to implement and monitor community-based natural resource management activities. An example of GICA's work is the establishment of a community park in Ishkashim. The plans and the skills imparted will enable the communities to better manage and conserve their natural resources, thereby reducing environmental degradation and loss of biodiversity, and maintain or even increase the livelihood benefits derived from their natural resources.

Village natural resource management plan for Ishkashim

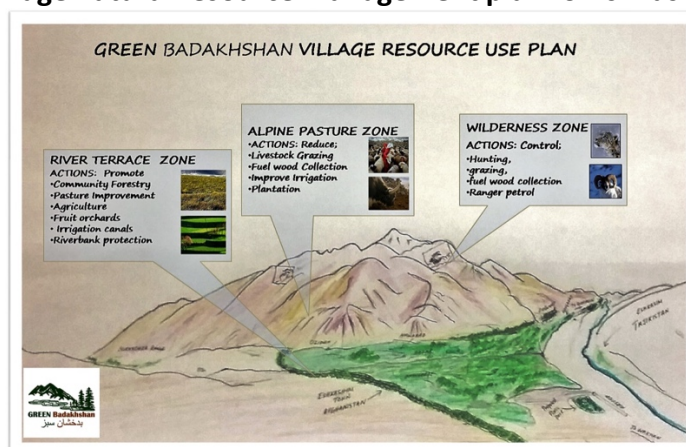


Illustration: Rupani Foundation

Environmental Education

Since 2017, the Rupani Foundation has in cooperation with UN Environment worked with villages to develop "Green Village" management plans and school gardens in three schools in Ishkashim and Wakhan. Moreover, the "Environment Day" was celebrated in the schools on 23-25 May 2017 with the participation of more than 5000 children, parents, and teachers. Students were engaged painting, poetry, songs, poems, speeches and competitions with a focus on environmental conservation. This contributed to an enhanced awareness among students, teachers and parents on environmental issues.

Green Village planning session, Qazi Deh 2017



Photo: Rupani Foundation

11 Conclusion

The Rupani Foundation and its partners have through the Green Badakhshan Initiative made a tangible contribution to improving the lives of the women, men and children residing in the districts covered. Moreover, since both the Green Badakhshan Initiative is a quite young initiatives, the expected impacts have not yet fully emerged, but will become increasingly evident as the trees planted mature and can be fully utilized. The Green Badakhshan Initiative has reached a large proportion of the population and will thus over time make a substantial contribution to an overall improvement of people's lives and a general reduction of the environmental degradation in the districts covered.

The economic impact achieved and emerging is increased incomes from the selling of firewood, selling of fruits and vegetables, and enhanced livestock production from the improved access to fodder – as a result of the access to resources from the watershed plantations, cultivation of gardens with fruit trees and vegetables, cultivation of alfalfa, and improved market access through the roads produced.

The social impacts achieved and emerging include the following:

- Improved food security – as a result of fruit and vegetable production.
- Improved health – as a result of improved access to nutrition from fruits and vegetables, improved access to health services via the village roads and pathways constructed.
- Reduced demand for labor for the collection of firewood and fodder in the mountains freeing up time for other activities – as a result of the wood and fodder production in the watershed plantations.
- Empowerment of women – as a result of the targeting of women in economic activities such as watershed plantations and fruit and vegetable gardens for women.

The environmental impact achieved and emerging is a reduced pressure on the natural mountain vegetation, which in turn is expected to reduce erosion and human-wildlife conflicts – as a result of the availability of alternative firewood and fodder resources from the

watershed plantations, and the enhanced awareness achieved through environmental education.

Enhanced resilience to environmental hazards, such as floods and droughts, is also emerging – as a result of a more diversified agricultural production from the fruit and vegetables gardens, the improved access to irrigation, and the flood protection walls constructed. In Kizget resilience is also enhanced, as a result of the new irrigation canal enabling supplementary agricultural production and establishment of houses in a safe area.

The focus on community-led development, where communities themselves identify their priorities and the appropriate locations for interventions, and themselves carry out the work using technologies they are already comfortable with or can easily adopt enhances the ownership and ensures the ability of the communities to maintain the assets created – thereby contributing the long-term sustainability of the interventions, as well as to ensuring cost effectiveness. The awareness raising has also created a better understanding of the value of investing in longer term measures.

Similarly, the engagement with district authorities is both contributing to enhancing the capacity and engagement of the Government. Moreover, the involvement is also creating government ownership and skills required for providing further support and advice to the communities.

Annex: Mission program and documents

Mission program for impact studies: Green Badakhshan + Agah Walidain			
Date	Day	Location	Activity
11 Jun	Mon	Dushanbe	Arrival
12 Jun	Tue	Khorog	Travel Dushanbe-Khorog
13 Jun	Wed	Ishkashim	Travel Khorog-Ishkashim, crossing border
14 Jun	Thu	Ishkashim	- Visit Ishkashim ECD center, interview mothers and staff - Visit Mobile ECD center - Interview Rupani Foundation staff - Visit Fruit and vegetable garden, interview owner (man)
15 Jun	Fri	Futur	Visit Fruit and vegetable garden, interview owners (man and woman)
		Gos Khun	- Visit watershed plantation - Interview Rupani Foundation local staff and CDC Head
16 Jun	Sat	Kret	Visit watershed plantation, interview association members (men)
		Kizget	Visit irrigation canal, interview Head of CDC
17 Jun	Sun	Sarhad-e-Broghel	Visit watershed plantation
18 Jun	Mon	Abgarch	Visit road, interview Head of CDC, interview woman
		Pak	- Visit Fruit and vegetable garden, interview owners (man and female) - Visit Mobile ECD class, interview staff - Visit women's watershed plantation, interview association members (women)
			Travel to Ishkashim
19 Jun	Tue	Ishkashim	- Visit WFP food distribution - Interview Ishkashim District Government Head of Agriculture - Visit watershed plantation, interview caretaker - Interview Rupani Foundation staff - Collecting documentation and monitoring data
20 Jun	Wed	Ishkashim	Skype meeting with WFP
		Garm Chasma	Travel Ishkashim-Garm Chasma, crossing border
21 Jun	Thu	Dushanbe	Travel Garm Chasma-Dushanbe
22 Jun	Fri	Dushanbe	Report writing
23 Jun	Sat	Dushanbe	Departure

Documents:

1. Central Statistics Organization, Afghanistan. Estimated Population of Afghanistan 2018-19 (<http://cso.gov.af/en/page/demography-and-socile-statistics/demograph-statistics/3897111>)
2. Rupani Foundation. Website: <https://www.rupanifoundationusa.org/>
3. Rupani Foundation. Database on Green Badakhshan Initiative projects (Excel sheet), 2017
4. Rupani Foundation. Detailed list of FFA project 2018 and status (Excel sheet), 6 June 2018
5. Rupani Foundation. Green Badakhshan Initiative, project introduction and progress, 10 May 2017
6. Rupani Foundation. Presentation of Green Badakhshan and Agah Walidain ECD
7. Rupani Foundation. Success Story: Dreaming for a Greener Future, Remote Mountain Communities of Afghanistan Planted 4.9 Million Trees