



**Top left:** Contour trenches constructed in Sourakhak watershed for reducing flash flood risks. **Bottom left:** An improved irrigation intake for supplying continuous water to Bazar and Panje Mader CDCs. **Top right:** Cultivation of vegetables during the winter season by using low cost plastic tunnel technology. **Bottom right:** Knowledge sharing event at SDC (Kabul) for sharing IWM findings with relevant government authorities, including decision makers and inter-governmental organisations.

## IMPROVED WATERSHED MANAGEMENT (IWM)!

### Project findings and lessons learnt

“Watershed management has brought new hope to our lives. In the past rain for us meant disaster, but now it is a boon as there are no flash floods from the treated areas in Sourakhak watershed. Many affected families which had shifted to other areas have started returning to their homes. Our hard work has paid off.”

*Arbob Nazmuddin from Roye Sang Nehal Bagh*

“Due to our community bakery, bush collection from the mountains has reduced. Many boys are attending schools regularly due to time saved from shrub collection. Many women are free from the burden of baking bread. But due to the ban on extraction of coal from the local mines in Kilich CDC by local people, we face difficulty in getting coal which is essential for running the bakery.”

*Faiz Ahmad from Bagh Payeen Doro CDC*

“Increased vegetable consumption has reduced our food gap by about 1 month. We consumed about 84 kg vegetables and distributed 105 kg to our neighbours and relatives. We feel healthier as we eat more vegetables. I will always grow vegetables.”

*Kamila, a vegetable farmer from Banaq Bala CDC*

## THE CONTEXT

Afghanistan is situated in a naturally multi-hazard prone zone. Its people face floods, droughts, earthquakes and avalanches on a frequent basis. Climate change is predicted to exacerbate existing vulnerabilities to land degradation, floods and drought in Afghanistan.

In Kahmard, one the seven districts in Bamyan Province (Afghanistan), the frequency and intensity of flash floods have increased over the years due to natural and human-induced factors. Recurring flash floods not only pose severe threat to the lives and livelihoods of rural communities, but also cause widespread destruction of property with high recovery costs.

Since 2008, HELVETAS SWISS INTERCOOPERATION has explored sustainable ways to mitigate the risks of flash floods and drought through holistic disaster risk management approach and by empowering communities to play a pivotal role in disaster risk management (DRM). To work on disaster risk management is also a response to the objectives and priorities set by the Government of Islamic Republic of Afghanistan (GIROA).

## THE PROJECT

The IWM project was implemented in Kahmard district comprising 61 community development councils (CDCs) with a total population of approximately 55,000 as per National Solidarity Program (NSP) surveys.

Kahmard's rural population sustains on limited fertile irrigated land - an average of less than 0.5 ha/household. The upland areas are heavily used for grazing and fuel wood collection. Limited fertile land and severely degraded uplands eventually result in food insecurity and loss of income opportunities. A survey by HELVETAS SWISS INTERCOOPERATION in four representative CDCs showed that about 50% of the households in Kahmard feed themselves from their own production for only up to 3 months.

Flash floods, drought, illiteracy, unemployment and poverty are among the major problems of Kahmard's fast growing population. Addressing these challenges calls for an integrated approach, considering upstream-downstream linkages.

The project aimed to increase the livelihood security of selected communities of Kahmard district through flash flood and drought risk mitigation.

## APPROACH

The project targeted Community Development Councils (CDCs) suffering from flash flood and drought risks and enhanced capacities of local structures for sustainable outcomes. Options for restoring the upstream areas/watersheds and simultaneously developing the downstream/valley parts for maximum effectiveness were integrated.

The project worked with men and women in a culturally sound way and provided income opportunities to them through "cash for work" approach and alternative livelihood options. For the project's infrastructure and green sector activities, the communities contributed (minimum) 20% of the project cost. Partners adhered to the core principles of good governance. Transparency and accountability in regard to work and money was important for smooth implementation and peaceful social relations.



**Photo:** Hands-on training on bio-briquette technology - an alternative energy option.

## INTERVENTION AREAS AND PARTNERS

Community Development Councils (CDCs) were the project's main implementing partner. Totally, 39 CDCs participated in project activities; 13 CDCs were involved in upland watershed management activities.

The District Development Assembly (DDA) and the local government were also involved, particularly during the monitoring phases. Furthermore, the project works with the private sector for provision of good quality seeds and tools.

## OUTCOMES

- About 5000 families benefited from the project, directly and indirectly. There were no severe flash floods from two watersheds, namely Sourakhak and Baqa Kushta, out of the selected four watersheds because of soil and water conservation in about 50 sq. km. involving 13 CDCs and 2000+ families.
- Vegetation cover in Sourakhak and Baqa Kushta watersheds increased by about 70% compared to the degraded state. In 2012, about 8500 tree saplings were growing in the selected upland areas. There was increase in production of *Asofoetida*, which is a high value niche crop, and a resultant increase in income by about 50,000 AFN.
- About 600 ha irrigated land, 320 ha orchards, 10 irrigation canals, 342 houses, 2 schools, 2 mosques, 1 km main road, 8 km river banks and about 1 km irrigation canal were protected from flash flood hazards.
- Improved aqueducts and intakes provide uninterrupted supply of irrigation water to about 340 ha agriculture land; about 30-40% more crop harvest is expected due to improved irrigation systems and protection from flash floods.
- In many households, shrub consumption was reduced by 50-80% due to community bakeries. The bakeries also brought relief to women from daily burden of bread baking.
- Due to Passive Solar House technology, the consumption of coal during winter season was reduced by about 80%, resulting in significant cash saving.
- The frequency of vegetable consumption in beneficiary households increased from once per month to 5 times per month, which contributed to improved health but also reduced food gap. Furthermore, new varieties of vegetables started to be sold in the local market and vegetable seeds are imported by a few shopkeepers.
- "Cash for work" schemes provided employment opportunities to about 1500 families. Each family earned minimum 2500 AFN, and this income was used for food items, education or medical treatment, etc..
- Capacities of CDCs, DDA, CBDRM committees and watershed management committees were enhanced and they could perform their functions more effectively. Ten CBDRM committees and their sub-committees were trained and equipped.
- Due to knowledge exchange at district, provincial, national and international levels, community based watershed management approach for mitigating disaster risks and improving livelihoods has gained recognition. Validated soil and water conservation options were shared with Sustainable Land Management Institute in Bamyan for inclusion in their training courses.



## OPTIONS FOR WATERSHED MANAGEMENT (UPLANDS AND DOWNSTREAM)

**Options of (upland) watershed management:** For mitigating flash floods, the project promoted structural measures like contour trenches, terraces, loose stone check dams and soil bunds. For reducing water shortage problem, below- and above-ground water ponds were constructed, for example, “Kanda” which are carved out of rocks (limestone) and “Nawoors”, respectively.

The structural options were combined with vegetative measures comprising plantation of fruit and non-fruit trees, cultivation of improved forage species (e.g. Alfalfa, *Agropyron* and Sainfoin) and dryland cash crops like Hing (*Asafoetida*) and Black Cumin. The structural and vegetative measures were combined with management measures like area exclusion from grazing and shrub collection. For site upkeep and organization of watershed works, the communities appointed their watershed management committees and also guards.



Photo: Contour trenches



Photo: Level terraces



Photo: Check dams



Photo: Kanda



Photo: Alfalfa (a good forage crop) along soil bund



Photo: Agropyron (fodder crop) along bunds



Photo: Almond saplings raised from seeds



Photo: Increase shrub cover due to protection

**Options for complementing upland measures:** To reduce dependency on shrubs the project promoted three types of alternative energy options: (i) Community Bakeries which run with coal, (ii) Passive Solar House (PSH) using plastic technology, and (iii) Bio-briquettes which can be prepared from fallen dry leaves, coal dust, animal manure, etc.

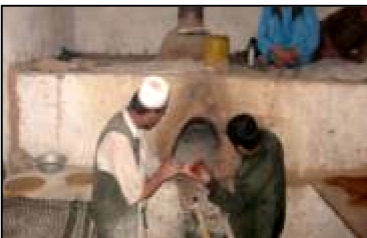


Photo: Coal-based Community Bakery

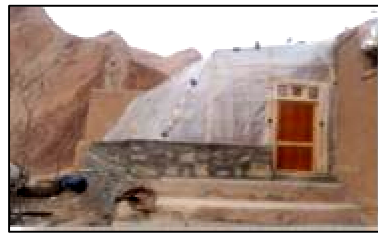


Photo: Passive solar technology

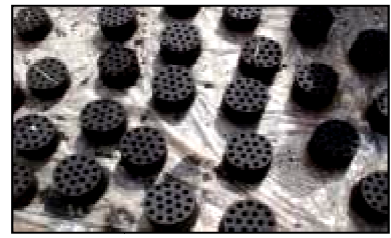


Photo: Bio-briquettes

**Protective and production infrastructure:** To protect people and assets from flash flood hazards, protection walls were constructed. Plantation of Salix, Poplar, Silver Nut, etc., cuttings along the banks of rivers and irrigation canals were established to control erosion and safeguard fertile lands.

Flash floods destroy intakes resulting in interrupted irrigation water supply, increased investments in repair works and reduced crop production. To address this, improved intakes and aqueducts were constructed and committees were formed by the local communities to operate and maintain the established structures.



Photo: Flood protection wall

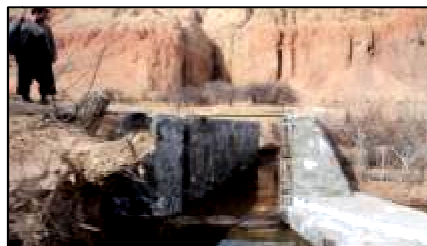


Photo: An improved intake

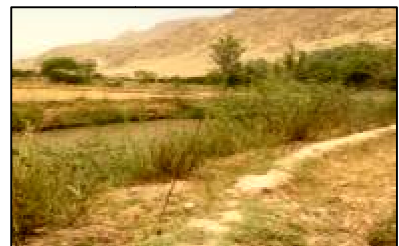


Photo: Plantation to stabilize river bank

## OPTIONS FOR ALTERNATIVE LIVELIHOODS

“Our rice consumption during the summer season was reduced by 140 kg. We used more vegetables (squash and okra) and also sold some earning about 1’600 AFN which was used for buying cooking oil, tea, sugar and soap”.

Sabarow, project beneficiary from Sadat Kilich CDC

“I sold 429 kg of tomato and got back some dry apricots, mulberry, wheat grain and also cash (5’000 AFN). With this money, I covered school expenses of my children”.

Rokshana from Payeen Bagh CDC

The project demonstrated options for increased food security and income generation. Women specific projects on home based and cash crop vegetable cultivation using improved seeds and cultural practices. For winter vegetable cultivation, “low cost” plastic tunnel technology were promoted. The project piloted drip irrigation and improved composting methods for promoting sustainable vegetable cultivation and the results were promising. The dry upland areas provide viable opportunity to cultivate perennial crops like *Asafoetida* or Hing and Black Cumin which have good market price, as well as some annual “oil” crops like Safflower for the dual purpose of generating extra income and conserving soil.



Photo: Home garden



Photo: Cash crop (tomato)



Photo: Dried tomato



Photo: Poly tunnel



Photo: Drip irrigation



Photo: Composting pit



Photo: Tree nursery



Photo: Safflower (oil crop)

## CHALLENGES

- The committees appointed by people for watershed management and disaster risk management could not be officially registered due to lack of governance and legal frameworks for community based natural resource management.
- Many community bakeries stopped operating due to lack of access to coal after an official ban on extraction of coal by the local people from the mines located in Kahmard and allocation of mining rights to MCC - a Chinese company.
- Complexity of land ownership and lack of cooperation among a few CDCs constrained the development of sound land and water use needed to stabilize upland Baqa Kushta watershed.

## QUICK FACTS

<b>Project start:</b>	01.12.2010
<b>Current phase:</b>	01.12.2010 to 31.12.2012
<b>Major Donor:</b>	Swiss Agency for Development and Cooperation (SDC)
<b>Contact:</b>	<a href="mailto:afghanistan@helvetas.org">afghanistan@helvetas.org</a>

## LESSONS LEARNT

- Participation-based integrated watershed management is crucial for mitigating flash flood and drought risks and improving livelihoods.
- Watershed development projects should be planned for minimum 5 years to build sufficient social, human and natural capital.
- Watershed development should be backed up by enabling policies and harmonised with national programs.
- While planning watershed management, particularly critical upland areas, land ownership and user rights must be clarified.
- Capacity building of project beneficiaries, partners and staff is crucial for sustainable outcomes.
- Active knowledge exchange on watershed management approaches and practices at district, provincial and national levels is crucial for value addition and decision making.
- For effective policy dialogue, donors (e.g. SDC) should be involved. The discussions should be followed up to impact positively on challenges identified.