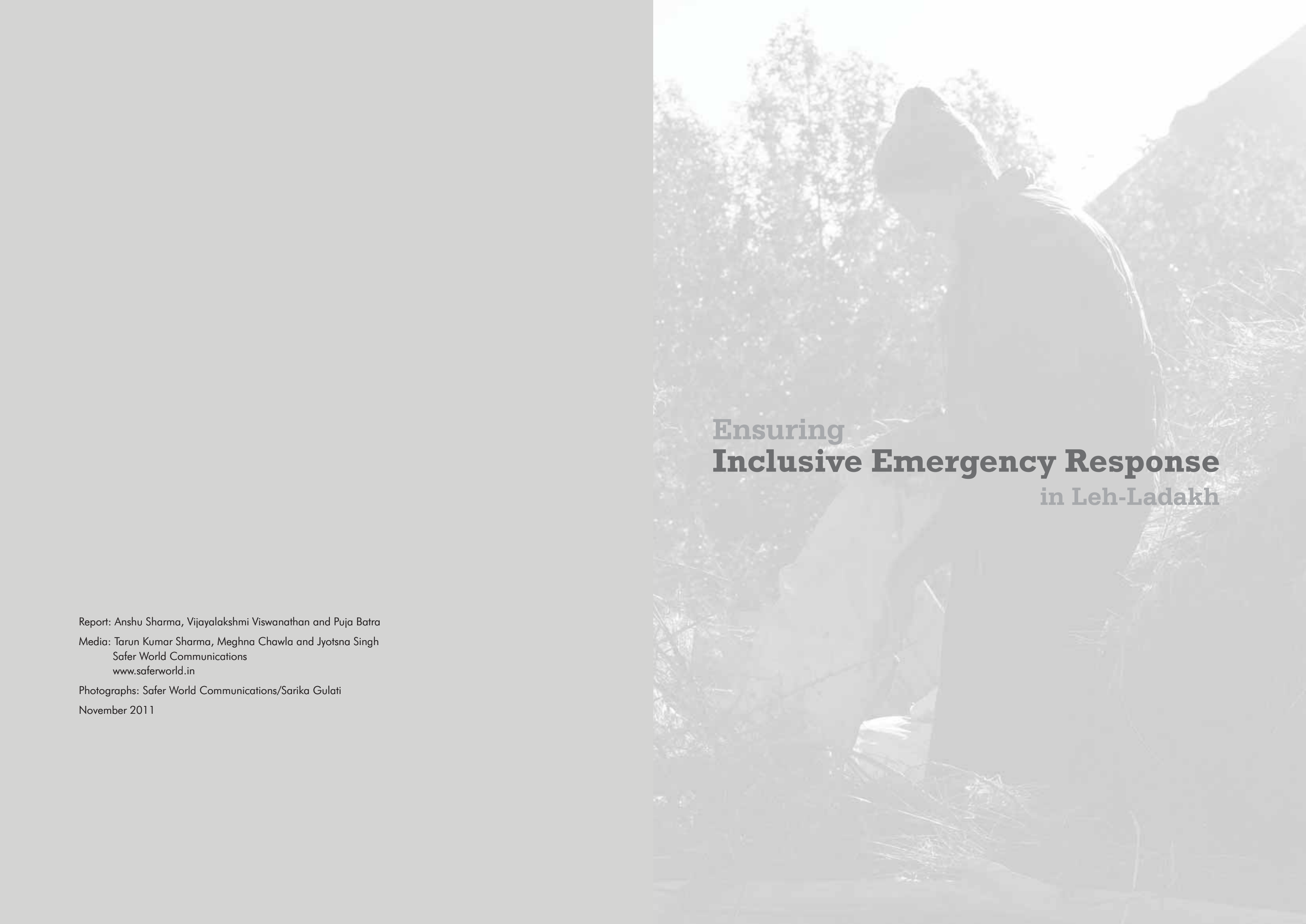


Ensuring

Inclusive Emergency Response

in Leh-Ladakh





Ensuring **Inclusive Emergency Response** in Leh-Ladakh

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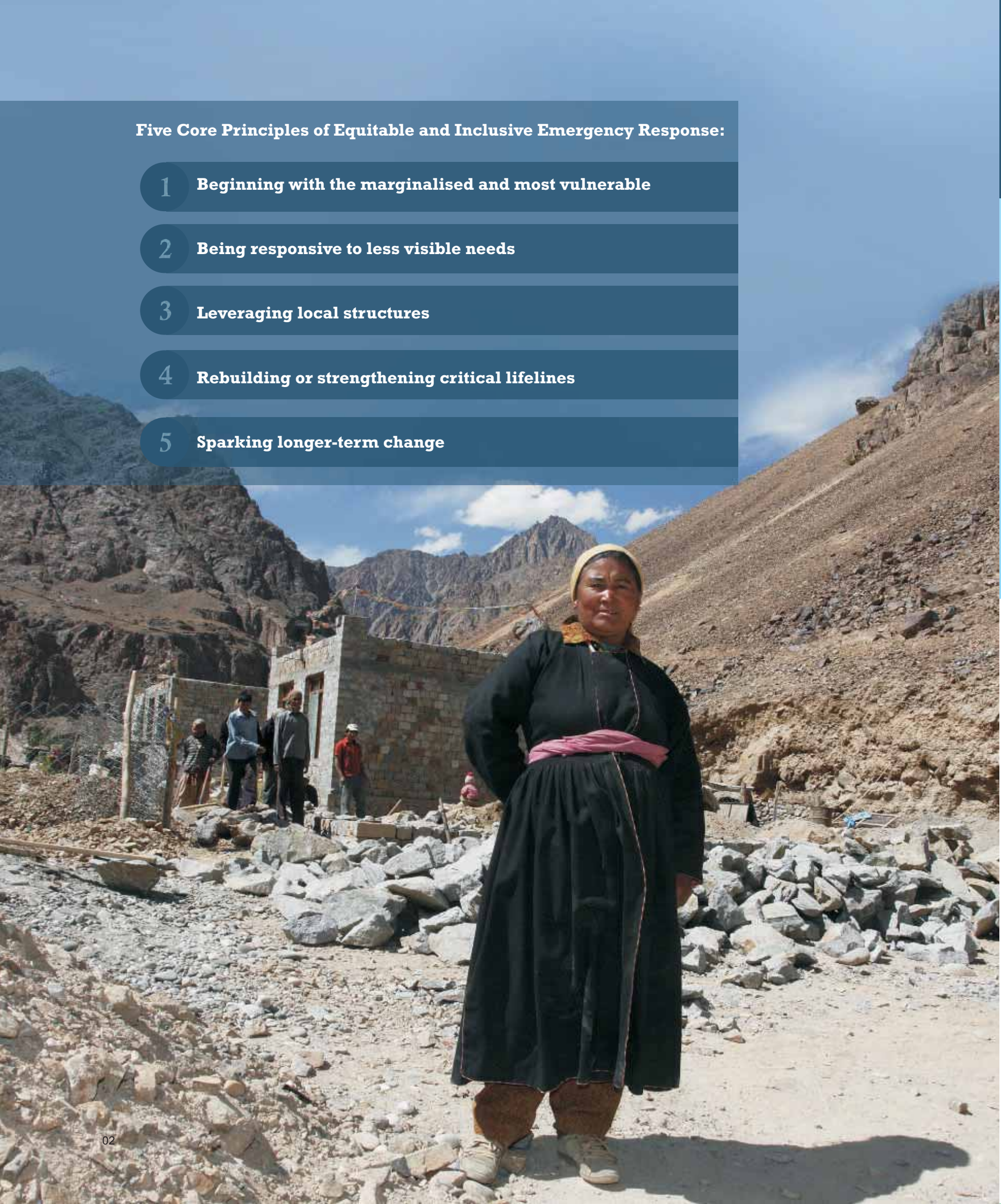


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Five Core Principles of Equitable and Inclusive Emergency Response:

- 1 **Beginning with the marginalised and most vulnerable**
- 2 **Being responsive to less visible needs**
- 3 **Leveraging local structures**
- 4 **Rebuilding or strengthening critical lifelines**
- 5 **Sparking longer-term change**



Reaching Out Equitably

Responding Rapidly for Relief

“When flash floods hit Leh-Ladakh in August 2010, the area was devastated on an unprecedented scale. In fact, practically no one here has a living memory, or has even heard a tale handed down from older generations, about a disaster like this one. The cloudburst triggered raging floods and landslides, washing away hundreds of homes. The district hospital was submerged and the radio station damaged. Electricity cables and telecommunication systems were badly affected.

We at CASA responded immediately to provide life-sustaining assistance to the most vulnerable.

Family relief kits were distributed to 500 affected families across Leh and Kargil districts. Each kit consisted of a pressure cooker, five woollen blankets, kitchen utensils (14 pieces), a solar lantern with mobile chargers and hygiene kits.

While we were doing these damage and needs assessments, another critical need of the families emerged: Ensuring a roof over the heads of these families before winter set in.

Francis Joseph, Project Manager, CASA



Principles of equitable and inclusive recovery

In any emergency scenario, ensuring social inclusion and resource equity during the recovery process is a vital cross-cutting issue. This includes five core principles: Beginning with the marginalised and most vulnerable; being responsive to less visible needs; leveraging local structures; rebuilding or strengthening critical lifelines; and sparking longer-term change.

Over the years, this phenomenon has been tangibly incorporated into various international standards, including the benchmarks of the Human Accountability Partnership and the Core Standards of Sphere.

The agency shall enable beneficiaries and their representatives to participate in programme decisions and seek their informed consent.

Benchmark 3 of HAP

People's capacity and strategies to survive with dignity are integral to the design and approach of humanitarian response.

Core Standard 1: People-centred humanitarian response

The priority needs of the disaster-affected population are identified through a systematic assessment of the context, risks to life with dignity and the capacity of the affected people and relevant authorities to respond.

Core Standard 3: Assessment

Across the relief, shelter and irrigation canal phases, CASA's intervention in Leh-Ladakh has been centred around these principles.

Beneficiary criteria for reconstruction support included:

- 1 Economically backward families
- 2 Families with no means to rent accommodation
- 3 Women-headed households
- 4 Families of the infirm and differently-abled



Building Appropriate Shelters

ACCOMMODATING ACHINATHANG: Treating a home as more than a shelter

Though the district administration had prioritised shelter, the progress on actual reconstruction was slow. Most of relief and housing measures were focused on Choglamsar on the periphery of Leh. However, the progress in villages, which were equally damaged, was very poor with an unclear government strategy. CASA therefore decided to focus on families living in Achinathang village's stream valley, where 11 houses had been completely washed away.

Achinathang sits above the banks of the Singge Khabab, also known as the great Indus River, at an elevation of just 9000 ft above sea level. Significantly lower than Leh, the additional warmth and slightly longer growing season adds a second cropping cycle and a greater variety of crops to the summer for the communities of Achinathang.

The loss of houses was therefore worsened by the loss of livelihood. This was reinforced when the government deemed the previous homesteads here in the valley as unsafe, and too vulnerable to be resurrected. While still allowed to farm in the valley, they would face fines if they try to rebuild any housing there.

What's in a name?

The importance of the family house in Ladakhi culture can be seen in their tradition of naming the house itself. It is something akin to a family surname (which people here otherwise do not have), identifying and grounding each member of the family within their specific place in the village. The name sometimes also reflecting a specific role or duty that members of the family perform in the traditional social structure.

A MIX OF VOICES IN DECISION MAKING: True transparent consultation, not just consent

“ After a general survey of damages, our first act was to form a committee in the village. The committee had 4 community members including the Goba (village leader), one representative from CASA and one from us – the local partner Ladakh Environment Health Organisation (LEHO). We were responsible for overseeing all decisions made, the first of which was beneficiary selection. There were a total of 11 houses which were completely lost, but limited funds required us select among these. After extensive consultations we decided that those who lost not only their house, but also their farm and pasture lands should be given priority. Reconstruction support was extended to six households, centring on economically backward families, families with no means to rent accommodation, female headed households and families of the infirm and differently-abled.

Field practitioner, LEHO”

People –based accountability

“ While beneficiary selection is often the most difficult decision and has potential to create conflict among community members, the committee approach and presence of the Goba, i.e., a respected community authority figure, as well as outsiders (NGO representatives) enabled a transparent process.

Rekha Shenoy, Emergency Coordinator”

CORE SHELTERS WITH A TWIST: Integrating traditional and sustainable design...

The core shelters consist of a single room, built with a fusion of traditional Ladakhi and modern architectural elements. They are built with local stone hewn from the hills in the area. Unlike the more familiar mud blocks seen in other parts of Ladakh, stone is the tradition here.

The shelters, as with traditional architecture, were built with Ladakh's harsh winter climates in mind and have south-facing windows. Some features of passive solar heating, such as double-paned glass, were added to retain heat on the south facing window. In addition to several layers of ceiling insulation as is the local custom, these shelters have additional elements for thermal comfort. The floors also have one foot of insulation beneath and one wall in each house is insulated with sawdust. The shelters even passed a temperature test conducted during the bitter cold months of January and February – water left in a container inside did not freeze overnight.

With modern safety standards

CASA has also incorporated elements of earthquake resistance which are typically not included in the vernacular design. This includes features such as iron rod corner reinforcements and a 6-foot deep stone foundation. These

features will also provide stability in the face of future floods, the one last year having caused structural and foundation damage to many of the houses that were left standing.

The advocacy that accompanied this construction has begun to encourage these families to think about safety elements of their houses. Two families are adopting deep foundations and steel rods in their extensions. In at least one kitchen extension, however, the new foundation used the more familiar mud foundation. Though impressed with the performance of the double glass, cost implications meant that this feature would probably not be replicated in the expansion

Changing shelter location, changing lives

Acknowledging their enormous livelihood losses, CASA also advocated for a new location which many might find more ideal. It sits along the tar road running from the block headquarters town of Khaltse all the way to the Pakistan border, well maintained for ease of passage by the army. It is the only paved road, in fact, that connects villages along this valley, and thus the idea had been posed to the six households that they start some kind of small business here. In fact some have expressed a plan to do just that, with one beneficiary planning to open a timber shop. Demand, he feels, will be high enough for him to earn a living.

The committee stayed engaged through the entire process including contractor selection, procurement of materials and ensuring the completion of the work. A local contractor from Achinathang himself, the contractor selected was known to the village and was able to easily engage the community in the rebuilding process.

The new shelters were built on the main road using 50 x 50 m2 plots of land, lined up in an orderly fashion just across from the Indian Army compound. Though there were some objections from the army at first, the relationship now seems smooth, with the army helping to provision water.



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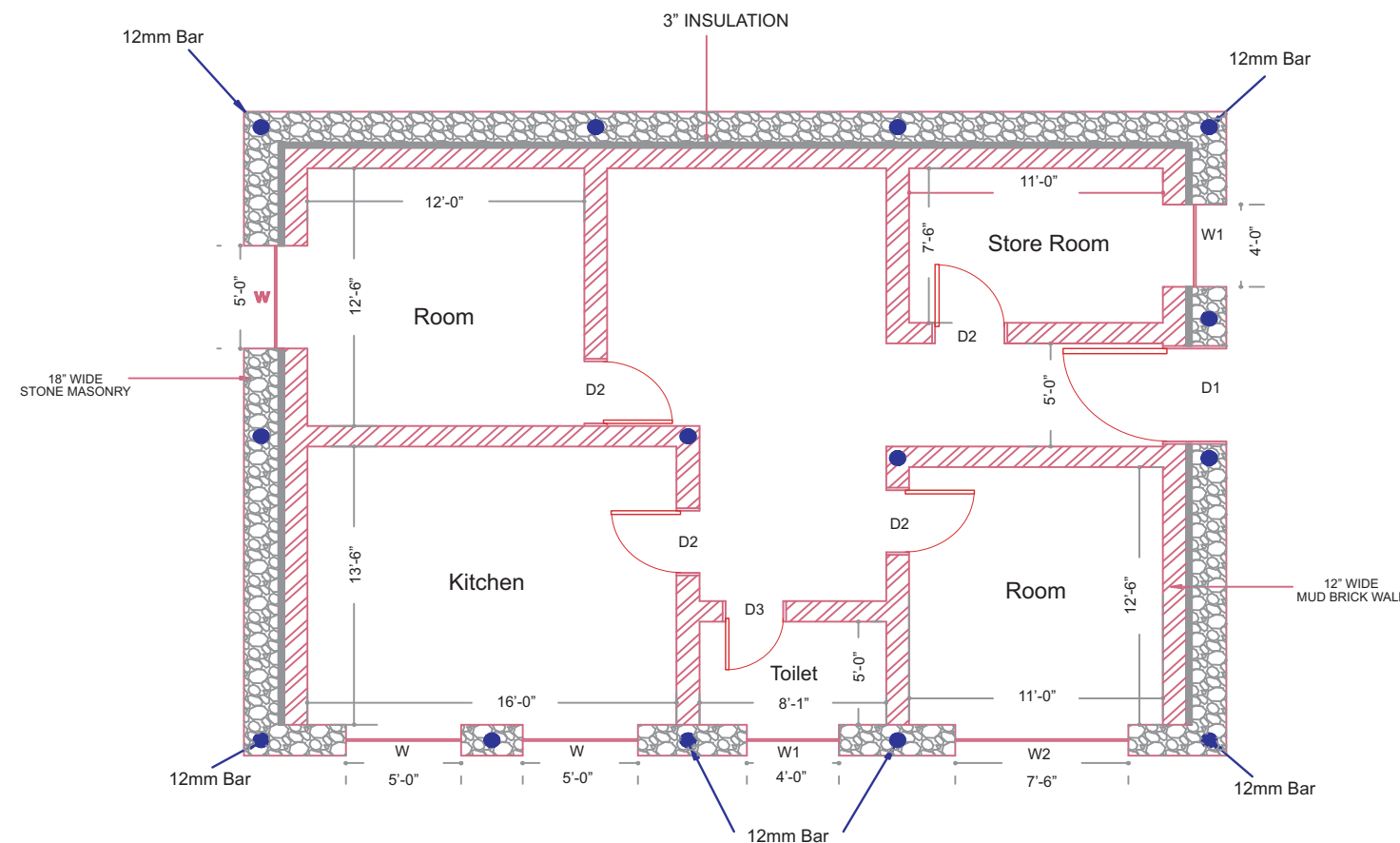
The Technical House Design

Mostly two-storied, houses in Ladakh have always been quite large. Of all the sets of rooms, a large one called the 'Chansa' is the most important. Highly decorated with all kitchen wares on display; it serves as a kitchen, dining and drawing room.

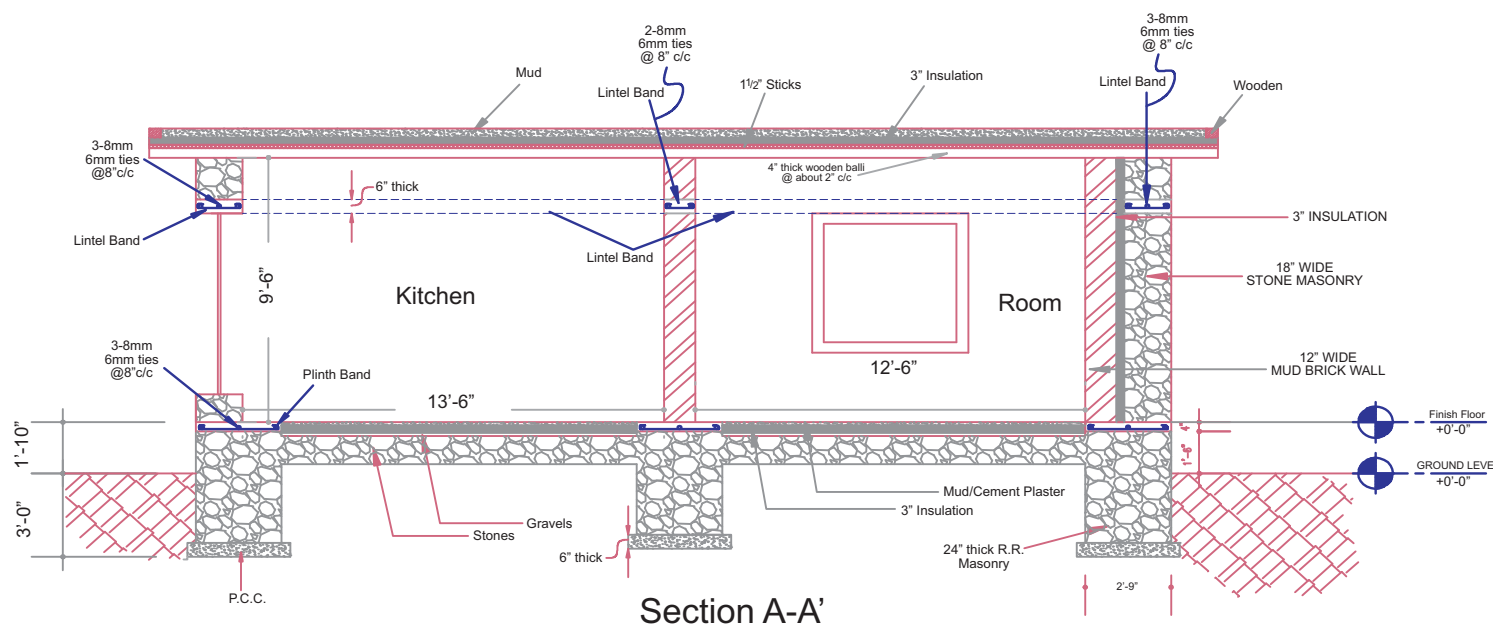
The characteristics of traditional Ladakhi houses are closely linked to environmental constraints. They are built with dried mud brick or stone. A flat roof made of poplar wood beams is crossed with willow branches to fill the gaps. This is then layered by grass and mud.

The house plan was created in consultation with the local people; taking into account their needs and retaining essential components of their traditional houses. However, additional engineering inputs have been incorporated to enhance disaster-resistance.

- Use of Passive Solar Technology.
 - Large double glass windows on south-facing walls
 - Additional mud brick wall alongside stone masonry wall with a 3" gap to be filled with insulation
 - Insulation layer under the floor and on below the mud layer on the roof.
- Use of disaster-resistant measures as per the I.S. Code
- Carefully designed foundation with the necessary depth and width given to the R.R. masonry load bearing wall
- A 4" thick band specified at plinth level all around the wall.
- Superstructure created from R.R. Masonry. 12 mm Tors steel was vertically embedded at all corners and 'T' junctions. This is anchored in the plinth band at the bottom and lintel band at the top.
- The lintel band was also laid all around the wall with necessary reinforcement as specified on the plan.
- Use of traditional roof features using poplar beams, willow branches and mud.
- Mud-plastered interior walls and floor



House Design for Leh Ladakh



Section A-A'



Reviving Essential Water Lifelines for All

Understanding water needs

“Initially, CASA had planned to continue shelter reconstruction in its second phase of recovery. However, several meetings with stakeholders across Ladakh – with local partners and communities alike – drew the conclusion that water scarcity was another primary area of concern; one that few were focused on. The Government was busy clearing the land. But once the land is clear, what's the next step? Without water, the people cannot do anything. The second phase of CASA's intervention in Ladakh thus focussed on restoring 7 canals across 4 villages in Ladakh.”

Francis Joseph, Project Manager, CASA

THE 'KHUL' SYSTEM IN LADAKH:

A delicate balance dependent on sustainable glacial melts

In the high altitude desert of Ladakh, there is normally very little rainfall, with levels of precipitation that are inadequate for crop cultivation. Yet, an estimated 85% of rural Ladhaki livelihood is dependent on agriculture. This means that snowfall matters enormously to the year's water supply, not for groundwater recharge or soil saturation, but to build up the glacier. It is this that then begins to melt into streams as the spring and summer progress.

In this finely tuned system, a large number of high temperature days early on may cause the melt to happen too rapidly, flooding the water channels and sometimes the fields. This leaves little water for later in the season. Too little snow means less new ice to melt, eventually resulting in a slow and unidirectional shrinking of the glacier.

Those streams irrigate the crops during the short and crucial 4-5 month long growing season. This brief period alone must provide people with enough agricultural produce to consume, put away for the winter and sell. Barley, buckwheat, vegetables and fruits such as apricots, pears and apples are the most common.

Traditionally, these crops are watered by using a system of canals called 'khuls'. Water is tapped far upstream in stone dams to raise its level and then diverted through sluice gates. A network of smaller canals is then set up for equitable distribution to all fields in the vicinity. The number of khuls in a village can vary dramatically depending upon the topography and extent of cultivatable land.

The flash floods in Leh brought down massive quantities of rubble. In certain areas, the height of the stream bed was raised by as much as 20 feet. In fact, the head works of the canal system, as well as all khuls running adjacent to the stream were completely destroyed. The cultivation of crops and assurance of food security was dependent on the restoration of these canals.

The second phase of CASA's intervention in Ladakh thus focussed on restoring 7 canals across 4 villages in Ladakh.

What's is a KHUL?

A khul is a system of canals. Water is tapped far upstream in stone dams to raise its level and then diverted through sluice gates.

The flash floods in Leh brought down massive quantities of rubble. In certain areas, the height of the stream bed was raised by as much as 20 feet.

A COMMUNITY-LED APPROACH: From construction to planning and managing funds

In each village, the process began by appointing a committee made up of the village leader (Goba), 3 other community members, one representative from our organisation Rural Development and You (RDY) and one CASA representative. From funds management, procurement and contractor selection to progress monitoring and community relations, the committee's role was to oversee the process from start to finish. Several community-wide meetings were held that gave the villagers a chance to understand the project and raise questions. Since the placement and design of the canal system is an age old practice which went on long before modern engineering or instruments were available in these parts; this process also gave us a chance to gain inputs on the local materials and design traditionally used.

Each canal project was given to a different contractor to ensure timely delivery, while technical personnel were brought in from Delhi to advise on design and safety aspects. Transparency was maintained at each step, with display boards at every site that cited project information and financial details.

Though the project was given a three-month timeline, it was completed even earlier and within budget, thanks to the ownership taken by the local community.

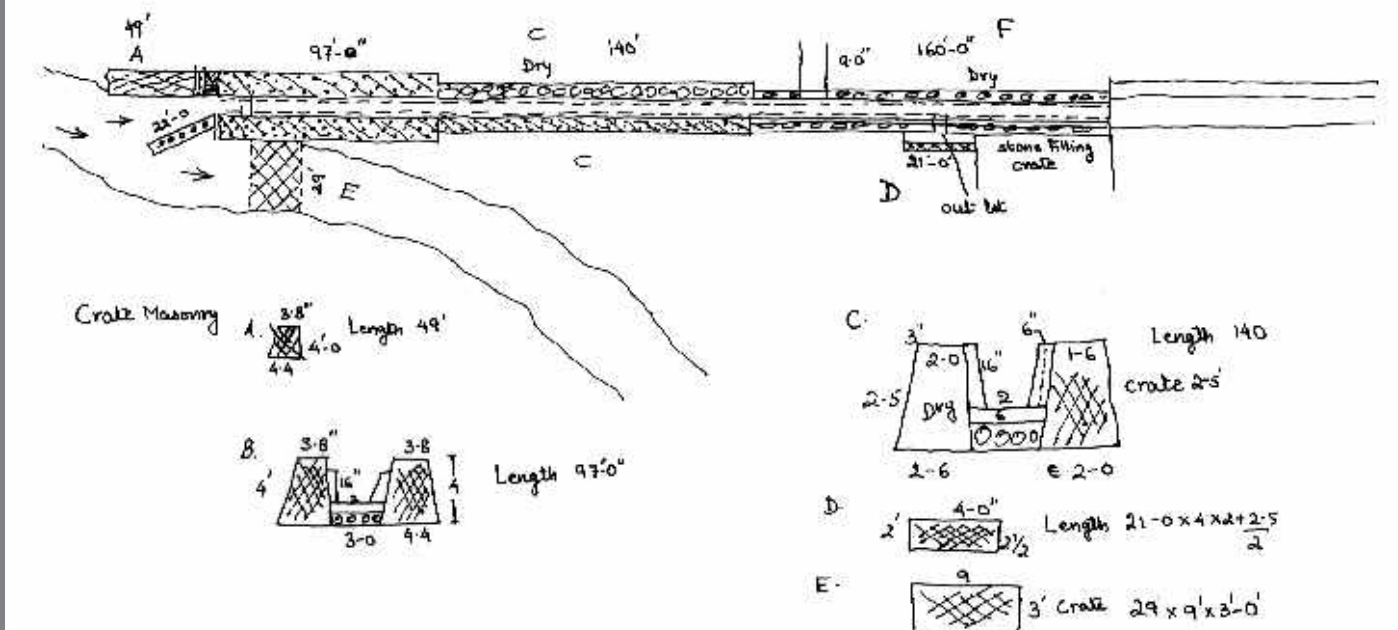
People are now saying this is a model project and appealing to the government that they need this type of canal.



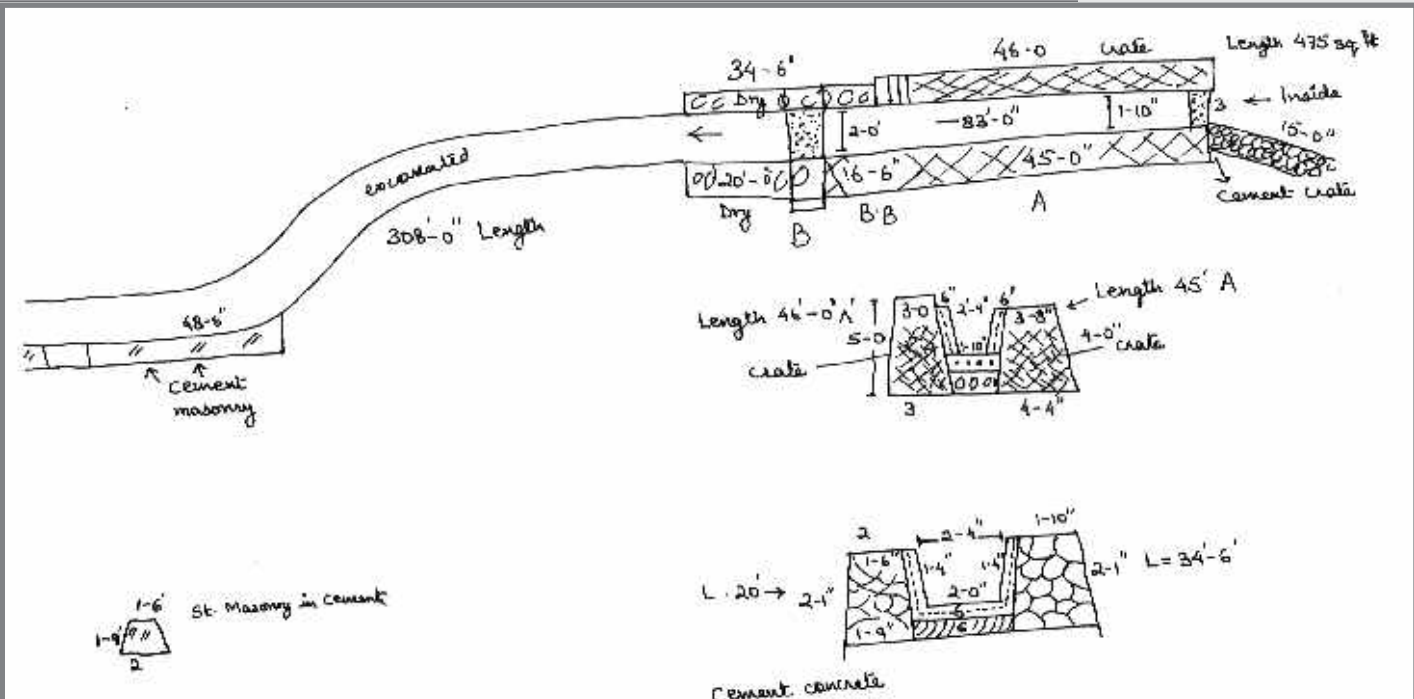
"People are now saying this is a model project and appealing to the government that they need this type of canal."

Padma Tashi, RDY

Rough site Plan for Restoration Irrigation Khul at Yourm



On Khul Lutu Gangless Leh under CASA/RDY, year 2011-12



Though the project was given a three-month timeline, it was completed even earlier and within budget, thanks to the ownership taken by the local community.

Blending tradition with strength and longevity

Unfortunately, the streams from which the canals were diverted suffered heavy bank erosion, so the canals could not easily be repaired in situ. The contractors all had to embark on the process of building crates. These are essentially heavy stone embankments wrapped in metal chain link to build up the banks that had been washed away. These long protection walls cost up to 1/4th of the budget, but were critical in adding to the safety of the canal. On top of that, the cement canals were laid in such a fashion that their height would enable water to reach all points in the farmlands. Some of the crates also now protect farms that are along these newly carved stream banks, thus adding flood protection to particularly vulnerable spots.

Traditionally, these canals were built only of stone, but CASA's design incorporated cement in both the deep foundations and the side walls for greater strength and durability. Even the wire mesh used was of the finest quality - 8 gage and 4x4 inch mesh.

REBUILDING LIVELIHOOD POTENTIAL IN PHYANG:

**One canal, 110 families
and 2000 acres**

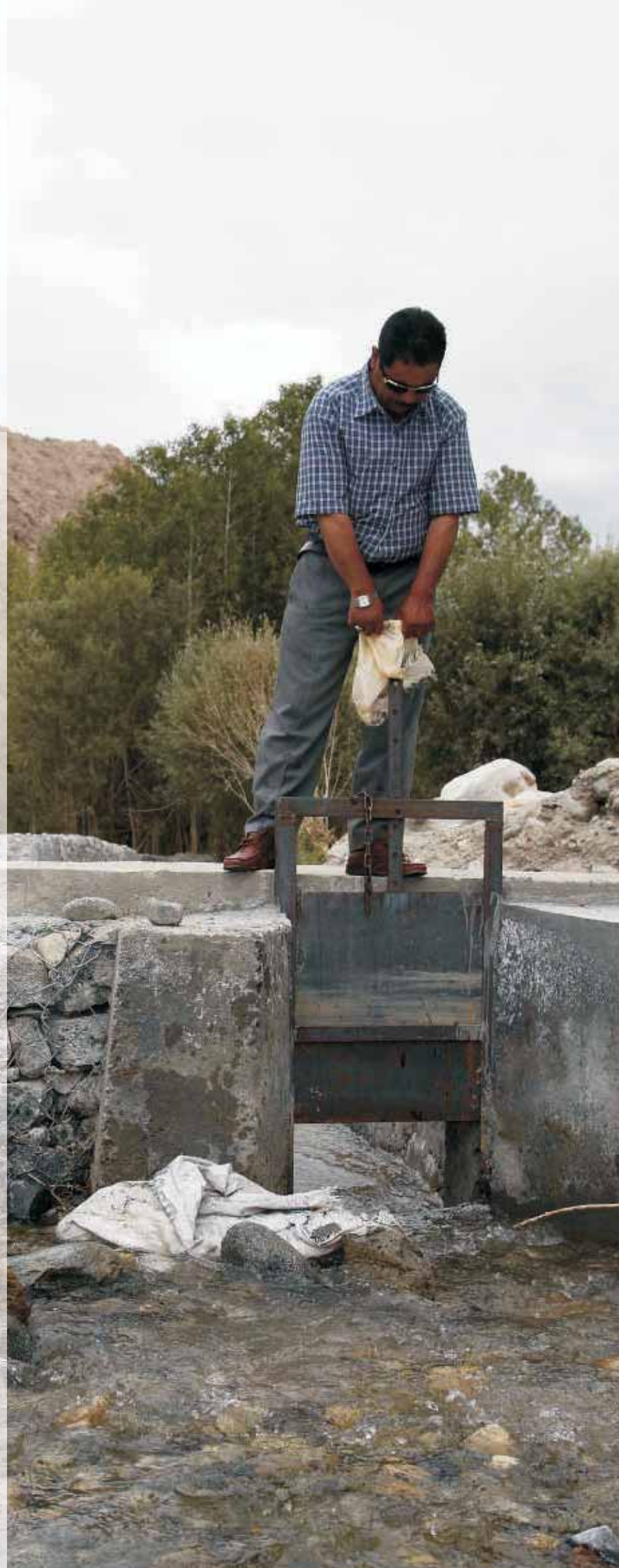
Ours is a village located just below some glaciers, so our irrigation canals have always been vulnerable to repeated floods. Most of the 450 families in our village are also completely dependent on agriculture. When all 42 of our canals were destroyed in the 2010 flash floods, there was a critical need to rebuild with speed and strength.

With CASA and Relief Development and You's (RDY) help, we restored a main irrigation canal here. We used a stone and concrete model, but added an extra layer of protection. An underground side wall measuring 15 foot length, 4 foot width and 5 foot deep was built just before the sluice gate to protect the actual gates itself.

The simple gate contraction means that our traditional water sharing method can still be followed. When the shadow of the mountain hits the designated stone in the village, the canal closes. When the birds start chirping, it opens again.

The canal has brought relief to about 110 families who use this water for both household and irrigation purposes and will have a long-term impact on livelihood security. Cost benefit analysis has revealed that 250 *kanals* of land will be irrigated by this canal alone, with the total profit per *kanal* per year estimated at Rs.20,000. A *kanal* is a traditional Ladakhi land measurement unit which is equal to 8 acres.

Stanzin Dorje, Goba of Phyang



“The new irrigation canals have made life much easier and people even say they are safer. Since we can still use out traditional water management techniques as well, 90 families downstream from this point - even the poorer ones - have benefitted.”

Sonam Richin, Phyang resident



AND IN TEMISGAM: Three canals, 220 families

“ In Temisgam, water has always been so plentiful that traditional rotation systems were seldom needed and conflicts over water access were few. The floods, however, transformed our meandering and green stream valley into a wide and rugged channel, devoid of any vegetation. Our original canals were been left shattered under 30-50 feet of silt.

With CASA's help, three canals have been built here. Collectively, they cover over 1000 feet, irrigating 400 acres and benefitting 220 families. The innovative committee-managed process was done so well that villagers feel actually feel like this is their project. It has ensured transparency throughout, reduced the amount of conflict and taken care of future management.

From now onwards, these canals will be maintained as they always have been. Before sowing season, the users of a particular canal agree on a date to collectively do routine maintenance, cleaning and small repairs. In other words, everyone shows up and does their part!”

Tashi Dorje, Goba of Temisgam



“The villagers feel that this is their project. The innovative committee-managed process was done so well.

It has ensured transparency throughout, reduced the amount of conflict and taken care of future management.”

Tashi Dorje, Goba of Temisgam

Future Challenges and Possibilities

Where's the water?

The future of water in Ladakh is a grave uncertainty. Widespread reports from local farmers indicate that streams that once flowed till the end of summer now often dry up midway by June. The unprecedented fury of the 2010 cloudburst and the creeping stress of water shortages in the summers are indicators of the difficult times to come. The Phyang Community Canal, as well as innovative works by local groups such as the creation of artificial glaciers, are steps in the right direction. However, even these may not be adequate for local communities to cope with the scale of the water uncertainty threat. A lot more needs to be done.

Advocacy: A crucial step for long-term sustainability

Unfortunately, the streams from which the canals were diverted suffered heavy bank erosion, so the canals could not easily be repaired in situ. The contractors all had to embark on the process of building crates. These are essentially heavy stone embankments wrapped in metal chain link to build up the banks that had been washed away. These long protection walls cost up to 1/4th of the budget, but were critical in adding to the safety of the canal. On top of that, the cement canals were laid in such a fashion that their height would enable water to reach all points in the farmlands. Some of the crates also now protect farms that are along these newly carved stream banks, thus adding flood protection to particularly vulnerable spots.

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Learning from the ground up

It is time to turn the filter up. Learning now needs to move from community action to policy, from people to decision makers, from field practitioners to academics. Developmental work has depended for too long on knowledge that is handed down to communities, thus leading to an erosion of indigenous knowledge and local wisdom. These valuable community assets need to be recognised and learning campuses need to go beyond universities into the field. This can be a very positive and collaborative process that brings together various actors from the learning, action and governance domain. In the end, this can lead to a strong two-way knowledge flow between practice and academia, between the south and the north and even between the south and south itself.

The canals bring together modern structural safety features and traditional water management principles.







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