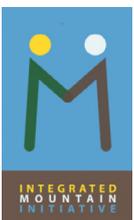
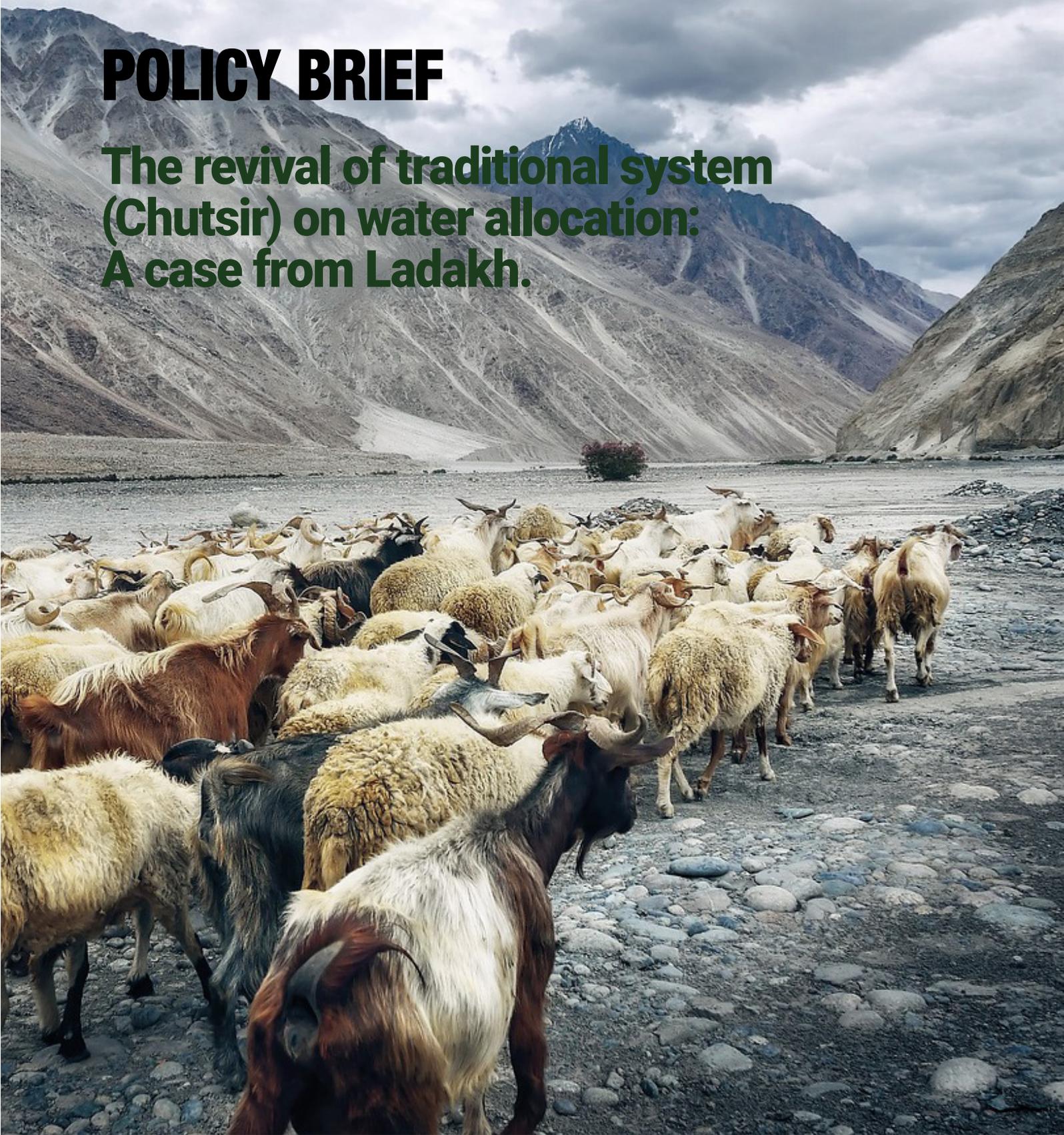


# POLICY BRIEF

The revival of traditional system  
(Chutsir) on water allocation:  
A case from Ladakh.



Ministry of Environment,  
Forest and Climate Change  
Government of India



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## Background

Ladakh region is a mountainous cold desert region, where irrigation is dependent on glacial melts and snow. More than 90% of villages are dependent on glacial melt for irrigation. Irrigation technology came to Ladakh from its neighbouring regions. Farmers have made use of the barren semi-desert conditions for cultivation through skillful irrigation. This traditional irrigation system followed by the farmers was introduced in the tenth century. Since the streams run away from cultivable land or are incised deep below to bring a long canal, it requires considerable traditional expertise.

The melted snow water from various rivulets merge at some point forming a stream, that flows through a valley touching many villages connected by a main channel. It is built along a mountainside that forms its retaining wall, and is lined with clay to hold the water. At some places rocks are broken to allow the passage of water or else where the rocks are too hard, a hollow poplar or willow trunk is cut into two equal halves to allow the water easy passage. Water from the main channel is further diverted into small canals, which irrigates the fields. The water distribution through a system of channels is quite complex with different sizes of channels. The bed of the canals is also often made of very porous material, loose stones and boulders, so there is considerable loss through seepage.

Chutsir is a traditional water distribution system in a particular order. It helps to manage and distribute water resources. The system is prevalent in many villages of Ladakh where agriculture is the primary source of livelihood. However, changes in livelihood practices have led to rural-urban migration and eroded traditional community-based systems. At the same time, villages are facing shortage of water due to receding glaciers just as traditional water management systems are being lost in these villages. Ladakh 2025 Vision Document too mentions about the current depletion of water resources, caused by decreased snow cover, glacial area and precipitation which is further intensified by inadequate conservation effort. Strengthening of the community ownership and participation through incentives along with policy intervention from local self government institutions such as LAHDC and Panchayats is urgently needed. This will require changes in manpower management, technology and implementing and encouraging innovative methods of conservation and harvesting of resources. This will help deal with issues of water scarcity caused by changes in the local climactic pattern.

## Case Study and Approach

Changes in local climactic pattern in terms of rainfall, snowfall and temperature, has resulted in receding glaciers and water scarcity in the region. This research was conducted in two villages of Leh district: Saboo and Leh. The water distribution system 'Chhu tsir' in Saboo is 'without parallel' as per the Churpons (traditional head of water distribution system) of the village. While, Leh, earlier a hamlet, and now an urban hub, dotted with guesthouses and hotels, the Churpon system is no longer practiced though there are plans to revive it. It has been observed that due to water shortage, many springs in Leh as well as adjoining villages have dried up and lands are left uncultivated where villages are located at a distance from water sources and are dependent on spring water discharge such as Skara Yokma in Leh. Furthermore, migration, tourism and use of western toilets, has intensified the extraction of ground water in and around the town.

## Findings

Traditional crop cultivation has reduced in both Saboo and Leh. According to informants in Saboo, it would take 10 to 12 days for a family to complete sowing, which is now completed in 5 days. Also, the current land utilization pattern data shows increase in land left fallow. In 2015-16, the area of land left uncultivated was 439 hectares as compared to 2003-2004 when it was 190 hectares and 495 hectares in 2011-12 when Ladakh was recovering from the 2010 floods. People cited shortage of water, family labour, less income from traditional crops as reason for the declining cultivation.

Through discussion with local community especially in Leh where the Churpon system no longer exists, it emerged that incentives will help revive the Chhu-tsir system from the brink of collapse. The Goba of Leh mentioned that since most families' members have government and private jobs, no one is interested in the responsibility of being a Churpon. There is a post called Mirab (water lord) in Rural Department, however, it is not clear if this post has been created in all villages. Currently there are only eleven positions and all of them are engaged in Class 4 jobs. If they were meant to serve as Churpon, then the number of posts must match the number of villages. Another important point that emerged during interviews was that there is an ab-

sence of conservation efforts by local government bodies and by villagers. There is no arrangement to store water in dZings from streams that otherwise go waste. Most of the dZings have been damaged by floods and no funds have been sanctioned to restore them.

Also, there is a need to explore new adaptation methods. For instance, In Ladakh, when the agriculture season ends, glacial melt water is not used. In Nang Phu, embankments have been constructed by NGOs with participation from community members to conserve water that would otherwise go waste. Such conservation methods can reduce the impact of climate change. However, without community participation, the sustainability of such measures is questionable. In Leh, most of the dZings lay damaged after the 2010 floods.

Various researchers and experts provided insights to the water shortage in Ladakh, especially Leh. For instance, a junior scientist at SKUAST Leh cited conjunctive use of water as an important strategy to mitigate the problem of water scarcity.

## Recommendations

- Provision of incentives to Churpons will revive Chhu-tsir. There should be involvement from locals in the construction, maintenance and repair of khuls, water channels, streams, and dZings which was an obligation in the past.
- Policy has to be area-specific and village-specific. This will ensure accountability and sustainability.
- Lifting water from the Indus for irrigation and the use of renewable energy will reduce water stress in the district.
- Since dZings help ground water recharging, more dZings should be built to store water.
- Building artificial glaciers and Ice stupa will not only reduce shortage of water during sowing season, but also recharge natural springs.
- Cropping of plants that consumes less water will reduce water shortage. In addition, awareness and capacity-building for water conservation is needed.



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