



# INSIDE STORIES

## on climate compatible development

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### Key messages

- Climate change has caused drastic changes in the nature, frequency and scale of disasters in India, and communities in the country's most arid parts are experiencing its worst impacts.
- Rapid and poorly planned urbanisation has increased the risk of flash floods in some areas, while others suffer the effects of less dramatic 'invisible disasters', which go unreported.
- Disaster and climate change policies are inefficient or ineffective on the ground due to a lack of coordination among different ministries and departments.
- Past experience in arid zones in India has shown that local knowledge and innovation can help provide effective risk reduction approaches to both disasters and long-term climate change impacts.
- Local multi-stakeholder platforms have a crucial role in promoting convergence between disaster and climate change policies. But to be truly effective, they need to develop mechanisms for sustained action.
- Special planning and response mechanisms need to be developed at the national level to meet the increasingly unprecedented nature of climate change-induced disasters in India.

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## Local approaches to harmonising climate adaptation and disaster risk reduction policies: Lessons from India

**In the face of increasing climate-related disasters, calls for effective climate change adaptation policies are growing worldwide. Yet such policies often fail to gain priority status both nationally and locally. And while the most severe impacts of climate change are being felt through major disasters, less dramatic events go unnoticed. These 'invisible disasters' can wreak havoc on local livelihoods. In the highly disaster-prone arid zones of Barmer (western Rajasthan) and Leh (Jammu and Kashmir) in India, climate change is exacerbating local vulnerability to disasters – both large and small. Although framed by common development policies in India, climate change and disaster risk reduction (DRR) policies diverge from each other at the operational level, with little coordination among ministries and departments. SEEDS India, with the support of CDKN, conducted action research in Leh and Barmer to determine how best to overcome the challenges of integrating effective DRR and climate adaptation into development planning. This brief describes the team's research and observations, with suggestions for how other communities can address similar challenges by using windows of opportunity in post-disaster situations.**

In some of the most arid parts of India, isolated communities that depend directly on their immediate environment for food and livelihoods are experiencing the worst impacts of climate change. Farmers are observing long-term changes in their local climate patterns, winter and summer weather has become more erratic, and extreme events such as flash floods and droughts are more frequent and intense. Although local communities are well aware of these

changes, they see them as either aberrations or consequences of land use changes and environmental degradation.

In both Barmer and Leh, rapid and poorly planned urbanisation has increased the risks of damage from flash floods and earthquakes. In these highly arid zones, the local ecology and soil type is not equipped to deal with sudden and excessive water accumulation,



In Barmer, teenage girls developed their own radio programme to talk about climate change-related stresses (see page 5). Photo: SEEDS India.

causing major short- and long-term damage. Other less dramatic but significant impacts of climate change are shown, for example, through changes in the tree line and changes in fresh water availability.

Currently, there is no cohesive framework to unite India's national and state-level disaster-related policies, including the National Action Plan for Climate Change (NAPCC), and State Action Plan on Climate Change (SAPCC) for climate policies and the National Disaster Management Act (NDMA) and State Disaster Management Acts (SDMAs). This lack of coordination not only results in ineffective implementation, it can

encourage maladaptation and even increase the risk of disasters. (Maladaptation is where an intervention in one location or sector could increase the vulnerability of another location or sector, or increase the vulnerability of the intended beneficiaries to future climate change.) For example, tree plantations on the edge of glacier fed streams in Leh district exacerbated the effects of flash floods in 2010. The trees fell in the stream and formed a dam, which – when it broke – proved to be more disastrous.

Because of this segregation of policies, it is very difficult to address climate change stresses in the context of local environmental and disaster risks. And

while major disasters captivate national attention and place pressure on the government to implement or improve existing policies, first-time and low-grade disasters are often not covered by these policies and go underreported.

The SEEDS-CDKN project 'Ability of local multi-stakeholder action to catalyse shifts in programmes and policy environment towards mainstreaming DRR and climate adaptation' sought to understand the various ways in which local multi-stakeholder platforms interpret, raise and discuss climate change- and disaster-related issues, both within and outside of their communities. Particularly, the project team wanted

to assess how locals access, debate and build consensus on solutions to these issues, especially through integrated DRR and climate adaptation, in order to cause favourable shifts in district, state and national policy environments for the same.

### **An action research approach**

The field research was guided by three types of activity: agenda setting, coalition building and policy research. The project team examined district level policies and plans in Barmer and Leh and identified areas where DRR and climate adaptation were being addressed in an integrated manner. The team then studied why, where, how and when they were introduced in order to understand the impetus for creating such plans and policies. Researchers also assessed the success or failure of the plans, based on how local communities perceive the benefits.

In arid zones such as Leh and Barmer, farming communities have observed drastic and unexplained changes in their local ecosystems over the last few decades. The research component of the project included surveys of 200 households in each of Leh and Barmer, as well as focus group discussions, key informant interviews, various stakeholder consultations and two pilot projects covering various aspects of climate change- and disaster-related issues.

In Barmer, 82% of farmers who responded to the survey have observed a sharp rise temperature in winter and summer months, 44% say that precipitation has become more erratic

and unseasonal in the last two decades, and 40% claim there is less precipitation now than historically. Scientists at the Central Arid Zone Research Institute (CAZRI) corroborated this observation. In Leh, respondents observed similar changes in temperature and precipitation, with 77% saying there has been a decrease in precipitation and 23% citing more variation in the timing of rainfall, which has directly affected sowing times and agricultural production. A vast majority (98%) had noticed an increase in temperatures in the last two decades, along with pronounced receding of glaciers and drying up of local ponds and streams.

Coupled with environmental degradation from expanding oil exploration plants in Barmer, a budding tourism industry in Leh, health hazards from toxic waste, and rapid public and private infrastructure development to meet the demands of an ever growing population, climate change poses a real threat to communities living in these two places. However, while climate change stresses are clearly distinguishable from local environmental distress, communities do not identify with the global nature of the climate change problem. At the local level these changes are still seen as either part of an unexplained changing weather pattern or caused by local environmental degradation – and thus reversible.

Scientists conducting agro-met research in arid zones admit that these local perceptions stem from a lack of information about climate change. However, even when climate change and related disaster risks have been identified, there is no policy

framework that supports an appropriate response. The majority of people affected by flash floods in these areas (83% in Leh and 64% in Barmer) felt that nothing is being done to address these new disasters.

### **Engagement with policy-makers**

Typically, most long-term development planning by government has focused on infrastructure building for industry, housing, transport and agriculture. Policies in which DRR and climate adaptation activities were integrated fell under national schemes such as the National Water Mission launched under the NAPCC and the National Agromet Advisory Services. Under their respective State Disaster Management Acts, Barmer and Leh have both drafted their disaster management plans fairly recently, but these have focussed mostly on providing relief during contingencies, not on disaster preparedness and climate adaptation measures.

Most government action on DRR and climate adaptation arose in the aftermath of disasters. The best examples of integrated and planned integration of DRR and climate adaptation were found in post-disaster initiatives at the district level.

### **Integration of DRR and climate adaptation in policy**

In terms of policy, the project operated at several levels, gathering local information and engaging with various stakeholders including state departments to draw out a combined approach to tackling climate adaptation and DRR issues. At the national level,

the team engaged the National Institute of Disaster Management (NIDM) to discuss how best to integrate DRR and climate adaptation issues into existing policies. This led to talks with the Indian Institute of Public Administration (IIPA) for a brainstorming session which led to the development of a joint policy brief on mainstreaming DRR and climate adaptation for shocks and stresses (see [www.seedsindia.org](http://www.seedsindia.org) for information).

At the state and national level, the project team was able to bring different stakeholders together to examine issues identified in the research. Discussions focused mainly on how to build on the limited but promising integration work already happening. The biggest achievement was to turn the discussion on integration into a positive conversation that focussed on existing successes, challenges to scaling up, ways to increase efficiency

and the success rate of integrated activities, as well as how to turn them into integrated DRR and climate adaptation policies and networks.

The project disseminated its results to audiences at different levels: at community level, focus group discussions were organised; at district level, workshops and meeting were held. For wider, national outreach, print and digital content was created and disseminated across a range of media, including flyers, photo-essays, blogs, posters, films, policy notes, case studies, articles and reports.

### Integration of DRR and adaptation in practice

**Stream restoration a win-win solution.** After flash flooding in the Himalayan state of Jammu and Kashmir, affected communities near the city of Leh worked with the

district government, using funds available under the national Integrated Watershed Management Programme to repair local fresh water streams that had been damaged during the floods. Called '*nala* training' locally, this involves constructing proper drainage channels, clearing out blockages, and digging storage ponds for times of overflow. Although the policy directive to do *nala* training for all major fresh water streams in Leh already existed, the needed funds were released only in the aftermath of the flash floods, when the district government saw the DRR benefits of pending proposals for *nala* trainings.

This had dual benefits: i) since most flood damage was caused as a result of blocked streams, these properly managed streams reduce the future risk of disasters from flash floods; and ii) most of the overflow from glacial meltdown can be stored properly for later use, for instance, to irrigate fields and the new types of crops that can now be grown in Leh due to longer summers. Importantly, the project team found that local communities and local multi-stakeholder groups involved in climate adaptation and DRR already used very sophisticated and advanced socio-political, economic and ecological indicators including sustainability, efficiency and long-term benefits when measuring the success or failure of integrated risk reduction programmes. This puts them in an excellent position to identify local agendas for integrated DRR and climate adaptation, to offer ideas for policy influence and long term benefits to measure the progress and outcomes of integrated services. Researchers also identified

#### Box 1: 'Invisible disasters'

During February 2013 the team discovered that heavy snowfall in the Changthang region of Ladakh had killed around 40,000 livestock, which were the sole livelihood for the nomadic families who became completely cut off from the rest of the world due to the heavy winter snow. SEEDS, along with its local partner Rural Development and You, went to study the crisis, documenting the situation in a short film and issuing an emergency appeal across various platforms. As a result, the people of Changthang received aid through a national humanitarian network. While the activity was a diversion from the planned project actions, it threw light on a critical dimension of local DRR and climate adaptation: disasters that are small in scale, remote, do not lead to human life loss, and involve no politically represented communities are often unreported or under-reported, and receive little aid. Considering that such disasters may increase rapidly, their (in)visibility emerged as a significant issue to be covered under the DRR-climate change adaptation theme. New policies need to consider measures for small-scale disasters and climate change stresses that are currently ignored.



The project team installed a weather station in Leh (see text below). Photo: SEEDS India.

opportunities for better integration of DRR and climate adaptation at the local/district, state and national levels, as well as ways in which vulnerable communities can have a say in the process.

***‘Weather school’ - a hub for knowledge sharing and early warning.*** In Leh, the project team set up a climate and disaster-learning school and provided equipment for a community-managed weather monitoring station. The school was run by the local non-governmental organisation Rural Development and You in partnership with SEEDS India. The main activities of the school were

to train farmers to use the weather station, send the data to the state meteorological department and disseminate bi-weekly weather forecasts to those who ask for them as well as displaying them in the local community centre (built by SEEDS with the local community, showcasing climate- and disaster-resilient building materials and methodologies).

The school provided a venue for people to discuss ways to deal with day-to-day climate change stresses and better understand the links among temperature, precipitation and seasonal changes. This also brought the local community in direct contact with the

state meteorological department (usually via text or phone), which helps by providing an effective early warning system in times of flash floods.

Another school activity was to draw up an integrated DRR and climate adaptation plan and learning platform at block level (i.e. 12 villages and approximately 400 families). This was then discussed with the district authorities as a possible guideline for redrafting the district disaster management plan. This trial plan was already aligned with district-level development goals and plans, yet it also highlighted areas where, with some additional risk-reduction

activities, the local government could help keep development progress on a sustainable path and minimise disaster-related losses.

**Radio programme gives a voice to the most vulnerable.** In Barmer, Rajasthan, SEEDS helped start a community radio programme with a local NGO called Unnati. Malnutrition, illiteracy, child marriage and abuse are very high among adolescent girls in western Rajasthan, where the Human Development Index for women and female children is among the lowest in the world.<sup>1</sup> Unnati trained a group of local adolescent girls from a highly vulnerable and marginalised community to develop, edit and broadcast 10 radio programmes of 15 minutes each on climate change- and disaster-related issues facing western Rajasthan. The twice-weekly programme covered a range of topics on climate change, disasters, local adaptation and risk-reduction solutions, and government policies, and included expert interviews and some cultural entertainment. The radio programmes were broadcast from December 2013 to May 2014. Already a huge success, the broadcasts helped communities express their views on development decision-making and connect with policy-makers through interviews. Also they brought cutting edge research outputs and information directly from experts to local communities, and vice-versa.

### **Achieving resilience in the face of adversity**

The project addressed and identified potential solutions for several specific problems, including:

**Lack of scientific data:** In Leh, farmers traditionally rely on local monks for guidance, who advise on sowing and reaping times according to a Buddhist calendar. However, when the project team explained the impact of temperature rise, precipitation, wind speed, wind direction and atmospheric pressure on local environmental changes, community members were able to understand the importance of using scientific weather information for agricultural forecasting. Informed farmers could more easily switch to adaptive practices in the face of changing climate patterns, such as the 'greenhouse farming' strategy of growing new types of fruits and vegetables that are suited to the longer and warmer summer months.

**Fewer farmers:** Leh must now import almost all of its vegetables, rice and fruits due to a sharp drop in agriculture activity as young people abandon farming for the less labour-intensive and far more lucrative tourism industry. Climate change is accelerating this exodus, as climate-sensitive farming in such cold and arid zones is no longer a viable livelihood option. However, the project team discovered that modern technology such as scientific weather monitoring can provide youth with the knowledge and confidence to be drawn back into farming.

**Rapid urbanisation:** Tourism is booming around Leh, where the population more than doubles in the summer months. As a result of rapid and poorly planned development, disaster risks from flash floods, snowstorms and earthquakes have risen considerably. Yet village elders and policy-makers consulted during the

project suggested that a hybrid approach could lure the younger generation back to farming: modern technology and adaptation practices such as organic farming and eco-tourism could put Leh on a win-win track for both DRR and climate adaptation.

**Vulnerable groups:** Adolescent girls are highly vulnerable and marginalised members of the most climate change- and disaster risk-prone part of the country. Yet in Barmer, the project was able to bring together the three communities that are essential for the integration of DRR and climate adaptation: i) vulnerable groups; ii) scientists, researchers and specialists doing cutting edge research on climate change, adaptation and disasters; and iii) policy-makers. By training adolescent girls in community-based radio broadcasting of climate change- and disaster-related issues and solutions, the project was able to provide an interactive platform for engaging these three response communities to devise integrated DRR and climate adaptation solutions. This activity also instilled a sense of proactive action for risk reduction activities.

### **Lessons learned on the challenges of integrating DRR and climate adaptation**

An integrated DRR response involves getting diverse stakeholders together in order to have discussions on a wide range of issues, to debate solutions and to agree on response actions. This task in itself is challenging, as it requires the right incentives, expert knowledge of DRR and climate

adaptation, good moderation and consensus building skills and resources for sustained action. Also, since the project team was working with communities, local multi-stakeholder development groups, research bodies and government agencies in a limited time frame and with a specific mandate, it was difficult to explore in depth how these challenges can be overcome fully. The researchers observed that communication on climate change and consequent disasters is easy to discuss as a problem in general, since the changes are quite visible and apparent. However, discussions on an integrated response are more difficult to approach at the policy level, since decision-making has resource implications. Additionally, uncertainty due to a lack of scientific data is a definite challenge in the planned response to climate change and disasters.

One approach to knowledge-sharing that addresses the above challenges is community-led multi-stakeholder platforms. Such groups can play a critical role in catalysing action on the integration of DRR and climate adaptation, as they are able to articulate the cumulative impact of climate change and disasters better, and drive focus towards overall development gains (or towards a no-regrets approach). They can drive forward beneficial actions even while scientific uncertainty remains around the precise future impacts of climate change.

## Conclusions

In India, climate change mitigation policies enjoy precedence over adaptation policies. The research undertaken by SEEDS shows that this



Making site models, India. Photo: SEEDS India.

lack of policy thrust on planned adaptation to climate change from national to local level, paired with scarcity of resources and information, deters the creation of favourable local policy environments for the integration of climate adaptation and DRR. Also, where they do exist, local actions for climate adaptation have made little or no impact on generating integrated policy in this area. This is because local (or location-specific) policy environments alone contribute little to national policy-making in terms of setting national policy priorities and agendas. But more so, it is because local climate adaptation initiatives have not shown wider geographical impact, scope for replicability or potential for scaling up, even when they have proven extremely beneficial for a specific location or community. As a result of these issues, climate adaptation policy responses lose priority both at the national and local level, even when there is a high demand for such policies.

However, this research study has suggested some plausible and innovative ways through which at-risk communities can harness local multi-stakeholder platforms to create favourable policy changes towards the integration of DRR and climate adaptation, not just at the local level but also at the national level. This could be done by creating and leveraging 'windows of opportunity' in post-disaster situations by: i) documenting evidence of successful local initiatives on integration of DRR and climate adaptation; ii) creating interfaces between local and national level multi-stakeholder platforms for agenda setting, coalition building and policy learning activities for integration; and iii) building a national-level sustained policy dialogue on systematic approaches for integrating DRR and climate adaptation and replicating and scaling successful policy changes.

## Implications

- Climate change is altering the nature of disasters, and many 'invisible disasters' go unnoticed despite their devastating effects on livelihoods and local economies. Policies need to consider, and formulate measures for, small-scale disasters and stresses due to climate change, and include planning and response mechanisms to account for emerging variability in disasters.
- Disasters and climate change risks are addressed by different ministries with little or no coordination among them. This makes it difficult to address issues of DRR and climate adaptation together at the policy level. Climate adaptation and DRR policies also can and should reflect their linkages at the operational level.
- When it comes to translating higher-level policies into defined development projects and programmes at local level, cross-sectoral participation of local stakeholders in decision-making is essential to ensure the sustainability of interventions.
- The local and traditional knowledge base of communities needs to be documented and taken into account when developing approaches for integrating DRR -and climate adaptation at the 'micro' level.
- While local multi-stakeholder action can play a role, it nonetheless needs amplification through robust communications channels, demonstrated in this case study through radio, print and other means. Local action also needs strong linkages to other levels of subnational governance – for instance, through meetings with policy-makers – to encourage convergence with policy.

## Endnotes

- 1 UNDP (2013) Human Development Report. New York: UNDP. (<http://hdr.undp.org/en/2013-report>)



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