

Climate resilience and disaster risk management

Stories of change from CDKN



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Climate and Development Knowledge Network

Helping developing countries to design and deliver climate compatible development

Welcome to our special edition on climate resilience

CDKN supports developing countries to design and deliver climate compatible development. As well as climate resilience more broadly, we also focus on integrating disaster risk management (DRM) into national development – particularly by communicating state-of-the-art climate science, and capturing and disseminating best practices.

At the global level, we aim to strengthen resilience to climate-related disasters, by calling for DRM to be included in the post-2015 development goals, and in the post-2015 international climate deal.

We hope you will enjoy this newsletter about our climate resilience and DRM work. For further resources, including publications, project descriptions and news and analysis, visit www.cdkn.org. Please contact us to discuss how we can work together; find our details on the back page.

First-of-a-kind action plan will protect Indian residents from extreme heat

When temperatures soared in the Western Indian city of Ahmedabad three years ago, the tin-roofed homes of the city's slum dwellers became deadly. Built as humble shelters from the rain, these fragile structures turned into solar ovens in the heatwave. They trapped and concentrated the sun's energy on the unsuspecting residents beneath. During May 2010, government meteorological stations recorded a high of 46.8 °C (116° F) in the outside air temperature; the Indian Institute of Public Health (IIPH) found that death rates were 'substantially' above normal.

The disaster shook local government – not least because the event appeared to be part of a longer term trend. Daily high temperatures have risen in Western India during recent decades, and hot days are set to become more frequent and intense as climate change continues. The city's administration joined forces with an international coalition of health and academic groups and threw its efforts into developing the Ahmedabad Heat Action Plan. Launched this month and part-funded by CDKN, the Action Plan is the first comprehensive plan of its kind in India, to prepare urban residents for and make the city more resilient to dangerous heatwaves.

"In India, national programmes exist to address many effects of climate change, but the country has yet to implement strategies to adapt to increasing heat," said Dr Anjali Jaiswal of the Natural Resources Defense Council (NRDC), one of the project partners. "Ahmedabad is leading the way. It is the first Indian city to address this deadly threat to its residents on the municipal level."

Dr Gulrez Shah Azhar of IIPH explains, "While scientifically we know that these extreme weather events are going to increase, locally there is some resistance



Community health workers monitor the local population in Ahmedabad

to accepting them as challenges worthy of preparation. 'Heatwaves have always been there' comments are common to hear. It is only when we present data showing excess mortalities that we are able to go further. However, the government officials here are extremely cooperative and supportive."

The project consortium, which includes NRDC, IIPH, Public Health Foundation of India (PHFI), Icahn School of Medicine at Mount Sinai (USA), and Rollins School of Public Health at Emory University (USA) supported the Ahmedabad city government to produce specific guidelines for professional and residential groups in the city: key

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How serious games can prepare us for climate impacts

You may wonder what games have to do with climate resilience. The Red Cross Red Crescent Climate Centre has been pioneering the use of role-playing games with communities and policy-makers on this challenging subject. Pablo Suarez, Deputy Director, began developing 'serious games' around climate risk when he realised that powerpoint presentations and journal articles did not adequately – in his words – “engage people’s brains.”

Dr Suarez’ collaborator Janot Mendler de Suarez, explains: “Games can be a way [for players] to inhabit a dynamic system. It gives you an opportunity to test systems you wouldn’t in real life. We can’t have an experience of trying different strategies in any other way.”

“The games leave you happy, angry, excited, sad,” said Pablo Suarez. “They are confusing...and designed to push your brain power to the edge of its absorptive capacity.”

Pablo and Janet Suarez and colleagues at the Climate Centre and the Prototyping, Evaluation, Teaching and Learning Lab (PETLab), at Parsons, The New School for Design (USA), have now collaborated with many developing country agencies to run role-playing games that impress the seriousness of climate risk management on participants. With CDKN support, during 2012 alone, more than 120 game events in at least 30 countries reached some 3,000 stakeholders ranging from subsistence farmers developing contingency plans for flooding, to World Bank staff integrating games into their risk assessment methodology.

Recently, CDKN has supported researchers from the Climate Centre and the African Climate Change Resilience Alliance (ACCRA) to assess how complexity theory and a framework for flexible decision-making can help African policy-makers prepare for an uncertain future of climate extremes and disasters. The results are presented in a new paper: ‘New Approaches to Promoting Flexible and Forward-looking Decision Making’, which introduces a game and practical, reflective exercise that can be delivered in community or policy settings. These materials now play a central role in ACCRA, which is aimed at empowering decision-makers in Mozambique, Uganda and Ethiopia with information and tools for climate compatible development. Find the paper on www.cdkn.org

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government agencies, health care professionals, outdoor workers, and slum communities.

Public communications are at the heart of the Action Plan. “One of the biggest problems we found was a lack of awareness that the mercury was soaring,” said Susan Casey-Lefkowitz of NRDC. “In Ahmedabad, there is only one weather gauge and it’s at the airport, not in the city. This means that reported temperatures are actually lower than real temperatures in the city, an urban heat island.

“One of the simple issues is: how do you get the gauges in the town and get the word out to the media and to medical professionals that a heatwave is even happening? At the next level, how do you tell people what they should do about it? This Heat Action Plan focuses on very practical steps.”

Communications and awareness-raising start before the summer season is underway. The Plan calls for agencies to monitor the long- and short-term weather forecasts in order to spot prolonged hot spells on the horizon. Meanwhile, government agencies are instructed to identify which social groups are most vulnerable to heatwaves, and train community health workers and other leaders to distribute educational materials to them. Some people are naturally more physically vulnerable to the effects of extreme heat than others, such as children, the elderly, and pregnant women. In other cases, people’s vocations or places of residence put them in harm’s way. Traffic policeman are one such vulnerable group: they conventionally spend hours in the direct sunlight. As mentioned earlier, slum dwelling communities under tin roofs are another group on the frontline.

The fixes are simple, said Ms Casey-Lefkowitz, and can make a big difference: “Shifting work hours towards cooler parts of the day, having additional water, having additional shade, thinking of how you could turn public spaces such as parks, pools, libraries and malls into emergency shelters, how you could do more tree planting, how you could have special water distribution centres.”

When a heatwave begins, the Plan calls for government workers and community leaders to step up communications to the most vulnerable groups. Mass media such as newspapers, radio and television have a role to play, but leafleting in slum areas (such as the awareness-raising poster shown below)



Awareness-raising poster

Climate vulnerability assessment – early lessons from Cartagena de Indas

Cartagena de Indas is highly vulnerable to climate change, with both a large poor population and high ecological, economic and cultural sensitivity. At the same time, it is a remarkably vibrant city, which is home to a World Heritage Site, a thriving tourist industry and high-volume, commercial port. CDKN has been working with the municipal government of Cartagena and with INVEMAR, the Marine and Coastal Institute of Colombia, to complete a vulnerability assessment of Cartagena in the face of sea level rise, storm surges and other climate hazards. Cartagena is now the first coastal city in South America to have released its “Guidelines for Adaptation to Climate Change,” which recommend adaptive measures and support socio-economic development. The guidelines lay the foundation for forthcoming municipal plans, including a full climate change adaptation plan and zoning policies.

Government officials in Bogota are closely watching the progress of this municipal process, which will influence the implementation of the National Adaptation Plan and similar approaches in other Colombian coastal cities and towns.

The project partners have learned some important lessons from the process so far, including the recognition that planning for climate resilience is an ongoing process that requires constant and sustained capacity building of local stakeholders. Even though the local government has passed through changes, the adaptation plan remains a priority for any Cartagena mayor, and the project partners have established strong, long-term links with the city's civil service which have endured changes of leadership at the top.

Please visit the ‘Resources library’ on cdkn.org to read a full case study of this project and its lessons to date.



Their tin roofs make Indian slum dwellings intensely hot during heatwaves

and even microphone announcements from rickshaws may be necessary to prompt people to take action at the height of a crisis.

When the heatwave is over, the city government has committed to collecting better data on heat-related illnesses at local hospitals and via community health networks. Over time, officials hope that a clearer picture will emerge of how heat is affecting the health of Ahmedabad city residents, and how the simple but life-saving steps outlined in the Heat Action Plan will reduce illness and loss of life.

Dr Azhar of IIPH describes how the catastrophic heatwave of 2010 focused minds and led to immediate climate adaptation measures: “Shardaben municipal hospital [in Ahmedabad] told us that the heatwave had severe health impacts on their maternity ward patients on the top floor, which led them to replace the black tar roof and move the ward to the ground floor during the heat season,” he said. Although this success story pre-dates CDKN involvement, it is a good illustration of what the current project could achieve – measurably

improved outcomes for the health and wellbeing of Ahmedabad's residents.

Find comprehensive information on www.nrdc.org/international/india

Understanding loss and damage from climate change

When Cyclone Aila hit Bangladesh in 2009 it caused havoc. Fish farmer Norendranath Mondal's property was flooded with salty water and he was left with a pond full of dead fish. The 82 year old estimates the total loss of his fish at 85,000 taka (US\$1,040).

“I (now) have a filter at my home to clean pond water but it's just not enough,” he said. Mr Mondal is also shouldered with a sharp increase in healthcare expenses for his family after Aila. “Nowadays, I pay more

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Climate-resilient solutions combine science with indigenous knowledge

Many successful examples of integrating climate resilience with improved development outcomes are the result of joining up scientific knowledge – often disseminated through international networks – with indigenous knowledge and innovation. Visit the ‘Resources library’ on cdkn.org and browse our Inside Stories on Climate Compatible Development for some good examples from Bolivia, Niger and Zambia.

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than 5,000 taka (US\$61) per month for treatment of water-borne diseases,” he lamented. Mr Mondal’s story is described in a new publication released by a Germanwatch-led consortium, with CDKN support, ‘Evidence from the frontlines of climate change: loss and damage to communities despite coping and adaptation.’ His story illustrates a real threat: there are some climate change impacts that cannot not be avoided, no matter how successful our efforts to adapt or mitigate. With potential increases in the frequency of weather extremes and disasters associated with climate change, countries are now considering the risk of permanent loss and damage. The climate-vulnerable poor are simply unable to cope with, or adapt to, sustained loss of this scale.

The debate about climate change-related loss and damage to lives, assets and livelihoods has been around for 20 years. However, the issue has gained greater momentum since the launch of a Loss and Damage Work Programme under the UN Framework Convention on Climate Change (UNFCCC), in 2010 – a programme intended to inform a new global climate deal. In spite of the increasing political attention, many technical issues around loss and damage are still under debate. It is now becoming increasingly important to develop a knowledge base in order to better understand the issue. CDKN is contributing to this evidence base by convening experts and supporting research on technical issues.

The consortium led by Germanwatch and including United Nations University, the International Centre for Climate Change and Development and Munich Climate Insurance Initiative is working with the Government of Bangladesh and other Least Developed Countries to build a common understanding around loss and damage. This major project aims to provide insight on the implications of loss and damage, and build momentum for action. The consortium’s reports and case studies are now available on www.loss-and-damage.net



Boosting coastal resilience in Ghana

Ghana has urbanised rapidly in the past century, and now a half of Ghanaians live in cities. A full quarter of the population inhabits cities along Ghana’s coastline, in a land area of around 15,000 square kilometres. Politicians have considered how these demographic shifts could affect the country’s economy, but “risk analyses have been focused on fiscal economics, not on biophysical impacts such as climate change,” said Dr Delali Dovie of the Regional Institute for Population Studies (RIPS), University of Ghana. With CDKN support, Dr Dovie and the RIPS team are looking to redress the imbalance: they are working to integrate climate risk analysis and disaster risk reduction into coastal cities’ development plans.

During the past 12 months, RIPS have held capacity building workshops with municipal assembly leaders. They have brought participants on study tours to witness coastal erosion and livelihood impacts first hand and discuss solutions. Together, they have used and improved the Community Based Risk Screening Tool – Adaptation and Livelihoods (CRISTAL) to identify social and economic vulnerabilities to climate change, and resources within

the communities themselves that can reduce vulnerability.

As a result, three of the focal communities have prepared rapid community-based disaster preparedness plans. Capacity building workshops have trained 40 local leaders in methods for climate vulnerability assessment.

Awareness raising and planning doesn’t stop at the local level. “The contingency plans will inform district level and regional preparedness plans and ultimately contribute to national level disaster management planning,” said Dr Dovie. Following the collection and validation of site-level information about climate vulnerability, government, NGO and civic representatives held district and regional-level ‘platforms’ to identify policy challenges. The process has been one of “community-based, popular participation in policy communication, participatory awareness creation, targeted law enforcement, and community level ownership of policy processes,” Dr Dovie said.

Finally, the inputs from these subnational assessments and discussions were ‘rolled up’ into a national level policy roundtable in the capital, Accra – Ghana’s largest coastal city. Here, inputs from the platform meetings were shared with national ministries including the Ministries of Environment, Science and Technology; Local Government; Water Resources, Works and Housing; and National Development Planning

Commission. Participants used diverse communications tools and participatory methods, including drama, discussions, films, animations, toys and environmental objects, to debate the challenges of coastal climate change impacts and form recommendations for mainstreaming climate disaster risk management into policy.

There are some early signs of policy influence. Daniel Benefor of the Environmental Protection Agency indicated that lessons from the roundtable will “impact greatly” on Ghana’s emerging climate finance framework and associated policies. Winfred Nelson, of Ghana’s National Development Planning Commission said he was optimistic that the project would guide climate and development planning in the country’s coastal zones.

In late 2012, RIPS brought its policy findings to Nigerian policy, research and scientific communities as part of the project’s comparative learning approach with its sister organisation, the University of Calabar (UNICAL), Nigeria. “It was a moment to note the interest of state level participants including lawmakers who were ready to lead knowledge sharing and direct project implementation,” said Dr Dovie. Prof Francis Bisong of UNICAL’s Senate Working Group on Climate Change Impact welcomed both the seminar and the broader project, calling for “regional dissemination of the innovative model being used by RIPS under this project.”



Scaling up community-based disaster risk reduction

Reducing society’s risk to climate disasters is a tough challenge – whether it’s increasing resilience to storms, floods, droughts or extreme temperatures. The good news is that many communities and development practitioners around the world are developing locally successful strategies for building resilience. In many cases, their work is saving lives and securing livelihoods.

A persistent challenge is figuring out how these successful examples of community-based, climate-smart disaster risk reduction can be replicated and scaled up. With CDKN support, the Partners for Resilience (PFR) – a unique partnership among NGOs and practitioners – is working to define minimum standards for climate-smart disaster risk reduction that could be adopted widely by communities, at scale. The idea is to find practical solutions that are achievable for many communities with relatively limited support.

PFR works in nine countries: Indonesia, the Philippines, India, Ethiopia, Kenya, Mali, Uganda, Guatemala and Nicaragua. CDKN support for minimum standards is focused in the first two.

The PFR team has developed a draft set of minimum standards through extensive consultations with community leaders, national and local policy-makers. Together, they’ve tried to identify what is realistic and also guaranteed to be effective. The departure point and key message of their work is: disaster risk reduction must consciously incorporate scenarios of changing risks, rather than simply responding to disaster patterns of the past.

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Micro-insurance for the poor

Pakistan is vulnerable to disaster risks from climate hazards such as avalanches, cyclones, droughts, floods, glacial lake outbursts, and landslides – not to mention earthquakes, epidemics and tsunamis. The government has conventionally reacted to each emergency as it comes, and the country has lacked a systematic approach to disaster risk management. Now, CDKN is supporting the National Disaster Management Authority (NDMA) to develop a viable risk insurance scheme to protect poor vulnerable communities.

CDKN has commissioned experts to work with the NDMA to facilitate a thorough consultation process with national stakeholders. The project will ultimately deliver a design for the fund as well as an Insurance Strategy for Disaster-prone Vulnerable Communities. The team has held initial meetings with government agencies, donors and other stakeholders, particularly the insurance industry. They found that there was likely to be broad cross-party political support for the concept of a national disaster insurance system, as natural disasters have become so frequent in Pakistan. A blueprint for the fund and preparatory insurance strategy are due later this year.

In a related project, MicroSave, working in partnership with Red R India, is documenting evidence and experiences of delivering micro-insurance in India, Indonesia, Pakistan, the Philippines and Sri Lanka. Their results, due in the coming year, will be used to support the spread of best practices.

What’s next for CDKN’s work on DRM and climate resilience?

With climate-related DRM projects spanning three continents, CDKN has an excellent opportunity to draw insights from experiences in different countries. Through research and dedicated learning events we will be exploring what it takes to foster leadership in DRM across key sectors and local government units and what factors affect the policy uptake of disaster and climate risk assessments. The first learning event will take place in Thailand in June 2013. We will use the lessons to help improve the impact of CDKN projects in our focus countries and inform the drafting of the post-2015 development and disasters agreements. Working with the Political Champions for Resilience Group and its partners, CDKN will also shortly be publishing a study of where public-private partnerships are working to build resilience to disasters and climate change.

The Climate and Development Knowledge Network (CDKN) aims to help decision-makers in developing countries design and deliver climate compatible development. We do this by providing demand-led research and technical assistance, and channelling the best available knowledge on climate change and development to support policy processes at the country level. CDKN is managed by an alliance of six organisations that brings together a wide range of expertise and experience.

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The minimum standards set out requirements for information flow and capacity building: communities should be aware of and understand locally available weather and climate information, and they should be able to use forecasts to develop early warning systems and action plans. Another minimum step for communities is to carry out vulnerability assessments that reflect changing climate and disaster risks. What climate-related disasters is the community likely to face in the future and who is likely to be most affected? If flash floods or storm surges or heatwaves are increasingly likely, who is on the frontline because of where they live and work? Who should be alerted when an extreme event is forecast and who needs special help to escape danger, in case of an emergency? How can effective communications systems be put in place to deal with such scenarios?

In the longer term, how can the basic development needs and livelihood opportunities for different social groups be assured, given what we know about their climate-related vulnerabilities? Communities should be able to gather and use such information to shape local development and disaster preparedness plans.

The minimum standards are intended to serve as an essential bridge between national climate policy and local capacities for DRR. Through the process of adopting the standards, communities should learn how to access policy support and resources, in their province, country or region. For instance, it's recommended that communities should be able to access resources from farmer groups, agricultural extension services, meteorological services, water management and health authorities. A policy brief outlining the minimum

standards is available on cdkn.org and provides more details.

PfR is now exploring whether the minimum standards developed in Indonesia and the Philippines can be used globally. This endeavour is in its early stages - they realise that what may be achievable in one country, may not be achievable in another. For instance, a PfR partner in Ethiopia said of the standards' first draft, "They are extremely helpful for integration of local climate-smart DRR into national policies and programs. There is no doubt on this. However, I am afraid the commitments expected from the authorities becomes too ambitious." The standards are being constantly revised and improved so that they can become transferable, elsewhere.

Written by: Mairi Dupar with Elizabeth Colebourn, Tom Mitchell, Kashmala Kakakhel and Delali Dovie
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CDKN Global

7 More London Riverside
London
SE1 2RT
+44 (0) 207 212 4111
www.cdkn.org
enquiries@cdkn.org

Regional contacts

africa@cdkn.org
asia@cdkn.org
la@cdkn.org

DRM contact

drm@cdkn.org