COMMUNITY RESILIENCE:
THE HEART OF CLIMATE ACTION

OPPORTUNITIES FOR PHILANTHROPY

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philanthropies

India Climate
Collaborative

Rohini Nilekani is the Founder-Chairperson of Arghyam, a foundation she personally endowed to fund initiatives in Safe, Sustainable Water for All. In 2004, she co-founded and funded Pratham Books, a non-profit children's publisher, which aims to democratize the joy of reading through their vision of seeing 'a book in every child's hands. In 2014, together with her husband, Nandan Nilekani, she co-founded—and is a Director of—EkStep, an education non-profit that has created a technology platform for early learning.' As a committed philanthropist, she continues to fund work in areas such as governance and accountability, independent media, education and research, and environmental sustainability. | https://rohininilekani.org

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Opportunities For Philanthropy

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FOREWORD
COMMUNITY RESILIENCE

The 20's have begun on a sombre note, with the pandemic catching the world unprepared for the cascading effects from the viral disease.

In the decade gone by, there were other crises as well. Economies crumbled, worldwide protests erupted, anti-government protests rumbled across the globe.

Climate change also appeared to accelerate. The earth experienced the hottest decade on record. By 2019, the planet had surpassed its 2010 temperature record five times. In India, in 2019, we encountered record extreme weather events triggered by climate change every month—July was the hottest July ever recorded, the monsoon saw 74 percent more extreme rainfall events, and seven cyclones ravaged the country. Just in the first half of the year, about 2.17 million citizens were displaced.

If the past decade has made anything clear, it is this: climate change is no longer our future. It is our present. And it is time we began to decisively tackle the biggest existential threat humanity has ever faced. If early lessons from the COVID-19 experience are to teach us anything, it is that there is a hefty price to pay for complacency and slow action. Like in the pandemic, the effects of climate change will impact us all, even though the poor will be disproportionately affected. The interdependence has become crystal clear; each is only as safe as the most vulnerable among us. And so, any response, any climate action must be undertaken collaboratively by *samaaj, sarkaar,* and *bazaar.*

Over the next few years, India will invest billions of dollars in public infrastructure. Simultaneously, government policies aim to massively increase private investments across the manufacturing, services, and agriculture sectors. Each of these policies and investments will shape what India looks like over the next 50 years -- we have plans to build 100 new airports with an investment of USD 60 billion, to interlink our rivers at a budget of INR 5.5 lakh crores, and to create a linked network of ports through *Sagarmala*, at an outlay of INR 4 lakh crores. At a different scale, just one project – the 29.2 km coastal road planned in one city, Mumbai, will cost INR 10,000 crores. All these initiatives will impact the lives and livelihoods of millions and will compete for finite and scarce public resources.

But are any of them being screened against their impact on climate change? Tragically, the answer is no. This is the case despite India being considered the fifth most vulnerable of 181 countries, to the effects of climate change. We already know that both small- and large-scale natural hazards inflict irreparable harm on the most poor and marginalised communities. The unprecedented destruction we have seen in the last year alone as a result of climate change is evidence that the poverty-reduction and development gains we have made thus far are under threat of being reversed.

Today, we need more ambitious, accelerated climate action that targets the most vulnerable. We need to start from the first mile, where the impact is felt most. We need approaches that enhance community resilience against the health, livelihood, and other shocks arising from climate change related disasters. We also need a broader lens through which to observe and understand the connections between disasters, development, poverty, and vulnerability.

As philanthropists, I believe we have a moral imperative to invest in such climate action. It will positively impact every cause we are passionate about, while ensuring the wellbeing of the communities we aim to serve.

We hope this paper will inspire you to do more, with its showcase of the diversity of actors and their approaches in advancing community resilience. The report also identifies opportunities for philanthropy, and collaborative action. Many communities are creatively preparing themselves for the future, with the support of dedicated civil society organisations, and governments. As philanthropists, we are then challenged to race ahead of them. If we put a climate lens on our philanthropy, perhaps we could alleviate some of the cascading impacts of climate change; such as we have seen in the COVID-19 pandemic. We could enable communities and local governments to be more inclusive and self-reliant, more collaborative and much more prepared.

This decade is already teaching us a lesson. Next time, climate change should not catch us unaware.

Rohini Nilekani

Suranjana Gupta is Advisor on Community Resilience at the Huairou Commission, a global coalition focused on grassroots women-led development. From 2002 to 2015 she worked full time with Huairou Commission, where she was closely involved in the development of Huairou's Community Resilience program. Over the years, Suranjana has had opportunities to undertake a range of assignments with Huairou and other organizations. These include: policy advocacy, partner engagement, strategic planning, monitoring and evaluation, facilitating peer-learning, training, research and documentation. She was adjunct faculty at the New School University's Graduate Program in International Affairs from 2002-2004 and worked for Swayam Shikshan Prayog, India from 1995-2000. Suranjana has an M.Sc. in Development Studies from the London School of Economics and an M.A. in Sociology from the University of Mumbai

The India Climate Collaborative (ICC) is an India-focuse collaborative platform that seeks to direct funding and visibility towards climate action in India. It marks the first-ever collective response by industry leaders such as Ratan N. Tata, Anand Mahindra,Rohini Nilekani, Nadir Godrej, Aditi and Rishad Premji, Vidya Shah,and Hemendra Kothari, among others to seek solutions that enable people and nature to thrive. The ICC's objective is to spur collective investment, connect diverse voices, and in doing so, craft a uniquely Indian response to climate change, attuned to India's needs and development priorities. It aims to stitch together the Indian climate community for effective action towards a shared climate goal. The ICC is currently a 45+ member organisations comprising of government agencies, businesses, scientific institutions, universities, non-profits and fellow collaboratives such as The Principal Scientific Advisor to the Government of India, The Energy and Resources Institute (TERI), Godrej Industries, Shakti Foundation, Swades Foundation, Foundation for Ecological Security (FES), Intellecap, and Asian Venture Philanthropy Network (AVPN) to name a few.

https://indiaclimatecollaborative.org

INTRODUCTION

Climate change and natural hazards are rapidly undermining development and poverty-reduction gains. It is the poor and marginalized communities who bear the heaviest burdens of the destructive impacts of both large and small scale disasters. This calls for more ambitious, accelerated climate action that targets the most vulnerable.

The first section of this paper describes the disaster losses we are currently experiencing both nationally as well as globally. It then provides a lens to understand the connections between disaster, development, poverty and vulnerability, while emphasizing the need to identify approaches that reach and impact poor and marginalized communities most vulnerable to shocks and stresses arising from disasters and climate change. The paper points to what we know about vulnerability in relation to disasters, how we should approach these concerns and why investments in building the resilience of local communities are critical.

The second section presents an overview of four key stakeholders engaged in reducing the impacts of disaster and climate change—government, humanitarian organizations, development NGOs and the private sector. It points to the fact that government-led policies and programs have substantially reduced mortality losses through early-warning systems and emergency response mechanisms, but have had limited success in building long-term resilience and in embedding disaster and climate resilience in development structures and processes.

There are three kinds of organizations actively engaged in building resilient communities, which can withstand the shocks and stresses caused by disasters and climate change.

> Humanitarian organizations primarily involved in disaster preparedness, emergency response and post-disaster relief and recovery of communities

> NGOs focused on empowering communities to address long-term development priorities as a route to reducing their vulnerability to disasters

> Social enterprises building innovative business solutions for communities affected by disasters

While the lines between these organizations are blurred—several humanitarian organizations have long-term development programs and development NGOs are increasingly adopting social enterprise approaches—this paper gives readers a sense of the diversity of actors and approaches in this field.

This paper is not a comprehensive account of the field of disaster management or climate adaptation as the landscape is vast and evolving. It includes many actors whose work may not be explicitly described as disaster management or climate action, but clearly has consequences for reducing vulnerabilities of those living with climate risk. Rather, this paper provides a brief overview of the field by:

> Providing a framework that connects disasters, development and vulnerability to poverty and marginalization.

> Offering a glimpse of the diversity of actors and examples of their approaches to advancing community resilience.

> Identifying opportunities for action.

HOW DISASTERS AND CLIMATE CHANGE AFFECT US

GLOBAL DISASTER LOSSES

Globally, natural disasters caused economic losses of an estimated USD 2,908 billion[1] between 1998 and 2017; of this, 77% of losses—USD 2,245 billion—were attributed to climate-related disasters. In the same 20-year period, disasters killed 1.3 million people and left 4.4 billion injured, homeless, displaced or in need of emergency assistance.[2]

In 2018 alone, the world experienced 315 natural disaster events that left 11,804 people dead and affected more than 68 million people. The global economic losses from disasters in that year totalled USD 131.7 billion, where Asia accounted for 80% of deaths and 76% of people affected.[3] It is estimated that as much as USD 314 billion will have to be spent every year to meet annual average losses from earthquakes, tsunamis, tropical cyclones and river flooding alone.[4]

Climate change is affecting the frequency and intensity of extreme events while reducing the resilience of households and communities. It is therefore a major driver of disaster risk. The Intergovernmental Panel on Climate Change (IPCC) predicts climate change is likely to slow economic growth, erode food security and exacerbate poverty in most developing countries.[5]

INDIA'S VULNERABILITY TO NATURAL DISASTERS AND CLIMATE CHANGE

India is vulnerable to a range of natural disasters, including floods, droughts, cyclones, earthquakes, landslides and heatwaves. With the total losses from disaster events in India over the past 20 years (1998-2017) being valued at USD 79.5 billion,[6] we are among the top 10 countries with the highest cumulative disaster losses in the last two decades. The Global Assessment Report estimates India's average annual economic losses from disasters at USD 9.8 billion,[7] of which more than USD 7 billion is attributed to floods alone. Drought-prone areas account for 42% of India's cultivable lands, with rain-fed crops accounting for 48% of total area under food crops.[8] On an average, drought affects more than 50 million Indians every year—33% of the country is chronically drought-affected while close to 68% is drought-prone. In 2018, more than 200 districts received below-average rainfall with Andhra Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Uttar Pradesh and West Bengal facing the largest water deficiencies.[9] Indian meteorological records dating back 150 years reveal that droughts are becoming more frequent, with even a small deficit in monsoon triggering a severe drought.[10]

THE IMPACT OF CLIMATE CHANGE

Livelihoods risks

As 40% of India's food demand is met through rainfed agriculture, climate change represents a major threat to food security and rural livelihoods.[11] Small and marginal farmers dependent on rain-fed agriculture are among the most severely affected by climate change. The Economic Survey of India (2018) projected a reduction in annual agricultural income; for irrigated areas, the drop is by 15-18% whereas for unirrigated areas it is by 20-25%.[12] Monsoon failure has, in part, contributed to growing agrarian distress leading to farmer suicides. In 2015—the last year that the National Crimes Record Bureau released data on the subject—more than 8,000

farmers and 4,500 agricultural labourers committed suicide. With a growing number of Indians living in cities where people, assets and economic outputs are concentrated in small geographies, urban centres are exposed to high levels of climate and disaster risk.[13] Climate change is already exacerbating water scarcity and increasing food prices in cities, and the Intergovernmental Panel on Climate Change reports that four coastal cities—Kolkata, Mumbai, Surat and Chennai will be severely threatened by sea-level rise.[14] In addition, it is estimated that 1.5 million out of a total five million people will have to be relocated from the Sundarbans mangrove forest as sea-levels rise.[15]

Health Risks

Climate-related health impacts require transforming healthcare systems to equip populations—particularly the poor and marginalized—to prevent and respond to health issues. There are three main areas of climate-related health risks for India highlighted by the Lancet Countdown: increased incidences of mosquito-borne diseases, negative consequences on food production and nutrition and a rise in air pollution.[16]

Rising temperatures are increasing incidences of mosquito-borne infections such as dengue, malaria and chikungunya. No longer restricted to the plains, dengue has become increasingly common in hilly regions causing a one to 20-fold rise in cases in Himachal Pradesh, Uttarakhand, Manipur, Mizoram, Nagaland, Sikkim and Tripura since 2013. Similar trends have been observed in Tamil Nadu and Kerala.

Regarding food and nutrition, climate change is undermining India's efforts to end hunger and malnutrition. (Currently, India is ranked 102 of 117 in the Global Hunger Index). In addition to crop failures caused by unpredictable rainfall, climate change is expected to decrease the nutrient content of crops by 2050. For example, carbon dioxide concentrations are projected to reach exponential levels, which will lead to zinc deficiencies in an additional 50 million people and protein deficiencies in 38 million people, by 2050. This in turn will leave 0.4 billion women of childbearing age and 0.1 billion children under five at greater risk of iron deficiency.

Thirdly, since the use of fossil fuels contributes to high levels of pollution, with coal alone responsible for 4,40,000 premature deaths in 2016, a transition to renewable energy sources will have major health benefits.

Land Degradation and Desertification

Desertification refers to the process by which semi-arid and arid lands lose their productivity as a result of variations in climate and unsustainable land management practices.

While desertification has occurred throughout history, it has accelerated 30–35 times the historical rate in recent decades. For example, between 2003-2005 and, 2011-2013, in a span of eight years, the extent of desertification and land degradation has increased by 1.16 million hectares (ha) and 1.87 million hectares.

A study of 76 drought-prone districts and two sub-basins in Ladakh found that in drylands (which span 228.3 million ha, or 70% of the India's total land), 82.64 million ha is undergoing desertification and approximately 96.4 million ha, or about 30% of the country's total area, is currently undergoing degradation.

Estimates by TERI show land degradation costs to be USD 48.8 billion annually, which is almost 2.08% of India's GDP in 2014–15. The economic cost of forest degradation accounts for 55% of the total loss. Forests are a stabilizing force for the climate. Deforestation and degradation of forests contribute to greenhouse gas emissions; global studies show that a third of carbon dioxide emissions released from burning fossil fuels are absorbed by forests every year.[17]

Human Displacement

In 2018 nearly 17.2 million people worldwide were displaced from their homes; 94% of these displacements were caused by weather-related natural calamities.

In this year, India accounted for as many as 2.8 million newly-displaced persons; nearly 2.7 million of whom were displaced as a result of extreme weather events across 15 states.[18] Most of these displacements were
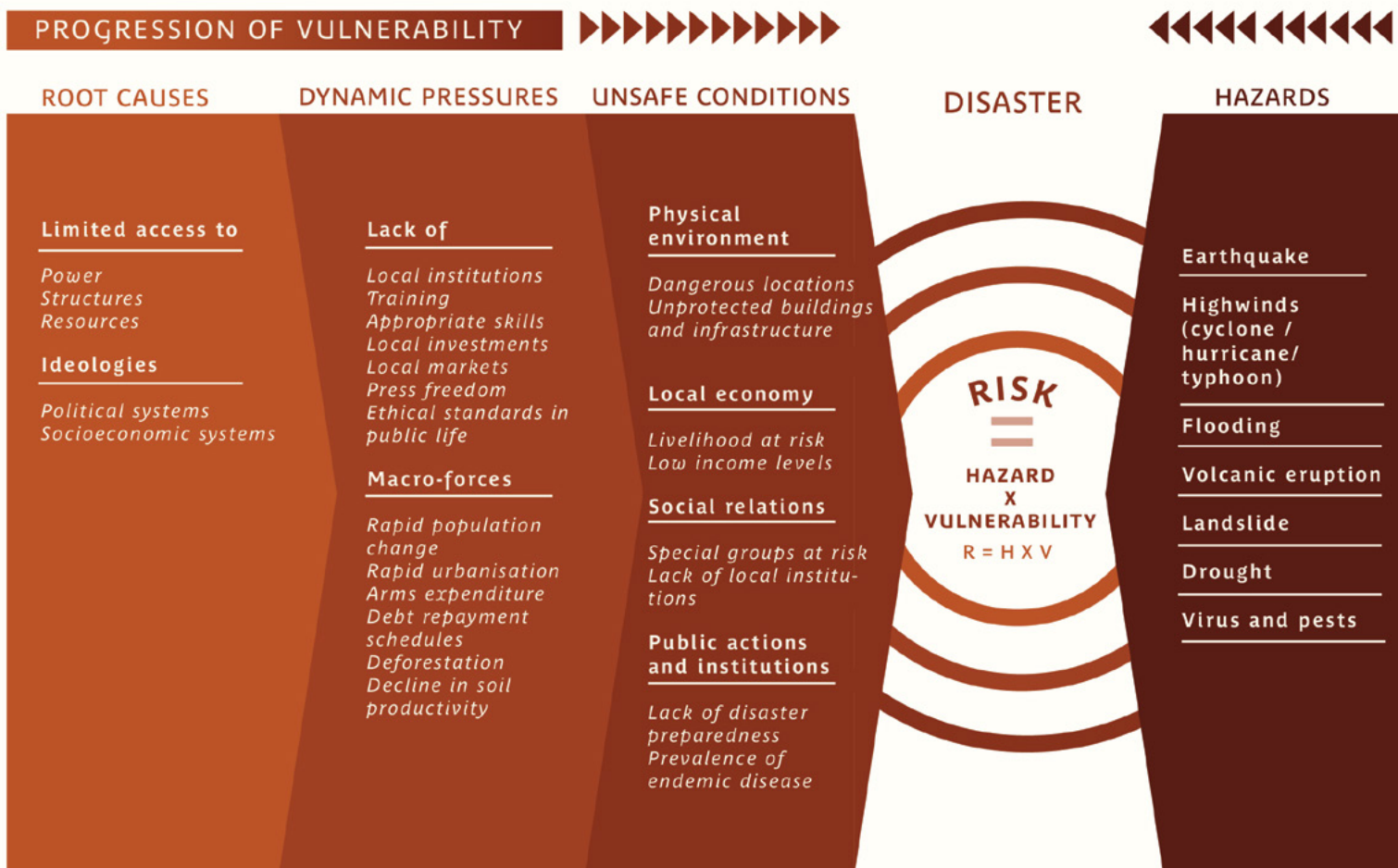
caused by four major extreme weather events: Kerala floods were responsible for 1.5 million new displacements; Cyclone Titli—which struck Odisha and Andhra Pradesh in October 2018—triggered 4,00,000 new displacements; Cyclone Phethai which struck the east coast in December 2018 triggered 32,000 displacements; and Cyclone Gaja in Tamil Nadu accounted for about 2,49,000 displaced persons.

DISASTERS, DEVELOPMENT, POVERTY AND VULNERABILITY

WHAT MAKES PEOPLE VULNERABLE TO NATURAL DISASTERS?

There's nothing 'natural' about natural disasters. Disasters occur when hazards such as heavy rain, cyclones or extreme temperatures intersect with vulnerability. Disaster risk is a function of exposure to hazards—such as cyclones, earthquakes, floods, droughts or fires—and the conditions of vulnerability of the exposed population or assets.

A widely accepted framing of vulnerability in relation to disaster risk is based on the Pressure and Release Model which sees disasters as the result of two opposing forces: the natural hazard and the processes generating vulnerability. The model explains disasters by linking impacts of hazards on people with social processes that generate vulnerability. This means that preventing disasters requires that we address the social factors that produce and reproduce vulnerability, rather than focusing exclusively on the prediction of hazards and responses to disasters.

PROGRESSION OF VULNERABILITY ▶▶▶▶▶▶▶▶▶▶ ◀◀◀◀◀ ◀◀◀◀◀◀

ROOT CAUSES | **DYNAMIC PRESSURES** | **UNSAFE CONDITIONS** | **DISASTER** | **HAZARDS**

Limited access to

Power
Structures
Resources

Ideologies

Political systems
Socioeconomic systems

Lack of

Local institutions
Training
Appropriate skills
Local investments
Local markets
Press freedom
Ethical standards in
public life

Macro-forces

Rapid population
change
Rapid urbanisation
Arms expenditure
Debt repayment
schedules
Deforestation
Decline in soil
productivity

**Physical
environment**

Dangerous locations
Unprotected buildings
and infrastructure

Local economy

Livelihood at risk
Low income levels

Social relations

Special groups at risk
Lack of local institu-
tions

**Public actions
and institutions**

Lack of disaster
preparedness
Prevalence of
endemic disease

RISK

$$RISK = HAZARD \times VULNERABILITY$$

$$R = H \times V$$

Earthquake

**Highwinds
(cyclone /
hurricane/
typhoon)**

Flooding

Volcanic eruption

Landslide

Drought

Virus and pests

THE PRESSURE AND RELEASE MODEL

The Pressure and Release Model identifies three kinds of processes that link vulnerability to disaster risk:

1 ▶ **Widespread social and economic processes** represent the root causes of vulnerability. These are embedded deep within cultural assumptions, beliefs and social relations, so much so that they are virtually invisible. Economic, demographic and political processes that influence the distribution of power and resources are identified as the most important root causes that produce and reproduce vulnerability.

2 ▶ **Dynamic pressures** are processes and activities that mediate between root causes and unsafe conditions e.g. rapid and unplanned urbanization, land tenure systems, migration, price regimes, policy incentives. Root causes and dynamic pressures serve as structural constraints which determine the degree and reliability of people's access to resources. It could be that while these resources may be available locally, people are unable to access them due to socio-economic, political or physiological reasons.

3 ▶ **Unsafe conditions** are specific forms of vulnerability which are experienced by vulnerable populations when they interface with hazards. For example, unsafe houses that are located on landslide-prone hillsides, or poor-quality houses in remotely located settlements are difficult to access in an emergency.[19]

WHO IS VULNERABLE TO NATURAL HAZARDS AND CLIMATE CHANGE?

Three features define the vulnerability of communities:[20]

Location: Communities living and working in highly fragile or remote areas that are frequently exposed to hazards

Socio-economic status: Communities living in poverty with poor access to infrastructure and basic services, who tend to be socially marginalized and experience barriers to accessing markets, jobs and other services, and are usually highly dependent on natural resources for livelihoods

Political and institutional marginalization: People whose voices and priorities are missing from public decision-making

The Government of India identifies economically and socially weaker segments of society as vulnerable and therefore more at risk from disasters. It specifically points to elderly persons, women (especially destitute women), children (especially orphaned children) and the differently-abled as groups at higher risk of being adversely affected by disasters.[21] While criticized for not being specific enough, this definition is broad enough to include the disadvantaged and marginalized segments of the Indian population including rural landless populations, small and marginal farmers, dalits, adivasis and inhabitants of informal settlements.

BUILDING DISASTER AND CLIMATE RESILIENCE

Disaster resilience therefore refers to the capacity to anticipate, cope with, resist and recover from impacts of natural hazards and extreme events.[22] Disaster management has historically focused on post-disaster response, recovery, and rehabilitation. In the last 20 years, the global debate on disaster has shifted from a focus on managing disasters to managing disaster risks, emphasizing the need to proactively reduce disaster risk by embedding resilience in development.

Dispelling the notion that disasters are isolated events, this approach sees disasters as the result of development failure. It calls for a more holistic, sustainable approach to development, arguing that investments made in preventing disasters are more cost-effective than those made in responding to them.[23] Furthermore, in a rapidly warming world, the success of development and poverty reduction efforts will depend on the extent to which they adapt to the changing frequency and magnitude of disasters.

WHY INVESTING IN ADAPTATION MATTERS

Climate actions fall into two categories of responses: mitigation and adaptation. Mitigation addresses the causes of climate change by reducing greenhouse gas emissions to prevent further global temperature increases. Adaptation, on the other hand focuses on adjusting to the impacts—or expected impacts—of climate change to protect people from them. In other words, adaptation refers to building climate resilience.

Both types of actions are critical to dealing with the climate crisis. However, as the poor and marginalized are most impacted by the ill-effects of climate change, adaptation or resilience investments have greater potential for advancing and protecting their development and wellbeing in the short and medium-term.

Global statistics show that financial investment in climate change is rapidly growing and is currently estimated at an average of USD 436 billion annually. Of this, total adaptation finance is estimated to be only USD 22 billion per year.[24]

One reason for this is that adaptation actions are highly context-specific and there are no common metrics to measure adaptation benefits in the way that greenhouse gas emission reductions can be measured. While there is evidence to suggest that in many cases more effective, efficient and sustainable results can be achieved by financing and involving local actors, most development and climate finance flows from international agencies to national governments, who have limited capacities to address locally-specific needs of poor and vulnerable communities. A preliminary estimate of dedicated climate funds showed that between 2003 and 2016, less than 10% of international climate or development finance engaged with local actors.[25]

There are three ways in which adaptation or resilience building at a community level currently occurs:

1 ▶ **Emergency preparedness for more effective response** where communities are aware of disaster threats, receive early warnings, plan for emergencies and take action to protect their lives, livelihoods and homes. This has contributed substantially to saving lives during disasters.

2 ▶ **'Building back better' after disasters** where reconstruction processes—especially housing and infrastructure rebuilt after disasters—incorporate measures to withstand the negative impacts of future disasters, thereby building resilience. This approach focuses primarily on rebuilding, repairing or retrofitting damaged physical structures after disasters.

3 ▶ **Disaster Risk Reduction (DRR)** where resilience measures are embedded in development and poverty reduction programs. This is arguably the most challenging but urgently needed approach. It transforms development processes such that they can prevent the construction and accumulation of risk and can withstand big and small disasters in the future. Ideally, to function effectively and prevent gains from being eroded all development and poverty reduction initiatives should incorporate disaster and climate change.

FIVE FACTS ON VULNERABILITY AND HOW THEY SHOULD INFORM COMMUNITY RESILIENCE BUILDING

WHAT WE KNOW	WHAT WE SHOULD DO
1. Poor people suffer disproportionately from disasters Poor people are more likely to suffer in the event of floods, droughts, landslides, sea-level rise and heat waves. This is because their asset base is often too thin to cushion them from crises. They tend live in neighbourhoods with poor access to infrastructure and basic services such as water supply, sanitation and healthcare. They are fre	1. Ensure that disaster management and climate adaptation programs target the poor, the near-poor and the marginalized to protect their homes, lives, livelihoods and wellbeing from being disproportionately eroded.

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quently dependent on daily wages, which means small losses in earnings can have large impacts on household wellbeing. Lastly, poor and mar ginalized communities frequently live in areas with high exposure to hazards such as low-lying areas and riverbanks. These factors, along with their exclusion from public decision-making, compromise their ability to effectively withstand, absorb and recover from shocks and stresses caused by small local disasters as well as large-scale ones.

2 .Disasters keep poor people poor by eroding poverty reduction gains

Estimates from a World Bank study using data from 89 countries show that that if there were no disasters, 26 million people would rise out of poverty in a year.[26] Economic losses from disas ters can counteract the increases in household income. For example, a poor household may access subsidies to build productive assets such as poultry or machinery. But any additional income earned through these assets may be absorbed by livestock losses, damaged housing, food shortag es or ill-health caused by disasters.

3. Vulnerable populations usually live with a range of risks

These inter-connected risks include threats of conflict, violence, evictions, food insecurity, wage losses and health crises which weaken their ability to deal with the shocks and stresses caused by natural hazards and climate change. Despite this, disaster management or climate adaptation projects often take siloed approaches, narrowly focused on one issue. For example, a project might focus solely on structural measures to flood-risks in informal urban settlements, where as residents may face a number of interconnected problems including the loss of livelihoods, poor access to health services and evictions.

4. Vulnerable groups are not intrinsically vulnerable

Communities are vulnerable because of so cio-economic processes that construct and rein force their vulnerability. Their differential access to resources and power limit the extent to which they can absorb shocks and stresses caused by cli mate-induced disasters. If we accept that limited access to decision-making and resources is con structed by social and economic processes, then we can begin to transform the processes that give rise to vulnerability rather than focusing purely on technical solutions or service delivery.

2. Build resilience strategies into poverty reduction

Resilience should be embedded in initiatives to prevent poverty-reduction resources and assets from being eroded by disasters. For example, India's flag ship social protection program—Mahatma Gandhi National Rural Employment Guarantee Program— guarantees 100 days of employment per year, to cre ate rural assets such as water harvesting structures that enhance resilience in the face of water scarcity.

3. Promote an integrated approach that addresses multiple risks

Building the resilience of the poor and marginalized requires holistic approaches that integrate multiple solutions rather than addressing disaster-related risks as an isolated problem. There are numerous cases of small and marginal farmers, including grassroots women's groups, prioritizing economic activities that increase their incomes while reducing disaster risks. These farmers are diversifying crops to include growing low input, climate-resilient food crops that conserve water, improve household nutrition and stabilize or enhance incomes in the face of falling agricultural productivity.[27]

4. Design resilience initiatives to combine technical assistance and empowering the vulnerable

While disaster management has historically been approached from a techno-managerial perspective, it needs to invest in dismantling structural inequi ty and inequality as much as in creating technical solutions for disaster resilience. Building solidarity networks of vulnerable groups, enabling them to gain access to new technologies, innovate togeth er, demonstrate solutions and gain institutional recognition empowers communities to voice their priorities in public decision-making forums such as gram sabhas or ward-level meetings and influencing programs. This begins to transform the social and political processes that produce vulnerability.

5. Disasters are often seen as isolated events but are usually the consequences of accumulated risk

These risks are constructed over long periods of time through development processes. For instance, wetlands and urban rivers provide natural drainage for floodwaters which explains partly explains the increases in urban flooding. For example, flooding of the Mumbai's Mithi River occurs because its floodwater-carrying capacity has been severely compromised by debris dumped in the river and encroachments on its banks.[28]

5. Design development processes that prevent further accumulation of disaster risk. Long-term investments are required to shift policy and regulatory frameworks to systematically prevent further accumulation of risks. Some examples of this are the enforcement of building codes and no-build zones, curbing deforestation in hilly areas to prevent landslides and protection of wetlands to protect against coastal flooding.

RESILIENCE BUILDING EFFORTS MUST BE TAILORED TO ADDRESS VULNERABILITIES OF LOCAL COMMUNITIES

For the purpose of this paper, communities refer to groups of people who live in impoverished urban or rural settlements, receive either poor or low incomes, lack decent housing and have poor access to basic services and infrastructure. Frequently, these groups also have poor access to information as they are socially marginalized and unable to voice their concerns in public decision-making processes.

When building resilience to disasters, here are five things to keep in mind about local communities.

1. Poor and marginalized communities and their households bear the brunt of disasters and climate change; the impacts of which are highly location and context specific. This means that although disaster resilience needs to be built at a massive scale across the country, solutions must be highly localized and tailored to specific contexts. Each community is different in terms of its topography, natural resources, access to infrastructure and services, livelihoods, housing and settlement patterns, as well as cultural and socio-economic status.

2. Small-scale, local disasters often go unaddressed. State and national governments recognize and provide resources to address large-scale disasters. However, smaller scale, localized disasters such as heat waves, cold waves, cloudbursts and small-scale floods that can have equally devastating impacts on local populations, particularly the poor, draw little attention and resources.

3. National or state-level programs may not reach local communities. Where programs exist, the poorest and most marginalized communities may lack the information and means to access them or may have to bear high costs for accessing them. For example, middlemen charging fees to help households access entitlements could substantially increase the cost and lower the benefits of government programs for the poor.

4. The most vulnerable groups can be unreachable during crises: Most vulnerable communities may be invisible to outsiders as they could be living in remote areas difficult to access during a disaster, often with no official records of their presence. In such cases communities must depend on their own skills and resources to survive. Here, building and strengthening solidarity networks—which provide support through early-warning systems, emergency responses and coordinated relief, and also ultimately drive collective action to advance their resilience—are crucial.

5. Organized groups of poor and marginalized people across the country are demonstrating strategies for advancing resilience to climate change and disasters: Where poor and marginalized communities are demonstrating leadership in advancing resilience, their capacities and leadership need to be enhanced. This will allow them to build on their experiences, convey their learning to other communities and influence decision-makers. More importantly, investing in building grassroots networks and strengthening their leadership creates local capacity that is more likely to remain within the community in the long run.
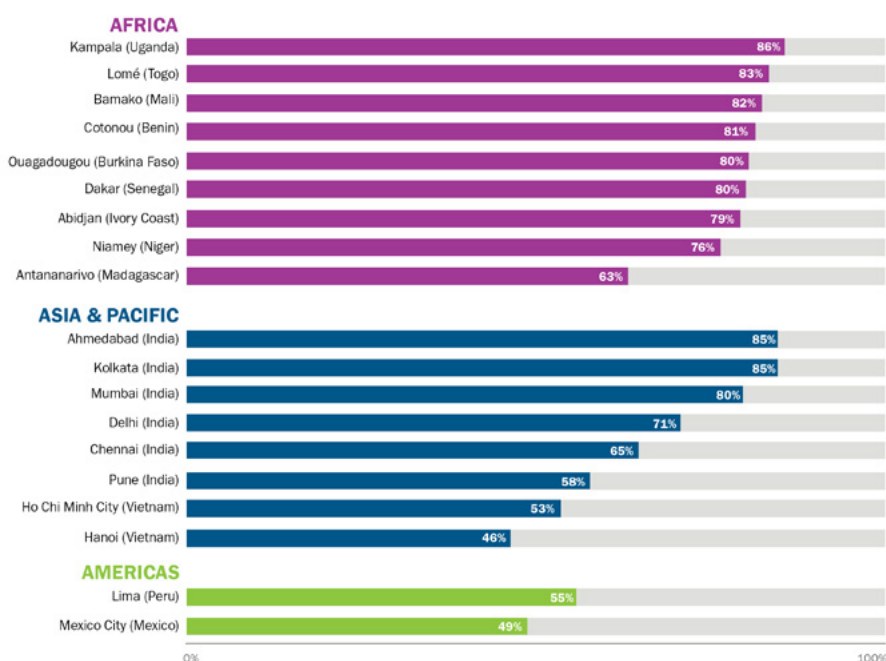
REALITIES OF THE MOST VULNERABLE ARE SIDELINED IN POLICY DISCUSSIONS

Despite being the most severely impacted by shocks and stresses caused by both small and big disasters, realities of the poor and marginalized are often excluded from policy debates. There are four ways in which this exclusion occurs.

1. Focus on Aggregate Losses: Policy discussions on disaster losses tend to focus on assets and aggregate losses in relation to GDP. While these numbers are an effective means of highlighting the increasing scale and intensity of disaster events, they don't address the impact of disasters on those worst-affected by them—poor and marginalized communities. The asset base of the most vulnerable is invariably thin or non-existent; and their losses form a miniscule proportion of aggregated national losses. While policymakers tend to focus on replacement costs of assets lost, wellbeing losses of the poor often go unaddressed. For example, in India it is common for crises to reduce a household's access to medical services and food consumption or to result in children being taken out of school. A global study of 117 countries by the World Bank found that people in the bottom 20% of the population experienced only 11% of total asset losses, but 47% of all wellbeing losses.[29]

2. Focus on the Formal Sector: According to a recent ILO study, approximately 81% of all employed people in India work in the informal economy.[30] The last Census states that about 64 million people in Indian cities live in informal settlements. Governments usually do not have reliable data on the informal sector. So while these people are often the hardest hit by extreme events, their informal status means that governments have poor records of who they are, what they earn and what they lose in disasters. In effect, the most vulnerable people are virtually invisible with little or no ability to claim resources, whether these are from development or disaster related programs.

The informal sector employs more than half the number of people employed in major Indian cities.[31]

AFRICA	
Kampala (Uganda)	86%
Lomé (Togo)	83%
Bamako (Mali)	82%
Cotonou (Benin)	81%
Ouagadougou (Burkina Faso)	80%
Dakar (Senegal)	80%
Abidjan (Ivory Coast)	79%
Niamey (Niger)	76%
Antananarivo (Madagascar)	63%
ASIA & PACIFIC	
Ahmedabad (India)	85%
Kolkata (India)	85%
Mumbai (India)	80%
Delhi (India)	71%
Chennai (India)	65%
Pune (India)	58%
Ho Chi Minh City (Vietnam)	53%
Hanoi (Vietnam)	46%
AMERICAS	
Lima (Peru)	55%
Mexico City (Mexico)	49%

Source: WIEGO Dashboard, 2018.

3. **The Perception of the Poor as Passive Beneficiaries:** Poor and marginalized communities tend to be perceived as passive victims or beneficiaries, dependant on external actors. While disaster-prone and disaster-affected communities are indeed vulnerable and in need of external assistance, this is only one side of their reality. Communities—particularly those which are organized—have local knowledge of where the most marginalized households are located and how to ensure that food and essential supplies reach them. In addition to undertaking rescue and relief operations, organized communities have tested strategies to protect natural resources and secure incomes, food and livelihoods to reduce the impact of disasters.

The perception that poor communities are simply passive recipients of aid disregards the knowledge, skills and leadership that they offer, and leaves them out of public decision-making, thereby reproducing the social hierarchies that allow vulnerability to persist. In contrast, approaches that recognize the knowledge and leadership of communities as agents of change empower them to bring their priorities into public decision-making and claim public resources, thus reconfiguring the processes that reinforce vulnerability.

4. **The Conflation of Exposure with Vulnerability:** Exposure is often conflated with vulnerability. Exposure refers to "the people, property, systems, or other elements present in hazard zones that are thereby subject to potential losses".[32] Based on this, an entire population located in a hazard-prone region threatened by a cyclone or flood is said to be exposed to it. Vulnerability on the other hand, has three components: exposure to hazards or climate change, socio-economic status and the capacity to take action to prevent damage and losses. Therefore, vulnerable communities are more likely to experience losses not only as a result of their location but also because of their socio-economic status and inability to take action to protect themselves in the event of disasters.

The Vulnerability Atlas of India illustrates the confusion between the two terms. While its title suggests a focus on vulnerability, the Atlas actually maps zones exposed to different hazards: earthquakes, winds, floods, landslides, cyclones and thunderstorms. However, specific populations within these areas are more likely to be vulnerable or adversely impacted by these hazards based on their socio-economic status, which weakens their ability to protect themselves.

Vulnerability Atlas of India: Flood and Cyclone Hazard Maps [33]

III
FOUR STAKEHOLDERS AND THEIR APPROACHES TO COMMUNITY RESILIENCE

THE GOVERNMENT

Disaster Management

The Central Government has taken several steps to develop a strong institutional architecture for disaster management. The Disaster Management Act of 2005 [34] laid out roles of the National Disaster Management Authority and State Disaster Management Authorities as institutions dedicated to disaster preparedness, response and risk reduction at national, state and district levels. The disaster management machinery has been highly effective in communicating early warnings and mobilizing rapid responses, thereby substantially reducing mortality losses from disasters.

The most recent example of its effective preparedness and response was during Cyclone Fani, which hit Odisha in early May 2019. While the Super Cyclone of 1999 killed about 10,000 people, only 64 lives were lost to Cyclone Fani, out of a total affected population of 16.5 million people across more than 18,000 villages of Odisha. However, despite the Disaster Management Act stating that disaster management covers disaster mitigation, response, recovery and reconstruction, government initiatives have tended to focus on emergency preparedness, response and post-disaster recovery.

Cyclone Fani: The Government's Response (May 2019) [35]

On receiving early warnings from the Indian Metereological Department, the Odisha government evacuated close to 1.5 million people, moving them to 9,177 shelters. About 25,000 tourists were evacuated from vulnerable areas by special trains and buses. All fishing activities were suspended two days prior to Fani's landfall. The government also organized massive awareness campaigns informing people on how to stay safe. Volunteers were mobilized to support local administration and communities to evacuate, distribute relief and carry out shelter management. District and Emergency Operation Centres were active 24x7 with deployment of senior officials at the district level. To ensure food security in the aftermath of the cyclone, food grains were pre-positioned at fair-price shops for distribution. Immediately after a landfall a massive rescue-and-response operation was launched. 60 teams from the National Disaster Response Force, 18 units from the Odisha Disaster Rapid Action Force and 585 fire teams with 45,000 volunteers were mobilized to carry out relief operations along with the Eastern Naval Command. About 10,000 food packets were air-dropped and more than 6,000 free kitchens served cooked meals with the help of local panchayats and self-help groups.

Challenges to Embedding Disaster Resilience in Development Efforts

There are three interconnected challenges to embedding disaster risk reduction measures in development programs. The first is a problem of jurisdiction and coordination: disaster management institutions do not have the authority to design poverty, infrastructure and housing initiatives. These are overseen by other ministries and line departments, and there is limited coordination among relevant ministries such as the National Disaster Management Authority and the Ministry of Environment, Forests and Climate Change.

The second issue is that amid competing demands on their human and financial resources, government departments and institutions have not prioritized the need to embed disaster risk reduction measures in development structures and processes. While some ministries such as Water Resources have traditionally embedded risk reduction elements which can be updated based on recent events and climate projections, most ministries do not have risk reduction embedded in their programs.

Lastly, and arguably the biggest challenge is that while the 2005 Disaster Management Act made provisions for dedicated funds for disaster mitigation or disaster risk reduction (DRR), this was never implemented. Disaster risk reduction is therefore dependent on external resources.[36] One reason for the lack of dedicated DRR funds is the assumption that since DRR must be mainstreamed in all development sectors, resilience building would be resourced through the budgets of those sectors. For example, the additional resources required to make roads and highways more resilient to disasters should come from the budget of the Ministry of Roads and Highways or the National Highway Authority of India.

India's Climate Action Plans

India's National Action Plan on Climate Change (NAPCC) announced in June 2008 is located within the framework provided by the National Environment Policy of 2006, which promotes sustainable development within the constraints imposed by ecology and the imperatives of social justice.[37] It took until 2014, however, to identify the eight missions through which the plan would be implemented. These missions are National Solar Mission, National Mission on Sustainable Habitats, National Mission for Enhanced Energy Efficiency, National Mission for Sustaining the Himalayan Ecosystem, National Water Mission, National Mission for Green India, National Mission for Sustainable Agriculture and National Mission for Strategic Knowledge on Climate Change.[38]

Implementation Challenges for State Climate Action Plans

The missions face major implementation challenges. Most of these challenges arise because state governments' lack expertise in developing context-specific State Action Plans for climate change, based on detailed vulnerability assessments. States find themselves hindered by the lack of dedicated experts in what is an emerging field, as well as the absence of clarity on financial resources to implement these plans.

A study by the Centre for Science and Environment (CSE) showed that most states had not undertaken vulnerability assessments. In the absence of these assessments, state plans did not match the realities and priorities of those most vulnerable to climate change. For example, in Uttar Pradesh—where approximately 70% of the population depends on agriculture and where farmers are worst hit by climate change—only 0.2% of its climate action budget is allocated to agriculture.[39] Another implementation hurdle is the state-wise baseline data required by the National Water Mission to forecast future scenarios. At the time of conducting its study, CSE reported that only 26 baseline projects had been undertaken in six states.[40]

Setting Precedents for More Locally Responsive Resilience Building

Despite all these challenges however, there are a host of government-led initiatives that are advancing local resilience. Collaborations between government and grassroots groups set precedents and demonstrate that the government can design and deliver innovative programs which enhance community resilience.

For example, the Chilika Lake Development Authority's restoration of the lake's ecosystem restored both, its biodiversity and enhanced livelihoods of the fisherfolk dependent on the lake. The Karnataka State Natural Disaster Monitoring Centre has set up more than 6,000 telemetric rain-gauges that transmit information on rainfall to alert authorities. Kudumbashree groups in Kerala are being empowered to take on formal roles in the recovery process. District Disaster Management Plans and District Climate Resilience Plans represent entry points for multiple stakeholders—including civil society—to demonstrate inclusive resilience planning at the local level in collaboration with district and sub-district government institutions.

Kerala's Kudumbashree Women's Groups: Partners in Flood Relief and Recovery

Kudumbashree is the poverty eradication and women's empowerment program of the State Poverty Eradication Mission of the Government of Kerala. The Kudumbashree network has a total membership of approximately 43 lakh women who make up 2.77 lakh groups federated across the state. Following the 2018 floods in Kerala, the network of Kudumbashree women contributed more than INR 7 crores to the Chief Minister's Relief Fund. Most of these funds were mobilized through the groups. Kudumbashree groups also collaborated with the state government to organize several aspects of relief and recovery. Community kitchens in 10 locations distributed 35,000 food packets over five days, and community counselling by Kudumbashree members reached 40,000 people. Kudumbashree women set up a café and catering unit, which earned INR. 8.3 lakhs from the government in 15 days by catering to communities and volunteers spread across four locations.

Looking forward, Kudumbashree will partner closely with the government on the Resurgent Kerala Loan Scheme to provide interest-free loans up to INR 1 lakh to repair homes, buy household appliances and restore livelihoods. Kudumbashree members will be responsible for loan distribution to eligible members, banks will provide the loans to Kudumbashree groups and the monitoring of repayments will be undertaken by Kudumbashree federations at local government levels.[44] This sets a precedent for similar partnerships between state governments and self-help groups.

District-Level Disaster Management and Climate Resilient Plans: Entry-points for Collaborative, Inclusive, Bottom-up Planning

The District Disaster Management Act of 2005 requires every district to prepare and regularly review District Disaster Management Plans (DDMPs). District planning processes can be a strong entry point for linking multiple stakeholders—communities, NGOs, government, enterprises—and creating convergence among different departments to address local community resilience priorities.

In 2015, the Bihar State Disaster Management Authority issued a call for proposals for technical assistance to prepare DDMPs. This enabled several organizations to collaborate with district authorities. For instance, the All-India Disaster Mitigation Institute and Knowledge Links worked with the government to design inclusive planning processes that involved communities and panchayats in shaping DDMPs. They also identified convergence strategies across government departments for a more coordinated approach to reducing disaster risks and responding to disaster.

Similarly, the Climate Action Network South Asia and EFICOR (Evangelical Fellowship of India Commission on Relief) collaborated with state and district authorities in an intensive planning process in Jhansi and Chitrakut districts of Uttar Pradesh. This initiative was the first attempt to introduce an inclusive, multi-stakeholder, multi-sectoral approach to District Climate Resilience Planning.[45]

HUMANITARIAN ORGANIZATIONS

The Focus

Humanitarian organizations provide assistance to save lives, alleviate suffering and maintain human dignity during and after human-made crises or disasters caused by natural hazards.

Humanitarian operations in the context of disasters focus on three kinds of actions:

1 ▶ Early Warning, Emergency Preparedness, and Response: With the growing realization that disasters are a result of development failures, humanitarian organizations have expanded their efforts from short-term delivery of response and relief. Their efforts now include developing communities' capacities to deal with such emergencies—in particular through improved early-warning systems—emergency preparedness and post-disaster response and relief. Some organizations also continue to provide their services during the recovery period which can last for two to three years.

2 ▶ Post-Disaster Response and Relief: This involves efforts to save and preserve life in humanitarian crises or their immediate aftermath by providing medical assistance, food, water, safe shelters and sanitation for disaster-hit communities.

3 ▶ Post-Disaster Access to Entitlements: This involves facilitating access to relief aid and services, and ensuring that people access entitlements and humanitarian assistance. Making sure that relief aid and services reach the most vulnerable is essential to providing adequate protection and assistance.

Recognizing that they are outsiders to the vulnerable communities they serve during crises, organizations providing humanitarian assistance often route their assistance to disaster-affected communities through local NGOs and grassroots partners. These local partners reach out to their constituencies, quickly assess the local situation and respond to community needs, ensuring that help swiftly reaches the most vulnerable.

The Localization Debate

One of the major reforms emerging from debates within the global humanitarian system is the commitment to localization. In 2016, 46% of global humanitarian funding from the Organization for Economic Cooperation and Development's Development Assistance Committee went through multilateral agencies (mainly eight of them). Of the remaining amount, more than 85% went through international NGOs (INGOs). More than half of the funds that went through INGOs went to the 10 largest recipients, with civil society organizations from the Global South receiving only 1.65% of international humanitarian assistance set aside for civil society in 2016, and only 0.3% of it in 2015.[46]

Recognizing that greater efficiency and effectiveness in humanitarian action requires more financial resources to be channelled directly to national and local organizations, participants at the World Humanitarian Summit 2016 resolved to increase the proportion of funds going directly to local and national actors. However, the definition of organizations considered 'local' or 'national' was later diluted such that INGOs registered in the Global South—including India—could be considered 'local' or 'national.'[47]

In India, the dominance of INGOs—including those legally registered in India—is cause for some tension. INGOs receive the bulk of humanitarian resources from external sources, for which Indian organizations are usually ineligible. In addition, INGOs are also perceived as being better equipped to raise funds from Indian sources. However, while one set of humanitarian practitioners interprets the call for localization as more resources flowing to Indian NGOs, another set interprets the localization agenda as the need for more resources to flow to local communities, not just NGOs.

The Need for Coordinated Responses to Disasters

The immediate response and relief phase following disasters is a period where there is high media coverage and a public outpouring of sentiment and solidarity, accompanied by financial and non-financial support from individuals and institutions. With large numbers of actors keen to provide different kinds of assistance humanitarian operations can become chaotic, and the mismatch between community needs and relief assistance can result in worsening conditions of survivors as well as wasted resources. A coordinated response has therefore emerged as a critical need.

Transitional Housing:
Filling the Gap Between Short- and Long-Term Initiatives

Post-disaster initiatives tend to be focused either on short-term crises—emergency response and relief—or on long-term reconstruction and rehabilitation. But there is an interim period between short-term relief and long-term reconstruction that is underserved. Transitional shelter represents one such area. While families have been successfully evacuated during floods or cyclones, there is a question of where they are to be sheltered until their homes are safe for them to return to. This could take anywhere from a few weeks to a few years. Both civil society and government agencies tend to focus their housing initiatives either on emergency shelter needs or in long-term permanent housing, leaving transitional shelter as a major gap. Transitional shelter requires a bottom-up, context-specific approach in which technology needs to be low-cost, fast and durable.

Sphere India: Mechanisms for Coordinated Humanitarian Assistance

Sphere India,48a coalition network of humanitarian actors including UN agencies, INGOs, and national and local civil society groups, has developed several mechanisms and tools for coordinated humanitarian action for post-disaster response, relief and early recovery. Among these are Sphere's Inter-Agency Groups at state and district levels, which include UN agencies and international, national and local civil society actors. These inter-agency groups are regularly convened along with government officials to identify lead agencies to address community needs in different sectors and geographical areas and to share information and insights to prevent duplication of efforts. In areas where members are active, the Sphere network also builds a Unified Response Strategy Matrix—a database of local civil society groups and their expertise. Following the immediate response and relief phase after the Kerala floods, Sphere identified and provided the state government with a list of 172 local and national organizations reaching 73,000 households. It also alerted the government to potential partners who could assist in the formulation and implementation of the next phase of recovery and reconstruction.

Another coordination mechanism is the Joint Detailed Needs Assessments (JDNA) focusing on community relief and recovery priorities. Following the Kerala floods, JDNA was conducted in the 10 worst-affected districts. Local volunteers were trained on data collection in 11 key sectors including livelihoods, water and sanitation, food security, health, education and shelter.[49] The findings were subsequently presented at a seminar attended by several institutional actors including UNDP and the Kerala State Disaster Management Authority.

SEEDS: Constructing Transitional Shelters for Disaster-Hit Communities

SEEDS has built transitional shelters in disaster-affected areas following 15 major disasters. Locations in which SEEDS developed, designed and organized the construction of transitional shelters include Andaman and Nicobar after the tsunami in 2004, Leh following flash floods in 2010, Assam following the floods in 2012, Nepal after the earthquake in 2015, West Bengal following floods in 2017 and most recently Kerala after the floods in 2018. As shelters must be tailored to locally specific contexts—geographical location, exposure to hazards, land availability, materials available, livelihoods and social needs—community participation is key to the process. While households are engaged in design and construction, communities identify households most in need of shelter and monitor their construction. Shelter construction with communities is approached in one of three ways:

Option 1: The design, location and choice of material is informed by community consultations while construction is undertaken partly by a local contractor.

Option 2: Shelter design is developed by a SEEDS team of architects and social scientists, while a socio-technical team provides hand holding support to a local construction team, ensuring that critical features are incorporated.

Option 3: SEEDS provides materials and training to local artisans and organizes design workshops through which families are given advisory support.

Post-Disaster Recovery and Reconstruction as Opportunities for Transformation

Post-disaster recovery and reconstruction can also be powerful opportunities to organize and empower communities by transforming relationships and development processes. Organizations often seize these opportunities to rebuild communities in ways that not only 'build back better' housing, infrastructure and services but also mobilize affected communities and marginalized groups to collectively address long-term development priorities.

GOONJ: Post-Disaster Initiatives as an Entry Point for Long-Term Change[50]

Goonj uses under-utilized and excess urban household material as a tool to address critical gaps in rural de velopment in 23 states. In response to one of the worst floods in Jammu & Kashmir, Goonj and its committed team of local volunteers quickly realized that for those who had lost everything in the floods, the onset of the harsh winter posed a grave threat. They therefore prioritized the distribution of 20,000 winter kits containing warm clothing, mattresses, quilts, etc. to the most neglected populations.

Goonj's Cloth for Work program protects people's dignity rather than simply delivering charity. Communi ties identify priorities for action and participate in a Cloth for Work program to implement them, which pays for labour in kind through clothing kits. The kits—which include quilts made by rural women from discard ed clothing—are also a means of supporting rural livelihoods. The Cloth for Work Program also supported a group to clean their community graveyard as a mark of respect to their dead. In another place, men and women got together to clean out clogged drains. In Hassanpora Tawela in Anantnag, where about half the 504 households lost everything when their houses collapsed, village elders and local volunteers organized to clean up a 1.5 km canal under the Cloth for Work program. A year later they built a road to reach their paddy fields. Encouraged by this success, a series of village meetings led to a decision to build a 5 km link road between two villages, which was constructed in eight days by more than 473 people. The village later approached the Block Development Officer to strengthen the road through NREGA resources.

DEVELOPMENT NGOs PARTNERING WITH LOCAL COMMUNITIES

Civil society organizations working for more than two decades in search of solutions to everyday problems experienced by the poor and marginalized represent a key stakeholder group engaged in advancing com-munity resilience. Rather than identifying themselves as disaster management or climate action specialists, these development NGOs see themselves as social change actors, empowering the economically and socially marginalized to improve the quality of their everyday lives. Their long-term approach to mobilizing grassroots networks focus on development problems, which weaken the capacity of the most vulnerable to withstand disaster impacts. NGO–community partnerships focused on advancing development as a route to building resilience are characterized by three approaches.

Building strong community ownership—a crucial element of scaling up bottom-up initiatives51

Pressing government institutions to be more responsive and accountable to the poor and marginalized

Contradicting the assumption that vulnerable, disaster-prone communities are passive beneficiaries rather than agents of community resilience

Four Defining Features of Organizations Focused on Community Development

1 ▶ The starting point is local communities and their development priorities

Local realities of marginalized communities in rural, urban and tribal areas have been the starting point for these NGOs, coupled with a strong belief in bottom-up versus trickle-down development approaches. This has led NGOs to work closely with communities to find solutions to everyday problems of livelihoods, water, food, housing and infrastructure; while addressing the development failures that both, produce vulnerabilities to climate change and disasters, and allow those vulnerabilities to persist.

2 ▶ Community leadership is nurtured

NGOs have nurtured and promoted community leadership by mobilizing communities and facilitating the formation of community-based organizations including women's self-help groups, women's sanghas, farmers' groups and slum-dwellers' federations. Doing so harnesses the collective power of organized and informed grassroots constituencies.

Community-based organizations set their own agendas and drive collective action on local community priorities. This approach enables communities to sustain collective action beyond the boundaries of project cycles. As effective resilience strategies must be highly localized and context-specific, the NGOs described here have collaborated closely with communities, drawing on their local experiences, traditional knowledge and skills. Such collaborations allow organizations to co-create and test context-specific solutions that are owned and transferred by community experts.

3 ▶ Assets and networks of vulnerable groups are strengthened

To withstand and recover from disasters, people depend on their assets and networks. Assets can be natural resources, physical housing, and infrastructure, or financial assets such as savings. Networks include horizontal solidarity networks as well as relationships built with other actors such as the government or businesses.

Vulnerable groups usually have a thin asset base. Therefore, securing and strengthening their assets such as land, housing, savings and upgrading infrastructure is key to building community resilience.

4 ▶ Partnerships with government

Organizations engaged in empowering vulnerable communities are continually engaged in dialogue, partnerships and advocacy with different levels of the government machinery. They also support local community actors to interface with decision-makers. These collaborations and engagements with the government generally have two objectives: the short-term practical objective of leveraging resources from government programs and budgets and the second more strategic long-term goal of influencing governance processes, deepening democratic practice and pressing government institutions to be more responsive and accountable to the poor and marginalized.

Swayam Shikshan Prayog: Advancing Climate Resilient Agriculture Through Women-led One-acre Farming Model

Swayam Shikshan Prayog (SSP) supported rural women to claim public leadership roles as communication assistants in the State Government- led reconstruction program after the 1993 Latur earthquake. Today SSP is active in six drought-prone districts of Maharashtra, where it focuses on empowering women farmers to build resilient livelihoods and strengthen food security through farming and enterprise. Despite their involvement in farming, women are perceived as farm laborers rather than farmers, because they do not own land. This inhibits women's access to resources including finances and government extension services. Since 2014, SSP has worked closely with women farmers to design and test the Women-led One-acre Farming Model. This model promotes integrated farming techniques such as optimal use of local resources, recycling farm waste for productive use, water conservation, organic farming, increased livestock and farm-allied businesses and increased consumption and marketing of nutritious farm-grown food crops including traditional millets. Increasingly, these women are being recognized

as farmers and are gaining access to extension services and government training. Women farmers are positioned as experts and leaders, and many have subsequently become champions who train new leaders and lead grassroots advocacy efforts at the district and state level.

SSP has set up two farmer producer companies in Osmanabad district in which active women farmers are encouraged to take up leadership roles as directors. The Women-led One-acre Farming Model is currently operational across 650 villages with support from the Government of Maharashtra, the private sector and other donors.[52] SSP is currently facilitating grassroots-led exchanges and a transfer of practices in Bihar, Odisha and Kerala to transfer its women's empowerment-based approach to resilience building.

SPARC,[53] Mahila Milan and National Slum Dwellers Federation: Community-led Sanitation Solutions in Cities

Sanitation is already a problem for many Indian cities, but the problem increases manifold for communities in informal settlements when cities flood. After several years of experimentation in Mumbai, the Alliance of SPARC, Mahila Milan and the National Slum Dwellers Federation found that community toilet blocks would be more practical than individual toilets in homes. In their initial years, community-designed and managed toilets were largely donor-funded. Taking this to a larger scale meant involving municipalities as active partners whose budgets needed to include slum sanitation. In 1994, the Alliance was invited to bid for the construction of 320 toilet blocks in the World Bank's sanitation program in Mumbai, but on finding that the tendering and project design would disrupt and distort community processes, the Alliance decided not to bid. However, it continued to work in other cities, exchanging experiences and building community capacities to undertake surveys, design homes, establish savings groups and negotiate with the state. By 1998, the Alliance had constructed 114 toilet blocks in Pune through its community-managed, community-designed sanitation process.

Meanwhile the World Bank had failed to construct a single toilet in Mumbai. The Alliance was once again invited to a tendering process in Mumbai—this time with design specifications and procurement policies reformulated to suit the Alliance—and SPARC was awarded a contract to construct 320 toilet blocks with 6,400 seats in 20 wards of Mumbai. Exploring new solutions, and designing and constructing toilets has been an ongoing process in the Alliance for more than two decades now, with a growing number of cities prepared to finance capital costs of construction.

The Alliance currently works in 53 cities across India and has a non-profit construction company which allows slum dwellers to bid for slum-upgrading and other kinds of construction contracts.[54]

Gram Vikas Vigyan Samiti (GRAVIS): Organizing the Elderly and Building on Traditional Community Knowledge

GRAVIS works with rural communities in more than 1,300 remote villages of rural Rajasthan to address water security, and to improve the livelihoods and health of people from economically and socially marginalized communities, with an emphasis on elderly people. For over three decades, GRAVIS has supported the formation of more than 3,000 community-based organizations. Among these are Village Development Committees (VDCs), Village Older People's Associations (OPAs) and Older Women's self-help groups (SHGs), with special attention to widows who tend to live in isolation.

In addition to promoting the dignity and autonomy of the elderly, GRAVIS facilitates their leadership and highlights their contributions to the wellbeing of the larger community. Older women in OPAs and SHGs are lobbying health officials for better primary healthcare services and for medical providers that are better trained to prevent and manage non-communicable diseases; the benefits of these efforts will not be restricted to just older women.

Traditional wisdom and knowledge of the elderly have played an important role in reviving desert ecosystems and in developing solutions to resolve water scarcity. The Thar Desert communities experience climate change in the form of increasingly unpredictable rainfall patterns and rising temperatures, which often lead to crop failure. Blending traditional knowledge with modern science, GRAVIS has revived various traditional water harvesting structures (including rainwater harvesting tanks called taankas and farming dykes called khadins, adapting these to enhance their sustained efficiency and cost-effectiveness. To date, GRAVIS, in partnership with local communities, has built more than 7,000 taankas and 5,500 khadins which have led to improved water, food, livelihoods security and community wellbeing.[55]

THE PRIVATE SECTOR

Historically, the private sector has actively supported disaster relief and rehabilitation. While this trend continues, there is a shift in how relief and rehabilitation is being approached.[56] Rather than simply donating money or goods for relief and rehabilitation, corporations are developing more strategic approaches that draw on their considerable expertise—information management, technology, procurement and setting up distribution networks—to enhance the effectiveness and efficiency of post-disaster relief and rehabilitation.

For instance, after the Kerala floods (2018) IndiGo Airlines provided transport services for their partners Goonj and Uday Foundation. Bata used its local teams to identify three of the worst-hit communities and arranged for shoes, clothes and medicines[57] to be delivered to them. The Tata Sustainability Group has created a cadre of response managers drawn from different Tata Group companies to lead response and relief operations.[58] The Confederation of Indian Industry (CII) used its expertise to support the revival of micro, small and medium enterprises hit by the Chennai floods in 2015 and IBM is working with the Tamil Nadu government on cloud-based technology for enhanced early-warning systems and emergency response.

CII Support for Rebuilding MSMEs and Preparing them for Future Disasters

Following the November 2015 floods in Chennai, CII formed a National Task Force for Relief and Rehabilitation. It soon realized that thousands of micro, small and medium enterprises (MSMEs) in industrial estates in Chennai, Cuddalore, Thiruvallur, Tuticorin and other surrounding districts had suffered devastating losses, but were hardly visible to institutions engaged in recovery.

Within a month of the floods, CII submitted a petition to the Government of India to assist in the recovery of MSMEs, and worked with the Government of Tamil Nadu and the Reserve Bank of India for relief packages. Through a series of planning meetings with MSME associations, banks, experts and insurance companies, insurance for MSMEs emerged as a priority. It was also evident that MSMEs were completely unprepared to handle disasters. The taskforce, therefore, commissioned KPMG India to identify strategies for MSMEs to safeguard themselves from future disasters.[59]

IBM's Cloud-Based Technology for Enhanced Early-Warning and Disaster Response

Following the Chennai floods (2015) IBM was awarded a grant by the Government of Tamil Nadu to establish a cloud-based IBM Intelligent Operations Centre for Emergency Management. The cloud-based centre will enable the government to pool time-sensitive data from multiple sources such as weather forecasts, current conditions and historical data with health service and shelter information from municipal sources, and will display these on a map shared by multiple agencies. This will help to predict where storms are likely to strike and their potential impact on infrastructure and public property. City and state agencies can use this data to coordinate a more effective response .[60]

Leveraging Technology to Build Climate and Disaster Resilience

1. Information Technology Providers

A growing number of information technology providers are building solutions to deliver technical information on climate and weather patterns to help governments, communities and households take appropriate decisions to reduce disaster risks or impacts.

2. Start-ups

A number of start-ups are developing technology solutions to tackle challenges posed by climate change, ranging from early-warning systems, search-and-rescue missions to agriculture advisory services. For example, Skymet Weather Services[61] monitors and predicts weather patterns and provides advisory services to address risks to agriculture. In addition to weather forecasts, village level yields for crops are predicted with high levels of accuracy.

IFFCO Kisan, a mobile application for Indian farmers provides a range of services including agriculture alerts in 10 languages, agriculture-related advice, mandi prices and farming tips. IdeaForge, an Indian drone developer and manufacturer has supported post-disaster relief operations in Kodagu, Karnataka in 2018 and Nepal in 2016. AirPix also promotes the use of drones in disaster management. QresQ collates satellite imagery data to support disaster response and relief to deliver accessible information to organisations.

Kochi-based HW Design Labs has developed Eeezee Bus, a mobile application-based location warning system through which stranded people can identify the location of nearby rescue teams and communicate with them during floods. The app is useful in isolated areas as it works using radio signals and does not need internet connectivity.[62] Geo Climate Risk Solutions provides risk information along with risk reduction and adaptation options, assists communities to manage surface and ground water resources sustainably and has an emergency and humanitarian operations platform that collects and analyses information for timely, effective response.[63]

3. Social Enterprises

Social enterprises are businesses with a social purpose, often set up to serve disadvantaged communities. While profit is not the primary motive, generating revenues is essential to keeping the business going. Social entrepreneurs often fulfil their mission of serving disadvantaged communities by having two entities: one that provides revenue-generating services and a second that seeks external funding to provide services that do not generate revenues. Social enterprises can play a key role in enhancing incomes, securing assets of vulnerable communities and advancing sustainable livelihoods in the face of disasters and climate change.

Naireeta Services' Bhungroo Rainwater Management System for Smallholder Farmers

Naireeta Services Pvt. Ltd (NSPL) was established in 2011 in Ahmedabad. A long history of working with self-help groups revealed that smallholder women farmers in rainfed areas were the worst affected by water scarcity and flash floods, which caused water-logging, increased soil salinity and reduced soil fertility. Bhungroo was developed as a solution for these women and their families. Bhungroo is a rainwater management system that injects and stores excess rainfall for use in dry spells.

Each Bhungroo is co-owned and managed by a group of five to seven women, one of whom must have the land to build the tank. Trained self-help groups identify the most vulnerable households and the selected group is educated on how the water system works. After their socio-economic status and land holdings are verified through government records, the group of beneficiaries is approved by the district-level SHG federation. The beneficiaries also sign several collaborative agreements including joint ownership and maintenance agreements, a water-sharing agreement, and bulk buying of agricultural input. Beneficiaries are charged based on their economic status. Once installed, the Bhungroo has a life of 30–40 years and frees 5–10 acres of land from waterlogging.

17 different designs of this water harvesting system have been developed to serve communities in different agro-climatic zones. To date, more than 4,000 Bhungroos have been constructed in 11 states transforming more than 40,000 acres of land. Increased water supply allows farmers to grow two crops a year where even one crop couldn't be grown. They can repay loans, buy and raise live stock and access government extension services.

Improved access to water has ensured food security, reduced migration to cities, prevented distress sales of land and reduced school dropout rates for girls. NSPL is currently implementing rainwater harvesting systems in several states by also channeling them through government programs such as the MGNREGA in Andhra Pradesh, the National Livelihoods Mission in Gujarat and corporate social responsibility initiatives in Karnataka.

Madurai-based Covenant Centre for Development (CCD) builds community-owned rural enter prises that strengthen local skills and resources. Smallholder farmers groups are among the worst affected by climate change as water tables are severely depleted, water and soil quality are affected, temperatures soar and rainfall patterns become increasingly unpredictable.

CCD currently supports 39 farmers' organizations at different levels of maturity to function as Farmer Producer Companies. It provides inputs to strengthen enterprise strategies including shift ing and diversifying crops, leadership, governance, management systems, financial systems and marketing of local organic produce such as mango, coconut, jasmine and medicinal herbs.

For the past two decades, advanced Farmer Producer Companies have been supplying produce un der the brand name Aharam and have become among the largest suppliers of ayurvedic plants and organic produce to brands such as Dabur, Pure and Sure, 24 Mantra and Surabhi Organics.

Farmer Producer Companies currently earn 70% of their revenues from medicinal herbs and 30% from organic farm produce. CCD promotes collaborative solutions that preserve biodiversity in the face of climate change while developing sustainable enterprises. The two major cyclones in Tamil Nadu—Thane (2011) and Gaja (2018)—uprooted thousands of mango, coconut and cashew trees along the coast. CSR initiatives and government support focused on replanting trees, as they are a source of income for local communities and act as barriers to protect coasts from the impact of windstorms and tsunamis. However, these trees will take at least five to six years to mature. There fore, CCD has partnered with Dabur CSR to plant medicinal herbs—some of which can be harvest ed in six months—on the boundaries of farms and between trees. 2

In response to the needs of poor and low-income rural women in Mann taluka of Satara district, Mann Deshi Foundation set up the first women's cooperative bank for women in rural India. Mann Deshi Bank provides a range of customized products to fit the needs of its 90,000 women account holders, with deposits totalling USD 13 million. Their products and services include doorstep banking, savings, insurance and the first pension fund for rural women with Unit Trust of India. Realizing that grassroots entrepreneurs need more than capital to succeed, Mann Deshi Foundation supports women's entrepreneurship through a range of programs focusing on financial literacy, dig ital literacy, business schools and chambers of commerce. A large proportion of the Bank's clientele belong to small landholders, landless and pastoral communities.

In 2014, the drought not only meant that there was no water or food grain for families but also that there was no fodder for cattle. Mann Deshi Foundation responded by setting up a cattle camp to provide fodder and water for animals, and the camp operated for 18 months until the rains came. This experience led to the development of a water conservation program, which has since con structed 14 check dams and rejuvenated several hundred wells in Mann taluka.

In September 2018, villages were once again experiencing severe drought. By January 2019, distress sales of animals began and families began to look for work in cities. In response to the crisis, Mann Deshi moved rapidly to set up a cattle camp once more to protect what is arguably every farmer's most valued asset. Animals from 52 villages—10,000 cows and bullocks, 35,000 goats—have been brought to this camp. Since then the Government of Maharashtra has set up more than 1,500 cattle camps in Maharashtra. However, these camps were not set up until March 2019, which demonstrates that strong relationships with communities enables greater agility during crises.

IV INVESTING IN COMMUNITY RESILIENCE

Climate change has devastating consequences for the poor and marginalized. Raising our ambitions and accelerating climate action means investing in sustainable, resilient development that transforms the lives of those most vulnerable to the impacts of climate change. It requires a commitment to address immediate, short-term practical needs as well as a long-term commitment to those already suffering the worst consequences of climate change.

Tapping the experience, expertise and networks of those who have tested and scaled resilience strategies and enabling them to take the next step is one way to move forward. Across the country, disaster-prone communities have a wealth of knowledge and experience on what works for them. They need to be empowered to develop and drive strategies that can combat the impacts of disasters and climate change.

INVESTING IN COLLABORATIVE, COORDINATED ACTION

While many community resilience initiatives are already impacting tens of thousands of households in impoverished and marginalized communities, there is still a need to deepen their impact, widen their scale and attract more institutional partners including government agencies, civil society and the private sector.

Given the magnitude of the climate crisis, no single organization or stakeholder group has the capacity to effectively combat its impacts alone. This is a time to forge new partnerships among diverse stakeholders which exist in different sectors and operate at different scales; it is a time to bring together diverse knowledge, expertise and constituencies to influence policies and programs, build awareness and drive action to combat climate change. Collective action such as this requires substantial investment, which has thus far been ambiguously defined and attracted few resources.

THREE THINGS TO REMEMBER

When funding resilience-building of marginalized communities, there are three things to keep in mind:

Resilience is hard to measure: The context-specific nature of climate and disaster risk means that there are no universal common metrics for measuring resilience. Even so, climate and disaster risk require urgent action.[64] One way to address this problem is to invest in 'no regrets' development: initiatives that will continue to advance sustainable development and poverty reduction whether or not any crisis occurs.

Good governance matters: Making climate-risk informed decisions and effectively implementing resilience building policies and programs is not easy. It requires transparent, accountable, inclusive, decentralized, coordinated and collaborative decisions and actions at all levels of government. Dysfunctional institutions can't be expected to respond effectively to crisis.

Long-term investments in communities will make a difference: Financial investments in communities needs to be long-term in order to generate capacity, innovation, and learning.

COMMUNITY RESILIENCE AUDITS FOR GRANT PORTFOLIOS

Funding resilience building doesn't necessarily mean developing a whole new grant portfolio. Rather, a community resilience audit of existing portfolios could help identify strategies to 'climate-proof' development and protect poverty reduction gains. Here are six questions to consider:

1 ▶ Will the benefits of the program withstand the onslaught of disasters and climate change?

2 ▶ Are poor and marginalized communities being empowered to influence public decision-making and access public resources?

3 ▶ How can communities access and apply climate- and weather-related information to help them predict and plan for their development?

4 ▶ What can we learn from strategies that have effectively increased and protected community wellbeing and assets in the face of disaster, and how can these be strengthened and scaled up?

5 ▶ How can programs build synergies across different stakeholders such as government (from policy institutions to local governments), communities, NGOs and the private sector to scale up and amplify impacts of effective programs?

6 ▶ How can civil society, markets and the government together develop incentive structures that promote community resilience?

TEN STRATEGIES TO SCALE UP AND DEEPEN COMMUNITY RESILIENCE INITIATIVES

Here are 10 resilience building strategies that deliver practical gains for community networks, and shift institutional approaches to advance climate-compatible development aligned with community priorities.

	WHAT?	WHY?	HOW COMMUNITIES WILL BENEFIT
1	Make weather and climate information accessible to communities	Communities need access to localized weather and climate information in forms that they understand to make informed decisions that protect their lives, livestock, livelihoods, homes and other assets from adverse impacts of disaster and climate change.	Communities will be able to articulate risks, clearly design more effective solutions to protect their lives, assets and wellbeing and advocate more effectively for development that reduces disaster and climate risks.
2	Strengthen community leadership, local trust networks, and capacities to work together and advocate with government institutions	During crises, the poor depend on their assets and networks. Trust networks are particularly important at these times as they can transfer early warnings, information on government programs, effective practices and also coordinate actions that advance community resilience.	Active networks and strengthened capacities will enable the transfer of practical knowledge and help with building common agendas for collective, coordinated action.

	WHAT?	WHY?	HOW COMMUNITIES WILL BENEFIT
3	Build and protect household and community assets (in cluding natural resources)	Assets and resources can prevent households from slipping into pov erty and can help them recover from disaster.	Enhanced capacities to withstand or recover from impacts of disas ters.
4	Affirm community leadership and expertise by appointing community experts as trainers, disseminators, researchers and resource persons	Communities have demonstrated expertise in transferring knowledge and practice. Community experts can be remu nerated for their roles as resource persons.	There are demonstrated benefits of investing in community leadership with scaled-up, community-led actions, large-scale information dissemination and recognition from institutional actors including the government.
5	Create new funding mecha nisms that make flexible funds available at the local level—particularly for organized communities to build commu nity resilience	Create new funding mechanisms that make flexible funds available at the local level—particularly for organized communities to build community resilience	Community-driven resilience strategies demonstrate the value of community leadership and attract more investment.
6	Create district and city plat forms that connect com munities with government agencies, civil society and the private sector	Disaster and climate resilience re quire highly localized, coordinated, collaborative actions. Multi-stake holder collaborations enable conver gence of resources, knowledge and skills, critical for scaling up success ful initiatives.	Shared resources, common agen das and concerted action can lever age financial or policy support.
7	Incentivize community engagement, dialogue and partnership with government institutions at village, munici pal, district, state and national levels	Government institutions need incentives to collaborate with communities in developing plans and programs that are responsive to their needs.	The resulting plans and programs will be responsive to the resilience priorities of poor and marginalized communities.
8	Organize multi-stakeholder di alogue platforms that convene communities with a range of technical, private sector, government, and civil society organization (CSO) partners at district, state and national levels	Scaling up requires many cycles of stakeholder dialogue. Plus, stake holders need to build trust in order to effectively collaborate and coordi nate efforts.	An ecosystem of partners that can support community resilience in different ways through research, technology, access to markets, finance, and policy advocacy.

	WHAT?	WHY?	HOW COMMUNITIES WILL BENEFIT
9	Promote collaborative re search with communities to enhance their knowledge and skills; and develop tools for measuring and analyzing community resilience while building a strong evidence base for advocacy	We need a shared understanding of climate and disaster risks and vulnerabilities to foster innovative solutions by organized communities and their partners and demonstrate how these can be built upon.	Strong evidence base and valida tion of community led resilience initiatives, and community-friend ly tools to measure and communi cate impacts.
10	Identify policy champions	Policy champions can work within their institutions to align policies and programs with community priorities.	Policy support for community resilience initiatives.

ANNEXURE
DEALING WITH INFECTIOUS DISEASE OUTBREAKS[65]

Major infectious disease outbreaks since the year 2000 and efforts to combat them provide a number of insights for dealing with global pandemics. Epidemics occurring in the last two decades tell us that old diseases - such as cholera, plague and yellow fever - can return, while new diseases such as COVID-19 are also emerging. Diseases are now spreading more widely and rapidly than ever before, potentially affecting ever-increasing numbers of people, disrupting travel, trade and livelihoods with devastating consequences for the social fabric and economies.

Global health security in the face of such epidemics calls for greater awareness, cooperation and collaboration among countries, agencies, organizations and communities. While this is true for all types of disasters, the scientific uncertainty around disease emergence requires much greater collaboration and global awareness than has previously existed.

The prevention and control of infectious diseases and epidemics in today's world require more than just new knowledge and technologies. We need new approaches to combat epidemics. Today, three major areas of investment are critical: strengthening health systems, community engagement and risk communication.

1 ▶ Strengthening health systems

Strengthening health systems requires long-term substantial investment in the provision of safe, effective and quality health services before, during and after epidemics. Key elements include an appropriate health financing system and a fit-for-purpose workforce trained, safe and provided with personal protective equipment; and access to essential medical products and technologies. Also vital is a business continuity plan for health care institutions, allowing essential health services to continue while dealing with the additional pressures of epidemics.

2 ▶ Engaging communities early on

The overwhelming nature of recent epidemics including the COVID-19 pandemic demonstrate that strengthening the formal healthcare system is not enough. Governments, healthcare providers and governments must engage communities early on.

People have a right to information that could protect their health and save lives, social fabric and economic well- being,

Infectious diseases outbreaks are deeply linked to the social life, the structure of society and people's interactions. Experience shows that merely telling people what to do, however scientific, does not always work. People's understanding of health risks and their acceptance of health advice is deeply influenced by their socio-cultural contexts Epidemics are by nature rapidly evolving. The beginning of the outbreak is a crucial time to build the necessary trust with the population who can break the transmission cycle.

Communities can detect outbreaks, and help contain the epidemic
Community engagement helps to strengthen and ensure resilience to future outbreaks: when people have already learned how to implement their own solutions, they will be better able to deal with the next outbreak.

Outbreak responses that build on existing and trusted community engagement systems and work with trusted individuals, interlocutors and networks are more likely to succeed.

Community health workers and volunteers are often the frontline responders. Their collaboration in implementing health advice can play a key role in the extent to which health advice is accepted and acted upon. WHO identifies six kinds of health action in epidemics, which require intensive engagement of communities including community health workers: Detecting outbreaks and newly infected people; minimizing harmful practices; adopting medical and non-medical protective practices; seeking and providing healthcare as advised in the household, community or health facility; re-integrating survivors into communities and minimizing stigma; and identifying and managing misinformation.

Effective community engagement requires:
Access to knowledge and tools which equip communities to understand the disease and to implement measures to control its transmission.

Dialogue between responders from within and outside the community to understand the perceptions and beliefs on both sides, to identify the specific cultural and social patterns of transmission
Trust between communities and other actors to build mutual understanding, collaborative solutions and to ensure that health advice is heeded by communities.

3 ▶ Effective Risk Communication Reduces Illness and Saves Lives

Risk communication is the real-time exchange of information, advice and opinions between health experts or officials and people whose health, survival, social and economic well-being are at risk. Along with saving lives and reducing illness, effective risk communication enables countries and communities to preserve their social, economic and political stability in the face of emergencies.
Some emerging trends that shape risk communication in the 21st century include:

* Communication is increasingly about listening to people and responding to their information needs, rather than one-way message delivery.
* People seek health advice from trusted social networks; and experts and authorities are less trusted.
* Information received by people can be incomplete and contradictory with multiple actors exchange public health information and compete for authority.
* The news media functions every day, continually providing updates during the day
* There is widespread use of social media, an increase in citizen journalists and increase in opinion versus well- sourced and referenced stories.

Identifies and builds relationships with trusted individuals in communities involving them in decision-making to ensure interventions are collaborative, contextually appropriate and that communication is community-owned.
Proactively detects and counters misinformation and rumours
Enables two-way communication through the most socially acceptable and effective channels.
Ensures that all communication with communities is transparent, timely, easy-to-understand and acknowledges uncertainty

AN ILLUSTRATIVE LIST OF
ORGANIZATIONS ENGAGED IN BUILDING COMMUNITY RESILIENCE

All India Disaster Mitigation Institute based in Ahmedabad is a community-based action-planning, action-research and policy support organization, working to bridge the gap between policy, practice and research related to disaster mitigation and climate change adaptation. *www.aidmi.org*

Covenant Centre for Development based in Madurai supports a network of Farmer Producer Companies that enables rural poor communities to build wealth through business ventures that promote the sustainable use of grasslands, wetlands, and dryland resources.

Deccan Development Society is an agriculture-focused non-governmental organization based in Medak district of Telengana focused on empowering rural women to build food sovereignty through their own seed banks and the cultivation of millets in predominantly rain-fed villages of Sangareddy district. *http://www.ddsindia.com/www/default.asp*

Hunnarshala Foundation offers knowledge and skills in a range of areas including building design, settlement planning, social housing, disaster reconstruction, waste water treatment systems, and infrastructure with a view to empowering people to shape their own habitats, thereby making habitat solutions more disaster-resilient, environmentally-friendly and sustainable. Hunnarshala also work on upgrading capacities of local artisans to deliver high quality products and services. *www.hunnarshala.org*

Gorakhpur Environmental Action Group focuses on creating an enabling environment for deprived communities to advance inclusive, equitable development. It improves quality of life with special attention to women and children to advance inclusive and equitable development. *https://geagindia.org*

Gram Vikas promotes sustainable development processes in rural communities in six focus areas: water, livelihoods, sanitation and hygiene, habitat and technologies, village institutions, and education in Odisha and Jharkhand. *https://www.gramvikas.org*

Gram Vikas Vigyan Samiti works closely with impoverished grassroots communities in Rajasthan, Uttarakhand, and Bundelkhand to advance an integrated approach to sustainable development. Their work has a special focus on drought mitigation caused by the water crisis in the Thar Desert. *https://www.gravis.org.in*

Goonj addresses basic but neglected issues of the poor by involving them in building their own solutions with dignity. Goonj uses under-utilized, excess urban household material as a tool to advance rural development across 23 states with the aim of building the strength, sustenance and dignity of the rural poor. *https://goonj.org*

Knowledge Links Private Ltd. specializes in customized capacity building services and undertaking research and evaluations in disaster risk reduction, water and sanitation, sustainable livelihoods and urban governance for a range of clients and partners including national and state governments, multilaterial and bilateral aid agencies and NGOs. *http://knowledgelinks.org*

Mann Deshi Foundation nurtures rural women micro-entrepreneurs through a range of affordable, accessible financial services offered by the Mann Deshi Mahila Sahakari Bank. Headquartered in the drought-prone region of Satara district, Maharashtra, Mann Deshi Foundation also works with local communities to undertake water conservation. *https://manndeshifoundation.org*

Naireeta Services Private Ltd. is an Ahmedabad-based social enterprise whose goal is to eradicate poverty in both urban and rural contexts by using appropriate technology for those at the bottom of the pyramid, particularly poor and small-holder women farmers. *https://www.naireetaservices.com*

SEEDS India protects the lives and livelihoods of those exposed to disasters by equipping them with appropriate tools and technologies and by sharing knowledge and skills that integrate locally-based approaches into all programs and promote linkages among stakeholders. *https://www.seedsindia.org*

SELCO: Founded on the belief that energy access is an underlying precondition for socio-economic development, Selco partners with a range of actors, including poor communities to develop sustainable energy solutions tailored to address social issues. *www.selco-india.com*

Society for Promotion of Area Resource Centres and its Alliance with the women's collective, **Mahila Milan**, and the National Slum Dwellers Federation demonstrates how a range of urban poor initiatives--savings and credit, settlement upgrading, building toilet blocks, and the management of resettlement--can secure policy and institutional change when they are based on community-led, community-managed processes. *https://www.sparcindia.org*

Swayam Shikshan Prayog fosters grassroots women's leadership roles and advocates for the institutional recognition of grassroots women as farmers, entrepreneurs, community leaders, and changemakers. It does this by building robust partnership ecosystems that enable grassroots women's networks to innovate, and gain access to knowledge and skills, technology, and marketing platforms. *https://www.sspindia.org*

Watershed Organization Trust focuses on participatory watershed development, ecosystem restoration, adaptive sustainable agriculture, integrated and efficient water management, and climate change adaptation with a special emphasis on vulnerable communities, farmers, and women. It uses applied research to help rural communities reduce their vulnerabilities to climatic and non-climatic risks. *https://www.wotr.org*

INDIAN AFFILIATES OF GLOBAL NETWORKS

These global networks explicitly focus on climate and disaster resilience and their membership includes Indian and international NGOs along with other stakeholder groups.

CANSA is a coalition of more than 150 civil society organisations working in eight South Asian countries. In addition to representing perspectives from the Global South at global climate negotiations, CANSA works towards linking policy, research, and actions in the region to address the adverse effects of climate change. *https://www.cansouthasia.net/*

Sphere India is a coalition of government and non-government agencies involved in humanitarian initiatives aimed at enhancing the quality and efficiency of humanitarian response, disaster management, disaster risk reduction and preparedness by ensuring improved coordination among various stakeholders and promoting the spirit and commitments embodied in the Humanitarian Charter and Minimum Standards in Humanitarian Response. http://www.sphereindia.org.in, *https://sphereindiablog.wordpress.com*

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65. In light of the Coronavirus pandemic, this annexure focusing on epidemics has been added to the original document. It draws on lessons, insights and guidance shared in **The World Health Organization's 'Managing Epidemics: Key Facts About Major Deadly Diseases.'2018**. For more information see *https://www.who.int/emergencies/diseases/managing-epidemics-interactive.pdf*