DEFYING CLIMATE CHANGE

PUTTING CHILDREN AND WOMEN FIRST

Innovative resilience building practices from India

unicef

CANSA CLIMATE ACTION NETWORK South Asia

phia to end poverty

DEFYING CLIMATE CHANGE

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I. FOREWORD

I would like to thank Climate Action Network South Asia and UNICEF in India for this inspiring report and to recognize the extraordinary people spotlighted in its pages.

The 'community-based women and child centered adaptation projects' documented here give us real cause for optimism that the decisions and policies taken at the global and national level can be translated into real and positive change on the ground.

Climate change is at its heart about people and how to shape a future for humanity that promotes well-being while ensuring that the natural and nature-based services upon which we all depend—including our precious atmosphere—continue to function and support sustainable development for all.

The projects and practices compiled in this report underline the urgency to build a low- emission and resilient world that can nurture and nourish the most vulnerable and those least responsible for the rising risks posed by unchecked climate change.

The Paris Climate Change Agreement provides a historic blueprint for a better, healthier world based on national action and international cooperation. It requires all hands on deck if we are to succeed.

That includes visible, trusted leadership, practical policies and inclusive community-wide engagement to accelerate and spread successful local climate solutions that address the needs and hopes of women, children and indeed all vulnerable populations.

The Paris Agreement, and the related Sustainable Development Goals, have put the world on a challenging but exciting and fundamentally necessary journey. Their successful implementation will also rest on action under other related international agreements including the United Nations Convention on the Rights of the Child.

I am also fully committed to translate the Gender Action Plan, agreed by governments at the last UN climate conference in Bonn in November 2017, into actions within and beyond the formal UN processes.

Our agenda is about the restoration of balance between the needs of societies and the need to ensure that a healthy planet is handed onto the next generation and generations to come.

Local solutions not only solve local problems, they also contribute to the global well-being. Defying Climate Change is about building resilient communities in India. But its stories of hope, positivity and inspirational change on the ground can echo to all corners of the world.

Patricia Espinosa,
Executive Secretary
United Nations Framework Convention on Climate Change


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II. DEFYING CLIMATE CHANGE - INTRODUCTION

Resilience is the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.
– Intergovernmental Panel on Climate Change (IPCC)

With global heat records reaching new highs, extreme weather events and other natural disasters becoming more deadly, everyone is equally vulnerable to climate change. But it's the poorest of the poor, especially women and children in remote and fragile environments that bear the brunt of increasingly frequent climate induced disasters. Defying climate change introduces some of the most effective and innovative women and child centric resilience building projects being implemented across climate hot spots of India.

India is ranked as the sixth most vulnerable nation[1] to climate change[2] impacts in Global Climate Risk Index 2017. Erratic monsoons, extreme heat waves, droughts, floods, glacier recession and sea level rise are beginning to disrupt its social infrastructure for nutrition, water, health, sanitation and hygiene.[3] Declining water security, rising pressures on food production and increasing disasters and disease risks have further increased the vulnerability of the poorest.

Anaemic women and malnourished children from remote and impoverished parts of India also face severe threats from both air and water pollution, from infectious and parasitic diseases carried by a range of vectors and contaminated water; from acute water scarcity, possible displacement, migration, and violence triggered by climate change and conflict around scarce essential resources. India's high ranking on the Global Hunger Index (GHI) in 2017 brings to the fore the disturbing reality of the country's stubbornly high proportions of malnourished children.[4]

Poverty and geography are strong indicators of vulnerability to climate change. Poverty deprives families of the resources to cope and remote geographies with poor infrastructure hinder access to services needed to withstand climate-related shocks.

One of the most worrying insights from UNFCCC 23rd Conference of Parties (COP23) in November 2017 is that despite the efforts to date, the window to avoid large-scale climate change has closed. For many nations, this increases the importance of developing measures to assist communities to adapt to the effects of climate change as they unfold, rather than just trying to lower carbon emissions.

It is clear unless suitable adaptive [5] action is taken; future impacts will be far more dramatic, undermining much of the progress made over the last decades. Addressing women and children's vulnerability to climate change requires a combination of policy measures, some sector-specific, others cross-cutting. While addressing disaster risks, an increasing focus on managing climate risks is critical. Making sense of the changing and unsafe conditions, there is an urgent need for planned and organized action for maintaining continuum of care for children as an established policy and practice.

MALNOURISHMENT FIGURES OF INDIA

1. **38% of children under age 5 are affected by stunting.**
2. **21% of children under 5 are underweight.**
3. **51% of women suffer from anaemia.**
4. **Anaemia among children has remained persistently high at 58.4% between 6 and 59 months.**

Data from National Family Health Survey (2015-16)

Adaptation is the only effective option to manage the inevitable impacts of climate change that mitigation cannot reduce. The IPCC describes adaptation as “the process of adjustment to actual or expected climate and its effects”. Through adaptation, societies and communities can seek to moderate the harm of current and future climate risks or to take advantage of new opportunities. Strengthening the links between development and building resilience could help to improve the level of adaptation in Asia and reduce the risk of ‘maladaptation' or causing unintended adverse consequences (high confidence – for 'maladaptation' see Glossary).

The existing random and fragmented adaptation and disaster risk reduction measures in Indian states are not helping the most climate-impacted constituencies of children and women. Considering the special needs of these two vulnerable groups, a time-bound, strategic response is key to mitigating the risks impacting millions of children every day in innumerable ways and presenting real challenges to the realization of child rights.

Effective adaptation strategies can, and should, strengthen livelihoods, enhance wellbeing and human security, and reduce poverty today. 'No regrets' or 'low regrets' adaptation measures such as increasing access to information and resources, improving health services, diversifying cropping systems, strengthening access to land, credit and other resources for poor and marginalized groups, and making water and land management and governance more effective are good for development, irrespective of changes in the climate.[6]

The UN Climate Conference adopted the Paris Agreement in December 2015, which provides a multilateral framework for low-carbon transformation of the world economy. The Paris Agreement, legally binding from 4th November 2016, aims to achieve an emissions pathway that keeps global warming to less than 2°C and even limit it to less than 1.5°C, by ensuring that mitigation and adaptation are pursued as equally important goals.

As one of its three key aims, the Paris agreement introduced a Global Goal on Adaptation (GGA) and emphasizes the importance of fostering resilience (Article 7 on adaptation provisions and obligations of conduct for countries and Article 8 on measures to address climate induced loss and damage).

The Sustainable Development Goals (SDGs) and the Sendai Framework on Disaster Risk Reduction embed the Paris Agreement in a larger resilience framework. Strong inter-linkages are made through the SDGs' sub targets for resilience (Goals: 1. End poverty, 2. End hunger, 9. Sustainable infrastructure, 11. Sustainable Cities and Communities and 13. Fight climate change) and Sendai's international goals to prevent natural catastrophes – through understanding disaster risks, strengthening disaster management governance and investing in risk reduction and resilience building.

Adaptation brings benefits both today and in the future. India has much to gain from adaptation actions like disaster risk reduction and social protection that reduce the impacts of warming that are already being felt and builds resilience around critical sectors such as water, energy and agriculture. National policies can sometimes disregard or undermine cultural or traditional practices that make an important contribution to local climate adaptation.[7]

Women are both highly vulnerable to the impacts of climate change and important actors in adaptation. Providing adequate support to women also helps mothers to support their children.[7] For example, women in agriculture-dependent communities are often key contributors to household income, which has a direct impact on the food and schooling received by children.

Women often experience additional duties as labourers and care givers as a result of extreme weather events and climate change, as well as from society's responses to climate change (e.g. male migration). They face more psychological and emotional distress, reduced food intake and adverse mental health outcomes due to displacement, and in some cases, increasing incidences of domestic violence.

Children and the elderly are often at higher risk due to narrow mobility, susceptibility to infectious diseases, reduced caloric intake, and social isolation; young children are more likely to die from or be severely compromised by diarrheal diseases. The elderly face disproportional physical harm and death from heat stress, droughts, and wildfires.[8]

A climate agenda for children

The worst impacts of climate change are not inevitable. The world must embark on low carbon development to reduce greenhouse gas emissions, and needs to adapt to the impacts of climate change that cannot be halted. We can take steps now to safeguard our children's future, notably by:

1. Cutting greenhouse gas emissions so that global temperature increases are limited to a maximum of 2 deg. Celsius, and ideally to 1.5 deg. Celsius .
2. Make the needs of the most vulnerable, including children, central to climate change adaptation.
3. Reduce inequities among children now to promote their future resilience to climate change.
4. Listen to and act on children's perspectives on climate change.
5. Provide children and youth with climate change education, awareness raising and training.
6. Scale-up proven approaches to address the changing needs of children.
7. Align and coordinate work on climate change adaptation, preparedness and disaster risk reduction.
8. Put in place measures to protect children who have been displaced, migrate or are refugees as a result of climate change and climate-related impacts.
9. Invest in children when implementing national climate plans on mitigation and adaptation.
10. Everyone should get involved. Protecting the planet for our children is everyone's responsibility. It will take courage, determination and substantial effort. Governments need to take bold and ambitious decisions to reach an agreement which reduces greenhouse gas emissions and enables the protection of future generations from the impacts of climate change. But others must also do their part, including business and civil society. We will need a different approach to how we produce and consume, how we take action at the grassroots level, and how we hold each other to account.

It is important to recognize the specific vulnerabilities faced by children, but children must also be seen as agents of change who can make meaningful contributions to adaptation strategies. In this way, children can help make sure that climate adaptation addresses the risks that they and their peers face.

The focus of the ongoing partnership between UNICEF India's Disaster Risk Reduction Section and Climate Action Network South Asia is to assist state government policy makers and practitioners to convert existing climate action plans into actionable work plans for relevant departments like health, education, drinking water etc.

This report is an attempt to identify recently tested and innovative Community Based Adaptation projects and practices that benefit women and children directly or indirectly and can be used as models to develop and promote women and child centered adaptation and disaster risk reduction best practices on a national scale.

Community-Based Adaptation (CBA) to climate change aims to allow local people to determine the objectives and means of adaptation practices by including affected people in the design and implementation of adaptation projects and practices. The CBA projects featured here demonstrate the importance of locally appropriate solutions, community ownership and multi-stakeholder partnerships in building resilience of the most vulnerable communities.

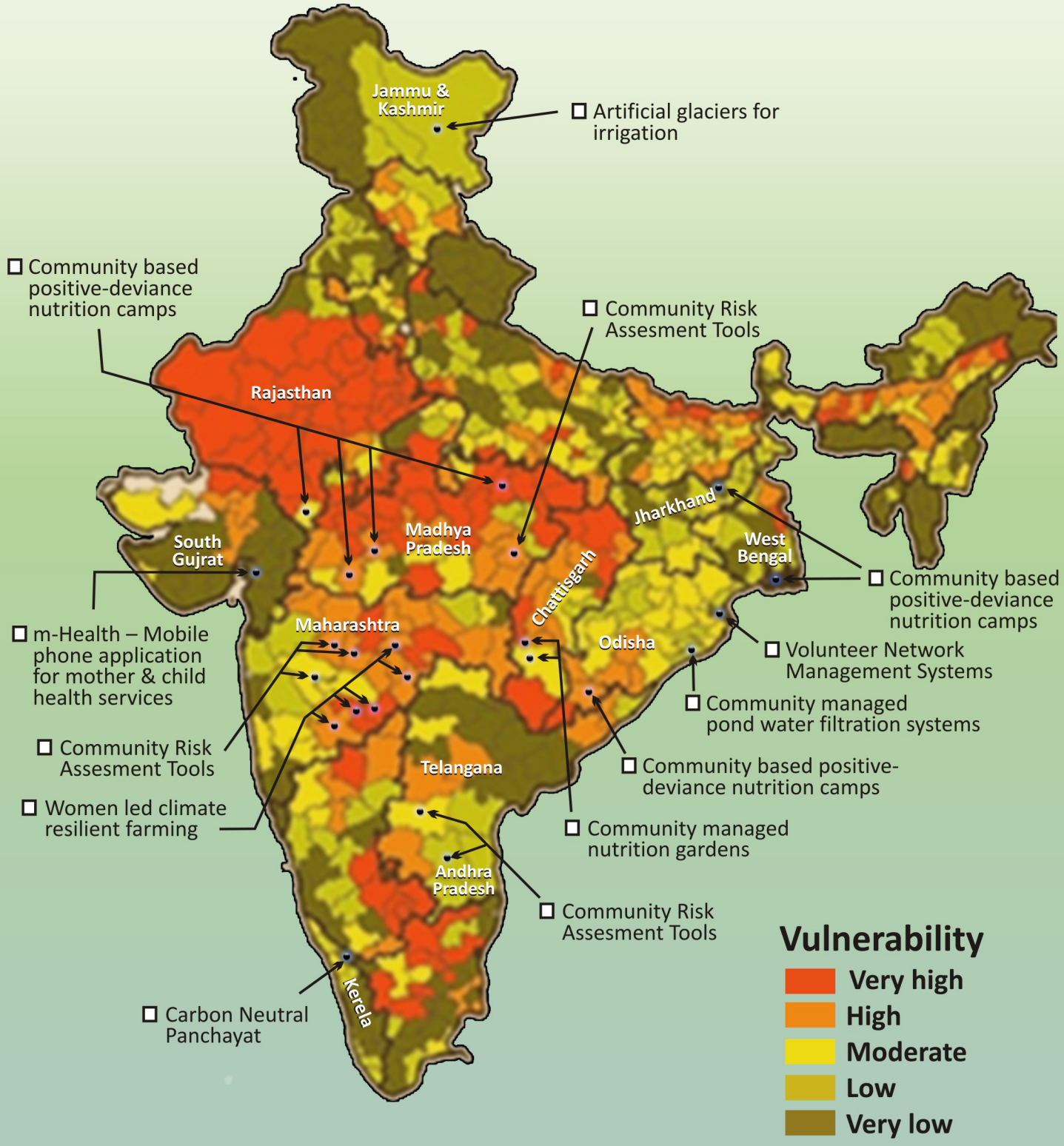
The methodology applied for short listing projects for the report required the projects and practices to fit into the following matrix of the following 9 minimum requirements to reach the most vulnerable and poor:

Good Adaptation Practice Indicators

#womenchildcentric	**Directly benefits women and children**
#innovative	**Is an innovative practice, technology or method of implementation**
#measurableimpact	**Adopts clear monitoring and evaluation strategies with baseline information as basis for measuring impact**
#multistakeholder	**Involves diverse stakeholders including local self-government, institutions, CSOs and NGOs**
#communitybased	**Is participatory, people-driven with community buy-in and social acceptability**
#sustainable	**Incorporates sustainability strategies (with identified resources) and clear exit strategy with potential for replication**
#locallyappropriate	**Is cost effective and doable using indigenous adaptation knowledge and materials if possible**
#transperent	**Demonstrates transparency and accountability in procedures & processes**
#opensource	**Has a clear mechanism for knowledge sharing and knowledge building beyond the immediate locality where the innovation was started.**

To defy climate change, children and women need to be at the center of all future adaptation and disaster risk reduction planning. Implementers, policy makers, and funders can play specific roles in ensuring that low-cost interventions are scaled up where appropriate and new interventions considered in light of the changing risk profiles – giving priority to areas where vulnerability is already high and where climate change impacts are likely to overwhelm existing capacity.

III. OVERVIEW MAP



Map adapted from - Sehgal, Vinay & Rani Singh, Malti & Jain, Niveta & Pathak, Himanshu, (2017). Climate Change and Variability: Mapping Vulnerability of Agriculture using Geospatial Technologies.

1. WOMEN LED CLIMATE RESILIENT FARMING

DEFYING CLIMATE CHANGE

ORGANISATION: Swayam Shikshan Prayog (SSP)
LOCATION: Osmanabad, Latur, Solapur, Washim, and Nanded districts of Maharashtra
CLIMATE CHANGE IMPACT: Drought
WEBSITE: www.sspindia.org

FOCUS: Food Security
YEAR: 2014
CONTACT PERSON: Anwesha Tewary
anweshassp@gmail.com

"In 2016 when the rest of the region was still reeling under the three-year-long drought, my family did not have to suffer, we had sufficient food, some money but most of all my children were healthy and going to school. We were much better off than the other farmers because we grew mixed crops that included vegetables and pulses. We had less input costs because we used organic methods and to supplement our income we reared goats and hens." –Babita Misalwith her son Viraj Misal, Jehangirwadi, Latur, Maharashtra

Nearly 160 million children live in areas of high or extremely high drought severity. Most of them live in some of the world's poorest countries with the least capacity to manage these environmental risks. While climate change will ultimately impact every child, these children are already in harm's way and face some of the most immediate risks.[10]

Three years of successive drought or drought-like conditions between 2014-16 in Maharashtra impacted 28,662 villages in 28 districts of Marathwada, north Maharashtra and Vidarbha leading to a rise in the number of farmer suicides, inability of farmers to repay bank loans, unavailability of water in dams, no fodder for cattle, no capital to start allied businesses, suffering poultry, unemployment and migration out of the region.[11]

Productivity of all the major crops like cotton, soya, pulses, and sugarcane had dropped by more than 60 per cent.[12] Increased dependence on expensive chemical inputs such as seeds, fertilizers, pesticides etc. adds to higher cost of production and insufficient income in the households – forcing the survivors into a cycle of debt and poverty. According to a report by National Crime Reports Bureau 14% (2,568 farmers) of the total farmer suicides in India in 2014 were in Maharashtra.[13]

Farmer suicides leave behind hundreds of widows and orphans with little or no coping mechanism. Widows are burdened with the new responsibility as the sole breadwinner while the children are forced to leave school and help their mothers.

In 2014, when the region was reeling under a second successive year of severe drought, Swayam Shikshan Prayog (SSP), a Pune-based organization working for sustainable community development through empowerment of women, stepped in to test and implement a climate resilient farming model which promotes long term sustainability for marginal farmers directly through use of diversified businesses, marketing of nutritious locally grown foods and water management systems.

The intervention was designed by identifying the vulnerabilities of women and young girls. Earlier in 2008, when SSP started working in the sector of health and nutrition, it found that anaemia was a prevalent health issue among women and girls in the villages in Marathwada region. During workshops women shared that the consumption of vegetables by them is very low and they had no decision-making role in farming and men were only inclined to grow cash crops, which were continuously failing, given the water scarcity in the region that resulted in food insecurity.

The innovative aspect of this model is to centre-stage women as farmers and decision makers. It encourages women farmers to gain rights to grow food crops for their families, on half or one acre of land. On the given piece of land, the women lead the complete decision making around what to cultivate, what to sell, what to keep and eat, and where to sell, thus gaining control over income.

SSP's interventions educate, empower and provide assistance to women to take up farming on half or one acre of their family or leased land. With training and financial assistance, the women practice water efficient organic farming, cultivation of vegetables, millets, cereals and pulses through mixed cropping, diversifying to 6-12 crops and by increasing crop cycles. On the given piece of land, the women lead the complete decision making process around what to cultivate, what to sell, what to keep and eat, and where to sell, thus gaining control over income.

SSP recognizes that stand-alone solutions to food security are not sufficient to ensure resilience. All programmes incorporate and inculcate training on water, sanitation, hygiene (WASH), nutrition and education in the engagement journey with the women and their children at home, at school, in the farms and market places.

The women are direct beneficiaries but also agents of change in their communities, who introduce a range of practices that integrate personal hygiene, community health and improved livelihoods as essential steps to achieving resilience.

To ensure sustainability, SSP has created a cadre of 500 women farmer leaders who can successfully transfer learnings and strategies to other geographies. It has also developed a model though which one mentor farmer can handhold other women farmers to practice and replicate this model. SSP is also organizing these women in farmer producer groups to introduce a market based approach and help women get the most competitive prices for their produces and operate beyond projects.

The multiple threats to the survival and well-being of the most disadvantaged and vulnerable children are not neatly divided by sector. The enormous challenges that affect them – conflicts, climate change, extreme poverty and more – are all closely interconnected. The multiple deprivations that children suffer are also overlapping and all too often mutually reinforcing. So, solutions must intersect as well.

This model addresses the issues of food security, income security, natural resource management and women's empowerment all at the same time. The project highlights the importance of integrated approach for women and child centric adaptation and has been scaled up in Maharashtra to more than 300 villages of five drought prone districts, reaching out to 20,000 women farmers. Presently, SSP has secured funding of INR 105 million, for the next three years, for reaching out to 35,000 women farmers in Maharashtra through this model.

2. COMMUNITY MANAGED NUTRITION GARDENS

DEFYING CLIMATE CHANGE

ORGANISATION: UNICEF & Ramakrishna Mission
LOCATION: Abujmarh, Chhattisgarh
CLIMATE CHANGE IMPACT: Drought
WEBSITE: www.unicef.in

FOCUS: Nutrition
YEAR: 2015
CONTACT PERSON: Vishal Vasvani
v.vasvani@unicef.org

"The success of A-HOPE programme in Abujmarh area of Chhattisgarh is primarily due to a proactive collaboration between the government agencies, local NGOs and international agencies like UNICEF to win the trust of the people in this otherwise highly polarised, conflict-ridden and dangerous region. Innovative approaches like Nutrition Garden has helped us reach out to the poorest of the poor in the most remote parts."

Climate change will not affect all equally. Flood and drought zones often overlap with areas of high poverty and low access to essential services such as water and sanitation. This means that children and families who are already disadvantaged by poverty – those with the fewest resources for coping – are likely to face some of the most immediate dangers of climate change. This can create a vicious cycle: a child living in poverty or deprived of adequate water and sanitation before a crisis will be more affected by a flood, drought or storm, less likely to recover quickly and at even greater risk in a subsequent crisis. While climate change poses universal threats, tackling it is also an imperative for equity. Unaddressed, climate change will harm the poorest and most vulnerable children first, hardest and longest.

The geographically isolated and largely inaccessible hilly forest area of Abujmarh in Chhattisgarh state is home to indigenous tribes including Gond, Muria, Abuj Maria and Halbaas communities settled in 233 far-flung hamlets spread across 4000 sq. km. In the last decade Abujmarh has also been affected by climate change. Intense periods of seasonal floods and long dry spells, have destroyed crops, forest produce and homestead farms resulting in further impoverishment of its people.

This is amongst the poorest parts of India, ravaged by decades long civil unrest and armed conflict that has made it difficult to deliver basic health and nutrition programmes to its furthest villages.

That any child should face diminished prospects of survival or decent health because of the circumstances of his or her birth is grossly unfair and a violation of that child's rights. The challenges of reaching these children with essential services and protection are considerable, but so are the benefits to be gained.

In 2011, UNICEF started implementing the Abujmarh Health Outreach Project (A-HOPE) through a local NGO partner, Ramakrishna Mission Ashram (RKM). A-HOPE is a perfect example of successful collaboration between local government and apolitical non-governmental organizations to deliver basic services in conflict ridden areas. The A-Hope project focuses on the health and nutrition of tribal children. It identifies and treats children with severe acute malnutrition (SAM), counsels mothers on Infant and Young Child Feeding (IYCF), practices and promotes Routine Immunization (RI). By removing demand and supply bottlenecks, it has strengthened service delivery and reached out to the most vulnerable and marginalized communities.

To address cases of severe acute malnutrition, Nutritional Rehabilitation Centres (NRCs) have been established by the government – where mothers bring their children for treatment. While the children are receiving care at the NRCs, the mothers don't have much to do. UNICEF and partners introduced an additional innovation for the mothers who usually are waiting at the centre and began training them in cultivating Poshan bed aka Nutrition Gardens – to address community based nutrition needs of children.

The Abujmarh Health Outreach Project (A-HOPE) is a perfect example of successful collaboration between local government and apolitical non-governmental organizations to deliver basic services in conflict ridden areas. The A-Hope project focuses on the health and nutrition of tribal children and has been instrumental in setting up nutrition gardens at Nutritional Rehab centres.

To address cases of severe acute malnutrition (SAM), Nutritional Rehabilitation Centres (NRCs) have been established by the government – where mothers bring their children for treatment. While the children are receiving care at the NRCs, the mothers don't have much to do. UNICEF and partners introduced an additional innovation for the mothers who usually are waiting at the centre and began training them in cultivating Poshan bed aka Nutrition Gardens – to address community based nutrition needs of children.

The nutrition gardens supplement the feeding programme in the Anganwadis. Promoting nutrition levels through availability of green vegetables throughout the year has resulted in significant impact on indicators of food security, improvement of income and reduction of incidences of diseases associated with malnutrition.

Poshan bed or nutrition garden are regarded as one of the most effective approach to combat food insecurity and undernourishment by improving availability of and access to food. The gardens also promote agricultural best practices wherein the water is put into earthen pots embedded in the garden bed which helps check loss of water due to evaporation and just enough water is provided at the root zone of the plants. The women are also trained in best practices around nutrition, sanitation, hygiene and even repair of hand pumps.

Over time, the women have started taking home the lessons learnt and creating their own Nutrition Gardens. They share their knowledge with fellow farmers and also support their communities in creating soak pits around hand pumps and improving the sanitation facilities.

Climate change is expected to affect all the components that influence food security: availability, access, stability and utilization. The overall availability of food is affected by changes in agricultural yields as well as changes in arable land. Changes in food production, together with other factors, could impact food prices, which would affect the ability of poor households to access food markets and could reduce dietary diversity.

Achieving substantial improvements in nutrition – a target within Sustainable Development Goal 2 – will be key to boosting child survival rates. Half of all deaths of children under age five are attributable to under nutrition, and large disparities exist in related indicators such as stunting. Nutrition gardens are a micro-solution to a humungous problem. Poshan bed nutrition gardens and similar variations of kitchen gardens being promoted by NGOs across the country are a low-cost way of ensuring healthy food and balanced nutrition and building resilience of the next generation.

3. COMMUNITY BASED POSITIVE-DEVIANCE NUTRITION CAMPS

DEFYING CLIMATE CHANGE

ORGANISATION: Welthungerhilfe
LOCATION: Rayagada in Odisha, Dewas, Khargone & Panna in MP, Banswara in Rajasthan, Deoghar in Jharkhand and South 24 Parganas in West Bengal
WEBSITE: www.welthungerhilfeindia.org

CLIMATE CHANGE IMPACT: Drought
FOCUS: Nutrition
YEAR: 2015
CONTACT PERSON: Sweta Banerjee
sweta.banerjee@welthungerhilfe.de

"We knew that our children were weak and unhealthy and the Anganwadi didi repeatedly told us that we should go to the MTC centre in Banswara. It is far and we were scared to go. When we attended the Poshan Shivir in the Anganwadi centre and saw the children gain more than 500 gm in 15 days we decided to go to the MTC and now our children are in the green zone after gaining about 1.5 kg"- Kavita and Ganga of Serai Village in Banswara district.

The World Health Organization has projected that approximately 250,000 additional deaths will occur annually through 2030 from malnutrition, malaria, diarrhoea and heat stress attributable to climate change.[14] Children who are already deprived in many dimensions of their lives are likely to face some of the most immediate dangers of climate change as their families are most exposed to the potential harm and it hardest to bounce back from climate-related shocks. Many families living above the threshold of extreme poverty may be just one disaster away from falling into it.

As climate hazards arise more frequently, the cumulative effect of repeated shocks will make it difficult for many of the most disadvantaged households to survive, recover, cope and adapt. For the remote desert hamlets and forest dwelling tribal communities, successive droughts and lack of access to public distribution systems exacerbates malnutrition among its children. Household food insecurity is the key underlying cause of child stunting.

Welthungerhilfe has been conducting Positive Deviance(PD)/Hearth Intervention programmes in remote villages of Rayagada in Odisha, Dewas, Khargone and Panna districts in Madhya Pradesh, Banswara in Rajasthan, Deoghar in Jharkhand and South 24 Parganas in West Bengal.

The target population is selected based on food and nutrition insecurity. The nutritional status of the children, dietary diversity, hunger periods are key indicators. The communities are usually SCs or STs living in hard to reach fragile areas. These are villages with children in mild / moderate/ severe malnourished categories. For instance, in the hunger pockets of Santhal Pargana region of Jharkhand 15-20 per cent children of less than five years can be found moderately to acutely malnourished as per the age to weight indices, and need immediate community based interventions for their rehabilitation.

The selection of the village and the programme is implemented in collaboration with the ICDS and Health & Family Welfare Departments. Infants between six months and three years are screened and identified based on their anthropometric measurements of height, weight and MUAC and are advised to join the nutrition camps if they are severely or moderately under nourished.

The innovative aspect of this project is conducting nutrition camps in remote areas and using the Positive Deviance/Hearth Programme to identify those behaviours practised by the mothers or care takers of well-nourished children from poor families and to transfer such positive practices to others in the community with malnourished children.

Though the overarching focus of nutrition camps is to address the immediate needs of under nutrition within the community, they do not provide supplementary food. There is a demonstration every day at the camp which is fed to the children and mothers also taste it. The community and the project jointly provide for the recipe demonstration.

The camps do not function in isolation. They are part of a larger project addressing food and nutrition security. The camps are not held in the same village every month, unless there is an urgent need. A camp may be repeated quarterly or biannually. The output indicator for the camp is weight gain of the child – the child is weighed on day 1 of the camp and then on day 15. Normally if the mother attends the camp all the 15 days there is a weight gain of 500-900 grams. The other indicators are mother's knowledge about hand washing, appropriate quality, quantity, consistency and frequency of the diet of the infant, health days and services, etc. – topics mentioned in the attached manuals.

Evidences show that large numbers of malnourished children can be treated in their communities without being admitted to a health facility or therapeutic feeding centre. So far in three years of project implementation, the monitoring data shows a reduction of 10-15% of under nutrition among severe malnutrition cases and nearly 30% reduction mild and moderate malnutrition. During the 15 days the mother also gets to know the services provided by the ICDS and H&FW; they are now more empowered after the camps and can make the service provider accountable.

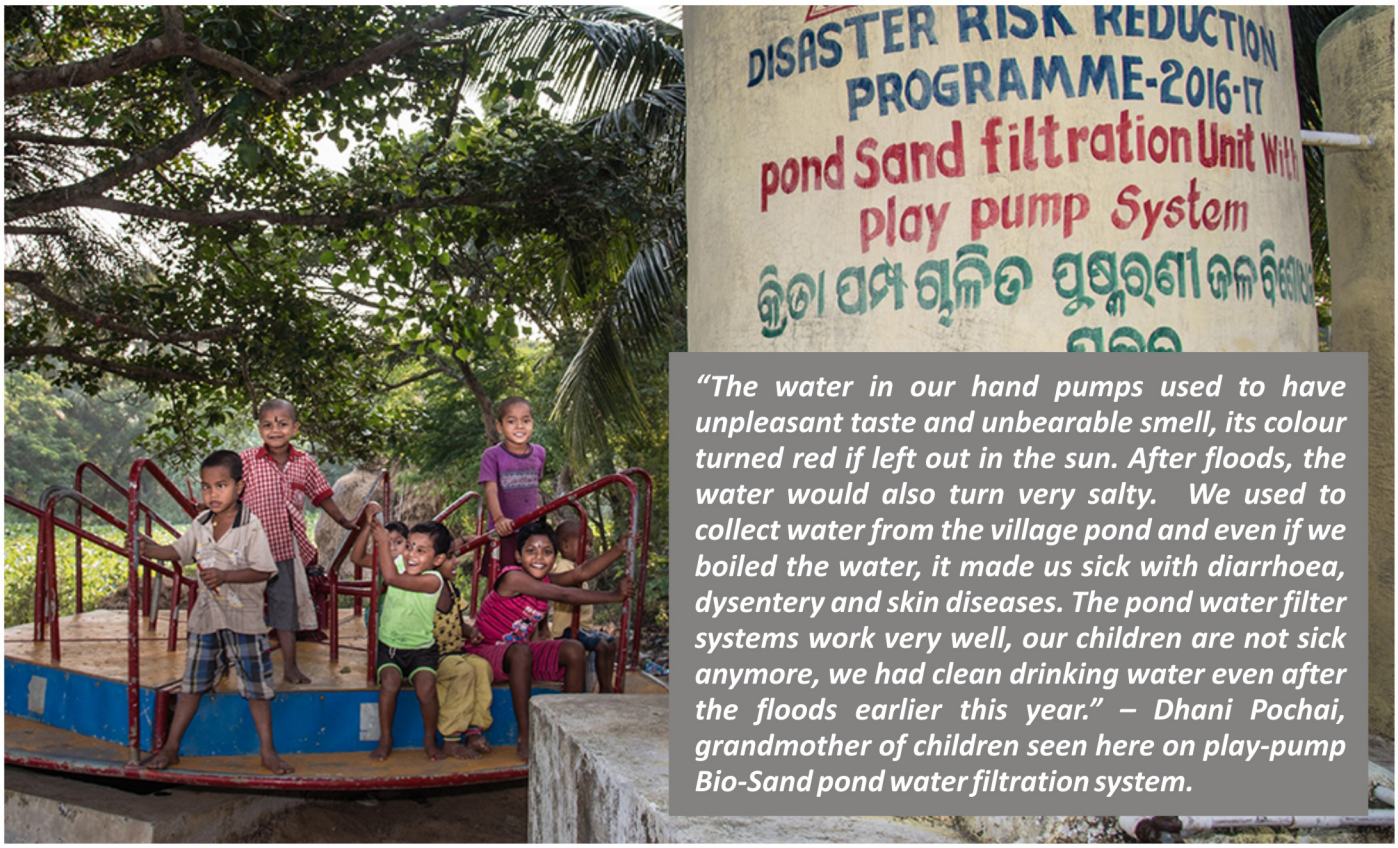
The positive deviance approach encourages local communities to find out solutions to many of the malnutrition related problems. Many of these solutions are already in practice within the community and needs to be discovered and shared with others. Since these solutions are from the locality they are more sustainable than any other external inputs to treat malnutrition.

4. COMMUNITY MANAGED FLOOD-PROOF POND WATER FILTER SYSTEMS

DEFYING CLIMATE CHANGE

ORGANISATION: Oxfam
LOCATION: Puri district of Odisha
CLIMATE CHANGE IMPACT: Floods, Salinity intrusion
WEBSITE: www.oxfamindia.org

FOCUS: Clean Drinking Water
YEAR: 2016
CONTACT PERSON: Animesh Prakash
animesh@oxfamindia.org



"The water in our hand pumps used to have unpleasant taste and unbearable smell, its colour turned red if left out in the sun. After floods, the water would also turn very salty. We used to collect water from the village pond and even if we boiled the water, it made us sick with diarrhoea, dysentery and skin diseases. The pond water filter systems work very well, our children are not sick anymore, we had clean drinking water even after the floods earlier this year." – Dhani Pochai, grandmother of children seen here on play-pump Bio-Sand pond water filtration system.

Beyond the immediate risks of death and injury, floods pose a grave risk to children's health. Floods compromise safe water supplies, increasing the risk of diarrhoea outbreaks. They also damage sanitation facilities, contributing to water contamination and undermining the sustainability of sanitation behaviours.[15] Flooding also affects children due to its impact on both family livelihoods and food security. Coastal flooding ruins arable land with salt water, diminishing agricultural areas and productivity: both of these can decrease food availability and income, and increase malnutrition, particularly among young children. Storm surges lead to salt water intrusion into coastal freshwater aquifers on which millions of people depend for drinking water.[16]

There are parts of the coastal district of Puri in Odisha where despite being surrounded by water, ponds, rivers, canals, lakes and sea, every sip of water the villagers drink is laden with risk. Most of the ground water sources in the district are contaminated by naturally occurring high iron content and salinity intrusion caused by over-extraction of ground water, rendering it unfit for drinking and cooking purposes. Water pollution is the third largest killer of new born and infants after malnutrition, and air pollution.

The rivers and ponds are algae ridden, polluted by domestic waste and sewage from villages, effluents from upstream factories and waste streams from upstream cities. To make things worse the shallow sub-surface tube wells, the main

source of drinking water in many villages are easily contaminated during the frequent floods and cyclones that ravage the region on a regular basis, sometimes incessantly. This plays a significant role in increasing the cases of malaria, AES, cholera, viral hepatitis, enteric fever and acute diarrheal disorder in children of under five years of age which is also a major cause of under-five mortality.

To avoid the foul smelling unpotable water from the hand pump, most villagers draw water from their polluted village ponds, boil and use it for drinking and cooking purposes. Unfortunately boiling the water is not safe enough for the heavily contaminated water and villagers – especially children and women – constantly complain of repeated diarrhoea, intestinal worm infestation and skin diseases. Reduced availability of water for domestic consumption, livestock and subsistence agriculture was directly affecting the personal hygiene, environmental sanitation, livelihood and nutrition support of women and children.

The innovative aspect of Oxfam intervention is that it tackles the challenges of environmental pollution, salinity intrusion, iron contamination and recurrent floods by combining different technologies like raised storage structures, bio-sand filters, iron removal terra filters, solar energy and children's play pumps to power the water filtration plants that have brought clean drinking water to some of the children in the project villages for the very first time.

In the background of this slowly unfolding tragedy, Oxfam India has been running its disaster risk reduction programme in the Kanas block of Puri district with its local partner SOLAR to test locally appropriate and low-cost systems to provide safe drinking water to 15 villages.

The Oxfam intervention tackles the four-fold challenge of environmental pollution, salinity intrusion, iron contamination and recurrent floods by combining different technologies like raised storage structures, bio-sand filters, iron removal terra filters, solar energy and children's play pumps to power the water filtration plants. The water filtration ponds are located near the pond and usually in a school or anganwadi premise and is open to all community members. Infact, community ownership and maintenance are mandatory for the project.

A 'Biosand' filter consists of a container with a system of pipes with holes drilled in them covered by about six inches of gravel, in turn covered by three feet sand. The water flows through the sand and gravel to the pipes at the bottom.

The water then flows back up (due to hydraulic pressure) through an output pipe to the level of input water. After about 3-4 weeks, a biological layer forms on the sand that traps and destroys harmful bacteria and viruses. Tests have shown that slow sand filters remove viruses, bacteria, and chemicals. The water is then pumped into two raised water tanks for iron removal that are internally separated by terra filters into two chambers. Children playing at the merry-go-round that powers the motor pump lift the water from the slow sand filter to the top chamber of the IRP and the filtered water is collected in lower chambers. Two taps are fitted at the bottom as outlets. The IRP has a capacity of 2,000 litres and is filled four times during the day.

While the village funds are used for the upkeep of the tank, a nominal fee of INR 5 is also collected from each household towards these costs. The cost of setting up an IRP is INR 35,000-45,000. The WASH (Water, Sanitation and Hygiene) Committees formed in these villages were trained by Oxfam India and SOLAR to run, clean and maintain the IRP and its adjoining areas. The seven-member WASH Committee in Ogalpur village, which also functions as the maintenance committee, has been trained to clean tanks.

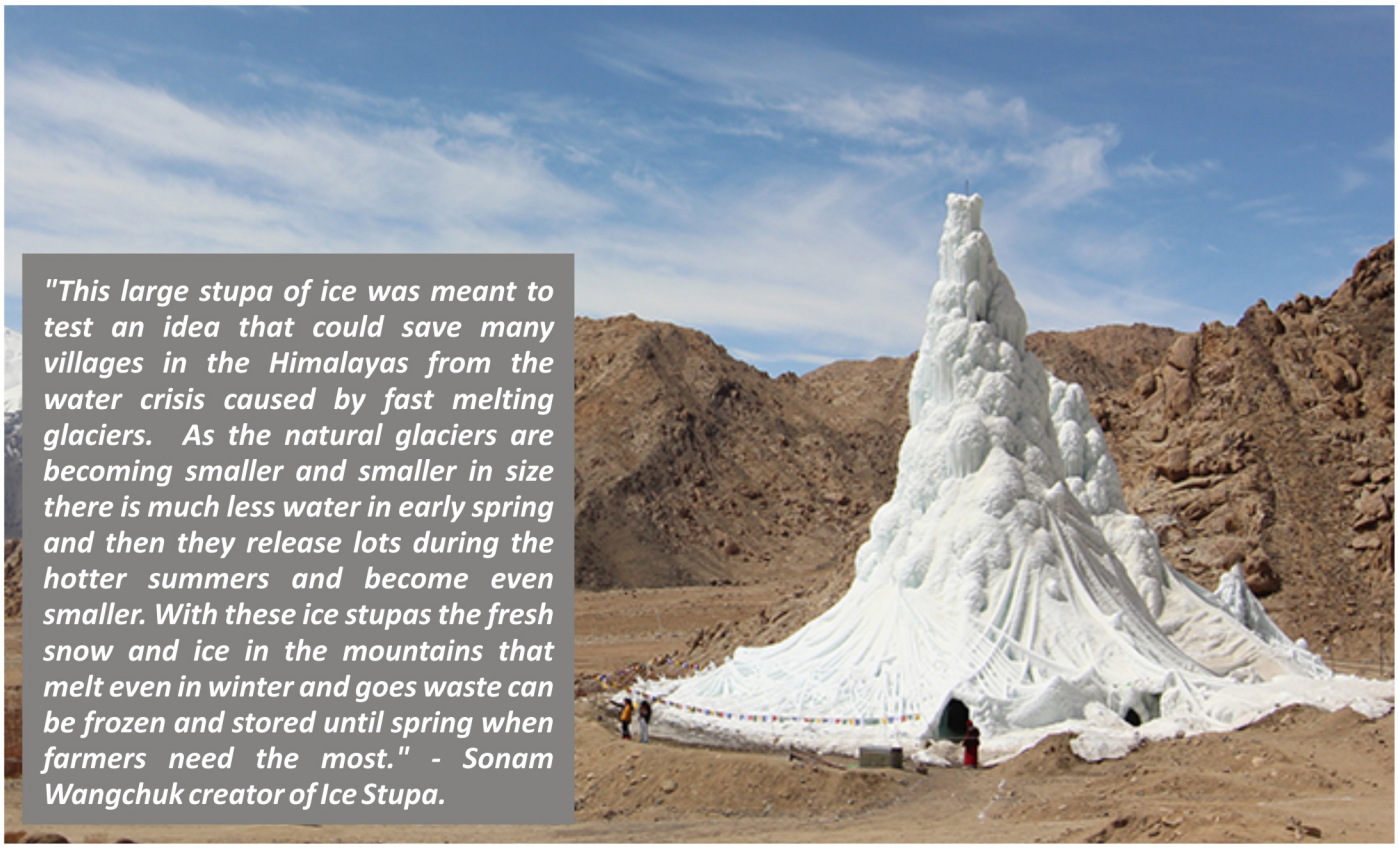
Women at project villages speak of reduced drudgery for collection and boiling of water and most importantly improved health of their children. The high demand for IRPs is a clear indication that the model is a success and should be replicated in coastal villages prone to flooding. With the addition of renewable energy to power the pumps, villagers can ensure that there is water in the tank at all times. Though the pilot IRPs were set up by Oxfam India and SOLAR, the community has played a big role in its maintenance and upkeep. The success of the IRPs in these villages has encouraged other villages to consider sourcing village funds for setting up these plants.

5. ICE STUPAS – ARTIFICIAL GLACIERS FOR IRRIGATION AND DISASTER MANAGEMENT

DEFYING CLIMATE CHANGE

ORGANISATION : Ice Stupa Project
LOCATION: Ladakh district of Jammu & Kashmir
CLIMATE CHANGE IMPACT: Glacier retreat, GLOF

FOCUS: Adaptation, DRR
YEAR: 2013
CONTACT PERSON: Sonam Wangchuk
sonamsolar@gmail.com
WEBSITE: www.icestupa.org



"This large stupa of ice was meant to test an idea that could save many villages in the Himalayas from the water crisis caused by fast melting glaciers. As the natural glaciers are becoming smaller and smaller in size there is much less water in early spring and then they release lots during the hotter summers and become even smaller. With these ice stupas the fresh snow and ice in the mountains that melt even in winter and goes waste can be frozen and stored until spring when farmers need the most." - Sonam Wangchuk creator of Ice Stupa.

The most obvious and dramatic impact of climate change on the Himalayan mountains is the rapidly retreating glaciers on the peaks around Ladakh and Zanskar regions in the state of Jammu and Kashmir. Later and less snowfall, earlier and warmer springs and unseasonal erratic rains are all resulting in drying up of glacial streams, the only source of water for the villagers here, causing a drought like situation year after year in the last decade.

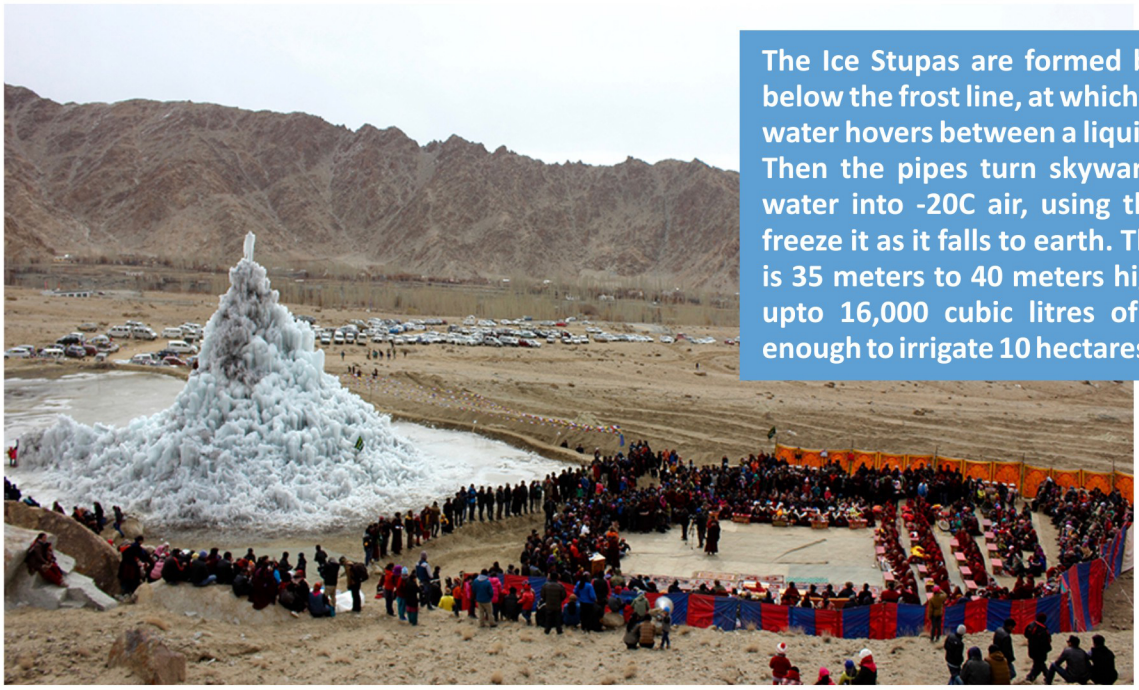
Kumik is a cluster of 39 households hugging a mountainside in the remote Zanskar Valley of the Himalayas. Kumik's sole lifeline is one small stream coursing down from the glacier-capped mountain of Sultan Largo. The stream now often dries up by August, before the harvest. Similarly, in Phyang village of Ladakh district, repeated crop failures and lack of water was causing grave hardships in the snowbound villages. The water crisis led to villagers abandoning their farms and migrating to cities in search of work.

The villagers of Kumik and Phyang have adopted the Ice Stupa or artificial glacier technology to adapt to the unreliable melting of their glacier. The current design of ice stupa was adapted and improved by Sonam Wangchuk of Ladakh and was developed during the winter season to compensate for reduced runoff by reutilising unused winter meltwater for irrigation. Such interventions can sustain the mountain regions as

water towers of the world and also provide economic stability by strengthening agricultural production and tourism development.

An artificial glacier is built following a simple technique. Water is piped away from high altitude reservoirs (glacial lakes or streams) in winter. Further downstream, the water is allowed to “leave” the pipe. Due to gravity, the pressure that has built up on the way forces the water to leave the pipe as a water fountain. In contact with sub-zero temperatures, the water fountain freezes, building a huge cone of ice. In its final form, this artificial glacier looks like a traditional Buddhist building, hence the name Stupa.

The main purpose of the ice stupa is to irrigate the crops in the dry season. The water contained in the stupa should therefore also be released during the right time of the year. To this purpose, it is also designed to conserve water in ice form as long into the summer as possible. It can then, as it melts, provide irrigation to the fields until the real glacial melt waters are sufficient in June. Since these ice cones extend vertically upwards towards the sun, they receive less of the sun's energy per unit of volume of water stored. Hence, they will take much longer to melt compared to an artificial glacier of the same volume formed horizontally on a flat surface.



The Ice Stupas are formed by running pipes below the frost line, at which temperature the water hovers between a liquid and solid state. Then the pipes turn skywards, spraying the water into -20C air, using the bitter cold to freeze it as it falls to earth. The average stupa is 35 meters to 40 meters high and can store upto 16,000 cubic litres of water which is enough to irrigate 10 hectares of land.

The ice stupas can also be deployed for preventing Glacial Lake Outburst Floods (GLOF). Combined with a siphon drainage system and automated construction mechanism of artificial glaciers, glacial lakes can be drained and simultaneously snow-covered ice sheets can be designed that melt as per requirement in the summer and continue growing until the glacial water reservoir is exhausted.

Lhonak lake, one of the largest in the Himalayas, is a ticking time bomb, according to scientists. If it bursts, it can cause a massive flood, damaging hydroelectric dams, vegetation and villages downstream. The Government of Sikkim has collaborated with the Sonam Wangchuk for draining the lake and using it to form artificial glaciers that can reglaciate the region.

Worldwide, glacier retreat is one of the most obvious and impressive manifestations of climate warming. On a regional scale, glacier fluctuations may affect landscape, meltwater supply (reservoirs, irrigation), security of infrastructure and buildings (ice avalanches, outbursts of glacial lakes), and the tourism industry. The icestupa is a novel and proven-to-be-successful indigenous method of reducing these risks.

The ice stupa technique can be applied to thousands of glacial lakes in the Himalayas, Alps and Andes. It can serve a personal water reservoir for mountain farmers and can help preserve or create new glaciers. It is also proving a major tourist attraction.

6. CLIMATE RISK ASSESSMENT TOOLS

DEFYING CLIMATE CHANGE

ORGANISATION: Watershed Organisation Trust
LOCATION: Ahmednagar, Aurangabad & Jalna districts of Maharashtra, Mandla district of Madhya Pradesh, Kurnool and Mahboobnagar districts of Telangana & Andhra Pradesh
WEBSITE: www.wotr.org

CLIMATE CHANGE IMPACT: Cloudbursts, Drought
FOCUS: Food security, Water security, Disaster risk management
YEAR: 2016
CONTACT PERSON: info@wotr.org

"We have had unexpected cloud-bursts, deadly landslides and even floods but we have not suffered any major losses of life, cattle or property because all the villagers are well informed and therefore better prepared. The entire community, led by our women and children, were involved in creating this 3D model of the village that identifies hazard spots, safe spots using the Community Driven Vulnerability Evaluation Visual Integrator (CODriVE=VI) tool." – Ganapat Sakharam Ugle (Head of VDC of Bhojdari village of Sangamner Taluka) seen here with other VDC members and the hazard map model of his village.

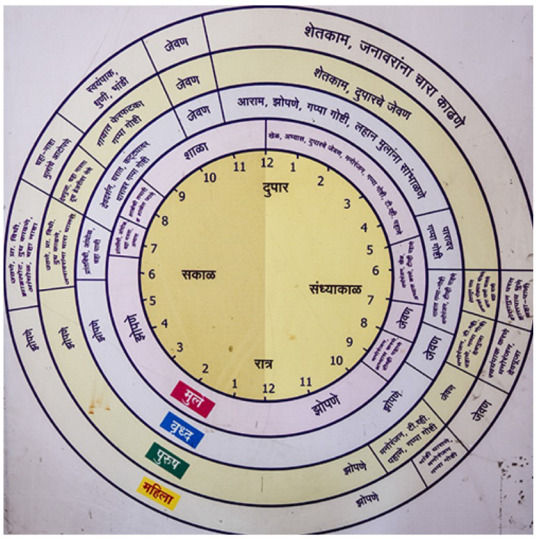
Most droughts are slow-onset, but they can be more acute if they occur in arid zones or in combination with heat waves. The water stress associated with droughts can be aggravated by water consumption for agriculture, industry, power generation and domestic purposes, as well as environmental degradation and disruption of water supply systems. As temperatures rise due to global climate change, more moisture evaporates from land and water, leaving less water behind. Consequently, water demand is expected to increase in the coming years as plants, animals and humans will require more water to compensate for increased evaporation.[17]

During the three-year drought of 2014-2016, the water level in the village wells of Sangamner taluka of Ahmednagar district of Maharashtra was depleting and their agricultural yield had decreased considerably. The villagers' problems were compounded because of over-extraction of groundwater, market driven agriculture, scarcity of non-farm livelihood opportunities, limited access to energy for domestic use, nutrition and health challenges and gender inequality.

The women had to walk longer distances to fetch water, children were undernourished and more susceptible to diseases spread through poor sanitation, each deprivation exacerbating the effect of the other, creating new risks and reinforcing old social and economic vulnerabilities created by poverty and inequality.

Watershed Organisation Trust, a Pune-based NGO, recognized this complexity of climate change impacts on the people of Sangamner and launched a climate adaptation project that used a knowledge-informed, multi-disciplinary and participatory approach involving watershed-based ecosystems management, integrated water resources management, adaptive sustainable agriculture, local and crop specific agro-met advisories, biodiversity conservation, renewable energy, institutional capacity building, development tool kits and training modules.

WOTR first mobilized vulnerable communities to help themselves out of poverty by harvesting rainwater wherever it falls and regenerating the ecosystems they live in. WOTR's Community Based Disaster Management approach builds capacities of communities to reduce the impacts and to cope with disasters more effectively. Since every individual is vulnerable and is threatened by natural and man-made disasters, each one is required to be aware of and have the minimum capacity to counter such crises.



The innovative aspect of WOTR's approach is a climate-risk assessment tool, CoDriVE–PD, that helps to assess both livelihoods resource vulnerability (land, water, tree cover, and watershed) and community vulnerabilities (community group and gender disaggregated) in a village. The Community Driven Vulnerability Evaluation Visual Integrator (CODriVE=VI) tool guides theconstruction of a 3D model of the cluster of villages to assist communities to identify hazard sports, safe spots and how address the adverse situations.

To fully capture community perspectives on both climate- and non-climate-related vulnerabilities, the application of the CoDriVE-PD provides a five-digit code based on the status of the five capitals (human, natural, financial, social and physical) for the respective groups within the village and for the village as a whole; the results provide guidance for a climate adaptive project design.

The CoDriVE–PD assessment identified seven cross-cutting, multi-sectoral strategies – adaptive sustainable agriculture; locale-specific weather-based agro-advisory; biodiversity conservation; water resource management and enhanced water efficiency; livestock development; disaster risk reduction and livelihood strengthening. WOTR further developed CoDriVE–LA22, which tracks money flows within and outside a given village and assesses livelihood vulnerabilities to climate change and other externalities (e.g. market forces). Collectively, these strategies form “Climate Smart Adaptation Interventions”. Some of these strategies look into the impact of climate change while factoring in non-climate stress factors.

Awareness campaigns were organized to sensitize villagers so that they are able to plan, review and analyse past disasters. A DRR clock and Seasonal calendar was prepared for likely seasonal disasters.

Once hazard spots (e.g. road cave-in sites, weak houses/walls, are identified, the actual location in the village is marked and the concerned government departments and households are contacted for action.

WOTR's initiative is a perfect example of the urgent need for a robust process identifying and evaluating the risks and effects of climate change on natural and human systems. Climate projections and on-the-ground observations are used to first identify how the climate is changing, and then the impact of those changes on systems such as river basin dynamics or community livelihoods are assessed, through, for instance, hydrologic modelling and community-level consultations.

7. ImTeCHO – MOBILE PHONES APPLICATIONS TO IMPROVE HEALTH SERVICES

DEFYING CLIMATE CHANGE

ORGANISATION: Sewa Rural
LOCATION: Jhagadia District of Gujarat
CLIMATE CHANGE IMPACT: Extreme heat, Drought

FOCUS: Health and Disaster Risk Reduction
YEAR: 2016
CONTACT PERSON: Dhiren Modi
dhirenpsm@gmail.com

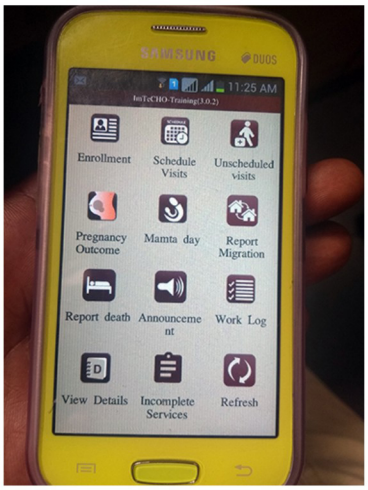
"Keeping track of malnourished mothers and children in the first few months is critical for ensuring their survival. With the Im-TeCHO app I am able to record and share health data of the child and upload it immediately to our Medical Officer and Helpline to monitor and for follow up prescriptions and actions."- Roshni Vasava, ASHA (Accredited Social Health Activist, Jhagadia, Gujarat)

Despite having contributed little to greenhouse gas emissions, an estimated 370 million indigenous adults and children in some 90 countries around the world are at particular risk of facing the direct consequences of climate change.[18] Indigenous peoples' vulnerability to the impacts of climate change is further exacerbated by the fact that they are estimated to constitute 15 per cent of the world's poor, and one third of the 900 million people living in extreme poverty in rural areas.[19]

The tribal belt of Jhagadia in Bharuch district is one of the most underdeveloped regions of Gujarat state, which is otherwise known for its 'development model'. In 1980 over 95 per cent of the children under six who were registered under the Integrated Child Development Services (ICDS) amongst the Vasava tribe – the indigenous inhabitants of Jhagadia – had poor health track record with a severe protein-energy-malnutrition (PEM) rate of 16 per cent.

National Rural Health Mission (NRHM) promotes a decentralized approach to deal with malnutrition, where PRIs have a role to monitor the status of malnutrition and deliver appropriate services. ASHA, ICDS workers and the Village Health Committee are responsible for providing supplementary food to malnourished children. In addition, they can also provide this service with the help of the untied funds allocated in their micro plans.

SEWA Rural, a voluntary development organization engaged in health and development activities, adopted three Primary Health Centres in Jhagadia with the intention of improving their delivery capacities. To support the rural health care services SEWA Rural intervened with mobile phone technology called ImTeCHO.



The ImTeCHO application has improved delivery of preventive and curative services to pregnant and post-partum women at community level and also to deal with premature babies and serious infections. It effectively takes care of children under two, especially when it comes to treating diarrhoea and pneumonia – two of the main health impacts of climate change visible in the area.

ImTeCHO is an initiative of the Department of Health and Family Welfare, Government of Gujarat and is being implemented within existing primary health care system and centred on front line health workers. UNICEF in Gujarat is providing technical assistance for scale up and expand the scope of the application.

ImTeCho stands for Innovative Mobile-phone Technology for Community Health Operations. Techo in Gujarati also means 'support'. Hence, ImTeCHO implies, 'I am the support'. The ImTeCHO mobile phone application integrates a checklist (to ensure standardization of services) with regular mobile phone features like the ability to transfer data instantly, and automatically applies an algorithm to the entered data. This phone application helps community workers involved in maternal, new-born and child health (MNCH) services provide lifesaving aid, thereby assisting in reducing maternal, new-born and child mortality rates, and checking under-nutrition in tribal communities.[20]

The ImTeCHO mobile phone application has proved useful in scheduling and task management. This works because health workers receive alerts on their mobile phones on tasks for the day. The application also promotes healthcare using multimedia. Nine short videos assist ASHAs to counsel on healthy behaviour during their home visits to beneficiaries. Other features show diagnosis and customized treatment plans based on entries made on mobile phones. Also, the ImTeCHO Web interface provides real-time information to medical officers so that timely support and supervision can be provided. All this is made possible by using a low-cost phone of INR 4,500 (approximately $70). While this technique has made the job of ASHAs easier and more effective it is also an extremely valuable and simple data collection tool. As the application generates automated feedback and suggests next steps based on the entry data, the right remedy and information reach the right person at the right time. Everyone—ASHAs, female health workers, PHC staff including medical officers—benefits as critical information is instantly available on the mobile and web interface.

High quality data, accurate surveillance and monitoring of disease through primary care information systems, as well as improved climate modelling will be necessary to scale up proven approaches to address the changing needs of children. Piloting of ImTeCHO began in May 2013 in two tribal PHCs of Jhagadia block. Over the last four years, the project was gradually scaled up and 500 ASHAs are currently using ImTeCHO application daily. The project has been evaluated using robust research methodologies. Now, the government is planning to scale it up state-wide in phases.

8. VOLUNTEER NETWORK MANAGEMENT SYSTEM

DEFYING CLIMATE CHANGE

ORGANISATION: Oxfam India
LOCATION: Balasore district of Odisha
CLIMATE CHANGE IMPACT: Cloudbursts, Floods, Unseasonal rains
WEBSITE: www.oxfamindia.org

FOCUS: Disaster Preparedness
YEAR: 2016
CONTACT PERSON: Animesh Prakash
animesh@oxfamindia.org

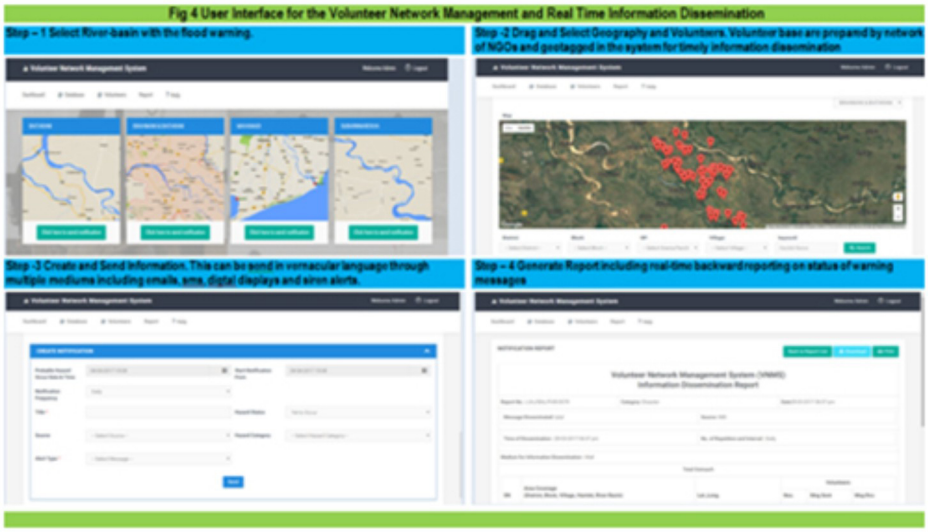
Phailin, a 'very severe' cyclone, hit Odisha on September 12, 2013. It made landfall at Gopalpur in Ganjam district. An accurate early warning triggered prompt government and community action which helped to contain human casualty to 21, significantly lower than the 10,000 people who lost their lives in a similar cyclone 14 years ago in the same region.

But behind the much-celebrated success of the disaster preparedness for Phailin, a larger tragedy was unfolding in the hinterlands of Odisha. Phailin had gradually weakened into a deep depression and led to heavy rains in the upper catchments of Odisha, Jharkhand, and Chhattisgarh. This caused flooding in Balasore, Bhadrak, Keonjhar and Ganjam. In these parts flood casualties were more than those caused by Phailin; 23 people lost their lives. The impact was significant, but the needs of the affected communities were overshadowed and neglected.

One such village was Chadnamkhana, a small hamlet on the bank of Subarnarekha, in Paschimabad Gram Panchayat in Balasore's Jaleswar block. With no roads, the hamlet could only be reached through boats. During 2013 post-Phailin floods, eight families lost their houses, assets and land due to river erosion. All 30 houses were either completely or partially destroyed; a few families lost agricultural land to river erosion. They received initial relief assistance but were excluded from recovery and rehabilitation support.

Oxfam India started working in Balasore district of Odisha through partner Unnayan to increase preparedness of vulnerable communities, especially the farmers, by strengthening existing coping mechanisms. Residents were trained and organized in groups; a Village Disaster Management Committee (VDMC) was set up. The committee was assisted by a team of trained professionals and engineers to assess hazards and its potential impacts, particularly on marginalized and socially excluded groups including those who are forced to live in unsafe locations.

Existing local knowledge helped in computing the time for evacuation in different scenarios. This was critical for developing village disaster management plans, establishing community-based early warning systems, and other risk management and mitigation activities. It is widely recognized that for marginalized communities timely warning dissemination may not always lead to timely evacuation. To address this problem, Oxfam and Unnayan have developed a Volunteer Network Management System (VNMS), a combination of software and hardware based systems which aims to institutionalize the coordination mechanism between the local government and the village based networks for effective and timely early warning dissemination leading to positive community action.



Unnayan's approach recognizes and strengthens the role of communities in disaster preparedness, instead of relying on government support alone. It has proven that investing in early warning systems and volunteer management is an investment in preventing future losses and is more cost-effective than relying on post-disaster response and recovery.

VNMS places local NGOs at the pivot of the system where they are engaged to support the local government in reaching out to the most vulnerable and inaccessible communities in real time.Over their years of experience in working on flood preparedness, Unnayan has developed a flood map in consultation with the members of VDMC, villagers staying beside the river, experts from the government and practical experience.

The VNMS enables them to send critical information to the target group in real time. Warning alerts and messages can be tailored to the specific needs of those at risks. Messages are disseminated in local languages through digital display scrolls, SMS, audio messages and siren alerts. The system finds its application beyond disasters. In normal times it provides critical information on government schemes and subsidies, public health promotion etc. Its functionality and use in normal times not only ensures the sustainability of the collaborative network but also builds the credibility and trust in the warning messages.

One of the most significant value additions of VNMS is the tool which aids the formation of network of the local communities, civic groups and the local government for smooth flow of information and coordinated response across the river basin.

Direct impact on climate change actions has helped vulnerable communities in selected flood prone river basinsget access to timely early warning information and hence improved lead time to minimise losses in disasters worsened by climate change. The technology further allows specific rather than generic warnings (for e.g. which settlement is at risk of flooding, what is the lead time.) This is a pertinent gap in the existing system and could be attributed as one of the factors for heavy human casualties inspite of an accurate forecasting system

9. CARBON NEUTRAL PANCHAYAT

DEFYING CLIMATE CHANGE

ORGANISATION: Thanal
LOCATION: Wayanad district of Kerala
CLIMATE CHANGE IMPACT: Drought
WEBSITE: www.thanal.co.in

FOCUS: Mitigation & Adaptation
YEAR: 2016
CONTACT PERSON: Shibu Nair
shibuknair@gmail.com

"Over the next few years, we want to extend the carbon neutral panchayat program into the entire district of Wayanad. Once the district becomes carbon-neutral, it will also transform the economy, because the products that come out of the village will have a better brand value. We are soon looking to tie up with international green funds, universities, and institutions that can help us achieve these targets." T M Thomas Issac , Finance Minister of Kerala.

Children have unique perspectives on environmental issues and a greater stake in the impacts of climate change. They are important actors in enhancing community capacity, taking action to address climate-related risks and promoting environmentally sustainable lifestyles. Climate change education increases the adaptive capacity of children and their communities, helps to foster environmental stewardship and develops children's capacity to be agents of change and active citizens.

Meenangadi is a small village in Wayanad district of Kerala, nestled in the Western Ghats and is identified as one of the climate change hotspots in Kerala. Wayanad is primarily an agrarian district that grows coffee, paddy and pepper, crops that are highly thermo-sensitive and vulnerable to climate change. The district has 97% rural population and most of them are directly dependent on agriculture for their livelihood. Climate vulnerability and unpredictability has resulted in loss in agricultural productivity, shift from food crops to cash crops leading to lack in nutrition and also in migration of labourers to productive land. The migration has taken a toll on women's focus on children and their nutrition.

In June 2016, the government of Kerala declared its intention to support the efforts of Meenangadi Grama to become India's first and truly 'Carbon Neutral Panchayat' by 2020. Carbon neutrality basically means zero or no carbon footprint. It entails reducing emissions to a bare level through the control of carbon dioxide released due to human activity as well as carbon sequestration. All the steps are to promote the conservation of nature and environment as well as offset the effects of climate change and global warming.

Thanal, a Thiruvananthapuram based NGO, is assisting the panchayat to identify and to promote development projects that can benefit the community by maintaining a balance between carbon emissions and sequestration. The uniqueness of the project is that it aims to ensure participation by integrating existing institutional mechanisms in governance.

To further advocate and replicate the concept of Carbon Neutral Panchayats, Thanal is developing a comprehensive sub national level 'Carbon Status' tool (Integrated tool with both GHG emission inventory and Carbon stock estimation) which can be used by any other Local Self Governments in the country. The framework of action plans will help the State Government make policies for ensuring low-carbon development in various sectors.

The first step was to assess the current economic situation of the Panchayat through the climate lens –for example, the decreasing productivity of land made visible to the people through a soil test showing low organic carbon. Water scarcity was explained with comparative precipitation data and its projection. Irregularities in flowering of coffee was identified with irregularities in rain.

Children and Youth are mobilized and formed into a “Green Army”. They have been given orientation and training on climate change and their help and involvement were sought in raising awareness and becoming the main agents of change for the Carbon Neutral Community Project.

The participatory primary survey approach helped create carbon consciousness among the student volunteers, that filtered back to their families and motivated them to own the idea of becoming India's first Carbon Neutral Panchayat. A baseline scenario for Meenangadi panchayat has been prepared in terms of 'carbon status' for the year 2016 by synthesizing both primary and secondary data collected for sectors of Energy, Transportation, Waste and AFOLU.

Intensive public consultations were conducted for collecting inputs for project ideas that would increase carbon sequestration at the household level. Inputs from various community segments like children, farmers, women's self-help groups helped everyone to understand their development needs. Experts from various environmental sectors were invited to identify micro climate change issues and communities vulnerable to the effects of such changes. Such consultations are planned regularly to verify the chosen methodology.

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During the project period, institutional mechanisms will be created to monitor and sustain the activities. A carbon neutral technical cell is already formed within the governance system of the Panchayat. Linkages have been established with research institutions and education institutions to sustain the research and scientific monitoring.

The project aims to reaffirm the role of climate change education and children play a pivotal role, strengthening their awareness, knowledge, skills and engagement to promote environmental sustainability. This is built into the curriculum of primary and secondary schools, and becomes part of higher, alternative and vocational education. Children and young people will develop an early understanding and appreciation of all aspects of environmental sustainability including climate change adaptation and mitigation.

IV. REFERENCES

1. The Convention on the Rights of the Child defines children as anyone younger than 18 years. A child's experience and vulnerability, as well as their opportunity to learn and capacity to contribute, will vary based on age and gender. Vulnerabilities of boys and girls, and those of young children and teenagers are not the same. For more information on gender and climate change, see www.gender-climate.org/index.html.

2. 2017 Global Climate Risk Index - Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2016 and 1997 to 2016 David Eckstein, Vera Künzel and Laura Schäfer https://germanwatch.org/en/12978

3. "Climate change refers to a change in the state of the climate that can be identified (by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. It can manifest as extreme climatic events or as gradual systemic change leading to a slow deterioration in environmental conditions until customary practices or habitation become non-viable," according to IPCC AR 4, 2007.

4. 2017 Global Hunger Index, The inequalities of hunger, October 2017 - http://www.globalhungerindex.org/pdf/en/2017.pdf National data of NFHS-4, 2015-16 indicate that India has one of the world's highest demographics of children suffering from malnutrition. India's Global Hunger Index Ranking of 67 among the 80 nations with the worst hunger situation places us even below North Korea or Sudan. 35.7% of children under the age of five are underweight, 38.4% stunted, 21.0% wasted while 7.5% of children are severely wasted.

5. According to the Intergovernmental Panel on Climate Change, "adaptation" is defined as the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC, 2007).

6. IPCC (2014). Climate Change 2014: Impacts, Adaptation and Vulnerability. Summary for Policymakers (Table SPM.1, p28)
'

7. Gender and the Green Climate Fund', Oxfam, 2011. http:// policy-practice.oxfam.org.uk/publications/gender-and-the-green- climate-fund-136533

8. The IPCC's Fifth Assessment Report | What's in it for South Asia?

9. A climate agenda for children: Unless we act now: The impact of climate change on children. UNICEF November 2015

10. Unless we act now: The impact of climate change on children. UNICEF 1995.

11. http://www.firstpost.com/india/marathwadas-drought-how-climate-change-has-destroyed-agriculture-and-ruined-farmers-2736992.html

12. When coping crumbles, Drought in India 2015-2016, UNICEF India Country Office, December 2016

13. National Crime Records Bureau, ADSI Report Annual – 2014 Government of India, p. 242, table 2.11

14. World Health Organization, Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death, 2030s and 2050s, WHO, Geneva, 2014.

15. Wilhite, D. (2012) Drought assessment, management, and planning: theory and case studies

16. EPA (United States Environmental Protection Agency) (2015) Water Impacts of Climate Change

17. Groffman, P.; Kareiva, P. et al. (2014) Ch. 8: Ecosystems, Biodiversity, and Ecosystem Services. Climate Change Impacts in the United States: The Third National Climate Assessment, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 195-219. doi:10.7930/J0TD9V7H. <http://nca2014.globalchange.gov/report/sectors/ecosystems>

18. Centers for Bioterrorism Preparedness Program Pediatric Task Force, NYC DOHMH Pediatric Disaster Advisory Group, NYC DOHMH Healthcare Emergency Preparedness Program. Children in Disasters: Hospital Guidelines for Pediatric Preparedness. http://www.nyc.gov/html/doh/downloads/pdf/bhpp/hepp-pedchil- drenindisasters-010709.pdf

19. The SEWA Rural Experience. Making of a Primary Health Centre. 2003. Available online at: http://sewarural.org/sewa/wp content/uploads/2012/04/Making%20Primary%20Health%20 Centre.pdf.

V. ABOUT PARTNERS

Climate Action Network South Asia (CANSA) is a coalition of over 160 civil society organizations working in eight South Asian countries to promote government and individual action to limit human-induced climate change in a manner that promotes equity and social justice between peoples, sustainable development of all communities and protection of the global environment.

CANSA has been at the forefront of representing the southern perspectives at international climate negotiations and undertakes inter-governmental, regional, and national actions. With its large membership base CANSA works towards linking policy work, research and action based work in the region to address and set workable solutions to the adverse effects of climate change affecting the region.
www.cansouthasia.net

UNICEF is mandated by the UN General Assembly to advocate for the protection of children's rights, to help meet their basic needs and to expand their opportunities to reach their full potential. UNICEF is guided by the Convention on the Rights of the Child and strives to establish children's rights as enduring ethical principles and international standards of behaviour towards children. UNICEF mobilises political will and material resources to help countries, particularly developing countries, ensure a “first call for children” and to build their capacity to form appropriate policies and deliver services for children and their families.
www.unicef.in

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