Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

PILOTING PEOPLES' CLIMATE ADAPTATION

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PILOTINGPEOPLES'CLIMATEADAPTATION

AUTHORS
Dr. Ashish Chaturvedi, GIZ,
Dr. Rachna Arora, GIZ
Mr. Manjeet Singh Saluja, GIZ
Ms. Heike Mewes, adelphi
Mr. Ronjon Chakrabarti, adelphi
Mr. Krishna Kumar, AVVAI Village Welfare Society, Tamil Nadu
Mr. GGK Murthy, Academy of Gandhian Studies, Andhra Pradesh

PHOTOGRAPHS
By the respective authors

COVER PHOTOGRAPH
Pradip Saha

EDITORIAL DESIGN
DamageControl
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Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Third Floor, B-5/2 Safdarjung Enclave
New Delhi 110 029, India
T: +91 11 49495353
F: +91 11 49495391
E: contact@asemindia.com ; ashish.chaturvedi@giz.de
I: www.giz.de

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Why AdaptCap

THE FUTURE IS HERE

In 2007 the Nobel Peace Prize brought worldwide public attention to climate change. The Intergovernmental Panel on Climate Change (IPCC) was given recognition for its work on building awareness of the man-made aspects of climate change. Although climate change was no new phenomenon, this recognition marked a shift. Understanding and negotiating climate change assumed more significance. At the heart of the climate debate is the role of carbon emissions on global temperature rise, and the effect this has on natural phenomenon, resources, and the lives that depend on them.

International negotiations, as well as national action plans, set the overarching framework for a coordinated effort to mitigate a problem that has no boundaries. While these negotiations continue, the effects of climate change are now upon us. Rising temperatures, colder winters, and unpredictable precipitation will affect lifestyles and livelihoods. How resilient we are will determine how each of us fare in the changes that are taking place. What we know today is that the global poor will be the hardest hit by the changes climate change will bring. They live in a natural resource economy that is already in crisis. Climate change exacerbates existing vulnerability. Living in uncertain conditions, with little financial capital to react to change, poverty is one of the biggest challenges for understanding and adapting to climate change.

At the top of the vulnerability ladder are coastal communities, who are exposed to the immediate impacts of rising sea level and its complex effects. Climate change impacts rural as well as urban areas. The intricate interconnection of resources, environment and human movement requires an effective model for capacity, resilience and planning. This needs to broaden the boundaries for action, beyond the immediate site that will be affected. Populations that can, will move, as trouble increases. This needs to be taken into account when planning for climate change, and integrating this perspective into wider processes.

Kannan from Thirumalai Nagar in Tamil Nadu has been going out to sea since his childhood. A seasoned fisherman for many years, he is now completely confused, "now we go to the sea with clear sky and suddenly at night the cloud forms and rain starts. If the wind is very strong, we cannot run our boats along with the nets and the catch. So, we cut the net and leave everything mid-sea and come back." Kannan feels that it is more important to come back alive, and take loans to buy new nets.

The problem is not only in the sea. Saline incursion, soil erosion, and biodiversity loss is the new reality for populations who are intimately connected to their environment. Seventy five per cent of the world's coastal communities live in Asia, with high population density, and extreme poverty. Small changes in their immediate environment have longterm impacts. Where once traditional practices and local knowledge, passed down generation-by-generation, guided livelihood systems, climate change is forcing communities to engage with seemingly unpredictable weather variability. Developing a new balance, with constantly changing information, is at the centre of the adaptation challenge.

India's 7500km coastline is home to almost 400 million people, whose livelihoods are sustained by the land and sea. In these areas there is a delicate balance between nature, human society and economy. The extent of these communities' complex vulnerabilities was exposed during the 2004 Tsunami, which destroyed and damaged 150,000 homes along India's eastern coastline of Tamil Nadu, Andhra Pradesh and Pondicherry.

Coastal communities span both urban and rural contexts. Each of these share the same resources, and live within the same ecosystem. But they also have specific conditions and vulnerabilities that need to be addressed. Rising sea levels and storm surges result in saltwater incursion which challenges crop productivity. Unpredictable rainfall and higher than average temperatures increases the difficulties in ensuring water availability. Flooding affects water quality and human health. Infrastructure damage, due to increasingly intense weather events, robs communities of what little physical assets they have, affecting productivity and community employment. Climate change events have multidimensional impacts that threaten the already fragile realities of coastal communities.

Increasing the coping capacity of coastal populations will be meaningful, robust and sustainable when they are developed 'bottom up' and reflect local demand. Like mangroves whose complex intertwined root structure provide a buffer to withstand storm surges, sustainable local action requires the strong matrix of networked actors, at all levels, to impact change.

Understanding how to work with water, in a climate-constrained world, is the point of departure for the European Union funded and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supported AdaptCap project. As the name suggests, AdaptCap aims to strengthen adaptive capacities and minimize risk for coastal communities. It interlinks activities of climate change adaptation (CCA), disaster risk reduction (DRR), climate change mitigation (CCM), and introduces the central role of partnership and integrated holistic planning. By co-creating a roadmap for action and ownership, accountability is shared, and resilience is built. Bringing communities and planners together allows for stronger sustainability potential.

AdaptCap looked for opportunity to mainstream climate change mitigation, adaptation and disaster risk reduction into planning at the gram panchayat, block, municipal and district level. Through this process, the objective of AdaptCap was to make clear the value and strength of partner-led local action. Pilot projects were selected by consolidating community needs and providing innovative additions that would ensure sustainability with a reduced need for external input. With this proof, other communities sharing similar realities can replicate actions. For this reason, cost, acceptance, risk reduction and positive side effects were critical criteria for selection of pilot projects. This has two direct outcomes. It helps communities understand the landscape of climate change from a planning perspective. It gives them the knowledge of the inner workings of government. This knowledge itself part of resilience creation. It also gives planners a direct understanding of what is at stake in their decision making as they are a part of all steps of local planning. The principles of AdaptCap needed to be embedded within larger planning processes to replicate successful projects.

Climate change is no longer an academics' hypothesis of future change. It is affecting human lives today. The AdaptCap project has chosen to subvert the dominant paradigm and introduce sustainability that is community led and science supported.

Rammurthy.R, Ramudu Pallepalem, Nellore District, A.P.

Our occupation is linked with the sea and depends on weather and seasonality. Our elders had excellent understanding of patterns of weather and seasons. Their traditional knowledge helped us in predicting the sea behavior and our fishing practices. But for last more than two decades our elders are not able to read the nature. It isnow highly unpredictable.

Thinking AdaptCap

ANTICIPATING THE FUTURE

Aavula Seshamma of Sri Ramapuram in Nellore district of Andhra Pardesh is the wife of a former fisherman. Seasonal cyclones destroyed her husband's boat. He is now forced to work on someone else's boat, as labour, while her sons are working on trawlers. Aavula has taken up work as an agricultural labourer. Cyclones have cost them their entire fishing infrastructure, forcing them into debt. But moving into agriculture did not solve her problem. 'For the last few years, we have observed erratic rainfall which is affecting our agriculture and my livelihood too', she said.

Climate change is a complex problem that affects all sectors of society at once. Climate change management is often a top down exercise. Yesobu of Poovula Doruvu village makes the point that, the Government has been organising Gram Sabhas for finalising the schemes they feel fit for the village based on the previous year action plans. "There we have no space to share our problem and to choose a suitable solution with rationale. Wells were dug in our large piece of dry land for common irrigation but have dried up or become saline", he complained. This top-down approach has gaps in implementation and misses local demand. The AdaptCap project makes the case for a top-down approach that is enriched by a focus on bottom-up evidence. This integrated perspective provides a strong base for sustainability.

In order to understand and act upon local demand, a project team with the required expertise at to implement solutions was needed. The four organisations, working together with GIZ to implement the project, are recognised leaders in their respective fields, which include capacity building, project development, research and ultimately developing field-based partnerships with cross sections of society. In Andhra Pradesh, the Academy of Gandhian Studies (AGS) and the AVVAI Village Welfare Society in Tamil Nadu were chosen for the their extensive local networks, and existing relationships with the villages selected. The degree of trust that was already established at the community level, with these two organisations, allowed for rapid entry into project specific discussions.

ICLEI – Local Governments for Sustainability, South Asia, with a long experience of project development, on urban management within India, were brought on board to share in the implementation of activities within the city level. ICLEI's technical and administrative understanding of the Indian condition, has played a strong role in developing strategies for harnessing political will. The German based think-tank adelphi brought together technology and innovative thinking to capacity building and problem solving. adelphi worked with the project partners to develop rigorous and transparent assessment and evaluation frameworks, technology solutions for local pilot projects and capacity building programme for various stakeholder groups. These frameworks were strong inputs for confidence building.

With this team in place, the project commenced on December 18, 2011 and was in place with GIZ support until December 17, 2013. The twin objectives of the AdaptCap programme were local value-addition as well as replication through political and administrative support.

If you remember Aavalu's story, climate change affects people in multiple ways. AdaptCap recognised the importance of mainstreaming climate change adaptation, mitigation and disaster management in order to get the most effective and efficient results for coastal communities. Isolated action, on either adaptation or mitigation, might at times harm the people it is supposed to help. The AdaptCap project did not aim to bring new science or experience to solve the problem. Rather it focused on how to use existing political frameworks, knowledge and science in a synergistic way that created strong value-addition as outcomes. AdaptCap focused on the rural, as well as the urban realities for coastal communities. This was done with the specific recognition of the interconnectedness of these contexts. Six cities each with three cluster villages were selected for the AdaptCap project, with a total of 18 rural sites and 6 cities.

The project was broken down into four main components; creating a common understanding; pilot projects; capacity building; public awareness and visibility. These ran in parallel and provided a rich platform for stakeholder engagement. Communities are the best decision-makers on what they need to improve their realities. Through participatory rural appraisals (PRAs) and vulnerability and needs assessments (V&NA), AdaptCap worked with the selected communities to build a common language for experiences of the past and present. This was combined with knowledge that could help them predict and understand the future. Bringing these together provided for a robust platform, from which to filter and define the prioritised actions that needed to be taken for the community. This process also equipped communities with the skills and language required for further engagement with all levels of government, beyond the life of the AdaptCap project.

As part of the second component, a list of community wishes were assessed against a set list of criteria. All project partners, with their expertise in local community engagement, technology development, and networking, selected the most valuable pilot projects. In addition to the immediate needs of the community, project partners worked to identify opportunities for climate proofing, that would ensure long-term sustainability with the least amount of external inputs required. The success of the pilot projects served to bring confidence to the local communities, that climate change did not have to be as destructive as originally envisioned. The pilots could also act as a point of reference for top-down policy makers. Although the first pilot projects were to be supported by a grant from AdaptCap, replication would be done with financial investment at the local and state level.

The pilot projects were seen to be the first step in introducing the possibility of change. It was also a means of bringing coastal communities more strongly into the democratic decision-making process.

In its third component AdaptCap project partners worked with community actors in the process of planning and integration of action. Workshops, training and field visits were developed to allow communities to share their experiences with others. It gave them the opportunity to express, in their own words, what they understood to be the benefits of implementing climate change actions.

In order for positive change to be sustainable, it cannot be isolated to project sites. Multi-level interaction of government and civil society will be required to create wider frameworks for action. Public information, brochures, posters, local language documentation, international networking through web linkages and conference participation – all of these served to embed and extend the principles of AdaptCap; that bottom up information, local knowledge, and community led development can lead to long-term positive benefits when it is integrated with top down planning, resources, and perspective.

WORK PACKAGE 1
Creating, Adapting and Implementing Concepts and Approaches for Adaptation and Mitigation of Vulnerabilities in Coastal Communities

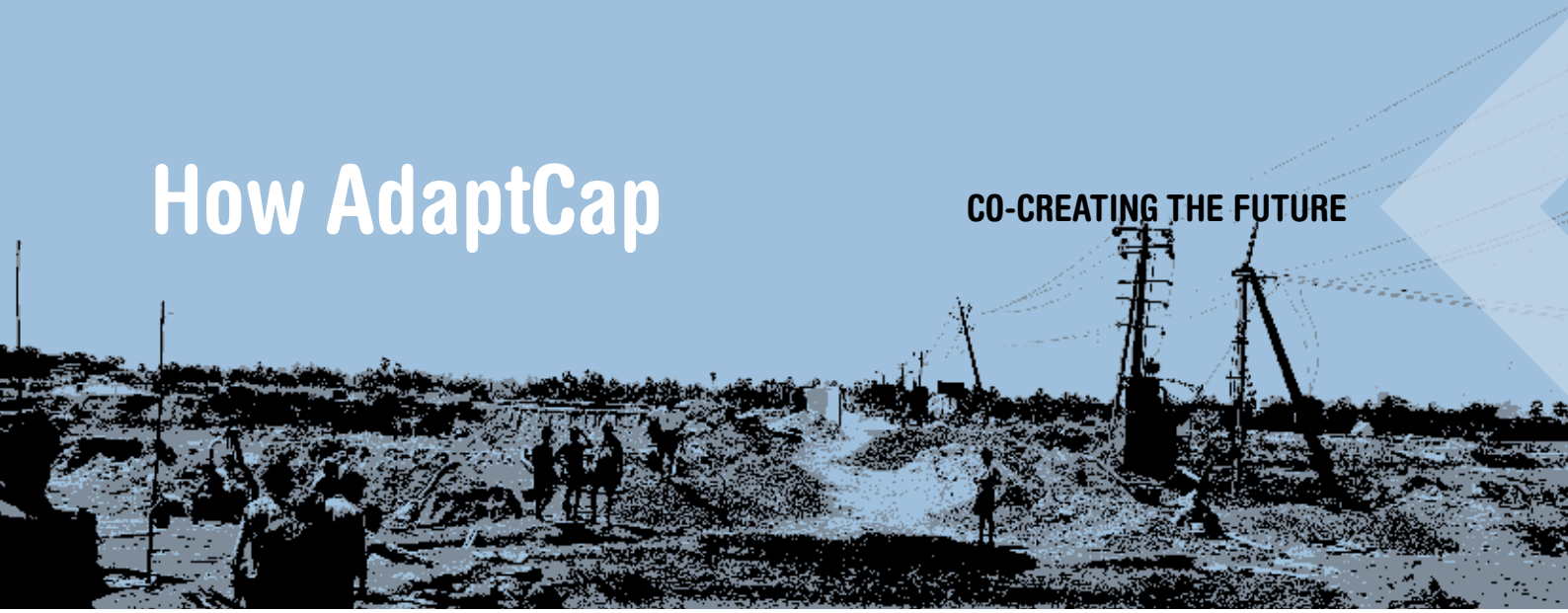
WORK PACKAGE 2
Pilot Initiatives to Adapt and Mitigate vulnerabilities of the communities through multi-sector cooperation and technology transfer

WORK PACKAGE 3
Capacity Building

WORK PACKAGE 4
Public Awareness Campaigns, Visibility and Networking

How AdaptCap

CO-CREATING THE FUTURE



To live up to the promise of participatory, bottom-up, and integrated planning for coastal communities that can be replicated and scaled up, is no easy task. It takes dedicated partners, robust technical and financial support, and strong political will. In order to do this, a level of trust, information sharing and common understanding has to be built between all project partners. Planning for the future can then start from the same point of departure. Developing projects, to provide feasible physical solutions to current problems, can be done together, as a team. Success of models at the local, project level can then be leveraged to wider audiences. These principles of partnership, local knowledge and experience sharing can be replicated and embedded with the larger landscape of planning. The AdaptCap project focused on using bottom up experiences and the mainstreaming of multiple climate lenses to make the case for effective and efficient actions for community strengthening, capacity building and future sustainability.

Ear to the ground

AdaptCap partners, Academy of Gandhian Studies (AGS) in Andhra Pradesh and AVVAI Village Welfare Society in Tamil Nadu have a long experience of grassroot development along the east coast. The first level of vulnerable locations were chosen in consultation with them. SEE MAP.

The Vulnerability and Needs Assessments (V&NA) as well as the Participatory Rural Appraisals (PRA) were the initial steps taken in the AdaptCap project. The purpose of these exercises was for all project partners to share a common understanding of the situation at hand. PRAs allowed community members to examine their experiences, and discuss the triggers and possible solutions to the difficulties faced. Transect walks, interviews, social mapping were all components of AdaptCap's approach for which PRAs were carried out by and with local communities. Community members like Rammurthy were given the chance to connect patterns that might not have been noticed before, "during

Devadanam Aragala, Pooladoruvu village, Nellore District, A.P.

Most of the villagers participated in meetings and shared village situation, our assets, environment, crops, seasons and employment. There was a long debate on the seasons, climate changes and its impacts on us. We also discussed existing adaptation mechanism and preparedness to reduce the losses during the emergencies

Prakasam District ANDHRA PRADESH
Cluster Town: ONGOLE

DASARAJU PALLI *4 km from Ongole*
- Drinking water is contaminated, supply irregular. Water borne diseases common.
- Construct water filtration unit, install pumps for distribution powered by solar energy.

MOTUMALA *18 km from Ongole*
- Unseasonal intense rain, floods, and increased irrigation demand has affected agriculture.
- Excavate new pond to harvest rainwater and excess flood water. Channels take water to renovated irrigation tank.

VENGAMUKKA PALEM *5 km from Ongole*
- Drinking water scarcity.
- Reverse osomosis desalination plant fitted with solar panels for uninterrupted power.

Nagapattinam District, TAMIL NADU
Cluster Town: NAGAPATTINAM

KUMARAKUDI *50 km from Nagapattinam*
- Arable land exposed to seawater flooding. Cyclone Thane of December 2011 drowned 50 acres of paddy crop.
- Strengthen of river and coastal bunds. Installation of shutter for field drainage.

PERUMALPETTAI *46 km from Nagapattinam*
- Fishing boats and equipment on the beach are exposed to storm surge and flooding.
- Construct a 900 metre long coastal bund.

PILLAI COLONY *46 km from Nagapattinam*
- Freshwater scarce, the sources are saline. Community depends on piped supply.
- Renovation of the system: pipes, tank base, taps, drainage around tap.

Visakhapatnam District ANDHRA PRADESH
Cluster Town: VISAKHAPATNAM

CHEPALA DIBBADA PALEM & CHUKKAVANI PALEM
25 km and 22 km from Visakhapatnam
- Villagers use untreated water from an inflitration well, hand pumps and dug wells.
- Improved distribution system with the local overhead storage tank at its core.

GOVUPETA *23 km from Visakhapatnam*
- Open defecation was common. Water sources of village and downstream Chukkavami Palem risk contamination. Open cooking stoves, which consume firewood and emit smoke, source of respiratory diseases.
- Provide dual-pit individual latrines and 'Envirofit' stoves that consume 50 per cent less firewood and emit very little smoke.

Nellore District ANDHRA PRADESH
Cluster Town: KAVALI

SRI RAMAPURAM *11 km from Kavali*
- Located 1.5 km from sea, extreme weather events damage fishing equipment, such as motors and gears left on the beach.
- Construct multipurpose shed on the beach. Fish dried on the roof and a platform in front of shed.

RAMUDUPALLI PALEM *10 km from Kavali*
- The Buckingham Canal separates Sri Ramapuram and Ramudupalli Palem from the seafront where the fish catch is off-loaded. The community loses work.
- Construct causeway for safe passage, especially of women and children.

POOVULA DORUVU *10 km from Kavali*
- Soil is sandy, consumes large amounts of water and energy to irrigate. Groundwater, which has been pumped indiscriminately, is now stretched.
- Install water-efficient sprinkler units.

Thiruvallur District TAMIL NADU
Cluster Town: PONNERI

KADAPAKKAM *4 km from Ponneri*
- Main water source, a 3 m deep pond is saline.
- Deepen pond to 4.5 m to reach sandy soil, which absorbs and filters water. Construct revetments on the side of the pond as a bund.

THANGAL PERUMPULAM *8 km from Ponneri*
- Irrigation system inefficient, farming land flood-prone, erodes.
- Renovation of drainage channel.

THIRUMALAI NAGAR *21 km from Ponneri*
- Power-cuts are frequent, present lighting barely operational.
- Introduce solar lighting programme

Cuddalore District TAMIL NADU
Cluster Town: CUDDALORE

CHINNAKARAMEDU *61 km from Cuddalore*
- Groundwater saline, no freshwater supply. 100 acres of 250 uncultivable.
- Excavate pond to harvest rainwater, recharge groundwater. Bund and fence for protection.

KADUVETTI *63 km from Cuddalore*
- Land is scarce, and with backwater flooding homes and fields, livelihoods are at risk.
- Construct a wing-wall river bund to prevent the backflow of salty water.

NADUPALAYAM *63 km from Cuddalore*
- Backwater from the river has made 180 acres of arable land saline.
- Construct a bund between the backwater and agricultural fields.

the V&NA we learnt a lot about how environment and climate change can also impact our occupations, health, and our village economic situation". AdaptCap provided consistent community engagement. State partners AGS and AVVAI focused on developing the trust building exercises with the coastal communities, while ICLEI developed the engagement strategy for the urban clusters. adelphi coordinated the monitoring and evaluation of project objectives.

Previous experiences of planning, at the local level, had left community members feeling unheard. The PRAs and V&NAs aimed to put the community first. It was clear from the participatory activities with project sites, that all community members understood climate change. All community members had stories to share about the changing landscape, "we had three crops in this village before thirty years. But past ten years we had single crop", and, "25 years ago, the sea was little far away and now it has taken away our boat yard", Kaliyan and Kannan had seen their shoreline contract, so that the sea now touched houses. They had seen the rains disappear, and return with new force. But the labels of climate change were new. These experiences were shared with government officials, who were brought into the AdaptCap process from the outset. Rammurthy. R from Ramudu Pallepalem of Nellore district in A.P., through the V&NA activities, was able to put his experiences of reduced fish catch, and the increasingly unpredictable changes in weather patterns, down to a larger landscape of climate change. He and Chapala Peddaiah have welcomed AdaptCap's toolkit of training and action that will work with them to build a bridge over the nearby Buckingham Canal. In addition to the project specific pilots, it is the language of climate change that has been shared with village communities. This acts as a longer-term value addition, bringing experience and science together on a single platform. Together with AdaptCap's work on mainstreaming CCM, CCA, and DRR, this process brings the government closer to the people that are governed, and vice-versa.

The National Institute of Disaster Management (NIDM) came forward as a partner in AdaptCap's core objective of integrating previously disparate planning. NIDM saw the climate-smart perspective of AdaptCap's project as directly valuable to their disaster management plans being undertaken at the village and district level. Rather than the conventional practice of top down disaster planning, bringing in the AdaptCap principles of community engagement allowed for stronger two way engagement. By mainstreaming the climate component into the disaster planning process, forecasting became a stronger part of the process. Both village and district disaster plans become pro-active rather than limited to being re-active.

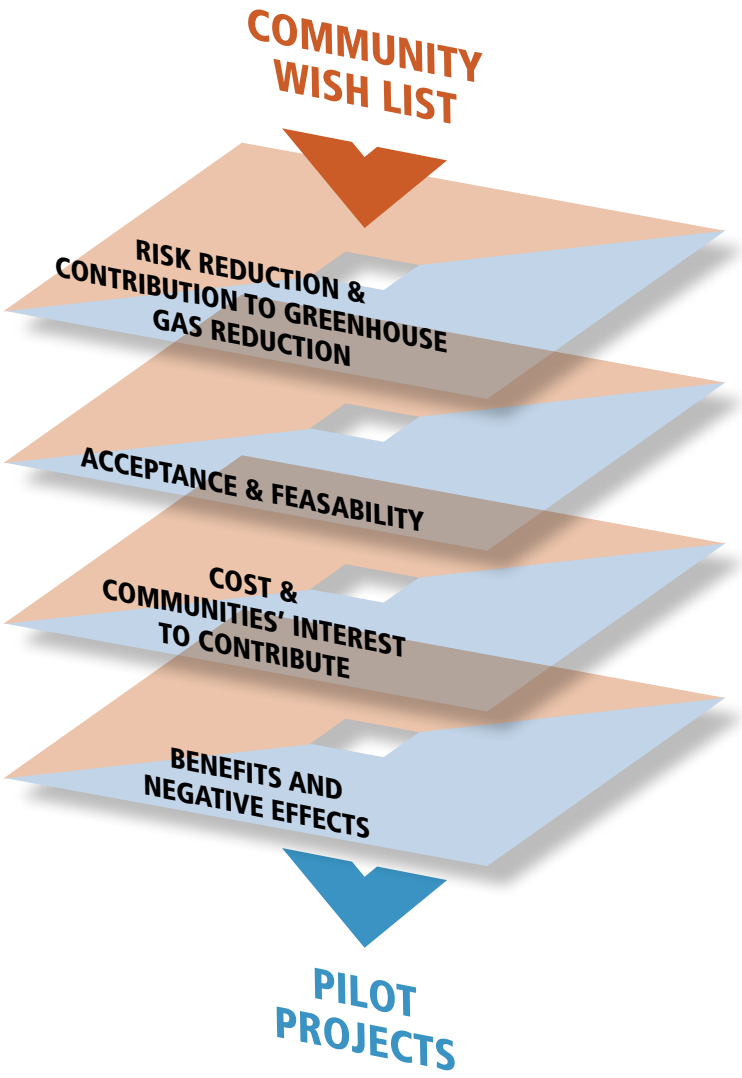
The missing link

The AdaptCap project, by identifying the often overlooked rural-urban connect, provided a nuanced perspective to the experiences of vulnerable communities. Distress migration will increasingly be a problem of governance for India's local and state authorities. In order to prepare for this change, and understand its triggers, mainstreaming of climate change planning will need to extend to urban areas. Without being able to rely on predictable flow of income, decisions have to be made without full knowledge of future circumstances. This forced many villagers, in AdaptCap sites, into a vicious debt trap. Many villagers, forced into debt, migrate to urban areas for work. Specific V&NA and PRA exercises were developed for the urban reality, and to understand the experiences of vulnerable urban communities. This process, focused on working with communities within the cities, and also involved the participation of municipal commissioners, mayors, and local city representatives including resident welfare associations, academics, and civil society. This had results, that exceeded expectation. Although the initial project outline for the city of Ponneri in Tamil Nadu, was planned for one city ward, it was subsequently taken up by the city officials and replicated in all 18 wards of the city. The result will be presented to the Chief Minister of Tamil Nadu for allocation of resources for further work. An urban pilot has been started in Vengamukkapalem, Ongole municipality. This will provide a valuable understanding of how the urban-rural connection fits in as part of a holistic understanding of vulnerability.

Throughout the duration of AdaptCap, and at all points during project development, local government representatives, panchayat representatives, and other district officials were brought into the process of information sharing, and the pilot projects that followed. The project worked with panchayat reprentatives and shared how important, relatively small actions, could have in the long-term. Without their backing, the project could not have moved on to the next level of planning. There was seen to be little value in being incorporated in a State action plan, unless there was local level acceptance.

The outputs from the joint knowledge building allowed for profiles of each community to be clearly developed in the form of Local Adaptation and Mitigation Guides (LAMG) for urban and rural sites. These LAMGs are considered to be hybrid 'living documents' that include background information on the relevance of CCA, CCM, and DRR, plus the results of project outcomes. For example, LAMGs can be shared with local administration, for effective integration

into regular development plans. LAMGs tell us that the villages around Cuddalore District are dependent upon agriculture, but there are also livelihoods that are non-land based. Groundwater is saline, and overhead tanks are providing drinking water that is not sufficient for all households. In contrast, the main livelihood in Motumala village in Prakasam District is dependent on salt production and not agriculture, with basic provision of sanitation and sewerage facilities. From these resource and vulnerability maps, the communities put forward a wish-list of projects that will serve to help them with their most pressing concerns. This forms the longlist of pilot projects put up for discussion at the next level. NIDM worked with the LAMG to develop a robust base for their Disaster Plans at the village and district level. The comprehensive information allowed them a stronger understanding of ground level conditions.



Selecting the pilot project

The list of community needs was assessed with a strict selection criteria; contribution of the pilot project to reduce greenhouse gas emissions; acceptance of the project proposal by stakeholders; cost of the project including the interest of the communities to contribute and the ability of the pilot to be replicated; positive and negative side effects of pilot outcomes. It is here that the innovative value addition of the AdaptCap project was made clear, and the potential of effective climate proofing demonstrated to project communities and the wider circle of stakeholders.

Inhabitants of Dasaraju Palli Palem, in Prakasam District of Andhra Pradesh had a wishlist that centred around a desperate need for drinking water. Flooding, with poor drainage, had caused stagnation affecting human health. Open defecation affected surface water bodies, and the community was fed by daily tanker supplies of water. There was a clear need for a pilot that focused on provision of clean drinking water. The pilot selected here was developed through innovative technology solutions to provide long-term climate proofing, and also reflected community voices. The pilot selected focused on a solar powered reverse osmosis system. The community owned this decision and reconfirmed their participation, by taking a joint community resolution to support the project development, with financial and in-kind contributions. The plant will benefit upto 3,825 people and save 7200kWh/year in energy consumption and corresponding emission reduction. The plant will be managed by the nearby municipal corporation, provide water to the community as well serve as an additional revenue stream.

Non-climatic specific pilots were also chosen, if it reflected the needs of the community. In Govupeta in the Visakhapatnam district of Andhra Pradesh, the village had access to saline free groundwater, and had wells supplying drinking water. However 95 per cent of the village were using firewood for cooking. This was having the dual effect of deteriorating human health and adding large-scale environmental pollution to the village. A lack of sanitary latrines and large scale open defecation risked well water contamination. Using the pilot criteria of greenhouse gas reduction, and given the lack of dire need for water supply provisions, the selected pilot for this village was the introduction of smokeless cookstoves. This would consume 50 per cent less firewood and reduce smoke by 90 per cent. New latrines were also taken to be part of the pilot.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This pilot positively impacted 80 families. 25 acres of land was reclaimed that had previously been used for open defecation, and 134 tons/year of additional carbon dioxide emissions was avoided.

For all pilots where technology intervention was required, or civil works, AVVAI and AGS sub-contracted agents for work, through a process of open bidding. These sub-contracted agents would report work done to the state partners. Based on reviews of work done, GIZ would release payments. In all cases, transparency was ensured by a procurement procedure that was designed to ensure maximum objectivity. The GIZ India office supervised this work. One of the main components for effective partnership was the flexible platform for communication and information sharing between project partners.

Sustainable project

Planning for one-time structures, with meetings focused on a single event, is not enough to ensure long-term outcomes. The Pilot projects, and the process that led up to their erection are part of a larger set of actions that are focused on the possibility of multiple structures, and multiple events, from the local level to the national. All steps of the AdaptCap project worked towards replication that would be possible without the need for AdaptCap funding, as a result of ownership from all stakeholders. In order for this to be possible, this process included training programmes on CCA, CCM and DRR to strengthen the communities' appreciation of the value of mainstreaming action for effective change. Such activity also included workshops on Operations and Management for project sustainability, including physical, financial and operational aspects. The value of the LAMG as potential policy engagement documents was also shared. Visibility of results was an important way of working for project sustainability. The AdaptCap website provided a comprehensive understanding of the project, partners and the ground level actions being taken. This contributed to the communities' sense of not only ownership but also agency.

Workshops on Operations and Management helped communities understand the business models behind each pilot, required user fees, and the contributions required by each village, for sustainable development. Each community put forward O&M contribution of between 50-100 per cent of time required. The local and state governments also came forward to replicate and expand on work done.

The outcomes of such activities were the formation of Task Force Committees (TFCs), which will be the operational arm of all pilot projects and anchors at the local level. TFCs will be responsible for ensuring participation of communities in pilot interventions, as well as collecting beneficiary fees. These TFCs can be seen as a sustainable connector between the local communities and the larger team of project actors.

At the urban level, City Task Forces (CTF) and stakeholder groups were involved in developing the urban information. Made up of city administration and relevant civic, industrial and commercial groups ensured that all perspectives were included in the process of pilot selection. Training programmes on Urban Climate Change were conducted. The value of mainstreaming CCA, CCM and DRR were also discussed to help participants understand the integrated value of action. Challenges such as storm water drainage, sanitation waste management and energy consumption were successfully seen as points of convergence for effective action to be taken.

Anil Kumar Gupta, Associate Professor NIDM, New Delhi

I am pleased to note that the pilot interventions of AdaptCap have been valued and recognized by the respective State Governments for owning and replicating with state funding. There are also serious challenges that the project faced, particularly in molding the understanding of local administration on climate change and disaster related issues, and the AdaptCap team including NIDM professionals could mobilize their support to a great extent

Many AdaptCap

INTO THE FUTURE

Adaptcap started its journey by listening to people. It challenged and enriched existing development plans that had not necessarily taken community realities into account. It shared with its stakeholders, and wider audiences, the value that mainstreaming and integrating climate change impacts could have even on non-climatic conditions at the local, state and national level. Adaptcap provided solutions that saw benefits within a short span of time, but would also be sustainable over the long-term.

Short Term Challenges for Long Term Gain

The need for short term results was important for two reasons. Communities, working for change, needed to see results in order to keep up the momentum of action as well as financial contributions. Communities are willing to contribute for a service that works, and the only way to ensure that the infrastructure and services function well is by making the community the main driver of the project.

Existing development plans do not take climate change management into account as they have short-term vision. Panchayat officials are often distracted chasing funds for existing programmes that do not have any climate perspective. Krishna Kumar of AVVAI feels that Panchayat and District Authorities are more involved in the regular development activities. "They are moving from pillar to post to implement the development activities as it is given by the government because it is reviewed regularly. There is no Climate Change Adaptation agenda included in their review meetings. Hence, the response is limited."

New administrations bring with them new perspectives, new agendas, and very possibly new priorities. For this reason, it was important to understand the changes in the administrative officials in project areas. Projects that run between administrative tenures stood the risk of falling between the gaps. In order to ensure that the importance of outcomes, like those of AdaptCap, were fully appreciated, results had to be quick and clear and administration-neutral.

It is important that climate inclusive development planning be institutionalized so that it does not suffer from changes of officials, or act as an added burden for the administrators. When results of linking climate change to other areas, are pointed out, people respond positively. This project is a small but meaningful beginning in that direction as both communities as well as administrators have started seeing the importance of this integration. Haribabu Katamgari of Sri Ramapuram feels confident now as he says, "during the exercise we have developed a guide for our development. In future we can approach any concern agency and with the help of the guide that has been developed can find solutions to rest of the problems." S. Kandasamy, Revenue Divisional Office of Ponneri in Thiruvallur District says, "The Project LAMG is very useful to the Government official and the community". He requested the LAMG exercise to be implemented in all coastal villages of Thiruvallur District.

Integration for Action:

AVVAI and AGS, as state partners, will continue to take AdaptCap's message forward. The process of multiplication of their pilot experience has already started. Of the 18

pilots, and based on the success of selected pilots, 6 have been chosen for replication. Replication will be done in another village, and costs will not be borne by AdaptCap. Govupeta's smokeless cookstoves will be replicated in Chepala Dibbadi Palem, and Chukkavani Palem financed by beneficiary communities. But more importantly financial support will come from local and state governments that have now understood the value of bottom-up mainstreamed planning for climate change impacts. Gopalakrishnan Murthy of AGS proudly declared, "the source improvement work is being undertaken by RWS department in Visakhapatnam district for Chepaladibbadipalem village with Rs. 48.00 lakhs. Irrigation department in Prakasam district is spending around Rs. One crore for the minor irrigation tank improvement. Ramudupallipalem village of Nellore district is getting a cyclone shelter at a cost of Rs one crore. In all the cases, the funding is provided by Government of Andhra Pradesh."

The partner in Tamil Nadu is also exploring state funding for their new projects. Krishna Kumar of AVVAI said, "Presently we are trying to get fund from NABARD (Adaptation Fund), Public Works Department (IAMWARM Project) and other sources to do the actions at large level to address climate change adaptation and mitigation."

In a recent meeting with AGS and GIZ, the Joint Collector of Nellore, B. Lakshmikantam said that the findings and interventions made under these pilot projects would be integrated as valuable components in the consolidated district-level development plan. He ordered officials of fisheries, agriculture and NEDCAP to conduct field visits to pilot projects and prepare necessary reports for their replication. NIDM continues to work with district officials to develop an integrated perspective to disaster management, and this will be piloted in both Andhra Pradesh and Tamil Nadu.

The pilot projects act as clear signs of what can be done when community voices, political will and technological innovation come together. The physical results of AdaptCap's projects will serve its immediate communities. The policy implication of AdaptCap's principles of climate proofing, integration of local, state and national planning processes with climate change will reach out to a wider state and national audience.

HIGHLIGHTS

ANDHRA PRADESH

- Rs. 1.57 crore allocated for expansion work for schemes initiated under AdaptCap in Visakhapatnam District
- At the project level, Rs 48 lakhs allocated for source improvement work by Rural Water Supply and Sanitation (RWSS) Department in Visakhapatnam District
- Rs 1.09 crore allocated for minor irrigation tank improvement in Prakasam district
- One crore provided for Ramudupallipalem village cyclone shelter
- The National Institute of Disaster Management (NIDM), Government of India, to work to mainstream climate adaptation, disaster management and mitigation planning with pilot in three communities in Visakhapatnam District
- RWSS Department, in Visakhapatnam District to integrate clean water concept into drinking water strategy

TAMIL NADU

- The National Institute of Disaster Management (NIDM), Government of India to work to mainstream climate adaptation, disaster management and mitigation planning with pilot in three communities in Thiruvallur District
- MoUs were signed with Ponneri Town Panchayat and the Nagapatinam Municipality
- Initial project outline for V&NA Assessment planned for the city of Ponneri for one ward, was replicated in all 18 wards of the city on request of city officials
- The results of the V&NA will be presented to the Chief Minister of Tamil Nadu for effective allocation of resources for further work

A ready reckoner of
pilot projects in 6 districts of
Andhra Pradesh and Tamil Nadu

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Nagapattinam District, TAMIL NADU
Cluster Town: NAGAPATTINAM

The AdaptCap project, anchored by GIZ, in association with four partners, is located in coastal India, in the states of Andhra Pradesh and Tamil Nadu. AdaptCap aims to reduce vulnerabilities of coastal communities and strengthen the capacities of local authorities to prepare and plan for coping with climate change.

KUMARAKUDI

50 km from Nagapattinam

BUND TO PROTECT AGRICULTURE

PROBLEM: 'Cyclone Thane' hit in December 2011 destroying crops in over 50 acres. Storm water flooded fields, caused lands to turn saline and affected groundwater quality. Drinking water was scarce and municipal piped water supply was irregular.

SOLUTION: 1-2 km long bund, protecting the main fields has been built. Vegetation on the bund walls prevents erosion. A shutter has been built, where the irrigation canals meet the river to allow field drainage during heavy rain.

Beneficiaries
343 Families

PERUMALPETTAI

46 km from Nagapattinam

COASTAL BUND

PROBLEM: 'Cyclone Thane' brought seawater inland. The village's fishing equipment, stored on the beachfront, was destroyed. This affected livelihoods, as fishing was the primary source of sustenance.

SOLUTION: A coastal bund (just behind the dunes), extending upto 900 meters has been built. The bund will go up to 4 meters and vegetation is planted to prevent erosion.

Beneficiaries
1,500 People

PILLAI COLONY

46 km from Nagapattinam

DRINKING WATER

PROBLEM: Water scarcity was severe. Water was piped to the village but in limited supply. During the dry season the village tank was filled once every 4 days. Treatment was limited to chlorine. Households used cloth on taps as a filter.

SOLUTION: A drinking water programme, renovating the existing drinking water infrastructure has been developed. A plan for operation and maintenance (O&M) has been finalised which defines activities, time-frames, implementing agencies and people responsible. Repair of water pipes, taps, renovation of tank base and surrounding areas has been undertaken.

Beneficiaries
160 People

KUMARAKUDI

- 200 acres saved from floods and salt water infiltration
- Harvest doubled, from 10 to 20 bags per acre, to increase to 30 when salinity levels decrease
- Doubled the harvest worth Rs 20 lakh
- Bund planting and weeding activities provides employment for village women

- Community share in O&M: 50-100%
- Beneficiary contribution collected by Task Force Committee
- Average monthly O&M cost: Rs 2,800

Project Cost
₹ 991,630

PERUMALPETTAI

- 25 acres of arable land protected from floods and saltwater
- 60 families and a school building protected from floods

- Community share in O&M: 50-100%
- Beneficiary contribution will be collected
- Average monthly O&M cost: Rs 3,000

Project Cost
₹ 669,400

PILLAI COLONY

- Clean drinking water per year: 730 kilo litres
- Clean drinking water per day: 2000 litres
- 28 villagers, of them 12 women, trained in water management issues
- Wiser usage of water

- Community share in O&M: 0-50%
- Average monthly O&M cost: Rs 3,460
- Monthly panchayat contribution for electricity bill: Rs 100
- Monthly labour charge contribution by committee: Rs 600
- Monthly community fee per person for water: Rs 50
- Contribution from a joint fund via monthly interest: Rs 750

Project Cost
₹ 371,000

WISH LIST

- Solar lighting for community hall, public places and temples
- Construction and maintenance of coastal belt and sea bund
- Surface water treatment system
- Renovation of pond, tank, reservoir
- Pond sand filter with solar energy
- Early warning and seasonal climate forecasting

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Cuddalore District, TAMIL NADU
Cluster Town: CUDDALORE

The AdaptCap project, anchored by GIZ, in association with four partners, is located in coastal India, in the states of Andhra Pradesh and Tamil Nadu. AdaptCap aims to reduce vulnerabilities of coastal communities and strengthen the capacities of local authorities to prepare and plan for coping with climate change.

CHINNAKARAMEDU

61 km from Cuddalore

RAINWATER HARVESTING POND

PROBLEM: The village has 300 acres of land. 200 acres was cultivated and the rest was saline and barren. Drinking water was scarce and there was little supply from the Cauvery river. Piped water supply was weak. An old overhead tank and two hand pumps provided main water.

SOLUTION: A lined freshwater pond protected by a bund has been constructed. It is connected to a renovated drainage canal north of the village. Rainwater is harvested and pumped to the overhead tank for drinking purposes. The pond is also used to recharge groundwater and reduce its salinity.

Beneficiaries
160 Families

KADUVETTI

63 km from Cuddalore

WING-WALL RIVER BUND

PROBLEM: Agriculture was severely affected as backwater from nearby Karungal River flooded homes and fields. Of 75 acres of agricultural land, 25 acres was uncultivable. Besides irrigation, the Karungal River served domestic needs.

SOLUTION: A wing-wall river bund has been built which stretches for 1 km along the bank to prevent inflow of salty water.

Beneficiaries
52 Families

NADUPALAYAM

63 km from Cuddalore

BACKWATER RIVER BUND

PROBLEM: The central Ponnakani channel, a freshwater source used for agriculture, was under pressure from salt water intrusion. Predominantly an agricultural village, 20-30 per cent of the residents have had to migrate due to lack of local employment.

SOLUTION: Backwater river bund constructed, running 2-3 km between backwater and agricultural fields, to prevent further saltwater intrusion into the main freshwater canal and fields.

Beneficiaries
636 Families

CHINNAKARAMEDU

- 6,504 m^3 additional capacity for rainwater storage
- 72 acres of uncultivated land now arable

- Community share in O&M: 50-100%
- Task Force Committee to collect beneficiary contribution
- Average monthly O&M cost: Rs 2,000

Project Cost
₹ 707,549

AdaptCap: ₹ 682,549
Community: ₹ 25,000

KADUVETTI

- All 52 families and 76 acres protected from salt water intrusion
- 37 tonnes of groundnut crop realised

- Community share in O&M: 50-100%
- Task Force Committee to collect beneficiary contribution
- Average O&M monthly cost: Rs 2,400

Project Cost
₹ 304,630

AdaptCap: ₹ 284,630
Community: ₹ 20,000

NADUPALAYAM

- 370 acres protected from salt water intrusion
- Harvest of 7.6 tonnes assured

- Community share in O&M: 50-100%
- Community to collect beneficiary contribution
- Average O&M monthly cost: Rs 2,500

Project Cost
₹ 407,880

AdaptCap: ₹ 382,880
Community: ₹ 25,000

WISH LIST

- Solar lighting for community hall, public places and temples
- Mangrove protection and plantation
- Community Task Force for mangrove protection and development
- Early warning and seasonal climate forecasting
- Construction and maintenance of coastal belt and sea bund
- Surface water treatment system
- Renovation of pond, tank, reservoir
- Construction and maintenance of storm water drains, flood water diversion channels

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Thiruvallur District, TAMIL NADU
Cluster Town: PONNERI

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KADAPAKKAM

4 km from Ponneri

POND RENOVATION

PROBLEM: The main pond was salty from backwater flow in the rainy season and dried up in summer. It could not recharge groundwater, which was sometimes used for drinking purposes.

SOLUTION: The pond has been deepened by 1.5 metres to reach a sandy layer, which will absorb more water during the rainy season. The sand will also filter the water, thus improving groundwater and borewell water quality.

A bund has been constructed and two shutters installed to prevent backwater flow.

Beneficiaries
254 Families

THANGAL PERUMPULAM

8 km from Ponneri

DRINKING WATER DISTRIBUTION

PROBLEM: The irrigation system was inefficient and the land prone to flooding and erosion. Changing rainfall patterns had affected soil quality and led to water shortages as well as reduced crop yield.

SOLUTION: Two 650 meter channels have been built to distribute water. Two shutters have also been constructed to prevent flooding.

Beneficiaries
80 Families

THIRUMALAI NAGAR

21 km from Ponneri

SOLAR STREETLIGHTS

PROBLEM: This village was reconstructed after the Tsunami. Night fishing was common, as the villagers contend with changing patterns of catch. The existing lighting was poor and dependent on unreliable grid power. This jeopardised the work life of the villagers.

SOLUTION: Eight solar lights are installed in the most used and vulnerable areas including the fishing equipment storage area and the village water desalination plant.

Beneficiaries
350 Families

KADAPAKKAM

- Reduced water salinity
- After installation of 18 hand pumps, groundwater can be extracted

- Community share in O&M: 50-100%
- Average monthly costs of O&M: Rs 2,750
- Beneficiary contribution will be collected
- NREG scheme to be tapped for renovation work with assistance from Panchayat

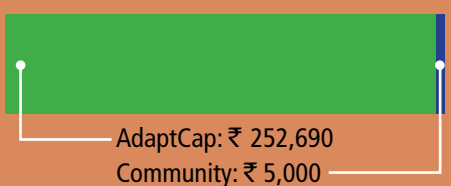
Project Cost
₹ 827,140

THANGAL PERUMPULAM

- Arable area increased to 284 acres, irrigated by renovated channel
- Shutters ensure drainage of stagnated flood water
- Cost of irrigation per acre reduced from Rs 4,700 to Rs 1,700

- Community share in O&M: 50-100%
- Average monthly costs: Rs 3,250
- User fee to be levied by Task Force Committee

Project Cost
₹ 257,690

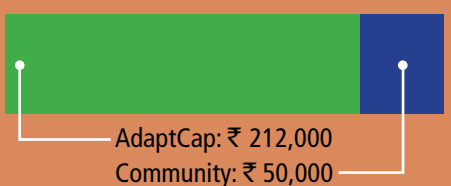


THIRUMALAI NAGAR

- 1,401 kWh electricity saved per year
- Zero outage. Independent of public grid

- Community share in O&M: 50-100%
- Average O&M monthly cost: Rs 2,500
- Task Force Committee to charge user fee
- Panchayat raise money from local resources

Project Cost
₹ 262,000



WISH LIST

- Construct and maintain coastal belt and sea bund
- Mangrove protection and plantation
- Plantations to line bunds, water distribution canals and ponds
- Cyclone shelter, and cyclone detection centre
- Renovate pond, tank, reservoir, existing wells
- Regenerate canals leading to ponds
- Improve rainwater harvesting
- Ground level storage water tank
- Desalination system
- Early warning and seasonal climate forecasts

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Nellore District, ANDHRA PRADESH
Cluster Town: KAVALI

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SRI RAMAPURAM

11 km from Kavali

STORAGE SHED FOR FISHERMEN

PROBLEM: Located 1.5 km from the sea, fishing equipment such as motors and gear stored on the beach were susceptible to damage from extreme weather events.

SOLUTION: A storage shed has been built for the nets, outboard motors, and other fishing equipment previously stored on the beach. The roof of the storage shed is used as a fish drying rack.

Beneficiaries
300 Families

RAMUDUPALLI PALEM

10 km from Kavali

CAUSEWAY OVER A CANAL

PROBLEM: Heavy water flow in the Buckingham Canal during the rainy season and extreme weather events obstructed the passage of villagers onto the beach. Fishing is the mainstay of the population. Villagers could lose up to 75 working days in a year.

SOLUTION: A causeway has been built over the canal to enable safe passage, especially for women and children. Large pipes will allow the canal water to flow freely underneath. The road has been surfaced with gravel and earth at same level with the rest of the road to the sea.

Beneficiaries
300 Families

POOVULA DORUVU

10 km from Kavali

SPRINKLER IRRIGATION

PROBLEM: The village's farmers grow flowers, groundnut and vegetables using groundwater. These small plots were flood irrigated using hand pumps and low-powered motors which consumed large amounts of water and energy. This had led to water scarcity and an energy crisis in the area which had affected farmers' yields.

SOLUTION: An efficient sprinkler irrigation system has been introduced in the village. Kits comprising of a sprinkler coupler, nozzles, pipes and fittings for connecting with the pump have been distributed.

Beneficiaries
70 Families

SRI RAMAPURAM

- Gear and motors worth Rs 20 lakh protected
- Additional revenue generated by conserving fish by drying

- Community share in O&M: 100%
- Annual user fee of Rs 100 per family
- Skilled community members to provide O&M services against payment on wages
- Average monthly cost of O&M: Rs 1,500

Project Cost
₹ 626,000

AdaptCap: ₹ 576,000
Community: ₹ 50,000

RAMUDUPALLI PALEM

- 75 additional working days gained
- Additional annual income per family is Rs 11,250

- Community share in O&M: 100%
- Annual user fee per family: Rs 50 in first year and Rs 100 in second
- Average monthly cost of O&M: Rs 1,000

Project Cost
₹ 725,836

AdaptCap: ₹ 625,836
Community: ₹ 100,000

POOVULA DORUVU

- 94,080 m^3 of water will be saved every year
- 35 kWh of energy saved per year
- Irrigation stabilised in existing fields. New fields brought under irrigation
- Crop base broadened to include maize, gram, sweet potatoes and other crops
- Productivity and incomes of the dependent families stabilised

- Community share in O&M: 100%
- Average monthly costs for O&M: Rs 400
- Minor repairs by trained operator on a fee-basis
- Major repairs through suppliers
- Each sprinkler unit used by two farmers who share O&M costs equally.

Project Cost
₹ 593,050

AdaptCap: ₹ 516,050
Community: ₹ 77,000

WISH LIST

- Fish and fishing equipment storage
- Support fish marketing and market chain
- Build bridge or causeway
- Increase depth of well
- Improve rainwater harvesting
- Green cover for land, conserve moisture
- Surface water treatment system
- Renovate sewage system
- Drought resistant crops and practices
- Bio-fertilisers and pesticides
- Crops storage, improve crops marketing
- Insurance for structures and persons engaged in particular livelihood activity
- Solar street lights, solar energy for motors
- Construct individual toilets
- Low-smoke cooking stoves

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Prakasam District, ANDHRA PRADESH
Cluster Town: ONGOLE

The AdaptCap project, anchored by GIZ, in association with four partners, is located in coastal India, in the states of Andhra Pradesh and Tamil Nadu. AdaptCap aims to reduce vulnerabilities of coastal communities and strengthen the capacities of local authorities to prepare and plan for coping with climate change.

DASARAJU PALLI

4 km from Ongole

WATER FILTRATION UNIT

PROBLEM: Clean drinking water was scarce. The piped water scheme was irregular. Water in the village overhead tank was contaminated with bacteria. Well water, used for drinking, had high fluoride levels, bacteria and turbidity. Two ponds were contaminated with bacteria.

SOLUTION: A water filtration unit has been set up next to the overhead tank. Solar powered pumps from the village pond deliver water to the filter unit as well as directly from the pond to the filter unit to the distribution tanks. Taps in the distribution system have been repaired.

Beneficiaries
700 People

MOTUMALA

18 km from Ongole

RAINWATER HARVESTING

PROBLEM: Agricultural output had declined due to drought and shorter unseasonal intense rainfall. Water was scarce while the irrigation demand was rising. A 600 acre government-built irrigation tank, built for 14 villages in the region has just enough water to irrigate for a few months in the dry season.

SOLUTION: The excess rainwater is captured. A pond has been dug in the irrigation canal to capture excess rainwater, the excavated earth has been used to create a check dam acting as a water storage area. Rainwater is harvested in the pond and pumped to the irrigation tank for storage and critical use.

Beneficiaries
200 Families#

VENGAMUKKA PALEM

5 km from Ongole

SOLAR POWERED WATER PURIFICATION

PROBLEM: Increased salinity of groundwater aquifers and lack of freshwater sources had led to a drinking water crisis. The existing reverse osmosis (RO) plant was connected to unstable power supply from the grid. When power supply was interrupted the machine stops and purified water becomes scarce.

SOLUTION: Solar power substitutes unstable power supply from the grid. The system provides a 20 kWh backup which could run the RO plant for at least six hours daily.

Beneficiaries
3,825 People

DASARAJU PALLI

- 5475 litres of clean drinking water generated per inhabitant per year
- Improved water quality
- Increased water harvested – the expected infiltration for the pond is 30-50 million litres per year

- Community share in pond O&M: 95%. External support only for technical components of solar pump
- Annual Panchayat contribution: Rs 103,000
- Annual user fee for the pumping of water from channel to the pond: Rs 108,000
- O&M implemented by Panchayat
- Average monthly O&M costs: Rs 6917

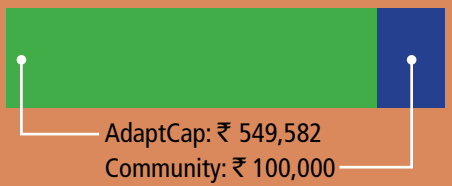
Project Cost
₹ 730,500

MOTUMALA

- Increased capacity for rainwater storage capacity: 151,200 m^3/year
- Water assured to the tail-end lands, 200 acres in all
- Another 400 acres irrigated for paddy cultivation in critical times
- Flooding and submergence of crops prevented during heavy rain
- Annual increase of yield of 140 tonnes

- Community share in O&M: 50-100%
- Farmers take care of their O&M
- Planned with complete involvement of local Panchayat and the Irrigation Department
- Average monthly O&M costs: Rs 6,500

Project Cost
₹ 649,582

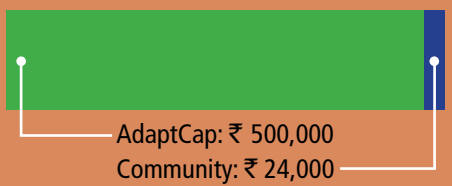


VENGAMUKKA PALEM

- 7,200 kWh per year in energy saved after provision of solar energy
- 11,169 m^3 of clean drinking water generated. Assured 2,920 litres per head annually

- Community share in O&M: 95%
- Installation was conducted by Ongole Municipal Corporation
- RO plant maintained by Corporation
- Corporation will collect water charges and also use its own funds
- Average monthly O&M costs: Rs 7,500

Project Cost
₹ 524,000



WISH LIST

- Renovate, maintain bunds and revetments
- Build, renovate drainage channels
- Renovate pond, tank, reservoir
- Improve rainwater harvesting, water recharging, build rings for taps and wells
- Plantations to line water distribution canals, bunds and ponds
- Drought proof, pest resistant cropping
- Insurance for structures and persons engaged in a specific livelihood activity
- Desalination system, RO plant
- Renovate sewage system
- Solar motors for distribution
- Bio gas for cooking and lights
- Development and implementation of livelihoods emergency response plan
- Early warning and seasonal climate forecasting
- Risk data base for decision making on integration into local planning system

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending

Adapt Cap

Climate Proofing
Vulnerable Coastal Communities

Visakhapatnam District, ANDHRA PRADESH
Cluster Town: VISAKHAPATNAM

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CHEPALA DIBBADA PALEM & CHUKKAVANI PALEM

25 km and 22 km from Visakhapatnam

DRINKING WATER PURIFICATION AND DISTRIBUTION

PROBLEM: The villages lacked clean drinking water. The piped water supply was contaminated with bacteria. Groundwater, extracted by handpumps and dug wells was also contaminated. In summer the temple wells went dry. Water borne diseases were common.

SOLUTION: Contamination has been addressed at source. The filter media in the infiltration well has been replaced and the well sealed to prevent pollutants and silt to enter during floods. Chlorination injection pump technology removes bacteria from the infiltration well and distribution systems. Water quality is tested regularly. The community is encouraged to use water appropriately and prevent loss. Individual illegal extensions are to be removed and new pipelines are designed to be extended to unserved areas. Water will be stored in the central overhead storage tank.

Beneficiaries
812 People

GOVUPETA

23 km from Visakhapatnam

SANITATION AND SMOKELESS COOKSTOVES

PROBLEM: The village lacked proper sanitation. The health of village women was affected by the use of country chulas (stoves) which ran on firewood, releasing a lot of smoke during cooking.

SOLUTION: Under a new latrine and sanitation scheme, sanitary latrines are installed. Energy efficient smokeless 'Envirofit' chulas are provided. They consume 50 per cent less firewood. Smoke emitted is reduced up to 90 per cent.

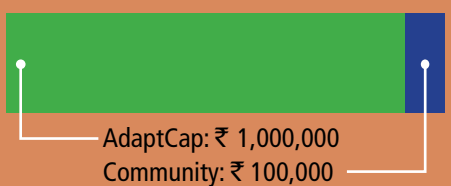
Beneficiaries
80 Families

CHEPALA DIBBADA PALEM & CHUKKAVANI PALEM

- Drinking water assured per head per year: 7,300 litres
- Total water assured for 812 people in two villages: 5,927 m^3

- Source improvement was done by Rural Water Supply department of state government with their own funds. This reduced the share of AdaptCap funding from Rs 1,000,000 to Rs 400,000
- Average monthly cost of O&M: Rs 5,500
- Entire O&M to be handled by Panchayat
- Panchayat will collect water tax and also use own funds.
- Panchayat will manage the distribution lines

Project Cost
₹ 1,100,000

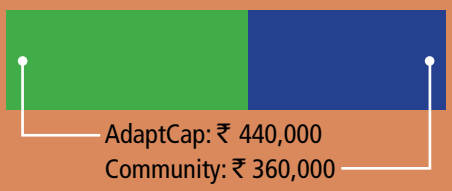


GOVUPETA

- Health and safety of 45 families improved through provision of 30 sanitary latrines and 45 cooking stoves. The remaining 50 latrines and 35 stoves to be provided
- 25 acres of safe catchment area for drinking water infiltration gained.
- 134 tonnes per year of CO_2 emissions reduced
- Each family saved 900 kg of fuelwood

- Average monthly cost of O&M of latrines per family: Rs 50
- Costs of O&M financed by individual families

Project Cost
₹ 800,000 **Sanitation**

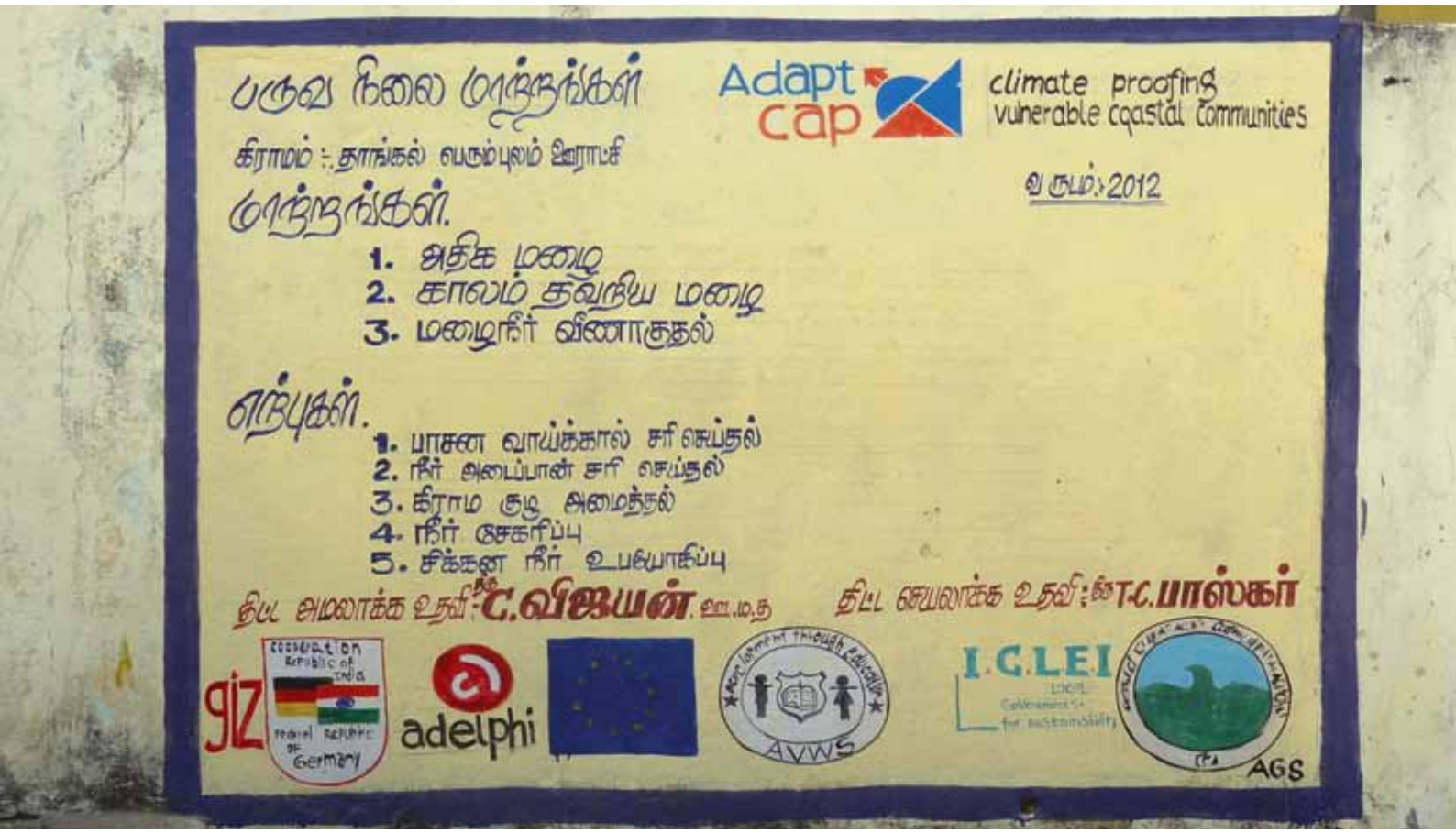


₹ 52,000 **Smokeless Chullah**

WISH LIST

- Fish storage, drying areas, processing units
- Fish marketing and market chain
- Develop skills for alternative livelihoods: livestock, garden, kitchen, mason, tea stall, wiring, sculpture, pond deepening
- Drought proof crops and practices
- Increase depth of well
- Improve rainwater harvesting
- Renovate pumping system, reduce leakage
- Improve drinking water storage and supply
- Water treatment and purification systems
- Construct ground level storage water tank
- Reservoir quality conservation systems
- Introduce water budgeting practices
- Renovate sewage system
- Waste water treatment plant
- Construct and maintain stormwater drains and flood water diversion channels
- Solar lighting in community hall, public places and temples
- CFLs, solar lanterns, low-smoke stoves
- Decrease use of fuel guzzling motor boats

Many communities put forward similar project ideas, from which pilots were selected. This list represents a consolidated list of projects put forward by communities in the District, that are still pending



International communities are busy working out a solution for emission reduction and associated actions needed to contain the effects of climate change. Meanwhile, poor people all around the globe whose livelihood directly depend on natural resource economy have already become vulnerable to unpredictable weather. The coastal population are in the forefront of this natural assault. AdaptCap is a pilot project that attempts to manage climate change adaptation, from the peoples' point of view and by mainstreaming those principles into the larger format of development.

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
B 5/2, Safdarjung Enclave
New Delhi 110029, INDIA

T: +91-11-4949 5353
F: +91-11-49495391
E: contact@igep.in
I: www.igep.in, www.giz.de