



'Win-Win' Green Solutions

...mapping initiatives and practices in India

A DOSSIER



A Solution Oriented Approach towards Climate Change Resilience and Sustainability

Sustainable Development Goals

Sustainable Development Goals emphasise the principles of justice, equity and transparency in governance as a necessary conditions of sustainable development.

Climate Change

Climate Change Adaptation and conservation of the eco-system through community-led adaptation strategies and sustainable agricultural practices.

Renewable Energy

Renewable Energy Resources form a crucial part of reducing global carbon emissions and thus promote planet health and well-being.

Resilient Livelihoods

Resilient Livelihoods to ensure sustainable use of natural resources, reduce negative environmental impacts and simultaneously provide livelihood opportunities to the community.

Story of the Sustainable Development Goals

Rare it is that large groups can agree to cooperate on working together to achieve meaningful outcomes. Even rarer is that very large groups, at the scale of nations, with their disparate histories and diverging viewpoints would think of doing this. And rarest of all is the possibility that the nations of the world would come together, identify the most urgent issues facing humankind, travel the globe and meet numerous times in widespread places to hammer out goals and strategies that could make a real difference for the future.

That is the story of the Sustainable Development Goals (SDGs). Building on a prior, rather cursory, one-sided and asymmetrical exercise carried out a dozen years earlier, which produced the 15-year rule of the Millennium Development Goals (MDGs), the successor SDG movement started as an idea to inject value into the global negotiations that were preparing for the 2nd Earth Summit, Rio+20 to be held in June 2012 in Rio de Janeiro. With high and growing commitment from some governments, starting with several Latin American ones and a large number of civil society organisations; the movement to pin the world's leaders down to making specific, well-defined and even quantitative pledges gathered sufficient momentum to receive approval and a go ahead at the Rio Conference.

Barring the usual issues of global politics, lack of responsibility beyond narrowly defined national interests, professed financial constraints and other hurdles that often prevent such exercises from taking off, there was the whole question of who would set the agenda and who would decide on the content of the final agreement, assuming that a body of agreeable propositions was to be found. The two viable options came down to: should it be the international (i.e. UN) system as a body, or the Governments acting under the aegis of the UN General Assembly that would be the overall coordinators. Fortunately, the task was big enough to allow virtually all actors to take ownership of the processes and make major

contributions to the end result. This was particularly made possible by the fact that the inter-government process, called the 'Open Working Group' took its title seriously and was open to the widest variety of participants.

We now have the SDGs, formally to be adopted by the world community at the General Assembly in September 2015, a body of 17 Goals comprising 169 Targets. Together, these provide a clear roadmap for the next 15 years during which the governments, civil society and businesses are committed to eliminating the worst deprivations that have afflicted human society over the past few centuries: poverty, hunger, lack of opportunity and environmental destruction.

What has made the SDG process different from earlier efforts to design a sustainable future for the world is the deep commitment and actual adherence to the principles of transparency and participation, so often ignored in the past. With inputs from all governments, sectors, professional bodies and civil society; this has been by far the richest and most fruitful negotiation undertaken by the world community.

What promises to make the SDGs more likely to deliver results is the solid attention given during the entire process to the 'means of implementation', which not only dealt with the need to mobilise finance, technology and institutions and the role of trade and national policies but also to make the whole rollout accountable. By setting up the High Level Political Forum and relying on bottom up monitoring and reporting (from the local and national to the regional and global), followed by committing to 'reward' rather than 'punishment' systems that reinforce positive behaviour by governments and other actors; the SDGs may well have superior chances of delivering a better world for all.

Ashok Khosla
Chairman
Development Alternatives

A New Economy Paradigm for Achieving Genuine Human Well-being and Planetary Health Outcomes a.k.a. - the SDGs

Across the world, there is increasing disenchantment with 'economic growth' as a prime driver of 'development'. The fact is that economy measured in quantitative terms as a result of production and service transactions – the GDP (the more the better) is an easy and therefore popular indicator of 'overall' development. In fact, attempts to value other development parameters have often been in economic value terms as well. Yet we know that when economic growth becomes the primary aim of development, both human well-being, (especially in an equitable manner) and eco-system health suffer.

The emerging view is that economic processes reflect the way humans interact with each other and with their natural environment, resulting in positive or negative social and environmental outcomes. A variety of new approaches exist.

The green growth approach looks at dynamic economic development as fuel for societies to thrive, albeit within eco-system limits. It believes that any country (rich or poor) can increase its GDP by carefully designed strategies to exploit natural capital, making their growth greener and inclusive. Natural capital accounting enables smarter planning and decision-making, wherein countries may choose to conserve natural capital instead of further exploitation.

The green economy approach is "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive" (UNEP, 2011). Strategies for transforming economic processes into green and inclusive require understanding the social and ecological outcomes that must be measured and tracked; greening brown production and service sectors through technology and institutional measures, investing in natural systems and human capacity development (with focus on equity) and devising financial flows to facilitate this shift.

The blue economy argues - the possibility to move from scarcity to abundance through systemic design based on laws of nature, linking different production processes, using local resources and labour. There is no waste in a blue economy; and multiple benefit streams add value to local economies resulting in greater human prosperity. It relies on localisation of interventions for system correction and robustness to address inequities and distributional injustice within capitalist market systems.

Finally, the circular economy, an alternative to linear (make – use – dispose) economic growth, promotes "closing resource loops" in production cycles to maximise service value generated per unit of resource used, and subsequent recovery and regeneration of products and materials at the end of service life. Relying on technology and business model re-engineering, shifts in consumption patterns are expected to be driven by changes in production systems. A circular economy model need not be very localised or decentralised, breaking sectoral silos it focuses on resource use efficiencies and waste reduction but does not address social inequities.

There are some subtle and some significant differences in the approaches outlined above and both passionate and moderate criticisms of each. What is common, however, is that each looks at economic processes as means to achieve human prosperity and environmental health and not an end in itself.

What does this mean for India? A country of economic contrasts, its economic growth trajectory seen concurrently with its human development track record and state of environment leaves much to be desired. The country is set to design a 15 year perspective plan for sustainable development. Needless to say that the economy will need a serious re-design. Whatever be the approach(es) - new or a combination of existing, one aspect is clear; the approach, rooted in realities of this complex nation, will need to be based on key fundamentals that put both people and environment at the centre of its formulation. It will need to be based on the principles of: system integrity across sectors and resource flows that impact communities and their environment; efficiency and maximisation of service from resources with a zero waste credo, harmony and balance of natural systems with human needs; sufficiency determinants of resource consumption per capita and most importantly universality that ensures equity of opportunity and social justice. These principles and resultant tangible metrics will need to guide the evolution of new business models, technology applications, fiscal systems and market regulations. Such a blue print will help us track progress of and achieve genuine sustainable development for all.

Zeena Niaz
Vice President
Development Alternatives

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Portfolio of Development Alternatives on Sustainable Development Goals

In the recent past Development Alternatives has been at the forefront in engaging with global and international research and policy organisations to help design the framework for Sustainable Development Agenda 2030.

At the global level,

- As part of the Independent Research Forum, Development Alternatives in association with network partners brought scientific expertise and practical ground experience to assist negotiators from member countries to have a better understanding of the three pillars of sustainable development and provided guidance in goal, target and indicator development. The IRF organised a series of informal retreats for senior government negotiators and UN officials to create a space to share diverse perspectives and find common ground on complex, potentially divisive issues.
- Development Alternatives worked on various nexus concerns to provide inputs to the UNEP's International Resources Panel from 2012 to 2015 during the formation of the Global SD Agenda 2030 and the SDG framework. DA also submitted two scientific briefs on resource efficiency and resilient framework for development to the Global Sustainable Development Report 2015 by UN.
- As member of the Green Economy Coalition, Development Alternatives has brought in ground experience to further the understanding economic transitions required for furthering national sustainable development and green economy agendas.

At the regional level,

- Development Alternatives has been a founder Board member of Climate Action Network South Asia and performs the vital function of bringing the SDG and Climate Agendas together in advocating for South Asian

perspectives for Sustainable Development. Some of our related work includes

- Post-2015 Development Priorities for the South Asian Region: A report prepared by DA, highlights the need to set the agenda for the region, focusing on the needs and strengths of the respective countries.

At the national level,

- India's Views on SDGs: DA, in collaboration with Overseas Development Institute conducted a study on potential gains and contributions perceived by Indian stakeholders about SDGs.
- Financial Requirements and Gaps in India for achieving SDGs: DA conducted a financial assessment on achieving SDGs in India. This study was commissioned by Ministry of Environment, Forest and Climate change and was supported by United Nations Development Programme.
- Locating SDG Indicators in the Indian Context: DA, in support of Heinrich Boell Foundation, conducted a study on the nature, scope, and methodology and data availability of indicators of SDGs in India.

Mutli-stakeholder engagement on SDGs: DA conducts its annual event, TARAGramYatra which brings together practitioners and policy makers from India and other parts of the World to share current thinking and define direction of action to alleviate poverty, regenerate the environment and tackle social deprivation. DA has conducted last two TARAGramYatras on the theme of India-Post 2015 looking at trajectories of transition and investments in sustainability. DA is also engaging with three states, in collaboration with Christian Aid to identify linkages between their climate, SDGs and state plans.

**Anshul Bhamra
and
Anand Kumar**

Integrating Climate Change Adaptation in Development Planning

Climate change poses a serious risk to lives and livelihoods, particularly for the world's poorest and most vulnerable populations. India is one of the most vulnerable countries in the world, with a high-dependence on climate sensitive economic sectors such as agriculture, fisheries, livestock and forestry. Consequences of climate change threaten to affect food security, water security and energy access, all of which are crucial for lifting our marginalised out of extreme poverty. The long-term nature of climate change and the significant impact it can have on Indian agricultural systems requires future agricultural development policy and practices to include both short-term and long-term planning that incorporates climate change knowledge and understanding in order to adequately respond to the reality of a changing climate—a process referred to as climate change adaptation.

It is clear that technology, investments, policy and regulations alone will not be able to provide the solution. A multi-stakeholder engagement on a sustained basis, starting at the community, sub-national, national and regional levels is required to arrive at a consensus, convergence and compact on the principles, content and metrics of what is to be done.

The close linkages between climate change adaptation and development have led to calls for addressing the two issues in an integrated way. 'Mainstreaming' climate information, policies and measures into ongoing development planning and decision-making has been proposed as one solution. Making more sustainable and efficient use of resources is the other solution. Mainstreaming requires a cross cutting policy approach which will not only address climate resilient development in the planning process but will also make the already existing policies climate compatible.

In India, several national and state policies such as the National Action Plan on Climate Change (NAPCC) and the State Action Plan on Climate Change (SAPCC) have elaborated the co-beneficial role of adaptation in some of the major sectors such as agriculture, infrastructure, water, urban and rural development. To ensure effective execution of these plans and policies, a bottom up process is required to feed in successful adaptation practices at the local level.

According to Development Alternatives (DA), integrating climate change adaptation in national and sub-national planning can help to:

- Develop medium and long term climate resilient solutions which are cost-effective and scalable.
- Ensure local level implementation of national and state action plans on climate change.
- Bring direct benefits to climate sensitive sectors (such as agriculture, fisheries, forests) and sections (farmers, tribal people, fishermen).

Mainstreaming Climate Change Adaptation In Development Planning

In order to mainstream climate change adaptation into development plans and policies, it is very important to understand the deep relationship between climate resilience and development.

Based on Development Alternatives' experience of working on Climate Adaptive Planning, a framework has been developed by DA for mainstreaming climate change adaptation into the planning process. This decentralised process defined for development planning in India provides a robust frame and platform for mainstreaming climate concerns into village and district plans and synergising with the state and national level sustainable development agenda. The framework is discussed in detail below.

1. Situation Analysis: In order to view existing development planning and policies from a climate change lens, it is first important to critically analyse existing data, information and capacity building needs from a climate change view. It is also crucial to reviews gaps in the current plans, schemes, planning and implementation processes. This phase also identifies building blocks for integrating climate change concerns in planning processes. This includes engagement of trans-disciplinary stakeholders such as practitioners, researchers, government officials of different line departments etc.

2. Development of Knowledge, Tools and Systems for Climate Change: Once the knowledge and capacity building needs of local level stakeholders is identified, the next step is to develop decision support systems for mainstreaming climate change concerns in planning processes.

3. Set up Mechanisms for Effective Uptake: This is a stage where prioritised adaptation strategies are phased out and identified on the basis of available funds, human resources, institutional capacities and available schemes. Based on the availability and capacities in a given planning cycle, decision makers at the national, state, district and

panchayat level can select adaptation strategies for integration into development plans.

4. Uptake into Planning and Implementation:

Once the responsible departments, potential schemes and budget resources are identified to incorporate climate change adaptation solutions in the development planning process, co-benefits of climate change can be integrated in the development processes. Once the plan is developed, it is important to monitor its implementation through mapping of milestones and their delivery.

Advantages of Using the Framework for Mainstreaming Climate Change in Developmental Planning

- The framework views multifold impacts of climate change, evident sectoral overlaps and analogous co-benefits of adaptation thus viewing interlinkages between climate resilience and development planning.
- This approach allows climate concerns to be simultaneously addressed and embedded into everyday decision-making.
- It helps to leverage existing technical, human and financial resources and enhance capacity to identify co-benefits between adaptation needs and other priorities.

While mainstreaming of climate change adaptation in policy happens at the institutional level, mainstreaming at the programme/ scheme level needs to be preceded by plans that help communities better adapt to those climate change related vulnerabilities and challenges. This

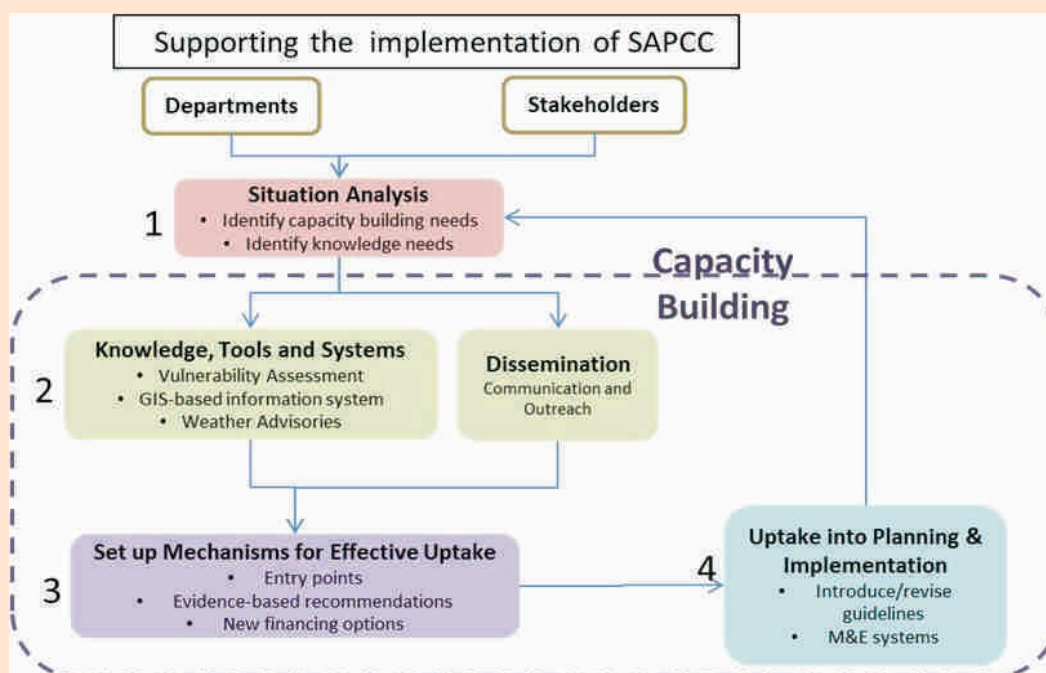
involves identifying sector-specific vulnerabilities of the communities and the region, capacity building of communities, capacity development of institutions facilitating the planning/ implementation process, integration of those concerns in the plans for the scheme/ sector and a mechanism that ensures that activities are undertaken as per the prepared plans during implementation.

Another larger question that needs debate is also the overall planning process in the country within which adaptive planning needs to be embedded. With issues like lack of local participation in the planning process, lack of convergence among stakeholders, scheme-based responses to village needs, multiplicity of plans (village/district plans, plans for flagships, departmental plans) which do not necessarily dovetail into one another, 'transmission losses' of local priorities at each step towards aggregation of plans and the limited capacities of mentoring institutions and functionaries at the local level, any step towards adaptive planning needs to factor in these limitations of the current planning process.

Anand Kumar

References:

- Special Issue: Community-based adaptation: Mainstreaming into national and local planning, Review Article on Mainstreaming climate change adaptation into development in Bangladesh
- Mainstreaming Climate Change Adaptation in Policy and Planning, SDC and DA Publication



Framework for integrating climate change adaptation in the planning process

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Climate Proofing Agriculture In Rain-fed Areas, Development Alternatives

Background of Datia, Madhya Pradesh

Bundelkhand is a drought prone semi-arid region of Central India, comprising of seven districts in Uttar Pradesh and six districts in Madhya Pradesh. The thirteen districts of Bundelkhand region consists of 7.08 million hectares of ravines and undulating terrain making the region prone to high run off rates and loss of soil fertility. The undulating topography of Bundelkhand is marked with recurrent droughts, crop failures and increasing uncertainties of life-giving monsoon. The average annual rainfall of Bundelkhand region of Madhya Pradesh is 990.9 mm with a range of 767.8 to 1086.7 mm showing variable precipitation trend. Sensitivities in Bundelkhand are also aggravated by water stress in the region. This is chiefly due to inadequate and erratic rainfall, high run off rates and poor water retention capacity of the soil.

In addition to climatic variabilities and ecological challenges faced by Bundelkhand, the drought prone region suffers from high socio economic vulnerabilities. It is also one of the most underdeveloped regions of the country with poor human development indices.

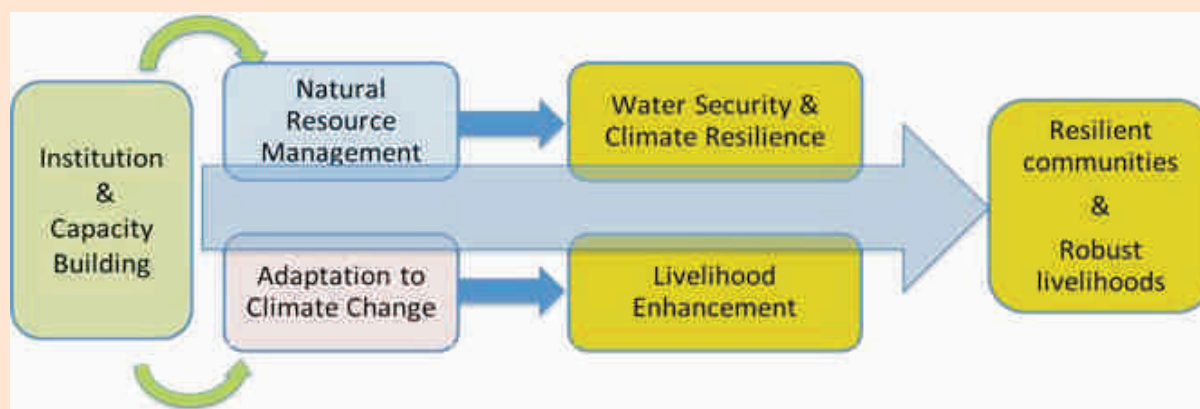
Datia district lies in the Bundelkhand agro-climatic zone of Madhya Pradesh. Agriculture forms the backbone of rural economy in Datia, with almost 85% of the people dependent on agriculture and livestock for their livelihoods. The district has a high percentage of small land holding size, with an average of just 0.46 hectares. Marginal land holdings (of less than one hectare) form the bulk of cultivation and account for 47.7 percent of all holdings in the district. Some of the major agricultural crops grown in the district are groundnut, wheat, soyabean, mustard, black gram and sesame.

Challenges in Context of Agriculture

Unpredictable rainfall patterns: Farming decisions of communities in the villages of Datia have often dwindled in the recent past, owing to unpredictable rainfall patterns and variable weather conditions. Monsoon is a critical determinant of the sowing time, which has been varying drastically in the past few years, causing big loss to farmers. Incidences of hailstorms in recent years have also resulted in heavy losses of Rabi season.

Undulating agriculture terrain and poor soil quality: With agriculture land located amidst semi-arid rocky terrain with high slope area, water run-off and soil erosion often poses challenges through loss of nutrient rich top soil of farms. Residual red and black cotton soil found in different parts of the district retains low moisture content. Farmers reveal that over the last few years, excessive rainfall in a short period of time has intensified the problems of soil erosion in several regions of the district. This often leads to erosion of soil from farming fields and causes loss of nutrient- rich top soil.

Availability of water: Most of the agricultural area in Datia is irrigated by tubewells, dugwells and tanks. Groundwater is the main source of irrigation in the area. The analysis of decadal (1995-2005) average groundwater levels in Datia district depict that groundwater level trends have shown a decline all over the district in the past few years. The long-term water level trend shows a decline of 0.221-0.839 and 0.379-0.959 m/year during pre-monsoon and post-monsoon periods, respectively. Declining groundwater levels in the region highlight that erratic rainfall, heat stresses and excessive exploitation of groundwater resources adds to the water stress in the district.



Creating enabling systems and building local institutional capacities in DA's Integrated Climate Resilience Model

Limited availability of agriculture inputs: Lack of information, poor access and absence of collective decision making often limited the farmers (particularly small scale farmers) from using suitable seed varieties, micro-irrigation techniques, appropriate sowing techniques and farm manures.

Models Developed, Actions Taken

With an aim to ensure food security and sustainable livelihoods at scale, Development Alternatives has been working to promote sustainable agriculture systems in semi-arid rainfed areas of Datia district in Bundelkhand region. DA's climate resilient adaptation programme has tested systemic models which have helped to suggest key elements and pathways for building resilience of the agriculture systems and thus promote sustainable agriculture. Integrated Watershed Development model with resilient agriculture practices offers solutions that help in the conservation, management and efficient utilisation of land-water and bio-resources with a focus on enhancing livelihood security of rural populations.

Strengthening local institutions and facilitating climate adaptive planning is the backbone of the successful uptake of these models at the grassroots level. Micro-level planning processes engage farming communities in the decision making processes and guides them in adopting locale-specific response strategies. Participatory engagement with local panchayat members and district officials to integrate climate resilient agriculture models in local planning processes. Community based institution building processes such as watershed committees, community run resource centers and climate adaptive planning core groups are helping to mainstream adaptation solutions and strategies into local development planning processes.

The models demonstrated by Development Alternatives in Datia district comprise of integrated natural resource management and integrated climate resilient farming systems. Some of the initiatives of this model focus on climate resilient agriculture, low input farming, natural resource management, efficient irrigation systems and strengthening farmer institutions for multiple cash flows in agriculture.

Integrated Natural Resource Management: Addressing the chronic drought situation in the region, DA introduced integrated watershed management strategies in 8 villages of Datia district. These interventions used an integrated ridge to



Loose boulder structure for minimizing water and soil run-off

valley approach of soil and water conservation measures through farm bunding and development of conservation structures such as gabions, west weirs and check dams. The watershed development interventions were carefully designed on the basis of topography, natural slopes and stream flows in the region. GIS based village level planning systems enabled the hydrologists to ensure water management and soil conservation in the watershed.

In addition to increase in water availability, efficient water utilisation and irrigation were particularly emphasized by DA in the region. Discouraging flood irrigation, efficient irrigation techniques such as micro-irrigation and solar pump irrigation have now been largely adopted by farmers.

Climate Resilient Framing: To further ensure the resilience of agriculture activities in the region, a lot of emphasis was given on improving agriculture techniques and introducing efficient technologies, crop diversification and drought proofing. Understanding the challenges of drought prone rainfed area, drought resistant and short duration varieties of soyabean, wheat, mustard and groundnut were promoted by DA in the region. Some of the sustainable agriculture techniques include deep ploughing, ridge and furrow farming for soyabean, line sowing and multi-crop seed drill for multi-cropping of pulses and cereals. Crop diversification through increased farming of vegetables such as brinjal, potato, tomato, chilli, onion and garlic have not only minimised the dependence of farmers on limited crops but has also increased cash flow streams for them. Similarly encouraging multi-cropping has introduced maize farming in the intervention and nearby villages in the district.



Line sowing of wheat

Climate Adaptive Planning: Serving as the backbone of integrated climate resilience programme, climate adaptive planning at village and Panchayat level not only focused on improving access of farmers to farm inputs but also engaged communities in resource sharing and local decision making processes. Community led efforts of watershed committees have. The initiative aimed to integrate resilient agriculture practices in local panchayat planning for increased uptake. Some of the community institutionalisation processes such as watershed committees, community run resource centers and climate adaptive planning core groups are mobilising grassroots communities for large scale adoption of sustainable agriculture solutions and participatory decision making. For effective engagement of communities in local planning processes, awareness and capacity building on implementation and adoption of best practices provided a handholding support to the farmers.

Climate adaptive planning process thus has helped the farmers to take collective farm level decisions according to suitable weather conditions and availability of natural resources. Creation of local seed banks and nurseries, availability of organic fertilizers and access to information on government schemes have been facilitated by the committees.



Climate adaptive planning committee meeting for village planning

The Success Story of Development Alternatives Climate resilient agriculture model

Development Alternatives interventions in different village clusters in Datia, has amply demonstrated multi-dimensional impacts of restoring soil quality and productive potential of the land, thus laying the foundation for climate resilient agriculture development.

Ecological Benefits: The success revolves around regeneration of ecosystem services such as soil nutrient recycling, flood and erosion control, restoring the productive potential of land. Around 68 structures developed in the areas have contributed in harvesting around 2.12 lakh m³ of rainwater and recharging groundwater, rejuvenating 5,527 hectares of agricultural land. Furthermore, around 0.46 lakh tonne of reduction in soil erosion losses has contributed in improving the health of top soil. The intervention has enabled, reducing soil erosion and enhanced water availability.



Farm pond water conservation structure in Kamher village

Economic Benefits: Bringing economic benefits to the farmers, the interventions of integrated natural resource management and climate resilient farming has substantially augmented crop production by 25-30%, increased double cropped area and has minimised crop losses in uncertain weather conditions. Farmers are now ready to adopt 'demonstrated beneficial practices' which has also generated livelihood and income opportunities. This has resulted in an average of 20% increase in farm based incomes of the farmers.

Social Benefits: Climate adaptive planning processes have increased information access of communities and empowered them to take informed decisions. It has also built the institutional linkages of small and medium farmers with local institutions such as Panchayat, extension agencies like Krishi Vigyaan Kendra (KVKs) and district level departments. Furthermore, increased interactions of the communities with departmental officials have also enabled them to access other beneficial schemes for drinking water, sanitation etc. Increased livelihood opportunities and increased farm incomes have also reduced the migration of farmers to nearby cities such as Bhopal, Indore and Delhi.

Communicating Climate Change at the Grassroots

Effectiveness of Community Radios

Community radio stations are a significant medium for disseminating information about agriculture, health, education, women's issues, livelihoods and climate change to the most vulnerable and indigenous communities. In remote rural areas, community radio is often the only medium available, which is listened to by large parts of the population. This medium has also proved to become the most accessible and trustworthy information medium in disaster hit regions of the world. In Nepal last year when the 7.8 magnitude earthquake came, many radio stations were adversely affected. But despite the damaged premises and equipment, these community radios started operating from tents in just a few hours and began disseminating crucial information to the local communities. Radio became the source of life saving information where newspapers or television or internet service were not available. Similarly in India, when the disasters in Kedarnath, Uttarakhand and Tamilnadu took place, community radios played a crucial role in informing and sensitising the local communities.

Development Alternatives as a Pioneer of Climate Change Communication in India

When it comes to climate change communication, community radios lack understanding of the science, impact and adaptation mechanisms of climate change. Enhancing the capacity of community radios on climate change communication can play an important role in creating awareness among the communities for building their resilience to the impacts of climate change.

Development Alternatives has taken the lead to successfully implement a climate change communication campaign in India, by the name of Shubh Kal (for a better tomorrow). This campaign was started in 2008 with one community radio in Bundelkhand, one of India's most climate sensitive regions in Central India when Development Alternatives launched India's first climate rural reality show by the name of Kaun Banega Shubhkal Leader on Radio Bundelkhand. Climate champions from local villages were selected and trained in various adaptation practices. Prakash Kushwaha, a 25 year old farmer from Rajawar village in the Tikamgarh district learnt about Amrit Mitti (an organic fertiliser) during the show. Through the course of the competition, the Amrit Mitti revolution spread across Rajawar and all the surrounding villages. Almost 200 farmers switched to using organic manure replacing the use of chemical fertilisers in their fields. Prakash's story

has emerged as one of the most impactful climate change adaptation case studies at the grassroots. He was one of the final winners of the show.

A few years later, the Shubh Kal campaign was expanded to disseminate climate information to more than 6,00,000 rural folk in 400 villages when Development Alternatives' Radio Bundelkhand tied up with three other community radios in the Bundelkhand region namely Lalit Lokwani, Radio Dhadkan and Chanderi Ki Awaaz. 35 community radio reporters were trained in climate change journalism to serve as an effective two way communication link between farmers, government line department officials and scientific experts from agriculture extension agencies such as Krishi Vigyan Kendras (KVKs). These radio reporters addressed concerns of the farming community by bringing their queries and concerns to the scientists and line department government officials and disseminated information from the scientists and the government officials on adaptation options and relevant government schemes to the farming community.

Recent Developments

Development Alternatives' experience of climate change communication with community radios has completed 8 years. The Shubh Kal campaign has recently been rolled out for larger dissemination in India. The Development Alternatives team has built the capacity of 29 community radios from the states of Assam, Bihar, Chhattisgarh, Kerala, Maharashtra and Odisha to create awareness on climate change. Each of the community radios have developed and broadcasted 4 programmes each on climate change as per the local needs of their community. The Shubh Kal campaign has reached approximately 3 million people with the help of 29 community radios. People who listened to these programmes found that the information was relevant in their context and needed more such information through community radios.

Conclusion

Climate change communication is relatively a new concept for community radios in India. The lack of locally relevant resource material for grass root communities to understand climate change and its impacts is a major challenge. Hence, community radios require more capacity building modules and handholding on climate change issues for regular broadcasting and information flow.

**Desh Raj Singh
and
Naheda Shaikh**

Smart Grid Vision for India's Power Sector

Government of India has been struggling with last mile connectivity between villages and the state run electricity grids. Even large distribution companies have very low penetration in this market on account of power shortages and relatively higher costs and associated risks of servicing rural consumers.

Given the nature of renewable technology, generating electricity 'off-the-grid' and in a decentralised manner is an attractive option. Some of the nascent developments that have taken place in the renewable energy space in India are categorised into three segments:

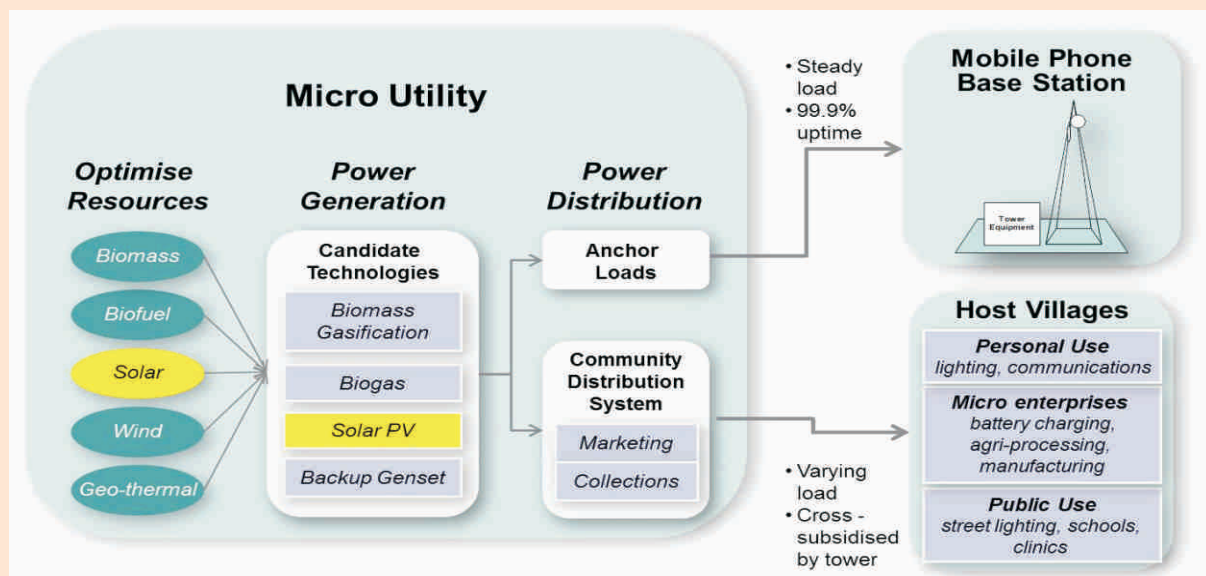
- In the first segment, large grid connected power plants are established and all of the electricity produced is fed into state-run utility grids (which may or may not service rural areas).
- The second segment consists of hand-held portable devices such as solar lamps or very small solar power stations – both of which are meant for domestic use by individuals.
- The third and perhaps largest segment of the market is that of rural customers who need utility grade power. There is no active player in the rural electricity market who can cater to the entire spectrum of emerging needs of the rural customers. Decentralised generation and distribution of power through smart micro grids is possibly the most viable way to serve the needs of such consumers. The future lies in decentralised renewable energy based mini-grids.

India in recent years has seen tremendous growth and potential for solar based energy generation. Solar technology has been identified as one of the most promising decentralised energy applications having significant potential to reduce emissions at the generation end. Solar based energy generation is now being accorded as an application that can help off grid rural areas and micro scale industries in reducing their dependence on the grid.

Conventional power stations in the present scenario of energy generation are centralised and often require electricity to be transmitted over long distances. In comparison, renewable energy based systems are decentralised, modular and more flexible. Located close to the villages, they typically serve with a capacity ranging from 30 kWh to 100 kWh.

Micro discoms / utility businesses can actually cater to energy demand with all the latest load monitoring gadgets to help the individual customers create and establish his / her specific load demand with supply at preferred hours and thus pay only for use and not the ancestral and established KW/hr rate system. Frankly speaking the ancestral system has actually spoilt the consumer habits and led to misuse of energy supply at the premises, whereas a decentralised micro grid is a localised grouping of electricity generation, energy storage and loads that normally operate connected to a traditional centralised grid (macro grid) which can be disconnected and thus the micro grid can function autonomously.

Dr Utparn Dubey



Smart Micro Grid - A Sustainable Solution

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Renewable Energy: A Means for Sustainable Livelihoods

A renewable energy based village electrification programme 'Hamari Urja' has changed the lives of 600 families in the backward region of Bundelkhand in Central India over a period of one year. The programme has not just provided solar based electricity through pico-grids and solar based irrigation pumping facility to farmers, but also created livelihood and income generation opportunities for these families. There are over 3500 individuals who have been impacted.

One such individual is a student named Vijay, pursuing a B.Sc. degree in Forensic Sciences from Bundelkhand University, who got an opportunity for livelihood and income enhancement as a Grid Maintenance In-charge in the 'Hamari Urja' intervention. His journey started when the social enterprise – Technology and Action for Rural Advancement (TARA), supported by the Coca Cola India Foundation, began programme implementation in neighbouring villages and Vijay volunteered to help with the community mobilisation process.

His dynamism and zeal in mobilising the communities and resources convinced TARA to additionally take his village – Chandranagar (Babina Block, Jhansi District, Uttar Pradesh) also under its plan of targeted villages. Owing to his skills and abilities, his entire village is now electrified through solar based energy.

Besides, his passion also got noticed by the solar panels equipment vendor, who then trained him and offered him the job of a Grid Maintenance In-charge for all the 17 pico-grids, installed across nine villages / hamlets in the Babina Block of Jhansi District in Uttar Pradesh. His selection was also the result of the highest score he achieved amongst 20 other candidates on a test conducted by the vendor. Today he earns Rs. 8500 per quarter as the overall in-charge and Rs. 780 per month for revenue collection from the Mahila Urja Samiti of his village. The latter is the result of a revenue model based approach used in the programme, which ensures that every household pays for the electricity they get from the grids and the amount collected gets deposited in a common bank account for the entire village. A three women member committee formed from within the village itself, monitors the revenue model and ensures collection from all the households. This will eventually result in achieving sustainability of the model and instil ownership among the community members.



For Vijay, this intervention has been a boon in two ways – electricity has been provided in his home and an income generating opportunity has been created for him. His life prior to this programme had not been very smooth. With no electricity available in the village, he had to ensure that he completed his studies before it got dark, or he had to study under the dim light of the kerosene lamp which affected his eyesight adversely. But today, he studies till as long as he wants in the night under the bright light of the LED bulb. Besides, he now earns sufficient money (over Rs. 3500 per month) to cater to his needs.

“With electricity in my village and the livelihood opportunity that I have got, my respect in the community has increased multi-fold. Other youth in the village have started seeing me as a role model. I feel so much more empowered with this new career opportunity that has emerged for me as I have learnt a new technique of managing grids in rural areas,” says Vijay.

With greater respect in the society and acquisition of a new technical skill, Vijay has started building capacities of other youth in his village and aspires to capitalise on this new career path.

The outcome of this programme has re-iterated the fact that sustainable livelihoods can be created in large numbers with the use of technology and building capacities of individuals!

Sunanda Jain

Micro-Franchising for Sustainable Rural Electrification (M-SuRE)

As India is growing, urban centres in the country are developing at a fast pace and their power consumption is growing at a rapid rate. The approach to meet this demand is still a conventional one by adding new generation capacities. This results in very slow change in the situation of grid connectivity of villages in the country as most of the generated power goes to urban centres.

In the rural parts of India, this leaves a void in the power supply for the locals and gives opportunity to local entrepreneurs to step up to the demand and supply power through their generation equipment which are mostly diesel generators (DG). They usually supply 3 to 4 hours of electricity to local market places as well as households during the evening hours.

The existence of the Diesel Generator Operators (DGOs) presents a great opportunity to leverage their presence in order to drive clean energy solutions in rural India. The Climate and Development Knowledge Network (CDKN) project – Micro-franchising for Sustainable Rural Electrification (M-SuRE) was developed taking into consideration the footprints of Technology and Action for Rural Advancement (TARA) in Uttar Pradesh and Bihar. TARA experimented with various franchising approaches in order to develop models that can be standardised and implemented for the conversion of Diesel Generator Operators (DGOs) to Renewable Energy Operators (REOs).

Presence of TARA's operational unit called TARAurja as an Energy Service Company (ESCO) and its power plants in Balarampur and Shrawasti districts of Uttar Pradesh, and Saran and Gopalganj districts of Bihar helped in experimenting further with the franchising approach due to easier access to systems of TARAurja. TARAurja's existing presence in these areas made sure that the project team got easier access to DGOs, who were more open to sharing their information.

200 villages were visited during the course of the project and close to 50 DGOs were sensitised. The following three models were developed under the project for conversion:

a) Right to Use: Under this model, the Energy Service Company (ESCO) sets the infrastructure and it enters in a long-term agreement with the DGO and this gives it the right to operate the plant and sell electricity. In return, it pays a fixed



Manoj Kumar Sah, Renewable Energy Operator based in Katsa, Saran district, Bihar

monthly amount to the ESCO. The asset ownership remains with the Master Franchisor/Third-party owner.

b) Franchisee Owned: In this model, financing is facilitated for the DGO by the Franchisor (TARA in this case). It requires the DGO/lessee to make an initial down payment and then subsequent monthly payments for the use of the asset. Support services such as load limiting devices and revenue management system are also provided. At the end of the term of the agreement, the asset ownership is fully transferred to the DGO.

c) Distribution Franchisee: This model is used to convert those DGOs who lack financial strength. In this case, the infrastructure is owned by the ESCO and the DGO is supplied using an extended line. The connection is metered and the DGO pays a monthly fee to the ESCO depending on units consumed based on the negotiated unit rates.

Under this initiative, Renewable Energy Operators (REOs) were also provided with capacity building training under which technical, financial and business management trainings were given. This imparted them the support and knowledge to run their businesses after the conversion.

Diesel Generator Operators (DGOs) were converted to Renewable Energy Operators (REOs) in Balarampur of Uttar Pradesh and Siwan and Gopalganj of Bihar. This conversion has helped in saving up to 500 litres of diesel per month and approximately 200 households and shops were provided with cleaner and more reliable source of electricity. By the end of the project, the team was able to create a pool of 15 operators who were keen on the conversion.

Abhishek Srivastava

Small Steps, Giant Leap for Bundelkhand

They lived for 40 dark years with no power, today Bundelkhand is crafting its own green stories with the implementation of the solar pico grid model in some of the villages, writes *Pari Saikia*



Life without electricity is impossible to imagine. Despite this reality, 300 million Indians are waiting for a light that isn't powered by a kerosene lamp or a diesel generator. However, today, 11 villages in the drought prone region of Bundelkhand of Uttar Pradesh and Madhya Pradesh have a different story to tell after four decades of living in the dark. These villages were electrified for the first time on 1 January 2015.

A Development Alternatives' renewable energy based village electrification programme in 2014 lit up the villages and improved the lives of the poor farmers. The programme has provided solar based electricity through pico grids and solar

based irrigation pumping facility. It has created livelihoods and income generation opportunities for the local population. Reliable electricity in the evening has also improved educational opportunities for village children and provided much needed safety on the streets. And it has also made Ramkali a very happy woman.

Today, Ramkali can invite the in-laws of her daughter without any hesitation and it is possible after affordable and reliable green energy lit up her home. A resident of Chandranagar village in the backward region of Bundelkhand, Ramkali and her children were dependent on kerosene lamps till 2015. The most upsetting moment for Ramkali was when her daughter was married off

and she had to bid farewell to her in the dark, as they had no electricity at home.

Although, the grids for supplying electricity were erected by the Government, the wiring never took place even after 40 years, she said.

"No doubt we lived for 40 horrible years without electricity, depending solely on the dim light of the kerosene lamp. I remember times when we found insects in cooked food. Many times, I put excessive spices as I could barely see. We even suffered from eye problems, chest pain and breathing issues because of burning kerosene," said 27-year-old Savita. Apart from being a housewife, Savita is also the president of Sidh Baba



The pico grid model has been a boon to the rural community of Bundelkhand region. The villagers can now access cheap and reliable renewable energy based electricity from 6 pm-11pm

Hamari Urja Samiti in her village, a SHG that empowers women and encourages the adoption of green energy under the Development Alternatives initiative.

●● DEVELOPMENT ALTERNATIVES' NOVELTY

Known as one of the poorest regions of India with water scarcity problems and cases of farmers' suicide round the year, Bundelkhand villages still lack in basic infrastructure and affordable electricity. After closely analysing the state of affairs in the region, Coca Cola India Foundation and Society for Technology and Action for Rural Advancement (TARA) implemented the Renewable Energy for Households & Livelihood Creation in Bundelkhand through the Development Solution Branch of Development Alternatives.

Out of the 11 villages, six have off-grid connection and the rest run on the solar pico-grid connection. Villages including Dhikoli, Domagor, Kotkhera,

Palinda, Ganeshgarh, Bhadra, Panihari, Chandranagar, Dayanagar, Harpalpur, Dharampura in Babina block of Jhansi district have benefited immensely from the project. The villages have a minimum population between 155 and 300.

A double solar photo-voltaic panel (SPV Unit) with DC transmission system provides electricity for lighting two LED bulbs (5Wx2) and one plug point for a minimum of 6-7 hours a day for 30 households in each village. Every household is charged a monthly bill of Rs 120 for electricity consumption.

Dr SN Pandey, Senior Program Director in Development Alternatives, said, "The solar based pico grid model has been well received by the rural community. The model can be replicated in remote rural villages and influence private players or CSOs to invest in such models."

Deepak Mohanty, Deputy Manager, Development Alternatives, said, "The pico grid model has been a boon to the rural community

of Bundelkhand region. The villagers can now access cheap and reliable RE based electricity from 6 pm-11pm. Also, biogas produced electricity facilities for farmlands are provided."

Farmers and women in the Bundelkhand region have profited immensely under the DA's RE projects. The gram pradhans are proud that now their villages lit up like city lights in the evening and that the era of darkness has gone from their lives.

"The grid failed to provide electricity in the evening hours (6pm to 9pm) which is the most crucial time for studies and household chores. With the solar pico-grid connected LED bulbs, we no longer have to depend on them," spoke Krishan Pal Singh, Gram Pradhan, Dhikoli village.

Sharing his joy, Biren Singh, Gram Pradhan of village Khajra Bujurg said "I take pride in calling our village an eco-friendly one. Moreover, the four rupees per day cost is very reasonable for the poor villagers."

Bundelkhand also faces huge scarcity of water. Women and young girls walk four to five hours to fetch water every day. With daytime temperatures hovering above 40 degrees in summers, water scarcity leads to dehydration and diarrhoea. As a solution to the severe drinking water crisis, DA installed a solar energy based drinking water system in Gopalpura village. The system is funded by Bodyshop Foundation.

According to a survey, it was found that in

the village of Gopalpura the average drinking water consumption is 6000-8000 litres per day. Therefore, it was estimated that if a 1 HP submersible pump operates for four hours daily it would be able to meet the drinking water needs of the villagers. DA began its green water project in Gopalpura through installations of solar-powered water pumps.

The CO-CO model (community based model) was implemented for ensuring access to drinking water systems. The community not only owns the resources it consumes but is also jointly responsible for its care and maintenance. Besides, the project promotes water sanitation, health and hygiene practices among the community.

●● BOON TO VILLAGERS

Since the implementation of the green and clean energy projects in Bundelkhand, these 11 villages have become a symbol of hope and are becoming model villages by showcasing new possibilities in rural electrification. The benefits are immense.

- Reduced expenditure on electricity, as compared to kerosene (from Rs. 200/month to Rs. 120/month)
- Children have more time to study in the evening and a clean source of energy with reduced adverse impact on health.
- Households have cheaper and better access to communication (owing to plug points for charging mobile phones)
- Households have better returns from their farming operations, including better agriculture yield.
- 450 HH are accessing Pico grid villages. 5 lakh rupees collected from beneficiary

SUCCESS STORY

Name: Vijay (Grid Maintenance in-charge)

Village: Chandranagar

Pursuing B.Sc. in Forensic Sciences from Bundelkhand University, Vijay saw an opportunity for livelihood and income enhancement as a grid maintenance in-charge in the Hamari Urja intervention. His journey started when TARA (non-profit society under Development Alternatives began the community mobilisation processes in neighbouring villages and Vijay, owing to his dynamism, got associated with the processes.

Upon his insistence and demand generated from his village community members, TARA installed a grid in his village too. His passion was noticed by the solar panels equipment vendor, who trained him and offered him the job of a Grid Maintenance in-charge for all the 17 Solar Pico-grids. His selection was also the result of the highest score he achieved amongst 20 other candidates in a test, conducted by the vendor. Today he earns Rs. 8500 per quarter as the overall in-charge and Rs. 780 per month for revenue collection from the Mahila Urja Samiti of his village.

"With electricity in my village and the livelihood opportunity that I have got, my respect in society has increased multi-fold. Other youth in the village have started seeing me as an ideal. I feel so much more empowered and foresee a new career opportunity that has emerged for me, as I have learnt a new technique of managing grids in rural areas," Vijay said.

accessing RE based lightning services. 16,200 litre Kerosene saved (worth value of Rs 3.8 lakh) - 40500 kg CO2 emission.

Narrating his experience, farmer Bharat Singh Rajpoot expressed, "I spent over six decades in Bhadra without any hope of electricity but the scenario has changed today. I feel happy that the youth of the village do not have to go through the same difficulty."

●● LIVING BY EXAMPLES

Development Alternatives now plans to electrify Lalitpur village with the solar pico-grid and the implementation would be carried out by civil society organisations (CSOs).

For drinking water, RE based solutions will be provided through a community based approach. New villages that soon will be covered under Development Alternatives' green energy programme are Budwar, Koti, Khajraha Bujurg, Balabeha and Sojna under Jhansi and Lalitpur districts.

Development Alternatives, the world's first social enterprise dedicated to sustainable development initiated its involvement in Bundelkhand in 1985. The focus of Development Alternatives is to empower village communities, women and marginalised groups through eco-solutions, create green jobs and promote green technology innovations. 



Building Resilience and Coping with Climate Change and Ecological Degradation

With the world's population set to reach 9 billion, agricultural production will need to increase by 70 per cent in order to meet the rising demand and avert disaster by 2050. Moreover, climate change and degrading lands increase the vulnerability of the world's poorest communities that depend on agriculture and related natural resources to meet their basic needs, threatening both social and economic security.

Agricultural production is responsible for 10-12 per cent of the total global anthropogenic emissions of greenhouse gases. Carbon markets and macro-level policy decisions are not likely to provide benefits to farmers and communities in the short run. If communities and farmers are to help reduction and conservation of resources, they must have a positive impact on their lives or the result may be unacceptable trade offs. We can help bring about a transformation by promoting behavioural change and livelihood options around adaptation and mitigation options.

We at Development Alternatives (DA) believe that adaptation for climate change, conservation and regeneration of natural resources must be practiced and supported in order to build greater resilience to the impacts of climate change. The major challenge is to enable accelerated adaptation at a rate faster than the demands that will otherwise overtake them without threatening sensitive livelihood systems as both urban and rural communities strive to cope with the situation.

Communities require support as their capacity to cope with these stresses is limited. Individuals need to be provided with options and the capacity to use these options for undertaking adaptation and ensuring livelihood security. Development Alternatives has supported adaptation options, ranging from diversification in agriculture production systems, resource-efficient agriculture practices, promotion of green jobs, and access to clean energy and improved institutional settings to help communities build resilience and cope with the adversities of climate change and ecological degradation. We also continue to create awareness on the implications of global warming, the need for conservation of resources, as well as the development of sustainable livelihoods and lifestyles.

The work of Development Alternatives is in convergence with government schemes and policies on horticulture, watershed development, agriculture and rural development. In this domain, our work has been supported by NABARD, SDC, CDKN, the Government of Madhya Pradesh, the Government of Himachal Pradesh and the Department of Science and Technology, Government of India.

In an endeavour to create sustainable livelihoods, DA is helping rural communities build their capacities to deal with poverty with an attention to the synergies between climate change mitigation, food security and poverty alleviation.

Kiran Sharma

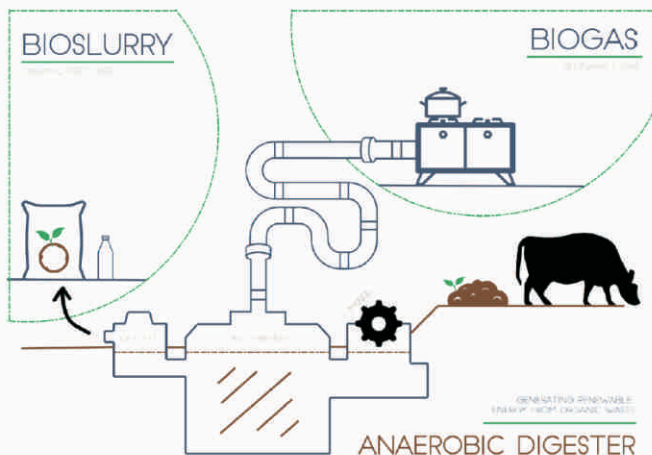
Win Win Solution: Sustainability and Resilience of Bioenergy for Climate Change in Bali

su-re.coffee

The Mission

Su-re co is committed to generating demand for biogas to stimulate a universal shift in energy production. By creating a locally produced, eco-friendly beverage we are actively pursuing our goal. su-re.coffee takes organic farming to the next level by incorporating biogas throughout the journey of the coffee bean from plant to cup.

A biogas system is an excellent form of waste management. Any organic, agricultural waste from manure to discarded coffee cherries are excellent inputs for a biogas digester. Instead of polluting the environment, we present an opportunity to use every part of the plant for productive purposes while eliminating waste.



Further Benefits

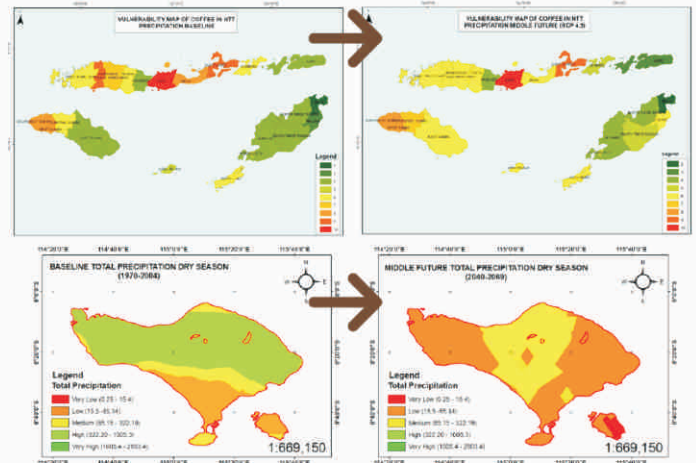
On top of coffee production su-re co is working to shift energy use practices for rural families from primarily wood burning to biogas stoves. The transition from indoor wood-burning stoves will significantly decrease severe respiratory problems among rural Indonesian families as well as mitigate deforestation.

PT Sustainability and Resilience

Please visit: www.su-re.co

Or contact us at: info@su-re.co / +62 8123831727

a community-based project utilising biogas to produce natural beverages



Climate Change

It is no longer a mystery that climate change is cause for a significant shift in thinking and action towards a more sustainable future. Temperatures in places like Bali and Flores are rising while precipitation are decreasing. Jembrana in west Bali and Ende in central Flores are at risk of devastation because of climate change.

Many people are facing droughts that will only harshen in the coming years. Rural regions are particularly vulnerable to changing conditions because their livelihood depends of successful production of rice. Coffee is a promising alternative to water-intensive rice and will play a key role in a sustainable future for rural communities.

su-re.coffee...

...utilizes **biogas** as a transition pathway for climate change adaptation and mitigation

...enables opportunities for rural households to diversify livelihoods and accessing **clean energy**

...incentivizes initiatives to create demand for **bioenergy** on a household, national, and international level



Jembrana, West Bali

CAKRA

“I am always putting my community first. Even when they resist I will always provide knowledge and support to make them stronger any way I can.”

Today his agro-forest is producing coffee and cacao with a healthy and abundant harvest. His success has attracted over 20 new farmers in his community to learn from his sustainable methods. Cakra is educating willing farmers and providing them with his exceptional cultivar. Arabica coffee from Jembrana is as rare as it is delicious. Natural processing brings out the unique flavors of the Jembrana region as well as conserves water, making Cakra coffee tasty, sustainable, and one-of-a-kind.

Gusti Cakra is a pioneer in his community when it comes to sustainable agricultural practices. After experiencing the results of drought six years ago Cakra decided it was time to switch from rice to a more sustainable and resilient alternative. He began experimenting with coffee and cacao, using cacao trees as shade trees for his coffee plants.



LUKAS

Golulada, Ende

Lukas Lawa is a true farmer. He quits his higher education in order to pursue his dream of improving smallholders farmers livelihood and he never looks back ever since. He took any opportunity as much as possible to increase his knowledge and skills on cultivation. Later on, he try to applied all of those insight he gathers on his own farm before finally he decided to focus solely on coffee.

“Farmers must have the power to dictate the market to be independent of those who do not have their best interest in mind and the next generation would never be ashamed of their parents and roots.”



He walk miles through villages in Ende to try to assemble a group of eager farmers and to get them to start thinking about working seriously on coffee. Later on he decided to start on his own village and many villages are starting to join his movement. Until today, his coffee knowledge and eagerness to learn brought him across Indonesia even as far as India. All of his hardwork and cunning leads him to a better future now they're able to produce a good quality arabica coffee which are not just delicious but also sustainable.

Integrated Village Development Programme - Hamara Gaon

Rural communities in low-income countries, most of them isolated from mainstream national economy suffer numerous deprivations that impact the quality of life of their inhabitants. Poor infrastructure, degraded local natural resources and inadequate linkages to markets combine to create a poverty trap from which village economies usually find it difficult to escape. While there are probably no simple interventions to enable rural communities to break out of the asystemic traps of poverty and deprivation, it is possible to devise relatively simple packages of processes and practices that can promote triple bottom wellbeing for a small initial investment and can set the village economy onto a new trajectory of socio-economic development that can sustain itself in the future.

Development Alternative Group's Village Development Programme – Hamara Gaon (an etymology that emphasises people's right to decide their development pathway as informed and empowered communities) targets issues related to the economy, environment and society systemically, as a whole, helping communities realise the benefits of integrated development. This is catalysed through the creation of people-oriented institutions, dissemination of knowledge and appropriate technologies, strengthening local governance systems and enabling access to credit and finance.

Hamara Gaon is operationalised on the principle of “Haryali, Udyamita aur Sampanata” – Environment Wellbeing, Economic Development and Social Prosperity and has the following objectives:

- Promoting Environment Wellbeing through optimising the productive potential of the local natural resource base using land and water management, climate resilient farming, community led environment management for sustained development.
- Stimulating Economic Development by fostering financial inclusion of women and the creation of diverse enterprises and livelihood models that invigorate the local economy.
- Enabling Social Wellbeing by facilitating access to basic needs, improved governance systems and quality of life and promoting a culture of shared benefits in the community.

The approach attempts to seize on opportunities that arise when cross-sector interventions lower costs and enhance systems to improve development effectiveness. It introduces a holistic package of interventions to transform lives of the

marginalised and vulnerable through establishment of infrastructure and institutions that enable social and economic prosperity for all in harmony with nature. Capacities of local institutions are strengthened to plan and implement a range of integrated village development measures by accessing available government schemes. These include:

- Integrated watershed management.
- Infrastructure development such as roads, drains, housing, water supply, sanitation and electrification.
- Literacy and livelihood initiatives.
- Savings and credit services.
- Farm and off farm enterprises identified on the basis of resource and market assessments, communication and information.

Led through local institutions and engagement with local government such that public schemes and development programmes can be leveraged, the programme also brings in wherever possible, private investments and partnerships of the private sector with community groups to leverage resources and instill sustainability in development. It guides communities to prioritise actions based on their own needs and goals and helps them create new lifestyle choices and opportunities for exercising them. More importantly, it helps them meet multiple needs and cope with changing circumstances such as those imposed by changes in the economy, climate – or even aspirations.

Hamara Gaon Programme – Guiding Principles

At the core, lie the guiding principles that are crucial to ensure sustainability of the programme - sustainability in terms of the integrated environmental, social and economic wellbeing and one that is also indigenously self-sustaining. These principles have been developed from the learning and experiences of Development Alternatives in its work at the grassroots and from the engagement with our local, regional and global partners. The core principles of the Hamara Gaon initiative are described below:

- Ensuring People's Participation: Community level infrastructure and common property resources get sustainably managed in the long term only when they are truly owned by the people. Same is true for any successful development inter-vention. It must be 'owned' by the stakeholders it seeks to benefit. Effective participatory processes have to be devised that enable stakeholders to design their own development pathways and take ownership of the changes.

- **Fostering Equity – putting the last first:** Both for ethical and practical reasons, development interventions must be designed to ensure benefits for all stakeholders in an equitable manner. Putting the marginalised and disempowered at the centre of the process most effectively leads to overall development that will be sustained into the future.
- **Mainstreaming for Sustainable Impact and Replicability:** Development interventions cannot be standalone initiatives but rather must be integrated with the mainstream development systems in order to remain relevant and viable in the long term. Convergence with local development actors and factors allows additional resources to be leveraged from national and local development funds thus increasing the total value of the intervention and permitting replication elsewhere.

Hamara Gaon Programme in Bundelkhand

Bundelkhand is a semi-arid region in Central India characterised by poor human development indicators and degraded status of natural resources. Around 70-80% of the population in this drought prone and climate sensitive region depends on agriculture and related activities for a livelihood. 75% of this agriculture is rain-fed and thus susceptible to climate change impacts. Land degradation and increasing water scarcity over the years has led to declining agricultural productivity and increasing poverty.

Given the state of the economy, local resources and society, an integrated triple bottom line approach of development upholding the pillars of sustainability – economic, social and environmental well-being - is critical in designing a better future for this region. The Hamara Gaon Programme reaches out to 18 villages across 4 districts in Bundelkhand. A few case studies of the Hamara Gaon programme are shared below. The feasibility of such models could be applicable on a large scale in a wide variety of socio-economic-ecological contexts. In our evolving world of resource depletion, climate change and economic stagnation, some of the basic lessons from this programme particularly regarding the key roles of livelihoods and of rational management of resources may well be applicable to more geographies across the world.

Chitrangna Dewan

Case Study from Govindnagar Village, Datia

The water and land harvesting programme was initiated to restore the ecological balance and regenerate the vegetative cover of land. It involved construction of check dams and soil conservation structures like farm bunds and gabions in farmers' fields. In the last three years, owing to this intervention, the area has witnessed enhanced water security and a 20-30% increase in agri productivity. This has helped improve the social and economic conditions in the area.



Checkdam built in Govindnagar

Case Study from Biharipura Village, Tikamgarh

Jitendra Singh Parmar (24), a farmer in Biharipura decided to engage in entrepreneurship activities after the introduction of the Hamara Gaon programme in his village. He signed up for an enterprise development training to learn how to set up a poultry business. With the support of technical and market knowledge and access to credit for his business, he built a poultry farm which is accruing him a profit of INR 15, 000 per month, i.e. an increase of 20% to his income. He now wishes to invest it in educating his siblings and have a better future.



Jitendra Parmar's poultry farm



About the GREEN-WIN and UAB

EU project GREEN-WIN aims at researching and applying a solution-oriented approach targeted to a better understanding on the links between climate action and sustainability. GREEN-WIN will contribute to overcoming economic, financial and institutional barriers to sustainable climate action at local and international levels through identifying win-win strategies, green business models and enabling environments which support meeting Sustainable Development Goals via green entrepreneurship.

The Institute of Environmental Science and Technology of the Autonomous University of Barcelona leads the GREEN-WIN Work Package on Energy Poverty Alleviation and Resilient Livelihoods, with case studies in India, Indonesia and South Africa, and it's currently developing also new international collaborations with Brazil and Mexico. The IEST-UAB is pioneering institution in terms of fostering inter and transdisciplinary research in Spain. The UAB is considered to be the best University in Spain by the 2012 QS World University Rankings, which ranked the university 176th overall in the world.



About Development Alternatives

Development Alternatives (DA) is a premier social enterprise with a global presence in the fields of green economic development, social empowerment and environmental management. It is credited with numerous innovations in clean technology and delivery systems that help create sustainable livelihoods in the developing world. DA focuses on empowering communities through *strengthening people's institutions and facilitating their access to basic needs*; enabling economic opportunities through *skill development for green jobs and enterprise creation*; and promoting low carbon pathways for development through *natural resource management models and clean technology solutions*.



About Technology and Action for Rural Advancement

The Society for Technology & Action for Rural Advancement (TARA) is a social enterprise set up in 1985 at New Delhi, India. It is the 'incubation engine' of the Development Alternatives Group which has been providing development solutions in India and elsewhere.

TARA has been set up to disseminate the "means for creating sustainable livelihoods" on a large scale, and to thus mobilize widespread action to eradicate poverty and regenerate the environment. Briefly described, TARA's mission is to build capacities, incubate business models and manage processes to create economic, social and environmental value on a large scale.

