

2019

Coffee Table Book

Greening Livelihoods through Sustainable Financing

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Preface



Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, under the technical cooperation framework financed and contracted by the German Ministry for Economic Cooperation and Development (BMZ), is proud to have contributed to enhancing Indo-German Cooperation in Natural Resource Management (NRM) over last 3 decades. GIZ along with long-standing partners- NABARD and KfW- has successfully piloted new approaches and innovations in Natural Resource Management and micro-finance sectors. The success of Indo-German Watershed Development Programme and Self Help Group (SHG)-Bank linkage programme stand testimony to richness of this partnership. In order to leverage these varied learning and knowledge so created, need for an umbrella was felt to collate and mainstream best practices in NRM sector, which culminated in a unique programme called Umbrella Programme for Natural Resource Management (UPNRM) in 2008. The programme envisaged breaching the traditional mindset of grant-driven development approaches and instead introduced the concept of blended financing to address the challenges in NRM sector. The programme is the first-of-its-kind initiative in India.

The newness of this developmental approach meant diverse challenges to be addressed to make the programme successful. GIZ as a technical partner contributed to creating required capacities, structures and processes at different levels to effectively manage inherent risks associated with loan-based financing in NRM. The Programme during more than 10 years of implementation has demonstrated how bankable models for enhancing sustainable livelihoods can be promoted in complete harmony with nature. In fact, the rich evidences under UPNRM strongly suggest that conformity to NRM-principles along with innovative project-designing is a pre-requisite to make rural livelihoods of small and marginal farmers more secure and resilient, particularly in the light of grave challenges posed by climate change.

GIZ and NABARD are jointly making efforts to mainstream this unique experiment of creating sustainable financing approaches and innovation in NRM. It gives me immense pleasure to note that some banks have already come forward to adopt the bankable business models developed under UPNRM. The financial institutions and banks are realising how these models could help them diversify their lending portfolio and tap huge business potential in NRM sphere in rural India.

I am immensely pleased to present a compilation of 36 success stories from UPNRM representing diverse sectors and sub-sectors in NRM. I am sure that varied learning, innovation and best practices as reflected in each of these success stories will act as a rich knowledge-source for all stakeholders and most certainly shall contribute to further shaping the landscape of sustainable NRM financing in India.

A handwritten signature in blue ink, appearing to read 'M. El-Khawad', is positioned above the printed name and title.

Mohamed El-Khawad

Environment, Climate Change & Natural Resource Management
Programme Director & Cluster Coordinator
Deutsche Gesellschaft für Internationale Zusammenarbeit
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Message



The long standing Indo-German Cooperation has been an important cornerstone towards addressing the emerging demands of the rural areas in India. The association of NABARD with KfW and GIZ which started with landmark Indo-German Watershed Programme created rich experiences and innovative approaches to deal with challenges of land and water management in Natural Resource Management Sector. Building on these valuable learnings and best practices, the Umbrella Programme for Natural Resource Management (UPNRM) saw its genesis in 2007-08. UPNRM is recognised as a uniquely designed programme with a shift from the culture of grant to loan-financing for enhancing NRM-based livelihoods of small and marginal farmers. The programme also provided platform to NABARD to experiment with retail financing for the first time in rural areas. These unique experiences have further strengthened NABARD's recognition as a Thematic Leader in NRM sphere.

The UPNRM-journey over the years has seen sanction of 334 projects with an investment of over Rs 600 crores. The success is marked by the emergence of 36 bankable business models in different sector and sub-sectors in NRM, never financed before by mainstream financial institutions. The models are therefore worth adopting by the banks and other financial institutions, which apart from economic viability are also environmentally sustainable.

The Coffee Table Book is an attempt to document few success stories from UPNRM amply demonstrating the efficacy, bankability and upscalability of credit based NRM financing. NABARD has taken the lead in mainstreaming these bankable models through its subsidiaries – NABKISAN. Replication of these pilot models can go a long way in enhancing well-being of our rural communities.

A handwritten signature in blue ink, appearing to read 'Anirudh Kumar'.

Farm Sector Development Department (FSDD), NABARD



Background

The majority of India's rural population are primarily dependent on agriculture and its allied activities for livelihood. Therefore, their well-being is closely related to the thoughtful usage of natural resources. Since exploitation and degradation of natural resources has an adverse effect on their livelihood development, conserving natural resources has to go along with the economic health and welfare of farmers. It requires sustainable ways of using natural resources for creating alternative livelihood opportunities. This task is painstaking, mainly because rural areas lack means and knowledge for investment and infrastructure for creating alternative sustainable livelihoods. Also, access to adequate credit has been a big challenge in rural development, as banks generally consider it risky and expensive to lend to small, marginal and landless farmers. This is due to their lack of collateral, small borrowings and irregular incomes.

In the above context, during the 1990s, India and Germany came forward under bilateral cooperation framework for a collaborative developmental effort towards Natural Resource Management (NRM) and Self Help Group (SHG) promotion. This was piloted by the National Bank for Agriculture and Rural Development (NABARD), Kreditanstalt für Wiederaufbau (KfW) and Gesellschaft für Internationale Zusammenarbeit (GIZ). The programmes were financed by the Ministry of Economic Cooperation and Development (BMZ).

Under this Indo-German cooperation, two striving NRM initiatives with community participation began: the Indo-German Watershed Development Programme (IGWDP) and the Wadi Programme. IGWDP was started in early 1990s to restore watersheds in dry lands. The programme was highly recognised due to its emphasis on community institution-led development process in the NRM sector. The *Adivasi* Development Programme (Wadi) was launched in 1990 with KfW assistance. Under this programme, NABARD promoted orchard-based farming systems in the *Adivasi*-dominated areas of Gujarat and Maharashtra. Experience gained under these initiatives influenced NABARD's NRM policies. By the early 2000s, agricultural productivity had increased in areas under the Wadi and Watershed Development programmes. Communities and Non-Governmental Organisation (NGOs) participating in

both the programmes had arrived at a point where they were ready to undertake value addition and organised marketing of their agricultural produce and business orientation was required for this next step.

It was also recognised that enabling rural people and development of NRM-based businesses through tailored loans would enhance their economic viability, while encouraging ownership and responsibility to sustainably manage natural resources. So KfW and GIZ along with NABARD began conceiving a loan cum grant-based programme, with the benefit of nearly two decades of development experience in the NRM sector. In 2008, this Indo-German development cooperation integrated previous NRM efforts into one streamlined approach under a new programme called the Umbrella Programme on Natural Resources Management (UPNRM). It was a unique programme that connected sustainable NRM with loan-based livelihood finance for the rural poor, thereby ushering-in a new path of socio-economically viable loan-driven development across India. It was a credit-plus programme, whereby, grant was additionally provided as Accompanying Measures to support capacity development measures for target groups and implementation partners at the local level. An investment grant was also introduced for promoting conservation measures and innovation in project design. The 5 Guiding Principles (pro-poor, environmentally sustainable, good governance, community participation and integrated and needs based approach), enshrined as integral part of programme-design, further corroborated its uniqueness. The programme also developed and standardised the rural financing processes for NRM, by integrating it with internationally accepted frameworks on Environmental and Social Governance Framework and adding gender inclusion and market assessment tools into the programme design. These projects also showcase very good climate smart agricultural approaches helping producers to adapt to climate change.

UPNRM mainstreamed holistic, participatory and sustainable NRM-based livelihood solutions into public NRM policies and financial institutions. Soon after its inception, the programme started creating first-generation agriculture start-ups. Many of the first-stage Farmer Producer Organisations (FPO) received finance and support under UPNRM and grew. The programme also included Corporate Social Responsibility (CSR) wings of companies as stakeholders in projects and leveraged CSR funds.

Enterprises under UPNRM have made a remarkable inscription on the lives of the people and government policies. Many projects are promoting innovative and high-yielding agricultural technologies. The 36 success stories elaborated in this Coffee Table Book are only a few of the many examples of efficacious networking of NRM with livelihood development of the rural poor under UPNRM.



Introduction

Umbrella Programme for Natural Resource Management (UPNRM) is a unique and distinctive Indo-German initiative that is aimed at achieving sustainable and inclusive development in rural India by integrating natural resource management (NRM) with livelihood improvement in rural areas. The programme encourages private investment in NRM based enterprises run and managed by local communities, primarily in some of the most vulnerable parts of 22 states of India. The target audience of this initiative are the poor and marginalised sections of society such as the small and marginal farmers, indigenous tribes and women, who otherwise mostly get excluded from formal finance due to various reasons.

The programme is financed by the BMZ, Federal Republic of Germany. UPNRM is implemented under Indo-German Development Cooperation Framework, by Indian NABARD in cooperation with German development agency GIZ and German development bank KfW. One major success of this programme construct is how a large development bank like NABARD, supported technically by GIZ and provided enabling low interest credit by an international development bank, KfW, partnered together to design and deliver a unique approach for sustainable NRM-based livelihood development.

The other unique feature of the UPNRM initiative is that it has introduced the ‘credit plus’ facility characterized by a mixture of context specific and need-based financial and technical support. This innovative mechanism not only addresses credit requirements but also builds capacities of small and marginal farmers to achieve the intended output of income enhancement through sustainable NRM practices and viable businesses.

In order to accomplish its objectives, the projects under UPNRM are designed based on five guiding principles:

1. Projects that are supporting the poor
2. Projects that are environmentally sustainable
3. Projects in which good governance is practiced
4. Projects in which community participation is promoted
5. Projects that follow needs-based and an integrated approach

Through its decade long experience, UPNRM has created a host of sustainable financing models for natural resource-based enterprises. Under this model, following a need assessment, a demand-oriented loan and a grant for capacity building (up to 20 per cent) is sanctioned by NABARD. Merging with subsidies and other government programmes and corporate social responsibility (CSR) initiatives to enhance overall project performance is also promoted and practiced in this initiative. In 2015, the programme won the ‘Karlsruhe Sustainable Finance Award’ in the Best Innovations in Financial Services category for its loan-based financing model. The award further recognised the uniqueness of this financing model at the global level.

The very high loan repayment rate (93 per cent thus far) under the programme indicates that blended finance can engender development in rural India through enterprises based on the principles of efficient practices of natural resource management. While highlighting the credit demand and entrepreneurial prospective in rural areas, UPNRM has created an innovative mechanism to harness the huge credit-potential in the NRM sector.

Out of the 334 projects sanctioned across the country under the programme, 15 of them proved to be bankable models ready for further dissemination. These models have the potential to be

adopted by banks and financial institutions across the country to reach out to their client base, diversify loans and have outreach beyond the traditional banking system. These models also contribute in combating ill-effects of climate change.

UPNRM also has created social entrepreneurship in the 334 projects supported, through a focus on community participation and capacitation of NGOs, farmers' groups and women's groups. These can be utilised by mainstream banks for partnerships and growing their credit and livelihood portfolios. The programme, by demonstrating the power of small-scale farmers and enterprises, has proven that unlike the commonly held notion, it is possible to create sustainable and need based rural business models.

The UPNRM approach and strategy emphasises on social and economic development through credit-cum-grant driven sustainable need based business models with complete agency to the participants. The fact that many of these are now being adopted and mainstreamed by different financial institutions and public and private development agencies, is a testimony that it was the 'right idea at the right time'.

It offers the prospective for replication not only in India but in other developing nations for poverty alleviation, social empowerment, environmental protection and combating climate change.





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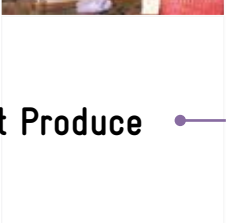
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Sustainable Agriculture

As food security continues to be a pressing concern globally, sustainable agriculture is the need of the hour. Various factors like limited access to modern farming technology, decreasing rainfall, inadequate credit, poor rural transport mechanisms and, most importantly, the shrinking agricultural land due to urbanisation are causing a slowdown in agricultural production in India. Despite these odds, there is huge potential for India to increase its agricultural productivity to meet the food requirements of its growing population. Sustainable farming practices could be popularised to tap this potential.

Sustainable agriculture practices improve the crop productivity while retaining ecological balance. UPNRM has engaged with farmers at the grassroots level for their livelihood development through the use of sustainable farming techniques. These include drip irrigation, precision agriculture and integrated vegetable farming along with the creation of forward linkages to ensure market access through various projects, some of which are shared here.





Livelihood

Enhancement Through Innovation

Ever heard of a revolution that started with bananas? Well, then one has to listen to the story of farmers in Bhagalpur, Bihar. The farmers of this district are making a profit out this healthy fruit by natural resource-based farming under UPNRM.

Despite the important contribution of the banana crop to Bihar state's economy and food security, low productivity of the fruit is still a concern. It is mainly due to unproductive conventional farming practices such as the usage of low yielding traditional banana varieties and inefficient irrigation techniques.



In order to address these challenges and concerns, Indian Rural Association (IRA) working in Bhagalpur district towards enhancing livelihoods, introduced the tissue culture technique for banana cultivation under UPNRM. The project focused on working with 200 small and marginal farmers, who were provided loan for undertaking tissue culture banana farming cultivation. The farmers were also encouraged to make use of the waste generated through the extraction of banana fibres from pseudo-stem and establish vermicompost units in their fields.

Tissue culture is an advanced and rapid propagation technique to mass-produce superior grade prototype planting material under artificial conditions. This technique is used to produce selected plants of desirable agricultural qualities in large quantities from small pieces of plant in relatively short periods of time.

The project from 2011 to 2015 received funding from NABARD in the form of a loan and a grant to IRA. The loan of INR 12.10 million (151,250 Euro) was provided to IRA and was on-lent by IRA to farmers for adopting tissue culture banana farming in their fields by the provision of hardened tissue culture plant saplings. Besides tissue culture cultivation, intercropping and establishing storage infrastructure, poly and net house were also supported under the project. The grant component under the project was for INR 1.51 million (18,875 Euro) and was used for mobilising farmers, organising training, exposure visits and establishing a village knowledge centre.



IRA formed an association with two more NGOs, Utkrishet Sewa Sansthan (USS) and Saurya Shakti Sewa Samiti (SSSS) in this UPNRM initiative. IRA took the responsibility of coordination with NABARD to avail loan and disburse it to the farmers and to establish infrastructure. While USS was accountable for mobilising farmers for adopting the tissue culture and train these farmers on the cultivation practices, SSSS was responsible for creating marketing linkages for the farmers. Monitoring of field activities was shared by all the three partners.



The project had a tremendous impact on the farmer's income through improved banana production and increased yields. The production increased from 26 tonnes per acre in conventional cultivation to 35 tonnes per acre in tissue culture, which was nearly 34.6 per cent increase in the yield.

Additionally, intercropping of maize provided the farmer with additional sources of income through the sale of maize and fodder. The use of vermicompost has helped the farmers to decrease the usage of chemical fertilisers and thereby reduced the input costs. The project also successfully demonstrated the extraction of fibres from the waste banana pseudostem.

The tissue culture project that began with 200 beneficiaries in Bihpur block in Bhagalpur district, is now being practiced in nearby blocks and neighbouring districts. Increased women participation by engaging them in banana fibre extraction through self-help groups is an added feather to the project's success.

The UPNRM initiative that promoted tissue culture in banana farming has created massive waves of social and economic transformation in Bhagalpur.







Reviving Paddy

Through SRI

Satish Hegde feels great pride every day seeing his flourishing green paddy fields. He is a farmer from Udupi who has been recognised by the Department of Agriculture, Government of Karnataka, for achieving an exceptional rice yield of 24 quintals per acre. Satish's achievement is noteworthy since the farmers were abandoning paddy cultivation in this region due to declining yield, groundwater depletion and the lure of more profitable cash crops like rubber, areca nut and coconut. It all became possible after the UPNRM's System of Rice Intensification (SRI) based initiative in the region.



SRI promotes a suite of practices that involve changes in nursery management, time and mode of transplanting, and water and weed management. The key interventions under SRI are the preparation of high-quality land, use of compost or farmyard manure, development of nutrient-rich and un-flooded nurseries, early transplantation of younger seedlings, wider spacing between seedlings, frequent inter-cultivation with weeder and a careful application of water that moistens plants' roots without perpetually submerging them.



By recognising the need for a radical change in agricultural practices in the region, Shri Kshethra Dharmasthala Rural Development Project (SKDRDP) decided to introduce SRI in eight rice-growing districts—Dakshin Kannada, Uttara Kannada, Udupi, Chikmagalur, Shimoga, Dharwad, Haveri and Gadag. NABARD sanctioned financial support in the form of a loan and a grant to SKDRDP in two phases. The loan—INR 208.50 million (2.6 million Euro) in Phase 1 and INR 188.20 million (2.34 million Euro) in Phase 2—was on-lent by SKDRDP to the farmers for adopting SRI practices, while the grant was used for training and administration.

However, the farmers were reluctant in the beginning. They were sceptical of getting a higher yield with less input. SKDRDP, therefore, decided to handhold the farmers through four cultivation cycles to support them to be familiarised with the new method. The introduction of simple, gender-friendly technologies like cono-weeders has made weeding, which is generally done by women easier. The rice yield under the project doubled from 14 quintals per acre to 28 quintals per acre, while the cost of cultivation reduced by 40 per cent. This raised farmers' income from an acre of paddy from INR 10,000 (125 Euro) to INR 25,000 (313 Euro) per crop.



In 2012, the project was extended to seven more districts of Karnataka leading to large-scale implementation of SRI. By 2014, 46,000 small and marginal farmers across Karnataka had been benefited by the project. Use of Azolla, encouraged under SRI, fixes nitrogen in the soil, controls weed and helps in moisture retention in the soil. Use of cono-weeders substantially reduced the use of herbicides. Wider spacing of saplings and reduced watering keep the soil well-aerated, with profuse and diverse microorganisms increasing soil fertility.



The UPNRM project from 2010 to 2014, demonstrates how natural resources could be used effectively for better yield. This story of Karnataka farmers shows that SRI can definitely support revitalising the declining paddy farming across the country. Like Hegde, more farmers would be able to benefit from and take pride in greater achievements in showing the way to practice sustainable agriculture practices.





The Sweetness of Success

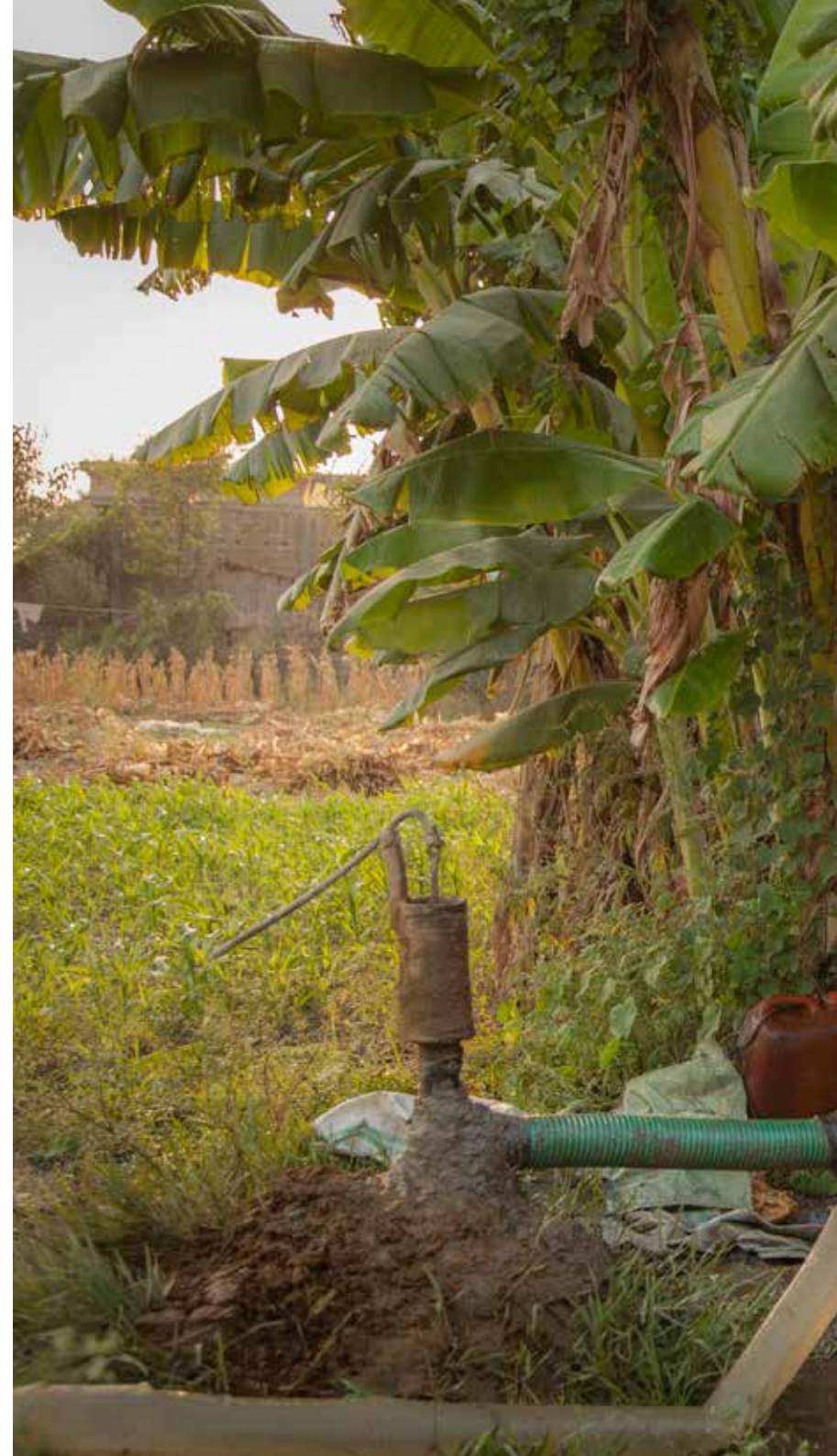
Rajkumar Mahanto gleams with joy as he holds the sugarcane stalks to show how tall and uniform they are. The farmer from Kursaha village of Bihar's Samastipur district is also delighted to describe the qualities of his products such as higher yield, less water usage, more sugar content and so on. These qualities can be attributed to the UPNRM initiative in Samastipur which improved the variety of sugarcane through a scientific, yet unconventional method of cultivation.



The project from 2013 to 2016 introduced new approaches like introduction of tissue-culture in sugarcane, bud-chip method, preparation of nursery, transplanting of young seedlings, wide spacing between plants and the use of biofertiliser as well as bio compost made from crop residue. The project began with 200 small and marginal farmers in Hasanpur block of the district in 2013 under UPNRM. At this time, the sugar mills in Samastipur were closing down as they could not increase the production. The farmers and sugar mill owners were struggling to make sugarcane farming a viable livelihood option. In order to address this crisis, the Indian Rural Association (IRA), an NGO, decided to introduce SSI in the Hasanpur in partnership with the Hasanpur Sugar Mill (HSM). NABARD sanctioned a blend of a term loan of INR 11.40 million (0.14 million Euro) and grant of INR 1.50 million (18,750 Euro) from 2013 to 2016. Today, inspired by the UPNRM success, more than 1,000 farmers in Samastipur district have adopted this revolutionising method called Sustainable Sugarcane Initiative (SSI).



The assured buyback arrangement of sugarcane from HSM encouraged farmers to adopt SSI. HSM supplied quality saplings to farmers at negotiated prices from its own nursery. The mill also actively took part in the capacity building and loan documentation components of the project. As sugarcane has long gestation periods, intercropping provided farmers with an improved steady income. It also reduced soil erosion. An added benefit of this initiative is that it has encouraged more women participation. Under the project, 70 per cent of the farm activities were carried out by women.



The project participants could also make use of the diesel subsidy for irrigation provided by the Bihar state government. Many farmers bought water pumps and thereby reducing their dependence on rainfed irrigation. The tissue-culture method also helped farmers save irrigation-water. As more farmers adopted SSI techniques, sugarcane sapling nurseries sprouted in the region, selling single budded chip saplings ready to be transplanted into the fields.



HSM has also started to prepare biofertilisers in its laboratories. While offloading sugarcane at the mill, farmers buy bio fertilisers for the next crop at subsidised rates. The use of biofertilisers has significantly increased soil health in the region. HSM too could register increases in its sugarcane recovery, making it a Win-Win proposition for both the sugar mill and the farmers.



By witnessing the success of the UPNRM project, the Bihar government launched a special subsidy scheme to promote SSI, a better alternative to the conventional seed- and water-intensive sugarcane cultivation. The state government has also set itself a target of increasing the area under sugarcane cultivation to 3.50 million hectares by 2022 while promoting SSI.

SSI can be a game-changer in the sugarcane-growing districts in India, especially since the natural resources have been deteriorating due to overdependence. As farmers in Samastipur are discovering to their delight, SSI also provides greater resilience to climate change.





The Fragrance of

Unity and Success

This UPNRM initiative in Andhra Pradesh tells the story of how the Jasmine farmers in Krishna district became their own marketers while adopting precision farming techniques. The local farmers' collectives have been successfully marketing their own products since the project started in 2012.



Before the UPNRM intervention, farmers in the region were heavily dependent on middlemen to sell their Jasmine flowers as it is a highly perishable commodity. There were times when they were not even getting back the cost of plucking. Not being familiar with efficient ways of farming, the crop cultivation was unsustainable. Many farmers were on the verge of giving up the cultivation of this important commercial crop altogether.

The NGO NESTHAM, working with the farmers in the region since the late 1990s, recognised the need of collectivising the Jasmine farmers into a single commodity group to directly access markets and improve productivity through precision farming techniques.



NESTHAM implemented the UPNRM project through a blend of loan of INR 6.8 million (85,000 Euro) and a grant of INR 1 million (12,500 Euro). With the loan amount, the NGO purchased weighing machines and two vehicles and additionally built a market yard to facilitate the transparent selling and buying of Jasmine flowers. The grant was used for trainings, exposure visits and related costs for ensuring that the market linkages and precision farming became sustainable.



The project marked the beginning of a magnificent journey for the Jasmine farmers of Krishna district. Around 150 farmers, including men and women, joined as members of Veeranjaneya Farmers Mutually Aided Cooperative Marketing Society to take collective decisions regarding the selling and market price of the Jasmine flower.



The project introduced precision farming practices in order to ensure the judicious use of natural resources and reduce the cost of cultivation. A collaboration with the Department of Horticulture, Andhra Pradesh and Tamil Nadu Agriculture University was made possible by NESTHAM to identify the precision farming measures and introduce efficient drip irrigation techniques.



Jasmine gardens that adopt conventional flood irrigation are affected by frequent weed growth. By adopting drip irrigation, the gardens are not only saving water, but also furthermore experienced better growth of the flowers due to less weed infestation. Precision farming allowed for a judicious application of chemical fertilisers. All of these factors have significantly improved the soil conditions as well as the farmers' incomes.



With an increased productivity and enhanced profits through collectivisation, the Jasmine farmers are now keen to expand their activities and markets. Today, about 12 tonnes of Jasmine is produced per day by small, marginal and tenant farmers spread over 22 villages in the district. The flowers are transported to bigger markets like the ones in Hyderabad and Vijayawada.



The project has been able to unify both farm management and supply chain management through increased farmer ownership.

The project not only brought economic benefits to the farmers but also enabled them to unite for a cause that gave them prosperity. It impacted their spirit of togetherness and overall well-being. The success of this intervention holds promising prospects of its replication across different states in India.





Watering for Prosperity

The *Adivasi* farmers (Santhal tribe) of Bankura and Purulia are rewriting their life stories through a UPNRM initiative that has given support for sustainable livelihood opportunities. Agriculture and animal husbandry are key livelihood sources in these two districts in West Bengal. Bankura struggles with socio-economic backwardness with a large percentage of the Santhal tribe's overdependence on agriculture that is characterised by low levels of technological adoption and farm mechanisation, unscientific cultivation practices and limited access to irrigation.



The Socio-Economic Development Programme – Ranibandh (SEDP – Ranibandh), has been working with the local farmers for over a decade and was familiar with local challenges. A watershed development programme was implemented from 2005 till 2012 in this region that helped in increasing surface water availability through the development of water harvesting and storage structures like ponds and check-dams. However, the issue of ineffective irrigation remained as farmers lacked access to appropriate technologies and mechanisms to lift and pump water from the structures to irrigate their fields. The farmers also lacked access to credit further increasing their overall vulnerability.

This is when SEDP approached NABARD for funding under UPNRM to support post-watershed livelihood activities. The project from 2013 to 2020 aimed at improving access to finance for the farmers and enabling them to adopt improved agricultural practices. The project received funding from NABARD in the form of a 7-year term loan of INR 5.17 million (64,625 Euro) as well as a grant of INR 0.6 million (7,975 Euro).



The project supported the purchase of farm equipment like irrigation pump sets and power tillers that may further be used to establish mini custom hiring centres (CHCs) to improve access to this equipment in the project areas. The project also focused livelihood diversification through an improved package of practices and establishment of goatery and piggery units. The farmers were provided training on ways to operate and maintain the equipment and sustainable and scientific farming and animal husbandry practices. SEDP were able to bring in the support of the local institutions like VWCs, SHGs, JLGs for the successful project implementation.



After the project implementation, the farmers of Bankura and Purulia have better access to mechanical equipment in their farms. With proper training on effective usage and maintenance, the farmers in the village have been able to cultivate with increased efficiency. This has led to the improvement in the yield quantities and as a result, the farmers were able to pay back their loans on time. The focus on establishing goateries and piggeries has also led to an increase in their income.



These sustained achievements of the project are mainly reliant upon SEDP's efforts on improving the market linkages for the farmers. Farmer Producer Organisations (FPOs) formed for collaborating the collection and transportation of meat and other agricultural produce to large institutional buyers not only increased marketing possibilities but also the sense of unity and mutual support among the communities.

Based on the favourable project impact, GIZ is also supporting SEDP for efficient water use by promoting solar-based micro irrigation as well as introducing irrigation water-based pricing among farmers' groups.

The UPNRM project in Bankura and Purulia showcase how to reinvent traditional livelihoods and make them sustainable and profit-generating by providing effective financial and technical support.





Dhule to Change Through Farming

its Future Innovative Practices

Being one of the most backward districts in Maharashtra, Dhule has nearly 54 per cent of the households living Below Poverty Line (BPL). Agriculture is the primary income source in this district with more than 70 per cent of the population depending on rain-fed, subsistence-based cropping system. Therefore, farming poses risks related to poor productivity due to erratic monsoon patterns and recurrent dry spell in the region. Although livestock rearing is an allied livelihood activity in the region, the productivity of the non-descript local breed is low.



The UPNRM initiative brought in a whip of fresh breeze in Dhule by developing a project that focused on improving the economic and living conditions of small and marginal farmers through sustainable interventions.





The three major focus areas of the project were: efficient water management, promotion of sustainable agricultural practices and integrated animal husbandry. These focus areas included activities such as the construction of group wells and installation of drip irrigation systems; crop diversification and organic matter recycling; and introducing improved cattle breeds, better fodder availability and renewable clean energy sources like biogas.

The project was implemented in three phases between 2012 and 2019 (phase 1: 2012 - 2015; phase 2: 2013 – 2016 and phase 3: 2016 – 2019), across 135 villages in Sakri, Shirpur and Sindhkheda blocks by the NGO - Lupin Human Welfare & Research Foundation, Dhule.

A loan amount of INR 97.3 million (12, 16,375 Euro) under three phases was sanctioned under the project by NABARD for the purpose of vegetable cultivation with drip irrigation, group well construction with pumping devices, cattle induction, setting up of biogas units and vermicomposting units spread over 3 phases. The grant amount of INR 8.2 million (1,03,326 Euro) was utilised for capacity building of beneficiaries which included training and exposure visits. The project also has been able to effectively leverage the time-bound credit at doorstep facility in convergence with other government schemes, private sector grants and CSR funds (Lupin).



The project promoted an innovative approach of the group-well scheme for small and marginal farmers who could not afford the construction of individual wells for themselves. Thus different farmer groups were formed, with each group consisting of 4-5 farmers. Each group of farmers together owned a well with well-laid out beneficiary sharing mechanism. Besides loan under UPNRM and farmers' contribution, LHWRF also supported with CSR funds for well-construction. Vijay Gangram from Mapalgaon, one of the successful participants of the project, is now able to cultivate a second crop and with the additional income and has initiated poultry farming as well.



The project has aided to reduce migration in the region and improve income through its various components. While group wells assured irrigation and increase in cropping intensity, cash crop cultivation ensured efficient use of available water and compost resulting in increased productivity. The integrated animal husbandry practices contributed to increasing the milk yield and ensuring quality linked prices to the farmers through village-level milk collection centres. The concept of collective ownership and maintenance has created a magnificent change that the community has been able to manage natural resources more efficiently while deriving significant financial benefits for themselves. The project has also created linkages between the vegetable producers and major markets in and around the area mainly in Dhule, Nashik and Surat in order to create better marketing opportunities of the farm produces.

The project has been able to introduce an additional regular income-generating activity in several villages leading to the social upliftment of many poor and marginalised farmer families. The farmers of Dhule have been part of a path-breaking movement which facilitated them to achieve enhanced well-being through community strength and sustainable livelihood practices.





Meenakshipuram's Towards Self

Journey Sufficiency

Meenakshipuram village in Dindigul, Tamil Nadu, surrounded by the protected *Sirumalai* Forest Reserve, houses 158 families including *Adivasi* communities. They lead a nomadic life, shifting from one place to another in order to seek shelter from extreme weather conditions and wild animals. This remote region is inflicted with extreme poverty owing to the lack of sustainable livelihood options and basic infrastructure facilities. The community is mainly dependent on agriculture for their livelihoods but poor market access due to tough terrain and poor road connectivity act as barriers to earning a competitive income for their produce.



Centre for Rural Education and Development (CRED), a non-governmental organisation (NGO), designed a project under UPNRM to encourage the community to take up sustainable agriculture and sheep rearing as income-generating activities. The project not only aimed to provide sustainable livelihood opportunities to the community but also contributed to the development of the region.

NABARD provided support to CRED in the form of blended finance (2013-2017). A loan of INR 2.40 million (30,728 Euro) was disbursed for undertaking land development, soil and water conservation, coffee and pepper cultivation, organic cultivation of vegetables, cultivation of the local variety of banana (*Sirumalai*) and for sheep rearing.



The grant support provided under UPNRM was INR 0.50 million (6,800 Euro) and it was spent on the training and capacity building of the beneficiaries on organic cultivation, and distribution of smokeless chulhas and solar lanterns to the project beneficiaries. CRED also aligned its work with the Central Government scheme for the installation of solar lighting systems in 30 households. The project was able to create sustainable livelihood opportunities for the residents of Meenakshipuram by promoting organic cultivation of vegetables, coffee, pepper and Sirumalai banana. The income of the community has considerably increased since the project implementation. Karippeya, one of the project participants, has a two-acre field where he cultivates chow-chow. He sells his produce at the market in Dindigul. His profits have now increased to INR 10,000 (125 Euro) from INR 1,000-1,500 (12.50-18.75 Euro) per month.



At the same time, the project also contributed to the socio-economic development of the region by providing access to electricity, enhancing road connectivity, and developing infrastructure.

As the village is surrounded by the reserve forest area, wild animals would quite often stray into the village, scaring/injuring the villagers. The installation of solar lighting systems and lanterns has alleviated these concerns. Road and other infrastructure development also contributed to the development in the region.



Introduction of organic farming in the region reduced the use of chemical fertilisers and pesticides, improving soil health. It also has equipped the community in a better manner to combat climate change. By promoting the cultivation of native species of banana, the project has taken a step to conserve biodiversity in the region. Through UPNRM, Meenakshipuram could trigger the process of change and enhanced well-being through sustainable livelihoods. The farmers have commenced a glorious transformation towards self-sufficiency through this project.





Back to the Livelihood

Nature for Enhancement

Until a few years ago, Gantila Manikyam from Maorjampadu village in Guntur district of Andhra Pradesh used to work in the limestone factories in the region along with her underaged son. Her life turned a new leaf when the UPNRM project introduced a cluster of sustainable livelihoods to the marginalised communities of Palanadu region of Guntur district. The project titled 'Promotion of NRM-based Sustainable Livelihoods for Marginalised Poor and Tribes' has used the natural resources in the area to diversify livelihoods for the farmers in the region through nine major activities. This not only helped them earn a steady income and save expenses but also offered a range of eco-friendly revenue sources.



In order to promote NRM-based sustainable livelihoods in the area and ensure accessibility to finance, NABARD, supported the Society for Education Research of Vulnerable and Indigenous Communities Empowerment (SERVICE), working with marginalised communities in the area. With a deep understanding of the region through its previous watershed project, NABARD sanctioned a loan amount of INR 2.08 million (260,075 Euro) and a grant amount of INR 1.56 million (19,553.75 Euro) for the project.



The project was implemented in two phases. The first phase from 2010-2015 contained nine livelihood activities—dairy farming, biogas units, vermicomposting, tank silt application, chilli drying sheets, shade-net nurseries, natural pest management (NPM), organic farming, and system of rice intensification (SRI)—being taken up.

Improvement in the lives of the project participants was clearly visible since the implementation of the project. For example, those who took a loan for dairy farming like Gantila Manikyam, saw their graded murrah buffaloes produce a higher quantity of milk, with a better fat content, thus earning them a higher income. Today, Gantila is the proud owner of 10 graded buffaloes from the most productive buffalo breed Murrah and earns INR 30,000 (375 Euro) per month from the milk alone.



The second phase from 2013-2018 focused on the promotion of integrated dairy farming (including dairy farming, biogas and composting), tank silt application, shade-net nurseries and the setting up of a vermin hatchery. The technical and financial support provided to beneficiaries in terms of linking to subsidy schemes and upgrading of their skills through seminars, training, and other awareness programmes also contributed to the final outcome. The Guntur UPNRM project has showcased a natural resource-based livelihood diversification initiative could reinstate hope in the lives of rural marginalised communities by tremendously improving their income capacities.







For the Land
Land, by

from the
the People

UPNRM has demonstrated the prospect of livelihood diversification for the *Adivasi* communities in Idukki district of Kerala. The project showcased how to diversify livelihoods by optimally utilising natural resources. Although Idukki is blessed with commercial crops like rubber, cardamom, tea, pepper and coffee, several land areas have become uncultivable due to heavy soil erosion. The overuse of chemical fertilisers, land fragmentation and rampant deforestation also were major challenges that the region was facing.





UPNRM project initiated in 2014 for a period of six years by Peermade Development Society (PDS), found a way to address this issue by through the sustainable management of existing natural resources. NABARD provided a loan of INR 56.8 million (0.71 Euro) to PDS over a period of three years, as well as a grant of INR 7.8 million (97,500 Euro). While the loan was credited by PDS directly into the account of an individual SHG member to take up the various activities, the grant amount was utilised to train the farmers, animators and SHGs, as well as to hire support staff to monitor and implement the project activities.



Being familiar in working with the local topography and the *Adivasi* communities of Idukki, PDS was able to successfully collectivise the farmers through already existing SHGs. They formulated a spectrum of activities, which included building stone bunds to minimise soil erosion, building rainwater harvesting tanks and renovation of open wells. The project also carried out livelihood promotion activities such as pepper and cardamom cultivation, poultry farming, dairy farming, stall-fed goat rearing, cultivation of bananas and tuber crops.





Women constituted 80 per cent of the beneficiaries. Abitha from Upputhara village is happy that her overall farm productivity increased after stone bunds were created for minimizing soil run off. The SHG model also endorsed the values such as self-reliance, ownership and financial discipline among the local communities, ensuring that the farmers were able to pay back loans on time.



This variety of activities ensured an improved integration between different agricultural options and opportunities. The project enhanced the farmers' incomes, increased soil conservation and subsequently reduced the number of landslides due to the terracing of the land. The farmers also learned to manage their businesses and brand their products in a more efficient way.



This participatory approach of the project ensured greater community ownership.

Today, the certified organic produce from the region promoted by PDS, is being exported abroad, finding new markets across the United States, Germany, Japan, Austria, the Middle East and the Netherlands.



The project-success highlights the importance of customised interventions and improved practices in managing local resources can usher-in prosperity among the rural masses. All this through a financing approach that recognised the specific business model needs while the grant support helped to clear the hurdles faced by the small farmers and village communities by coming together to develop their agricultural and allied activities into profitable and sustainable enterprises.





Rayagada Greener

on a Path

The *Adivasi* communities in Rayagada district, Odisha are primarily dependent on traditional agricultural forms. However, food security remains a primary concern in the region due to limited awareness about scientific and sustainable agriculture practices amongst these small and marginal farmers.



Over the past few years, under the UPNRM initiative, the farmers of Rayagada are on a mission to minimize the risks of weather extremities and market fluctuations by cultivating a variety of vegetables on just a 50-cent piece of land. This practice of integrated vegetable cultivation (IVC) has resulted in significant market gains for the farmers and is thus seen as a possible solution to ease farmer distress. This initiative has begun a new era of regional prosperity and food security, especially for the farmers belonging to the 'Kondh' *Adivasi* community.



The UPNRM project from 2016 to 2019 has enabled the farmers of Rayagada to secure a decent livelihood throughout the year by effectively using their farmland and resources, thus reversing the distressed migration trend that had otherwise become a common household phenomenon. The expansion of agricultural support in the form of solar-powered irrigation pumps, drip irrigation systems and farm insurance further enhanced this initiative as a means of sustainable livelihood.

The project was led by Patneshwari Agri Producer's Cooperative Limited (PAPCL) in collaboration with Harsha Trust, a local Non-Governmental Organisation (NGO) and Sir Dorabji Tata Trust (SDTT) while achieving collective success through the formation of Joint Liability Groups (JLGs). It was implemented in three phases, led and overseen by PAPCL. In addition to adopting the IVC package of practice, fixing wire fences and creating water sources to improve the water use efficiency, enabled the farmers to undertake year-round cultivation to ensure better utilisation of their land and resources.





NABARD disbursed a term loan of INR 16.4 million (205,747 Euro) to PAPCL and SDTT supplemented NABARD with INR 33.952 million (425,605 Euro) to extend the project activities to include support infrastructures such as solar-powered pumps and wired fencing into the ambit of the project. This further smoothed the financial and operational burdens of the farmers. Also, INR 1.36 million (17,062 Euro) was provided as the grant amount under UPNRM.



The integrated vegetable cultivation project has increased the income of the targeted families by INR 72,000 (900 Euro) annually. The farmer cooperative formed under this initiative guaranteed fair pricing for the farm produce and gave collective bargaining powers to farmers. The use of eco-friendly and natural farm inputs like cow urine as pesticide and dung as manure has led to an overall improvement in soil quality and soil productivity.

The integrated vegetable cultivation project in Rayagada also echoes profoundly on the UN earmarked Sustainable Development Goals (SDG) such as poverty eradication, decent work and economic growth and climate action. This UPNRM project has the potential to transform several regions of India through horticulture and to ensure stable livelihood opportunities to poor and marginal farmers. Each smile with contentment from Rayagada is a clear proof for that. Projects like not only tackle with immediate income crises but also carve out a way for sustainable livelihoods.





Women-led Enterprises

Advancing women's economic and social status has multiplier effects across the spectrum of development. Therefore, gender equality is one of the important focus areas in rural livelihood projects. By achieving financial independence, women have enhanced social status, can provide income support to their families, and can contribute to decision making in their households.

Unleashing the entrepreneurial spirit and leadership of women provides a unique opportunity to breach some of the social and financial barriers. Through UPNRM projects on women-led enterprises, not only have the projects resulted in creating livelihood initiatives, but have also achieved economic independence, overcome poverty through asset building and improved their well-being as well as that of their families and communities.





The Women-led

Triumph

The *Adivasi* women of Dumka and Godda in Jharkhand have begun a silent yet powerful revolution by revamping poultry farming business in the region. UPNRM is an innovative combination of traditional activity and modern approach. The women members of local SHGs are given inputs, professional help and guidance by the poultry cooperative formed under the project.



Professional Assistance for Development Action (PRADAN), with several years of experience in the region, decided to support the poultry business as a collective and achieve economies of scale. This was important since poultry is a risky venture prone to fluctuations in market demand and prices as well as disease outbreaks. PRADAN designed a business model that promoted individually owned poultry units, while the procurement of inputs and the sale of broilers were collectivised through cooperative societies. It helped the members from being exposed to market risks as they were just paid for rearing the birds well.





The poultry cooperatives, however, lacked financial support. In 2011, NABARD sanctioned blended finance under UPNRM that included term loans of INR 20.80 million (260,000 Euro) given to Jharkhand Women Self-Supporting Poultry Co-operative Federation Ltd (JWSSPCFL)- a state-level women federation. The federation on-lent the money to the two cooperatives in Dumka and Godda for the requirement of working capital and for procuring equipment. A total grant amount of 3.30 million (41,250 Euro) was utilised for training and capacity building and for establishing accounting and management systems. The federation also received funds from the government schemes such as National Cooperative Development Corporation, Special Swarnajayanti Gram Swarozgar Yojana and the Tribal Development Fund.

A photograph of a man with dark, curly hair and a mustache, wearing a red button-down shirt, sitting at a desk. He is looking towards the right with a slight smile. In front of him is a computer monitor and keyboard. To his right, another person's hands are visible, counting stacks of Indian currency notes. The background shows a desk with a computer tower, a printer, and shelves with various items, including what appear to be awards or certificates. The lighting is somewhat dim, with a greenish tint in the background.

Under the project from 2011 to 2018, the supervisors of the cooperatives ensured timely delivery of feed, medicines and vaccines; monitor broilers' health; and facilitate their sale. A demand-based strategy was adopted to to improve the market linkages. The number of days for rearing was determined as per the market preference. For example, in Dumka, small broiler birds were in demand, so the production cycle there was limited to 26-28 days. On the other hand, the Godda cooperative reared birds for around 45 days to increase the weight targeting the restaurants in the area.



The women who gained financial independence through the project are beyond proud as they have opened up bank accounts for their own savings. Anita, from Godda, is so proud of herself that she does not have to depend on her husband for money for the day-to-day expenses. Many like Anita, through this initiative, are confidently running the poultry farms without any hesitation to raise their concerns and opinions.

The project shows how rural poultry farms can be collectivized to introduce best practices, raise production and yield profits while providing a livelihood to the poor.



A woman is sitting on a large pile of harvested oysters in a dimly lit room. She is wearing a blue top and a dark headscarf. The oysters are piled high, and the background shows a stone wall with some hanging items.

Oyster Farming in Women-led

Jamui: A Success Story

Although agriculture is the primary livelihood choice of the farmers in Jamui, Bihar, limited irrigation facilities and fragmented land holdings were hindrances. Jamui district has a significant *Adivasi* population and it is in close proximity to the Naxal affected areas. The local communities have been subjected to extreme marginalisation and lack of opportunities. Many of them used to migrate out of Jamui in search of labour and other employment opportunities.



The UPNRM project in Jamui was introduced in this context. Social Action for Rural Development (SARDA), a local NGO, decided to work with the farmers in Jamui. Sensing the need to engage women into constructive and remunerative activities to create sustainable livelihoods, SARDA initiated an extensive oyster mushroom cultivation project under UPNRM. With benefits like minimal use of water for oyster mushroom cultivation, non-requirement of land and the suitable climatic conditions in Jamui, the project was ideal for the region. SARDA led the cultivation of oyster mushrooms at a commercial scale across 10 villages in the Gidhour block of Jamui.

The project from 2013 to 2017 targeted women beneficiaries who were willing to take up alternate livelihood activities. Oyster mushroom cultivation was introduced in the area to 150 women beneficiaries, reducing their dependence on subsistence agriculture. The spawn unit established ensured the continuous availability of quality spawn for the beneficiaries under the UPNRM project. This less water-intensive activity ensured a sustainable alternative source of livelihood for the member families all year, with added benefits such as increased incomes, improved nutrition intake and decrease in out-migration. The project received financial support from NABARD in the form of a loan and grant to SARDA. A term loan of INR 1.43 million (17,918 Euro) and a grant component of INR 0.10 million (1,267 Euro) was disbursed by NABARD for the various project components.

Since the project implementation, the income of the 150 beneficiaries increased significantly thereby reducing their dependence over traditional rainfed agriculture. The project also provided a less labour-intensive livelihood opportunity to women beneficiaries, reducing the drudgery of agriculture and casual labour work.

The nutritional intake of the beneficiaries increased with the rising availability of oyster mushroom. The oyster mushrooms produced through the project were not only safe for human consumption but nutritious as well. The promotion of oyster mushroom under the project not only benefitted the households economically but also assisted in the conservation of natural resources. Oyster mushroom cultivation required comparatively less amount of water against any other agriculture or horticulture crop. The UPNRM project in Jamui demonstrates how livelihood enhancement initiatives become successful when those are framed around principles like community need, participation and sustainability.







Uttarakhand

Warms up to Wool

This UPNRM project has found a way to revive the traditional wool industry in Tehri Garhwal district of Uttarakhand, assuring, once again, the local weavers and shepherds of a steady income. From this women-led initiative, about 15,000 weavers and dozens of shepherds have been benefitted in the region.





This project facilitates buying traditional wool (particularly Harsil variety) from the local shepherds and processing it into yarn in several stages, such as sorting, washing, carding, spinning and calendaring. While some quantity of the wool is sold to weavers and artisans, the rest is utilised by women SHG members, attached to the project.

The mantra of revival of this traditional wool industry lays in making it competitive to be purchased by the flourishing wool industry in Punjab. To this end, Bharatiya Grammothan Sansthan (BGS), an organisation working with local wool producers and weavers for two decades in Uttarakhand, established a Common Facility Centre (CFC) in Tehri Garhwal. The centre procured machinery for processing wool and manufacturing finished products through a grant provided by the Ministry of Textiles, Government of India. However, adequate financial support was needed to run the CFC.





In 2012, BGS approached NABARD for the working capital loan under the UPNRM programme and received INR 4 million (50,000 Euro) as loan and INR 0.7 million (9,162 Euro) as grant. The loan was utilised to purchase and process raw material and manage labour costs, among other operating expenses. The grant was spent for awareness generation about scientific sheep-rearing practices, exposure visits for women and for training programmes for weavers to operate the machinery at the CFC.



Women were benefitted the most from the project, as it offered flexible working hours to them and a steady income to their families. With their improved skills, most of the women, whose main market comprised local residents and neighbours, are today able to earn an additional INR 5,000 to 10,000 (65 to 125 Euro) per month. What has really helped the women to be a strong component of this project was the constant support and motivation provided by the SHGs that ensured women participation, despite their personal struggles.





The project also had wide-reaching implications in terms of providing environmental benefits. As the sheep feed on plants that are often responsible for the spread of forest fires, these mishaps have also reduced.

Although most of the woven products are sold through a retail outlet, the CFC products have established credibility in the market by the creation of a common brand, 'Rural Mart' that is used for marketing. This aided CFC to place large orders with institutions such as the Ministry of Agriculture, Forest Research Institute and NABARD, as well as retailers like Fabindia.



Today, the project is generating income for sustaining its operations even beyond the financing period. Apart from economic benefits, the project has helped restore the lost pride of the people in the region by rejuvenating their traditional wool industry. It showcases a viable and replicable model for those regions where wool weaving is common, and communities are struggling to revive it. This UPNRM project is, thus, be an idea that can spread, like wildfire across such regions of India.



A photograph of two fishermen in a shallow, sandy area, likely a beach or a small inlet. They are both focused on pulling a large, green fishing net. The net is draped over the ground and partially submerged in the water. The lighting is warm and golden, suggesting late afternoon or early morning. The background shows the calm surface of the water meeting the sky.

Integrated Fisheries

As a dynamic approach that delivers sustainable production, integrated fisheries brings together modernity and traditional knowledge according to a given site and situation. It is an integration of fish, pig, poultry and vegetable production. Integrated fisheries also brings aquaculture to resource-poor, small-scale farmers who cannot afford expensive farm inputs.

Since livelihood development of small-scale farmers and effective natural resource management are key components of the UPNRM, integrated fisheries was a perfect fit in those regions of India which are blessed with copious water bodies. UPNRM, through its five integrated fisheries projects, has facilitated grass root mechanisms, such as improvised fish farming practices, market linkages, and convergence with government departments/ schemes, while preserving ecological balance. This has resulted in increased farmers' incomes, institution building, women's participation in fish farming activities and reduced out-migration.

The Assam integrated fish farming project of the UPNRM has been recognised as a "model project" for natural resource management and integrated fish farming by the Assam Administrative Staff College.





Integrated Assam: A

Fish Farming in Path to Reinvent Fishing Practices

The Integrated Fish Farming project in Kamrup district of Assam (2013 -18) is one of the most vibrant and remarkable success stories under the UPNRM. This initiative combined the best use of neglected natural resources with the much demanded prawn and fish in the state. The project led to the creation of Joint Liability Groups (JLGs), repayment of loans in advance and a ten times increase in incomes to the farmers.



One of the key interventions is the replacement of low-value fish dwelling at the bottom of the pond with a high-value prawn. Besides economic benefits, the less mobile nature of prawns saves the pond's lower embankments. Also, growing bananas on embankment and near vicinity of the fish ponds as part of integrated fisheries created an additional income for the farmers.



Kalong Kapili, a local NGO, motivated the communities for participation in the project idea and imparted the required training inputs. Under UPNRM, NABARD sanctioned the project as a loan-cum-grant product, while Kalong Kaplili provided the management and implementation support. The loan of INR 2 million (25,000 Euro) met the capital cost of renovation and repairing of ponds, and the input cost of buying prawn seeds and pelleted feed. The grant of INR 0.1 million (2,050 Euro) covered the expenses of training, field staff remuneration and monitoring of the project.



The loan availed by Kalong Kapili was used for on-lending to the JLGs. Forming JLGs proved to be an effective model for financing since the group was liable to repay the loan as a whole, which put “peer pressure” on individual members for timely repayment. The loan was repaid in three years, two years before time.

Noticing the impact of the intervention, the State Government also laid roads to facilitate better market access under MGNREGA. Irrigation department supported development of canals that is being used to drain out excess water during rainy season, thus avoiding flooding of ponds.



Due to these interventions, the average productivity increased by 400 per cent leading to an enhanced income of the fish farmers. From an average annual income of INR 15,000 (187.5 Euro) prior to the interventions, the household income has increased to about INR 0.1 to 0.15 million (1,250-1,875 Euro). Owing to the success of the programme, Assam Gramin Vikash Bank, the local Regional Rural Bank, has provided second-stage financing, supporting another 200 farmers by extending a loan of INR 0.1million (1,250 Euro) to each farmer to implement the UPNRM proven model.

Renu from Bagibari village was able to expand her livelihood from a single paddy crop to a combination of banana cultivation and kitchen garden. Success stories similar to Renu proved that the project not only created financial independence but also positively impacted on social mobilisation, community harmony and gender equality.

The project, as a next step, is also planning to use the potential of eco-tourism in the region through angling, fishing and “catch and cook” home stays which would create many more revenue sources and employment opportunities. The success story grows.





Fishing for
and

Prosperity Preservation

Vikas Behera worked as a wage labourer in Hyderabad, away from his family in Kendrapada district of Odisha due to the lack of employment opportunities at home. The status changed when his mother decided to be part of the integrated fish farming project under UPNRM in 2013. The project promoted the revival of the local ponds through integrated fish farming in order to generate income opportunities and to preserve natural resources. Like Vikas and his mother, several farmers in Kendrapada district are now reaping the benefits of integrating fish farming with livestock rearing and cultivating horticulture plantation.



The quality of water in Kendrapada and its silt-rich soil is ideal for fish growth. Also, the district has nearly 28,000 ponds. However, a large number of ponds have either been abandoned or their productivity is stagnating. Frequent floods and cyclones silt up the ponds or make their water saline. Not being familiar with modern technology, limited access to market and credit, coupled with high input costs have prevented farmers from exploring fish production furthermore.



The NGO, Gram-Utthan, was financially supported by NABARD in two phases under UPNRM to revive the ponds and ensure sustainable livelihood for the community in Kendrapada. The loan amount of INR 43.5 million (549,417 Euro) was extended to Gram Uthan to fish farmers. A grant of INR 4.2 million (52,994 Euro) was also extended to Gram Uthan for capacity building, trainings, awareness generation and exposure visits.



A total of 431 fish farmers, received credit under the project that developed 250 acres of unutilised ponds. In order to minimise the risks and generate higher incomes, fish farming has been integrated with fishery, poultry, dairy and horticulture activities. This model was formulated for ensuring better nutrition and optimal use of natural resources as the waste from one activity is a resource for another.

Duck droppings serve as feed for fish and the bird's foraging on insects and vermin keeps the pond clean. The paddling of ducks increases aeration supporting fish growth. The water from the pond is used for irrigation and the pond silt serves as fertiliser for fruit and vegetable crops. Cow dung is used not only as manure but also added to ponds to stimulate the growth of microbial flora and fauna, which is critical for fish cultivation. In short, integrated farming functioned as a perfectly balanced system complementing each other.



Such an approach had ecological benefits such as improved soil health and ground water restoring. Furthermore, efficient use of natural resources has reduced the cost of farming, while scientific approaches have increased fish yield from 500-800 kg/ha to 3000 kg/ha.

In order to create market linkages, the project organized the farmers into producer groups at the village and cluster levels. Going a step further, the NGO, of late, established four women Fish Farmer Producer Organisations (FFPOs) with the support of UPNRM to upscale the intervention. Extending the much-needed financing support to these FPOs by NABKISAN has turned a new leaf towards mainstreaming of this innovative fishery model.



It is believed that this model can very well be explored in similar geographical conditions, such as in the North East region, West Bengal, the Konkan region of Maharashtra, Kerala and Karnataka. This model not only provided a range of stable and viable livelihood choices but also promoted preservation of natural resources. The bankable business model developed through this initiative is now being used by various development and financing agencies to initiate similar interventions in other parts of India.







Non Timber Produce

Forest Development

Non-Timber Forest Produces (NTFPs) constitute a significant source of livelihood for millions of people from forest fringe communities across the world. In India, NTFPs are connected to the socio-economic and cultural life of forest-dependent communities throughout the country. A significant share of rural population, especially the indigenous communities, depend on NTFPs for at least part of their subsistence. However, depletion of natural resources is posing a huge threat to both ecological balance as well as the sustainability of NTFP-dependent livelihoods.

UPNRM has attempted to address this issue in pilots through its projects and has endeavoured to ensure sustainable livelihoods while – not disturbing the sanctity of forest ecosystem in the NTFP sector.



Livelihoods in Tune with Nature

An eco-friendly and low-cost method of honey collection enhanced ecological balance . The Centre for Bee Development (CBeeD) has created a sustainable way of honey collection by *Adivasi* communities in the Vidharbha region of Maharashtra.

Traditionally, these communities gather honey from the wild bee colonies by subduing the rockbees with smoke and breaking the hives located on high trees, steep cliffs etc.—a technique that often results in the physical destruction of the bee colonies. This has led to the near extinction of rockbees in these regions. Since the honey gatherers do not use any tools or safety equipment and collect honey under precarious conditions, their safety is also at risk. The honey bee collectors are often underpaid or exploited by middlemen as well.



In 2012, CBeeD conceptualized a project to promote sustainable honey collection practices and strengthening backward and forward linkages to sustain the seasonal livelihoods of these communities. The project aimed at promoting integrated welfare and continuity of the bee species, the collectors and the ecosystem at large.

The Sewagram Nisarg Technique of Rockbee Management (SNTRM) developed by CBeeD aims for safer and multifold extraction of wild honey and beeswax. Through SNTRM, CBeeD has been successful in ensuring a more sustainable means of livelihood to the local honey gatherers and a fair price for their collection through a guaranteed buy-back arrangement.



The project received financial support from UPNRM in the form of a loan-cum-grant to CBeeD. The loan amount of INR 2.4 million (30,500 Euro) was used for procuring honey through a buy-back arrangement, and for establishing capital infrastructure for Quality testing, storage, processing, packaging, bottling and brand development.



The grant of amount of INR 0.4 million (6,000 Euro) was used for training and to provide protective gear and collection kits (uniform, bucket, knife, torchlight, etc.) for addressing the occupational hazards of the honey harvesters.

Ram Prasad Thakade, who had been harvesting honey in the traditional way of smoking and destroying the beehive for the last 20 years, has received training in SNTRM from CBeeD and now he conducts similar training programs across the other bee collecting areas of Vidarbha region. He now earns about INR 70,000- 80,000 (875-1,000 Euro) from honey harvesting besides additional income from conducting training. Many traditional honey collectors in Vidarbha region of Maharashtra, like Ram Prasad, are now able to send their children to school as well as have health insurance facilities for their families with increased incomes.





CBeeD has also enabled these communities to have rightful access and movement in the forest to collect honey and beeswax (as per the Indian Forest Rights Act (FRA, 2006). Since the implementation of the project, nearly 5,000 natural nests of rockbees have been saved from destruction every year. The increase in bee-population has had impact on enhanced pollination and restoring biodiversity in the region. The collected honey is bottled, packaged and marketed under the brand name of 'Sewagram Nisarg Honey'. CBeeD is AGMARK certified to ensure pure and quality natural honey.

The ecological and economic benefits through this project are contributing to their financial inclusion in the formal banking systems, more secure standards of living and sustainable livelihoods. The success has huge replication potential in forested areas across India.





Agro Forestry

A land use system that allows farmlands and forests to exist hand in hand, agroforestry, is also a synonym for sustainable agriculture. This purposive combination of agriculture and forestry has several benefits, including improved biodiversity and reduced soil erosion. Agroforestry systems are multifunctional systems that can provide a wide range of economic, sociocultural, and environmental benefits. India is the first country in the world to adopt an Agroforestry Policy. The policy addresses the present challenges in agroforestry sector, including adverse policies, weak markets and a dearth of institutional finance.

Focus on agroforestry systems is crucial to smallholder farmers and other rural communities as it has the potential to enhance their food supply and income. Since UPNRM stresses on sustainable use of natural resources for enhancing livelihoods, agroforestry was promoted as a differentiated approach to supplement farmers' income. By collaborating with local NGOs, FPOs and the private sector, 10 agroforestry projects were sanctioned under UPNRM in the country. These projects have showcased how an otherwise economically unviable land can be used to promote sustainable agriculture and livelihoods.


The clonal eucalyptus plantation project in Koraput district of Odisha was one of the first successful interventions as it was the first UPNRM initiative registered under the United Nations Framework Convention on Climate Change's (UNFCCC) Clean Development Mechanism (CDM) for afforestation.

Sprouts of Wellbeing Through Innovative Farming Practices

The *Adivasi* farmers of Koraput, Odisha are moving towards a better future through the technologically advanced clonal eucalyptus plantations that use less water compared to the common varieties of eucalyptus. Small and marginal farmers are using their minimally productive uplands in a more profitable manner through this agro-forestry project.





A man with dark skin and short black hair is crouching in a plantation of young trees. He is wearing a white long-sleeved shirt, a red scarf, and dark patterned shorts. He is focused on a young tree in front of him, with his hands near its base. The trees are thin and have green leaves. The ground is covered with dry leaves and twigs. The background shows more trees and a bright sky.

Bina Bhumiya, is one among the many small scale farmers associated with this project, who has been able to achieve profits within five years of growing clonal eucalyptus plantation on his two acres of land. “Before this project I was facing extreme hardships to make my ends meet. However, now with the new plantation and much higher income, I have been able to renovate my house, educate my children and look after my family”.



The Patneshwari Agricultural Cooperative Society Limited (PACSL), a cooperative governed by progressive farmers, received financial assistance of INR 125 million (1.56 million Euro) from NABARD from 2009 (over 6 phases) under UPNRM for scaling up the project. Ballarpur Industries Limited (BILT), India's largest manufacturer of writing and printing paper, entered into a buyback arrangement and allocated its Corporate Social Responsibility (CSR) grant to support the cooperative's activities. The past experiences suggest that buy-back arrangements, particularly for long-duration projects, have their own challenges of honouring of commitments by the concerned stakeholders. This project also faced such challenges towards later part of implementation but was able to manage it successfully.

The project impact, however, has been quite impressive. Before the project implementation, the average income from one acre of land used to be INR 8,000-10,000 (100-125 Euro). Now, from one acre of clonal eucalyptus and intercropped plantation, the average income generated is more than INR 100,000 (1,250 Euro).

As an indirect impact, this UPNRM initiative has also enhanced women's agency through creating more livelihood opportunities. Many women have taken up income-generating activities in the paper value chain. At the BILT clonal sapling nursery, for example, around 95 per cent of the sapling preparation and nurturing activities are undertaken by women.





The project's success is extra luminous as it has been carried out in a region where people are facing extreme embedded poverty. Fragile topography, declining crop productivity, land degradation, illiteracy and marginalisation were the other challenges faced by the communities in the region. Favourable climate for planting clonal eucalyptus and the proximity to a renowned paper- manufacturing unit presented a strong potential for livelihood diversification in Koraput.

The scope of replicating this project is huge as the Indian paper industry is poised to have an accelerated growth in the coming decades. Involvement of multiple buyers in the buyback system (different paper mills) is crucial to avoid contingencies that can emanate due to dependency on a single buyer. This project has demonstrated that engagement of community in the supply chain in the paper sector is an approach that can be expanded to other areas.





Integrated Animal Husbandry

Livestock-based integrated farming system is a scientific approach to animal husbandry, that includes climate-smart practices that provide an opportunity for increasing economic yield of small and marginal farmers while reducing their green-house gas emissions. Various subsystems work together in an integrated farming system. This results in an additive effect on the total productivity than the sum of their individual production.

Sustainability is a key characteristic of integrated animal husbandry initiatives. UPNRM has promoted around 88 projects on this model to uplift the rural marginalised communities by diversifying livelihood opportunities. It has also concentrated on improving the existing livelihood choices through aptly designed financial and technological supports that take into account the practical viability aspects. One case example is discussed here.





Rural
The

Dairying Modern Way

India, the land of the White Revolution, has created history yet again by setting up modern, technologically-advanced demonstration dairy farms through the Kaira District Co-operative Milk Producers' Union, better known as Amul. It showcased the benefits of scientific dairy farming to milk unions and small-scale milk producers. Although India is the largest milk producer in the world, the dairy sector is yet to take full advantage of modern technology and practices.



Therefore, this project offered great potential to utilise the country's strength in a more productive way. To realise the potential of dairy farming, Kaira Union was supported by UPNRM through financial support to set up the Modern Dairy Demonstration Farm (MDDF) in Mogar village, close to Anand town, in the year 2016.

While NABARD extended financial support, the Kaira Union provided its technical expertise in dairying. The technical equipment related to care, grooming and milking of dairy animals was imported from a Canadian company. The company also trained the farm staff in using the equipment to improve their skill set.







The demonstration farm includes a scientifically designed cattle shed that provides online monitoring of cows, silage, dry fodder godown and an automated milking parlour. The farm has over 80 cows, mostly HF cross breed and a few indigenous Gir and Sahiwal breeds that are better adapted to regional climate. The scientific upkeep of animals was also aimed at progeny development. With better care and feeding, the milk yield of a cow has increased from 3,000-3,500 litres to 5,000 litres.





The modern farm also has adapted an environment-friendly approach in its functioning. It cultivates organic fodder in the adjacent land area using cow dung manure and slurry. 500 tonnes of green fodder is bought from small and marginal farmers at INR 2.15 (0.03 Euro) per kg, aiding as an additional source of income for the farmers. Vermicomposting units would be a part of the future expansion of the project.



This UPNRM project has portrayed how technology could be utilised for bringing efficiency in rural livelihoods. The farm has become an important centre of new learning and exposure for small-scale milk producers and milk unions on various aspects of dairy management.





Since the dairy sector is poised for accelerated growth in the coming years, the modernisation of dairy farms can be considered as a way forward. With this model proving successful and being replicated, a first step towards changing the limited use of technology and practices in the dairy sector has been achieved.





Alwar's Story of Accomplishment

The UPNRM initiative that connected agriculture to integrated animal husbandry created a wave of change for livelihood diversification in Alwar, Rajasthan. Through the project from 2016 to 2021, sustainable livelihood opportunities were promoted for farmers in Alwar district through financial support for purchasing Murrah buffalos; establishing biogas units; adopting organic farming; and for beekeeping. Farmers were also given support for vegetable cultivation, set up compost pits and grow Azolla as nutrient-rich fodder.

Alwar has gone through a splendid transformation within three years after the project implementation through improving the income and quality of life of the farmers. This project has enabled a platform for an innovative bank-NGO partnership where the Alwar Central Co-operative Bank (ACCB) collaborated with Mata Shree Gomati Jan Seva Nidhi (MSGD) under UPNRM, to promote NRM activities in Alwar district.



This hybridised Bank-NGO model of financing (along with CSR funding by MSGD) made the project unique in numerous ways. The project fore-grounded the strengths of the ACCB as a lender and MSGD as the allied implementing agency, for efficient credit delivery to the farmers. As a co-owner of the project, ACCB was responsible for loan disbursement and recovery from beneficiaries and MSGD took the responsibility to identify the potential beneficiaries, project implementation and loan recovery. The blended financing approach included a loan amount of INR 13.92 million (174,000 Euro) and a grant amount of INR 2.06 million (25,725 Euro) from NABARD to ACCB.

As part of the project-design, loans were to farmers by ACCB for diversification into high-value agricultural crops such as tomatoes, cauliflower, carrots, brinjal, onions, etc., thereby, raising their incomes. The use of organic manure generated from biogas units and compost pits helped in reducing the use of chemical fertilisers. This has brought down the input costs incurred by the farmers.





As innovation has been the distinguishing element of this UPNRM project, hydroponic units were set up to manage the shortage of fodder for livestock. Hydroponics is a technique to grow plants without soil in a water-based nutrient-rich solution. It takes less space, a shorter time span of growth and preserves water conservation with limited requirements of labour. The compost produced in the units is being used as nutrient-rich manure in the fields.





The multi-pronged nature of financial, technical, social and environmental inputs of this project has provided a strong base in sustainable farming both in agriculture and dairy in Alwar. This has catalysed in improving the quality of life of the people in this district and made them resilient to climate change impacts. The diversification and integration of multiple activities ensured sustainable livelihoods for the farmers and lessened the risks in farm activities.

Today, Alwar tells us a triumphant story through UPNRM with a solid three-party financial model—Bank-NGO-CSR funds—that could be re-told in other regions of India. The increased confidence of the farmers in the region gives it further strength and authenticity.





Milking

Sustainable Opportunities

Bharatpur has traditionally been an animal husbandry belt in Eastern Rajasthan. However, the dairy farmers faced problems due to lack of milk-yield as lack of technical knowhow of scientific dairy practices. In order to give a leg up for dairy and agricultural practices in Bharatpur, the UPNRM project was initiated by Lupin Human Welfare and Research Foundation (LHWRF) in 15 villages across 4 blocks of the district. The project from 2012 to 2017, aimed for developing technical know-how of local communities and increasing access to secure sources of finance.



The project also aimed to ensure that rural communities take active ownership of the interventions. It focused on animal husbandry, fodder and cattle management practices and other allied activities of improving cropping intensity and diversification, soil quality, health issues (relating to eyes and lungs caused by the use of conventional cook-stoves). In order to make these goals a reality, NABARD sanctioned a loan amount of INR 17.14 million (214,210 Euro) for the purchase of high milk yielding Murrah buffaloes, biogas plant construction, organic vegetable cultivation and vermicomposting. The grant amount of INR 1.38 million (17,250 Euro) was used in capacity building and awareness activities focused on proper rearing and management of milch animals, quality fodder development including multi-cut fodder variety, establishing a mobile veterinary unit, composting, organic cultivation techniques and for the facilitation of market linkages between farmers and markets. The Corporate Social Responsibility (CSR) funds were also invested by LHWRF for need-based services such as supporting part-premium payment for cattle insurance, the building of cattle sheds, promoting organic farming, piloting hydroponic units for ensuring green fodder availability, etc.

The project channel partner LHWRF developed a unique approach for the project implementation through a community ownership model. This model ensured the rightful identification of beneficiaries and timely loan recovery. Lupin had its representative in every project-village from amongst the village community and formed a group of progressive farmers called Lupin Gram Vikas Panchayat (LGVP) for this purpose. The project has covered 383 households under different interventions so far. Given the success of the project, the interventions were replicated in the neighbouring district of Dholpur under the second phase of UPNRM project, with an added inclusion of bulk milk cooler (BMC), moving upward in the value chain.







The project has successfully provided small and marginal farmers with a set of sustainable livelihood activities which not only addressed their income improvement but also the need of conservation of natural resources like soil and water, and health. The project is also a classic case of convergence with CSR funds. The Bharatpur project under UPNRM sets an example of how traditional farming practices could be preserved through innovative approaches while creating better income outputs.





Integrated A Synonym

Livestock Farming: for Sustainable Development

Integrated livestock farming project under UPNRM has given a leg-up to the local *Adivasi* communities of Chittoor by enabling them to rear the milch animals and much more. The project promoted integrated livestock rearing and allied activities such as fodder cultivation, azolla production, biogas generation and vermicomposting.

In 2008, NABARD started its '*wadi*' programme of scientific orchard development to support the Yanadi *Adivasis* of the region. Since the orchards have a long gestation period, the Mitra Association for Social Service (MASS), a Chittoor based NGO, introduced integrated livestock rearing as an additional source of income during this period. In 2009, NABARD provided MASS with blended finance support for such a project under UPNRM. A loan of INR131.24 lakh (165,875 Euro) and a grant of INR 22.03 lakh (278,88 Euro) was sanctioned. The uniqueness of this initiative was to form Joint Liability Groups (JLGs) comprising of 4-5 women members to avail loans for integrated animal husbandry.





Through these loans, each member purchased two to four cross-bred milch animals like Jersey and Holstein-Friesian (HF) cows that yield 8-10 litres of milk per day. Landless women were also included in sheep rearing activity by supporting them in purchasing 11 sheep (10 ewes and 1 ram). Cow dung (which when left unattended emits methane gas), is now used for biogas generation to a clean cooking fuel.





The slurry from the biogas units is used for vermicomposting to produce enriched organic manure. Besides, Azolla cultivation provided dairy farmers a highly nutritious cattle feed. A feed-mixing unit was also established for producing scientifically balanced feed for the animals. By project completion, 541 farmers were disbursed loans for purchasing milch cattle and 40 landless farmers for establishing sheep rearing units. Realising the benefits of integrated animal husbandry practices that led to increased incomes, these small and relatively poor farmers repaid the entire loan amount within the project time frame (2009-2015).



J. Jhansi Rani, a young woman from Egwakalldu village of Chittoor, who is now working in Bengaluru as a software engineer, recalls that it was her mother's decision to start a dairy unit under UPNRM that changed her life. As a result of the savings from the dairy unit and related activities, she could afford higher education of her daughter. Such stories of success and well-being are not rare anymore in Chittoor.



Working together for collective benefits through JLGs also improved inter-community harmony in the region. One of the biggest achievements of this UPNRM initiative was the women leadership and participation. Many women members in the project are now availing other financial support from banks for their other ventures. The integrated animal husbandry project of UPNRM clearly is a model that has scope for replication in other parts of the country too.





Salem Way” to

The “Milky Prosperity

The integrated dairy initiative under UPNRM was a smart choice in Salem since the region was known for being a milk producing hub. People from the villages of Salem have been engaged in cattle rearing for long to supplement their family incomes and minimise risks associated with farming. However, the lack of affordable credit to buy cattle limited the potential of dairy farming in this region.



It is at this time the Salem District Farmers Club Federation (SDFCF), decided to make use of Salem's dairy development ecosystem to create a platform for sustainable livelihoods to the local communities. SDFCF designed the project that provides easy credit to landless, small and marginal farmers as well as artisans, and connected them to the milk cooperatives in the region. The project also aimed to provide high-quality cattle feed, veterinary care and capacity development to the beneficiaries.



NABARD provided the financial support to this UPNRM initiative from 2013-2018. The loan amount of INR 12.33 million (154,212 Euro) was provided to the farmers to buy exotic Jersey and Holstein Friesians (HF) breeds of cows and animal insurance. The grant of INR 0.86 million (10,787 Euro) was used for purchasing equipment like milk cans, weighing machines and milk analysers. SDFCF also utilised the financial assistance for providing quality cattle feed, veterinary support and capacity building to the project beneficiaries.





SDFCF was able to make use of its existing relationship with the government departments to facilitate convergence with central schemes and programmes for this initiative. The Livestock Insurance Scheme of the Government of India, thus, ensured 50 per cent subsidy in the insurance premium, and the Department of Animal Husbandry offered training for dairy farmers in rearing exotic breeds of cattle. Since the project implementation, milk production increased in the region, stimulating the demand for milk collection centres at the village level. SDFCF was able to expedite the setting up of a chilling plant and a network of collection centres in Salem. Initially there was only one collection centre in the region, but now there are 15 collection centres and that have a combined annual business of more than INR 45 million (0.56 million Euro). Today, the chilling plant collects around 4,800 litres of milk per day, making Salem the biggest milk producer in Tamil Nadu.



The UPNRM project in Salem has been fruitful in raising livestock assets and farmers' incomes, as well as in developing the dairy farming ecosystem in the project area. By accelerating the milk production, the project has stimulated the investment growth in the dairy infrastructure. The rising milk production has made the accompanying infrastructure viable, unleashing the demand for more credit for further infrastructural development. This UPNRM initiative has not only provided critical financial support but also created an entire network to support the dairy units to develop and flourish in Salem, and therefore, the farmers now have a profitable and sustainable livelihood option to build their lives.

The project-success shows how this growth story needs to be replicated across the country to strengthen the dairy sector in India.





Medicinal Plants

India is known for its rich repository of medicinal plants. The forest belts of the country are the principal sources of a large number of medicinal plants and herbs. They are largely collected from the forests for manufacturing drugs and perfumery products. With lifestyle diseases upsurging and resulting in increased awareness of wellness and alternative medicine, the market demand for natural remedies and traditional medicines has witnessed a momentous rise.

With the increasing demand for ayurvedic formulations in the market, the need for responsible medicinal plant collection becomes important to ensure sustainability and natural regeneration of forest flora and fauna. In this context, the UPNRM project has provided livelihood support to medicinal plant gatherers and cultivating communities, along with conservation and improved management of these precious resources to maintain ecological balance.





Aiding

the Roots of Sustainability

The social and financial status of the *Valaya Adivasi* community of Tamil Nadu traditionally involved in gathering and sale of medicinal plants has improved under the UPNRM project titled “Providing livelihood support to medicinal plant gatherers and cultivating communities”.



The increasing demand and rising market value of the medicinal plants to produce ayurvedic medicines have caused rampant exploitation of the local gatherer communities by the middlemen.

The Covenant Centre for Development (CCD), a local NGO, identified the need for sustainability in resource extractions from the forests. The project was initiated in 2010 and aimed at promoting the sustainable collection, conscious conservation, judicious utilisation of medicinal plant species, and educate consumers on the topic of medicinal plants, products and quality parameters.

CCD joined hands with the producer company Gram Mooligai Company Limited (GMCL) and Medicinal Plants Conservation Network (MPCN) to restore the ecological diversity in the region and promote sustainable means of medicinal plant collection, cultivation and marketing. A loan amount of INR 2.9 million (36,775 Euro) from UPNRM through NABARD was used as the working capital for the project while the grant amount of INR 0.4 million (6,225 Euro) was used by GMCL to conduct awareness workshops across different levels of the supply chain- for the forest herbs gatherers, procurement in-charges, farmers and cultivator groups.





The main beneficiaries and participants of the project were *Adivasi* and elderly women comprising an impressive 70 per cent of the total target group. These women were trained to manage and supervise all activities of the processing, including overall supervision, labelling materials, recording activities and management of unit operations. The cultivators were also supported with quality seeds and inputs along with technical advisory and training to undertake cultivation.



Through the trainings and hand holding support from the project, the gatherers could realise the enhanced commercial value linked to sustainable harvesting techniques of herbs. They now cut the essential part of the plants instead of uprooting and making sure that the seeds are shed and then only the herbs are collected. These practices have resulted in enhanced growth of herbs in the region.



On average, the project beneficiaries received a 15 per cent increase in their incomes by selling the raw herbs to GMCL. This gain can be credited to the reduction in logistics costs, reduced marketing costs and greater quality consciousness. The project also has generated a range of livelihood options other than herbs procurement such as loading, packaging, sorting, sifting, cleaning and labelling activities.



The project has a great potential for replication across various states in India, especially in the forested regions of Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh and North Eastern Region. By focusing on *Adivasi* development and sustainable livelihood practices for poor families, the project has showcased an ideal model of livelihood enhancement in remote regions.

The assured market of the raw materials by big pharma companies such as Dabur and Himalaya through GMCL upholds the cultivation of the medicinal herbs. For many small and marginal farmers, medicinal plant cultivation as an intercrop has given an additional household income. Furthermore, improved transparency and fair trade have empowered gatherers to earn a fair and higher profit from selling the materials.







Organic Farming

India contributes 30 per cent to the population of organic farmers in the world. It is well known now that agrochemicals are not only causing soil degradation, and undermining human health but are also threatening the livelihoods and financial security of small and marginal farmers. However, most farmers practicing organic agriculture in India are struggling due to lack of policy measures, rising input costs and absence of/ inadequate market linkages.

In order to ensure effective marketing of organic produce, connecting farmers with the domestic and global supply chains is extremely important. The organic projects under UPNRM have provided support to the local farmers through capacity building and by assisting in marketing their produce to achieve higher profits while promoting sustainable and organic farming practices. Through various projects, the need for stable pricing and creating market linkages to promote sustainable organic farming are emphasised. One such UPNRM project is showcased hereunder.





The Organic

Revolution

Prakash, a farmer from rural areas adjoining Bengaluru city, is delighted that he was able to minimize his cultivation costs to a greater extent and enhance net surplus by switching from conventional to organic farming. This has been possible through the project initiated by Sahaja Samrudhha Organic Producers Company Ltd (Sahaja Organics), Bengaluru with financial support from NABARD under UPNRM.





Although the Government of Karnataka has been promoting organic farming by creating awareness and providing support through various schemes and subsidies, farmers were hesitant due to the risk of yield loss in the initial years. The shortage of certified seeds, no effective means of pest control and the high cost of certification were other challenges being faced by the farmers to adopt organic farming. Lack of access to premium markets and non-remunerative prices for their organic produce were also deterrents for adopting organic agriculture.

Recognising the increasing demand for organic food in the urban markets of Bengaluru, Sahaja Organics, in 2012, launched a unique enterprise of integrated organic farming by groups of farmers backed by focused marketing efforts, with the financial backup from NABARD under UPNRM. Sahaja collectivised the interested farmers into 20 organic producer groups, procured their produce and guided them with a 15-day production plan on the kind of vegetables to grow, based on demand from the market outlets.

The total loan amount from UPNRM comprised of working capital loan of INR 3 million (40,000 Euro) and term loan of INR 0.2 million (2,500 Euro). The term loan was utilised to build produce collection centres at the cluster level. The grant amount of INR 0.6 million (7,500 Euro) was utilised to train farmers on various post-production aspects such as handling of harvested organic produce, grading, on-farm processing, quality checking, packaging and marketing.





The project offered an assured income to the farmers and exposed them to the competitive price realisation of their produce. Sahaja Organics paid a premium price to the farmers, 20 per cent higher than the local bulk procurement rates for the traditional produce. A withheld amount was also provided to the farmers at the end of the year, divided among the farmers on the basis of the amount of produce. The project was eco-friendly too, as organic farming eliminated the use of chemical pesticides and fertilisers, resulting in improved condition of the soil and crop yields.




The success of the project encouraged more farmers to take up organic farming, and the membership of the company expanding to 700 organic farmers. Today, the company's business operation is not just restricted to buying produce from its members, but also procures organic food from farmers across Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Kerala, Chhattisgarh, West Bengal and Odisha. Sahaja Organics is also preparing to export its first batch of products to Germany.



After its initial success, the project has received financial and managerial support from the Karnataka government too. The collective was able to efficiently manage the supply chain from production to last-mile delivery. Sahaja Organics has shown how to be successful while ensuring best quality and healthy fruits and vegetables to the consumers through a well-conceived integrated organic farming business model.





Enriching
Through

Well-being Organic Farming

Tufanganj is a remotely located district in West Bengal where people were mostly poverty-stricken due to the lack of viable livelihood opportunities. Agriculture in the region has traditionally been dependent on external inputs in the form of chemical fertilisers, which improved productivity in the short-term but caused long-term issues such as degraded soil including contamination of water bodies. The region also had poor market linkages which limited viable income from agriculture for the local communities. Things changed when the UPNRM initiative started gaining momentum in the region.



Tufanganj Anwasha Welfare Society (TAWs), an organisation that has been working with the local farmers in the region, recognised the need for promoting organic farming practices and introducing alternative livelihood sources in Tufanganj. TAWs formulated a project which involved the creation of a Common Facility Center (CFC) for the production of bio-enriched vermicompost. The CFC also served as a centre for training local farmers on the construction of household vermicompost units and for propagating good agricultural practices for water-use efficiency and increased production.

The CFC worked as an aggregation point for all the bio-enriched compost being produced and undertook the packaging and marketing functions. The project from 2013 to 2019 received financial support from NABARD under UPNRM which consisted of a term loan of INR 2.25 million (281,00 Euro) and a grant of INR 0.25 million (3,137 Euro).



The key objectives of the project were to improve the existing livelihood sources for the rural communities in Tufanganj through the production of enriched and bio-enriched fertilisers/vermicompost, crop diversification by promoting horticultural crops, promoting organic farming, and providing market linkages through the creation of Farmer Producer Organisation (FPO).

The areas covered under this project come under two districts of West Bengal- Cooch Behar and Alipurduar. The project has led to an average increase in income of over 50 per cent in the region. This has been driven mainly through the sale of compost and earthworms through the CFC. The introduction of cash crops like fruits and high-value vegetables through FPOs also contributed to increased income for the farmers. The use of organic bio-enriched compost for agriculture has reduced the dependence on chemical fertilisers and improved soil and water conditions. The FPOs are also getting marketing support for selling their products at the Central processing unit.





Self Help Groups (SHG) mostly of women played an active part in the production of enriched vermicomposting and over 250 farmers are reaping benefits from it. These women gaining financial independence have created a transformative impact as many of them have invested in other livelihoods such as dairy, poultry, local retail, etc. The confidence implanted by the project for investing in livelihoods has helped the women in establishing their financial independence and increase their resilience.

The project's financial success has caught the attention of local financial institutions such as the Bandhan Bank and Central Bank of India, willing to finance the scale-up of the project. The project has also collaborated with institutions such as the Department of Bio-Technology, Government of India through Uttar Banga Gramin Bank (UBGB), Pundibari, for the supply of bio-culture under the Rashtriya Krishi Vikas Yojana (RKVY) Programme for training the farmers to further upscale the intervention. The UPNRM initiative in Tufanganj, that has been replicated in 3 more districts in West Bengal, gave a new life to the farmers by improving their livelihood choices and improved the ecology of the region through sustainable practices.





Organic
Let's Hear

Paddy Farming: it from Nagapattinam!

The paddy cultivators of Nagapattinam, Tamilnadu are no strangers when it comes to organic farming practices. The move from chemical fertilisers to organic farming was mainly due to the ever-increasing costs of the paddy cultivation. This caused low returns from paddy farming and hence the farmers decided to adopt organic farming practices in 2003.



The farmers were supported in this movement by the Centre for Indian Knowledge Systems (CIKS), a not-for-profit organisation. CIKS has also been instrumental in mobilising the organic farmers in Nagapattinam into a formal group in 2005, named the Sirkazhi Organic Farmers' Association (SOFA). CIKS in association with SOFA introduced an initiative for community-managed production and marketing of organic inputs. They received blended from NABARD under the UPNRM for the implementation of the project in two phases from 2012 to 2015.



The key activities included in the first phase of the project were organic paddy seed production and marketing; purchase of milch animals for community vermicompost units; procurement, milling and sale of organic paddy; and capacity building of farmers and women Self Help Groups (SHGs) on production of inputs, certification and organic farming techniques. A loan of INR 1.31 million (16,375 Euro) and grant of INR 0.15 million (1,825 Euro) was provided by NABARD during this phase.



After the success of this initiative, the SOFA decided to go ahead and increase their paddy seed production and marketing of organic paddy. However, their operations were hindered due to the lack of financial support.

In order to move forward, NABARD provided blended finance in the second phase as well. In this phase, NABARD provided financial support to CIKS in the form of a term loan of INR 2.66 million (33,187 Euro), and grant of INR 0.33 million (4,150 Euro). The entire loan amount was repaid to NABARD from the revenue generated through selling of organic seeds, paddy and black gram.



After the second phase implementation, the procurement of organic paddy by SOFA for further processing and sale has also increased. SOFA is now the supplier of double certified organic paddy seeds in Tamil Nadu. In order to further scale up their activities, SOFA has transitioned into a farmer producer company named Valanadu Sustainable Agriculture Producer Company (VSAPCL). VSAPCL has now more than 3,000 shareholders across 41 Panchayats in Nagapattinam district.

The project also has introduced new livelihood opportunities for women in Nagapattinam. Financial independence enabled them to participate in decision-making at the household level, improving their social status. Currently, three women SHGs in the region have undertaken training on vermicompost production. Through this project, women have taken a more active role in livelihood generation. Around 42 per cent of the shareholders in VSAPCL are women.





The UPNRM project in Nagapattinam has supported the landmark decision of the paddy farmers in going organic all the way. The project not only ensured enhanced income to them but also sustainable livelihoods through the efficient use of natural resources.





Eco Tourism

Ecotourism presents an opportunity to promote sustainable livelihoods for the marginalised forest-dependent communities in India, while also preserving their forest ecosystems. Ecotourism initiatives are nature-based ecologically sustainable approaches in which education and interpretation are a major constituent. Eco-tourism models are fast growing as a sub-economic sector all over the world and India is also one among such countries that are trying to leverage this potential through innovative ideas.

A well planned ecotourism project gives equal importance to environmental conservation as well as to the development of the indigenous communities. However, many ecotourism initiatives in India are yet to balance both aspects. Also, accomplishing these through a credit approach and not a grant or subsidy heavy approach has always been a challenge. This is where the UPNRM ecotourism projects stand out as best case practice, due to its clear vision on sustainable livelihoods and community participation. One such case study is that of the Adivasi community in the BR Hills of Chamrajnagar area in Karnataka.





When Nature and People Unite

The eco-tourism project in Karnataka under the UPNRM is ensuring indigenous community development while conserving biodiversity. The project reduces the dependence on forest resources of the local *Soliga Adivasi* communities by providing a range of alternate livelihoods. The main focus of the project was to enhance sustainable livelihoods and increase income of the local communities in complete harmony with the forest ecosystem. This too through a loan!

Vivekananda Girijana Kalyana Kendra (VGKK), a not-for-profit organization working for the welfare of the *Soligas* in the area, developed an innovative idea of establishing an ecotourism centre for the community as a livelihood alternative and reduce their dependence on forests. However, securing financing for such a novel project from the mainstream banking sector was a challenge. The NGO established Gorukana, an eco-wellness resort, under UPNRM financing.

It was a blended financing model, with loan and grants provided to VGKK in 2010. The loan of INR 11.4 million (143,668 Euro) was primarily used to construct the resort and related infrastructure. Locally available material like stone and wood were used for the construction, furnishings and ornamentation in Gorukana. The project won Interior Award for sustainable design by the Institute of Indian Interior Designers (IIID). A grant of INR 9.9 million (28,750 Euro) was spent on the training and capacity building of the community and the promotion of the resort.





The project offers a diversified yet distinctive experience to tourists. Jungle safaris, nature walks, acquainting them with local culture and cuisine, and volunteering to work at the school and hospital are the various activities one can do at Gorukana.

The facility also provides an Ayurvedic Health Centre to the guests and creates awareness among the tourists on environmental issues. An outlet has been set up to sell local products like coffee, spices and honey cultivated and collected by the *Soligas*.





Through their community organisation called Soliga Abhivrudhu Sangha, 30 youths were trained in housekeeping, laundry, gardening, security, traditional healthcare (ayurveda) and as naturalists and guides. Factors like good service quality, continuous training, devising strategic marketing, etc. have made Gorukana a popular choice of tourists and nature enthusiasts. Today, Gorukana hosts 2,000–3,000 tourists in a year, generating a revenue of over INR 3 million (37,500 Euro) annually.



The project loan was repaid to NABARD in 2014-15 and the profits from Gorukana are now invested in *Adivasi* community development activities, such as operation of a formal school with hostel facilities for 300 children and one non-formal school in an *Adivasi* hamlet. Free healthcare is also provided to the community through a 20-bed primary health care centre and a mobile dispensary unit.



Gorukana is a unique experiment that has combined both social upliftment and biodiversity conservation under a single initiative. As most of the Indian landscapes are blessed with diverse forests and scenic surroundings, ecotourism endeavours, such as Gorukana, could be a viable opportunity for sustainable livelihoods for marginalised communities in other parts of India, and for banks there is proof that such models can be financially viable credit investments.





Agri Support Enterprises

Agri support enterprises encourage farmers and other institutions engaged in agriculture to operate freely and with confidence. Existence of such enterprises in a country like India is a progressive move as the majority of farmers step in with minimal financial/institutional backing. Financial support extended by the UPNRM has boosted Skymet's operations and consequently the popularity of automated weather systems across the agricultural sector. The project has extended support to numerous farmers, insurance companies, commodity traders, power distribution companies, etc.





Aiding Throughout Sunny and Rainy Days

How advantageous would it be for farmers to have an exclusive weather prediction system that could improve their earnings? This UPNRM initiative is precisely enabling this facility by supporting a growing firm into India's most prominent, private weather forecasting company, helping farmers keep in step with the weather and reduce risks.

The central government programme, which is known as the Weather Based Crop Insurance Scheme (WBCIS) compensates insured farmers against anticipated crop loss due to adverse weather conditions. However, when the scheme was introduced a decade ago, weather companies at that time had a limited network of Automatic Weather Stations (AWS) to fetch real-time data.



It was at this time the company known as Skymet Weather Services, decided to create an extensive weather monitoring and forecasting network of its own across rural India. After thorough research, Skymet developed Automatic Weather Stations (AWSs), which can be scaled up to provide hyper-local and accurate data to the insurance companies contracted under WBCIS.

The project from 2012 to 2017 received a loan of INR 7.50 million (93,750 Euro) from NABARD to install AWSs that would record, measure and transmit data on temperature, humidity, wind speed, rainfall, precipitation, etc. in real-time. The project also received an additional loan of INR 41.25 million (515,625 Euro) to expand its activities. UPNRM facilitated Skymet to become the most significant and credible weather advisory company in the country, providing weather monitoring and agri-risk solutions to insurance companies, farmers, commodity traders, etc. Skymet went on to install 1400 AWSs in Bihar, Rajasthan, Jharkhand, Haryana and Maharashtra. These stations record weather data each hour.

Through its increased credibility and infrastructure, Skymet raised funds from DMG Information Asia Pacific Pte Ltd and later from the German government's InsuResilience impact fund, supported by KfW. Skymet also partnered with the Maharashtra government for installing 2060 AWSs across the state to make policy-level decisions and lower farmers' distress.

Today, Skymet has a vast network of more than 3000 AWSs in 15 states across India. With increased geographical reach and partnerships, Skymet has expanded its portfolio to a diverse set of customers. Its services are now benefiting farmers, insurance companies, commodity traders, power distribution companies, media, oil & gas explorers, etc.

Skymet is also impacting the future generation by training school students in monitoring and maintaining AWSs. It installs AWSs in schools and selected students are provided scholarships to undertake a curriculum on weather and AWS monitoring. In this way, students become aware of climate change and weather monitoring, while Skymet gets to reduce the installation cost and strengthen weather monitoring.

The importance of improved weather monitoring and forecast is very much essential in a country where the agriculture sector provides 49 per cent of total employment and food security to 1.3 billion people. Like Skymet, there is a considerable scope for more enterprises to engage in this sector with the right support.





Agro Agro-waste

Processing/ Processing

Agro processing sector in India has seen a significant development since the inception of the Green Revolution. Through agro processing, raw materials and intermediate products derived from agriculture are transformed into commercial products. Being a nation that has a huge majority of agriculture depended communities, understanding the scope and ensuring the growth of agro processing industries is extremely important for India.

Through more than 29 agro processing projects, UPNRM attempted to create sustainable value chain models based on crop-waste, which have not only led to economic benefits for the farmers but have also contributed to environmental sustainability. Here is one such project.

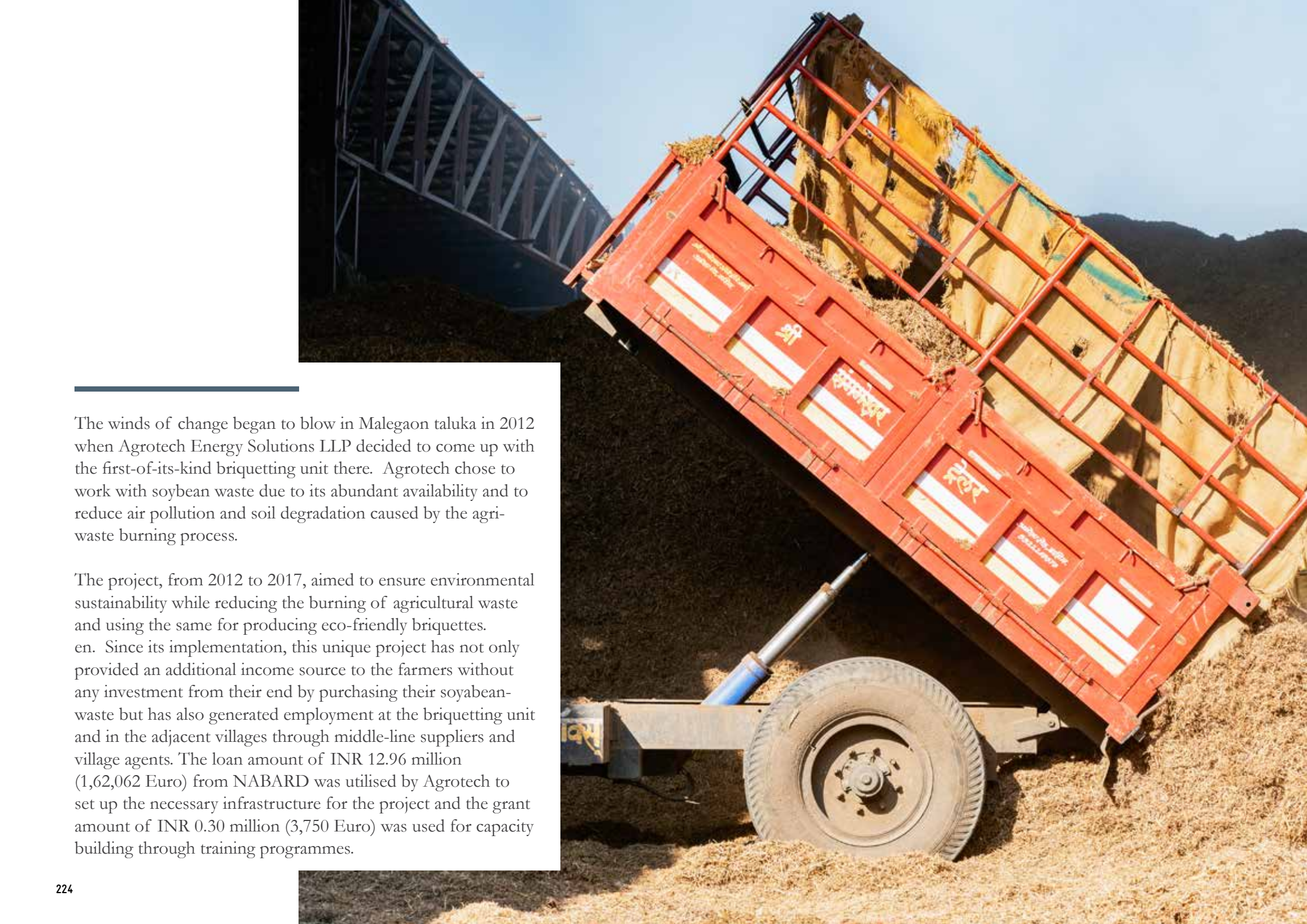


A photograph of a laboratory or industrial setting. In the foreground, there is a wooden table with a yellow box on it. Several orange cables are plugged into the box and hang down. To the left, there is a piece of equipment with a digital display showing '9.30'. The background shows a window with a view of a building with red and white stripes.

Agri-Waste to Washim's Way of

Energy: Ecological Conservation

An innovative waste-to-energy project in Maharashtra under the UPNRM initiative offers industries an alternative to coal while providing livelihoods to the local villagers. The project named 'Briquetting of Agricultural Waste to Produce Bio-Coal' in Malegaon taluka of Washim District, Maharashtra is turning soybean waste into high-density and energy-concentrated fuel briquettes for use in boiler units as an alternative to coal. This project has been able to deliver a steady income to farmers in the area, who otherwise used to burn the soybean-biomass after the harvest.



The winds of change began to blow in Malegaon taluka in 2012 when Agrotech Energy Solutions LLP decided to come up with the first-of-its-kind briquetting unit there. Agrotech chose to work with soybean waste due to its abundant availability and to reduce air pollution and soil degradation caused by the agri-waste burning process.

The project, from 2012 to 2017, aimed to ensure environmental sustainability while reducing the burning of agricultural waste and using the same for producing eco-friendly briquettes. Since its implementation, this unique project has not only provided an additional income source to the farmers without any investment from their end by purchasing their soybean-waste but has also generated employment at the briquetting unit and in the adjacent villages through middle-line suppliers and village agents. The loan amount of INR 12.96 million (1,62,062 Euro) from NABARD was utilised by Agrotech to set up the necessary infrastructure for the project and the grant amount of INR 0.30 million (3,750 Euro) was used for capacity building through training programmes.







Once the briquetting units were up and running, Malegaon villagers could get livelihood opportunities by Agrotech as truck drivers, counsellors and village suppliers. Today, farmers and other workers from around 150-200 villages within a radius of 40-60 km from Malegaon taluka along with the neighbouring Buldana and Akola districts are part of this path-breaking programme.

The success of the project is evident in Malegaon as one can see several new temporary briquetting units in the area. This is also due to the abundant availability of biomass in this soyabean belt. The Agrotech briquetting units have established its reputation in the market by directly supplying the finished product to industries, thereby reducing delivery time and costs.

Today, a majority of its consignment orders come from industries across Maharashtra, and Pune, while still receiving smaller orders from the traders in and around the region.

The project also shows a great potential of replication across the country to handle the enormous volume of agricultural waste, such as groundnut shells, cotton, palm kernel, bagasse, sawdust, etc, which is otherwise just burnt. The Washim model of agri-waste management not only provides a supplementary livelihood opportunity to the farmers by creating wealth out of waste but also addresses the issue of environmental degradation in the region by showing how agro-waste can be utilised commercially!.





Harnessing

Agri-waste: The Jalgaon Model

Banana growers in Jalgaon district of Maharashtra had been burning the reminiscent pseudostems of banana after every harvest season, causing severe air pollution as well as soil damage. The idea of using the pseudostem for running an enterprise/value chain has been a revolutionary. This UPNRM project, initiated in 2016, can be credited for creating a perfect mechanism to convert huge quantities of banana waste into saleable products and generating additional income for the growers. The grant support from the State Government too was mobilised to augment the financing requirements in implementing the innovative project.



Tapti Valley Banana Processing and Products Co-operative Society Ltd (TVBPPCSL) working in this region saw a great economic potential in agro-waste management. The idea of sustainable natural resource management for enhancing livelihoods prompted a UPNRM project that supported TVBPPCSL through financing INR 15.3 million (193,967 Euro) loan and grant of INR 2.8 million (36,339 Euro) from NABARD in 2016. Twenty village cluster units were set up using the loan amount for processing pseudostems to extract sap and fibre. A central processing unit was also set up using complimentary support from the State.



Twenty village cluster units were set up using the loan amount to process pseudostem for extraction of sap and fibre. The central processing unit was set up using the support of the government. The local community and farmers were organised into SHG which were registered to run these cluster units. Each pseudostem was bought from the farmer at INR 10, by the industrial unit.





The extracted material including fibre was then sent to the commercial unit to be further processed into saleable products. The Society generates revenue by selling the fibre, sap and organic compost and associated value-added products such as vermicompost etc. The leftover sap is converted at the central unit into organic liquid fertiliser, branded as “Tapti Energy”, and sold commercially. Similarly, the edible core of the pseudostem is marketed as cattle feed. About 80 per cent of the income generated from selling the fibre is invested back into the cottage units.





There are about 20 industrial units, each employing between 20 and 25 people. The economic gains of farmers have been augmented through this employment in the industrial units, the sale of value added products, elimination of expenses associated with the disposal of the pseudostem waste and through reduced dependence on chemical fertilisers by using organic liquid fertiliser derived from the sap.





Around 3,700 farmers are benefitted from the project. The present 20 cottage units in Jalgaon are able to cater to only 2 per cent of the available banana pseudostems in the region. Plans are in progress to scale up and produce more saleable products out of the extracted materials. The project also has created ripple effects as many women from the region are now employed in the processing units.

The Jalgaon agro processing project is a replicable model for sustainable and profitable crop residue management in banana growing regions of the country. It is also an innovative solution to end the pollution created through unscientific waste disposal practices through a viable, mostly loan-cum-small grant based, financing model.





Transforming

Lives Through Agro-Processing

Babanbhai, a small-scale farmer from Gujarat's Valsad district, used to struggle to make ends meet by selling country liquor. Today, he owns a three-storey house, a mango orchard of 15 acres and a large cattle shed. This magnificent change in fortune for him and thousands of vulnerable *Adivasi* families in the region became possible through the UPNRM project that has facilitated in creating a prosperous mango and cashew value chain from farm to market.



This glorious journey in Valsad began with NABARD's Wadi programme for sustainable livelihood for small and marginal farmers for growing orchards on barren land. However, post-harvest losses were major concern facing the farmers.



In order to address this problem, BAIF Development Research Foundation set up the producer company Vasundhara Agri-Horti Producer Company Limited (VAPCOL) as an apex marketing body of the cooperatives. VAPCOL connected 25,000 farmers through village-level cooperatives to corporate buyers and bought the processed cashew, pickles and pulp from them to sell in distant markets under the brand name 'Vrindavan'. However, due to the lack of consistent working capital, farmers often sold their produce to local traders at exploitative prices.





VAPCOL and UPNRM found a perfect match to safeguard the uninterrupted procurement and processing of the Wadi produce. A total of INR 163.50 million (2 million Euro) loan was sanctioned under UPNRM for annual working capital cycles from 2009 to 2016. To holistically address the other value chain challenges, the member cooperatives and farmers received support ranging from training and market promotion to brand-building. A traceability software was also piloted in one member-cooperative of VAPCOL for tracking farmer produce to ensure transparency in payment of stipulated prices to the farmers for their raw material.

The UPNRM programme in Valsad was a turning-point that connected thousands of *Adivasi* farmers growing and processing cashew and mango in remote parts of south Gujarat and Maharashtra to markets across India through VAPCOL, get fair prices and scale up their operations. Today, VAPCOL has grown to include 45 farmer producer groups and 41,000 individual farmers as members across Gujarat, Maharashtra, Uttar Pradesh, Rajasthan, Madhya Pradesh and Chhattisgarh.





With assured buy-back markets, farmers have brought more barren land under orchard plantation thereby benefitting the ecological balance of the region as tree plantations arrest soil erosion and help sequester carbon. The farmers in the region are more productively employed all year due to the expansion of orchards. This has reduced distress migration among the local communities to towns and cities for employment. It has also made a positive impact on women, with many finding jobs in processing units, giving them additional income, and a role beyond child-rearing and farming.

The programme has not only enabled building the capacities of farmers to ensure their own future but also has taken a big leap to create space for social transformation and environmental conservation.





Efficient Irrigation

Efficient Irrigation technologies is the way ahead to address water-stress in agriculture. Drip Irrigation is one of such technologies - a micro irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. This led to increased availability of water throughout the year and greater crop diversification by farmers. The increased yields meant higher income for farmers.



A painting of a rural landscape. In the foreground, a brown cow is grazing. In the middle ground, two people are working in a field. The background shows a large tree and a blue sky. The overall style is impressionistic with visible brushstrokes.

Transforming Livelihoods

Lives and Through Technology

Technology and credit support are transforming agricultural livelihoods in semi-arid regions of Maharashtra. More than a decade ago, farmers in the drought-prone district of Aurangabad were solely dependent on rain-fed cotton farming. Most farmers were distraught and farming was not considered as a viable and profitable livelihood option due to the declining soil fertility, low level of cropping intensity and crop diversification and lack of access to formal credit channels for intensive agricultural practices.

In 2005, the Indo-German Watershed Development Programme (IGWDP) introduced need-based land and drainage line treatment and necessary water harvesting structures. The increased water availability was supplemented with technical training on suitable cropping practices. IGWDP, over 5 years, was characterised by village institution-led implementation and brought a significant impact in the lives of these cotton farmers.

Recognising the need for building upon the successes of IGWDP and further reducing crop risks by enhancing access to irrigation and water-use efficiency, Loksathi Prathishthan, an NGO working in this region since 2005, initiated the project under the UPNRM with the financial support from NABARD. The project aimed at the economic empowerment of the farmers to shift from mono-cropping to diversified cropping as a risk mitigation mechanism for the routine crop failures the region faced.





The loan support of INR 15.9 million (198,850 Euro) from UPNRM was utilised for different need-based activities to improve water use efficiency through drip irrigation, renovation of existing wells, laying of pipelines and acquiring diesel pump-sets etc. Some farmers also availed assistance for allied farm activities such as dairy animals and biogas units. The grant of INR 2.4 million (30,125 Euro) was utilised by the NGO for capacity building initiatives such as laying demonstration plots, organising exposure visits and training sessions for beneficiaries and project staff, as well as insurance for beneficiaries.







The project has made a positive impact on 365 farmers with trainings to build their technical skills for installing, operating and maintaining micro-irrigation systems as well as knowledge on cropping practices needed for efficient cultivation of diversified crops like ginger, turmeric and onion for seed production.



Witnessing the success of the credit line from UPNRM at the local level, formal financial institutions like banks began to open doors to the farmers. Many have started taking both personal and commercial loans for assets such as transportation vehicles along with investment in agricultural machinery. The project now is identifying sustainable models for marketing agricultural produce as well as leveraging credit worthiness of beneficiaries towards greater livelihood impact in this region.





After the project implementation, the farmers understand the importance of each drop of water more than ever. The choice of all-season crops has reduced the overdependence on cotton growing too. The project success shows how sustainable management of resources is the key to enhance resilience for effectively managing cultivation risks and reap bounty benefits.

As farmers' incomes continue to grow, the impact has been transformative in Aurangabad, as several farmers who had given up agriculture due to low yields are now returning to farming post the project intervention. This model is replete with the potential for replication across the cotton belt in India.





Sustaining
for a

Sugarcane Brighter Tomorrow

Sustainable agriculture approaches which can deliver higher production, at lower economic and ecological costs and lower water footprint are crucial in deciding the future of our sugarcane farmers. The UPNRM project that has focused on these goals is creating ground- breaking impacts in Kolhapur, Maharashtra .



Under this UPNRM initiative, Shri Datta Shetkari Sahakari Sakhar Karkhana Ltd. (SDSSSK Ltd) encouraged farmers a sustainable model for sugarcane cultivation through promotion of agronomic practices of Sustainable Sugarcane Initiative (SSI) along with installation of drip irrigation system. The project gave emphasis on sensitising the farmers of the sugar cooperative on SSI practices as a sustainable method for sugarcane production by using less seeds, less water and optimal utilisation of fertilisers to achieve more yields.

SDSSSK also set up agreement with key drip installation firms such as Netafem, Jain Irrigation, Finolex and Kothari to train the farmers on the operation and maintenance of drip irrigation systems. The project so far, has benefited about 500 farmers across the Kolhapur district.

The UPNRM project during 2014 and 2017, received funding from NABARD in the form of a loan and grant. A loan of amount INR 18 million (2,25,000 Euro) was sanctioned to SDSSSK Ltd. for the installation of drip irrigation systems. The grant component of INR 0.60 million (7,500 Euro) was primarily used for extension activities such as awareness creation on SSI and water saving practices through drip irrigation. The grant amount was also used to set up beds for vermi-composting from farm waste- a key practice under the SSI principle.





The project has had a large impact on the member-farmer incomes through increased yield of sugarcane of at least 20-30 per cent and reduced cost of cultivation by nearly 25 per cent. The increased income of the farmers has had an overall positive social impact in Kolhapur. An overall improvement in the lifestyle, asset creation (construction or renovation of house, purchase of farm machinery, vehicles), access to private school by children, etc. can be observed.



The project also created ancillary livelihood opportunities like development of machines to produce single-budded chips and establishment of nurseries that provided quality seedlings to farmers. Mostly, women have been employed in these nurseries and are now earning their livelihood and thereby through these newly created opportunities.



The SSI model reduces the use of fertilisers, nutrients with optimal use of water resources leading to a positive impact on soil health and environment. Adoption of SSI practices along with installation of drip irrigation has reduced the water consumption from 1500-2500 mm per acre to 940 mm per acre. Use of vermi-compost, and other organic inputs have also reduced the application of chemical fertilisers and improved soil health and increase soil carbon content as well. The sugar factory also benefited with increased sugar recovery.



श्री दत्त शिरोड
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The innovative project provides a solution of how to make the sugarcane farming more economically and environmentally viable both for the farmers as well as the sugar factories, and needs to be replicated across sugarcane belt in India.





Conquering Through

Challenges Innovation

Sumitra Shirode, a small-scale farmer from Wardha district was not an ideal client for a bank loan as per the guidelines since she had only a small land area as her asset. But then, the UPNRM initiative in Wardha has made her dreams come true when she received financial and technical support to enhance her cotton farming. The project promoted micro-irrigation technologies and solar irrigation pumps in Samudrapur block.



Agrarian distress due to repeated droughts and lack of irrigation facilities is common in the Vidarbha region. Most farmers in this region also struggle with lack of formal credit and assured power supply. In order to address the farmer concerns, the UPNRM initiative introduced drip and sprinkler units that enhance yield and water use efficiency. The project from 2014 to 2017 became reality through the collaboration of the regional rural bank Vidharbh Konkan Gramin Bank (VKGB) and a Corporate Social Responsibility (CSR) foundation known as Kamalnayan Jamnalal Bajaj Foundation (KJBF). This RRB-CSR Foundation, first of its kind model, received financial support from NABARD in the form of loan and grant. While RRB financed farmers, KJBF supported in farmers' mobilisation, implementation and training and capacity building of the farmers. KJBF also integrated Better Cotton Initiative (BCI) through their own funds to improve sustainable cultivation practices in the area.





Under UPNRM, NABARD provided INR 16.03 million (200,000 Euro) as loan to VKGB, which on-lent it to 373 farmers for the installation of drip and sprinkler units. NABARD also provided a grant of INR 3.95 million (49,200 Euro) which along with CSR funds of KJBF and farmers' contribution was used for river rejuvenation (6 km long stream Khapri Nala). *This was a risk-mitigation measure against fighting droughts and helped achieved 300 per cent cropping intensity.* With the assured water supply and judicious water-utilisation, the farmers are now less vulnerable to crop failures. Many have diversified crops as well.



The project also aimed at demonstrating the feasibility and profitability of solar-powered water pumps in order to meet the irrigation needs. These farmers also leveraged subsidies provided by the Ministry of New and Renewable Energy, Government of India.

The project has inspired other farmers in the region as well to set up micro-irrigation systems. This UPNRM initiative was the perfect way of resolving the agricultural challenges in the region. It has instilled hope among the small-scale farmers for a fruitful harvest and a better future.





**नैसर्गिक शेती अंतर्गत
उत्पादीत शेतमाल**

शेतमाल/प्रक्रिया केलेल्या मालाचे नाव

वजन : _____ किलो : _____ किंमत : _____ रु.

शेतकऱ्याचे नाव : **श्री. प्रशांत वाल्मीकराव शिरुडे**

गांव : वाघेडा, ता. समुद्रपूर, जि. वर्धा

मोबाईल नंबर : 8888779554, 8830972547





Clean Energy

India is aspiring to lead the clean energy movement in the country. Access to clean, affordable, and reliable energy sources is often seen as one of the key drivers for attaining higher levels of growth and human development. The introduction of enabling policies and implementation plans across various sectors has been the focus area to meet India's growing energy needs.

Livelihood enhancement through the utilisation of clean energy resources has been a thrust area in India's rural development agenda. With its success stories from the ground, UPNRM has showcased how clean and renewable energy can be used for livelihood generation and natural resource management in rural areas through sustainable approaches. Such enterprises not only positively impact the economic development of the local communities but also create opportunities for their social progress.





Sustainable Village Prosperity:

Enterprises Leading Economies Towards The Sindhudurg Model

UPNRM has created a pioneering financing model to support farmers by creating opportunities for banks and NGOs to collaborate for sustainable rural financing projects. This integrated project for biogas, organic farming and livelihood development from 2013 to 2016, was a turning point for the small and marginal farmers in Sindhudurg, Maharashtra. This initiative began with financing the installation of biogas units in the villages as part of the UPNRM project through the partnership of the Sindhudurg District Central Co-operative Bank (DCCB) and a local NGO, Bhagirath Gramvikas Pratishthan (Bhagirath). The model leveraged the relative strengths of a bank (loaning and recovery) and NGO (community mobilisation and capacity building).

Until the project came into action, Rewati Sawant and Jyoti Pawaskar from Sindhudurg district were to spend several hours a day in collecting fuel wood for cooking. They also had to inhale the smoke coming out of the traditional wood-fired cooking stove (*chullah*). Today, the women from Sindhudurg use safer biogas for cooking and are able to pursue other income generating activities such as dairy and poultry with the time saved from not collecting firewood.



Bhagirath innovated a ferro-cement model of biogas, known for its sturdiness and low-maintenance, unlike other biogas models in the region.

Cow dung is collected, mixed with water and channelized into fermentation pits in order to produce the 'gas' or 'smokeless' energy for cooking. The waste (bio-slurry) from this process is used directly or used in the production of vermicompost, which improves farming practices and farm yield significantly. All these are positive developments for Sindhudurg's ecology and its people.



The opportunity for livelihood diversification led many farmers to avail loans for growing organic turmeric and banana as well. Loans for dairy activity helped farmers to create additional incomes from the sale of milk and this reduced their family's dependence solely on agriculture.



Some families also started poultry units in their backyard to sell eggs and meat. These additional activities led to additional income generation and repayment of loans. Thus, livelihood options were bundled and centered around the core bio-gas unit and an integrated business model was created and a loan was provided for it, something the banks and farmers were new to.





Sindhudurg gives us the perfect example of how banks could give financial support to agriculture based livelihood projects by utilising the services of a technical implementing agency such as Bhagirath. This bank-NGO model, a first of its kind, has a great potential for replication in Maharashtra and the rest of the country.

For a majority of women, the project created a perfect opening to explore their business and entrepreneurial skills while aspiring for a life of economic independence and gender equality in livelihood choices. The 100 per cent loan recovery in the project's lifecycle increased the level of confidence and trust among all stakeholders and beneficiaries. The DCCB also went on to become the favourite bank for other lending needs of the farmers who had now become its first time clients, increasing its loan portfolio many times over. A win-win in every sense!





Energy Efficiency

To tackle the perils of climate change, it is important to focus on the fact that more conservative ways of producing energy are needed. Groundwater is the main source of irrigation in India and the agriculture sector has witnessed unregulated pumping of groundwater through individual pump sets which has led to a decrease in the groundwater levels over the years. The UPNRM project focuses on tackling the issue of unregulated and indiscriminate pumping of groundwater, through the promotion of energy efficient pump sets and adequate training of farmers in groundwater recharging techniques.





A Pioneering Energy

Move for Efficiency

Energy poverty is prevalent in India's agricultural sector and the UPNRM project Karnataka is a unique approach that addresses this pressing concern. Under UPNRM.

In order to make this idea a reality, an innovative project that had a public-private partnership (PPP) model was formulated in which a private stakeholder, Energy Service Company (ESCO) invested and replaced pump sets in 37 villages of five Gram panchayats in Doddaballapur. Bangalore Electricity Supply Company (BESCOM) collaborated with Enzen Global Solution Pvt. Ltd. (Enzen), Bengaluru, for the implementation of the project titled *Efficient Irrigation Pump Sets Programme on High Voltage Distribution System Feeders*.





The project from 2010-2021, replaced 277 pump-sets with the new energy-efficient ones. Various water conservation activities were also demonstrated to obtain additional savings. The project achieved annual energy savings of approximately 1.5 million kWh (about 35 per cent from baseline consumption levels). This innovative enterprise also won awards such as India Power Awards in 2010 and Platts Award for Excellence in 2012.



Enzen received financial assistance from NABARD in the form of blended finance. NABARD sanctioned a loan of INR 30.8 million (385,000 Euro) to Enzen for the purchase of pump-sets. A grant of INR 2 million (25,000 Euro) was also sanctioned for project management and farmer engagement activities such as farmer mobilisation, demonstration of water conservation activities and monitoring and verification.



The innate goal of the project was to reduce the energy consumption from the operation of inefficient pump-sets for irrigation by replacing them with highly efficient star-rated pump-sets. The project was implemented in three phases: baseline phase, efficient pump-sets installation phase, and monitoring-evaluation phase.





Before the project implementation, farmers used inefficient pump-sets with a capacity of 10 HP. With the replacement of these pump-sets with star-rated energy-efficient ones, the energy consumption reduced by about 35 per cent. Improvement of the infrastructure in the region also led to a reduction in transmission and distribution losses. The project also contributed to the mitigation of climate change by achieving a reduction in 4.715 kg of carbon-dioxide emissions (CO₂) between 2011-2014¹.

¹ The emission factor is taken as 0.82. www.cea.nic.in





In India, very often, farmers use inefficient pump-sets and therefore those are prone to frequent breakdowns. This, in turn, increased the operation and maintenance expenses of the farmers. With the installation of efficient and standardised pump-sets, the instances of breakdown reduced and it significantly contributes to attaining optimal energy efficiency. Through this UPNRM initiative, the farmers in Doddaballapur have a big leap towards ecological preservation through effective energy management which needs to be replicated across the country.

Bankable Business Models Developed Under UPNRM

Theme	Number	Business model
Soil	1	Organic Chilli Cultivation
	2	Organic Ginger and Turmeric Cultivation
	3	Organic Cotton Cultivation
	4	Organic Pepper Cultivation
	5	Organic Large Cardamom
	6	Organic Coffee Cultivation
	7	Vermicomposting
Water	8	Sustainable Sugarcane Initiative, Maharashtra
	9	Sustainable Sugarcane Initiative, Bihar
	10	Integrated Fish Farming (IFF)- Kendrapara
	11	Integrated Fish Farming (IFF)- Assam
	12	Drip in cotton: SPMESM Foundation
	13	Cotton Value Chain and BCI: Wardha and Aurangabad
	14	Integrated Vegetable Cultivation

Theme	Number	Business model
Forestry/ Agroforestry	15	Agar based agro-forestry Business Model
	16	Agro-Forestry (Eucalyptus with Sugarcane) Business Model
	17	Agro-Forestry (Eucalyptus with Paddy) Business Model
	18	Agroforestry (Eucalyptus with vegetables), Odisha
Other	19	Cashew Processing: Livelihood Promotion for small and marginal cashew Growers in Cuddalore district of Tamil Nadu, India
	20	Cashew Business Model: Gujarat and Maharashtra
	21	Cashew Business Model for Banks for cashew processing-Lupin Foundation, Sindhudurg
	22	Promoting Bee Keeping: Devbhumi Natural Products Producer Co.Ltd (DNPPCL)
	23	Tissue Culture Banana, Bihar



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