

Enriching Lives through  
Sustainable Agriculture the 'wadi' way –  
A case of Nagaland state

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## Introduction:

Ever since the United Nations Conference on Environment and Development in Rio in 1992, sustainable development has been at the centre of policy-making for governments around the world. With the emergence of new policies, a broad consensus has been reached for the promotion of sustainable agriculture practices to achieve the target of Sustainable Development Goal 2: Zero Hunger by 2030. By definition, Sustainable agriculture is farming in sustainable ways meeting society's present food and textile needs, without compromising the ability of current or future generations to meet their needs. Implementation of resilient agricultural practices that increase productivity and production without disturbing the natural ecosystems has been the prime focus of this idea.

Indian agriculture has been predominantly rainfed covering 60% of the country's net sown area and accounts for 40% of the total food production, which makes it important for us to conserve natural resources to meet the burgeoning demands for food grain in the country. In this context, the Government of India has formulated a National Mission for Sustainable Agriculture (NMSA) in 2014-15 for enhancing agricultural productivity, especially in rainfed areas with a special focus on integrated farming, water use efficiency, soil health management and synergizing resource conservation. A Sustainable agriculture mission is also among one of the eight Missions outlined under the National Action Plan on Climate Change (NAPCC). NMSA architecture has been designed by consolidating and

subsuming all ongoing as well as newly proposed activities/programmes related to sustainable agriculture, and to infuse the judicious utilization of resources of commons through a community-based approach.

### **The Wadi Model:**

National Bank for Agriculture and Rural Development (NABARD) has been playing a pivotal role in promoting sustainable agricultural practices in the hinterlands of our country. In particular, those inhabited by tribal communities are dependent mainly on agriculture, forests and livestock for their livelihood. Many of these communities reside in inaccessible areas still devoid of infrastructure facilities which deprive them of having access to technological and financial facilities being provided by the Government. While NABARD has been supporting tribal development through refinance, special lines of credit to agencies supporting tribal families, promotional activities, etc, a key concern has been the sustainability of tribal livelihoods. NABARD gained rich experience in this regard through the implementation of the German KfW (Kreditanstalt für Wiederaufbau) assisted Adivasi Development Programmes (ADPs) in Gujarat and Maharashtra. This model of tribal development encompassed natural resource management in rainfed tribal areas, micro-finance initiatives and women empowerment through people's participation. However, as the ADPs covered only two states supporting only a minuscule of the tribal population of the country, it was felt that the creation of such 'wadi' models in the rest of the country would act as development catalysts helping to transform tribal lives on a large scale. NABARD, therefore, took the initiative of creating a Tribal Development Fund (TDF) with an initial corpus of ₹ 50 crores, from out of its profits during the years 2003-04. The fund is being used for replicating the ambitious 'Wadi model' across the country for the integrated development of tribal families on a participatory basis through the adoption of sustainable income generating activities based on the potential of the area and the tribal needs. Wadi in Gujarati means an orchard. Wadi (small orchard) concept was introduced in 1982 in Vansda, Navsari District in South Gujarat by BAIF (Bharatiya Agro Industries Foundation), Pune as a Comprehensive Tribal Development Programme for sustainable livelihood.

Pioneered by BAIF and consciously supported by NABARD, the central focus of the model comprises of a Wadi plot usually of one acre per beneficiary who must be a marginal farmer having less than 5 acres of land. Two or more crops are strategically selected for intercropping in the Wadi model, which minimises climatic, biological and marketing risks. In each acre of such cultivation, around 100 fruit trees of guava, gooseberry (amla), mangoes, litchis or other varieties appropriate to the region are planted. The space between the fruit trees is used for growing seasonal crops and the periphery is bio-fenced with forestry, fuel or timber species. Water resources used for orchards are created as common assets to be shared by groups of wadi owners which leads to improved water efficiency and promotes sustainability. Organic practices improve the soil organic content and nutrient recycling, this, coupled with the soil conservation measures along with the root network of the trees, leads to reduced runoff and soil erosion. This multi-tiered cropping pattern presents a sustainable solution for marginal farmers to be profitable even on small plots of land. With the diversification of agriculture and horticulture products, farmers are ensured of a regular flow of income and nutritional security throughout the year. The wadi model also helps in mitigating climate change by conversion of atmospheric carbon into tree biomass and soil carbon that act as long-term carbon sinks. It further helps to reverse the ecological degradation caused due to shifting cultivation practised by tribal farmers thereby improving soil conditions in harmony with nature which regenerates the production potential of the land.

Further, women's self-help groups (SHGs) are also formed under the model as a platform for encouraging their socio-economic empowerment through the promotion of savings, facilitation of bank linkages and micro-credit for initiating income generation activities. Training and capacity building for livelihood diversification through the farm and off-farm income generation activities are also conducted for the farmers and the SHG members. The training platforms are also used to generate awareness among the households on aspects of social development including health, education and sanitation for a more holistic development.

The principles on which TDF projects are designed are, need based and location specific, relying on community ownership and community contribution through

family labour, transparency in decision making and fund management, addressing gender issues and intensive capacity building measures with the seasonality of activities. The projects are implemented through NGOs, Community Based Organisations (CBO), Trusts, and Corporates directly or through their CSR wings. Under TDF, NABARD provides grant assistance per family per acre of ₹67000 in plain areas and ₹72000 in Hilly/North-eastern region (NER) areas respectively. Since its inception, NABARD has supported 778 wadi projects across 282 districts with grant support of ₹ 2112.23 crores covering an area of approximately 5 lakh acres, being benefitting more than 5.3 lakh households. The north-eastern states of the country, which are predominantly tribal by population have benefitted immensely from this initiative of NABARD, being implemented through its Regional Office at the state capitals. In the state of Nagaland in particular the NABARD Regional Office has been working closely with several Community Based Organisations at the grassroots to support tribal farmers in adapting the Wadi model. A total of fourteen such projects have been developed under this initiative over the last twelve years with a financial grant support of ₹23.14 crore benefitting close to 5350 tribal households. One of the visible outcomes of the wadi projects in the state has been the gradual shift from the traditional form of shifting cultivation, to a more sustainable form of farming.

## **Projects:**

A TDF project successfully grounded through the Chakesang Women Welfare Society (CWWS) as the project implementing agency (PIA) in 8 villages of Phek District, has been successful in providing livelihood to 500 tribal households, where more than 500 acres of land has been brought under the wadi model. Intercropping of seasonal crops like maize with various horticulture crops has increased the productivity of the land. The upland has been developed into an orchard of Kiwi and Orange plantations. The lands have been developed through adequate land development measures and critical irrigation facilities to provide maximum return to the families in a sustainable manner. Planting of tree tomato and banana have been undertaken along with the alder tree and tree bean as border plants. This coupled with good -yielding varieties of king chilli and ginger ensures a regular flow of income throughout the year for farmers. The highest income earning household from the project earns around ₹ 2 lakh per annum.



Around 8 water resource projects have been created as a part of the project which ensures the availability of water for the farmers in a sustainable way. Further, awareness building and conducting of health camps to promote healthy and clean lifestyles among the tribal households with a focus on the menstrual health of women have been some of the social goals of the project which were achieved under the project. A total of fifty-two women SHGs were formed and linked to banks, which is helping to bring women in the villages under one umbrella to address social issues and also to create awareness about various government programmes and services available to them. Overall, the project helped in shifting the villagers from a subsistence form of farming to a commercial one with a focus on sustainability.



An ongoing wadi project under TDF being implemented by the Eleutheros Christian Society (ECS) an NGO in Tuensang District, aims at improving and enhancing sustainable livelihoods of the targeted farmers using the wadi model through the development of kiwi fruit orchards integrated with cardamom. After successfully implementing 2 two wadi projects sanctioned to it in the years 2008-

09 and 2010-11 where 875 tribal households were assisted, this is the third wadi project sanctioned to the ECS for implementation. The project area has kiwi tree vines and shade-loving cardamom crops with seasonal vegetables such as maize, cabbage and potatoes intercropped into the wadi for the initial years to maximise the returns to the farmers. A total of 200 farmers from two villages have been selected, trained and supported to adapt this form of farming. The local district Krishi Vigyan Kendra (KVK) has been roped in as the main resource facility for conducting training and providing technical inputs for proper management of the wadis. Cherry trees and other local flowering tree species have been introduced as border plants to assist in the pollination of the kiwi plants and also serve as wind breaks thereby protecting the fruit crops. Some of the measurable outcomes of the ongoing project include; i) good returns from the seasonal crops interplanted in the wadi where sale proceeds crossed ₹ 40.00 lakh during the year; ii) the farmers were mobilised to form a Farmer Producer Organisation; iii) an increase in family income of the farmers due to crop diversification and increase in family nutrition as a result of more crop varieties being produced; iv) farmers can now see better remunerative options for themselves and look beyond traditional farming which was solely for own consumption; v) the village women have played a major role in contributing to the family income. 19 Women SHGs in the project area have been actively involved in wadi development related activities as well as other income generating activities.

### **Beneficiaries:**

Vechota Nyekha, is a beneficiary among thousands of others under NABARD's Tribal Development Project in Nagaland. He belongs to a small hamlet called Chesezu in Phek District of Nagaland where a majority of farmers grow oranges in their farms. However, with support under TDF, he can benefit from various other crops and vegetables that are cultivated in the orange farm he owns. He had planted maize, banana, pineapple, ginger, brinjal and other vegetables as intercrops under the project. He gets an additional income of ₹20,000 to ₹35,000 annually which in fact is a huge amount for a farmer in the village. His family is able to make a sale of ₹50,000 annually from banana alone. He says "Tribal Development project has taught me many things. I have learnt how to cultivate fruits in a more appropriately



and systematically. I have also learnt the importance of inter-cropping, and how to make more income from small and seasonal vegetables and crops. Family income has increased considerably and I am excitedly waiting for the time the oranges will be ready for production". He is grateful to NABARD for implementing the project through the Chakhesang Women Welfare Society in his village and for selecting him as one of the beneficiaries.



In another such project, Theri Sangtam, a young graduate who was looking for work and planning to migrate to Bangalore for greener pasture has now become an active volunteer helping with the implementation of the project in his own village. Persuaded by Better Life Foundation (BLF), a PIA under NABARD's TDF programme, he took up farming as a full-time occupation and became the pioneer in Kiwi farming in his village. Following his example many farmers have taken up Kiwi plantation. Last year he had two Tons of Kiwi produced in his wadi selling at a farm gate price of ₹ 150-200/kg. In addition to kiwi, he has planted cardamom that has been giving high yields and holds the record for the maximum cardamom produced in an acre in the block with a total dry cardamom production of 350kg/Acre.

The success of sustainable integrated farming practice has helped many and inspired others across the remotest villages of Nagaland to shift to a more sustainable approach to farming. NABARD Nagaland in collaboration with its partner NGOs is working at the grassroots level to implement innovative methods of sustainable farming.



## Way forward:

When agricultural operations are sustainably managed, they can preserve and restore critical habitats, help protect watersheds, and improve soil health and water quality. The need for sustainable resource management is increasingly urgent, as demand for agricultural commodities is rising rapidly with the rising world population. Agriculture's deep connections to the world economy, human societies and biodiversity make it one of the most important frontiers for conservation around the globe and Agriculture being highly climate sensitive makes the small land holder farmers the first victims as they have low adaptive capacity. In this context, Adaptive Sustainable Agriculture is the way forward that the world is looking at and NABARD being an apex development institute for rural India has been working as a frontrunner in promoting it. Further, with renewed policies and combined efforts of all the stakeholders including both public and private sectors, the journey to sustainable food security can be achieved with ease in the future.

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