# Low Cost Rain Water Harvesting Through Jalkund in Dhansiripar Village for Live Saving Irrigation

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## Introduction

Water is a precious element without which no life could exist on Earth. North Eastern Hilly Region of India is characterized by various Topologies and is largely affected by high seepage flow and surface runoff. Nagaland which receives an average annual rainfall of about 2500 mm has dual effect of water in the form of heavy rainfall during monsoon and severe scarcity during winter/lean season. The rain water receives during monsoon is either loss as surface runoff or sub surface runoff since most of the areas in the state are hilly terrains coupled with coarse textured soils and shallow depth. Further, in the recent years it has been witnessed in decline on number of rainy days, erratic rainfall with an increase in high intensity and prolong dry spell which results in low crop productivity and low cropping intensity. Thus in an effort to address the prevailing problem " A Low Cost Rain Water Harvesting Structure Jalkund" was demonstrated to the farmer's for harvesting rain water for judicious irrigation and watering to their livestock's and to assess the cost benefit ratio.

## Rationale

Dhansiripar Village under Dhansiripar block of Dimapur District was selected as a representative village for implementing NICRA (TDC) Project by KVK Dimapur, ICAR Complex for NEH Region, Nagaland Centre as the village is frequently affected by drought like situation and late onset of monsoon. As per bench mark survey 70% are marginal and economically poor farmers. Agriculture is the main occupation of the farming community with Low land Paddy as the major crops with a productivity of 18.20 q/ha followed by Maize, Mustard etc. vegetable and fruits cultivations were confined to Kitchen garden. As a subsidiary income generation villagers also rears non-descript types of Cattle, Pig, goats and poultry.

## Objectives

The main objective of the demonstration is to harvest rain water for supplemental irrigation to high value vegetable crops and watering to livestock's to improve the living standard of the villagers.

## Methodology

To demonstrate the technology various extension activities such as awareness campaign, Group discussions and training programs were conducted and through such programs 15 farmers were selected in the year 2011-12. Technical guidance for laying out the Jalkund were imparted to the farmers and inputs like Silpauline lining (5mx4.5mx1.5m) size, digging cost @ Rs 1500/Jalkund, vegetable seeds (Broccoli, Celery, Capsicum, French bean etc.) were also distributed to the selected farmer's. Rain water of about 30,000 liters of rainwater/Jalkund were harvested in the Jalkund through roof top for judicious irrigation to vegetable crops and watering to livestock's and Poultry during lean period apart from domestic uses.

## Results

- Production and productivity of high value vegetable crops were increased to 60% from the initial year for own consumption and for sell in local market.
- Beneficiaries could earn an average additional net income of Rs 2000-2500/Jalkund/year from selling the high value vegetables at the cost of Rs 0.40/liter of rain water harvested in Jalkund from first year.
- Minimize family labor for watering of livestock's, Poultry and domestics purposes which otherwise they collect for nearby ponds.

## Discussion

Cultivation of Low land paddy as mono crop under Rainfed conditions was the main occupation of the farmers before the implementation of the project, farmers experienced regular drought like situations moreover, traditional farm pond practiced by the farmers are exposed to losses due to infiltration, percolation, seepage and evaporation to a great extent. A low cost rain water harvesting structure (Jalkund) with Silpauline lining was a successful intervention of the project which has open up avenue for harvesting rainwater for subsequent irrigation in lean season and provides healthy food. It also increases the production and productivity of high value vegetables crops and generates additional net monetary income of the farmers.

## Impact

- Area under vegetable crops was significantly increased after implementation of the technology, generates employment opportunity for women folks, improved food and nutritional security of benefited farmers.
- Increase in number of pigs, poultry birds were also observed after the intervention as farmers can water their animals easily from the Jalkund with less effort.
- The problem of water scarcity during the lean season was minimized to some extent as they can store 30, 000 liters rainwater/Jalkund and recharge from nearby ponds apart from other benefits.
- Seeing the success of this particular technology more demonstration were taken up in different villages viz., Amaluma, Doyapur, Vidima, Seithekema and Domokhia for wide spread adoption.

## Sustainability

- To sustain the technology regular training programme were conducted on cultivation practices of high value vegetable crops, Nursery management, Nutrient management, Water management, scientific piggery management, Backyard poultry rearing and care and maintenance of the Jalkund were imparted to the farmers on regular basis.
- Improved breeds of pigs and Poultry birds and Seeds of different crops were introduced for multiplication and maintenances in the village level.
- Village Climate Risk Management Committee Members were selected for regular monitoring and to get feedback from the farmers for successful and sustenance of the technology.

## Acknowledgement

The Authors duly acknowledge Dr. Bidyut C. Deka, The Joint Director, ICAR Complex for NEH Region, Nagaland Centre, for his untiring support in implementing NICRA Project (TDC).