

JALKUND

Low Cost Rain water
harvesting Structure



Krishi Vigyan Kendra Dimapur
ICAR (RC) for NEH Region
Nagaland Centre, Jharnapani
Medziphema-797106, Nagaland



North Eastern region of India comprising eight states viz. Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim has a total geographical area of 262180 sq.km which is nearly 8% of the total area of the country having 45.59 million population. This region is characterised by different terrain, wide variation in altitude, slope, land tenure systems and cultivation practices. This region falls under high rainfall zone but, high rainfall by itself has not proved to be the boon for the region. Agriculture in the region is mostly rainfed and mono-cropped. The annual average rainfall of the region is 2000mm accounting for 10% (42.0 Mha m) of the country's total water of 420 Mha m. It can utilise only 0.88Mha m of water. The remaining water (more than 41.0 Mha m water) is lost annually particularly due to its major portion being hilly.

Though the region receives high rainfall, lack of appropriate rain water management condition coupled with lack of suitable soil and water conservation measures lead to severe water scarcity particularly during post monsoon seasons and affect the crop productivity as well. May- October is the major periods for rain water harvesting while November-April is characterised as lean or water deficit period. So rain water harvesting has tremendous potential of being an irrigation water source for domestic use as well as irrigation purposes for small and marginal farmers in the region. One of the major constraints of water harvesting structures in the hilly region is high cost of construction and the seepage loss from storage tanks. Considering the above facts a low cost rain water harvesting structure called 'Jalkund' is being developed by ICAR Research Complex, Barapani and is being replicated in Dimapur district of Nagaland.

Methods for making Jalkund and utilization of water:

Site selection : Site of Jalkund can be selected at high reaches of crop catchment areas so that water can be recycled through gravitational force without using any extra energy.

Capacity : Capacity will depend on the water requirement for crop/animal. The Jalkund will retain about 15,000; 20,000 and 30,000 litres of water respectively with the dimensions of 5mx3mx1m, 5mx4mx1m and 5mx4mx 1.5m. The size of lining material of the corresponding dimension will be 8m x 6m, 8mx7m, 9mx8m respectively. Only direct precipitation of the rain is allowed for water harvesting. Run-off water should be avoided but the roof top water can be harvested and diverted to Jalkund.

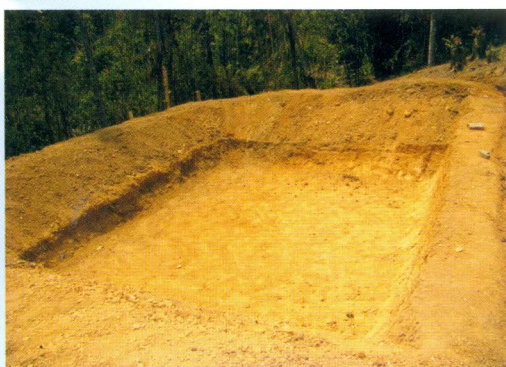
I. Preparation of Jalkund

Excavation of kund on the selected site should be completed before the onset of monsoon. The bed and the sites of kunds were levelled by

removing the rocks or stones to avoid the damage to the lining materials. Embankment made by the excavated soil should be well compacted.

Applications of Aluminium phosphide/ rat cake @ 1 tablet or piece per live hole to control the insects or the rats before the lining.

The plastering with clay and cow dung in the ratio of 5:1 for a smoothening of inner wall after plastering 3-5 inches thick cushioning with locally available dry leaves is required. Paddy straw and thatch grass should not be used for cushioning purpose as they attract the rats which might damage the lining materials.



II. Laying of LDPE polyfilm/ Silpauline

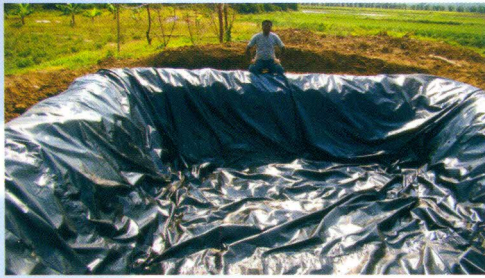
Start laying of lining material from one end of the sheet and make sure that it is folded in four corners and nowhere else. Lining sheet is layed down in the kund in such a way that it touches the bottom and walls loosely and uniformly and stretch out to the width of about 50cm all around the length and width of the kund. 25x25cm trench all around the kund and about 25cm outer edge of the lining is buried in the soil so that film is tightly bound from all around.





III. Covering of the Jalkund

Stored water should be covered to avoid evaporation loss particularly during off season with thatch grass/ other locally available materials. If it is not covered then nearly 70-80% of stored water would evaporate. Use of neem oil @ 10ml/m² over water surface after each weekly watering is also effective to minimise the evaporation loss.



IV. Fencing

Care must be taken to avoid possibility of the children and animals falling and drowning in the Jalkund. Bamboo fencing of about 1m height is enough to control any such type of mishap.



The cost of making the Jalkund is nearly Rs.7,387 (2011-12) . If proper care is taken then the same Jalkund is functional for 3-4 years.

V. Utilization of harvested water

Judicious use of water for obtaining maximum productivity per unit area for stored water should be followed. Capacity of Jalkund was 30,000 litres. Initially Jalkunds were made in fields, which was away from home. Later on Jalkunds were made near home to recycle the water for feeding to pigs and cultivation of vegetables like Broccoli, Tomato, Radish, Onion, Chilli, Capsicum etc. in kitchen gardens. The average income from cultivation of vegetables is nearly Rs.4, 500-5,800 per year.

Year	Nos. of Jalkund	Name of beneficiaries	Name of village	Remarks
2008-2009	5	Vilasizo Ado, Mudopoi, Chozuwukho Vivoshe	Diezephe Bade Pherima	Only two Jalkund were functional
2009-2010	4	K.I. Zhimomi Kisozhe Izheso Atopu	Pherima	Two Jalkunds are still functional
2010-2011	3	Laljon Misao, Chungin, Lethang	Molvom	Jalkund are still functional
2011-2012	3	Titing, Vumlen, Lettingmang	Molvom	Still functional
2011-2012	5	Daniel, Kholhou, Vidose, Medoseno, Pzufzero	Seithikhema	Jalkund are still functional
2011-2012	15	Bikram, Lalde, Reena, Wala, Laffai SHG, Saingha SHG, Montira, Unar Singh, Vendar, Amir, Deleki, Tilog, Asoli, Jopadi, Shilati	Dhansiripar under NICRA project of KVK Dimapur	Jalkund are still functional
2011-12	14	Rokovizo Khro, Ashikho Khro, Dolhouvü, Manthungo Odyu, John Yanthang, Khole, VDB Vidima, Denandro, Bopen, Monisory, Thangidao Naiding, Dorbilal Langthasa, Semato Zhimomi and Roko	Seithekima A, Domokhia, Vidima, Doyapur, Amaluma, Pherima and Medziphema Under NICRA Project of ICAR, Nagaland Centre	Jalkund are still functional



Compiled by:

Dr. Anamika Sharma, Programme Coordinator
Shri. Kolom Rabi, SMS (Plant Breeding)
Shri. Z. James Kikon, SMS (Soil Science)
Shri. Imliakum Pongen, Prog. Asstt. (Farm Management)

Further details, please contact:

Dr. Bidyut C. Deka,
Joint Director
ICAR (RC) for Nagaland Centre, Jharnapani
Medziphema-797106, Nagaland
Contact: (03862)247241/50

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