A Glimpse of NICRA Project

Hnahthial Village

(2011 - 2020)

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DEDICATED TO
IN LOVING MEMORY
OF



Dr. Lalmuanzovi (L)
Sr. Scientist & Head (2008 - 2020)
KVK Lunglei District

We think about you always,
We walk about you still,
Days will pass and turn into years,
But we will forever remember you with silent tears.

Acknowledgement

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Authors

INTRODUCTION

The National Innovations in Climate Resilient Agriculture (NICRA) , a network project of Indian Council of Agricultural Research (ICAR) has a technology demonstration component. The TDC of the project has been implemented by 101 Krishi Vigyan Kendra's in 11 Zones across the country . The main objective of NICRA is to developed and popularizing climate resilient technology to the agriculture. Farmers in NICRA villages are encouraged to apply proven practices and technologies to climate induced problems in agriculture . Intervention with climate focus are accorded and are sourced from national Agriculture research system, indigenous technical knowledge and traditional knowledge of communities. Innovative practices, processes, product, decision tools and livelihood options appropriate to the farming situations are encourage to tackle climate risks in agriculture KVK Lunglei has been selected from Mizoram in 2011 by ICAR. The KVK Lunglei selected Hnahthial has its adopted village. The major climatic vulnerability of the adopted village is mainly water stress condition. The adopted village has five satellite villages- Cherhlun,Thingsai,Thiltlang ,Tuipui D and Darzo.

Hnahthial is located in the southern part of Mizoram. Its geographical area covers 20.5 sq km. It lies between $22^{0}57'51"$N latitude and $92^{0}55'42"$E longitude. The altitude ranges from 600-850msl.The village is highly characterized by steep slope, deep gorges and a few pockets of flat land in the low lying areas. Its agro climatic condition falls under Humid Sub Tropical Hill Zone. According to 2011 census the total number of population is 7041 and the total no. of household is 1449.The econom y of the village is mainly depend on agriculture. The total average annual rainfall is about 2100mm. Due to the steepness of topography and heavy rainfall, most of the soil are acidic in nature. Though the village received high rainfall, lack of suitable soil and water conservation measure lead to severe water scarcity and land degradation in the village.

NICRA VILLAGE AND ITS SATELITE VILLAGES:

Village information	NICRA/Village since 2010	Additional village 1	Additional village 2	Additional village 3	Additional village 4	Additional village 5
Name of the village and district	Hnahthial	Tuipui D	Rawpui	Thingsai	Cherhlun	Thiltlang
No. of households	1449	160	173	469	436	238
Total cultivated area (ha)	344.7	12	146	209	238	60
Area under rainfed cultivation/flood affected area (ha)	344.7	12	146	209	238	60
Involvement of households in the programme (%) Approx by the end of 2019.	70%	85%	80%	76%	75%	80%

NICRA Project 2011 - 2020

KVK Lunglei has been awarded 'BEST NICRA Award in Zone VII – 2019 by Indian Council of Agricultural Science in CRIDA, Hyderabad on 4th June 2019 for its efforts in implementation of NICRA Project under -Technology Demonstration Component(NICRA TDC).

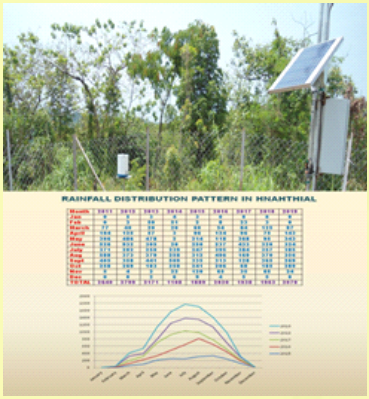






Rainfall variability and occurrence of extreme events during the project period

Rainfall received		Year (S)					
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Annual rainfall (mm)		2640	2799	2171	1108	1716	2310
June		526	932	305	20.5	385	354
July		371	202	250	239.2	236	327
August		588	373	379	258	193	443
September		405	358	441	509,25	281	321
Total kharif rainfall		1890	1865	1375	1026.95	1096	1445
No. of rainy days (kharif)		89	83	68	74	72	80
Occurrence of dry spells/extreme events							
No. of dry spells/flood during the season & period	>10 days						
	>15 days				13		
	>20 days						





During the past ten years data recorded in the Automatic weather station(AWS) & Small weather station in the village shows a rise in the average temperature of Hnahthial in the month of January. The lowest maximum was 19.4 in 2013 while the highest was 28.5 degree in 2019. On the other hand ,minimum temperature in January dipped. The difference between daily minimum and maximum temperature has been widening. The maximum and minimum temperatures in July also have a similar trend.

The rainfall pattern has changed so drastically that the farmers are left clueless. The dates for burning jhum *(shifting cultivation)* had to be shifted two times (2017&2019) during the decade . While there is an decreasing trend in monsoon rainfall, there is increase in post monsoon rainfall and winter rainfall. Heavy precipitation events have gone down. All this factors affecting farming communities. Earlier farmers could grow a variety of crops, fruits and vegetables throughout the year. Now they are searching and approaching KVKs to help them with new crops and varieties that can withstand changing climate.

In order to address the climatic vulnerabilities of the selected village , different intervention were planned under the four modules : Natural Resource Management, Crop Production, Livestock &

Fisheries and Institutional intervention. Specific intervention under each module taken up was need based and decided based on climatic vulnerability and resources situation of the adopted village.

Soil Sample Analysis

In the NICRA village 100 soil samples were collected from different location of farmers field and analyzed at National Bureau of Soil survey and Land Use Planning at Jorhat, Assam to study the status of nutrient availability to crops which will help in evaluating soil productivity and determining intervention based on nutrient status in the future. Soil health card was distributed to 480 farmers in NICRA adopted and its satellite villages.

Average result of soil analysis:

Sl.No	Components	Mean
1	Soil pH	5.8
2	EC	0.04
1	Organic Carbon (%)	1.2
2	Nitrogen (kg/ha)	385.59
3	Phosphorus (kg/ha)	33.06
4	Potassium (kg/ha)	199
5	Manganese (mg/ml)	214.32
6	Copper (mg/ml)	3.61
7	Iron (mg/ml)	80.71
8	Zinc (mg/ml)	11.65





Module I

Natural Resource Management: During the project year , KVK has organized 211 demonstrations in 106ha area involving 128 partner farmers. Major interventions were : Construction of low cost water harvesting structure *"Jalkund"*, Renovation of old farm pond, Construction /renovation of drainage channel and *in-situ* moisture conservation through Plastic/bio mulching.







Renovation of old Farm pond



Low cost water harvesting structure 'Jalkund'



Renovation of old drainage channel



Demonstration on *In-situ* moisture conservation through Plastic and Bio mulch

Module II

Crop Production:

Total 535 demonstrations were conducted on various aspects in NICRA – TDC adopted and its satellite villages during the period of 2011-20. Under the crop production aspect demonstration of water saving paddy rice cultivation system SRI were conducted in 23 ha involving 18 farmers. Short duration paddy varieties-CAU-R1,Bhalum-3 and Maniphou-12 were demonstrated involving 105 farmers and the yield increased by 15%. Improved variety of Soybean JS-335 were demonstrated in 68 ha involving 89 farmers and the yield increased by 14%. Demonstration of intercropping system-Maize+Soybean *(var. RCM-75+JS335)* were conducted and covering of 68 farmers. Inter cropping system of Cabbage+Tomato *(Improved bahar+Samrudhi)* covered 58 farmers in 24ha with a BC ratio of 3.38. Demonstration on Income generation activities-Vermicomposting unit covered 55 farmes,Scientific Bee keeping unit covered 50 farmers and Mushroom production unit covered 65 farmers.



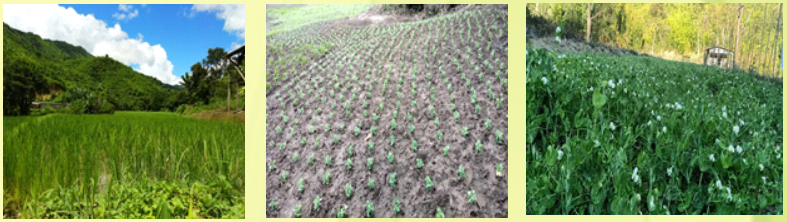
Demonstration of Stress tolerant crops- Dragon fruit(Var. *Hyloceros undatas*)



Demonstration of Short duration paddy(Var.*Maniphou-12,Bhalum-3,CAU-R1*)



Demonstration of Water saving paddy rice cultivation 'SRI'



Demonstration of cropping sequence ; Paddy ➔ Field pea



Demonstration of inter cropping system on stress tolerant crop variety *(Cabbage.Var.Improved bahar+Tomato.var.Arka Samrat)*



Demonstration of Inter cropping system –Maize+ Soybean (RCM-75+JS 335)





Demonstration of Income generation activities ; Mushroom cultivation





Demonstration of Income generation activities ; Vermicompost Production





Demonstration of Income generation activities : Scientific Bee keeping





Demonstration of Community Nursery

Module III

Livestock and Fisheries: Under livestock module organized eight Animal health camp at Hnahthial and its satellite villages during 2011-2020 in which 4578 animals were administered deworming medicine and 3754 animals were injected preventive vaccination. Demonstration on mineral mixture feeding were also conducted involving 174 dairy animals of 48 livestock farmers, which show 13.50 % increase in milk yield. Introduction of dual purpose Vanaraja poultry birds were conducted for nutritional security and additional income. Before NICRA intervention, most of the poultry farmers keeping indigenous birds but the production level was low and that could not meet the requirement of the local people. Under the NICRA project 5000 birds provide to 250 farmers of Hnahthial and its satellite villages. The survivability percentage ranged from 85.25 which indicate these birds are sturdy and can withstand even at high temperature. Pig rearing is a traditional farming among the Mizo's as it helps them to meet the religious and social obligation in the form of meat or cash. KVK introduced improved breeds of pigs (Cross breed of large white Yorkshire) to 20 no. of farmers with 3 piglets per units in the ratio of 1:2. Improved Housing on piggery for heat stress management were also introduced in convergence with NEIDA, and covered 45 farmers in the village.



Demonstration of dual purpose Vanaraja poultry birds



Demonstration of feeding management and disease control programme



Demonstration of Heat stress management in Pig sty



Demonstration of Integrated farming system on Pig cum Fish and Duck cum Fish

Module IV

Institutional Interventions:

Village Climate Risk Management Committee(VCRMC): The village climate risk management committee were selected representing all the categories of farmers in the village along with represent of village council members in Hnahthial village. The committee involved in all the discussion leading to finalizing intervention selection of target farmers, area of demonstration and the responsibility to look after the implementation of the programme based on the need of the farmers.

Custom Hiring Centre: In order to address climate vulnerabilities and supplementing the adequate draft power in the village Custom hiring Centre was established in the NICRA village, to finalize the purchase of farm implements and the farmers in the presence of the village committee and the KVK officials to look after in price fixing, record keeping, account maintenance, renting and repairing etc..

NICRA Project 2011 - 2020

Name of Implements	Numbers	Revenue generated for the year 2012-2020
Power tiller	1	
Mini Power tiller	1	
Brass cutter	4	
Water pump with 200ft discharge poly pipe	2	105650 /-
Power saw	1	
Foot sprayer	1	
Sprinkler irrigation set	1	
Cono weeder	5	
Garden kit	2	
Digital weighing balance	1	
Knapsack sprayer	8	
Chaff cutter	1	
Wheel hoe	5	
Tree pruner	1	







Meeting of VCRMC and Custom Hiring Center













Farm implements under Custom Hiring Center

Capacity Building

Trainings

Thematic area	No.of courses	No.of beneficiaries
		Male
NaturalResource Management	45	453
Crop Production	63	658
Livestock& fisheries	47	328









Extension activities

Name of the activity	No.of programmes	No.of beneficiaries		
		Male	Female	Total
Method of demo	16	421	248	669
Diagnostic visit	78	186	132	319
Field visit	48	189	84	263
Group discussion	23	75	36	111
Awareness campaign	8	456	372	829
Field day	25	213	154	367
Agro advisory service	89	298	152	450



Field Day



Tree Plantation and Kissan Gosti



ZMC visit NICRA village



Agri Clinic at NICRA Satelite Village



Training



Soil Health Card



Agro Advisory Services



Field Day

Publications (Vedio, Articles,bulletin,folders etc,)

