OPERATIONAL GUIDELINES FOR SUPPORT FOR WETLAND AGRICULTURE DURING FY 2020-2021

INTRODUCTION (WITH REFERENCE TO PIM, FOCUS

Agriculture in Mizoram state is practiced on hill slopes and terraced low lands. The forest cover has been reduced from over 90% to 88% during the last 25 years due to the practice of shifting cultivation (locally called jhum). The quality of forest also depleted during this period. Normally farmers have been farming on hill slopes by clearing forests and preparing the cleared land for rain-fed mixed cropping systems for 1-2 years in Mizoram. They leave the land as fallows and return after 8-10 years to cultivate it the same way for 1-2 years. However, they continue to cultivate wet land rice on the terraced lowlands year after year. ***The farmers cultivate wet land rice on terraced lowlands called Wet Rice Cultivation (WRC).*** Villages in Mizoram also have another important multi-purpose resource - the Village Forest. These forests traditionally were protected and used as village safety net forests --water conservation for local domestic uses and as a source of forest produce, including the non-timber forest produce for the community uses (not for commerce). Such resources have dwindled in the recent past, and their rejuvenation/conservation is a necessity to protect water resources and other forest-based livelihoods.

The main objective of ensuring sustainable agriculture without resorting to jhum will be to intensify efforts on: ***(i) Soil And Water Conservation through Mechanical and Vegetative methods; (ii) Promoting Settled Agriculture on sloping lands; and (iii) Increased Rice Production from Low Lands.*** The project will take into account emerging climate resilient best practices, which include demonstration of technological practices to adapt to current climate risks such as suitable plant genotypes, in situ moisture conservation, run off water management, disease and insect-pest management, and matching cropping systems to current precipitation levels.

SUB-COMPONENT – SUPPORT TO SETTLED AGRICULTURE:

The project does not directly promote settled agriculture though many farmers have made the transition from jhum only production system to jhum and settled agriculture mixed system mainly on account of high levels of labour requirement and hard labour on a day to day basis throughout the year, disinterest of younger generation in jhum cultivation and the need for cash income. The project will support two aspects related to settled agriculture: ***(i) The Existing Settled Agriculture Comprising Terrace Rice Cultivation in Terraces and Orchards and Plantations in Sloping Uplands; and (ii) The Landless Households (Households that have access to Jhum Land but not to land with tenurial security).***

SUPPORT TO EXISTING TERRACE RICE CULTIVATION:

The project will support farmers undertaking terraced rice cultivation. The main aim of this will be to ***Increase Soil Fertility***, ***Productivity And Cropping Intensity***, ***and Stabilize Productivity***. One to two FIGs in each village, comprising of about 10-20 members will be established and supported by the selected Lead Farmer and by the project in each village. FIG members will be provided training on Improved Farming Systems and better agro-techniques for the chosen crops and production of improved seeds.

The main aim of this activity will be to increase soil fertility, productivity and cropping intensity, and stabilize productivity. The project will form FIGs and train them on Improved Crop Husbandry. The project will also promote additional measures for improving ***Soil Fertility by growing Sesbaniarostrata and Azollapinnata under Rice Cultivation Systems.*** This apart, developing supplementary irrigation system such as ***lift irrigation, water harvesting ponds for rice cultivation in low land areas will also be supported.*** The project will select short duration improved local paddy varieties in consultation with KVKs/ATARI. In addition, the project will also support introduction of second crop (pulses/ginger/ onion) after rice cultivation, rice-fish cultivation and fish farming in ponds in each of the selected villages depending on the feasibility to undertake this activity. The project will support 10,880 households covering 5,440 ha. Each household with terrace rice cultivation will get support for 0.5 Ha.

The project will promote use of improved locally developed paddy varieties, such as CAU-R1, and Komati, or the identified elite lines from the local Rice Germplasm, including landraces in the selected villages for increasing paddy production. In addition, the project will also support Rice-Fish Cultivation and Fish Farming in Ponds in the selected villages depending on the feasibility to undertake this activity. The possibility of two crops of decent productivity with first crop of Lowland Rice and an Upland Crop (e.g. onion, garlic, field pea, lentil, and other legumes) after rice will be explored through proper crop planning using water balance analysis and improved agronomic practices.

This intervention will enable the farmers to sustain their activity and take up settled agriculture as means of improving income levels and reduce dependence on 'Jhum.'

The settled agriculture sub-component will promote conversion of jhum into settled agriculture, thereby, increasing the 'jhum' cycle and reduction in jhum practice.

STRATEGY FOR LIMING, HARDPAN BREAKING/ DEEP PLOUGHING, AZOLLA APPLICATION (GREEN MANURING) IN SETTLED WRC/TRC UNDER SUPPORT FORWETLAND AGRICULTURE DURING 2019-2020 FY

TABLE NO 1: ANNUAL WORKS PLAN & BUDGET FOR SUPPORT FOR WETLAND AGRICULTURE DURING 2020-2021 FY

A/C Code (only indicative)	Distibution Account/ Category	Activity	Unit	Quarter wise distribution of physical traget				Total Qty / Target	Unit Cost	Final Amount (Actual + contingency) (in cr.)	Financing Plan (INR)							
				Qtr 1	Qtr 2	Qtr 3	Qtr 4				GoM in cr.	IFAD Loan In Cr.	CSS	CSS (Govt. 10%)	Con.	BEN in Cr.	IFAD Grant in Cr.	Total in Cr.
12010200		Support for Wetland Agricultu																
12010201	Goods, Services & inputs	Improved Soil Fertility Measures	Ha	2800	NIL	NIL	NIL	2,800	27,000	7.56	0.56	**5.04**	NIL	NIL	NIL	1.96	NIL	**7.56**
12010202	Goods, Services & inputs	Support for Wetland Agriculture	Ha	NIL	NIL	2800	NIL	2,800	30,000	8.4	0.56	**5.04**	NIL	NIL	NIL	2.8	NIL	**8.4**

WHYINTERVENTIONS?

a) Most of the WRC/TRC areas are under acidic condition on account of the constant utilization without technical inputs. Therefore, crucial intervention like liming is proposed to correct the soil pH.

b) The constant tillage at the normal depth gradually developed HARDPAN or PLOUGHPAN at the layer where the normal tillage depth reached. The Hardpan restricted Water Permeability and Root Penetration and Aeration etc. Hence, hardpan breaking or deep ploughing is recommended under this component.

c) Azolla application in the standing rice field also suggested-intervention under this component.

EXPECTED IMPACT

1. To loosen the soil and increase Water permeability, Roots Penetration and Aeration etc.
2. To increase and stabilize in Production & Productivity (vertical-growth)-Climate Change Adaptability/Climate resilient.
3. To increase cropping intensity.
4. To Boost Organic Farming.
5. To increase farmers' income.

TABLE NO 2: COSTING FOR HARDPAN BREAKING AND LIMING IN 1 (One) HECTARE IN WRC/TRC AREA

Sl. No	ITEM OF WORKS	Unit	Rate per Unit (Rs)	QTY	Amount (Rs)	COST-SHARING			Remarks
						IFAD Loan	GOM	Beneficiary	
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
A	**COSTS OF CRUCIAL INPUTS:**								
	1. Slaked lime	Qtl	1,300 per Qtl	6 Qtls	7800	7020	780	NIL	**F.O.R at Aizawl HQ which is ever changing due to current crisis**
	Sub Total of (A)				**7800**	**7020**	**780**	**-**	
B	**MAIN-FIELDOPERATIONS:**								
	i) Irrigations	Hrs.	500 per hr	8 hrs	4,000	NIL	NIL	4,000	
	ii) Manual laborers. Supervision and broadcasting of slaked lime.	MD	500/per MD	6 MD	3,000	NIL	NIL	3,000	
	iii) Drilling & Planking of Slaked Lime with tractor Mounted-Rotavator	hrs.	1,300/per hr	3 hrs	3,900	3,510	390	-	
	iv) Deep Ploughing by Tractor Mounted-Chisel Plough	hrs.	1,300/per hr	4 hrs	5,200	4,680	520	-	
	Sub Total of (B)				**16,100**	**8,190**	**910**	**7,000**	
C	**Transportation and Handling of slaked lime**	LS	517	6Qtl	3100	2790	310	Nil	**Estimated amount up to FIG Level**
	Sub Total of (C)				**3100**	**2790**	**310**	**Nil**	
	GRAND TOTAL				**27,000**	**18,000**	**2,000**	**7,000**	

TABLE NO 3: COSTING FOR AZOLLA APPLICATION IN RICE FIELD CULTIVATION

Sl. No	ITEM OF WORKS	Unit	Rate per Unit (Rs)	QTY	Amount (Rs)	COST-SHARING			Remarks
						IFAD Loan	GOM	Beneficiary	
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
A	**COSTS OF CRUCIAL INPUTS:**								
	1. Cereal crops (Rice/Maize, etc)	Kg	200	20	4,000	3,600	400	NIL	**Contextualized/ modified SRI will be practised for rice.**
	2. Tuber crops (kharif/Rabi)	Kg	60	50	3,000	2,700	300	NIL	
	3. Vegetable (Rabi)	gm	LS	LS	1,200	1080	120	NIL	
	4. Green manuring seeds	Kg	LS	LS	2,000	1,800	200	NIL	
	5. Azolla (kharif)	Kg	100	20	2,000	1,800	200	NIL	**To be incorporated with standing rice. The remaining dose is expected from concerned departments**
	6. IPM & INM (kharif/Rabi)	LS	LS	LS	2,000	NIL	NIL	2,000	
	Sub Total of (A)				**14,200**	**10,980**	**1,220**	**2,000**	
B	**MAIN-FIELD OPERATIONS:**								
	i) Irrigations	Hrs.	500 per hr	8 hrs	4,000	NIL	NIL	4,000	

	ii) **Manual laborers:-** Supervision and application/broadcasting of Azolla/ dhaincha, IPM measures & nursery raising, etc.	MD	500/per MD	8 MD	4,000	NIL	NIL	4,000	
	iii) Land Reclamation such as- Levelling, Drainage, Water-Logged Plots, treatment, etc.	hrs.	1,300/per hr	6 hrs	7,800	7,020	780	NIL	
	Sub Total of (B)				**15,800**	**7,020**	**780**	**8,000**	
	GRAND TOTAL				**30,000**	**18,000**	**2,000**	**10,000**	

TABLE NO. 4:CALENDAR OF WORKS FOR SUPPORT FOR WETLAND AGRICULTURE DURING 2020-2021 FY

Sl. No	MONTH	ITEMS OF WORKS	REMARKS
1	Last week of APRIL- May, 2020	Procurement of Slaked Lime and Mobilization of Custom Hiring Centre (CHC), etc. Liming-cum-Summer Ploughing.	PMU, DMU, SAC, VLWs and FIG/ Beneficiaries
2	JUNE	Deep ploughing/Hardpan Breaking a long with land preparation for rice cultivation (modified SRI practised) IPM/INM measures.	SAC, VLWs and FIG/ Beneficiaries
3	JULY	Azolla Application in the standing rice field.	SAC, VLWs and FIG/ Beneficiaries
4	JULY-AUGUST, 2020	Monitoring Eg: Pests-Surveillance, IPM/INM measures	SAC, VLWs and FIG/ Beneficiaries
5	SEPT-OCT, 2020	Nursery Raising, land preparation and Cultivation of Maize, Potato, Pulses and Cole-Crops.	SAC, VLWs and FIG/ Beneficiaries
6	NOVEMBER – DECEMBER, 2020	IPM measures, etc.	SAC, VLWs and FIG/ Beneficiaries
7	JANUARY, 2021 to March 2021	Preparation for the next financial year.	SAC, VLWs and FIG/ Beneficiaries

STANDARD OPERATING PROCEDURE

1. The total cost per hectare is estimated @ ₹ 27,000/- and ₹ 30,000 **(₹ 7,000 and ₹ 10,000 beneficiary contribution respectively)**
2. Each household will get support for 0.5 hectare (as per the PIM)
3. Expected total area to be covered 2800 hectares with 5600 households (two components incorporation in the same field).
4. Priority always should be given to the women-headed and poorer section of the WRC/TRC FIG's member/s.
5. The calendar of works should be followed as far as possible.
6. The intervention should be carried out in the compact WRC/TRC FIG areas as far as possible.
7. Interventions should be carried out by the WRC/TRC FIG under the close supervision of FOCUS Staff.
8. The Community Procurement Guidelines should be strictly followed for procurement at the community level, with its threshold and procurement methods as per Letters to the Borrower, etc.
9. In case the community is unable to source the required goods/ materials locally, the District Management Unit shall source the requirements on behalf of the community as a centralised procurement in consultation with the Procurement Officer, PMU, FOCUS to achieve the economies of scale.
10. All activities performed should be documented properly with the photographs (Geo-tagging, Video and Still Camera).
11. Work Supervision in the individual WRC/TRC should be done by the owner of the land or his representative and if any arbitrary arise the concerning FIG will address accordingly and promptly.
12. A soil sample should be drawn before and after the execution of the work on the actual WRC/TRC area takes place.
13. Crop-cutting experiment should be recorded/conducted before and after the intervention is executed.
14. The works carried out under WRC/TRC shall be monitored by TO (AGRI)/ SAC/VLWs with the supervision of experts from district Agriculture Department.