
Agricultural Machinery Custom Hiring Centres (CHC) Model Scheme

1. Indian agriculture is undergoing a gradual shift from dependence on human power and animal power to mechanical power because increasing cost for upkeep of animal and growing scarcity of human labour. Further, use of mechanical power has a direct bearing on the productivity of crops apart from reducing the drudgery and facilitating timeliness of agricultural operations. Thus there is a strong need for taking farm mechanization. However, the farm power distribution is quite uneven across the States, wherein the highest use of mechanical power is in the order of 3.5 kw/ha in Punjab and less than 1kw/ha in States like Bihar, Orissa, Jharkhand etc. Mechanical power is largely consumed in big land holdings and is still beyond the reach of small/marginal holdings which constitutes around 80% of the total land holdings. This is due to the fact that the small/marginal farmers, by virtue of their economic condition are unable to own farm machinery on their own or through institutional credit. Therefore in order to bring farm machinery available within the reach of small/marginal holdings, collective ownership or Custom Hiring Centres needs to be promoted in a big way. This model scheme is prepared to demonstrate the banks that financing for establishment of Custom Hiring Centres are a financially viable unit.

2. Objectives:

- ◆ To make available various farm machinery / equipments to small and marginal farmers
- ◆ To offset the adverse economies of scale due to high cost of individual ownership
- ◆ To improve mechanization in places with low farm power availability
- ◆ To provide hiring services for various agricultural machinery/implements applied for different operations.
- ◆ To expand mechanized activities during cropping seasons in large areas especially in small and marginal holdings.
- ◆ To provide hiring services for various high value crop specific machines applied for different operations.

3. Potential for Custom Hiring Centres :

The farm power availability for small/marginal land holdings is the lowest. As the small/marginal holdings constitutes 80% of total land holdings, the potential for CHC which will cater to the farm machinery requirement of such a vast area, is quite huge. Government of India, in recognition of this potential has envisaged increase of farm power availability from the present level (0.93 kw/ha) to 2kw/ha during the 12th plan period. The Sub Mission on Agricultural Machinery (SMAM) is one such initiative towards the objective. Subsidy schemes are also being formulated to encourage entrepreneurs and agri graduates to set up custom hiring centres. Therefore, keeping in view the emphasis of agricultural farm machinery and the need for taking the use of farm machinery within the reach of small/marginal farmers, institutional credit needs to be made available for CHCs.

4. Location of the CHCs

Ideally, the CHC shall have to be located in a place where by and large small land holdings are located within a radius of 5 to 7 kms. This will reduce the transport cost and time of transport of agricultural machinery. In other terms, one CHC is expected to cater to 4/5 villages and therefore a common place equidistant from the villages catered is advisable.

5. Potential Borrowers

Though institutions like Primary Agricultural Credit Societies, Multipurpose Societies, Marketing societies etc., and line departments have machinery for custom hiring, a vast area still remains uncovered. Informal hiring systems are also prevalent in rural areas, however, timely availability is not assured. Therefore there is a need to encourage individuals like progressive farmers, rural unemployed youth, agri graduates etc., and also village level institutions like Water Users Association, Watershed Committee, SHG Federations etc., to set up CHCs.

6. CHC Unit

CHCs are basically a unit comprising a set of farm machinery, implements and equipment meant for custom hiring by farmers. Though certain implements and equipment are crop specific, the traction units like tractors, power tillers etc., and self-propelled machinery like combine harvesters etc., are used in common. Therefore, an ideal model envisaged in this project comprise farm machinery that are commonly used for tillage operations for all crops, multi crop equipment and a minimum of crop specific machinery.

7. Total Cost

This model is essentially suited for areas where paddy is cultivated predominantly. The CHC may comprise the following machinery:

- i. 35 hp tractor - for tillage operations, traction source and transport
- ii. Power tiller - for tillage operations in small farms, traction source for small equipment and agri input transport for short distance.
- iii. Multi crop Power thresher
- iv. Winnowing machine
- v. Self-Propelled Reaper
- vi. Sprayers :
- vii. Repairing tools

The cost of the unit works out to Rs. 15.50 lakh, which includes cost of construction of a workshop of 500 sq. ft. The land cost which is not considered in the project may however, be treated as margin. The details are given in Annexure 1.

Provision of a workshop shed has been made for parking the machinery, carryout day-to-day repair, maintenance and service works.

8. Income and Expenditure

While the major income is generated out of custom hiring, recurring cost involved are fuel / lubricant cost for the machinery, driver charges, repair maintenance charges, labour, interest on bank loan and insurance are the major recurring cost taken in the economics. The details of assumptions leading to the income and expenditure are indicated in Annexure 2 and the statement of income and expenditure is given in Annexure 3.

9. Financial viability of the project:

The financial viability assessment is given in Annexure 4. The outcome is summarised as below:

Net Present Worth @ 15 % discounting factor = Rs. 343432

Benefit Cost Ratio = 1.08 : 1

Internal Rate Return =23.4%.

Average Debt Service Coverage Ratio = 1.49:1

DISCLAIMER

The views expressed in this model project are advisory in nature. NABARD assume no financial liability to anyone using the report for any purpose. The actual cost and returns of projects will have to be taken on a case by case basis considering the specific requirement of projects

ANNEXURE I

CUSTOM HIRING CENTRE - WITH COMBINE HARVESTER

Sl. No.	Items of Investment	Cost (Rs.)
1	Tractor - 35 hp	490000
2	Trailer	1,10,000
3	Implements	
a	Mould Board Plough	26,000
b	Cultivator - 9 tyne	30,000
c	Cage Wheel - 18"	30,000
d	Disc harrow	30,000
e	Seed Drill	30,000
f	Accessories	12,000
	Sub Total	758000
4	Transplanter	200000
5	Power Tiller - 13 HP	150000
6	Multi Crop Power thresher with electric motor	80,000
7	Winnower	8000
8	Self Propelled Reaper - 3.5 HP	90,000
9	Sprayer : Powered - 1 No.	8000
10	Sprayer : Manual - 2 No.	5000
11	Servicing tools	4000
12	Tools for repairing of machines	22000
	Sub Total	567000
		0
1	A shed for keeping the tools and machinery - 500 sq. ft. @ Rs. 450 psf	225000
	Total Cost for Unit	15,50,000

ANNEXURE 2

Sl. No.	Item	Unit	Rental / Cost	Annual Working	
				hiring unit	Nos.
1	Annual usage of tractors				
	a) Agricultural Operations	Rs. Per hour	600	Hrs	700
	b) On transportation work	Rs. per day **	750	days	150
2	Annual usage of Power tiller	Rs. Per hour	300	Hrs	700
4	Annual usage of Power sprayer	Rs.per day *	80	days	60
5	Manual sprayer	Rs. Per day	50	days	60
6	Annual usage of Power thresher	Rs.per day *	750	days	90
7	Annual usage of winnower	Rs.per day *	120	days	45
8	Annual usage of Reaper	Rs. Per hour	250	Hrs	400
9	Diesel Price	Rs. Per lit.	65		
10	Lubricant Cost	Rs. Per lit.	180		
11	Diesel Requirement for tractor	litres per hour	3		
12	Diesel Requirement for power tiller	litres per hour	1.5		
14	Diesel Requirement for reaper	litres per hour	0.5		
15	Monthly income from repair of agricultural machinery	Rs.per month	10000		
16	Lubricant requirement	% of Diesel	2.5		
17	Interest on term loan (% p.a.)		12.50%		

*Fuel and labour arranged by the beneficiary who hires the machinery from the Custom Hiring Centre

** Fuel is arranged by the beneficiary who hires the tractor from the Custom Hiring Centre

ANNEXURE 3

ANNUAL RECURRING COST FOR CUSTOM HIRING CENTRES

Sl. No	ITEM	COST	
		Full capacity Utilisation	75 % during 1st year
1	TRACTOR		
	Driver's Salary @ Rs.7000 per month	84000.00	63000.00
	Fuel Cost	136500.00	102375.00
	Lubricants @10%. of fuel cost	13650.00	10237.50
	Repair and maintenance charges @ 10 % of cost of tractor and equipment	75800.00	56850.00
	Sub Total	309950.00	232462.50
2	POWER TILLER		
	Driver's Salary @ Rs. 7000 per month for 6 months	42000.00	31500.00
	Fuel Cost	68250.00	51187.50
	Lubricants consumption @ 10 % fuel cost	6825.00	5118.75
	Repair and maintenance @ 10 % of cost of power tiller	15000.00	11250.00
	Sub Total	132075.00	99056.25
4	POWER THRESHER		
	Repair and maintenance @ 10 % of the cost of power thresher *	8000.00	6000.00
	Sub Total	8000.00	6000.00
5	WINNOWER		
	Repair and maintenance @ 10 % of the cost of winnower *	800.00	600.00
	Sub Total	800.00	600.00
6	SELF PROPELLED REAPER		
	Driver Salary @ Rs. 7000 per month for 3 months	21000.00	15750.00
	Fuel Cost	13000.00	9750.00
	Lubricants consumption @ 10 % fuel cost	1300.00	975.00
	Repair and maintenance @ 10 % of the cost of reaper	9000.00	6750.00
	Sub Total	44300.00	33225.00
7	SPRAYER		
	Repair and maintenance cost @ 10 % of the cost of sprayer *	1300.00	975.00
	Sub Total	1300.00	975.00

8	Other recurring cost		
	Salary for the skilled mechanic and helper to be employed for repairing work @ Rs. 5000/- and Rs.3000/- per month resp.	96000.00	72000.00
	Insurance premium @ 2% of machinery cost	11340.00	11340.00
	Sub Total	107340.00	83340.00
	TOTAL RECURRING COST	603765.00	455658.75
	INCOME PER ANNUM FROM THE CUSTOM HIRING CENTRE		
			(Amount in Rs.)
	ITEM	Full capacity Utilisation	75 % during 1st year
1	TRACTOR	532500	399375
2	POWER TILLER	210000	157500
4	POWER THRESHER	67500	50625
5	WINNOWER	5400	4050
6	REAPER	100000	75000
7	SPRAYERS	7800	5850
8	REPAIRING OF MACHINERY	120000	90000
	TOTAL INCOME	1043200	782400
	NET INCOME	439435.00	326741.25
	* the power and labour are arranged by the beneficiary hiring the equipment.		

ANNEXURE 5

REPAYMENT SCHEDULE

Interest Rate	13.00%
Capital Cost	1550000
Bank Loan	1240000

(Amt. In Rs.)

Year	Beginning of the Year	End of the Year	Net Surplus	Surplus for servicing the loan	Payment of interest @ 13.0% p.a.	Repayment of Principal	Total Outgo	Net Available
1	1240000	1240000	326741	245056	161200	0	161200	165541
2	1240000	1240000	439435	329576	161200	0	161200	278235
3	1240000	1071624	439435	329576	161200	168376	329576	109859
4	1071624	881359	439435	329576	139311	190265	329576	109859
5	881359	666359	439435	329576	114577	215000	329576	109859
6	666359	423409	439435	329576	86627	242950	329576	109859
7	423409	148876	439435	329576	55043	274533	329576	109859
8	148876	0	439435	329576	19354	148876	168230	271205