



Farm Mechanisation is the Need of the Time: It's Picking Up in Odisha Led by Youth

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Agricultural land area is not increasing, but the demand for food is ever increasing due to population growth. To meet the demand of increasing population for food and for income security increase in crop productivity is the only way left. To increase crop productivity, timely and precise field work is necessary. To make it possible, agricultural machines take an important role.

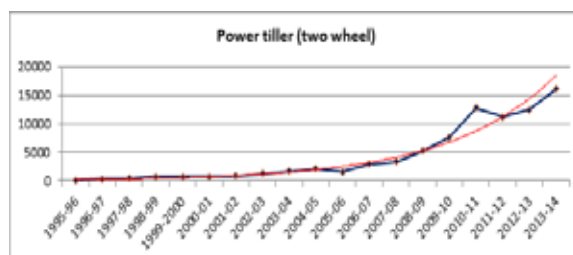
The farm power distribution is quite uneven across Indian States. The highest use of mechanical power is in the order of 3.5 kw/ha in Punjab and less than 1kw/ha in States like Bihar, Odisha, Jharkhand etc. In the one side small/marginal holdings constitutes around 80% of the total land holdings and on the other side economic condition of those farmers is such they are unable to own farm machinery on their own or through institutional credit. In order to bring farm machinery available within the reach of small/marginal holdings, collective ownership or Custom Hiring Centres has been considered as an important strategy for farm mechanisation. This model scheme is prepared to demonstrate the banks that financing for establishment of Custom Hiring Centres are a financially viable unit (NABARD). As per NABARD estimation, in this model net present worth is at 15%, discounting factor is Rs.343432, benefit cost ratio is 1.08 : 1, internal rate of return 23.4% and average debt service coverage ratio is 1.49 : 1.

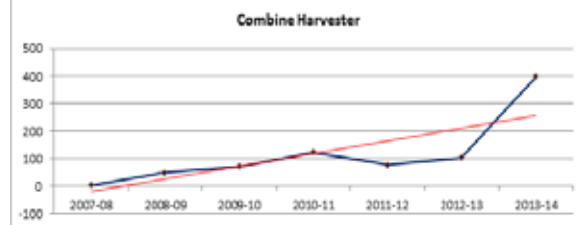
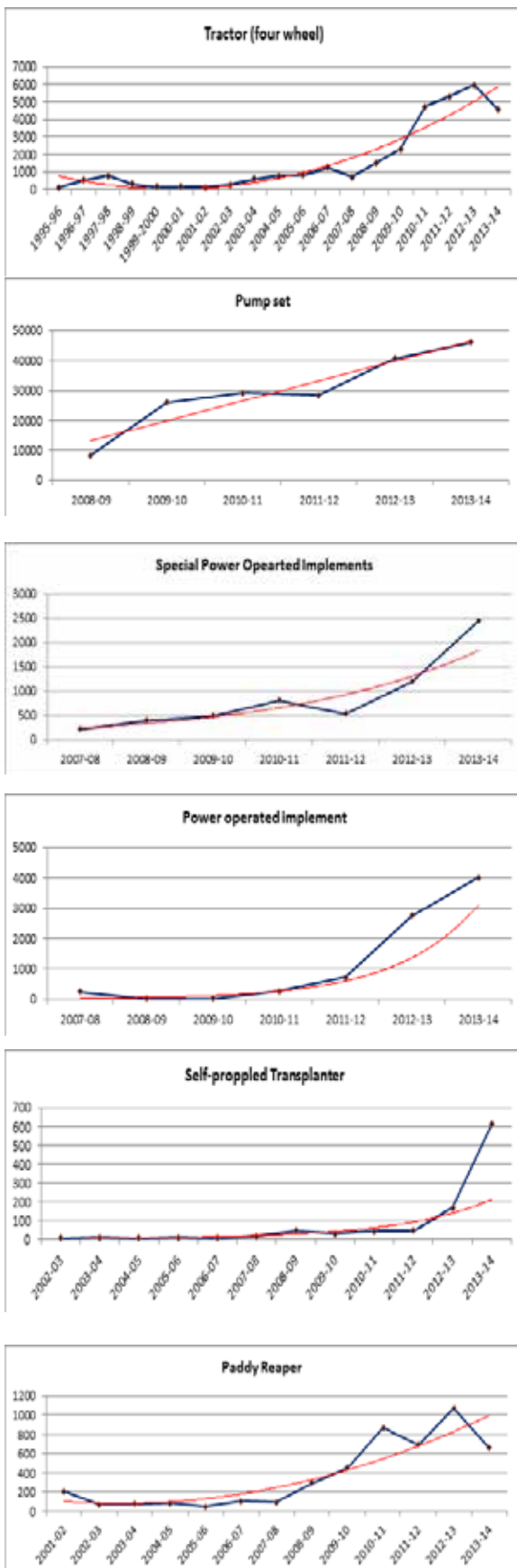
In India, Farm Mechanization programmes are being implemented through missions/schemes such as RKVY, MIDH, NMOOP & NFSM. All these programmes have shown their success. Besides, a new programme has been planned in 2014 (12th Plan Period) and that is Sub Mission on Agricultural Mechanization (SMAM). It is being implemented in all the states, to promote the usage of farm mechanization and increase the ratio of farm power to cultivable unit area up to 2 kW/ha. The SMAM is a Central Sector Schemes in which Government of India contributes 75% and states contribute 25% (Operational Guideline, SMAM, Ministry of Agriculture, Government of India, 2014). The major components of the mission are 1) Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration, 2) Demonstration, Training and Distribution of Post-Harvest Technology and Management (PHTM), 3) Financial Assistance for Procurement of Agriculture Machinery and Equipment, 4) Establish Farm Machinery Banks for Custom Hiring, 5) Establish Hi-Tech, High Productive Equipment Hub for Custom Hiring, 6) Promotion of Farm Mechanization in Selected Villages, 7) Financial Assistance for Promotion of Mechanized Operations/hectare Carried out Through Custom Hiring Centres, and 8) Promotion of Farm Machinery and Equipment in North-Eastern Region.

Odisha an eastern India State is rightly implementing central schemes with a few state programs on farm mechanisation. State Governments are also giving additional support for popularisation of farm mechanisation. In the one side it is supplying various farm machineries at subsidised price to interested farmers/entrepreneurs and on the other hand also supporting farmers for adopting the technology around those farm machineries.

Odisha is an agrarian state of India. Almost 70% of the state population depends on agriculture, although the agriculture sector contributes only about 15.4% of the Gross State Domestic Product (GSDP). Agriculture in Odisha is characterised by low productivity on account of various factors like high temperature, high humidity, medium to high rainfall (1451.2 mm normal), mild winter, saline & water logged areas, lack of irrigation (35%), low seed replacement rate (21.65% for paddy), low fertiliser consumption (63 kg/ha), small land holding (1.15 ha), low cropping intensity (166%) and low farm power consumption (1.24 kw/ha), etc. Uncertainty in agriculture due to biotic and abiotic stresses coupled with labour shortage and migration of youths has made the situation worse. Keeping all these in view, government of Odisha is trying hard to popularise the farm mechanisation and as a result it is picking up at a good pace. Youth have great contribution in popularising farm mechanisation through custom service business model. Many farmers including youth are purchasing farm equipments and machines for their own use and also for custom service. Since a big financial investment and maintenance is required, all farmers cannot afford those machine to purchase. So another layer has been created in the farming system which is earning self-livelihood and helping marginal and small farmers in providing custom service. They are our energetic and optimistic youth. Due to all these combine efforts Odisha has been able to mobilise quite a good number of machines in short span of time. The charts below show number of various farm machineries supplied under different work plans in Odisha. The time series data along with trend line clearly indicates the supply of all the farm machineries are in increasing trend.

Chart 1: Number of various farm machineries supplied under different work plans in Odisha





The case study below narrates how a harassed (from many professions) and educated youth became the role model for many others by choosing agriculture and mechanised service provision as major occupation.

Mr. Manoranjan Singh belongs to Ayatnadia village of Delang block under Puri district of Odisha. His father late Suklabar Singh was in government service. After completion of his graduation, due to some family problem he could not go for higher education, though he was a studious. When he was about 25 years, his family faced a big financial crunch and he being the elder son it was his duty to support the family. He searched for jobs both in government and private companies but could not get a suitable one – somewhere the salary was very less and somewhere jobs were not satisfactory. Some years passed in searching jobs and just helping family in agriculture activities. For both financial and social factors he was remaining unhappy most of the time. Mr. Singh says his father always wanted to see him as a good farmer. Many times his father has tried to convince him to opt agriculture as principal occupation whereas his mother wanted a secure government job for him. Unknowingly he started collecting information on agriculture and his weakness towards agriculture moved on. Finally, he made of his mind to choose agriculture as his principal occupation. All his friends and villagers laughed at his decision but this gave him more enthusiasm to prove that his decision is not wrong. How many fathers would want their sons to take farming as a profession! Mr. Singh had 5 hectare of agriculture land when took over agriculture as profession. But due to some problem like irrigation, labour, market, etc. half of the land were remained uncultivated. When he chose agriculture as his main occupation; he had one pair of bullock, two bull-oak-drawn desi ploughs, one wooden leveller, and some small agriculture tools. Initially, the problems he faced to carry on agriculture activities (mainly land preparation and threshing) were labour scarcity and lack of agriculture information. So he planned to purchase a power tiller and a pedal thresher. He struggled a lot to get the machines on subsidy. At that time peoples politicians' recommendation was required to purchase farm equipments on subsidy, he said. He purchased two machines on loan. His pedal thresher was the first thresher in his block, he claimed. His initial years in agriculture were frustrating for financial burden due to low return to agriculture and social criticism. In the meantime the power tiller operator left the work in the mid of the season because he could not pay. Then he planned to learn the power tiller operation and also its troubleshooting & repairing and he did that. Next year, he completed land preparation earlier than others and got free time. He did not hesitate to operate his power tiller in others field for money in order to repay the loan. Then he thought why not convert this work (operating machines at other field) into business. Mr. Singh started mechanised service provision as a full-time business from 2007. Having machines, he could able to complete agriculture activities earlier in all his own land (including the fallow land) and even he could able to cultivate 40 ha of leased-in land.

Crop intensification was also the result of farm mechanisation, he said. His income gradually increased. Then Mr. Singh planned to purchase some other farm equipments and every year he went on adding machines. He uses those machines for his own land and provides paid service to others mostly. Not only he purchased machines, he learnt how to operate machines and maintenance of those machines as well. Learned best-bet of agronomic practices and adopted advances technologies. Now, he has two combine harvesters, seven transplanters, two tractors, two axial flow threshers, four reapers, two seed drills, one power tiller, four pump sets, and some other. Presently, mechanised service provision is his primary occupation. He has hired a manager to look after his business. His younger brother has also followed brother's path. About 5 permanent employees and 12 part-time employees are working under him. He is now serving around 1000 farmers every year. His income has increased by 8 times. Table 1 below analyses the before and after status of assets owning, change in cropping intensity, change in social networking and change in income of Mr. Singh over a period of 10 years.

Motivated by him, many of his friends who were laughing at him and many other youths in the district, have chosen agriculture and mechanised service business as primary or secondary occupation. He has created awareness among many other farmers to adopt various technologies and even trained many youths as machine operators in his area to support the mechanised service business and to earn their own livelihood. In course of time, he has expanded his social networking strongly. He has formed a farmer's club and advising members in many ways. For those, due to any reason could not cultivate their land earlier are now cultivating their land as getting service at their doorstep – farm mechanisation. In many agriculture related occasions, both government and private companies are taking him as resource person. He has become the role model of farm mechanisation for agriculture department, for youths, overall in the sector of agriculture in Odisha.

It seems, youths have started leading farm mechanisation in Odisha.

Table 1: Before and After Status of Assets and Income

Item	Before (2004)	After (2015)
Bullock	1 pair	Nil
Wooden leveller	1	1
Power tiller	0	1
Pedal thresher	0	1
Combine harvester	0	2
Paddy transplanter	0	6
Tractor	0	2
Axial Flow Thresher	0	3
Reapers	0	4
Pump sets	0	2
Cultivated land (own)	3 ha	7 ha
Cultivated land (leased-in)	Nil	40 ha
Number of crops in a year	1-2	2-3
Number of farmers served per year	Nil	1000
Member in number of social organisations	Nil	4
Change in productivity of crops	-	70%
Income	Rs.60000/annum	Rs.500000/annum



Photo 1: Day starts with visit to field to monitor crop growth – this is like morning walk for Mr. Singh



Photo 2: Mr. Singh, the man of farm mechanisation has made machines his friend



Photo 3: Mr. Singh has hired a manager to look after his business. The manager also wishes to start a separate business in near future.



Photo 4: The younger brother of Mr. Singh is also following him. He has already started his own business (custom service)

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