Custom Hiring of Agricultural Machinery

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Background; Statistics

- Land area - 60,600 km²
- Population - 20.3 million
- Arable area - 30% of the total land area
- **Avg land holding size - 1.0 ha**
- Main crops - Paddy, Maize, Vegetable, Fruits, Spices, Grain Legumes, oil crops and root crops
- Plantation crops - Tea, Coconut, Rubber, Sugarcane
- Families engaged in Agriculture - 1.8 mill (49%)
- Agricultural contribution to GDP – 7.2%
- Paddy cultivated area - 34% of the arable land
- Average yield (PADDY) - 4.5 MT/ha
Background: Machinery Supply Chain

- Very few machinery are locally produced like water pumps, sprayers, seeders and hand tools
- Majority is imported
- No tax on imported agricultural machinery
- Supply of machinery is not regulated
- Inferior quality machinery inflows to the country
- Local production also not supported by unfavorable trade policy and small local market
Background; Level of Mechanization

- Paddy Cultivation - Highly mechanized (Though not properly)
- Vegetable cultivation - Low level
- Other field crops – Moderately mechanized
- Fruit sector - Low level
- Plantation crops - Low level
- Spices - Very low
Challenges in Agricultural Practices

- Labour shortage in peak demanding period
- Cultivated area increased after the war and as a result of irrigation projects
- Timely cultivation is challenged with climatic changes and labour shortages
- Consumer is more quality concerned
- With the limited resources, productivity improvement is identified as a priority

Solution: Mechanization
CHALLENGES IN AGRICULTURAL MECHANIZATION

- Poor purchasing power of individuals
- Owning is not economical as the average land holding is small
- Seasonal usage of some machinery
- Lack of infrastructural facilities
- Many machines are single purpose and having considerably un-matching capacity
- New technologies, while available are out of reach of small holders, who cannot afford to purchase of these items of machinery.
- Lack of after sales services in the close proximity

Solution: CHC
DIFFERENT MODELS OF CUSTOM HIRING

1. Individual farmer lending – Current common practice for tractors and combines
2. Farmers group purchased machineries (i.e: processing plants, dryers)
3. Co-operatives managed
4. Traders implemented
5. Individual entrepreneur operated
6. NGO supported
7. Government owned CHC
8. Govt. supported centers (PPP) (Subsidy on machinery/interest)
Background; Previous Experience in CHC

- **Government owned tractor hiring** centers established in late 60’s
- Objective was to introduce tractors
- Closed down all the centers in 80’s
- As a major break through, tractors (both four wheel and power tillers) have been introduced to the country
- Farm machinery research and training programs initiated
Present status of Individual Custom Hiring

**Common hiring machines**
- Combine harvester
- Combine thresher
- Four wheel tractor
- Sprayer
- Two wheel tractor
- Reaper
- Water pump

**Hiring rates**

<table>
<thead>
<tr>
<th>Operation</th>
<th>Hiring rate ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ploughing</td>
<td>120 – 140 /ha</td>
</tr>
<tr>
<td>Reaping</td>
<td>95 – 115 /ha</td>
</tr>
<tr>
<td>Threshing</td>
<td>25 – 30 /h</td>
</tr>
<tr>
<td>Combine harvesting</td>
<td>140-160/ha</td>
</tr>
</tbody>
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Machinery for CHC

- Seed Processing Machinery
- Laser Leveler
- Bund/Bed Formers
- Transplanters/Direct
- Water pumps
- Sprayers/Drones

- Tractors – land preparation
- Harvesters
- Threshers
- Dryers

- Trailers
- Lories
- Trucks
Advantages of CHC

- Access to small and marginal farmers
- Timely availability of farm implements
- Availability of appropriate machines at competitive hiring charges
- Promotes increase in crop productivity
- Facilitates crop residue recycling
- Prevents burning of residues
- Reduction in cost of cultivation
  - Reduce drudgery
  - Expand or intensify production.
- Reduce production, post-harvest and marketing costs
- Increase smallholder incomes
Challenges on CHC

- High competition (Combine Harvesters: more than 15,000)
- Hiring rates reduced from Rs. 15,000 ($ 116) per ha to now about Rs. 7500 ($ 58) per ha.
- Introduction of new technology (Track type combines are preferred over wheel type)
- Low profit margin (high labour wages, high fuel cost and increased R & M cost)
- Involvement of a middle man (Brokers)
- Climatic problems (Flood and drought)
- Political interference
Government Support

- Farm machinery are supplied without import duty
- Provide capacity building facility, certifying trained operators
- Provide credit facility with subsided interest rates and long repayment period
- Quality Assured (Certified) Machinery should be provided to CHC.
- Government commitment with a clear sustainable agricultural mechanization strategy (SAMS).
- A suitable regulatory framework and support policies to attract private sector investment for providing custom services.
Recommendations

- Establish Government supported private machinery hiring centers
- Support those centers by providing subsidy or providing soft loans
- Train machinery operators free of charge
- Decide and implement scientific hiring rates with reasonable profit margins
- Expose machinery owners to the latest technology
- Introduce effective regulatory system by safeguarding all relevant stakeholders.
- Organize Association for machinery hiring entrepreneurs
- Introduce mechanism to approach farmer directly without the middle man
- Train operators in government institutes.
- Provide concessionary loans
- Support to select appropriate machinery
CH App like Uber