

Agricultural Machinery Service Provision Business

A business model for return migrant workers



Cereal Systems Initiative for South Asia

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The CSISA Nepal Covid-19 Response and Resilience Activity



Intensive cropping systems that include rice, wheat and/or maize are widespread throughout South Asia. These systems constitute the main economic activity in many rural areas and provide staple food for millions of people. Therefore, enhancing the yield and productivity of cereal production in South Asia is therefore of great concern. Simultaneously, issues of resource degradation, declining labor availability and climate variability pose steep challenges for achieving the goals of improving food security and rural livelihoods.

The Cereal Systems Initiative for South Asia (CSISA) was established in 2009 with a goal of benefiting more than 8 million farmers by the end of 2023. The project is an exemplar example of One CGIAR in action, and is led by the International Maize and Wheat Improvement Center (CIMMYT) and implemented jointly with the International Food Policy Research Institute (IFPRI), the International Water Management Institute (IWMI) and the International Rice Research Institute (IRRI). Operating in rural 'innovation hubs' in Bangladesh, India and Nepal, CSISA works to increase the adoption of various resource-conserving and climate-resilient technologies, and improve farmers' access to market information and enterprise development. CSISA supports women farmers by improving their access and exposure to modern and improved technological innovations, knowledge and entrepreneurial skills. CSISA works in synergy with regional and national efforts, collaborating with myriad public, civil society and private-sector partners.

CSISA's Goals

- Facilitate the widespread adoption of resource-conserving practices, technologies and services that increase yields with lower water, labor and input costs.
- Support mainstreaming innovations in national-, state- and district-level government programs to improve long-term impacts achieved through investments in the agricultural sector.
- Generate and disseminate new knowledge on cropping system management practices that can withstand the impacts of climate change in South Asia.
- Improve the policy environment to facilitate the adoption of sustainable intensification technologies.
- Build strategic partnerships that can sustain and enhance the scale of benefits accrued through improving cereal system productivity.

With a new investment in the CSISA program, the USAID Mission in Nepal is supporting CSISA to rapidly and effectively respond to the threats posed by the COVID-19 crisis that undermine the recovery and sustained resilience of farmers in the FtF Zone of Nepal. This Activity includes Texas A&M University, Cornell University, and International Development Enterprises (iDE) as core partners. Activities involve two inter-linked Objectives that address CSISA's strengths in core areas needed to assist in COVID-19 response and recovery over an 18 month period (From July 2020- December 2021). The ultimate goal of the CSISA COVID-19 Resilience Activity is to develop mechanisms to support longer-term resilience among smallholder farmers and the private sector – with emphasis empowering youth and overcoming challenges faced by women headed farm households. At the same time, the Activity is assisting in efforts to increase smallholder farmers' understanding of, and capacity to protect themselves, from COVID-19. This is achieved through the dissemination of awareness raising messages on public health and by increasing economic opportunities for return migrants, smallholder farmers, and by encouraging resilience-enhancing irrigation.

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Table of Content

INTRODUCTION	1
CSISA Nepal Covid-19 Resilience Activity	1
Agricultural Machinery Services as a Business	1
Key Machinery Types with High Potential Service Provision.....	2
BUSINESS MODEL FOR AGRICULTURAL MACHINERY SERVICE PROVISION ENTERPRISE	3
Business Model	3
Value Proposition	4
Customers.....	4
Value Chain.....	4
Revenue Model.....	5
Flow Chart of the Value Chain Actors in Business Model.....	6
FINANCING SCHEME	7
SERVICE PROVIDERS DEVELOPMENT PROCESS UNDER THE CSISA NEPAL COVID-19 RESILIENCE ACTIVITY	8
Annexes:	
Annex 1: Financial Analysis of Power Tiller and Combination.....	9
Annex 2: Financial Analysis of Four Wheel Tractor and Combination.....	10
Annex 3: Financial Analysis of Self Propelled Reaper.....	11
Annex 4: Financial Analysis of Mini Tiller	12
Annex 5: Financial Analysis of Combine Mill.....	13
Annex 6: Summary of NRB Directives for Interest Subsidy for Subsidized Loan (3 rd Amendment).....	14

INTRODUCTION

CSISA Nepal Covid-19 Resilience Activity

Although Coronavirus (COVID-19) is a public health crisis, its global economic effects are severe and will be long-lasting. While much of the immediate response to the crisis has focused on implementing measures to contain the spread and mitigate the disease's health impacts, substantial secondary shocks to the economies of developing nations can be expected. As many South Asian nations are agriculturally dependent, the implications for agriculture and food systems are dire.

The poor – particularly the rural poor and smallholder farmers with limited risk-bearing and investment capacity in areas with high COVID-19 caseloads – are expected to suffer disproportionately. In Nepal, many rural farm households, frequently headed by women affected by previous rural out-migration, are likely to suffer from the collapse of remittances normally used to purchase inputs and hire farm labor for time-sensitive agricultural tasks. Conversely, more than 3.5 million Nepalis are estimated to work abroad, many in India.

Where migrants are repatriated due to COVID-19, large populations of young men are returning and will be looking for gainful employment. Job opportunities will, however, be challenged by social distancing policies and potential medium- to long-term mobility restrictions. Against this backdrop, farm households in the Terai are affected by climatic stresses in the form of variable precipitation, drought, and heat stress that limit the productivity of their farming systems. The COVID-19 crisis is likely to reduce farmers' ability to adapt to these stresses effectively, thereby undermining their resilience.

The CSISA Nepal Covid-19 Resilience Activity is an add-on activity implemented by the Cereal Systems Initiative in South Asia (CSISA) to rapidly and effectively respond to the threats posed by the COVID-19 crisis that undermines the recovery and sustained resilience of farmers in the FtF Zone of Nepal.

The ultimate goal of The CSISA Nepal Covid-19 Resilience Activity is to develop mechanisms to support longer-term resilience among smallholder farmers and the private sector, emphasizing empowering youth and overcoming challenges faced by women-headed households. Its first objective focuses on demonstrating how returned migrants can be encouraged to become entrepreneurial service providers through scale-appropriate agricultural machinery suited for Nepal's small farm field sizes and the limited investment

capacity of many farmers. The Activity supports 100 return migrants, including 15% youth under 29 years, to establish new enterprises providing a suite of mechanization services for farmers in COVID-19 affected communities. In order to enable these vulnerable migrant workers to purchase required machinery and succeed as agricultural machinery service provider entrepreneurs, the project has developed a viable business model, including the finance scheme linking with the banks and financial institutions.

Agricultural Machinery Services as a Business

Agricultural mechanization involves the use of powered machinery and tools that substitute human labor and improve production efficiency. It increases productivity and reduces the cost of production and optimizes product quality, provides timely inputs, and improves farmers' livelihoods. However, not all farmers can afford to purchase high-end agricultural machines and equipment. Even those who can afford to purchase might not utilize machinery efficiently if they use it only on their land, given the small land sizes in Nepal. Hence, establishing a hire service for such agricultural machinery could be an alternative and beneficial practice to increase farm mechanization.

Renting some of the more popular machinery types (e.g., power tiller, reaper, thresher) is being practiced in the Terai region but is not run as a full-fledged business. 'Custom hiring services' established with support from the Prime Minister Agriculture Modernization Project (PMAMP) have been providing such agricultural machinery services as a complete business, but this is not sufficient to meet the needs of farmers in all areas. Most of these custom hiring services are being operated through cooperatives.

Agricultural machinery service provision businesses at the individual level, providing services for crop production, harvesting, post-harvest operations, processing, and transportation, is a somewhat new concept in the context of Nepal. Most of these service provision businesses are owned and managed by the same person. Managing a service provision business means overseeing a hire service with a primary business orientation, unlike, for example, a farmer with a machine who additionally provides services to neighbors. This orientation helps to ensure that activities and tasks are completed effectively and efficiently.

Key Machinery Types with High Potential Service Provision

Most new machinery buyers purchase either a tractor, power tiller, or mini-tiller as their first machine, only after which attachments can be bought for tillage (plow), harvesting (reaper), and threshing (thresher). There are few common types of machinery like pump sets, rice mills, and self-propelled reapers, which do not need any of the three above types of machinery.

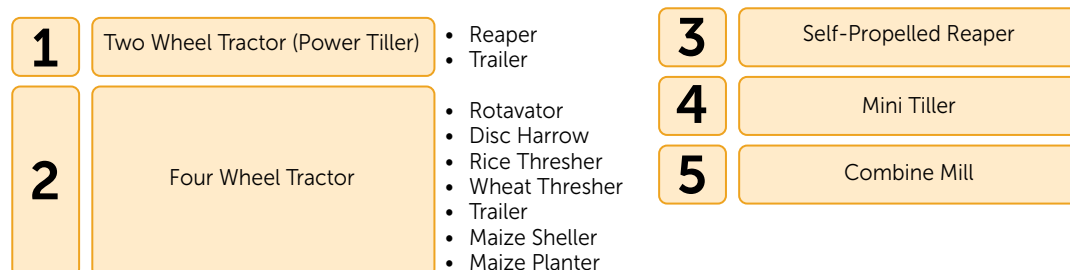
All eleven machinery types listed here are the most common in the Western Terai; hence these are considered priorities under this Activity.

Mini-tillers and electric pump sets are machines that do not earn a significant amount of money but are essential for commercial farming and could be a very good start in service provision enterprise. These are, therefore, included in the list of priority machinery types.

Those priority machinery have been grouped into five key combinations, based on engine and its attachment. These combinations are essential to make the business more feasible and viable. Financial analysis of multiple combination options has been done for the machinery type with multiple attachment options to figure out the best combinations.

Priority Machinery list with high service provision potential for Rice-Wheat Cropping System and Rice-Maize Cropping System:

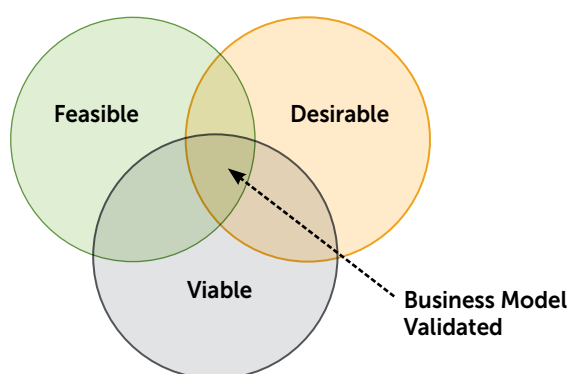
SN	Rice-Wheat Cropping System	Rice-Maize Cropping System
1	Power Tiller	Power Tiller
2	Minitiller	Minitiller
3	Tractor	Tractor
4	Diesel Engine Pumpset	Diesel Engine Pumpset
5	Self-Propelled Reaper	Self-Propelled Reaper
6	Trailer	Trailer
7	2WT operated Reaper	2WT operated Reaper
8	Rice Mill	Rice Mill
9	Rice Thresher	Rice Thresher
10	Wheat Thresher	Maize Sheller
11	Harrow	Maize Planter



BUSINESS MODEL FOR AGRICULTURAL MACHINERY SERVICE PROVISION ENTERPRISE

Business Model

A business model is a framework for finding a systematic way to unlock long-term value for an enterprise while delivering value to customers and capturing value through monetization strategies. It is a holistic framework to understand, design, and test the business assumptions in the marketplace. Effective business models must also be desirable, feasible, and economically viable for the customer, the entrepreneur, and the businesses in the value chain.

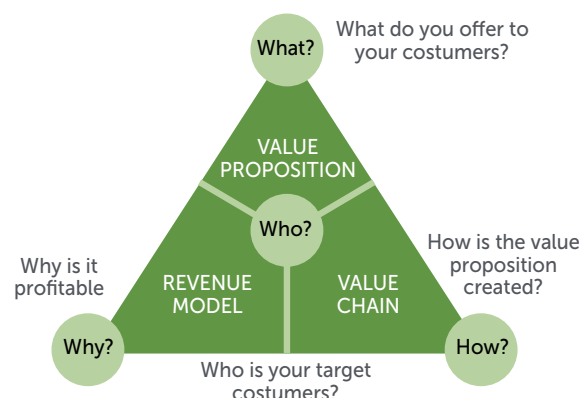


Validation of a business model for agricultural machinery service provision

Desirability	<ul style="list-style-type: none"> ► Scarcity of labor ► Increase productivity ► Saves time ► Cost-efficient (compared to manual work using labor) ► It makes life easier for farmer
Feasibility	<ul style="list-style-type: none"> ► Migrant workers returned due to COVID-19/unemployed ► Proven Technology ► Already existing product (customers are somewhat aware) ► Established supply chain (Machines readily available) ► Financing options available ► Increasing Demand
Viability	<ul style="list-style-type: none"> ► It could be started with a comparatively small investment ► Could start with one or two machines and add on other devices later ► Less than two years of payback period ► Self-employment generation for entrepreneurs ► Cost-efficient option for customers

There are four key areas to understand while designing a business model for any business type:

- 1) **Value Proposition:** The products and services that a business offers to meet the needs of its customers. These are the value proposition of a business and what distinguishes the business from its competitors.
- 2) **Customers:** The different customer segments that a business tries to serve with its offering. The channels through which the business delivers value to the different customer segments and the relationships a business creates with its customer segments.
- 3) **Value Chain:** The key activities that the business performs to execute its value proposition. The key resources needed to create value (can be human, financial, physical or intellectual) and the partners needed to complement a business can focus on its core activities.
- 4) **Revenue Model:** The costs of doing business (including fixed costs, variable costs, economies of scale, etc.) and the income that comes from each customer segment. Income must be greater than costs for a business to be profitable.



Value Proposition

A value proposition is an answer to why customers should use the service of agriculture machinery service provider enterprise. It should also answer what distinguishes the business from its competitors, in this context, manual labors.

- Address the issue of labor scarcity
- Quality of work
- Increase productivity
- Cost-efficient compared to manual work using labor
- Saves time / timely service
- Makes farmers life easier (less tedious)
- Appealing compared to the traditional method using labor and animal
- Increase in social status (somewhat)

Customers

Segments:

Key customer segments for this business are the smallholder farmers having small cultivated land sizes. Many of these farms are women-headed households, as primary male household members are working abroad. However, based on the machinery types, these enterprises may also cater to large farmers.

Relationships:

This business model mainly relies on personal assistance and long-term relationship with its customers. In most cases, both the service providers and their customers are from the same community- within the same Rural Municipality/Municipality. So these businesses should emphasize personal relations and referrals, regular follow-up (for sales and aftersales service), focusing on building links beyond business.

Channels:

Interpersonal communications, i.e., village events, door-to-door sales, etc., are usually most effective for this business model. Key channels of interaction with customers for an agricultural service provision business model should be:

- Personnel contact/relationship
- Mostly Referral (word of mouth)
- Cooperatives/Custom Hiring Centers
- village events, door-to-door sales

Value Chain

Key Partners:

Major partners and stakeholders in this business model includes:

- Machinery Dealers
- Bank/Financial Institution
- Insurance Companies
- Local Cooperatives
- Custom Hiring Center
- Repair Workshops/Mobile Mechanics
- CSISA/Other Projects
- Local/Provincial Government and its program

Agricultural service provider enterprise has direct relationships with those partners and their strong presence in the market is key to a successful business model.

Resources:

Following are the key resources that are needed to create value (or delivery of the service it aims to) for an agricultural service provision business:

- **Physical Resource:** Machines and their attachments are critical for this business. Also, there should be a proper space where those machines can be safely stored/parked when not used. It's crucial as most of the machines are used on a seasonal basis. Various tools for simple repair and maintenance are other key resources required for this business. Similarly, various promotional materials are required for the promotion of this business.
- **Human Resources:** Operators and assistants are the critical human resource required for this business. In most cases, entrepreneurs themselves will be working as operators, and some of their family members serve as assistants/helpers.
- The operation should have a very good skill of machine operation as efficiency and durability of the machine heavily relies on it. They should also have skills for basic repair and maintenance.

Key Activities:

Hiring service of agricultural machinery is the prime activity of this business model. To perform this objective effectively, these business needs to do following key activities:

- **Operation Management-** To manage the operation of this business, one should know the machine's capacity, i.e., how many hectares could be served per hour or per day. It will be easier to plan for the total customers (or area of land) that could be served in a season. Entrepreneurs should collect the demand/order in advance and track it. Keeping track of the machine operated and repair/maintenance done is another crucial task for effective operational management.

- **Marketing/promotion-** This is a small business scale, mostly operated within a specific territory municipality/rural municipality. The promotion of this business is mainly relationship-based and direct. A few of the activities appropriate for the marketing/promotion of this business are listed below:
 - Use of print materials such as visiting cards, board, flex dangles, etc.
 - Miking at market (haat bazar)
 - Group sales meeting (utilize cooperatives and other farmers groups meeting as a platform to promote business)
 - Linkage with Custom Hiring Centers (to tap the customers they are unable to serve)

Revenue Model

Revenue streams:

The revenue source of this business is the service fee for the uses of various agricultural machinery. Most of those machines are already available in the market, and pricing is determined based on the market price. The rate of the machines varies as per the location and is mainly offered as per land size ('Bigha' is the commonly used unit; 1 ha=1.4765 'Bigha'), per hour or day.

Below are the rates based for the financial analysis of those machines and combinations:

1	Power Tiller:	Rs. 500/hour (1.35 ha/day @NRs. 2953/ha)
	Reaper:	Rs. 600/hour (1.62 ha/day @NRs. 2953/ha)
	Trailer:	Rs. 800/hour
2	Rotavator:	Rs. 1200/hr (4.06 ha/day @ NRs.2362/ha)
	Disc Harrow:	Rs. 1200/hr (4.06 ha/day @ NRs.2362/ha)
	Rice Thresher:	Rs. 1500/hr (4.06 ha/day @ NRs.2953/ha)
	Wheat Thresher:	Rs. 1200/hr (4.06 ha/day @ NRs.2953/ha)
	Trailer:	Rs. 1500/hr
	Maize Sheller:	Rs. 1500/hr (4.06 ha/day @ NRs.2953/ha)
	Maize Planter:	Rs. 1500/hr (4.06 ha/day @ NRs.2953/ha)
3	Self Propelled Reaper:	Rs. 675/hr (1.2 ha/day @ NRs.4430/ha)
4	Mini Tiller:	Rs. 500/hr (0.813 ha/day @NRs. 4872/ha)
5	Combine Mill:	
	Rice-	Rs. 1/kg (Milling capacity: 150 kg/hour)
	Wheat-	Rs. 3/kg (Milling capacity: 150 kg/hour)
	Maize-	Rs. 3/kg (Milling capacity: 150 kg/hour)

Cost structure:

- **Fixed Cost:** The cost of a machine is the major fixed cost for this business. Below are the tentative costs of key machine types mentioned in this document:

	Power Tiller:	Rs. 210,000
1	Reaper:	Rs. 70,000
	Trailer:	Rs. 80,000
	Four Wheel Tractor:	Rs. 1,500,000
	Rotavator:	Rs. 150,000
	Disc harrow:	Rs. 100,000
2	Rice Thresher:	Rs. 325,000
	Wheat Thresher:	Rs. 250,000
	Trailer:	Rs. 275,000
	Maize Sheller:	Rs. 250,000
	Maize Planter:	Rs. 200,000
3	Self Propelled Reaper:	Rs.160,000
4	Mini Tiller:	Rs. 80,000
5	Combine Mill:	Rs. 45,000

Besides, depreciation is the other non-cash expense associated. For this analysis, the straight-line depreciation method has been used. For the four-wheel tractor, registration with the Department of Transport Management (DoTM) is compulsory. So there will be an additional cost associated with the registration and annual renewal. Similarly, registration is also required for the power tiller to be used for transporting goods, mainly in the towns and highways.

- **Insurance:** machinery insurance is another additional variable cost associated, though it's optional for machinery other than tractors. The most common insurance policies available for tractors are:
 - (a) comprehensive insurance policy indemnifies the insured for any physical damage of the vehicle caused by an accident, including compensation to be paid to the third party for death, bodily injuries, or loss or damage of property.
 - (b) Third Party Liability Insurance Policy covers the compensation to be paid to the third party for loss of life or property due to the accident. This third-party liability insurance is compulsory for the registration and renewal of vehicles registered with DoTM.
- **Variable Cost:** Fuel, operator cost, operating cost (communication/lunch) are key variable costs for this business. Besides repair and maintenance cost also occurs, which will be low starting and increasing as the machine gets older. However, a flat 3% (annual) of the machine cost has been based for the analysis of this report.

Financial Analysis:

- There are three ranges of investment as per machine types/combinations
 - Below Rs. 150,000 (self-propelled reapers, mini-tiller, combine mill)
 - Rs. 200,000-Rs. 350,000 (power tiller and combinations)
 - Rs. 1,500,000 -Rs. 2,500,000 (4WT and combinations)

- For the power tiller, a combination of reaper and trailer will be the most profitable (payback period of 1.29 years) and best utilization of the engine as it will be engaged for the whole year. Payback period of other combinations- Power Tiller + Reaper and Power tiller+Trailer are 1.88 and 1.49 years.
- For 4WT and combination, a trailer is a must to utilize best the tractor, which is a considerable investment itself.
- Trailer + Rotavator+Rice Thresher + Wheat Thresher is the best combination of 4WT for the rice/wheat crop system. Payback period of 3.16 years.
- Trailer + Rotavator+Rice Thresher+Maize Sheller+Maize Planter is the best combination of 4WT for the rice/maize crop system. Payback period of 3.02 years.
- Combine mill requires the lowest investment and has a payback period of 1.05 years.
- Mini Tiller has the shortest payback period, 0.86 years. However, it might not be commercially viable in the plain area (land plot above half hecter) while competing with a power tiller.

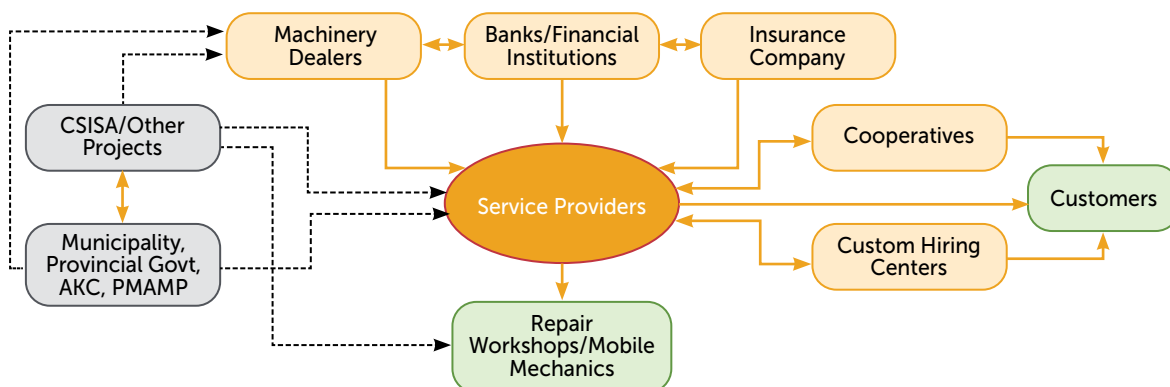
Flow Chart of the Value Chain Actors in Business Model

A strong presence of all the various actors and stakeholders directly related to agricultural service provider enterprise is essential to make this business model feasible and viable. A flow chart involving and facilitating interaction amongst various actors in the value chain of agricultural machinery service provision business model is appended below:

- **Machinery Dealers:** One of the key actors of this value chain, machinery dealers, play a pivotal role in making the machines available, including its spare parts and after-sales repair and maintenance services.
- **Bank/Financial Institution:** Banks and financial institutions provide loans for purchasing the machinery, enabling interested return migrant workers without the financial capacity to get into the business.
- **Insurance Companies:** Machinery insurance coverage for theft, earthquake, fire, flood, or landslides; and personal insurance covering

inability to work due to injury or illness are some best options for agriculture machinery service provision business.

- **Local Cooperatives:** There could be two different relationships with the local cooperatives. Migrant workers could also take loans from those cooperatives to purchase the machinery to become a service providers. Service provision entrepreneurs could also utilize local cooperatives to reach out the potential customers. Some special discounts could be offered to the local cooperatives and their members.
- **Custom Hiring Centers (CHC):** Custom Hiring Centers are the other actor to reach out to agriculture service provision entrepreneurs to explore potential customers. Most of the CHC focuses on larger farm machinery, so one with a power tiller and combination could reach CHC and reference their clientele whom they don't serve, for example.
- **Repair Workshops/Mobile Mechanics:** Repair workshops and mechanics are among the major actors of this business model. Most dealers provide a warranty for 1-2 years, covering minor breakdowns and repairs and having a limited workforce. So easy availability of repair workshops is critical. In many cases, those machines might not be feasible to bring to the workshops and need to be repaired as it is. In such cases, the availability of mobile mechanics will ease the life of service provision entrepreneurs.
- **CSISA/Other Projects:** Various projects working in the farm mechanization and agriculture value chain sector are the other stakeholder of this business model. Though they don't have a direct role in the value chain, they could play a pivotal role in facilitating this business. Agricultural machinery service provision entrepreneurs could receive various training and technical support from those projects, which will help them on their way to success.
- **Local/Provincial/State Government and its program:** The Government of Nepal considers farm mechanization a vital tool for development in the agricultural sector and supports it through various programs. Whether it be direct subsidy on machinery purchase or tax discount on import of farm machinery/equipment or interest rebate for loan (through Central Banks), agricultural service provision entrepreneurs should always be proactive to take benefit from it.



FINANCING SCHEME

Based on the machinery type and combinations, the investment required for an agricultural machinery business provision enterprise may range from Rs. 50,000 to Rs. 2,500,000. However, most machinery service enterprises (except for type 2, i.e., 4WT and combinations) could be started with investment below Rs. 400,000.

Similar to any other business, investment for these businesses could also be made through:

- Self-investment
- Loan from financial institutions.

For taking loans from financial institutions, banks (development and commercial) are the best

options, though it requires proper documentation. Return migrant workers interested to take a loan from banks will get a rebate of 5% in interest as per the '*NRB Directives for Interest Subsidy for Subsidized Loan-2075, 3rd Amendment -2077 B.S.*' (Refer to Annex 6)

Other options for a loan are local cooperatives, in which lesser documentation is required but interest rates are comparatively higher.

One can also utilize the subsidies being provided by provincial and local governments, but it's uncertain and might require a long wait. Also, the subsidy might not be available for the machinery type the return migrant worker wants to purchase and work with.

SERVICE PROVIDERS DEVELOPMENT PROCESS UNDER THE CSISA NEPAL COVID-19 RESILIENCE ACTIVITY

The CSISA Nepal COVID-19 Resilience Activity aims to expand the use of scale-appropriate farm machinery to generate employment, lower production costs for farmers, and create new entrepreneurship opportunities in the context of a COVID-19 affected Nepal.

Key outcomes from this objective include the development of 100 returnee migrant workers as 'service providers' entrepreneurs, offering scale-appropriate land preparation, planting, irrigation, harvesting, or post-harvest machinery services.

Following are some of the major activities carried out to develop return migrant workers as agricultural service provider entrepreneurs:

Selection and screening

- ▶ Create a database of return migrant workers with the help of the local government (ward)
- ▶ Telephone interview for screening
- ▶ Direct interaction
- ▶ Psychometric test
- ▶ Target group meeting
- ▶ Business orientation training

Help them establish service provision enterprises

- ▶ Identify machinery dealers in the district who could supply the machinery types identified as potential, including after-sales service
- ▶ Establish contact with dealers
- ▶ Facilitate with banks for loan
- ▶ Technical orientation on machinery

Capacity Building/ Sustainable Demand Creation

- ▶ Business Management Skill Training
- ▶ Basic Repair/Maintenance Training
- ▶ Initial Support in marketing/promotion
 - Printing of Visiting Cards, Board, Flex Dangers
 - Haat Bajar Miking
 - Group sales meeting
 - Linkage with CHC/Cooperatives
 - Demonstration plot

Annex 1: Financial Analysis of Power Tiller and Combination

Projected Profit and Loss for 5 Years of Project Period (Amount in NPR)

Particular	Power Tiller	Power Tiller + Reaper	Power Tiller + Trailer	Power Tiller + Reaper + Trailer
Sales	1,200,000	2,160,000	2,480,000	3,440,000
Variable Cost	480,000	800,000	800,000	1,120,000
Gross Profit	720,000	1,360,000	1,680,000	2,320,000
Operating Expenses	60,000	100,000	140,000	180,000
Repair & Maintenance	31,500	42,000	43,500	54,000
Depreciation	105,000	175,000	185,000	255,000
Earning Before Interest and Tax (EBIT)	523,500	1,043,000	1,311,500	1,831,000
Interest Expense	39,264	52,352	54,222	67,310
Profit Before Tax	484,236	990,648	1,257,278	1,763,690
Tax Expense (0%)	-	-	-	-
Net profit for 5 Years Period	484,236	990,648	1,257,278	1,763,690

Cash Flow Status

Net profit for the period	484,236	990,648	1,257,278	1,763,690
Add: Depreciation	105,000	175,000	185,000	255,000
Cash Flow during the period	589,236	1,165,648	1,442,278	2,018,690
Less: Bank Loan Payment	210,000	280,000	290,000	360,000
Total Cash Flow	379,236	885,648	1,152,278	1,658,690

Net Present Value of Project (NPV)

Total Present Value (discounted at 6%)	319,496	746,134	970,763	1,397,401
Less: Initial Investment	210,000	280,000	290,000	360,000
Net Present Value (NPV)	109,496	466,134	680,763	1,037,401

Conclusion: All projects with positive NPV are feasible projects.

Payback Period (PBP)

Total Present Value for 5 Years	319,496	746,134	970,763	1,397,401
Average Present Value Per Year	63,899	149,227	194,153	279,480
Initial Investment	210,000	280,000	290,000	360,000
Payback Period (Years)	3.29	1.88	1.49	1.29

Conclusion: Project with Lowest Payback period will be of highest priority.

Annex 2: Financial Analysis of Four Wheel Tractor and Combination

Projected Profit and Loss for 5 Years of Project Period (Amount in NPR)

Particular	Trailer + Rotavator	Trailer + Disc Harrow	Trailer + Rotavator + Rice Thresher	Trailer + Rotavator+Rice Thresher + Wheat Thresher	Trailer + Rotavator+Rice Thresher+Maize Sheller+Maize Planter
Sales	10,080,000	10,080,000	11,880,000	13,680,000	14,880,000
Variable Cost	5,220,000	5,220,000	6,030,000	6,840,000	7,380,000
Gross Profit	4,860,000	4,860,000	5,850,000	6,840,000	7,500,000
Operating Expenses	487,750	487,750	532,750	577,750	607,750
Repair & Maintenance	288,750	281,250	337,500	375,000	405,000
Depreciation	800,000	750,000	1,125,000	1,375,000	1,575,000
Earning Before Interest and Tax (EBIT)	3,283,500	3,341,000	3,854,750	4,512,250	4,912,250
Interest Expense	186,972	186,972	186,972	186,972	186,972
Profit Before Tax	3,096,528	3,154,028	3,667,778	4,325,278	4,725,278
Tax Expense (0%)	-	-	-	-	-
Net profit for 5 Years Period	3,096,528	3,154,028	3,667,778	4,325,278	4,725,278

Cash Flow Status

Net profit for the period	3,096,528	3,154,028	3,667,778	4,325,278	4,725,278
Add: Depreciation	800,000	750,000	1,125,000	1,375,000	1,575,000
Cash Flow during the period	3,896,528	3,904,028	4,792,778	5,700,278	6,300,278
Less: Bank Loan Payment	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Total Cash Flow	2,896,528	2,904,028	3,792,778	4,700,278	5,300,278

Net Present Value of Project (NPV)

Total Present Value (discounted at 6%)	2,440,246	2,446,565	3,195,312	3,959,856	4,465,340
Less: Initial Investment	1,925,000	1,875,000	2,250,000	2,500,000	2,700,000
Net Present Value (NPV)	515,246	571,565	945,312	1,459,856	1,765,340

Conclusion: All projects with positive NPV are feasible projects.

Payback Period (PBP)

Total Present Value for 5 Years	2,440,246	2,446,565	3,195,312	3,959,856	4,465,340
Average Present Value Per Year	488,049	489,313	639,062	791,971	893,068
Initial Investment	1,925,000	1,875,000	2,250,000	2,500,000	2,700,000
Payback Period (Years)	3.94	3.83	3.52	3.16	3.02

Conclusion: Project with Lowest Payback period will be of highest priority.

Annex 3: Financial Analysis of Self Propelled Reaper

Projected Profit and Loss for 5 Years of Project Period (Amount in NPR)

Particular	Self Propelled Reaper
Sales	1,080,000
Variable Cost	320,000
Gross Profit	760,000
Operating Expenses	30,000
Repair & Maintenance	24,000
Depreciation	160,000
Earning Before Interest and Tax (EBIT)	546,000
Interest Expense	29,915
Profit Before Tax	516,085
Tax Expense (0%)	-
Net profit for 5 Years Period	516,085

Cash Flow Status

Net profit for the period	516,085
Add: Depreciation	160,000
Cash Flow during the period	676,085
Less: Bank Loan Payment	160,000
Total Cash Flow	516,085

Net Present Value of Project (NPV)

Total Present Value (discounted at 6%)	434,787
Less: Initial Investment	160,000
Net Present Value (NPV)	274,787

Conclusion: All projects with positive NPV are feasible projects.

Payback Period (PBP)

Total Present Value for 5 Years	434,787
Average Present Value Per Year	86,957
Initial Investment	160,000
Payback Period (Years)	1.84

Conclusion: Project with Lowest Payback period will be of highest priority

Annex 4: Financial Analysis of Mini Tiller

Projected Profit and Loss for 5 Years of Project Period (Amount in NPR)

Particular	Amount
Sales	1,200,000
Variable Cost	480,000
Gross Profit	720,000
Operating Expenses	60,000
Repair & Maintenance	12,000
Depreciation	40,000
Earning Before Interest and Tax (EBIT)	608,000
Interest Expense	14,958
Profit Before Tax	593,042
Tax Expense (0%)	-
Net profit for 5 Years Period	593,042

Cash Flow Status

Net profit for the period	593,042
Add: Depreciation	40,000
Cash Flow during the period	633,042
Less: Bank Loan Payment	80,000
Total Cash Flow	553,042

Net Present Value of Project (NPV)

Total Present Value (discounted at 6%)	465,923
Less: Initial Investment	80,000
Net Present Value (NPV)	385,923

Conclusion: All projects with positive NPV are feasible projects.

Payback Period (PBP)

Total Present Value for 5 Years	465,923
Average Present Value Per Year	93,185
Initial Investment	80,000
Payback Period (Years)	0.86

Conclusion: Project with Lowest Payback period will be of highest priority

Annex 5: Financial Analysis of Combine Mill

Projected Profit and Loss for 5 Years of Project Period (Amount in NPR)

Particular	Amount
Sales	900,000
Variable Cost	510,400
Gross Profit	389,600
Operating Expenses	75,000
Repair & Maintenance	6,750
Depreciation	45,000
Earning Before Interest and Tax (EBIT)	262,850
Interest Expense	8,414
Profit Before Tax	254,436
Tax Expense (0%)	-
Net profit for 5 Years Period	254,436

Cash Flow Status

Net profit for the period	254,436
Add: Depreciation	45,000
Cash Flow during the period	299,436
Less: Bank Loan Payment	45,000
Total Cash Flow	254,436

Net Present Value of Project (NPV)

Total Present Value (discounted at 6%)	214,356
Less: Initial Investment	45,000
Net Present Value (NPV)	169,356

Conclusion: All projects with positive NPV are feasible projects.

Payback Period (PBP)

Total Present Value for 5 Years	214,356
Average Present Value Per Year	42,871
Initial Investment	45,000
Payback Period (Years)	1.05

Conclusion: Project with Lowest Payback period will be of highest priority

Annex 6: Summary of NRB Directives for Interest Subsidy for Subsidized Loan (3rd Amendment)

Eligibility:

- Migrant returnee who have worked in foreign country for at least 6 months.
- Nepali citizens (individuals), age completing 18 years to 65 years. The age limit of the borrower shall not exceed 65 years at the time of loan disbursement.

Features of Subsidized loan:

- Loan ceiling: Rs. 1,000,000
- Period: 5 years
- Interest rate: Base rate+2 % (a rebate of 5% will be provided during processing / disbursement of the loan)
- Service fee: None
- Loan could be provided both without and with collateral, based on the final assessment and decision of the competent authority of the Bank within the Credit Policy Guidelines.

Requirements for a loan with collateral

- Individuals must obtain a PAN Certificate.
- Brief proposal regarding the project.
- Income document certifying from an authorized body.
- Any documents such as Visa, working permit, passport, etc. that could be used as a reference of migrant workers eligibility
- In case of Firm/company must be registered under authorized government bodies
- Other security documents
 - Copy of Lalpurja.
 - Blue Print, Trace Map
 - Four Boundary Certificate
 - Property Tax Receipt
 - Original Passport
 - Personal Guarantee of Family members

Requirements for a loan without collateral

- All documents as per requirement for a loan with collateral expect security documents.
- Original Passport/Citizenship card
- Personal Guarantee of Family Members



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