



GUIDELINES FOR A SUB-SECTOR ANALYSIS OF THE 2WT MECHANIZATION SUB-SECTOR

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March 2013

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1. INTRODUCTION

Designing an intervention to increase smallholder income requires an understanding of the dynamics – driving forces and constraints - of various sectors in which smallholders could potentially participate, and identifying potential sources of leverage within these sectors. This overall process is described in the guidelines below. The objectives of these guidelines are to assist you in conducting the following activities:

- Identifying final sales market(s) and market segments for 2WT and machinery related technologies
- Identifying market channels and trends within the mechanization sub-sector
- Identifying the primary actors in the sub-sector, their roles, and interrelationships (with emphasis on their linkages with smallholder farmers)
- Creating a sub-sector map that describes the above
- Identifying constraints and opportunities to intervene in the market
- Identifying potential interventions and
- Designing appropriate business models to promote 2WT based mechanization.

2. BASIC SECTOR TERMS

A sector can be defined as a:

“vertically integrated group of enterprises (both large and small) that deal with the same product group. A sector includes enterprises that produce or procure raw materials, enterprises that process them, and enterprises that sell the finished products (both on a wholesale and retail basis)”

Sectors can be defined both widely and narrowly. While one can refer to “mechanization” as a sector, one can also break this down further and refer to “4W tractors”, “2WT”, and “tractor implements” as sectors. One can go even further and focus on “machinery spare parts” as a sector. Establishing the parameters for one’s choice of a sector depends on how broad, or narrow, we want the analysis and programme to be.

Within each sector then, there are several trade groups. A trade group can be defined as:

“enterprises that share the same economic activity. Within the mechanization sector, for example, one can find distinct trade groups in importing, dealing, manufacturing spare parts.”

A “sub-sector approach” is therefore one that focuses on the interrelationships between many

different actors within a targeted sector, and also one that focuses support initiatives on the needs of specific trade groups.

3. ANALYSIS OF THE 2WT MECHANIZATION SUB- SECTOR

Sub-sector analysis is a process that:

- 1) examines the relationships between enterprises that produce, procure, process, and distribute goods within a single product group;
- 2) identifies the constraints and opportunities facing these enterprises along with potential support initiatives to address them, and;
- 3) identifies potential interventions to address the constraints faced by supply chain stakeholders.

3.1 Sector profile: literature review

The purpose of the *Literature Review Guideline* is to get a broad understanding or a ‘picture’ of the 2WT tractor market using secondary sources. Building this picture involves developing an understanding of both the *profile* and the *dynamics* of the sector using the key questions given in the boxes as a base for investigation. The literature review should enable you to form a *Hypothesis* about how the 2WT market is operating and identify key knowledge gaps and areas for further investigation.

The literature review provides information on the current status and potential of the particular sector. Literature can provide macro-level information, including the GDP contribution, relative size of the sector, production volume etc.; the overall geographical zones of concentration; the potential market demand for the sector, including demand and supply trends (especially useful are immediate past and near future trends); the comparative performance of the sector in other countries; and, importantly, the relative performance and potential of the sector in poverty reduction, identifying who stands to gain from improved performance.

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See Annex 1 for guideline questions.

3.2 Sector market dynamics: interviews with national and local market actors

The dynamics provides information on how the sector functions and operates. This is traditionally divided into two tasks: 1) market organization/ competitor identification 2) market performance/ competitiveness.

3.2.1 Market organization/ competitor identification:

This can be understood through the literature review which provides information on the organization of the sector. The market organization should consider the types and number of actors which operate in this sector; the roles of each actor or type of actor; the mode of relations and exchange between them (for example formal contracts, informal deal-making); the types of services each actor or actor group provides (for example input, production, aggregation, transportation, promotional, informational, storage, processing etc).

Sub-sector analysis proceeds to examine the environment in which participants operate includes the rules affecting farms and businesses in the sub-sector as well as the organizations that exist to support them. These rules can be formal or informal including Government pricing legislation, tariffs, interest rate ceilings, investment codes, and import and export procedures. In effect all rules and legislation that affect output prices, input prices, and quantities available. The institutional rules should also include socio-cultural factors that affect the behavior of producers in the sub-sector.

See Annex 1 – 2 and 3 for a checklist of questions that could be asked. This could be supplemented by information from key informants and focus group discussions as given in Annex 2.

3.2.2 Mapping the 2WT machinery value chain

Subsector analysis involves the preparation of a schematic map that describes the economic. The subsector map summarizes the economic relationship between the different actors in the mechanization supply chain. It traces system flows within them and the options available to the business enterprises in the system. The sub-sector map is a graphical description of the major actors in a targeted sub-sector. It presents the different supply channels that transform inputs into outputs and then distribute those products to final consumers; and the different markets or market segments to which products are sold. The sub-sector map can include both qualitative and quantitative data provided as overlays that commonly relate to size, income and its distribution, efficiency, leverage, and the nature of the clients. Size overlays reveal where in the system the small producers are major players and where they are only minor actors. Relative sizes of different channels identify the most widely used technologies and marketing outlets. The most common measures of size include number of enterprises, employment, volume of product, and sales value.

How to prepare a sub-sector map:

1. Draw a Preliminary Sub-sector Map

- List of functions
- List of participants performing each function
- For each function identify alternative technologies and quality differences
- Identify final markets
- On a blank piece of paper, list functions down the left side and final markets across the top
- Map participants onto the functions they perform
- Draw arrows to describe product flows amongst participants
- Define principal channels
- Review subsector boundaries

2. Specify the regulatory and institutional environment affecting participants

3. Refine the subsector map

- Interview representative participants
- Revise the map
- Streamline it

4. Quantify overlays of particular interest

- Identify overlays of interest
 - Enterprise numbers
 - Employment
 - Gender
 - Volume of product
 - Sales value
 - Price margins
 - Income
 - Returns to labour
 - Inventory holdings
- Select participants to be interviewed
- Interview representative participants
- Fill in overlays

See Annex 1 – 4 for the sub-sector mapping conventions. This could be supplemented by information from key informants and focus group discussions as given in Annex 2.

3.2.3 Market performance/ competitiveness:

The market performance/ competitiveness analysis appraises the performance or competitiveness of the sector, particularly productivity growth, the comparative advantages and disadvantages of the sector, and any key factors which have or are influencing competitiveness - the products or services which bring this competition, the areas on which they compete (price, volume, quality, seasonality etc); also the ‘enabling environment’ factors such as performance of government services, import and export tariffs, and the presence of any market distortions

such as monopolies which can affect the VC. Finally the analysis should also address sector constraints, such as the factors which limit growth, productivity or profitability.

In analyzing sub-sector dynamics, the following three questions need to be asked:

- Which channels enjoy the most secure prospects for growth?
- What role can micro enterprises play in those channels?
- How can their ability to participate be enhanced?

Answering these questions requires understanding how the sub-sector is changing and why change occurs. Among the forces affecting change, the following are often key:

- Market demand - Population growth and changes in the larger economic environment can cause consumption patterns to change rapidly.
- Technological change - new know-how and technologies can change costs of production making micro enterprise more or less profitable.
- Profitability of different niches - individual niches within the production system yield differing returns.
- Risk - changes in demand, technology and profitability bring opportunities and risks. The rewards and risks need to be balanced and ways to mitigate the latter sought.
- Large commercial farm or agribusiness behavior - changes in the level or range of activity of a few large firms may create opportunities for small scale producers (eg. contract farming, agro-processing)
- Input supply - Poor quality raw materials or unreliable supply sources can severely restrict the growth potential of the sub-sector.
- Policies - Policies often discriminate against channels in which smaller-scale producers operate.

Competitiveness analysis can be used to identify strengths, weaknesses, opportunities and threats (SWOT). Once detailed information about the sub-sector has been collected it can be compared to existing enterprises in order to determine the nature of the challenges it will face. Strengths and weaknesses address the internal factors governing an enterprise, while opportunities and threats refer to external forces in the business environment.

Consider latent or 'untapped' market demand in the sector; value added products; export potential (based upon the current share of imports for example) Consider the sector wide (macro) generic problems which constrain the growth of the sector; why these exist and are they pervasive or can they be tackled

This step is vital for moving from analysis to action. By understanding how the sub-sector is changing, one can learn where the opportunities and pitfalls lie. Further understanding of the forces driving this change often reveals the key opportunities for enterprise growth.

In analyzing subsector dynamics, you seek answers to the following three questions: Which channels enjoy the most secure prospects for growth? What role *can* small enterprises play in those channels? How *can* you enhance their ability to participate in the growing niches?

<p>Analysis of the dynamics of the sector</p> <ul style="list-style-type: none">• What channels are growing most rapidly?• Which driving forces and constraints are responsible? <ul style="list-style-type: none">— Market demand— Technological change— Profitability of different niches— Risk— Barriers to entry— Large firm behavior— Input supply— Policies <ul style="list-style-type: none">• What are the consequences?• What are the best prospects for growth of enterprises?• Is intervention needed to achieve the potential
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See Annex 1 – 2 for key questions relating to the sub-sector. This could be supplemented by information from key informants and focus group discussions as given in Annex 2.

3.2.4 Sub-sector constraints and opportunities

The identification of constraints and opportunities determine key issues hindering the growth and competitiveness of businesses involved in machinery distribution and manufacturing in the sub-sector. Constraints can be grouped into a number of broad categories (see tables below). These categories are used as a guide to systematically look at all areas of constraint (and opportunity) that could affect the success of the business enterprises.

<i>Categories of Sub-sector Constraints</i>	
<i>Category</i>	<i>Examples</i>
Technology/ product Development	<ul style="list-style-type: none"> - inappropriate or non-existent tools/ machinery/ technologies, - lack of technical skills and production techniques to produce to buyer specification, - lack of information on product demand
Market Access	<ul style="list-style-type: none"> - lack of marketing organizations or brokers, - lack of linkages to large buyers - lack of information on product demand, - lack of marketing techniques or methods, - lack of market outlets, - unmet market (opportunity),
Input Supply	<ul style="list-style-type: none"> - poor quality of raw materials, - lack of suppliers, - lack of linkages to large distributors and importers, - existing suppliers have limited outreach
Management and Organization	<ul style="list-style-type: none"> - inability of producers to organize for economies of scale, - lack of specific training for various stakeholders in organization and management (financial management, internal organization, production skills, etc.), - poor organization of large buyers or suppliers, - lack of communication and/or cooperation between different stakeholders
Policy	<ul style="list-style-type: none"> - import taxes that penalize local producers, - artificial price subsidies, - lack of regulations
Finance	<ul style="list-style-type: none"> - lack of supplier credit, - lack of access of commercial funding, - no alternatives to traditional bank lending, inability to provide adequate collateral
Infrastructure	<ul style="list-style-type: none"> - poor roads, water supply, electricity, refrigeration facilities, telecommunications, etc.

For mechanization enterprises to grow, they may need to overcome several of these constraints at once. For example sub-sector constraints such as lack of skills in mechanization (operations and repairs); cost of machinery; and a lack of respect for contracts between suppliers and farmers for example, might all be critical to increasing production and productivity of the sub-sector. These constraints might need to be addressed concurrently in order to have the desired impact on small-scale producers.

An example is given below:

<i>SWOT</i>	<i>2WT dealers</i>	<i>Competing company</i>
<i>Strengths</i>	<p>Potential access to imports of low machines and accessories</p> <p>Technical support can easily be provided</p> <p>Low investment, low production costs and high potential for profitability</p>	<p>Sophisticated research and development and market linkages with farmers as well as strong capital base</p> <p>Timeliness in machinery provision</p> <p>Centrally located distribution network close to rural areas and ease of adaptation to customer preferences</p>
<i>Weaknesses</i>	<p>Lack of knowledge regarding distribution channels and customer preference</p> <p>Locations in rural areas distant from market outlets and difficulty of obtaining spare parts and supplies</p> <p>Lack of appropriate supporting technologies</p>	<p>Inability to meet the expanding market demand</p>
<i>Opportunities</i>	<p>Increasing domestic market with prospects for the development of a domestic niche market for 2WT and implements.</p> <p>Training of local service providers to enhance the demand for branded machinery goods</p> <p>Possible establishment of manufacturing industry for spare parts in order to provide timely operations and maintenance support</p>	<p>Well established distribution channels</p> <p>Possibility of distributing machinery and technologies in bulk giving larger importers an advantage over small enterprises</p>
<i>Threats</i>	<p>Requirements of foreign manufacturers for specific protocols which could limit the adaptation of the technologies</p> <p>Difficulty of market penetration which can only be achieved through high quality standardization and respect of contracts between importers and dealers</p> <p>Eventual dependence of producers on only one major dealer</p>	<p>Competition from many countries foreign manufacturers for selling machinery to Africa</p>

See Annex 1 – 2 for key questions relating to the sub-sector

3.1. Problem analysis and underlying causes/ opportunities

The problem analysis seeks to define the issues which are currently affecting the performance of those companies in the mechanization technology value chain. Problems should be relevant (directly or indirectly) to the particular actors which the project or action seeks to support. The problems can exist in the core value chain (the movement of the good or product), or in either the supporting functions (services) or enabling environment which affect the core value chain. The problems are the direct issues which the actors in the market have to contend with and can be identified through triangulation of information in field investigation.

<i>Purpose</i>	<i>Key issues</i>	<i>Output</i>
To identify the key problems in the VC or market system	Describes the problems faced by target beneficiaries and other market actors which have a bearing on their performance. Problems are the direct issues faced and can be general or specific depending upon the context	List of problems experienced by the market actors as identified through field investigation.

Identified problems are often symptomatic of wider systemic issues, or underlying causes, in the market. Therefore, in order to deliver a result which will strengthen the market system sustainably rather simply alleviate these issues temporarily, it is crucial to understand the **underlying causes** of these issues prior to devising solutions. To understand this, it is necessary to examine the issues more closely and ‘dig deeper’ to understand the root causes of the problems, this is the ‘why?’ question which be asked constantly throughout field investigation. The underlying causes must be deduced through analysis of verified and triangulated information from the field. It is important to try to ‘project back’ until the root cause of the problem is identified – this can be at least two or more levels in analysis of the problems.

An example for primary producers experiencing low productivity could be due to the poor application of fertilisers to their crops and poor take up of technology. However, it is necessary to deeper into the causes of these problems in order to find the root cause – why don’t they apply fertilisers correctly? Why are they not adopting technology? Only through establishing the root cause of the problems can interventions be designed to tackle the systemic problems and strengthen the system.

<i>Problem analysis</i>	<i>Underlying causes</i>
	<p>WHY? <i>Underlying Cause level 1</i> (identified through field investigation) – yields are lower due to poor application of fertilisers and lack of adoption of high yielding variety (HYV) seeds</p> <p>WHY?</p>

<p><i>Problem 1:</i> Producers' yields are lower than other comparable areas</p>	<p><i>Underlying Cause level 2</i> – poor application of fertiliser is due to poor access to information (poor government extension coverage in the area and single source of information is fertiliser dealer). HYV seeds available but farmers prefer to store and use their own seeds from previous year's harvest.</p> <p>WHY?</p> <p><i>Underlying cause level 3</i> – Farmers are risk averse and prefer to store seeds as part of a risk mitigation strategy as they may use them for consumption in the winter months.</p>
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<i>Purpose</i>	<i>Key issues</i>	<i>Output</i>
<p>To understand the root cause of why the problem is occurring</p>	<p>Describes the reasons why the identified problems are occurring. May be necessary to go through 2 or more levels of analysis to find the root cause. All analysis must be logical and may require some additional field investigation to test hypotheses.</p>	<p>List of underlying causes which explain the phenomena of problems identified in the field.</p>

3.2.5 Services and enabling analysis

In order that interventions by systemic (driven by market actors in the system) and to avoid market distortion or duplication of activities by the development intervention it is important to map and understand current service provision in the market. This service analysis seeks to identify the services which are being provided and where weaknesses may lie in current provision, in particular those related to the underlying causes to the problems identified. The service analysis builds upon the market map developed in the field investigation stage. It is important to identify the service first and foremost rather than the individual market actors (as other market actors may be able to provide these services even though they are not doing so at present).

The objective in this step is to determine which support services can best address the underlying causes identified in the previous section. In the course of the diagnosis and planning process, it may be determined that a single service provider can address a number of constraints. The approach looks at each underlying constraint and identifies a support service that could potentially address it. Once a problem is identified and noted an assessment is made of any services that could currently or potentially, address it. In this way, support services are identified in direct relation to the problems facing supply chain actors. It is important to distinguish between those that are "public services" and "private services". Special attention in

this project will be placed on private services that can be sustainable through transactions between private service providers and their customers (farmers and rural entrepreneurs). Once the support services needed are selected a more rigorous assessment is required.

The following information and data on each targeted service could be compiled and analyzed:

- existing service providers;
- penetration (no. of customers);
- frequency of use;
- demand and supply side constraints and opportunities;
- satisfaction with service;
- awareness of the service;
- proposed providers(s) to target for interventions;
- feasibility of the service (how costs for the service might be covered).

Service Provider Diagnostic

Product/ market mix:

What products does the supplier offer?

Who are the suppliers customers?

Is the service in line with consumer demand?

Are service sold?

What is the volume of services sold?

Ownership and relationships:

Is the supplier public or private sector?

How long has the supplies/ suppliers been in operation?

Does the supplier have any partner organizations/ companies?

With what organizations (associations, businesses, government agencies) does the supplier maintain regular links? Why?

Market expansion strategies:

Is the supplier trying to extend outreach and customer base and sales?

What barriers do they face in expanding their business?

Is the supplier creating new products that clients want?

Capacity:

What are the suppliers strengths and weaknesses?

Does the supplier have the necessary skills, people and facilities to deliver services that consumers want?

What percent of annual expenditure is used for staff training?

Does the supplier have good marketing?

Does the supplier have good business management?

Does the supplier have sufficient financial resources and good financial management?

Does the supplier understand consumer demand? Does the supplier regularly gather customer feedback and use it to improve products and marketing?

How do these strengths and weaknesses position the supplier relative to consumer demand?

Private sector orientation:

What percentage of revenues come from donors, government agencies, and private businesses?
Does the supplier recognize himself or herself as a business or primarily a social organisation?
What is the suppliers perception of selling to private consumers?
What proportion of sales comes from the private sector?
Is management entrepreneurial or bureaucratic?

Views of the market:

What does the supplier view as the major barriers to providing good quality services to customers? (public sector service competition, lack of training, lack of financing, lack of awareness by customers, lack of customers willingness to pay, lack of information on what consumers want)

Questionnaires and checklists could be used for service consumers and service providers to gather this information. These questionnaires get at both the demand and supply side of the targeted service. Much of the information for the service assessment is collected concurrently with the sub-sector analysis thereby saving time and resources. Part of the support service assessment involves determining how the cost of the service will be covered. Two ways that the costs of providing support services to farmers and supply chain businesses can be sustained in the market are:

(i) *Charging fees for the service:* Fees paid by rural producers might cover the costs of providing the targeted services. In these cases, enterprises transact with private service providers whose main activity is the provision of the service. Examples of these providers include trainers, extension workers and firms that offer management, technical, and/or logistical services, as well as suppliers of technologies/ machinery who sell needed inputs or equipment to the enterprises. They also include sub-sector specific, stand-alone service providers (illustrated in the mechanization sub-sector, for example by providers of machinery hiring services, etc).

(ii) *"Embedding" the service as part of a transaction:* In this option the providers of the good/ service themselves cover the costs of the service. These providers provide services for "free" as part of their efforts to sell products to enterprises (as in the case of input suppliers providing training in the use of the inputs they sell) or to ensure that the farmers produce a quality product that they can buy and successfully resell (as in the case of traders training farmers in aspects of marketing). These free services are called "embedded" services, since they are part of the commercial transaction the farmer has with the dealer/ buyer.

There are many ways to promote/develop embedded services depending on the nature of the service and the relationships between provider and customer. These include improving the capacity of the service provider to deliver the service, illustrating the cost-benefit of the service to the provider, and demonstrating the importance of the service to the consumer. In some situations embedded services are provided by a "third-party". In this case, a service provider may hire a body to provide services to small farmers or farmer groups. To the extent possible, a business service assessment should determine whether the service would be sustainable in the market on its own, without subsidies.

The enabling environment represents the wider factors which exert an effect upon the operation of the market system or value chain. While at the macro-level these can often be beyond the

remit of local development interventions to tackle, there may be areas such as local norms or the local socio-political context which interventions should be mindful of when intervening.

<i>Methodological step</i>	<i>Purpose</i>	<i>Key issues</i>	<i>Output</i>
Services Analysis	To identify the key services which effect the operation of the VC in relation to the identified underlying causes	Describes the services which are required for the effective operation of the VC. These may be already existing in the system or may need to be created through interventions	List of services related to the underlying causes of the identified problems.
Enabling Environment Analysis	To identify the key enabling environment factors which affect the VC in relation to the identified underlying causes of a particular problem	Describes the enabling environment factors which affect the VC particularly in relation to the identified underlying causes. These can be large 'macro' issues or highly specific to the local context	List of enabling environment functions.

3.2.6 Weakness Analysis

Further to identifying the relevant services and enabling environment factors, analysis can now focus upon the relative performance of these services/ enabling environment factors – why they are not achieving the results envisaged in the Vision of Change. The provision of these services or the influence of the enabling environment (by whichever actor may be providing them) must have some systemic weaknesses which prevent them performing well for the target group. The weaknesses may be that a service or enabling environment factor is either underperforming or non-existent in the market system. These can be deduced through analysis of the field data and, if required, follow up field investigation. It is important that these weaknesses are identified in order that interventions can be designed to tackle them and strengthen the value chain or market system.

<i>Purpose</i>	<i>Key issues</i>	<i>Output</i>
To identify the areas in which the services can be improved	Describes the weaknesses in the services and enabling environment which are negatively affecting the operation of the value chain or market system.	List of weaknesses for key services or enabling environment factors.

3.2.7 Intervention design

Interventions can now be designed to strengthen the weaknesses in the current offer of service provision in the market system. These **interventions** can now be targeted at specific market actors or groups of market actors which can be engaged to drive the change in the system. Decisions must be taken regarding which market actors are best placed to deliver the required change, as a rule of thumb it is generally considered to be more sustainable for market actors (incentivised by business) to deliver services rather than projects or NGOs (temporary) or government (often driven by perverse incentives, lack of customer orientation). Interventions should identify the action being taken to ***alter the current operation of the underperforming VC or market system***, and should be clear and specific.

<i>Purpose</i>	<i>Key issues</i>	<i>Output</i>
To identify the actions which can be undertaken to strengthen the VC or market system	Describes the key actions which alter the current modality of the VC or market system to the to make it function more effectively	List of Interventions.

Examples of possible interventions

- Extend the dealer brand to create a demand for implements/ equipment
- Training of machinery operators in maintenance and repairs.
- Train entrepreneurs in spare parts manufacturing to provide a reliable range of parts.
- Train producer groups in techniques of bulk buying to reduce prices and establishing a machinery hiring service.
- Set up a farmer association to provide mechanization services for their members
- Set up a machinery ring to provide hiring services on a private sector basis
- Upgrade the machinery hiring and operation services
- Generate a demand for 4WT and its accessories
- Influence policy makers to change the tariff structure
- Develop database of resource people capable of providing technical training to farmers
- Facilitate meetings between service providers and training resource people.
- Develop capacity of machinery supply companies to use their network of distributors and stockists to expand training and demonstrations.
- Training of distributors/ stockists (in conjunction with input supply firms) in technical aspects of the technologies they sell.
- Develop the capacity of importer associations to offer training to distributors and stockists.
- Ensure interlocking linkages with market and processing outlets
- Design financial products to provide working capital for farmers
- Train clients in financial management
- Promote supplier credit from microfinance
- Establish a local service provider to create demand
- Encourage input supply companies to offer smaller packages of inputs
- Information dissemination to farmers on how they can seek redress from fraudulent stockists

Once a list of potential interventions has been established, each intervention should be reviewed in relation to the following criteria:

- extent of its impact on the farming community (leveraged effect);

- number of farmers that will benefit;
- cost effectiveness of the intervention (relationship between cost and impact);
- chances of the intervention resulting in sustainable support services;
- capacity of existing service facilitators to implement or manage the interventions;
- time frame for completing the intervention;
- availability of resources (human and financial) and interest;
- synergy of interventions among various support services;
- ability to promote "win-win" relationships between farmers, micro-enterprises and larger agribusiness ventures

ANNEXES

Annex 1: Literature review and sub-sector analysis

1. Forming hypotheses

As you complete the sector profile and dynamics it will be possible for a *hypothesis* to be formed about how the sector is operating. This *hypothesis* should identify the key dynamics of the market, the opportunities and constraints, and provide an initial idea about the intervention strategy. The purpose of the hypothesis is not to be *right* at this stage (your ideas will be refined through field investigation), rather it is the first part of the analytical stage which should focus subsequent field investigation on a working idea (which is evidenced-based) of what is driving the sector we are looking to develop.

The formation of the *hypothesis* should necessarily reveal a number of gaps in your knowledge which can be the subject of further areas of investigation. Where you can identify macro-dynamics through available literature, these need to be tested at the local level through further field investigation. At this stage it is possible to identify both *gaps* – areas where there is no information available at all; and areas for investigation – both the identified *gaps* and areas of the *hypothesis* which need to be tested in the field. It is useful to provide the *rationale* for these areas – say why it is important to find this information: what will it lead us to understand better. This will help in later field investigation.

2. Market organization and competitiveness: Key questions

Organization

What is the overall role of agricultural mechanization in the country's agriculture sector: role of agriculture in the country's economy; farmland area and estimated number of farm households directly depending on agriculture; proportion of farmland operated using tractors, animal draught power, and human muscle. Whether there is any clear regional distribution of these power sources in the country (If any, what brought these regional differences in different power sources in agriculture?).

Overall organization of agricultural machinery market in the country: Any government support to the development of agricultural mechanization in the country. Whether the agricultural machinery market is state dominated, run mainly by private sector, or any other arrangement.

Why is this good sector in which to intervene? (Consider which population groups are/ could benefit from development in this sector; identify the key factors relevant to your country that make the sector so compelling)

What is the size of the 2WT sector? (Consider the market size relative to other comparable sectors; GDP contribution; size of imports compared to local manufacture, etc) If possible, national level trends in the number of tractors (2WT, 4WT separated) operating in the country; domestic manufacturing (if any); average farmland area a 2WT could operate per season; functions/services 2WTs provide (tillage, transport, pump, shell/thresh, etc.) ranked in terms of time spent on or revenue generated from these services).

Who are the market actors? Consider the types and number of actors which operate in this sector Type of actors in 2WT market (importers, local manufacturers, distributors, retailers, 2WT based service providers, end users of services provide by 2WTs, etc.); the roles of each actor or type of actor (e.g. if retailers are also providing maintenance services, supplying spare parts, give tractors on credit basis, etc.); the mode of relations and exchange between them (for example formal contracts, informal deal-making) e.g. between importers and distributors, manufacturers and distributors, distributors and retailers, etc. Focus in particular on the service providers at the village level, the importers and manufacturers of 2WTs and associated attachments, and the financial and credit institutions which are operating in the sector.

Value chain mapping could also be used by considering the actors involved directly in the movement of product from import/ manufacture, to sale and the end-user; and other service providers which make this movement possible. Indicate also facilitators (like credit, insurance, transport, maintenance service providers), regulators (quality assurance, etc.)

What is the geographic spread of activities? Are there any comparative advantages? (Consider the full value chain from manufacture/ import, through retailing, to the end-user; are there any concentrations of activities?). If there is any geographic concentration of 2WTs, any underlying reason for that

What is the enabling environment for the promotion of 2WT? Policy and institutional support provided to this business or key driving force in the expansion of these specific machines The 'enabling environment' factors such as performance of government services, import and export tariffs, and the presence of any market distortions such as monopolies which can affect the VC constraints.

Performance and competitiveness

What are the factors which affect the competitiveness? Products or services which bring this competition. The areas on which they compete (price, volume, quality, etc.)

Level of competition in the machinery market (number of importers, distributors, retailers, etc.). Consider productivity growth for the sector; the relative competitiveness of all the actors in the VC; ROI per type of enterprise; the comparative advantages/ disadvantages of the sector; whether a company works at different levels or different companies are taking different marketing functions (importing, manufacturing, distributing, maintenance, retailing, etc.). What are the factors which affect the competitiveness? (Consider the products or services which bring this competition, the areas on which they compete (price, volume, quality, etc); also the 'enabling environment' factors such as performance of government services, import and export tariffs, and the presence of any market distortions such as monopolies which can affect the VC)

What are the recent and anticipated growth trends? (Consider for 2WTs and the associated attachments – seeders etc; how the growth trend in your country compares to others in the region; consider supply and demand trends with referenced tables and charts where possible)

What are the services which are being provided in the sector? Which actors (service providers) are providing these services? (Consider the types of services each actor or actor group provides (for example import/ manufacture, aggregation, transportation, retailing, promotional, informational, storage, processing etc)

What the potential for this sector to lead to poverty reduction? Why is this good sector in which to intervene? (Consider which population groups are/ could benefit from development in this sector; identify the key factors relevant to your country that make the sector so compelling)

What are the gender dimensions of 2WT products and services? Which type of services provided by 2WTs benefited which social group better? eg. Transport to women/men/children? Irrigation to..? Shelling/threshing to ...? Is there any segregation by social or economic class in getting the specific services provided using 2WTs? e.g. if the service is targeting only the poor or the rich, male or female, etc.

What lessons can be learned from other similar sectors? Comparing and generating lessons from 3- and 2-wheeler vehicles (tuk-tuk, motor bikes) to 2WTs. How the supply chain developed in these transport vehicles and what lesson could be drawn for 2WTs? In terms of import, distribution, retailing, ownership, maintenance, service provision to customers, level of penetration to the rural community in service provision, etc. What key lessons could be generated from this market to the expansion of 2WT's market?

Constraints and opportunities

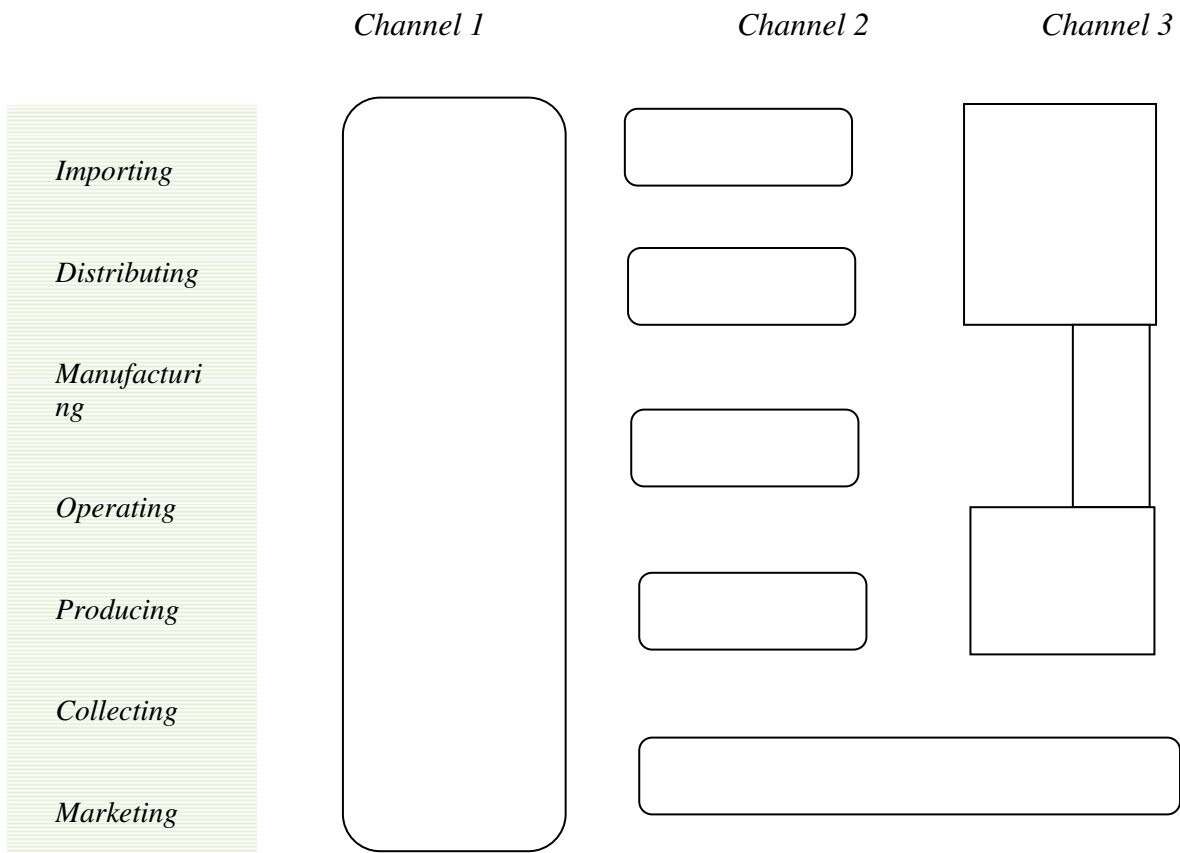
What are the constraints in the sector? (Consider the sector wide (macro) generic problems which constrain the growth of the sector; why these exist and are they pervasive or can they be tackled?). What are the more specific constraints to a given market actor, or market actor group, in the sector?(Consider the constraints which typical market actor or actor group faces which limit growth, productivity, and profitability) Are these constraints pervasive or can they be tackled?

What are the opportunities in the agricultural mechanization sector? (Consider latent or 'untapped' demand for farm machinery; Value added products using agricultural machinery (that enhanced the demand for farm machinery) Export potential (based upon the current share of imports for example.

3. How to analyse the 2WT and implements sub-sector?

- What channels are growing most rapidly?
- Which driving forces and constraints are responsible?
- Market demand
- Technological change
- Profitability
- Risk
- Barriers to entry
- Large firm behaviour
- Input supply
- Policies
- What are the consequences?
- Where are the best prospects for enterprise growth?
- Is intervention required to achieve the potential?

4. Sub-sector mapping conventions



Annex 2 Interviews/ focus group discussions of national and local market actors

1. Focus group discussions and key informant interviews

Focus group discussions/ interviews will be conducted for the following categories of supply chain stakeholders:

- (1) Farmers – smallholders and others utilizing 2WT and its accessories – interviews [include farmers hiring the services and purchasing machinery outright)
- (2) Farmers – smallholder farmers with interest and potential to use 2WT and its accessories – FGD (divided into sub-groups according to cropping pattern)
- (3) Importers and dealers of 2WT - interviews
- (4) Manufacturers of farm implements – interviews
- (5) Mechanics – located in the project areas – interviews
- (6) Financial institutions
- (7) Existing service providers dealing with all forms of agricultural mechanization [including operators] – interviews
- (8) Other service providers [not yet providing mechanization services] – local input dealers, farmer organizations, cooperatives – interviews
- (9) Potential service providers – farmers, entrepreneurs that might be interested in establishing an enterprise and providing services.

Attention should be given to the quality of the information collected rather than the numbers of persons interviewed.

A key feature of designing the interview technique will be ‘snowballing’ different leads from different actors. Agricultural mechanization is likely to have spatial variations because of different levels of penetration from market actors and interventions from NGOs and public extension programs. While it is understood that there are key manufacturers located beyond the project sites, interviews will not be limited to the administrative geographical boundaries of the project. For example, while talking with 2WT or 4WT owners and service providers in selected project areas we may learn that another broker intermediary may be interested in providing support services but is located in another district. The study team may have to reach out to these brokers to understand the total supply chain of services even though they lie outside the geographical remit of the project sites.

An ‘easy to do’ checklist has been designed to carry out the interviews with the some of the supply chain stakeholders. These include importers, dealers, manufacturers, brokers, financial institutions, public extension agency, scientists, NGO officials and other relevant key informants. Interviewers will be trained on the use of different qualitative tools i.e. one-on-one interviews,

A. District Agriculture Offices (for background information on the project areas and the districts)

1. Number of farmers and categorization
2. Predominant cropping patterns and area
3. Amount of land under cultivation
4. What is the number of agricultural machines in your area?
 - a. 4WT
 - b. 2WT
 - c. seeder
 - d. thresher
 - e. sheller
 - f. grinder
 - g. etc.
5. Have there been any agricultural mechanization related programmes, projects and other interventions implemented or planned in your area? Please describe.
6. Are there any machines or accessories that the district office is promoting in this area?
7. What are the key successes that your office can claim regarding farm mechanization?
8. How is your office promoting farm machinery in general, in your area? How does the department provide information i.e. size and capacity of machines, company recommendation etc. regarding the various machines?
9. Which of the private sector companies/manufacturer does your district office work with at local level?
10. What is the government financial/ business policy regarding the procurement of machinery? Are there subsidies or tax breaks provided?
11. How does the district office play its role in providing government subsidy on farm machineries?
12. What are the machineries that are locally manufactured? What is the volume of sales per annum?
13. Are there any mechanization service providers in your district? How many and where are they located.
14. Do you have any idea of the type of services that they're providing?

B. Donor/ NGOs

Detail about NGO intervention regarding farm mechanization i.e. promotion, transfer, training etc.

C. Importers

1. Name and address
2. What are the machines that your company imports?
3. Last 5 year sales - for different machines?

Business Growth

Name of machine	Sales					Retail price
	2009	2010	2011	2012	2013	
4WT						
2 WT						
etc.						

4. What are the prospects for the future? What are your projected forecasts?

Name of machine	Sales				
	2015	2016	2017	2018	2019
4WT					
2 WT					
etc.					

5. Describe your distribution network and the location of company branches if any? Map the distribution channels and branches. What districts are included?
6. Are there any seasonal variations in imports and sales in the machinery business? What is the peak and off-peak periods of the year?
7. Which machines do you think will experience significant growth in the years to come?
8. Do you offer guaranty, warranty, after sales services? What are they and for which machines?
9. Do you import spare parts? If not how do you make spare parts available?
10. Do you have a promotional/extension strategy? What is it?
 - a. Demonstration
 - b. Meeting
 - c. flyers
 - d. advertising
 - e. training (operators, mechanics)
 - f. etc.

11. Which machines are at still in a nascent phase? How are you promoting them?
12. Do you offer any f-Financial packages offered (to customers, to the brokers)? If so, describe.
13. Do you have linkages with banks (do they assist customers to access bank loan)
14. Is there a credit/installment system? How does it operate?
15. Tell us more about 2WT?
 - a. How many have you sold?
 - b. With what accessories?
16. Tell us more about 4WT?
 - a. How many have you sold?
 - b. With what accessories?
17. Is there a government subsidy program? How do you work with customers, banks and the ministry regarding this subsidy issue?
18. What are the challenges that you have been facing?
 - a. With overdue loans?
 - b. With bank?
 - c. With government?
19. Do you have any functional linkage with the ministry of agriculture – mechanization and research? Have you had any orders from them?

D. Dealers

1. Name and address of the business
2. What are the machines that you sell?
3. What are the names of the brands that you stock?
4. What is the volume of machines sold per annum?
5. Last 5 years: sales for different machines?

Business Growth

Name of machine	Sales					Retail price
	2009	2010	2011	2012	2013	
4WT						
2 WT						
etc.						

6. What are the prospects for the future? What are your projected forecasts?

Name of machine	Sales				
	2015	2016	2017	2018	2019
4WT					

2 WT					
etc.					

7. How do you buy or receive your machines/ implements?
 - a. Credit facility
 - b. Transport facility
 - c. Storage facility
 - d. others
8. Which machines will experience growth in the years to come? By how much?
9. Tell us more about 2WT?
 - a. How many have you sold?
 - b. With what accessories?
10. Tell us more about 4WT?
 - a. How many have you sold?
 - b. With what accessories
11. Is there any seasonality of machines business? What is the peak and off-peak season?
12. Do you provide advice on the size and capacity of the machines? From where do you receive this information?
13. Do you have any functional linkages with the department of agricultural administration, extension service or other government farms? Have you had any orders from them?
14. Do you have any knowledge on government subsidies? Please detail them?
15. Have you sold any machines to any farmer association?
16. Do you sell machines to service providers? Which ones? How many?
17. Credit/installment facility? What do you do when repayment is overdue?
18. Warranty, guaranty and after sales services?
19. Training for machine operation
20. Banking or financing facilities? What are the challenges?
21. Are there any agricultural machinery dealer associations? How do they operate? How do you negotiate with banks and government institutions etc.

E. Manufacturers (2WT or spare parts)

1. Name and address of the business
2. Experience in the business
3. Do you manufacture spare parts? For what machines/ implements/
3. What is the volume per annum?
4. Last 5 years: sales of spares for different machines?

Business Growth

Name of Machine – spare parts	Sales					Retail price
	2009	2010	2011	2012	2013	
4WT						
2 WT						
etc.						

5. What are the prospects for the future? What are your projected sales forecasts?

Name of Machine- spare parts	Sales				
	2015	2016	2017	2018	2019
4WT					
2 WT					
etc.					

6. From where did you get the design/prototype?

7. What is the capacity of your workshop to produce any machine e.g. how many machines per day/month?

8. What is the retail price of the spare parts?.

9. Is there any seasonality of machines business? What is the peak and off-peak season?

10. How many workers are there in your business?

a. How do you provide training for the workers?

b. How do you cope with expert staff retention?

11. Are you a member of an Agricultural Machinery Association?

12. From where do you buy the raw materials? Can you buy them on credit?

13. What is your current level of investment?

14. Do you have access to loans? How much can you receive and from which sources? What are the challenges that you face while accessing loans?

15. Do you provide after sales services? What are the modalities e.g. warranty, service with/without payment etc., in field repair)

16. What kind of repair services do you provide?

17. How many large scale orders do you usually get? From whom? What kind of problems do you face when producing at scale?
18. Do you have a distribution network for your produced machines? Draw a map.
19. Which machines do you think will experience more growth in the years to come?
20. How many manufacturers are there in this district?

F. Mechanics

1. Name and address
2. Do you have any fixed point business?
3. Experience
4. How many mechanics are there for farm machines in your district? Is there any Association of mechanics?
5. Training from whom and where?
6. What kind of machines can you repair?
7. What kind of problems are there that local mechanics cannot solve? Where do the machine owners go in that case?
8. Do you work with any dealer/company/workshop? Who are they? What is the nature of contract?
9. From where you buy the spare parts? Are they available in the district?
10. Do you go to customers households to provide the repairing services?
11. How much have you earned in last 3 months? What is the peak month? What is the off-peak month?
12. How do you promote your business? Do you think that your business will be more profitable in the years to come?
13. Do you have any successes that you may want to tell us?

G. Local micro and other financial institutions

1. Do you provide loan package? Investment or working capital? Up to what limit? Which clients receive loans – farmers, local small retailers and/dealers, etc.?
2. Detail of the package? i.e. interest rate, repayment schedule, mortgage?
3. What is the ceiling amount that a retailer/dealer can borrow?
4. Is there a package for farmers associations? Details...
5. Is there a package to allow you to procure agricultural technologies - large or small?
6. If yes, then what is the detail of technology specific financing?

Annex 3: Focus group discussions: service providers and users

Interviews and focused group discussions (FGDs)

Interviews and focused group discussions (FGD) will be carried out to understand different business models and diversities within the business models due to spatial variations from both service provider and service user perspectives. Service providers and users will be categorized according to the following breakdown:

Service providers

1. Existing service providers dealing with all forms of agricultural mechanization [including operators] – interviews
2. Other service providers [not yet providing mechanization services] – local inputs dealers, farmer organizations, cooperatives – interviews
3. Potential service providers – farmers, entrepreneurs that might be interested in establishing an enterprise and providing services.

Service users

1. Farmers – smallholders and others utilizing 2WT and its accessories – interviews [include farmers hiring the services and purchasing machinery outright]
2. Farmers – smallholder farmers with interest and potential to use 2WT and its accessories – FGD (divided into sub-groups according to cropping pattern)

Detailed checklists and guidelines have been produced prior to embarking on actual fieldwork. If some technologies have successfully been promoted in areas beyond the project sites, the research should not be limited to the in site to conduct interviews.

The decision whether or not to embark on FGDs or interviews will depend on the ease of identifying service providers/ users and arranging that they meet in a central location.

1. Interviews/ FGDs for Local Mechanized Service Providers

Activity 1: Availability of agricultural machinery

Note: Ask about the main crops the farmers cultivate over the year. List the machineries and technologies provided to support each crop.

<i>Name of agricultural machinery in use in the district/ region</i>	<i>Name of agricultural machinery currently available in the market that you do not use but would be interested in using</i>
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

Activity 2: Use a **time line** to understand the history of the use of agricultural machinery in the region and changes over the period (Initiate a discussion with the group to probe the history of farm mechanization in their area and then follow the lead to know the changes up until now. Do not spend too much time on this but make sure that you have noted down the time of introduction of each kind of machine and the change that has occurred in terms of the total number of users i.e. the trend of agricultural machineries used in the locality? Average trend of annual purchase in the area.

Activity 3: Access to machinery

Note: Mention the machineries' according to the list that found from activity 1 and proceed

<i>Name of the Machine</i>	<i>Name of import company</i>	<i>Name of dealer</i>	<i>Name of manufacturer (machines/ spare parts)</i>	<i>Do the manufacturers/ dealers/ importers provide the machine or spare parts based on the Requirements of the customer</i>

Activity 4: Experience with the machinery/ technology

Note: Mention the machineries according to the list that found from activity 1 and capture the experience with its use or service.

<i>Name of the Machine</i>	<i>Experience (positive/ negative)</i>	<i>Reasons</i>

Activity 5: Promotional activity of agricultural machineries (over the last three years)

In this section try to document the promotional activities carried out by you i.e. farmers field day, demonstrations, meetings, campaign etc. by different actors.

<i>Name of the Machine</i>	<i>Government (what and how)</i>	<i>NGO (what and how)</i>	<i>Private sector (what and how)</i>	<i>Service provider (what and how)</i>

Activity 6: Credit facility for machinery/ technologies

Do you receive credit facilities for the procurement of machineries/ technologies?

Are you in the position to offer clients mechanization services on credit?

<i>Name of the Machine/ technology</i>	<i>Available credit facilities and packages. What is the package?</i>	<i>Who provides these packages?</i>	<i>Who would be potential customers to extend credit facilities if deemed required</i>	<i>What kind of credit package could you provide (investment/ working capital)?</i>

Activity 7: Repairs and Maintenance (R&M) of machinery and equipment

<i>Name of the machine</i>	<i>Who are the R&M service providers?</i>	<i>What are the usual ways to have the maintenance services?</i>	<i>Who sells the spare parts?</i>	<i>Who produces the spare parts?</i>

Activity 8: Mechanized service provision

<i>Name of the machine</i>	<i>Structure of machine service business</i>

Activity 9: Supplier Diagnostics

This process takes a closer look at the supply side of the market by interviewing and observing the suppliers of machinery services. The descriptions of the suppliers interviewed combined with the consumer research should help to develop a picture of supply overall. The aim of the diagnostic should be to answer these questions:

- When information from all suppliers interviewed is taken together, what are the key problems with supply?
- Where are the opportunities for new services, marketing strategies or new suppliers?

This analysis should enable you to see market issues from the mechanization suppliers' points of view. Taking a closer look at the suppliers enables you to explore some of the supply side weaknesses found during the consumer research and pinpoint more precisely suppliers' weak points. When looking at both the consumer data and the supplier data, it is would be useful to analyze the "gaps" or areas where consumers and suppliers have different points of view. For

example, the farmers might be interested in a particular mechanization service but may not like the services currently available. Service providers (importers, dealers, operators, other service providers) might think that there is no demand from farmers, so they may not adequately expand their market. These “gaps” often point to a potential area for intervention.

The supplier diagnostic could be conducted formally through structured interviews or less formally through group discussions depending on the breadth of information required. The number and types of suppliers to interview depends on the nature of supply.

Product/Market Mix:

- What type of products does the supplier offer? (this could include not only mechanization services but other services such as training, inputs etc.)
- Who are the supplier’s customer segments? (small farmers, commercial farmers, rural entrepreneurs etc.)
- Is the product and market mix clearly defined?
- Does the product/market mix match the picture of consumer demand?
- Do product benefits and features match the demand of the consumer?
- What is the volume of services sold?

Ownership and Relationships:

- Who is the supplier? Does the supplier have an owner? What is the structure of ownership?
- How long has the supplier been in operation?
- Does the supplier have any partner organizations/companies?
- With what organizations (associations, other businesses, government agencies) does the supplier maintain regular links? Why?

Market Expansion Strategies:

- How is the supplier trying to increase its customer base and sales?
- What barriers do the management of the service perceive in expanding their business?
- Do the strategies correspond with the issues found from the demand analysis?
- Is the supplier creating new products that consumers want?

Capacity:

- What are the supplier’s strengths and weaknesses?
- Does the supplier have the necessary skills, people and facilities to deliver products that consumers want?
- What percent of annual expenditure is used for staff training?
- Does the supplier have good marketing?
- Does the supplier have good business management?
- Does the supplier have sufficient financial resources and good financial management?
- Does the supplier understand consumer demand? Does the supplier regularly gather customer feedback and use it to improve products and marketing?
- How do these strengths and weaknesses position the supplier relative to consumer demand?

Private Sector Orientation:

- What percentage of revenues comes from donors, government agencies and private businesses?
- Does the supplier recognize him/herself as a business or primarily as a social organization?
- What is the supplier’s perception of selling to farmers and other private consumers?
- What proportion of sales comes from the private sector?
- Is management entrepreneurial or bureaucratic?

Views of the Market:

The following questions could help identify “gaps” between demand and supply.

- What does the supplier view as the major barriers to providing good quality services to customers?
 - competition from the government agencies or donor financed programs
 - not eligible for the same incentives and policy support
 - lack of training for staff
 - lack of financing to support growth and staff development
 - lack of awareness by customers of the value we provide
 - lack of customer willingness to pay for good quality service
 - lack of information on what consumers want
 - etc.
- What does the supplier think needs to be done to remove the barriers mentioned?
- What one action does the supplier think would best help him/her to improve the quality of services?
- What changes in the supplier’s business does s/he think would enable him/her to expand and reach new customers?

Activity 10: Associated problems

<i>Issues</i>	<i>Problems</i>	<i>Ways to address problems</i>
Training to operate machines	Machinery installation	
Size and capacity of the machine	Machinery operations complex	
Credit facility	Lack of credit facilities	
Maintenance	Availability of spare parts	
Service business	Lack of information on service providers	

Activity 11: What can be done to resolve the problems and how they can be improved?

Note: Mention the causes of problems that found from activity 9 and proceed

<i>Category of issue</i>	<i>Main 3 activities should be done/ what is needed to strengthen the system</i>	<i>Specific activities that should be done</i>	<i>Who will do/Who could be active agent (service providers, traders, financial institutions, manufacturers)</i>	<i>How will do/ How can more entrepreneurs be encouraged</i>	<i>Risk factors</i>
Importing / manufacturing					
Training to operate machines					
Size and capacity of the machine					
Credit facility					
Maintenance					
Service business					

Activity 12: Impact projection of the locality

<i>Name of the machine</i>	<i>Demand of no. of machines/could potentially be sold</i>	<i>Total No. of farmers would be benefited?</i>	<i>No. of service provider needed</i>	<i>Impact of the intervention</i>

2. Other service providers [not yet providing mechanization services] – local inputs dealers, farmer organizations, cooperatives

Activity 1: Product/Market Mix

- What type of products does the supplier offer? (this could include goods such as inputs and other services such as training, inputs etc.)
- Who are the supplier's customer segments? (small farmers, commercial farmers, rural entrepreneurs etc.)
- Is the product and market mix clearly defined?
- Does the product/market mix match the picture of consumer demand?
- Do product benefits and features match the demand of the consumer?
- What is the volume of services sold?

Activity 2: Ownership and Relationships

- Who is the supplier? Does the supplier have an owner? What is the structure of ownership?
- How long has the supplier been in operation?
- Does the supplier have any partner organizations/companies?
- With what organizations (associations, other businesses, government agencies) does the supplier maintain regular links? Why?

Activity 3: Social capital

- Do you belong to a producer group or network?
- When did you join?
- Why did you join/
- Has it produced benefits for you?
- What have been those benefits?

Activity 4: Market Expansion Strategies

- How is the supplier trying to increase its customer base and sales?
- Is the supplier interested in broadening the range of services to include mechanization?
- How does he see the market for mechanization services? Specify which services and what market segments?
- Has the supplier conducted some form of market appraisal? What are the reasons for the decision to expand?
- Are there any barriers expected for the supplier to expand the business?
- What strategies does the service provider intend to follow to make this a successful expansion of the business?
- Is the supplier creating new products that consumers want?
- Does the supplier believe that customers will be in the position to pay for these services?
- What pricing strategy will he/ they charge for mechanization services?

Activity 5: Capacity

- What are the supplier's strengths and weaknesses?
- Does the supplier have the necessary skills, people and facilities to deliver products that consumers want?
- Does the supplier have a promotion/ marketing strategy?
- Does the supplier have good business management?
- Does the supplier have sufficient financial resources and good financial management?
- Does the supplier understand consumer demand? Does the supplier regularly gather customer feedback and use it to improve products and marketing?
- How do these strengths and weaknesses position the supplier relative to consumer demand?

Activity 6: Private Sector Orientation

- What percentage of revenues comes from donors, government agencies and private businesses?
- Does the supplier recognize him/herself as a business or primarily as a social organization?
- What is the supplier's perception of selling mechanization services to farmers and other private consumers?

Activity 7: Views of the Market

The following questions could help identify "gaps" between demand and supply.

- What does the supplier view as the major barriers to providing good quality mechanization services to customers?
 - competition from the government agencies or donor financed programs
 - not eligible for the same incentives and policy support
 - lack of training for staff
 - lack of financing to support growth and staff development
 - lack of awareness by customers of the value we provide
 - lack of customer willingness to pay for good quality service
 - lack of information on what consumers want
 - etc.
- What does the supplier think needs to be done to remove the barriers mentioned?
- What one action does the supplier think would best help him/her to develop mechanization services?
- What changes in the supplier's business does s/he think would enable him/her to expand and reach new customers?

3. Potential service providers – farmers, entrepreneurs that might be interested in establishing an enterprise and providing services.

Activity 1: Background

- Location of the business (urban/ rural; proximity to dealers and buyers)
- What other activities/ businesses are you involved in? Has this changed as the business developed?
- No. of family members in the business.
- No. of hired labour
- Sources of additional income of family members

Activity 2: Human capital

- How old are you? What is your level of education? What is your gender?
- No. of years experience as a manager? Your prior experience in this business?
- How did you decide on this business?
- How long have you been in this business?
- What skills do you have for this business?
- What skills do you think you need?
- What qualifications do others in your family bring to this business?
- What is your level of risk aversion?

Activity 3: Social capital

- Do you belong to a producer group or network?
- When did you join?
- Why did you join/
- Has it produced benefits for you?
- What have been those benefits?

Activity 4: Product/Market Mix

- What type of products do you plan to offer? (this could include not only mechanization services but other services such as training, inputs etc.)
- Who are the supplier's customer segments? (small farmers, commercial farmers, rural entrepreneurs etc.)
- Is the product and market mix clearly defined?
- Does the product/market mix match the picture of consumer demand from the demand analysis?
- Do product benefits and features match the demand of the consumer?

Activity 5: Ownership and Relationships

- What is the potential structure of ownership?
- Have you previously managed your own small enterprise?
- How long has it been in operation?
- Was/ is it successful?

- Does the supplier have any partner organizations/companies?
- With what organizations (associations, other businesses, government agencies) does the supplier maintain regular links? Why?

Activity 6: Market Expansion Strategies

- How do you see the market for mechanization services? Specify which services and what market segments you're considering targeting?
- Has the supplier conducted some form of market appraisal? What are the reasons for the decision to expand?
- Are you expecting to provide additional goods/ services? If so which?
- Are there any barriers that you expect to prevent you from getting set up in the business?
- What strategies do you intend to follow to make this a successful expansion of the business?
- Do you believe that customers will be in the position to pay for these services?
- What pricing strategy will you charge for mechanization services?
- How has this been set?

Activity 7: Financial capital

- Do you need start up capital? How do you intend to obtain it?
- Do you have sufficient capital to set up the business (working capital; investment capital)?
- Do you have access to loans? What size of loan do you want and terms of payment

Activity 8: Capacity:

- What are the supplier's strengths and weaknesses?
- Does the supplier have the necessary skills, people and facilities to deliver products that consumers want?
- Does the supplier have good business management acumen?
- Does the supplier have sufficient financial resources and good financial management?

Activity 9: Linkages

- What linkages to buyers, financial sources, markets have you developed?
- How potentially strong are these links for your business to prosper?

Activity 10: Enabling environment

- How conducive is the enabling environment to start your business?
- Is the market competitive?
- Is the market growing?

Activity 11: Views of the Market:

- What does the entrepreneur view as the major barriers to providing good quality services to customers?
 - competition from the government agencies or donor financed programs
 - not eligible for the same incentives and policy support
 - lack of training for staff
 - lack of financing to support growth and staff development
 - lack of awareness by customers of the value we provide

- lack of customer willingness to pay for good quality service
 - lack of information on what consumers want
 - etc.
-
- What does the entrepreneur think needs to be done to remove the barriers mentioned?
 - What one action does the supplier think would best help him/her to get established in business?
 - What changes in the business does s/he think would enable him/her to establish the business?
 - What do you attribute as the most important factors impacting on the success of your business?
 - What problems and challenges did you envisage in developing our business?
 - Are you optimistic that you can adequately address them?
 - What plans or vision do you have for the business in the future?
 - What additional support do you think that you require to ensure success of the business?

4. FGD for the Users of Mechanization and Local Mechanized Services

Activity 1: Availability of agricultural machineries

Note: Ask about the general crops they cultivate over the year. Probe the crops and list down the machineries used accordingly.

<i>Name of agricultural machineries in use in the district/ region</i>	<i>Name of agricultural machineries currently available in the market – not used locally (and in neighbouring areas)</i>
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Activity 2: Use *Time line* to know the history of agricultural machineries used in the district and changes over the period (Initiate a discussion with the group to probe the history of farm mechanization in their village and then follow the lead to know the changes till date. Do not take too much time on it but make sure that you have noted down the time of introduction of each kind of machine and the change that happened in terms of total number and user till date i.e. trend of agricultural machineries used in the locality? Average trend of annual purchases in the area.

Activity 3: Mechanization operations

It would be useful to collect information on: a) the type of farm operations that are mechanized, b) whether the farmer has his or her own tractor and implements c) if the farmer acquires mechanization services and d) the type of operations that are mechanized.

<i>Machines</i>	<i>Operations (1)</i>	<i>Owned/ hired</i>	<i>Service supplier (2)</i>
4 wheel tractors			
2 wheel tractors			
Disc plough			
Harrow			
Rotavator			

- 1) *Activities*: land preparation, cultivation, seed drilling, fertilizer application, harvesting, irrigation, pumping water, threshing, milling, transporting
- 2) *Sources of machinery hiring*: other farmers, farmer organizations, service providers etc.

Activity 4: Access to machinery services

Note: Mention the machineries’ according to the list that found from activity 1 and proceed

<i>Name of the Machine</i>	<i>Name of import company</i>	<i>Name of dealer</i>	<i>Name of manufacturer (machines/ spare parts)</i>	<i>Do the manufacturers/ dealers/ importers provide the machine or spare parts based on the Requirements of the customer</i>

Activity 5: Decisions to buy/ hire machinery

Why do these farmers purchase machinery/ equipment?

Why do these farmers by machinery services for the first time? Explain, step by step, what led you to decide to purchase the service for the first time.

Decision factors to probe:

- the internal aspects of the farm business that led to the decision (e.g. increased/ decreased sales, time and money was available etc.)
- how did you find out if the service was available
- competitive pressures
- government regulations
- interaction with other farmers (e.g. recommendation from another farmer
- personal contacts (e.g. recommendation from a family member or friend or family member/ friend provides service)
- advertising by a service provider (even informal advertising through word of mouth)

The facilitator should encourage one or a couple of participants to explain their experience. Gaps could be filled by probing, “How did your decision process differ from <<name the other person >> ? ” “Was there a step before this for you that helped you decide to purchase the service?” “So, <<name factor>> led you to believe you needed the service – what were the factors that led you to actually purchase the service?”

Ask the participants to mention what were the most significant or important factors in their decision to purchase the mechanization service. The discussion should focus not only on what made the participants believe they needed the service, but what were the actual motivating factors in their decision to PURCHASE the service.

- How did you decide to purchase the service for the first time? How did you know that it was available? What did you expect to get from the service the last time you purchased it? Do you feel you got what you expected from the service? Are you satisfied with the results of the service? What more do you wish you could get from the service?(compare expected and actual results from the service)
- Did you or are you likely to purchase other business services as a result of using the service? Why or why not? What about the service makes you interested in purchasing other services? What other services do you think you might purchase? From the same service provider or different?
- If you don't pay would you be prepared to do so in the future? What would make you decide to purchase? (for which services) How much would you pay? What would you expect to get from the service if you purchase it?
- What would you expect during your use of the service? What would make you satisfied during your use of the service? (physical appearance, written materials, interaction with the service provider, etc.)
- How would you choose a supplier? What aspects of a service provider would make you think that they offered a quality service that would provide you with the expected benefits and be worth the cost? (physical appearance, interaction with service provider, written materials about the service, recommendations from others)
- How did you choose the supplier you chose the first time you purchased the service? Subsequent times you purchased the service? What were the aspects of the service provider that made you think that they offered a quality service that would deliver the expected benefits and be worth the price?

Activity 6: Experience with use of machinery

Note: Mention the machineries according to the list that found from activity 1 and capture the experience with its use or service.

<i>Name of the Machine</i>	<i>Experience (positive/negative)</i>	<i>Reasons</i>

Activity 7: Promotional Activity of Agricultural Machineries

In this section please try to understand the promotional activities conducted by dealers/ service providers i.e. farmers field day, demonstrations, rally, meetings, campaign etc..

<i>Name of the Machine</i>	<i>Government (what and how)</i>	<i>NGO (what and how)</i>	<i>Private sector (what and how)</i>	<i>Service provider (what and how)</i>

Activity 8: Satisfaction with mechanization services

Are you satisfied with the services you received? If not why not? What are the constraints on the services provided?

Measuring customer satisfaction is an important element in providing better, more effective and efficient services. Customer satisfaction could be addressed through a simple method – 1) the level of importance of the services provided and 2) service providers importance in giving services. The following checklist could be used to gather in-depth information on consumers’ expectations and satisfaction with the services provided. An index on satisfaction (from very satisfied, satisfied, dissatisfied and very dissatisfied) could be developed based on scores given for the following features:

- Timeliness of the service
- Cost of the service
- Reliability
- Technical skills in operations
- Flexibility in meeting the consumers’ schedule
- Tailoring the service to the consumer needs
- Convenience in accessing services

While this is included in the FGD approach the assessor should interview each person comprising the FGD separately.

Activity 9: Cost of mechanization

Information should be gathered on the cost of mechanization – cost per hour (either through the use of owner machinery or hired machinery). Another aspect is the cost of the mechanization service and some idea how the cost is recovered.

<i>Type of mechanization/ implements</i>	<i>Owned/ hired</i>	<i>How much do you pay (cost per hour/ day/ acre)</i>	<i>Cost recovery of services</i>				<i>Describe form of embedded service</i>
			Free	Full cost	Subsidised	Embedded	

Activity 10: Level of demand for mechanization services

Additionally it would be useful to understand the level of demand for mechanization services. How many hours a day, which months in the year, how many days a year is mechanization required? And how many days or months a year is mechanization needed. This could be done through developing a seasonal demand schedule for power, examining the demand for mechanization and the actual operations that are mechanized. This information may have to be collected from each member of the FGD individually.

Activity 11: Credit Facility for machinery purchases/ hiring

<i>Name of the machine</i>	<i>Are credit facilities available? What is the package?</i>	<i>Who provides these packages?</i>	<i>Who would be the stakeholders that could enjoy these facilities?</i>	<i>What kind of credit package would you want (investment/ working capital)?</i>

Activity 12: Associated problems and way-out

What are the types of problems that you experience in your farming operations related to power? To what extent can they be addressed through mechanization services? How do you solve these problems? Where do you get the information to solve these problems?

Issues	Problems	Ways to address problems
Training to operate machines	Machinery installation	
Size and capacity of the machine	Machinery operations complex	
Credit facility	Lack of credit facilities	
Maintenance	Availability of spare parts	
Service business	Lack of information on service providers	
etc.		

Activity 13: What to be done to reduce the problem/how this can be improved

Note: What are the causes of the problems listed in activity 12 and proceed.

Category of issue	Main 3 interventions should be done/ what is needed to strengthen the system	Specific activities should be done	Who will do/Who could be active agent (service providers, traders, financial institutions, manufacturers)	How will do? How can more entrepreneurs be encouraged?	Risk factors
Importing / manufacturing					
Training to operate machines					
Size and capacity of the machine					
Credit facility					
Maintenance					
Service business					

Activity 14: Benefits (actual and potential) of the service:

What did you expect to get from the mechanization service when you purchased it? When you discussed your intention to purchase the service with a friend or family member, what did you tell them about why you planned to purchase the service? Do you feel you got what you expected from the service? What do you feel you got? How did you and other household members feel about the results of the service? What more do you wish you could get from the service?

As a result of the services received what benefits did they provide?

- Increase in productivity
- Better quality produce
- Increased sales
- Increase in farm income
- Value addition
- Reduced workload and drudgery
- Savings in power and energy
- Positive effect on women

Areas to probe:

- what were the expected and actual results of the service on your farm business (e.g. increased production, less drudgery, more sales marketed, better quality produce etc.)?
- what were the expected and actual results of the mechanization service on the client (e.g. made him/her feel more competent, feel more important as a result of utilizing the service)?
- did farmers get something out of the service they did not expect? what? tangible things that came along with the service – for example written materials for training

Encourage participants to share examples of actual expectations and actual experienced benefits of the service rather than theoretical benefits of the service or what the service “should” deliver.

Lead one or several participants through their experience of purchasing and using the service. Use other participants to fill in the gaps – “How was your experience different from <<name participant>>?” “<<Name participant>> wants to change <<name a step in the service experience>>, what would you change to make the service better for you?” “Would <<name suggested change>> make you interested in purchasing the service again?”

Activity 15: Impact projection

<i>Name of the machine</i>	<i>Demand of no. of machines/could potentially be sold</i>	<i>Total no. of farmers would be benefitted?</i>	<i>No. of service provider needed</i>	<i>Impact of the intervention</i>

5. Interviews/ FGD for farmers with interest and potential to use 2WT and its accessories
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General

What is your cropping pattern?
What are the major constraints experienced?
Are there any bottlenecks in your system?
Do you use animal power, manual? For what operations?
Have you considered tractors?
For what operations? And at what times of the year?
What are the reasons that you didn't mechanize before?

Purchase of tractors

Would you be interested in buying a 2WT? If not, why not?
If so would you be willing to buy the machine?
Do you have the money available to buy it?
Do you have the money available to buy accessories?
If not do you have access to financial services?

Hiring of tractor services

Why have you never used mechanization services?
If not, why not?
Do you know of any tractor hire services?
If you have never used tractor hiring services before, would you be interested in using these services?

For what operations? How often?
What would you be willing to pay for these services?
What would make you decide to purchase mechanization services from the suppliers you know?

Probing questions

Decision factors to probe:

- farm management problems experienced
- competitive pressures
- government support and assistance
- government regulations
- availability of finance
- recommendation from another farmer
- personal contacts (e.g. recommendation from a family member or friend or family member/friend provides service)
- convincing advertising by a service provider
- different pricing (cheaper or better payment terms etc.)

Encourage one or a couple of participant to say what might make them purchase the mechanization service. Ask others if that is a key factor for them or what other factors are more important to them.

What benefits would you expect to get from the service if you purchase it?

Areas to probe:

- what would you expect to be the results of the service on your farm business (e.g. increased production, less drudgery, more sales marketed, better quality produce etc.)
- what would be the expected results of the mechanization service on the client (e.g. made him/her feel more competent, feel more important as a result of utilizing the service)
- are you likely to receive other benefits from the service that you may not be expecting? what?
- tangible things that came along with the service – for example written materials for training
- ideas participants have for other benefits they could get from the service. encourage participants to formulate an example of all the benefits that they expect from a service.

What would you expect during your use of the service? What would make you satisfied during your use of the service?

Areas to probe:

- physical appearance of the service provider facilities
- tangible things that came along with the service – for example written materials for training
- aspects of the service process
- how the participant would expect the service provider to be responsive to the needs of customers
- what knowledge and skills the participants would expect the service provider to have
- how participants would know if this is a good service provider (before, during and after purchase)

Lead one or several participants through a hypothetical experience of purchasing and using the service. Ask them what would make them satisfied at each stage. Use other participants to fill in the gaps

If you were to choose a supplier, what would you be looking for?

What aspects of a service provider would make you think that they offered a quality service that would deliver the expected benefits and be worth the price?

Areas to probe:

- interaction with the service provider or his/ her staff – what would the personnel say or do or look like that would make the participant think the service would be worth it?
- written materials about the service – what would materials say or look like that would convince the participant?
- other forms of advertising of the service – what advertising might convince the participant?
- recommendations from others – what could they say to convince the participant?