

Market Research of Agriculture Pump-sets Industry of India



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EXECUTIVE SUMMARY

There is a huge gap between supply and demand of electricity in India. The deficit currently stands at approximately 8 percent annually. The gap can be bridged either by increasing the supply by setting up more power generation units or decreasing demand by consuming less power. Energy efficiency and Demand Side Management are important tools to control the demand of electricity. Agriculture pumping consumes 18 percent of electricity in India. Hence the demand side management of agriculture pumps has the ability to significantly diminish the demand-supply gap.

The present report, commissioned to assess various parameters influencing the demand and supply of agriculture pumpsets in India, is based on the primary information collected from various stakeholders associated with the agriculture pumpset value chain. Information has been collected from farmers, retailers, dealers and manufacturers of agriculture pumps in India. Wherever possible, secondary sources have been used to supplement and verify the information gathered from primary.

The study verifies the early hypothesis of study that agriculture pump segment is highly fragmented. Market share of organized sector is 63 percent share by value and 52 percent share by volume. The unorganized sector has very significant hold in agriculture pumpset market. The unorganized sector has a strong presence in almost all the demand regions for agricultural pumps. Players from the unorganized sector offer farmers cost-effective products by pricing their pumps at 30–40 percent lower rates.

Study also collected demand side state-wise information to understand difference in behavior. In the Eastern zone, West Bengal is the demand hub for low-cost pumps. As a result, unorganized players dominate the local market. This region is also a major hub for cheap imported pumps from China. The North zone is characterized by a mix of national and regional players, which varies with each state. Gujarat is characterized by the dominance of regional players who have low awareness about the star rating. Farmers in Gujarat are more inclined towards cost-effective pump sets.

Maharashtra has the largest number of pumps installed—approximately 32 lakh. In Maharashtra, the local-made pumps or those manufactured by small players from Ahmedabad are preferred due to their low costs. Andhra Pradesh has the second highest agriculture pump installations with 27 lakh pumps. In South India, farmers are now becoming more aware about star ratings, and are accepting star-rated pumps.

According to the opinion of farmers, low voltage capability of pumpsets is the most important attribute followed by warranty/guarantee, price, standards, after sales service and higher water output. However, the opinion of retailers differs from the opinion of farmers. According to the retailers, farmers consider price as the most important attribute for pump selection. Word of mouth has the most significant influence on brand selection by farmers followed by other influencing factors such as retailer's feedback, banner advertisement, television and availability of retailer in proximity. Given the flat rate for electricity consumed in agriculture activities, farmers are found to be totally unconcerned about electricity savings.

Farmers across most of the states such as Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab & Haryana, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal associate low voltage compatibility with efficient pumps. High water throwing capacity is considered as another important attribute for a pump to be efficient by most of the farmers.

Awareness level in farmers is low due to minimal understanding of star rating and its benefits in all the states. Farmers understand ISI marking and associate the same with the quality. Star rating is a new concept to them.

The manufacturing of agricultural pumps is concentrated primarily at five locations in India with a number of regional manufacturing units catering local markets. Three of the top five manufacturing locations are in Gujarat, one is in Tamil Nadu and the third is in Madhya Pradesh. Coimbatore is the largest manufacturing hub for pumps, and accounts for around 40 percent of the total industry supply.

BEE star rating, low maintenance attribute, replacement of motor burnout, after sales service are considered as competitive advantages by national and regional level manufacturers. However, unorganized manufacturers and some small regional manufacturers consider lower price and low voltage compatibility as their competitive advantages.

BEE has already included agriculture pumps sets in voluntary labeling scheme. Most of the national level manufacturers consider star labeling program as the right move to save electricity and for efficient consumption of electricity. Study indicates that participation in government tenders and associated enhancement in brand image are the major drivers for national level manufacturers to manufacture star rating pumps. However, the most influencing factor for regional manufacturers to manufacture star rating pumps is to prepare for the future market where star rating will be mandatory. The manufacturing of star rating pumps entails an increment in cost for them but this is not the case with National level manufacturers due to the economies of scale.

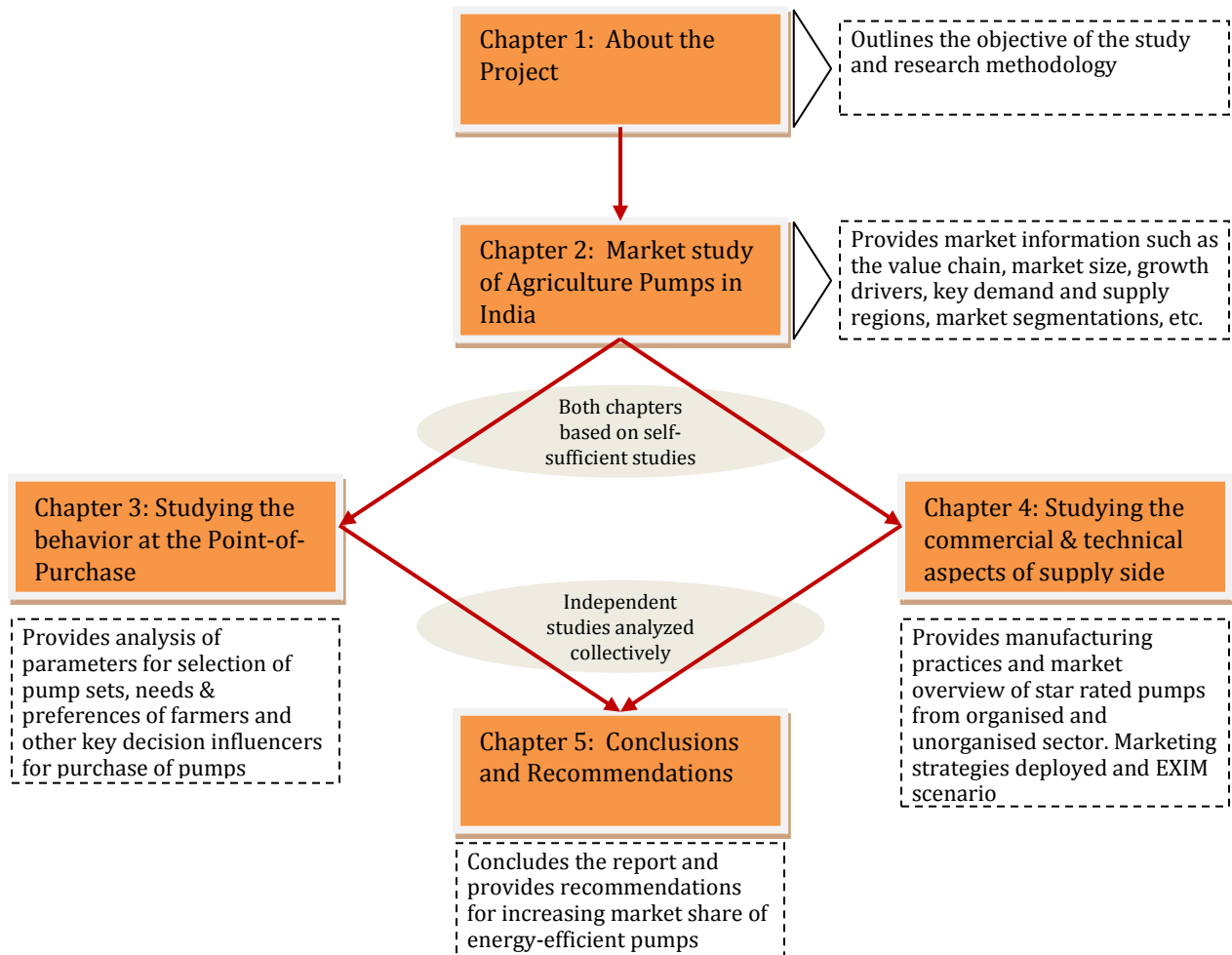
Study reveals significant shortfall from BEE. Most of the manufacturers face difficulty due to the long waiting periods for star rating approvals from BEE. At present BEE have only 4 authorized testing facilities which make the BEE testing procedure very slow. As a result it takes minimum 6 to 8 months to get star label, which drastically affects the sales volumes. Low acceptance of star labeling pumps among the farmers due to low voltage incompatibility and lack of awareness is limiting the manufacturing of these pumps in high volumes.

Higher price (though not significantly higher), perceived low voltage incompatibility of star rating pumps, flat rate of electricity for agriculture and lack of any direct incentives for installation of efficient pumps act as barriers in implementation of star rating pumps.

The manufacturers making high efficiency pumps (star rating pumps) include a number of leading manufacturers such as CRI, Texmo, Lubi, Varuna, Falcon, KSB, Kirloskar, Shakti, and Besten. The manufacturers of star rating pumps concentrate on better designs, use of better material such as stainless steel and increase in copper weight to improve pump efficiency.

HOW IS THIS REPORT STRUCTURED

This report consists of five chapters.



Chapters are followed by references used for the report.

1. ABOUT THE PROJECT

1.1. BACKGROUND OF THE STUDY

The Indian power sector suffers from acute shortages, with the average national deficit at 8.5 per cent and peak shortage at 9.8 per cent in 2010-2011 annually. The Central Electricity Authority (CEA) has projected the average short fall to rise to 10.3 per cent and peak shortfall to rise to 12.9 per cent in 2011-12¹. There are two ways of meeting this deficit: it can either be approached from the supply side (i.e. by producing more electricity), or from the demand side by consuming less power. Electricity production has failed to keep up with the growing national demand and, therefore, the shortages continue to persist. In such a scenario, energy efficiency and demand-side management are cost-effective and potent tools to mitigate these shortages.

Despite the clear benefits, energy efficiency has failed to kick off on a large scale in India. This may be attributed to the following reasons:

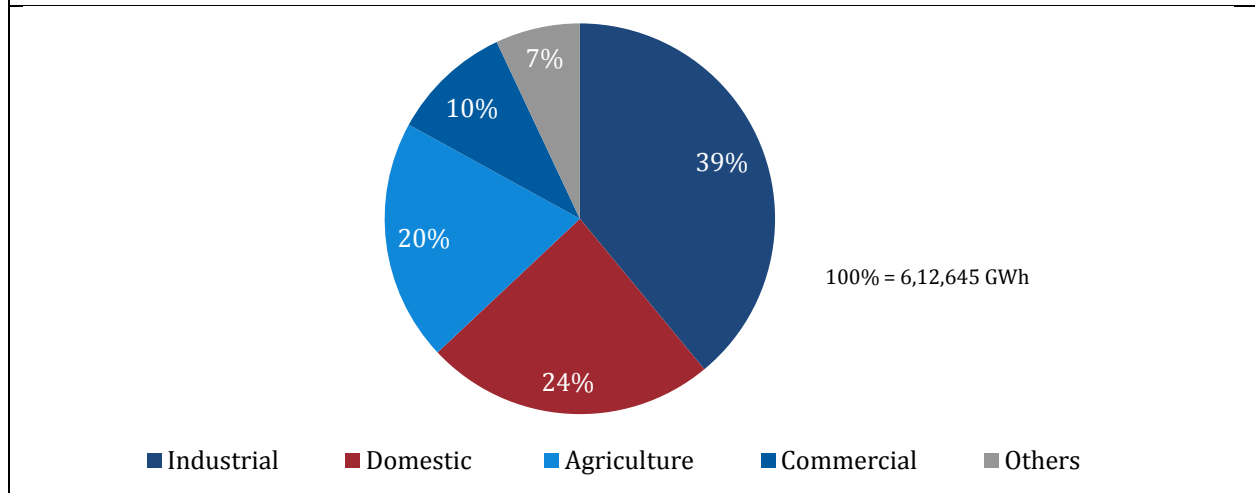
- Too much focus on supply-side options, i.e. producing more electricity, by policy makers
- Certain upfront financing costs associated with energy efficiency, which distribution companies may not be willing to bear
- Inadequate awareness about the benefits of energy efficiency and demand-side management among distribution companies

Recognising the barriers related to energy efficiency, Bureau of Energy Efficiency (BEE) has developed an upstream market transformation programme design. Named Super Efficient Equipment Programme (SEEP), this design is being advocated by Prayas Energy Group for the large-scale implementation of energy efficiency in India. SEEP will create a comprehensive mix of incentives for manufacturers and consumers of appliances and equipment. In doing so, it will help to transform the market to appliances of very high efficiency standards, much higher than the current labelling norms. The mix of incentives may comprise direct subsidy, technology transfer and other strategic interventions.

Figure 1 demonstrates the usage of electricity produced in India. The largest consumer of electricity is the industrial sector (at 39 per cent), followed by domestic and agriculture sector at 24 and 20 per cent respectively. For agriculture states such as Andhra Pradesh, Uttar Pradesh, Haryana, etc the electricity used by agriculture is as high as 35-40%. Hence, electricity savings in the agriculture pumping sector will assist in achieving the objectives of the programme.

¹ Power deficit for 2011-12 pegged at 10.3 per cent; Business Standard; June 2011; <http://www.business-standard.com/india/news/power-deficit-for-2011-12-pegged-at-103-per-cent/438884/>

Figure 1: Electricity Consumption by Sectors (2009)²



Based on interactions with various stakeholders and preliminary analysis of efficiency potential, a study has been commenced to analyse the feasibility of efficiency measures for the agriculture pump set segment. Being a highly unorganised sector, there is a shortage of robust and organised information on market structure and operation. To design the right kind of policy and incentives, there is a need for additional market-specific information.

1.2. PROJECT OBJECTIVE

To study the market dynamics for agriculture pump sets in India and to provide recommendations to increase the market share of energy-efficient agriculture pump sets. The study will act as one of the key inputs for finding the right mix of interventions among various stakeholders (manufacturers, retailers and farmers) to transform the agriculture pump market towards higher energy efficiency.

1.3. SCOPE OF THE WORK

The scope of work involves study of all the stake holders across the value chain of agriculture pumps study. The broad scope of work is mentioned below. The study has been divided into three primary components:

1. *Macro Analysis of Market Structure*

The objective of this analysis is to understand the broad market dynamics, in terms of manufacturers and geography of this sector.

Some of the parameters studied are the market share of the different types of pumps that are manufactured and sold in India, identifying market segments and the key manufacturers in each

² Energy Statistics 2011; Ministry of Statistics and Programme Implementation; April 2011; http://mospi.nic.in/mospi_new/upload/energy_stats_2011.pdf

segment; analysing recent trends in domestic sales, import and export; identifying manufacturers associations and other similar professional bodies, manufacturing clusters, research facilities, laboratories/testing centres associated with industry clusters or otherwise, among others.

2. *Market analysis at point of purchase*

This study has focussed on analysing market operations at the point-of-purchase, which involved extensive interactions with retailers and farmers. The objective of this task is to assess the kind of decisions that are taken at the consumer level in terms of selecting pump sets; typical well, piping and other irrigation costs; and needs and preferences of farmers.

3. *Micro-Level Study of Sample of Manufacturers*

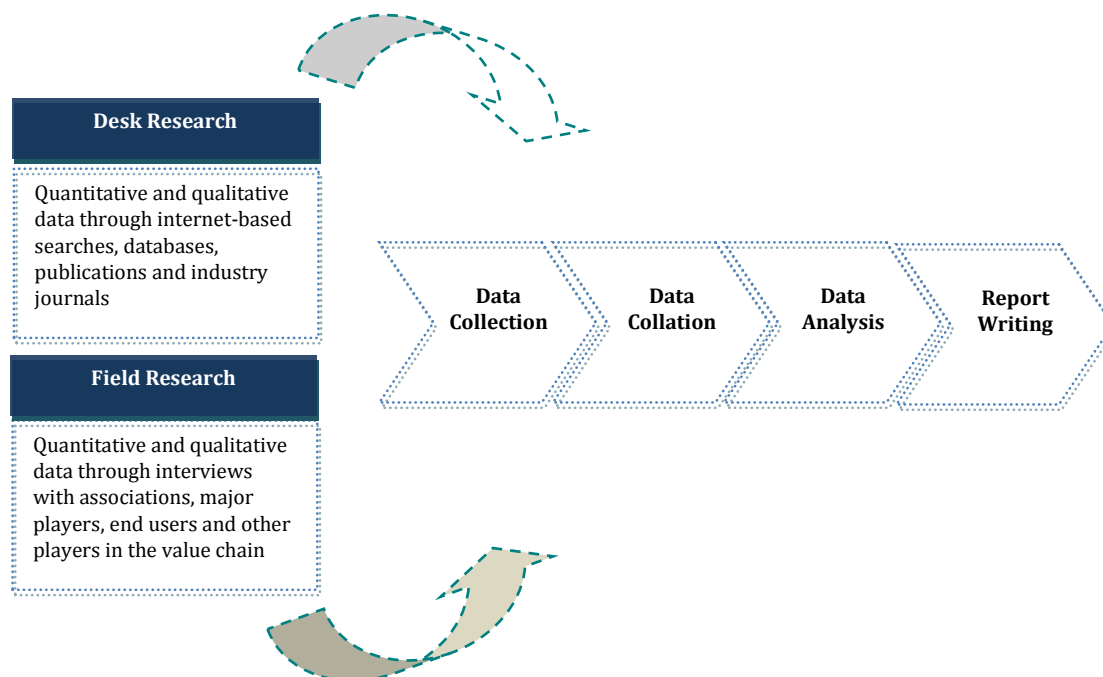
This task focussed on a representative sample of major manufacturers from different segments. This task involved interacting with manufacturers directly, specifically on technical and commercial issues.

Under this task, the inter and intra-segment competitive advantages of firms, their experience with BEE’s recent labelling programme, the cost break-up of typical pump sets and the costs of achieving efficiency standards associated with the labelling program is accessed .

1.4. RESEARCH METHODOLOGY AND DATA COLLECTION

The scope of work involves collecting quantitative and qualitative data from various stakeholders across the value chain of the agriculture pump-set sector—manufacturers, retailers and farmers.

The research has two components. The first one is comprehensive desk research based on secondary online sources and the second is field research based on primary sources such as interviewing pump manufacturers, pump dealers and farmers.



Desk research (Secondary research)

Desk research includes the review of literature available online. These literatures have been collected from diverse public sources, such as the Ministry of Agriculture, other relevant ministries at the state level, trade bodies, industry associations, journals and articles, company websites and other relevant resources.

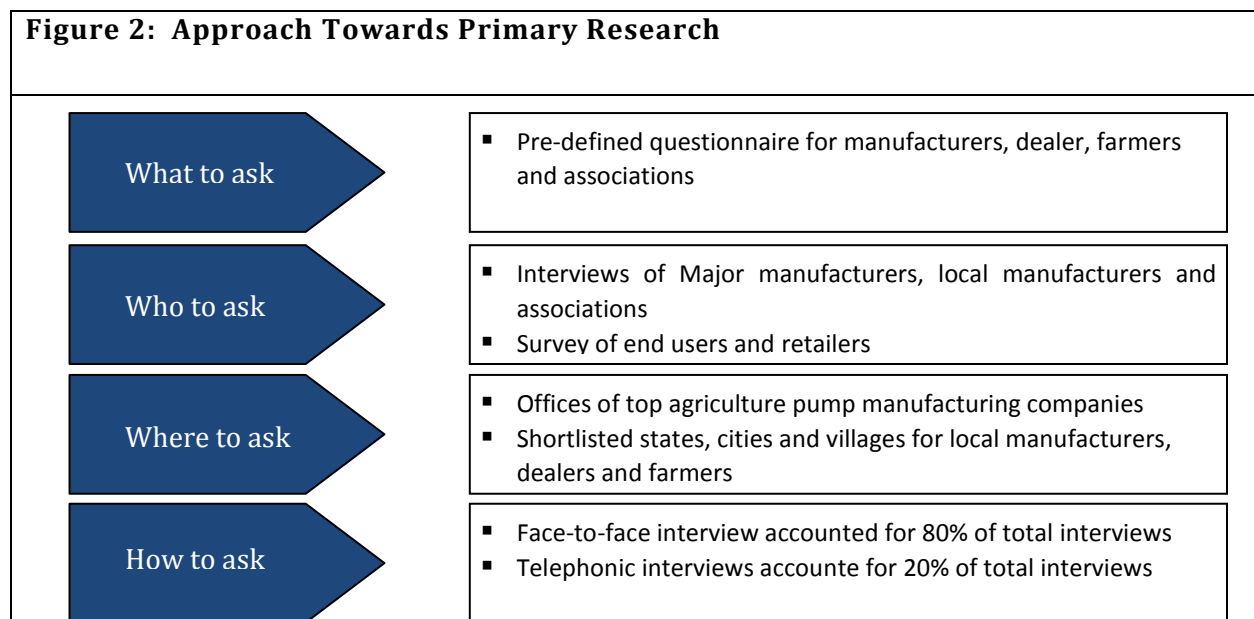
- Developing an initial understanding of agriculture sector and the agriculture pump industry. Literatures from Ministry of Agriculture and various state level ministries have been referred to develop the understanding of number of agriculture pumps energised and currently used in various states across India.
- Result of previous programmes created by BEE to increase the awareness regarding star rated energy efficient pumps through its Ag DSM programme
- Short-listing of states for dealers' and farmers' primary interviews based on various parameters which are mentioned in Field Research approach
- Creating the list of pump manufacturers for the primary interviews

Attempts were made to gather the literature on past studies on farmer's awareness about energy conservation and energy efficient pumps. No literature could be found given the limited or no study done on the topic in past. Other than above attempts were made to gather literature on topics similar to the current study, but the information available has been from sparse to none.

Field Research (Primary Research)

Field research includes telephonic and face-to-face interviews with manufactures, dealers, farmers and associations. The objective of field research is to gather comprehensive information regarding the buying behaviour of farmers, the role of retailers, commercial issues of manufactures and current awareness regarding energy conservation & energy efficient pumps.

Our approach to field research can be segmented into four parts: what to ask, who to ask, where to ask and how to ask.



What to Ask (Developing the questionnaire)

Three variants of the questionnaire were developed. First questionnaire was for farmers, second was for the retailers and third was for manufactures. Each questionnaire was developed to gather the information as mentioned in the scope of work with the final objective of designing the mix of interventions for market transformation toward high efficiency pumps. Based on the questionnaire, data templates were created for data entry.

Who to Ask and Where to Ask (Sample size)

A total of 135 farmers, 76 retailers and 19 manufactures were interviewed for data gathering. Apart from above, several dealers were interviewed in initial stages of the project. Average time spent interviewing a farmer and a retailer was 45 mins & for a manufacturer average discussion time was 90 mins. Other than direct stakeholders, IPMA was also contacted for information and data validation.

We have segmented the respondents into five categories:

- Dealers/retailers
- Farmers
- Large manufactures with all-India presence
- Manufacturers with regional/state presence
- Associations

Dealers/Retailers³ and Farmers

A random sampling procedure is followed to provide maximum geographical coverage and at the same time to interview appropriate number of retailers and farmers so as to provide representative information for shortlisted district.

We have shortlisted eleven states for our study (Figure 3). These states account for 95% of total area under production, 95% of total agriculture production and accounts for more than 95% of total agriculture pumps energized in India. The following criteria have been analysed to shortlist the top 11 states. States have been represented in figure on next page.

- Number of pump sets energised
- Area under production
- Total production
- Growth in GDP contribution from agriculture

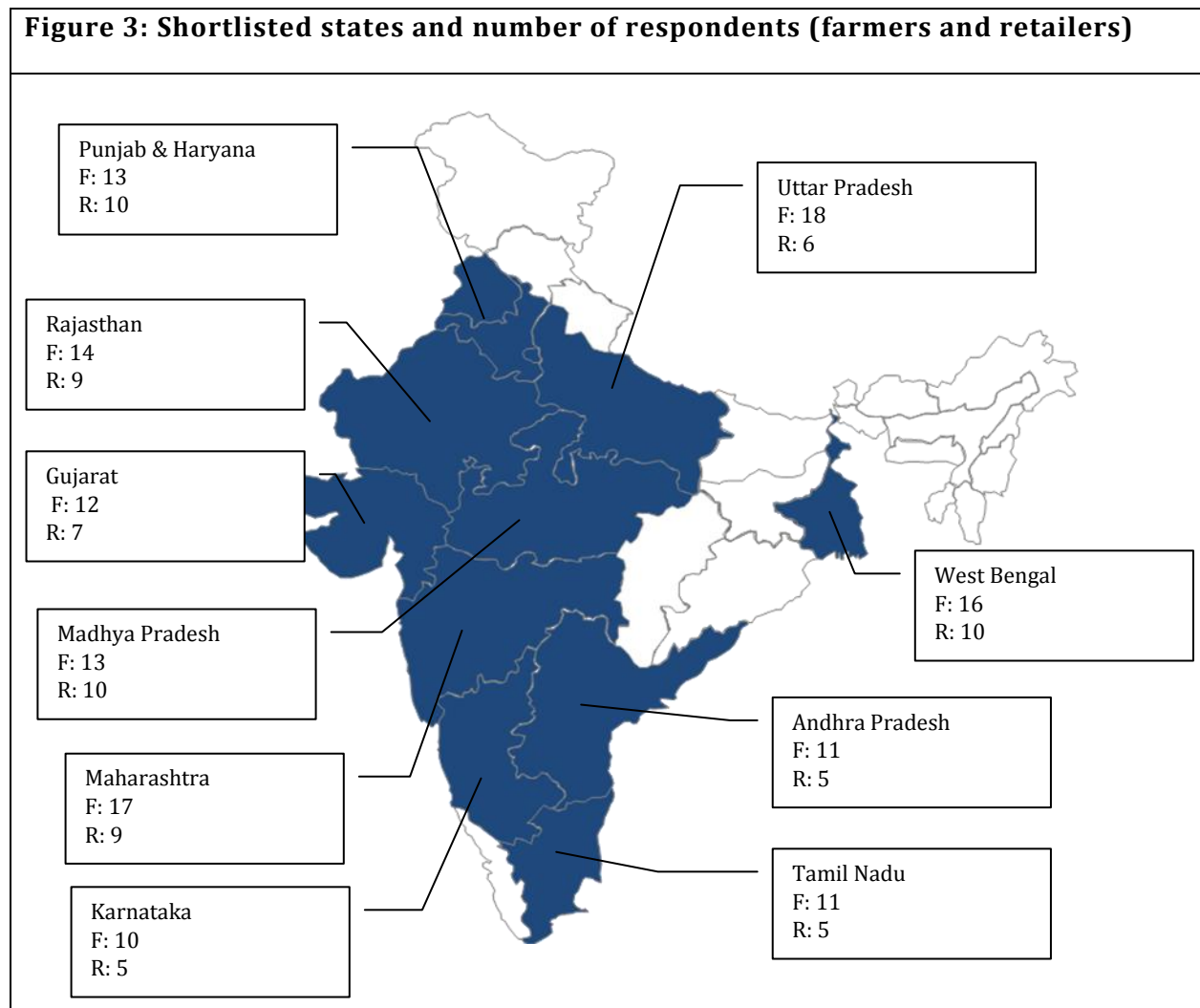
Within states, districts for interviews have been shortlisted to provide maximum geographical coverage. Other than geographical coverage, annual replenishable ground water level and net ground water availability have also been considered in shortlisting of districts. For Punjab & Haryana (considered as one region), Uttar Pradesh, Maharashtra, Andhra Pradesh and Karnataka, three districts have been shortlisted in each state. For West Bengal, Madhya Pradesh, Rajasthan,

³ Retailer and Dealers are used interchangeably in the report. Though there are few differences in the business model, their role in agriculture pumps market is similar.

Gujarat and Tamilnadu, two districts have been shortlisted in each state. The name and location of districts have been provided in state profiles of Chapter 3.

Farmer’s interview has the sample size of 135. A minimum of 10 interviews have been conducted in each state. For sampling of farmers within a district, farmers have been categorized as small, medium and large. This division has been made on land holding patterns and HP of pump used. Other than 135 farmers that provided us with both quantitative and qualitative information as per the questionnaire, approximately 200 more farmers are interviewed to verify the qualitative information collected from 135 farmers. Apart from verification, these 200 farmers also provided with qualitative information that assisted us in analyzing the reason for quantitative information. The selection of these 200 farmers has been entirely random.

Complementing the interview of farmer, interviews of retailers have been conducted. The sample size of retailer’s interview was 76 with minimum of 5 interviews in each state. The interview of retailers is a mix of local retailers in a town near village and big retailers in equipment’s clusters in nearby city.

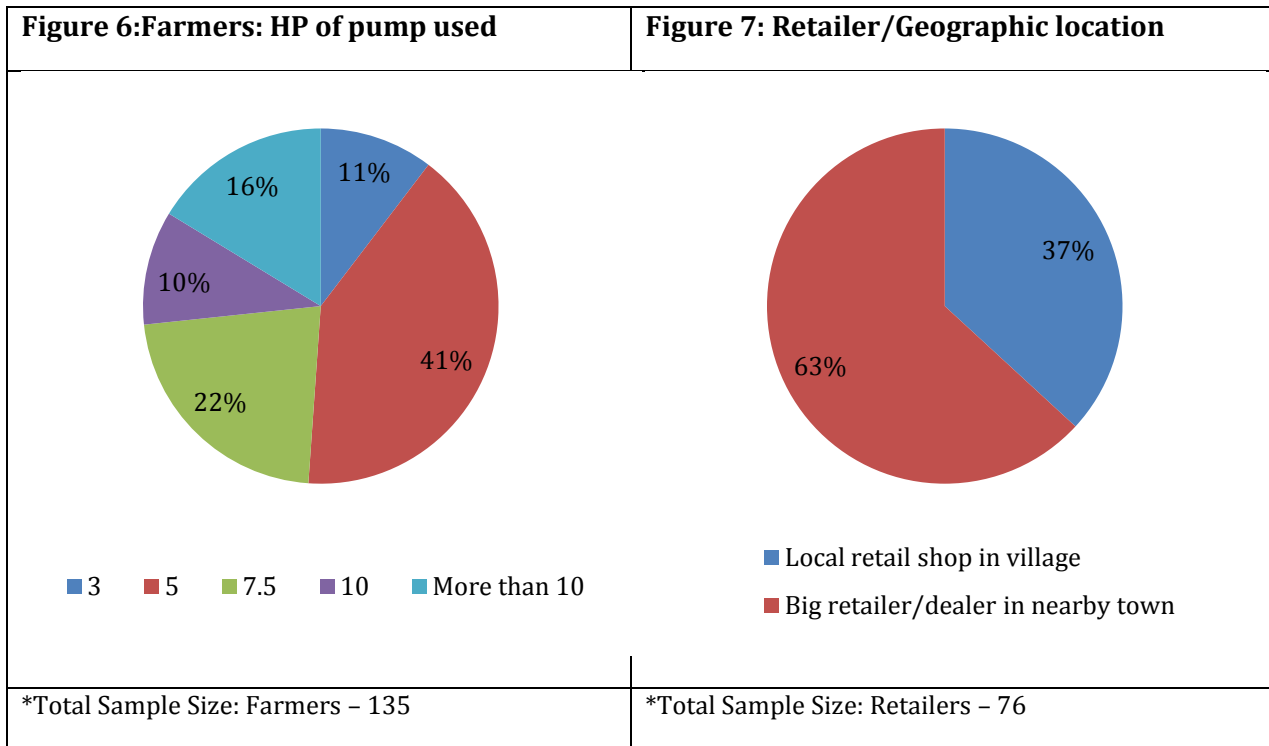
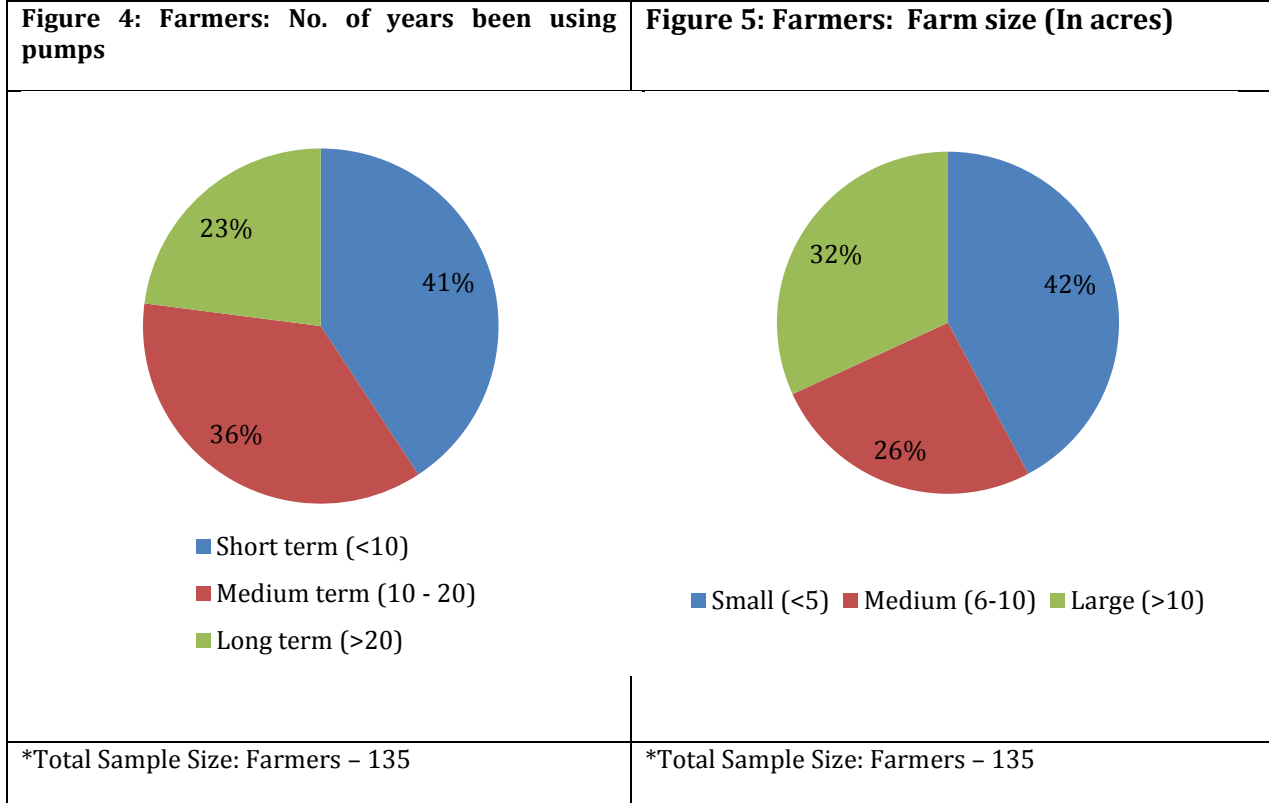


Location of farmers interviewed

State	District	Village
Punjab & Haryana	Bhatinda	Guniana kalan, Jida
	Karnal	Pingri, Narugarhi, Jeni
Uttar Pradesh	Lucknow	Rehmad Nagar, Salepur, Naya Kheda, Thavar,
	Varanasi	Bharthara, Raja ka talab, Narasara
	Meerut	Bhadarpur, Kheda mastan, Dhikoli
Rajasthan	Jaipur	Rampura-Dabri, Boorthal, Rampura, Budarpura, Sarna-chod
	Udaipur	Fanda, Bilia, Titardi, Dangiwada-Rama, Jindoli
Madhya Pradesh	Narsinghpur	Pipariya, Kathotia, Devrikala, Bagpoli, Bahor Parka, Belkhede, Kamti, Khamaria,
	Gwalior	Panihar, Barai, Ghatigaon, Sigora, Punjabi pura
Maharashtra	Nagpur	Banewadi, Pipri, Ridaura, Hingaghat, Bhokara (godni)
	Ahmednagar	Lakhepur, Erandwane,
	Kolhapur	Ambewadi, Teechalkaran, Nigwe
Gujarat	Gandhinagar	Dashela, Jakhora
	Rajkot	Maika, Bedigaon,
Karnataka	Belgaum	Macche Belgam, Piranawadi
	Mandya	Gopalapur Mandya, H kodihalli
	Shimoga	Navule, Bhomanakatte
Tamil Nadu	Thanjavur	Papanadu, Ampulapathi, Palaji Kasi road, Vavidainel uijayaparam
	Thiruvannamalai	Maigur, Urikl, Ginsem tik, Kozappallur, K Natchipathi, Pallikandan
Andhra Pradesh	West Godavri	Rangarao gudem, Sriramavaram, M R Pollam
	Nizamabad	Pothangal, Jannapeta
	Chittor	Rasimhareddy, Mukkalathuru
West Bengal	Burdwan	Chotkundu, Hetampur, Shyamnagar, Debipur, Sobhnagram, Memari,
	South 24 Pgns	Kumrapara, Gayengheri, Panspukur

Location of dealers interviewed

State	District	Village/ City
Punjab & Haryana	Bhatinda	Guniana mandi
	Karnal	Jundla, City area
Uttar Pradesh	Meerut	Sardhana
	Lucknow	Maal, City area
	Varanasi	Raja ka talab
Rajasthan	Jaipur	City area
	Udaipur	City area
Madhya Pradesh	Narsinghpur	Gotegaon, Kareli
	Gwalior	City area
Maharashtra	Nagpur	City area
	Ahmednagar	Shevgaon
	Kolhapur	City area
Gujarat	Ahmedabad	City area
	Rajkot	Wakaner
Karnataka	Shimoga	City area
	Belgaum	City area
	Mandya	City area
Tamil Nadu	Thiruvannamalai	City area
	Thanjavur	City area
Andhra Pradesh	West godavri	City area, Chendu
	Nizamabad	City area
	Chittoor	City area
West Bengal	Burdwan	Memari, City area,
	South 24 Pdns	Kakdip



Large national manufactures with all-India presence/ Manufacturers with regional presence

Sample size of manufacturer's interviews is 19 with six national manufacturer and 13 regional manufacturers. The initial list of manufacturer of agriculture pumps was prepared from desk research. Any other information regarding the manufacturers of agriculture pumps such as production volume, revenue, etc. was very limited in desk research. The shortlisting of manufacturers for interviews was done after completion of interviews of farmers and retailers. The farmers and retailers were asked to provide information on top three manufacturers in region. The shortlisting is based on the responses of farmers and retailers.

To divide the manufacturer into national and regional players, iterative process has been followed. The information on presence in number of states as provided by farmers & retailers has been verified with the primary information on the volume of production collected from the manufactures. Presence in number of states and production volume data were then verified to segment manufacturers into national and regional players. Five regional manufacturers were randomly selected during the visit to industrial clusters in Coimbatore and Rajkot.

Six national manufactures included in the study are Texmo, CRI, Lubi, KSB, Falcon and Varuna. Eight regional manufacturers based interview of farmers and retailers are Besten, Suguna, Mak, Krishna, Mahalakshmi, Aroma, Chetan and Tormac. Five randomly selected manufactures are Mahendra, Deccan, MBH, Oswal and Singla. Unnati pumps, a significant national manufacturer refused to participate in the study.

Location of manufacturers interviewed

Company	Location of Manufacturing facility
Texmo	Coimbatore
CRI	Coimbatore
Lubi	Ahmedabad
KSB	Pune
Varuna	Ahmedabad
Mahendra	Coimbatore
Falcon	Rajkot
Besten	Coimbatore
Suguna	Coimbatore
Deccan	Coimbatore
Mbh	Ahmedabad
Mak	Ahmedabad

Krishna	Rajkot
Mahalakshmi	Coimbatore
Aroma	Kutch
Chetan	Jaipur
Oswal	Karnal
Singla	Karnal
Tormac	Coimbatore

*Attempts were made to talk to unorganized players. A limited number of retailers in cities were involved in unorganized manufacturing (assembly of pump). These players were completely reluctant to talk about their manufacturing practice. All the information collected about unorganized sector is based on the interviews of retailers not involved in process of unorganized manufacturing and interviews of organized manufacturers.

How to Ask

The primary mode for gathering information is face-to-face interviews. Telephonic interviews of dealers in major manufacturing clusters are used to generate the initial understanding of the market.

1.5. GLOSSARY OF SOME IMPORTANT TERMS USED IN THIS REPORT

- *Organized Sector:* A sector of an industry having a number of registered manufacturers operating their business in compliance with the government rules & regulations
- *Unorganized Sector:* A sector of an industry having a number of unregistered manufacturers operating their business without following government rules & regulations
- *Local manufacturer:* A manufacturer from the unorganized sector of an industry
- *National level manufacturer:* A manufacturer operating its business throughout a number of states with the help of its wide distribution network
- *Regional level manufacturer:* A manufacturer operating its business in limited regions i.e. states, districts, cities etc. and has a limited distribution network
- *Local retailer:* A retailer with limited range of products and located in the proximity of village
- *Big retailer:* A retailer with wide variety of products and located in nearby city or town. Such retailers are also dealers to few brands
- *Monoblock Pump:* A pump with its all rotating parts mounted on a common shaft
- *Submersible Pump:* A pump designed to operate underwater. Such pumps are coupled together with electric motor in a protective housing as one unit
- *Water throwing capacity:* Pump flow rate

2. REVIEW OF CURRENT SCENARIO OF AGRICULTURE PUMPS IN INDIA

The pump industry in India is over seven decades old. Pumps are among the basic equipment needed for every sector; they cater to a wide range of sectors—from agriculture to nuclear power generation. Indian pumps have significantly contributed to the nation's economy as a part of the manufacturing sector and agriculture sector. The infrastructure and other core sectors require various types of pumps. All these sectors are growing at a considerable rate today, and are linked to the development and economic growth of India. The Indian pump industry exports to approximately 70 countries, and is poised to register a faster growth rate⁴.

2.1. OVERALL PUMP MARKET IN INDIA

The pump market in India is valued at INR 5,490 cr. in 2010, and is expected to reach INR 12,330 cr. by 2014, growing at a Compounded Annual Growth Rate (CAGR) of 22 percent⁵. The pump industry is composed of a large number of Small Scale Industries (SSI) units, large manufacturers and many overseas manufacturers. The industry is fragmented, with the presence of both organised and unorganised players, and competition from international companies who have set up their base in India. Indian pump manufacturers appear to completely fulfil the domestic demand for pump usage, with more than 600 manufacturers producing around 1.2 million pumps annually⁶. The industry is balanced in terms of demand-supply, with domestic companies meeting 95 percent of the requirements and imports constituting the remaining 5 percent⁷.

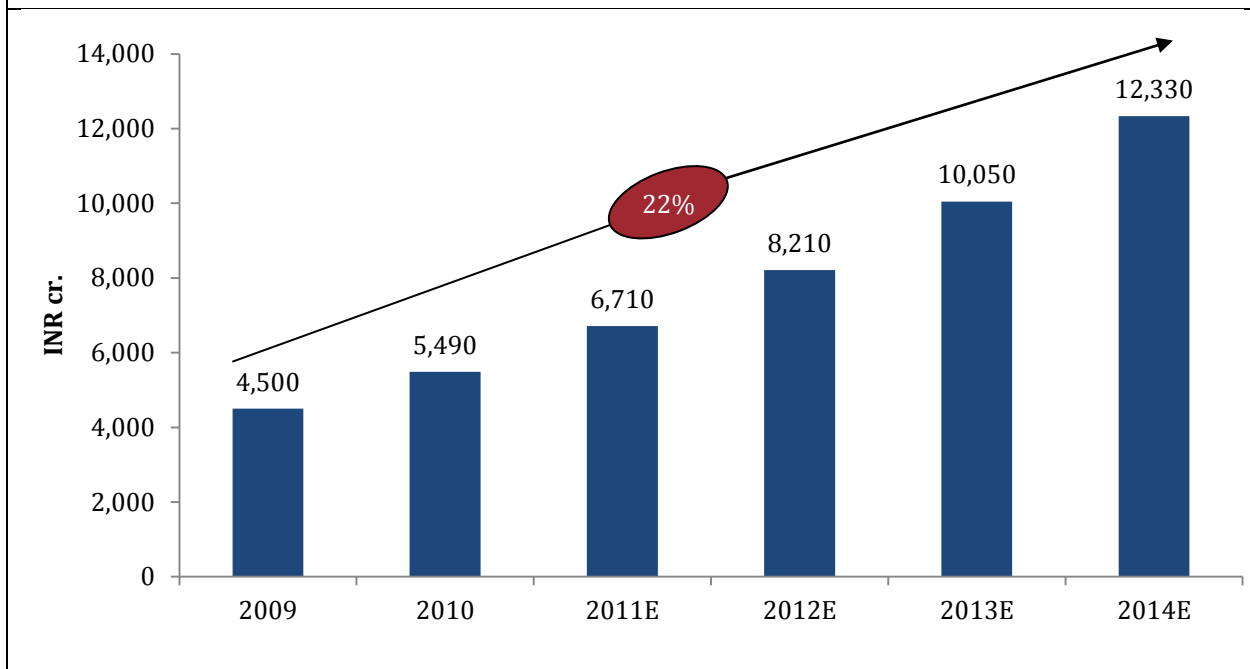
⁴ Indian pump industry is second to none on the technological front; Project Vendor; January 2012; <http://www.projectvendor.com/ArticleDetailsByCategory.aspx?aid=758>

⁵ Netscribes analysis based on primary interviews with leading manufacturers

⁶ Indian pumps industry : Playing the crucial role; Engineering Review; November 2010; http://engrreview.com/Editorial_pages/2010/november_10/Pump-Valves_Ind_Focus_01.html

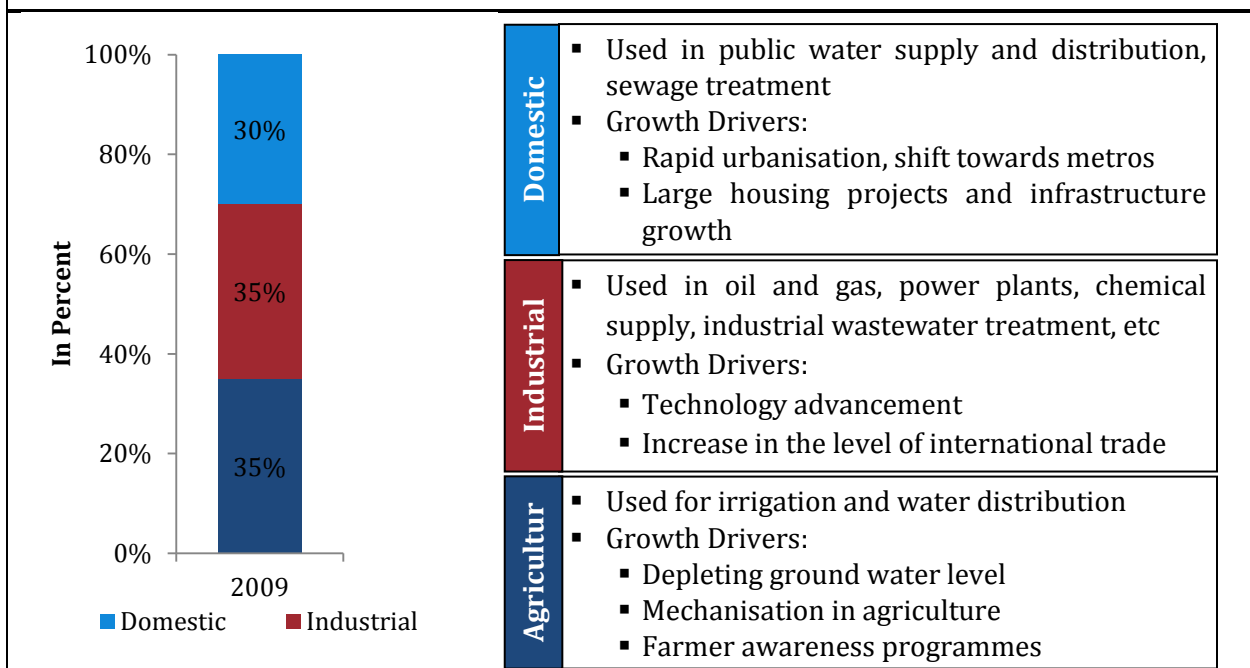
⁷ Indian pumps priming the globe; Project Monitor; September 2011; <http://www.projectsmonitor.com/detailnews.asp?newsid=17353>

Figure 8: Indian Pump Market—Size And Growth, INR cr. (2009—2014E)



In India, pumps are used in the domestic, industrial and agriculture sectors. The Indian agriculture sector is the largest consumer of pumps, with pumps being used in several applications such as irrigation and water distribution; in the industrial and domestic sectors, pumps are used for water supply, sewage, chemical supply, etc.

Figure 9: Market Share of Pumps by End-users, in Percent (2009)



Agriculture: The agriculture sector is the largest contributor to the total demand for pumps and accounts for approximately 35 percent of the total pump market in India⁸. Currently, the agriculture sector is characterised by the penetration of low-cost pumps. Various policies and subsidies by the government to promote the use of efficient and quality pumps are likely to boost the demand for agricultural pumps.

Industrial: The industrial sector contributes around 35 percent market share for the pumps sector⁹. Since pumps represent the largest single use of electricity consumption in industries (approximately 31 percent)¹⁰, the focus in this segment is on high quality pumps, with regular upgradation to the latest technologies. Pumps find application in various industries, including oil & gas, power projects, chemical, food & beverage, marine applications, pulp & paper, pharmaceutical etc. With a large number of projects in the pipeline, the power sector is expected to prove a major demand driver for pumps¹¹.

Domestic: The market share for domestic pumps share is relatively low at 30 percent, as compared to agricultural and industrial pumps¹². Pumps, in this segment, are used for public water supply, sanitation, household utilities and business establishments. The emerging middle class and the continuous movement of population towards metro cities are expected to drive the growth of pumps in this segment.

2.2.AGRICULTURE PUMPS MARKET IN INDIA

Globally, India ranks second in terms of farm output¹³. Agriculture and allied sectors such as forestry and fisheries accounted for 14.2 percent of the GDP in 2010¹⁴, and approximately 60 percent of the total workforce¹⁵. Although the economic contribution of agriculture to India's GDP is steadily declining in sight of the country's broad-based economic growth, agriculture is still the broadest economic sector in terms of demography, and plays a significant role in the nation's overall socio-economic fabric.

The agriculture sector accounts for approximately 80 percent of India's total water consumption¹⁶, and pumps are the most vital element of the irrigation process. Along with expanding the area of irrigation, pumps also help to regulate the water flow. As a result, farmers have become more dependent on pumps for their irrigation needs.

⁸ Netscribes analysis based on primary interviews with dealers across India

⁹ Netscribes analysis based on primary interviews with dealers across India

¹⁰ Application Overview: Pump; Yaskawa; <http://www.yaskawa.com/site/Industries.nsf/applicationDoc/appump.html>

¹¹ Indian pumps priming the globe; Project Monitor; September 2011; <http://www.projectsmonitor.com/detailnews.asp?newsid=17353>

¹² Netscribes analysis based on primary interviews with dealers across India

¹³ Scenario of India agriculture; Maps of India; October 2011; <http://www.mapsofindia.com/indiaagriculture/>

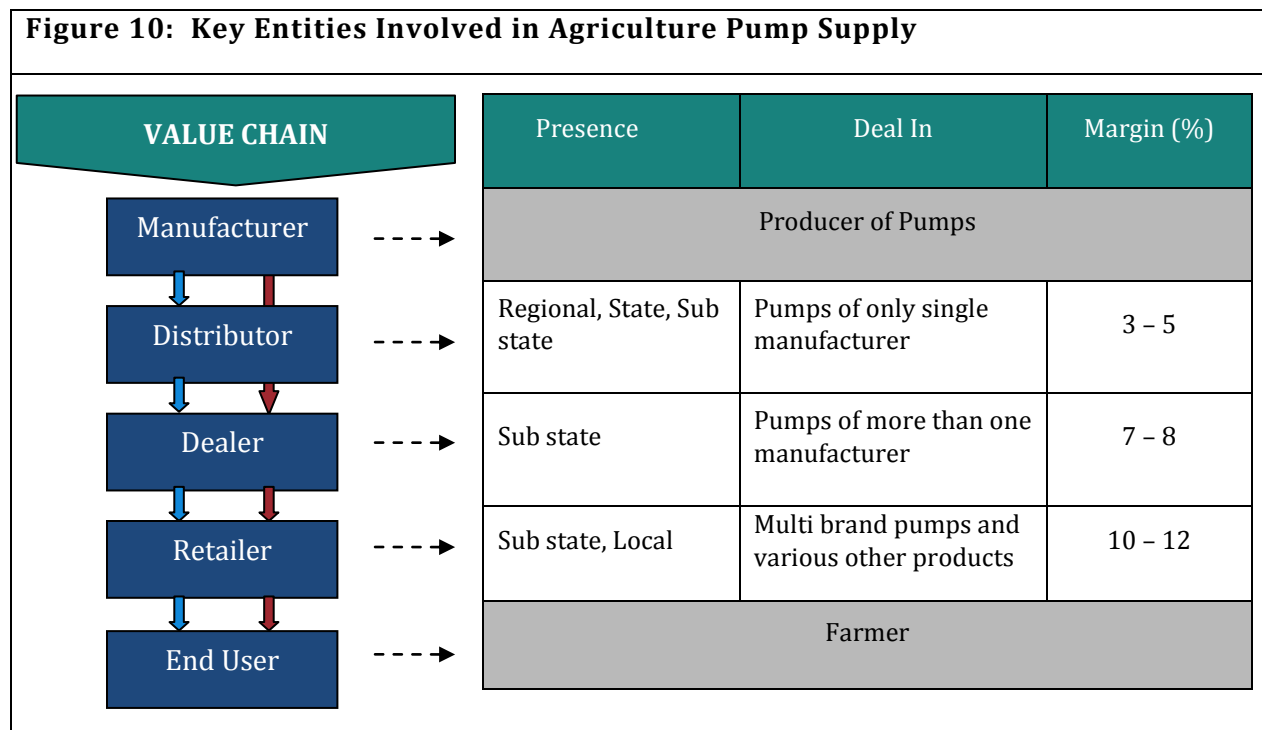
¹⁴ Annual Report 2010-11; National Bank for Agriculture and Rural Development (NABARD); July 2011; [http://www.nabard.org/FileUpload/DataBank/AnnualReports/Nabard_AR_Eng_2011_\(Fianl\)%5B1%5D.pdf](http://www.nabard.org/FileUpload/DataBank/AnnualReports/Nabard_AR_Eng_2011_(Fianl)%5B1%5D.pdf)

¹⁵ Employment in agriculture (% of total employment); The World Bank; <http://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>

¹⁶ India needs to stop free supply of water: Montek; Live Mint; November 2010; <http://www.livemint.com/2010/11/14215111/India-needs-to-stop-free-suppl.html>

2.2.1. VALUE CHAIN¹⁷

A 'value chain' is a representation of the various entities (with different roles) that are involved in the production and consumption of goods and services. There are four key entities involved in the value chain for agriculture pumps in India, as depicted in Figure 4.



Distributors procure the pumps directly from the manufacturer's factory or from their sales depot. Distributor's are authorized distributor i.e. one who deal in products of only one manufacturer, they order regular stocks from the manufacturer. Distributors have a margin in the range of 3-5 %.

Dealers purchase pumps from the manufacturer or get it from the authorized distributor. Dealers have a typical margin of 7% -8% depending on product type and customer requirement. Dealers have pumps of different brands and may deal in various other products.

Retailers procure the goods from the distributor/dealer and keep stock of different brands according to the demand and requirement in their region. Some small local shops also keep stock of pumps and act as retail points. Retailers have a margin of around 10-12% and can go higher for pumps from manufacturers of unorganized market.

¹⁷ Netscribes analysis based on the primary interviews with dealers across India

Farmers are the **end user** in the value chain of agriculture pumps.

There are two ways to depict value chain for agricultural pumps; according to the manufacturer's presence it has been defined below

1 Manufacturers with National presence	2 Manufacturer with regional presence
<ul style="list-style-type: none"> ▪ With reference to national manufacturers, distributor or dealers order the pumps from manufacturers. Dealers also procure it from authorized distributors who get their supply from the manufacturers or collect it from the depot ▪ Farmers buy pumps from dealers or they buy it from the retailer who falls within their vicinity 	<ul style="list-style-type: none"> ▪ With reference to regional manufacturers, dealers or retailers collect pumps from regional manufacturers and farmers buy it from them ▪ Alternately farmers prefer to purchase it from the local dealers as they find it cheaper and services are handy

Pumps manufacturer can be separated into two categories—national manufacturers and regional manufacturers.

- National manufacturers are the major brands and SSI units who manufacture pumps on a large scale. The products they manufacture comply with the industry standards for efficiency and quality. Their products undergo several tests and are certified under various norms.
- On the other hand, the focus of regional manufacturers is on manufacturing low-cost products and providing the best quality within cost constraints. These manufacturers serve the local farmers who seek cheaper products that serve their purpose.

2.2.2. MARKET STRUCTURE

The agriculture pump market in India was valued at INR 1,575 cr. in 2009. It is expected to grow at a CAGR of 9.7 percent from 2009–12, to reach a market size of INR 2,282 cr. by 2013¹⁸.

¹⁸ Netscribes analysis based on the primary interviews with dealers and leading manufacturers

Figure 11: Agriculture Pump Market—Size And Growth, by value (2009—13)

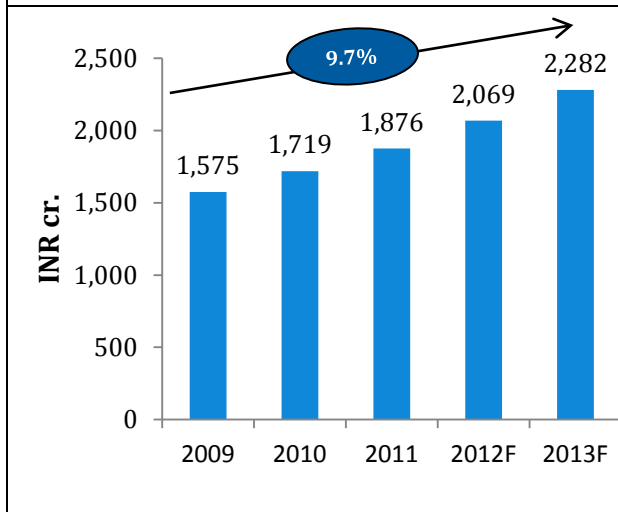
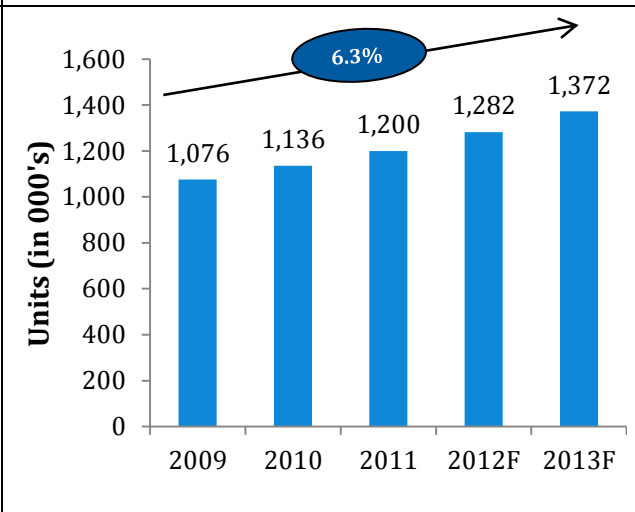


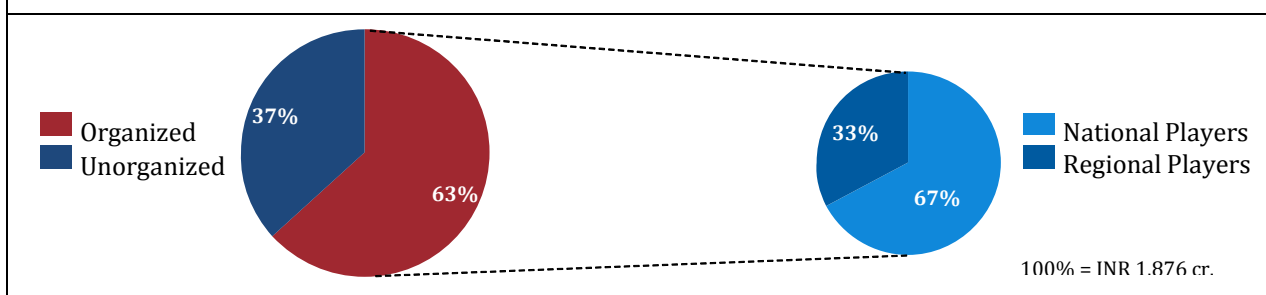
Figure 12: Agriculture Pump Market—Size And Growth, by volume (2009—13)



The sinking groundwater levels across the country and heavily subsidised or free electricity are the major drivers for the agricultural pumps market in India. However, the growing number of pump installations by the agriculture sector is also fuelling concern about the increasing consumption of electricity by this sector¹⁹.

The players in the market can be segmented into organised and unorganised market. The unorganised sector has a strong presence in almost all the demand regions for agricultural pumps. Players from the unorganised sector offer farmers cost-effective products by pricing their pumps at 30–40 percent lower rates. These players are generally unaccountable for all kind of taxes and excise duties. Hence, they save a significant amount on input costs, and pass on these savings to farmers, leading to stiffer competition for the organised sector²⁰.

Figure 13: Market Share—organised and unorganised sector (by value)



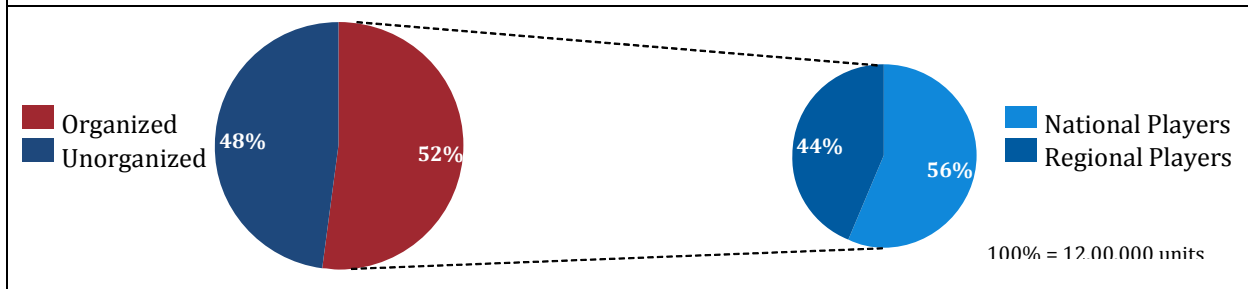
¹⁹ Electricity subsidies for agriculture: Evaluating the impact and persistence of these subsidies in India; Reena Badiani and Katrina K. Jessoe; March 2011; http://econ.ucsd.edu/CEE/papers/Jessoe_4april.pdf

²⁰ Energy efficiency will be the core issue in future; Project Monitor; <http://www.projectsmonitor.com/detailnews.asp?newsid=7250>

The organized sector of agricultural pumps market comprises a large number of players, with national and regional-level presence. National-level players dominate the organized sector of this market with a market share of 67 percent by value and 56 percent by volume.

However, regional players also hold a significant market share, estimated at approximately 33 percent by value and 44 percent by volume.

Figure 14: Market Share—organised and unorganised sector (by volume)



High quality products and wide distribution network are considered to be the key strengths of national level players. National players such as Texmo, CRI, Lubi and KSB are among the market leaders in agricultural pump market. At the same time, better understanding of farmers' preference in the region and cost-effectiveness are major growth drivers for regional players. Regional players such as Oswal, Chetan, Ambuja, Aroma, V-Guard and Mahalakshmi have stronghold in regions such as Rajasthan, Uttar Pradesh, Punjab & Haryana, Karnataka and Maharashtra²¹.

2.2.3. GROWTH DRIVERS FOR AGRICULTURE PUMPSETS

Sinking Groundwater Levels in the Country

Groundwater is the most dependable water resource for the Indian agriculture sector and accounts for nearly 60 percent of the total irrigated area²². However, year after year, the continuous decrease in the groundwater levels is creating an alarming situation for the agriculture sector. Coupled with the increasing incidence of poor monsoons, this is posing a major challenge for Indian farmers²³. In sight of this, the number of pumps installed in the country is expected to increase over time.

Government Initiatives

Both the central and various state governments have come up with various policies to assist the growth of the agriculture sector. The schemes vary from heavily subsidised electricity for as low as INR 0.20 per unit, or even free electricity in some cases. State governments have also launched various schemes to increase the number of pump connections every year. Such policies are motivating the farmers across the country to set up independent irrigation facilities in order to

²¹ Netscribes analysis based on the primary interviews with leading manufacturers and IPMA

²² Government mulls cap on ground water usage; The Economic Times; April 2011; http://articles.economictimes.indiatimes.com/2011-04-08/news/29396826_1_ground-water-water-usage-water-resources

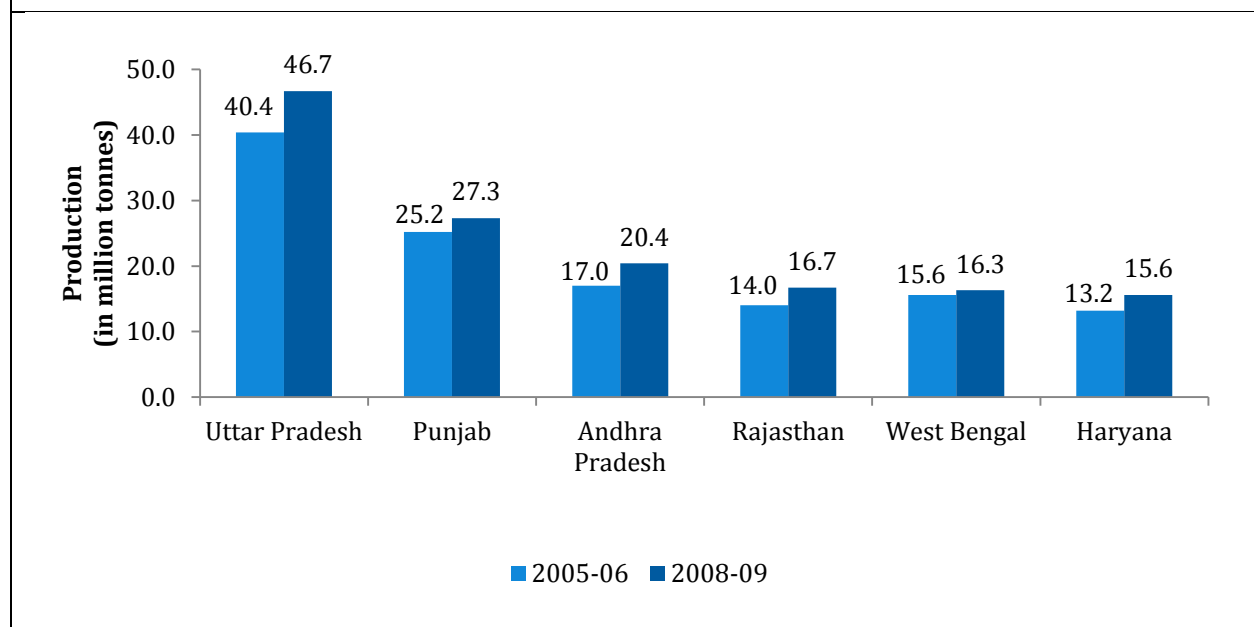
²³ Monsoons matter less than ever; Business Today; June 2010; <http://businesstoday.intoday.in/story/monsoons-matter-less-than-ever.../1/5670.html>

ensure continuous availability of water. Consequently, such policies are directly driving the demand for pumps. With minimal or no expenditure on pump electricity, farmers are motivated to install new pumps²⁴.

Increasing Preference for Quality Products

With an increase in the income levels of farmers, there is a rising demand for higher quality products. This is especially applicable in the states where pattern of large land holding is prevalent, such as Punjab and Haryana. Farmers in these regions are comparatively more aware about the benefits of quality pumps²⁵.

Figure 15: Increase in Agricultural Production²⁶



Increased levels of production have had a direct impact on the income levels of farmers, and act as a key driving factor influencing the shift in priorities in pump selection from cost to quality. This shift has provided an immense boost to the organised sector, encouraging players to launch better quality pumps in the market. Farmers, especially the large farmers, are now more inclined towards operational longevity and flawless operation when it comes to choosing pump sets, hence minimising the trade-off between quality and cost.

Increase in Division of Land

The continuous increase in population and the number of nuclear families across India has prompted the rapid division of agricultural land, which, in turn, has led to an increase in number of

²⁴ Electricity subsidies for agriculture: Evaluating the impact and persistence of these subsidies in India; Reena Badiani and Katrina K. Jessoe; March 2011; http://econ.ucsd.edu/CEE/papers/Jessoe_4april.pdf

²⁵ Netscribes analysis based on primary interviews with farmers in Punjab and Haryana

²⁶ Department of Agriculture & Cooperation; Agricultural Statistics at a glance; <http://agricoop.nic.in/Agristatistics.htm>

land owners. In addition, the increasing trend of, and necessity for, independent irrigation facilities among farmers is driving the demand for the agricultural pumps in rural India²⁷.

2.2.4. CHALLENGES

Poor Quantity and Quality of Electricity Supply

Government initiatives in the agriculture sector—especially heavy subsidies and free electricity—have promoted the practice of efficient irrigation. Despite these initiatives, the rural agriculture sector faces major impediments such as the poor quantity and quality of electricity in these areas. This makes it difficult for farmers to make full and efficient use of the pumps they purchase. In most regions, farmers do not even receive the scheduled eight-hour electricity supply. The acute insufficiency of power has spurred several farmer protests. For instance, the Maharashtra consumer organisations of *Vidyut Darvad Virodhi Sangharsh Samiti* and *Rajya Veej Grahak Sangathana*, which represent regional farmers, have filed petitions against the Maharashtra Electricity Regulatory Commission (MERC) for the long power cuts that farmers in these states suffer²⁸.

The irregular supply of electricity does not just discourage the installation of pumps, but is also triggering the penetration of unorganised sector, which is flooding the market with sub-quality pumps. The voltage level of electricity in most agriculture regions is significantly lower than that required by quality pump sets. Players from the unorganised sector are tapping this opportunity by providing pump sets that can operate at such low voltage levels²⁹. However, these pumps are highly inefficient in terms of electricity consumption, leading to national-level losses in terms of the total power consumed.

Strong Hold of the Unorganised Sector

The agricultural pumps market is characterised by the dominance of the unorganised sector, which has a 48 percent market share. For instance, in Coimbatore, which is one of the largest pumps manufacturing hub, there are more than 400 players, of whom many operate through the unorganised market. Similarly, Rajkot and Ahmedabad also have a large number of unorganised players. These players maintain lower pump prices than those offered by organised players.

This situation is placing immense cost pressure on the organised market; squeezing margins that these manufacturers receive year after year have led to low investments in Research and Development (R&D). Further, unorganised players are attracting the small and medium-level farmers with pumps that are priced 30–40 percent lower³⁰. As a result, these sub-quality pumps are now more widely accepted, reducing the market share of high quality products. Over time, this has slowed down technological advancements in the industry.

²⁷ Netscribes analysis based on primary interviews with farmers across India

²⁸ Farmers move MERC against power cuts; The Times of India; October 2011; http://articles.timesofindia.indiatimes.com/2011-10-31/nagpur/30341672_1_msedcl-merc-power-supply

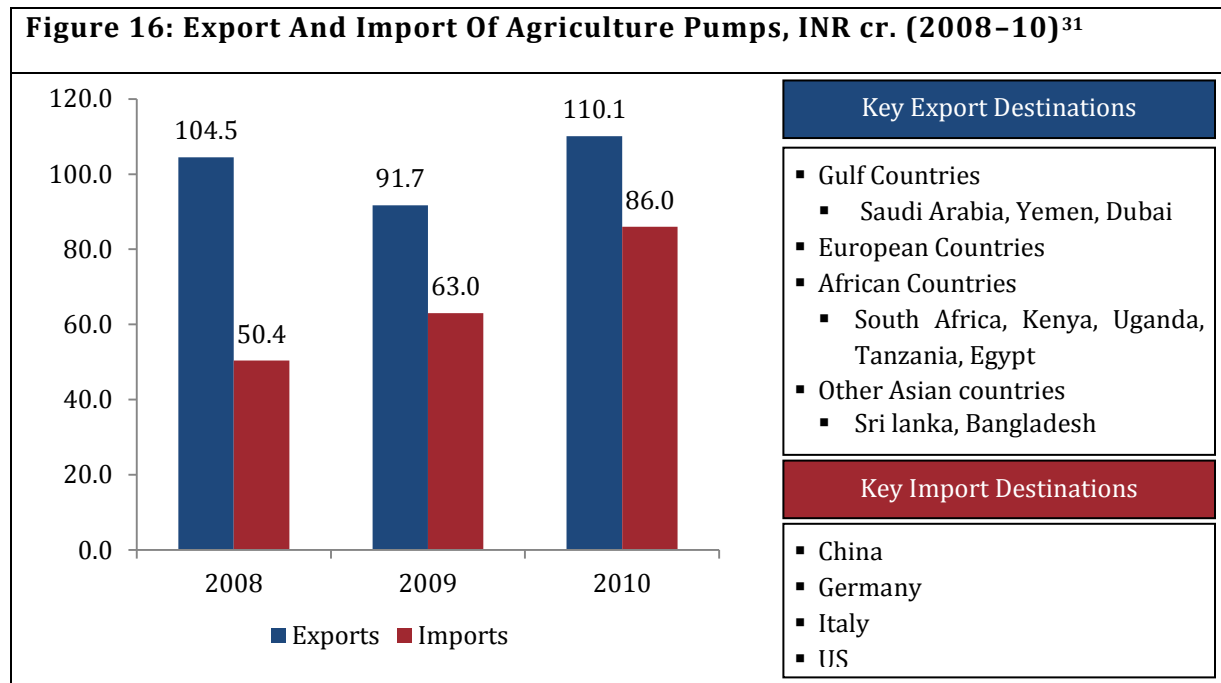
²⁹ Netscribes analysis based on the primary interviews with dealers and farmers across India

³⁰ Communication Feature- Pumps & Valves; Construction Update; June 2007; <http://www.constructionupdate.com/products/projectsinfo/2007/18thjuneto24thjune2007/014.html>

Lack of Incentives for Using Energy-efficient Pumps

The agriculture sector in India consumes a significant part of total power generated in the country. A significant amount of this share could be saved by using the energy efficient pumps by the farmers. However, due to budget constraints, most of the farmers opt for the best quality product within their budget. Further, heavy subsidies offered by the government on power consumption, and the lack of any direct incentives for using energy efficient pumps also restricts the purchase decision of the farmers for energy-effective solutions.

2.2.5. IMPORT AND EXPORT



The agricultural pumps market in India is witnessing a gradual increase in its exports. Owing to stiff competition in the domestic market, manufacturers are now inclined to explore opportunities in untapped markets outside the country. Prime export destinations for this sector include the Gulf, Europe and Africa.

The import of agricultural pumps in India is quite insignificant, since domestic manufacturers meet the majority of the demand. Price competition and low profit margins are the major hurdles foreign manufacturers face when attempting to break into the market. Moreover, an import duty of 32.6 percent is levied on pumps, and 67.1 percent duty is charged on major raw materials³². As a result, it is preferable to import ready pump sets rather than the raw materials. However, over the past few years, a numbers of companies have been foraying into the Indian market. Pumps

³¹ Netscribes analysis based on the primary interviews with dealers and leading manufacturers

³² Netscribes analysis based on primary interviews with manufacturers

manufactured in China constitute the major share of imports, owing to their low costs. German pumps are also increasing their share in the domestic market.

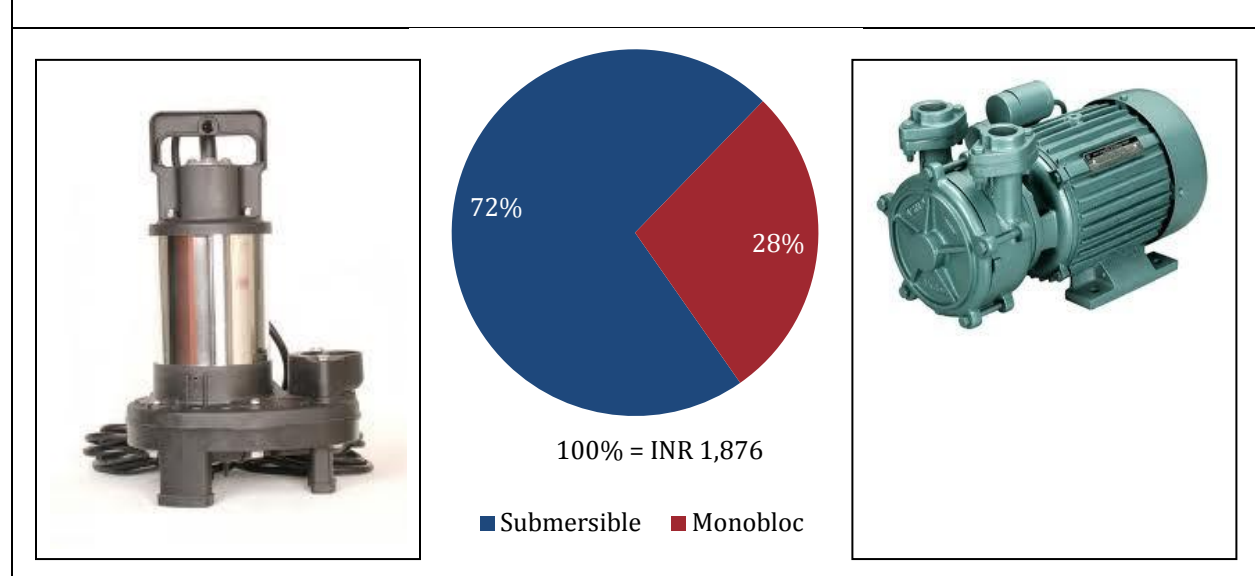
2.2.6. MARKET SEGMENTATION: BY TYPE OF PUMPS, BY HP, BY ISI/NON-ISI, BY BEE/NON-BEE

Market segmentation: types of agriculture pumps

There are two types of pumps used by the Indian agriculture sector.

- Monoblock pumps
- Submersible pumps

Figure 17: Types Of Agricultural Pumps and Market Share (2011)



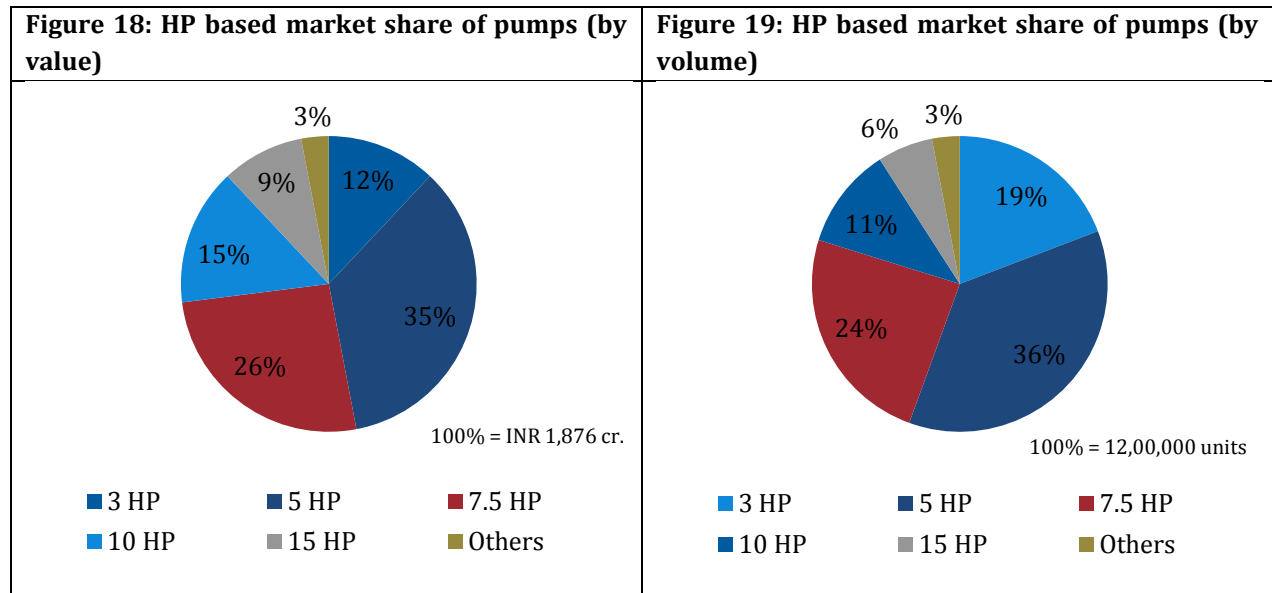
Monoblock pumps are characterised by a common shaft for all their rotating parts.

Submersible pumps have a sealed motor that is closely coupled to the pump, with the whole assembly submerged deep in the water that is to be pumped out.

Monoblock pumps played a major role in irrigation development in the agricultural sector. However, as is the case with most products that have to do with engineering and technology, monoblock pumps are now getting replaced by submersible pumps in the agricultural sector. With the continuous depletion of groundwater, monoblock pumps are technologically incapable of drawing out water in most of the agricultural regions. As per estimates the market share of monoblock pumps is continuously decreasing and presently accounts for only 28% percent of the total market. Submersible pumps are expected to further strengthen their market share, and will gradually phase out monoblock pumps.

Market Segmentation: by pump HP³³

Across the country, farmers are using agriculture pumps of different horse powers. The HP specification is generally common within a region and depends largely on ground water level. Farmers from regions where the ground water level is low use pumpsets of high HP rating such as 10 HP, 15 HP and even upto 50 HP in some extreme cases. Apart from the ground water level conditions farmers also use high HP pumpsets to have higher water output.



In terms of market value, 5HP pumpset have dominance with 35 percent market share followed by pumpsets with 7.5 HP and 10 HP having 26 percent and 15 percent market share respectively.

Market segmentation: By ISI/Non-ISI mark³⁴

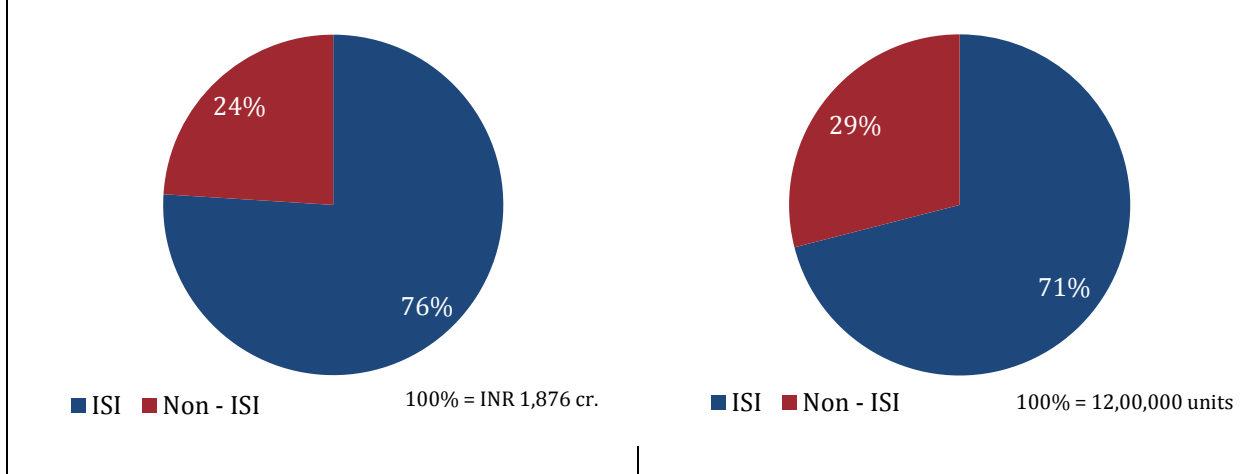
Along with organised players, a large number of unorganised players do get their products ISI-certified. An ISI certification provides more credibility in terms of product quality and acts as a value addition. For large and medium-sized farmers, the presence of the ISI mark acts as an influencing factor during pump selection.

³³ Netscribes analysis based on the primary interviews with dealers and has been validated with leading manufacturers

³⁴ Netscribes analysis based on the primary interviews with dealers and has been validated with leading manufacturers

Figure 20: ISI and Non-ISI Market Distribution (by value)

Figure 21: ISI and Non-ISI Market Distribution (by volume)

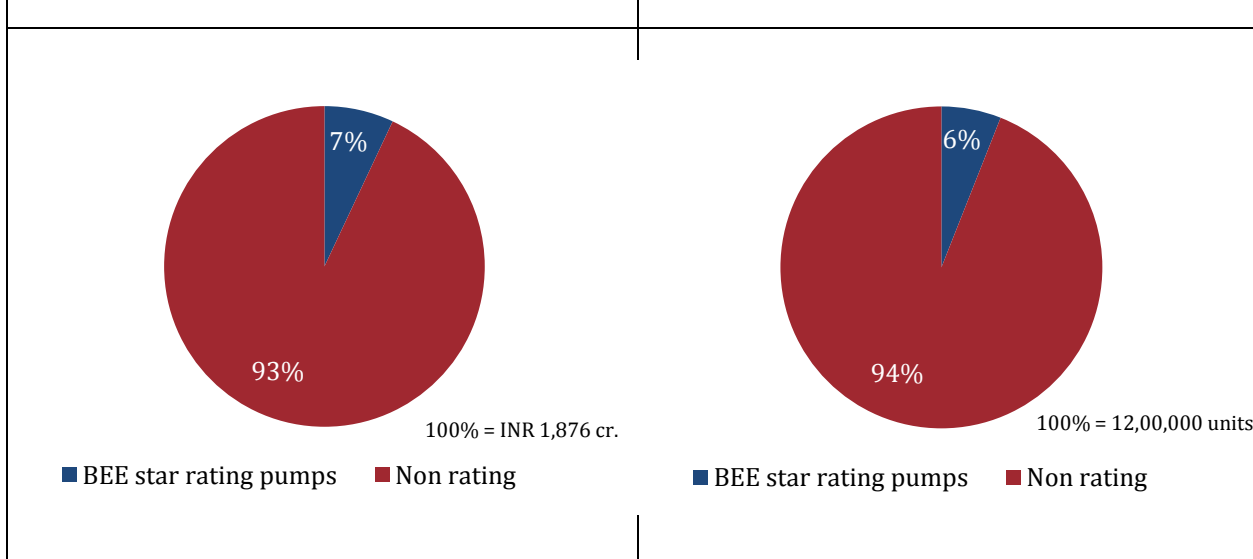


As per estimates, approximately 71 percent of the agricultural pumps available in the market bear the ISI mark. However, few of them may not be ISI-certified, since many players from the unorganized sector follow the practice of sticking on a label with the ISI mark without getting the requisite certification.

Market segmentation: By BEE star rating³⁵

Figure 22: BEE Star rated pumps market distribution (by value)

Figure 23: BEE Star rated pumps market distribution (by volume)



BEE has joined hands with the central and state governments to strongly promote the use of BEE Star-rated pumps. Due to the high energy-efficiency they offer, these pumps result in significant

³⁵ Netscribes analysis based on the primary interviews with dealers and leading manufacturers

energy and cost savings. These pumps cost approximately INR 1,000 to INR 2000 more than their non-rated counterparts. Incompatibility of star rating pump with the existing low voltage levels for agricultural regions across the country is the major factor restraining the growth of their market share. In addition, the lack of any direct incentives for farmers, along with the high costs of these pumps, also acts as a deterrent for acceptance of these pumps among buyers. With cost being a major selection criterion among farmers, and the market dominance of a large number of regional players who offer their products at much cheaper rates, star-rated pumps have not gained popularity³⁶.

However various state governments are launching schemes to promote these star-rated pumps. Some of the schemes they offer include making star-rated pumps mandatory and providing subsidies to farmers who install star-rated pumps. Current market conditions have forced certain states to withdraw their mandatory policies and adopt alternate routes to encourage star-rated pumps.

2.3.SUPPLY AND DEMAND REGIONS OF AGRICULTURE PUMPS

SUPPLY REGIONS

Agricultural pumps are primarily manufactured at five locations in India, with several other regional manufacturing units catering only to local markets. Three of the top five manufacturing locations are in Gujarat, one is in Tamil Nadu and the third is in Madhya Pradesh.

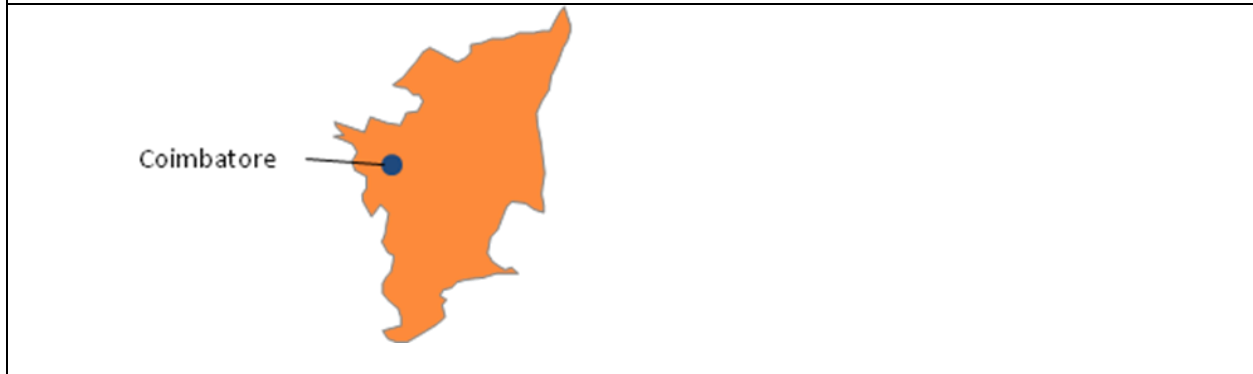
Figure 24: Manufacturing Location: Gujarat



Organised players have a strong market presence in Gujarat. However due to the farmers' preference for cost-effective solutions, these players face difficulties in terms of product acceptance. With the government actively promoting star ratings, farmers are more aware about the need for such certified products, which has promoted many organised players to also offer energy-efficient pumps. However, cost-related issues still pose as major restraints for the organised sector.

³⁶ Netscribes analysis based on the primary interviews with farmers and dealers and leading manufacturers across India

Figure 25: Manufacturing Location: Tamil Nadu



Coimbatore is the largest manufacturing hub for pumps, and accounts for around 40 percent of the total industry supply. At the same time, it also experiences stiff competition, since it also harbours the largest number of unorganised players.

Figure 26: Manufacturing Location: Madhya Pradesh

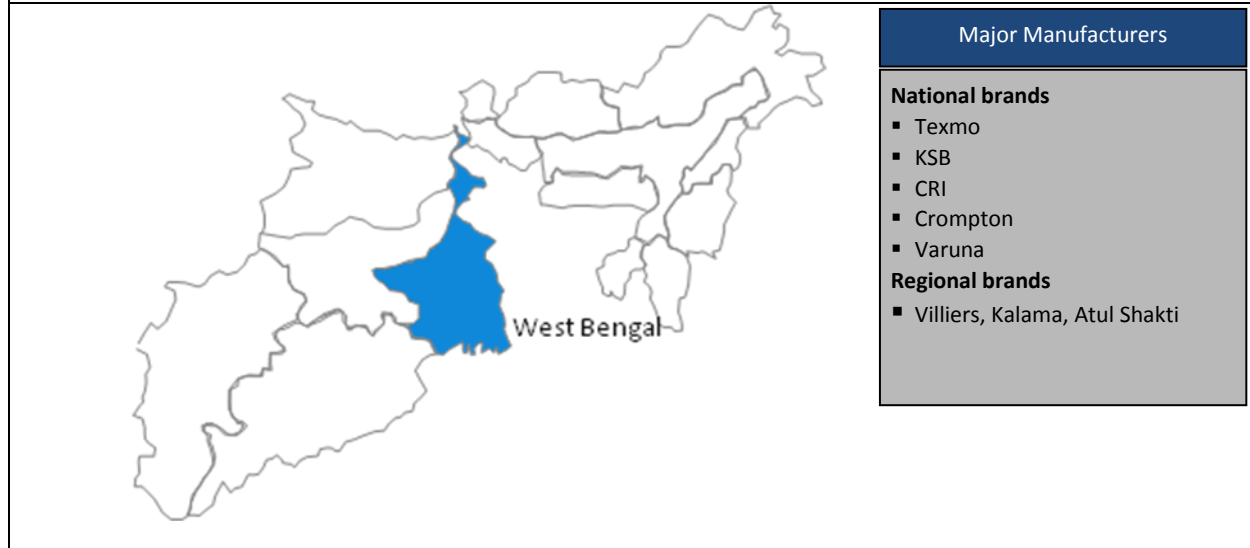


Dewas, along with Coimbatore and Ahmedabad, is one of the major manufacturing hubs in the country. Here, regional players serve their nearby areas with a small distribution network. However, local farmers have a marked preference for manufacturers who are located near them, as also for cost-effective products. At the same time, organised players face stiff competition due to dealers' penchant for promoting regional brands, which offer the latter better profit margins.

DEMAND REGIONS³⁷

Demand is primarily concentrated in the following regions.

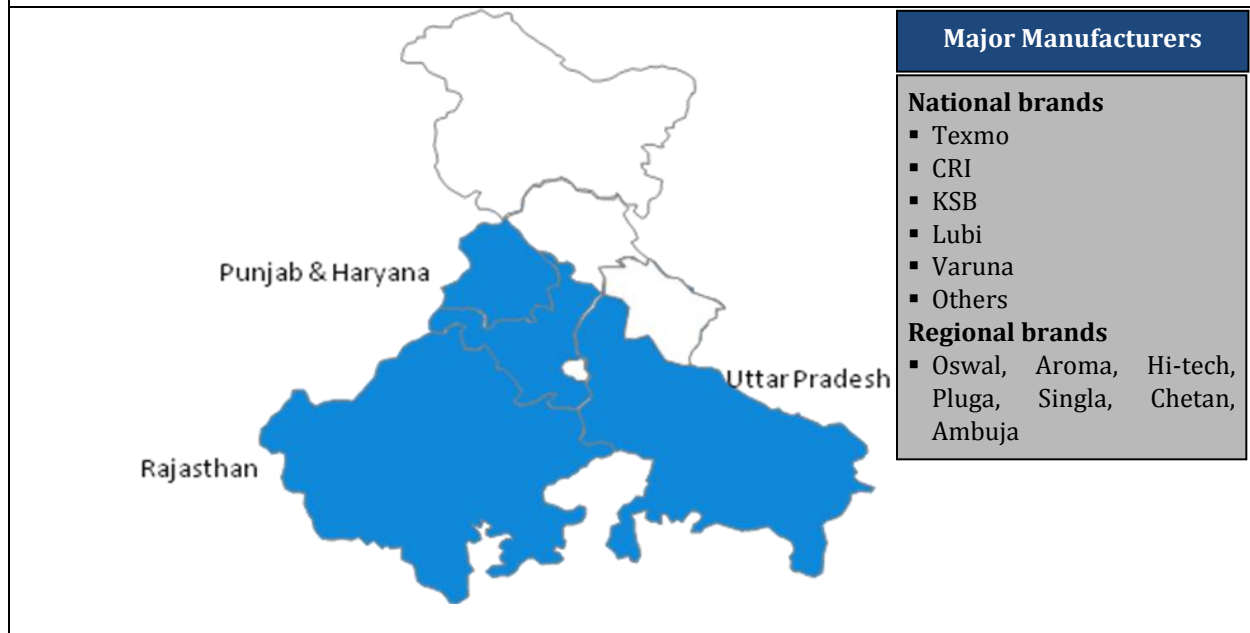
Figure 27: Primary Demand Locations in the East Zone



In the Eastern zone, West Bengal is the major demand hub for low-cost pumps. Farmers in this region have budget constraints, and hence cost is the major influencing factor during the purchase process. Further, power supply is also poor and irregular in this region. As a result, unorganised players dominate the local market. This region is also a major hub for cheap imported pumps from China.

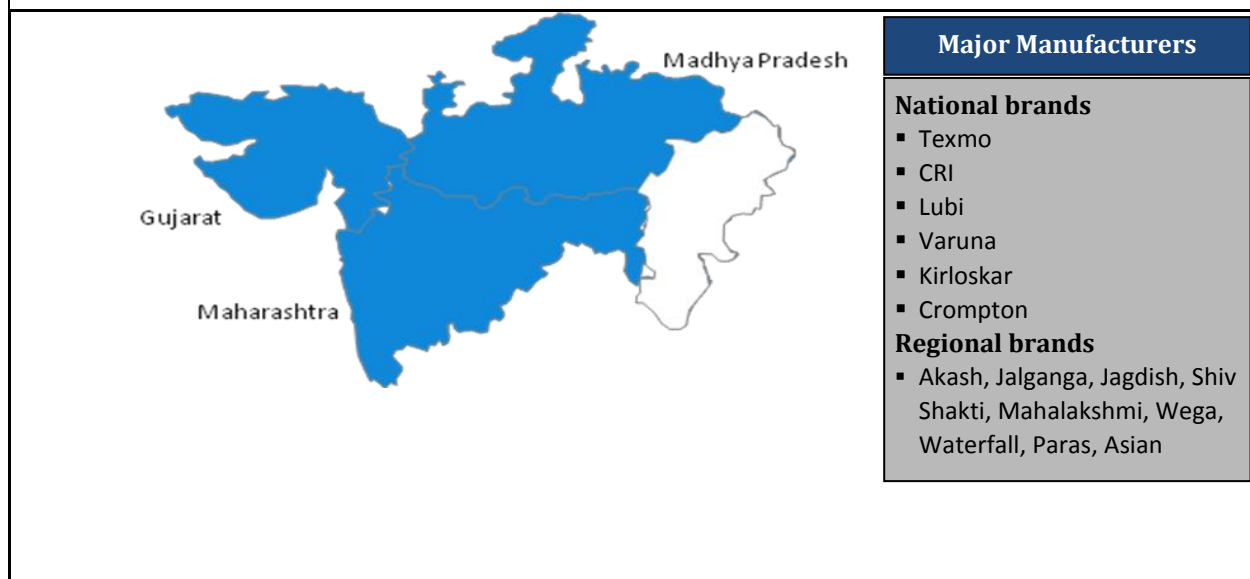
³⁷ Netscribes analysis based on the primary interviews with farmers and dealers across India

Figure 28: Primary Demand Locations in the North Zone



The North zone is characterised by a mix of national and regional players, which varies with each state. Uttar Pradesh and Rajasthan are dominated by players from the unorganised sector. However, Punjab and Haryana have a substantial presence of large farmers with large land holdings and better income.

Figure 29: Primary Demand Locations in the West Zone



Gujarat is characterised by the dominance of regional players who have low awareness about the star rating. Farmers in Gujarat are more inclined towards cost-effective pump sets. As per

estimates, Maharashtra has the largest number of pumps installed—approximately 32 lakh³⁸. In Maharashtra, the local-made pumps or those manufactured by small players from Ahmedabad are preferred due to their low costs.

Figure 30: Primary Demand Locations in the South Zone



Andhra Pradesh is the second-largest hub in terms of current pump installations, and has approximately 27 lakh pumps all over the state. In South India, farmers are now becoming more aware about star ratings, and are accepting star-rated pumps. Coimbatore, being the largest manufacturing hub, offers better quality at better prices; hence, farmers are more selective with respect to quality.

2.4. KEY MANUFACTURER PROFILES³⁹

Texmo Industries	
ISI/BEE-star rating of pumps	ISO 9001:2000-certified Has launched BEE star-rating pumps
Branch/dealer network	25 branches
Key markets	Tamil Nadu, Andhra Pradesh, Karnataka, Rajasthan, Madhya Pradesh, Maharashtra
Financial details:	
Sales from agriculture pumpsets (in value)	INR 350 cr.
Sales from agriculture pumpsets (in volume)	2,10,000
Employee strength	1,800

³⁸ Company Profile; Maharashtra State Electricity Distribution Co. Ltd.; <http://www.mahadiscom.in/aboutus/abt-us-01.shtm>

³⁹ Company Website & Netscribes analysis based on primary interviews with the manufacturer

Annual production capacity for pumps	6,00,000
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CRI Pumps

ISI/BEE-star rating of pumps	ISO 9001 and ISO 14001-certified More than 400 varieties of BEE-rated pumps
Branch/dealer network	30 branches and more than 3,000 dealers
Key markets	Karnataka, Tamil Nadu, Andhra Pradesh, Rajasthan, Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal
Financial details:	
Sales from agriculture pumpsets (in value)	INR 270 cr.
Sales from agriculture pumpsets (in volume)	1,54,000
Employee strength	2,000
Annual production capacity for pumps	2,00,000

Lubi Group

ISI/BEE-star rating of pumps	ISO 9001-certified
Branch/dealer network	Over 1,000 distributors & dealers
Key markets	Equally distributed all over India
Financial details:	
Sales from agriculture pumpsets (in value)	INR 200 cr.
Sales from agriculture pumpsets (in volume)	1,20,000
Employee strength	1,800
Annual production capacity for pumps	2,00,000

KSB

ISI/BEE-star rating of pumps	ISO 9001:2008-certified
Branch/dealer network	28 locations
Key markets	Uttar Pradesh, Punjab, Haryana, Rajasthan, Madhya Pradesh, Maharashtra, Gujarat, Bihar, West Bengal
Financial details:	

Sales from agriculture pumpsets (in value)	INR 161 cr.
Sales from agriculture pumpsets (in volume)	90,000
Employee strength	13,300
Annual production capacity for pumps	1,50,000

La-Gajjar Machineries Pvt. Ltd.

ISI/BEE-star rating of pumps	ISO 9001:2008-certified BEE star-rated pumps
Branch/dealer network	18 branches and 1100 authorised channel partners
Key markets	Gujarat, Uttar Pradesh, Tamil Nadu, Karnataka, Madhya Pradesh, Rajasthan, Maharashtra
Financial details:	
Sales from agriculture pumpsets (in value)	INR 195 cr.
Sales from agriculture pumpsets (in volume)	75,000
Employee strength	950
Annual production capacity for pumps	1,00,000

Mahendra

ISI/BEE-star rating of pumps	ISO 9001: 2000-certified
Branch/dealer network	12 branches and over 1000 dealers
Key markets	Tamil Nadu, Karnataka, Kerala, Andhra Pradesh and Maharashtra
Financial details:	
Sales from agriculture pumpsets (in value)	INR 115 cr.
Sales from agriculture pumpsets (in volume)	70,000
Employee strength	1,000
Annual production capacity for pumps	1,50,000

Falcon Pumps

ISI/BEE-star rating of pumps	ISO 9001:2008-certified BEE star-rated pumps
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Branch/dealer network	16 states with More than 1250 trade partners
Key markets	Karnataka, Tamil Nadu, Andhra Pradesh, Gujarat, Maharashtra, Madhya Pradesh
Financial details:	
Sales from agriculture pumpsets (in value)	INR 93 cr.
Sales from agriculture pumpsets (in volume)	51,000
Employee strength	400
Annual production capacity for pumps	75,000

Besten	
ISI/BEE-star rating of pumps	ISO 9001:2000- certified, BEE-star rating
Branch/dealer network	13 branch office
Key markets	Tamil Nadu, Andhra Pradesh, Karnataka and Orissa
Financial details:	
Sales from agriculture pumpsets (in value)	INR 70 cr.
Sales from agriculture pumpsets (in volume)	44,000
Employee strength	150
Annual production capacity for pumps	2,00,000

Suguna	
ISI/BEE-star rating of pumps	ISO 9001- certified
Branch/dealer network	12 branches and 500 dealers
Key markets	Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh and Rajasthan
Financial details:	
Sales from agriculture pumpsets (in value)	INR 70 cr.
Sales from agriculture pumpsets (in volume)	40000
Employee strength	2100
Annual production capacity for pumps	60,000

Deccan Pumpsets	
ISI/BEE-star rating of pumps	Some pumps have BEE rating
Branch/dealer network	28 states
Key markets	Haryana, Punjab, West Bengal, Maharashtra
Financial details:	
Sales from agriculture pumpsets (in value)	INR 49 cr.
Sales from agriculture pumpsets (in volume)	30,500
Employee strength	200
Annual production capacity for pumps	54,700

2.5. CONTRIBUTION OF OTHER AGENCIES IN THE AGRICULTURE PUMPS MARKET

Key Associations

IPMA⁴⁰

The Indian Pump Manufacturers Association (IPMA) is the apex body for the Indian pump industry. It represents over 150 manufacturers. IPMA played an important role in the inclusion of minimum efficiency norms in the Indian standards. It promotes the growth of the pump industry in accordance with the government, and technical and standardisation authorities. It has a separate agricultural committee to cater to industry concerns. The association was also involved in BEE's Standards and Labelling Programme. IPMA is regularly engaged in conducting conferences, seminars and workshops to create awareness and knowledge. IPMA plans and undertakes various activities from time to time, such as:

- Hold regional, national and international conferences, seminars, workshops, meetings, trade fairs and exhibitions
- Submits recommendations, representations and memoranda to Central and State governments on issues affecting the pump industry
- Strives to promote exports
- Spreads awareness and extends participation of the industry on national concerns such as energy conservation. Draft for almost every standard on pumps is prepared by members of IPMA.

⁴⁰ About IPMA; Indian Pump Manufacturer's Association; <http://www.indianpumps.org.in/> & Netscribes analysis based on primary interview with the association

- Being on the technical committees of BIS, IPMA is involved intensively both in formulation of new standards and revision of existing standards. IPMA also promote implementation of these standards.

SIEMA⁴¹

The Southern India Engineering Manufacturers Association (SIEMA) represents and protects the interest of micro, small, medium and large-scale engineering industries.

- The association aims to increase the awareness and provide a common platform for sharing of knowledge and best practices in manufacturing.
- It also represents grievances of its members to the government and other authorities. SIEMA is associated with BIS and Ministry of Power to formulate standards for energy conservation and pumps.
- The association has been involved with Bureau of Indian standards (BIS) for establishing standards in agriculture and domestic pump sets. It also played a key role in formulating Quality Standards in BEE.

SI'TARC⁴²

Scientific and Industrial Testing and Research Centre (SI'TARC) had been established to promote testing, research and Industrial activities. SI'TARC is promoted by SIEMA and Coimbatore District Small Industries Association (CODISSIA); it is also a recipient of Coimbatore Industrial Infrastructure Association (COINDIA) projects.

- SI'TARC is associated with various government agencies such as BIS and BEE, and provides various services such as product and system certification, and star labelling for different pumps.

Key Organisations (Government and Private)

GEDA⁴³

Gujarat Energy Development Agency (GEDA) operates in the field of renewable energy development and energy conservation.

- It has been developing and promoting renewable energy programmes under the Ministry of New and Renewable Energy Sources (MNRE) and the State-Designated Agency (SDA) for BEE.
- In agriculture, it encourages the application of solar photovoltaic pumps, which operate on power generated using solar photovoltaic (PV) systems. GEDA has successfully conducted various projects on solar, wind and bio energy, and is currently setting up a solar city in Gandhinagar, Gujarat.

CIAE⁴⁴

Central Institute of Agricultural Engineering (CIAE) is concerned with issues related to agricultural engineering. It undertakes research and development work in the spheres of agricultural mechanisation, energy efficiency, and soil and water conservation for proficient use of energy sources in agriculture. The Irrigation and Drainage Engineering Division of CIAE has set up an

⁴¹ About SIEMA; The South India Engineering Manufacturer's Association; <http://www.siema.org/>

⁴² About us; Scientific and Industrial Testing and Research Centre; <http://www.sitarc.com/aboutus.html>

⁴³ About us; Gujarat Energy Development Agency; http://geda.gujarat.gov.in/about_us.php

⁴⁴ Introduction; Central Institute of Agricultural Engineering; <http://ciae.nic.in/>

automated testing centre for testing centrifugal pumps. It also undertakes various training programmes at the national level.

ERDA⁴⁵

Electrical Research and Development Association (ERDA) is managed by elected and nominated members from the industry, as well as representatives from the Council of Scientific and Industrial Research (CSIR), Government of Gujarat and invited experts.

- ERDA has been providing technological support to electrical industry by testing, product certification, consultancy, and research and development.
- ERDA has a large laboratory and testing centre, which is supported by the Gujarat government and the Government of India.

Testing Labs

NABL⁴⁶

National Accreditations Board for Testing and Calibration Laboratories (NABL) is an autonomous body under the guidance of the Department of Science and Technology

- NABL provides the government, industry associations and the industry with third-party quality assessment, and testing and calibration laboratories.
- It also provides laboratory accreditation services to laboratories that perform testing and calibration in accordance with ISO/IEC 17011:2004. It has an agricultural equipment testing facility in Pune, and various other testing facilities all over India.

Industry Magazine

Pumps India⁴⁷

This is a Pump Industry-related magazine that provides updates related to inventions, R&D, technology upgrades, and other related information from the industry. The magazine is published on a bi-monthly basis. It has a directory of manufacturers and dealers, with a guide for buyers that contains information about various pumps, technical data pertaining to pumps, selection process guidelines and other relevant information for the users.

⁴⁵ Management; Electrical Research and Development Association; <http://www.erd.org/>

⁴⁶ About NABL; National Accreditations Board for Testing and Calibration Laboratories; <http://www.nabl-india.org/nabl/html/about-intro.asp>

⁴⁷ About us; Pumps India; http://www.pumpsindia.com/pumpsindia/index.php?option=com_content&view=article&id=9&Itemid=10

2.6. TAX STRUCTURE

Manufacturers

Pump manufacturers have to pay tax based on the units manufactured/sold. The tax structure for manufacturers is as below.

Type of Tax	Tax Rate
Excise Duty	5 percent
+ Education Cess	2 percent of Excise Duty
+ Secondary Education Cess	1 percent of Excise Duty
Total Tax	5.15 percent

However, manufacturers with a turnover of less than INR 1 cr. are exempt from excise duty

Dealer/ Distributor

Dealers/ Distributors have to pay 4–5 percent Value Added Tax (VAT) on the price of the pump, as per the state government norms. This is then passed on to the farmer, at the time of sale.

Tax-evasion Practices

A number of tax evasion practices are prevalent in the pump industry. For instance, as per a government policy, manufacturers with turnover of less than INR 1 cr. are categorised as Small Scale Units (SSI), and are exempted from the Excise Duty⁴⁸. This policy has been put in place to support the small-scale industry. However, many manufacturers are misusing this policy to evade taxes.

- Manufacturers record lesser revenue by selling a significant volume of their products without authentic bills, through concessions on the marked prices. Thus, they show only limited sales on records
- Many manufacturers distribute their manufacturing operations among a number of local manufacturers, and put their original brand mark on the sourced products. The sales of those pumps are registered on the accounts of these local manufacturers, all of which have turnovers of less than INR 1 cr. As a result, the large manufacturer is able to maintain the company's turnover within the exemption limit
- Manufacturers evade taxes by purchasing the raw materials without proper bills

Manufacturers may pass on the saved tax to customer, thus lowering the product price and thereby increasing sales volumes.

Another prevalent practice among manufacturers is not renewing their BIS licenses, but continuing to mark their products with the same. At times, BIS suspends its certification for a manufacturer

⁴⁸ Excise and SSI Policies; Development Commissioner (MSME) Ministry of Micro, Small & Medium Enterprises; <http://dcmsme.gov.in/policies/central/t-ed.htm>

due to non-conformity. However, the manufacturer continues to ISI-mark the products only on the basis of the BIS license.⁴⁹

⁴⁹ Netscribes analysis based on primary interviews with dealers and leading manufacturers

3. STUDYING THE BEHAVIOUR AT POINT-OF-PURCHASE (DEALERS, RETAILERS AND FARMERS)

In this section we will be analyzing the market operations at the point of purchase of agriculture pumps. This section is completely based on the primary interviews with farmers and dealers across India. The important questions that will be answered at the end of section will typically include key decision makers in pump selection, key driver for brand and quality during pump selection, margins off different manufacturers to retailers, marketing channels, valued attribute of the pump by buyer, etc.

3.1.SUMMARY BY STATES AND QUESTIONNAIRE

Table 1: Ground Water Level and Electricity Scenario

State	Ground water level (In feet)	Electricity Availability (per day)	Electricity tariff
Punjab & Haryana	▪ 250	▪ Punjab: 6 to 8 hours, fluctuating voltage Haryana:3 to 4 hours, low voltage	▪ Punjab: free electricity Haryana: flat rates based on HP of pump
Uttar Pradesh	▪ 130 to 240	▪ 3 to 4 hours, low voltage	▪ Flat rates
West Bengal	▪ 250 to 450 in Burdwan 600 to 750 in South 24 Parganas	▪ 10 to 12 hours, good voltage	▪ Metered electricity
Madhya Pradesh	▪ 100 to 300	▪ 6 to 8 hours, low voltage	▪ Flat rates based on HP of pump
Rajasthan	▪ 300 to 400	▪ 6 hours, moderate to good voltage	▪ Flat rates based on HP of pump
Gujarat	▪ 500 to 700	▪ 7 to 8 hours	▪ Flat rates based on HP of pump
Maharashtra	▪ 40 to 150	▪ 8 to 10 hours, low voltage	▪ Unit based payments at INR 0.50-0.60 per unit
Andhra Pradesh	▪ 170 to 500	▪ 6 to 7 hours, low voltage	▪ Flat rates
Karnataka	▪ 100 to 250	▪ 6 hours, moderate voltage	▪ Flat rates
Tamil Nadu	▪ 40 to 200	▪ 2 to 3 hours	▪ Free electricity

Table 2: Pump Selection

State	Key decision influencers in pump selection	Top attributes for pump selection	Top factors for selecting a particular brand
Punjab & Haryana	<ul style="list-style-type: none"> ▪ Retailer advice: Give knowledge based recommendation ▪ Friends: Inputs based on practical experience 	<ul style="list-style-type: none"> ▪ Warranty: Frequent voltage fluctuation leading to motor burnout ▪ Price: Recurring expense on pump maintenance & local 	<ul style="list-style-type: none"> ▪ Word of mouth publicity ▪ Availability or proximity of retailer

	pumps available at low prices		
Uttar Pradesh	<ul style="list-style-type: none"> Friends: Inputs based on benefits, low voltage compatibility and challenges faced by them Retailers: Second most important source for feedback and suggestion 	<ul style="list-style-type: none"> Compatibility with low voltage: Low voltages of electricity in rural regions Standards: To avoid extra maintenance expenditure, farmers demand high standard within their budget 	<ul style="list-style-type: none"> Word of mouth: Based on quality of functioning of pumpsets among farmers Retailer's advice: Knowledgeable about the most compatible brand in any specific location
West Bengal	<ul style="list-style-type: none"> Retailers: On the basis of budget & area of cultivation Friends and family members: Reliable sources for inputs based on practical functioning of pumpsets 	<ul style="list-style-type: none"> Standards: Good quality pump would last longer, provide hassle free functioning & high efficiency Price: Low cost which provides value for money 	<ul style="list-style-type: none"> Word of mouth: Brand which gains faith of a few farmers in a village becomes the most trusted brand in that area Retailer advice: Considered as experts in pumps
Madhya Pradesh	<ul style="list-style-type: none"> Friends: Guide with their own experience with a particular brand of pump Retailers: Guide according to their experience and manufacturer's technical brochure 	<ul style="list-style-type: none"> Compatibility with low voltage: Low voltages of electricity in the region Warranty: Purchase is made on basis of brand & retailers commitment of warranty for a particular period 	<ul style="list-style-type: none"> Word of mouth: Performance review & trust factor developed for a brand Retailers: Farmers trust retailers & they provide solution within farmer's budget
Rajasthan	<ul style="list-style-type: none"> Retailers: Suggest pump on basis of ground water availability, area to be covered under irrigation and budget of farmer Local technician and friends 	<ul style="list-style-type: none"> Warranty: Various schemes like replacement, free repair of burnt motor up to 3 times in a year, 2 years warranty Price: Budget constraints of farmers 	<ul style="list-style-type: none"> Word of mouth Retailer advice: Considered as experts in pumps
Gujarat	<ul style="list-style-type: none"> Friends: Based on their own experience with pumpsets Retailer's and Technician advice: Based on their day-to-day experience, understanding of farmer's profile, requirement, budget 	<ul style="list-style-type: none"> High water output: Depleting ground water level in Gujarat After sales support because of tough operating conditions 	<ul style="list-style-type: none"> Word of mouth: Based on feedbacks received from neighboring farmers, friends Availability/reach: Farmers purchase pump from local shop for prompt service
Maharashtra	<ul style="list-style-type: none"> Friends: Based on their own experience with pumpsets Retailer & Technician: Based on understanding of farmer's profile, requirement, budget 	<ul style="list-style-type: none"> Compatibility with low voltage: Low voltages of electricity in the region Warranty and Standard: voltage fluctuation leading to motor burnout 	<ul style="list-style-type: none"> Word of mouth Banner advertisement
Andhra Pradesh	<ul style="list-style-type: none"> Friends and family: Based on their own experience Technician: considers electricity availability, water level and budget 	<ul style="list-style-type: none"> Warranty holds top priority Price: Limited budget of farmers 	<ul style="list-style-type: none"> Word of mouth: Associated with performance of pumpsets Retailer advice and banner advertisement
Karnataka	<ul style="list-style-type: none"> Family members Friends 	<ul style="list-style-type: none"> Standard: Good quality pump work for longer time, have lesser maintenance cost Price: Budget constraints 	<ul style="list-style-type: none"> Banner advertisement: Farmers get familiar by brand name & demand from retailer Word of mouth

Tamil Nadu	<ul style="list-style-type: none"> ▪ Retailer advice ▪ Friends and technician: Based on his experience 	<ul style="list-style-type: none"> ▪ Durability of pumpset ▪ Price: Limited budget of farmers 	<ul style="list-style-type: none"> ▪ Retailer's advice: knowledge about technicalities, compatible brand in the location ▪ Word of mouth
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Table 3: Pump Selection Contd.

State	Branded vs. Regional pumps	Criterion in selecting pipe size
Punjab & Haryana	<ul style="list-style-type: none"> ▪ Regional pumps: medium and small farmers ▪ Branded pumps: big farmers 	<ul style="list-style-type: none"> ▪ Depth of ground water level ▪ Pump HP ▪ Diameter of flange outlet of pump
Uttar Pradesh	<ul style="list-style-type: none"> ▪ Regional pumps: small farmers, due to low cost ▪ Branded pumps: big and medium farmers, high standards and reliability 	<ul style="list-style-type: none"> ▪ Depth of ground water level ▪ Pump HP ▪ Diameter of flange outlet of pump ▪ Technician's advice
West Bengal	<ul style="list-style-type: none"> ▪ Local & Chinese pumps: fuel efficient, low cost, higher profit margins for retailers 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump ▪ Type of pump
Madhya Pradesh	<ul style="list-style-type: none"> ▪ Branded pumps: quality, awareness, lower maintenance cost, better performance ▪ Regional pumps: regions with low voltage supply 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump (7 inch) ▪ Price
Rajasthan	<ul style="list-style-type: none"> ▪ Regional pumps: low cost ▪ Branded pumps: quality, awareness 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump (8 inch)
Gujarat	<ul style="list-style-type: none"> ▪ Regional pumps: compatible with prevailing ground water and voltage conditions, low cost 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump (10 – 12 inch)
Maharashtra	<ul style="list-style-type: none"> ▪ Regional pumps: compatible with low voltage, low cost, low awareness for branded pumps 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump ▪ Pump HP ▪ Depth of ground water level
Andhra Pradesh	<ul style="list-style-type: none"> ▪ Regional pumps: compatible with low voltage ▪ Branded pumps: awareness is increasing 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump ▪ Pump HP ▪ Depth of ground water level
Karnataka	<ul style="list-style-type: none"> ▪ Regional pumps: small famers ▪ Branded pumps: big and medium farmers 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump ▪ Pump HP ▪ Depth of ground water level
Tamil Nadu	<ul style="list-style-type: none"> ▪ Regional pumps: small farmers, due to low cost ▪ Branded pumps: big and medium farmers 	<ul style="list-style-type: none"> ▪ Diameter of flange outlet of pump ▪ Pump HP ▪ Depth of ground water level

Table 4: Point of Purchase

State	Purchase point of pumps	Dealer inputs in pump head	Add-on accessories bought	Profit margins & dealer incentives
Punjab & Haryana	<ul style="list-style-type: none"> ▪ Big retailers in nearby town: better prices ▪ Local retailer: word 	<ul style="list-style-type: none"> ▪ Manufacturers technical brochure ▪ Personal 	<ul style="list-style-type: none"> ▪ Auto-starter ▪ Auto cut ▪ Ampere meter 	<ul style="list-style-type: none"> ▪ Margin difference between regional & national brands squeezed to 2% only

	of mouth publicity	experience		
Uttar Pradesh	<ul style="list-style-type: none"> Big retailers in nearby town: large varieties and better prices 	<ul style="list-style-type: none"> Manufacturers technical brochure Keep technician to advice farmers 	<ul style="list-style-type: none"> Auto-starter Voltage stabilizers 	<ul style="list-style-type: none"> Due to stiff competition, higher profit margins of local pumpsets is becoming irrelevant National companies provide cash incentives
West Bengal	<ul style="list-style-type: none"> Big retailers in nearby town: better prices, reliability & good after sales services 	<ul style="list-style-type: none"> Personal experience Local topography 	<ul style="list-style-type: none"> Auto-starter 	<ul style="list-style-type: none"> Profit margin between 4%-7% Higher for local and Chinese pups
Madhya Pradesh	<ul style="list-style-type: none"> Big retailers in nearby town: wide variety, competitive prices, status factor 	<ul style="list-style-type: none"> Manufacturers technical brochure Ground water level Area under irrigation 	<ul style="list-style-type: none"> Auto-starter 	<ul style="list-style-type: none"> Branded players: 5-10%. Local players: 10 - 15% Additional discounts on higher sales Branded manufacturers provide tours
Rajasthan	<ul style="list-style-type: none"> Big retailers in nearby town: better prices 	<ul style="list-style-type: none"> Manufacturers technical brochure Ground water level 	<ul style="list-style-type: none"> Auto-starter 	<ul style="list-style-type: none"> Not much difference between margins Additional discounts on higher sales Branded manufacturers provide tours
Gujarat	<ul style="list-style-type: none"> Local retailer: wide variety, quick after sales support, better understanding of local conditions Big retailers in nearby town: better prices, high quality 	<ul style="list-style-type: none"> Ground water level Area under irrigation Manufacturers technical brochure Prior experience 	<ul style="list-style-type: none"> Auto-starter 	<ul style="list-style-type: none"> Local players provide 5-10% higher profit Branded players provide gifts and incentives on completion of targets
Maharashtra	<ul style="list-style-type: none"> Big retailers in nearby town: lower prices, high reliability and wide variety 	<ul style="list-style-type: none"> Manufacturers technical brochure Ground water level 	<ul style="list-style-type: none"> Auto-starter Timer 	<ul style="list-style-type: none"> Local players provide 5-8% higher profit Branded players provide sales slab based incentives, domestic tour, parties, gifts
Andhra Pradesh	<ul style="list-style-type: none"> Big retailers in nearby town: lower prices, high reliability, variety 	<ul style="list-style-type: none"> Manufacturers technical brochure Ground water level 	<ul style="list-style-type: none"> Auto-starter Timer Expander 	<ul style="list-style-type: none"> Local players provide 5-10% higher profit Gifts
Karnataka	<ul style="list-style-type: none"> Big retailers in nearby town: competitive prices, wide variety 	<ul style="list-style-type: none"> Ground water level Prior experience 	<ul style="list-style-type: none"> Auto-starter Timer 	<ul style="list-style-type: none"> Local players provide 5-15% higher profit Additional discounts Credit facility
Tamil Nadu	<ul style="list-style-type: none"> Big retailers in nearby town: competitive prices, 	<ul style="list-style-type: none"> Ground water level Area under 	<ul style="list-style-type: none"> Auto-starter 	<ul style="list-style-type: none"> Local players provide 5-15% higher profit Additional discounts

wide variety	irrigation <ul style="list-style-type: none"> ▪ Prior experience
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Table 5: Star Rating Pumps

State	Importance of efficiency among farmers	Key attributes to promote efficient pumps	Awareness level & sales trends	Opinion on making star rating mandatory
Punjab & Haryana	<ul style="list-style-type: none"> ▪ Low priority: free electricity in Punjab, flat bills in Haryana 	<ul style="list-style-type: none"> ▪ Extended warranty ▪ Low voltage compatibility ▪ High quality standard 	<ul style="list-style-type: none"> ▪ Low awareness ▪ Farmers want price subsidy ▪ Retailer's taking initiative to sell star labeled pumps 	<ul style="list-style-type: none"> ▪ Farmer: Significant price difference might discourage them from buying it
Uttar Pradesh	<ul style="list-style-type: none"> ▪ Low priority: Flat bills ▪ No direct motivation for saving electricity 	<ul style="list-style-type: none"> ▪ Low voltage compatibility ▪ High water throwing capacity ▪ Less heat dispensing ▪ High quality ▪ Extended warranty 	<ul style="list-style-type: none"> ▪ Low awareness ▪ Lack of any direct benefit ▪ Rising sales of star rating due to dealer's recommendation and high quality 	<ul style="list-style-type: none"> ▪ Big farmers might prefer star rating ▪ National manufacturers will face stiff competition from regional market and squeeze profits
West Bengal	<ul style="list-style-type: none"> ▪ Consider efficiency as important factor 	<ul style="list-style-type: none"> ▪ Low voltage compatibility ▪ High water throwing capacity ▪ Energy saving ▪ Work for long duration 	<ul style="list-style-type: none"> ▪ Low awareness ▪ Star labeled pumps introduced in some regions where awareness and sales is increasing 	<ul style="list-style-type: none"> ▪ Farmer: Significant price difference might discourage them from buying it ▪ Purchase only if cost effective and of high efficiency
Madhya Pradesh	<ul style="list-style-type: none"> ▪ Low priority: limited supply of electricity ▪ Temporary connection with fixed electricity bill according to HP 	<ul style="list-style-type: none"> ▪ Low voltage compatibility ▪ High water throwing capacity 	<ul style="list-style-type: none"> ▪ Low awareness ▪ Low sales 	<ul style="list-style-type: none"> ▪ Farmers are not much interested unless its low cost ▪ Branded manufacturer: good to improve efficiency
Rajasthan	<ul style="list-style-type: none"> ▪ Moderate to low: Fixed electricity bill according to HP ▪ Important only in areas having good electricity & permanent meters 	<ul style="list-style-type: none"> ▪ High water throwing capacity ▪ Burning of motor should be less due to voltage fluctuation 	<ul style="list-style-type: none"> ▪ Low awareness & understanding of its benefits ▪ May purchase due to government subsidy and electricity savings 	<ul style="list-style-type: none"> ▪ Farmers are in favor: help to identify right pump to save electricity
Gujarat	<ul style="list-style-type: none"> ▪ Low priority: Fixed electricity bill according to HP 	<ul style="list-style-type: none"> ▪ High water throwing capacity ▪ Low price ▪ Less maintenance cost ▪ After sales support 	<ul style="list-style-type: none"> ▪ Low awareness ▪ Low sales due to incompatibility of these pumps with the local conditions 	<ul style="list-style-type: none"> ▪ Farmers are not much interested ▪ Star rating increasing among manufacturers to maintain market presence

Maharashtra	<ul style="list-style-type: none"> Low priority: Subsidized electricity bill 	<ul style="list-style-type: none"> Low voltage compatibility High water throwing capacity 	<ul style="list-style-type: none"> Low awareness Willing to install if compatible with low voltage and saves electricity 	<ul style="list-style-type: none"> High cost of the star labeled pumps and incompatibility with low voltages might not appeal to farmers
Andhra Pradesh	<ul style="list-style-type: none"> Low priority: Flat electricity bills 	<ul style="list-style-type: none"> Low voltage compatibility High water throwing capacity Extended warranty High quality 	<ul style="list-style-type: none"> General awareness Increasing sales due to association with high quality Lack of subsidy on prices is deterrent 	<ul style="list-style-type: none"> Farmers will accept if price difference is not high
Karnataka	<ul style="list-style-type: none"> Low priority: Flat electricity bills, limited electricity supply 	<ul style="list-style-type: none"> High quality Extended warranty High durability 	<ul style="list-style-type: none"> Low awareness Only sales which take place is by retailers convincing the farmers 	<ul style="list-style-type: none"> Frequent power cuts, so farmers support efficient pumps Manufacturers think star rated pump will be more durable, need less maintenance
Tamil Nadu	<ul style="list-style-type: none"> Low priority: free electricity 	<ul style="list-style-type: none"> High quality High durability Low voltage compatibility 	<ul style="list-style-type: none"> High awareness: government rule - new power connections would be given to farmers who purchase four or five star pump This has also increased sales 	<ul style="list-style-type: none"> Farmers are purchasing star rated pumps only to get new electricity connection Manufacturers think it is good for electricity saving & good quality

3.2. SIMILARITIES AND DIFFERENCE AT POINT-OF-PURCHASE ACROSS INDIA

Water level

Ground water level is continuously depleting across the country and varies across states. Within individual states the water level is uneven and varies significantly from one region to another. Most of the states such as Madhya Pradesh, Punjab & Haryana, Rajasthan, Uttar Pradesh and Karnataka have ground water level in the range of 100ft-400ft.. Water level in Maharashtra is still satisfactory and ranges between 40ft-150ft in contrast to that in West Bengal with ground water level ranging from 250ft-750ft. However, most areas of Gujarat have ground water level below 500ft.

Electricity availability

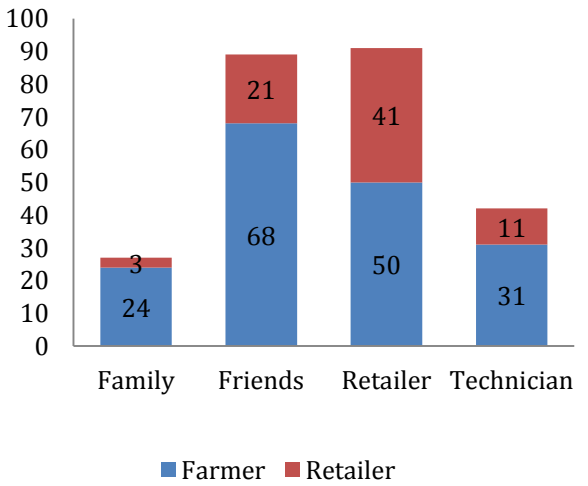

In most of the states such as Madhya Pradesh, Maharashtra, Haryana, Uttar Pradesh, Andhra Pradesh and West Bengal, low voltage levels are prevalent. However, in Rajasthan, Gujarat and Karnataka, voltage levels are quite moderate.

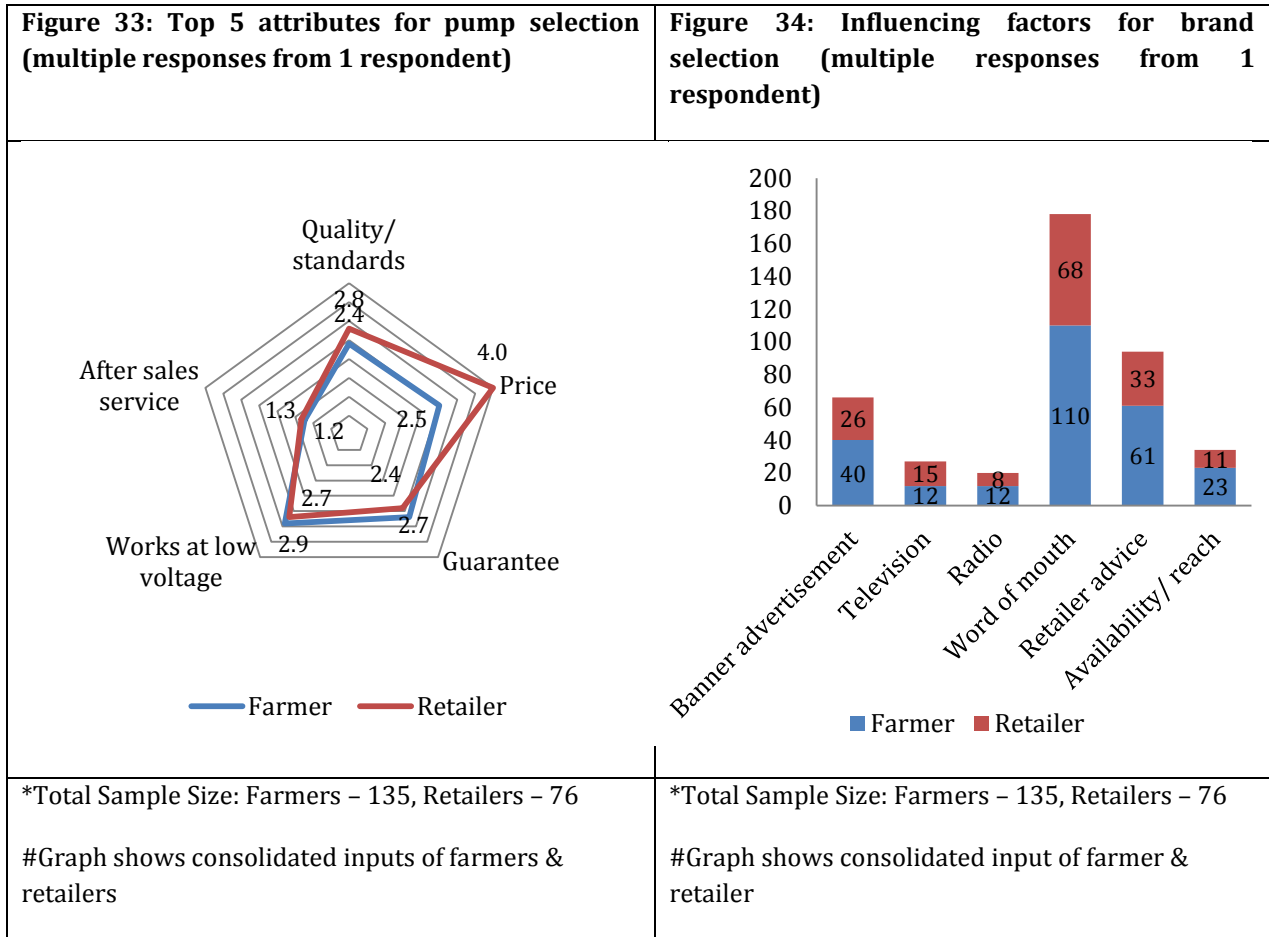
Electricity is generally available for 6-10 hrs. per day in most of the states such as Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh, Andhra Pradesh, Gujarat and West Bengal.

However, villages in Haryana, Uttar Pradesh, West Bengal and Tamil Nadu get electricity for only 3 to 4hrs. per day.

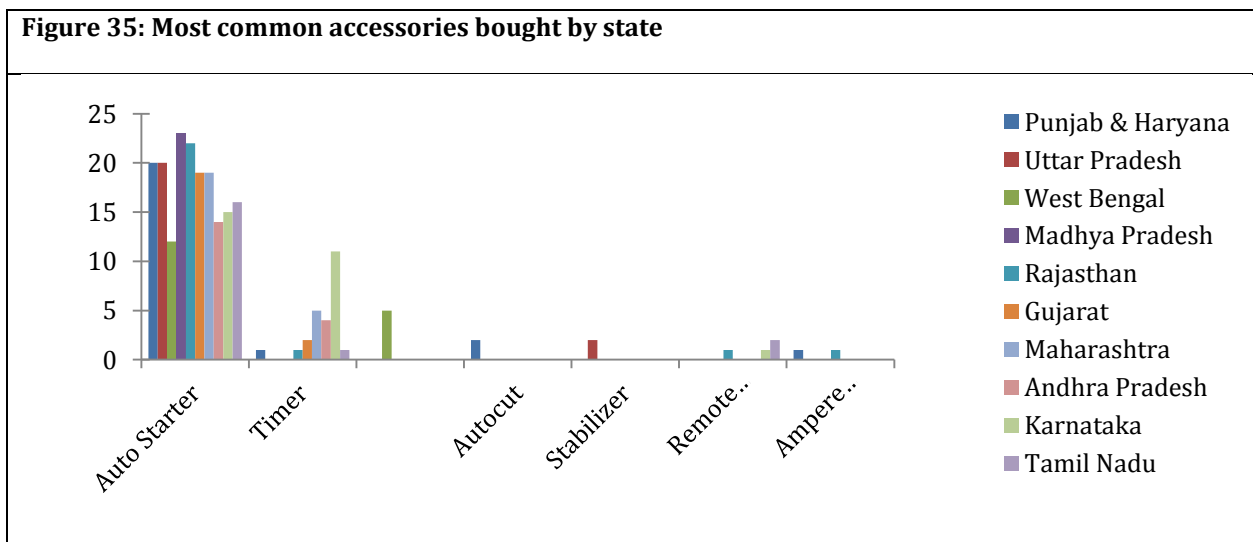
Farmers in most of the states such as Haryana, Madhya Pradesh, Rajasthan, Uttar Pradesh, Andhra Pradesh, Gujarat and Karnataka have to pay flat rates for electricity consumption. In Maharashtra, farmers make unit based electricity payments in contrast to the farmers in Punjab and Tamil Nadu where electricity is free for farmers.

3.2.1.KEY FINDINGS

Figure 31: Key decision influencer in pump purchase	Figure 32: Purchase point of pumps for farmers																					
 <table border="1"> <caption>Data for Figure 31: Key decision influencer in pump purchase</caption> <thead> <tr> <th>Influencer</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Family</td> <td>24</td> <td>3</td> </tr> <tr> <td>Friends</td> <td>68</td> <td>21</td> </tr> <tr> <td>Retailer</td> <td>50</td> <td>41</td> </tr> <tr> <td>Technician</td> <td>31</td> <td>11</td> </tr> </tbody> </table>	Influencer	Farmer	Retailer	Family	24	3	Friends	68	21	Retailer	50	41	Technician	31	11	 <table border="1"> <caption>Data for Figure 32: Purchase point of pumps for farmers</caption> <thead> <tr> <th>Purchase Point</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Local retail shop in village</td> <td>32</td> </tr> <tr> <td>Big retailer/ dealer in nearby town</td> <td>103</td> </tr> </tbody> </table>	Purchase Point	Count	Local retail shop in village	32	Big retailer/ dealer in nearby town	103
Influencer	Farmer	Retailer																				
Family	24	3																				
Friends	68	21																				
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<p>*Total Sample Size: Farmers – 135, Retailers – 76</p> <p>#Graph shows consolidated inputs of farmers & retailers</p>	<p>*Total Sample Size: Farmers – 135</p> <p>#Graph shows consolidated inputs of farmers</p>																					



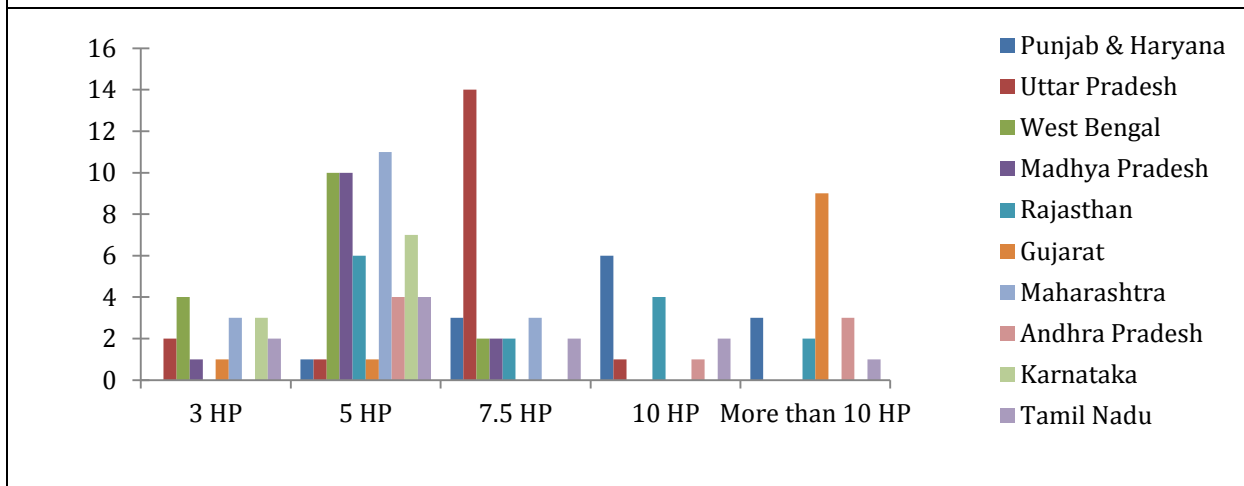
**All the charts in the document have been prepared based on the responses of the interview sample*



*Total Sample Size: Farmers – 135, Retailers – 76

#Graph shows consolidated inputs of farmers & retailers

Figure 36: HP of pump used by state



*Total Sample Size: Farmers – 135

#Graph shows consolidated inputs of farmers

3.2.2.PUMP SELECTION

Decision makers in pump selection

- Feedback/ suggestion from pumpset retailers are the most important basis for pump selection by farmers. Farmers in Madhya Pradesh, Rajasthan, West Bengal and Punjab & Haryana prefer to discuss their requirements with retailers and rely on their inputs. Such suggestions from retailers are based on their discretion which is built on customer feedback and their understanding of local conditions
- Overall, inputs received from friends form second important factor for farmer’s decision. But in states such as Uttar Pradesh, Maharashtra, Andhra Pradesh and Gujarat feedback from friends is considered most important and is based on their individual experiences with pumpsets. They provide a closer picture of practical functioning of specific pumpsets in local conditions such as electricity availability, voltage levels and ground water level in village
- Advice from local technicians also plays a significant role in decision making by farmers. In many states namely Andhra Pradesh, Madhya Pradesh, Maharashtra, Gujarat and Uttar Pradesh farmers leverage on the day-to-day experience of technicians. Technicians encounter a number of brands and have better understanding of benefits and issues of any specific brand. Also, as a result of limited awareness and knowledge about the technical aspects, farmers rely on technicians to understand implications of technical details of pumpsets. However, as an exception, in Punjab & Haryana regions, farmers generally do not involve technicians in decision making as they rely more on retailers, friends and family for such inputs

- Farmers consider suggestions from their family members important as these suggestions are based on their past experiences. Such suggestions are oriented towards the exact requirement of farmer and provides true picture of the challenges faced with pumps in their own land. Significance of family's advice is generally prevalent across most of the states except in Gujarat and Rajasthan
- Panchayat is not an influencing body during pump selection in all the states surveyed

Key attributes for pump selection

Demand Side:

- Low voltage capability is the most important attribute for pump selection. Most of the states such as Maharashtra, Uttar Pradesh, Haryana, West Bengal and Andhra Pradesh face low voltage issues making low voltage compatibility of pumpsets a necessity for farmers. In Maharashtra and Uttar Pradesh, this attribute holds the utmost priority. Farmers in other states such as Rajasthan, Punjab & Haryana, West Bengal, Andhra Pradesh, Gujarat and Tamil Nadu also consider it as an important attribute
- Warranty/Guarantee is considered as second most important attribute; as pumpsets have rugged usage for long durations which leads to functional issues. For farmers in Rajasthan, Punjab & Haryana and Andhra Pradesh, warranty on pumpsets is the most important attribute. Farmers in other states such as Maharashtra, Uttar Pradesh, West Bengal, Karnataka, Gujarat and Tamil Nadu also consider it as one of the important attributes for pump selection. According to the farmers, a local made pumpset needs to be repaired within a year whereas a branded pumpset are sturdier and require repairing after 2 to 4 years
- Price is an important attribute for pump selection for farmers in Rajasthan, Punjab & Haryana, West Bengal, Andhra Pradesh, Karnataka and Tamil Nadu owing to the budget constraints. It also holds importance for farmers in Maharashtra, Gujarat and Uttar Pradesh
- Within reach of their purchasing power, farmers demand high standards of pumpsets in order to have a hassle free operation of pumpsets. For farmers in West Bengal and Karnataka, standards hold the top most priority as a pump selection attribute. Except in Andhra Pradesh, it also has significant influence on farmers of other states such as Rajasthan, Punjab & Haryana, Maharashtra, Uttar Pradesh, Gujarat and Tamil Nadu
- After sales service is looked at as an important attribute for pump selection among farmers in most of the states such as Rajasthan, Punjab & Haryana, Maharashtra, Uttar Pradesh and West Bengal. For farmers in Gujarat after sales support holds the top most priority as a pump selection attribute. However in Andhra Pradesh, Karnataka and Tamil Nadu it is not considered very important
- Farmers in states such as Gujarat, Uttar Pradesh and Madhya Pradesh consider higher water output as an important attribute in pump selection

Supply Side:

- As per the retailer's view, due to the limited budget, price is the most important attribute among farmers especially in Rajasthan, Punjab & Haryana, Gujarat, Maharashtra, Uttar Pradesh, and Andhra Pradesh. It is one of the important attributes for farmers in West Bengal, Karnataka and Tamil Nadu

- Standard of pumpsets is another important attribute for farmers in India. For farmers in West Bengal and Karnataka, it is the most important attribute in contrast to the farmers in Andhra Pradesh who do not consider it as an influencing attribute for pump selection
- Retailers are of the opinion that farmers across the country consider low voltage compatibility of pumps as one of the most important attribute for pump selection. Prevalence of low voltage levels is quite common in states such as Rajasthan, Punjab & Haryana, Maharashtra, Uttar Pradesh, West Bengal, Andhra Pradesh, Karnataka and Tamil Nadu
- Warranty is also considered as an important attribute among farmers owing to the rugged nature of functioning of pumpsets. Farmers want to be assured about the longevity or replacement of the pumps in case of any damage. For farmers in Punjab & Haryana, it is the most important attribute in contrast to the farmers in Andhra Pradesh, Gujarat and Tamil Nadu, who consider it at last priority yet important factor in pump selection. In Rajasthan, Karnataka farmers consider this attribute as second most important factor. It is also considered important by the farmers in other states such as Maharashtra, Uttar Pradesh and West Bengal
- As a result of technical orientation of equipment and its operation, farmers consider after sale service as an influencing attribute in order to have support from the manufacturer in case of any issue related to service and product feature. Majority of farmers in states such as Rajasthan, Punjab & Haryana, Maharashtra, Uttar Pradesh, Gujarat and West Bengal also consider it an important attribute, but give low priority to it as compared to other attributes. As a contrast to these states, south Indian states namely Andhra Pradesh, Karnataka and Tamil Nadu do not consider this attribute to have any influence on pump selection
- Farmers in few states such as Rajasthan, Andhra Pradesh, Tamil Nadu consider durability as an influencing attribute in order to have better return on their investment in pump installations
- Prior experience is also considered as an influencing factor by farmers in Andhra Pradesh and Karnataka as according to them this attribute helps them to reduce their risk in pump selection
- Farmers in Tamil Nadu and Gujarat consider change of name plate to have an influence on pump selection in order to have higher water throwing capacity of pumpsets
- Other attributes such as pump manual and crop grown are not considered to have an influence on pump selection by farmers in the country

Influencing factors for brand selection

**Responses are common for farmers and retailers*

- Word of Mouth has the most significant influence on brand selection by farmers. Farmers generally rely on word of mouth and associate this factor with the better functioning of pumpsets. They believe word of mouth to be based on actual feedback on pump quality from farmers and on true picture of the pump set's compatibility with local conditions of village. In most of the agricultural states such as Rajasthan, Punjab & Haryana, Uttar Pradesh, Madhya Pradesh, Maharashtra, Gujarat and West Bengal farmers consider it as the most influential factor for brand selection. Farmers in other states namely Andhra Pradesh and Tamil Nadu consider it as second most influencing factor
- Most of the farmers approach retailers for suggestions regarding brand selection as they consider their inputs to be oriented towards technical aspects. The retailers receive feedbacks from existing customers on various brands and farmers leverage on this experience. Farmers in

Andhra Pradesh and Tamil Nadu consider this factor as most important basis for brand selection. In states such as Madhya Pradesh, Maharashtra, Uttar Pradesh, Punjab & Haryana, Rajasthan, Uttar Pradesh and West Bengal, farmers rank it as second most influential factor. Hence, in most of the states Retailer’s advice is among the most significant influencing factor except for Karnataka and Gujarat where farmers consider it on fourth priority

- Banner Advertisement comes out to be third most influencing factor among farmers for brand selection as it increases the brand visibility and brand recall. Farmers in Karnataka and Maharashtra consider it to be the most influential factor in contrast to the farmers in Rajasthan, Tamil Nadu and West Bengal, for whom it does not hold any influence on brand selection. In Andhra Pradesh, Madhya Pradesh, Punjab & Haryana, Gujarat and Uttar Pradesh also banner advertisement has its influence on brand selection by farmers
- Television is also found to have significant influence on brand selection by farmers in most of the states such as Madhya Pradesh, Maharashtra, Rajasthan, West Bengal, Karnataka and Tamil Nadu as it helps them to increase their awareness about brands. However, as a contrast it does not have any influence on farmers in Andhra Pradesh, Punjab & Haryana, Gujarat and Uttar Pradesh
- Availability/ reach of retailer in proximity to the farmer are also considered by few farmers as it assures them for quick after sales service. In Andhra Pradesh and Gujarat farmers consider it as second most influential factor along with farmers in other states such as Madhya Pradesh, Maharashtra, Punjab & Haryana, Rajasthan and Uttar Pradesh. However, in few states namely Karnataka, Tamil Nadu and West Bengal this factor is found to have no influence on farmers
- Radio is not having any influence on farmers in majority of states except in two southern states i.e. Karnataka and Tamil Nadu
- Other attributes such as financer holds no influence on farmers throughout the country

Branded vs. regional pumps

Among the farmers across states, regional brands are having a strong hold. Compatibility with local conditions and lower prices forms the most important competitive advantages for regional brands. However, with increasing awareness about the benefits of national brands, increasing purchasing power and changing mindsets of young generation farmers, national brands are experiencing increase in acceptance levels. The top brands in each state are given below:

Table 6: top brands in each state

State	National Brands	Regional Brands
Punjab & Haryana	Texmo, CRI, KSB, Lubi	Oswal, Singla, Plugra, Maxwell, Niagra
Uttar Pradesh	CRI, Texmo, Varuna, KSB	Hi-Tech, Aroma, Rama
West Bengal	Texmo, KSB, CRI, Crompton, Varuna	Villiers, Kalama, Atul, Shakti Chinese brands: Tricycle, CD
Madhya Pradesh	Texmo, CRI, Kirloskar	Dhanush, Akash, Jal Ganga, Classic

Rajasthan	Texmo, CRI, Varuna	Chetan, Ambuja
Gujarat	Lubi, Varuna and Unnati	Shiv shakti, Jagdish, Freedom
Maharashtra	Texmo, Kirloskar, CRI, Varuna, Crompton	Mahalakshmi, Wega, Alpha, Paras, Waterfall, Asian
Andhra Pradesh	Texmo, CRI, Falcon, Suguna	JK Pumps, Lakshmi
Karnataka	Texmo, CRI, Kirloskar	V Guard, Tormac
Tamil Nadu	Texmo, CRI, Kirloskar	Krishna, Mak, Besten

Criterion in selecting pipe size

The pipe size typically depends on the flange outlet of the pump, pump size and ground water level across the states. The farmers also follow the recommendation of technician for type and size pipes to be used.

3.2.3.POINT – OF – PURCHASE

Purchase point of pumps

- Most of the farmers purchase pumps from retailers in nearby town as these retailers provide wide variety of pumps to select from along with competitive pricing. Farmers perceive these retailers to be more reliable in terms of quality of products and after sales service support. This mindset is quite common among the farmers in many states such as Andhra Pradesh, Madhya Pradesh, Rajasthan, Karnataka and Tamil Nadu. These states also have very few pump retailers in villages
- Many farmers also consider purchase of pump from cities as a status symbol especially in Madhya Pradesh
- In other states like Gujarat, Uttar Pradesh, West Bengal, Punjab & Haryana farmers mainly purchase pumps from local village retailer owing to word of mouth publicity by other farmers, easy availability of regional variety of pumps and quick after sales service support

Dealer inputs in pump purchase and pump head

- Across all states, dealer considers factors like ground water level, area under irrigation and budget of farmer while advising them on pump head
- In most of the cases, they advice farmers for the pump head on the basis of the calculation charts provided by the manufacturing companies. The dealers consider the water level conditions in nearby villages for various calculations to be used while installations
- The dealer also gives recommendations for a specific brand based on field and electricity conditions in states such as Punjab and Haryana

Cost of pump and parts

The cost of pump and its related parts is dependent on a number of factors. Some of the key determinants are:

- National brand or regional brand pump
- Pump HP
- Ground water level in the region
- Star rating/ISI mark

Table 7: Break up the key pump parts and average cost range

Sr. No.	Pump Part	Maximum Cost (in INR)	Minimum Cost (in INR)	Influencing Factors
1	Pumpset	Branded: 40000 Local: 30000	Branded: 12000 Local: 6000	<ul style="list-style-type: none"> ▪ Pumpset cost varies from brand to brand and depends upon: <ul style="list-style-type: none"> ○ Horsepower of pump ○ Type of pump
2	Piping	80000	6000	<ul style="list-style-type: none"> ▪ Piping cost depends upon : <ul style="list-style-type: none"> ○ Ground water level ○ Width of pipe ○ Type of pipe material
3	Well frilling/ deepening	50000	5000	<ul style="list-style-type: none"> ▪ Well frilling cost depends upon: <ul style="list-style-type: none"> ○ Depth of well/boring ○ Surface type - hard or soft ○ Width of well
4	Utility connection	55000	10000	<ul style="list-style-type: none"> ▪ Utility cost depends upon: <ul style="list-style-type: none"> ○ Requirement of farmer
5	Other components	16000	3000	<ul style="list-style-type: none"> ▪ Other component cost depends upon: <ul style="list-style-type: none"> ○ Branded product or local ○ Requirement of farmer

- 5 horsepower pumps are mostly preferred by farmers because of satisfactory water output with prevailing water level conditions. Further, it also limits their electricity bill as compared to that with pumps of higher HP ratings
- Higher horsepower pumps are common in states such as Gujarat, Rajasthan, Uttar Pradesh, Punjab & Haryana whereas low horsepower pumps are common in states like Karnataka and Maharashtra due to comparatively better ground water levels

Add-on accessories bought with pumps

- Auto-starter is the most common accessory being used by the farmers in all the states and it is available in the market within the price range of INR 2000-4000 in national brands and INR 500-1600 in regional brands
- Some farmers of Andhra Pradesh and Karnataka also purchase timer as accessory
- Remote control is purchased by some farmers of Andhra Pradesh and Tamil Nadu

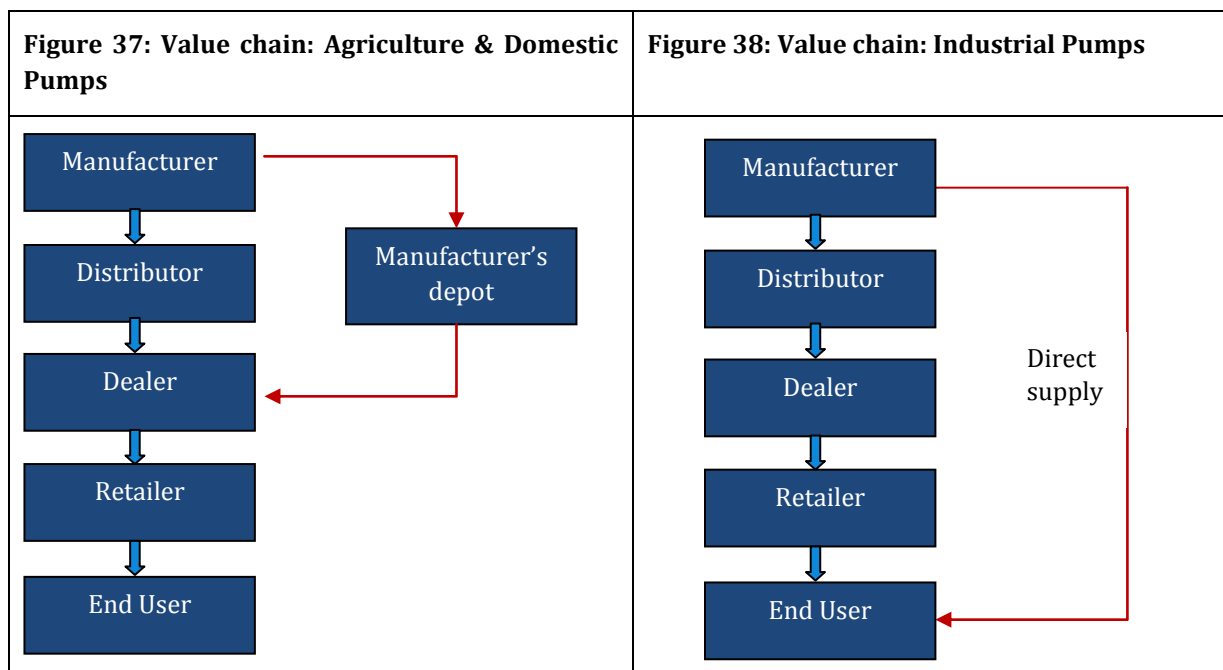
- Very few farmers purchase auto-cut, expander or reducer, ampere meter and voltage stabilizer as accessories

Profit margins & incentives given to the dealers

- Dealers earn higher profit margins in selling regional brands as compared to national brands. In states such as Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu dealer's profit margin in sale of regional pump is around 5 to 15% higher than margin of a national brand. Whereas in other states such as Madhya Pradesh, Uttar Pradesh, Punjab and Haryana profit margin is only 4 to 5% higher than that of a national brand
- In Rajasthan, the difference in margin from national branded player and local player is minimal
- Discounts are the most common incentive provided by manufacturers to their dealers in all the states to encourage them for higher sales
- Domestic tour is given as an incentive to dealers in states like Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal
- Some manufacturers also give gifts and credit facilities to retailers in states like Karnataka and Tamil Nadu

Marketing channels for different segments

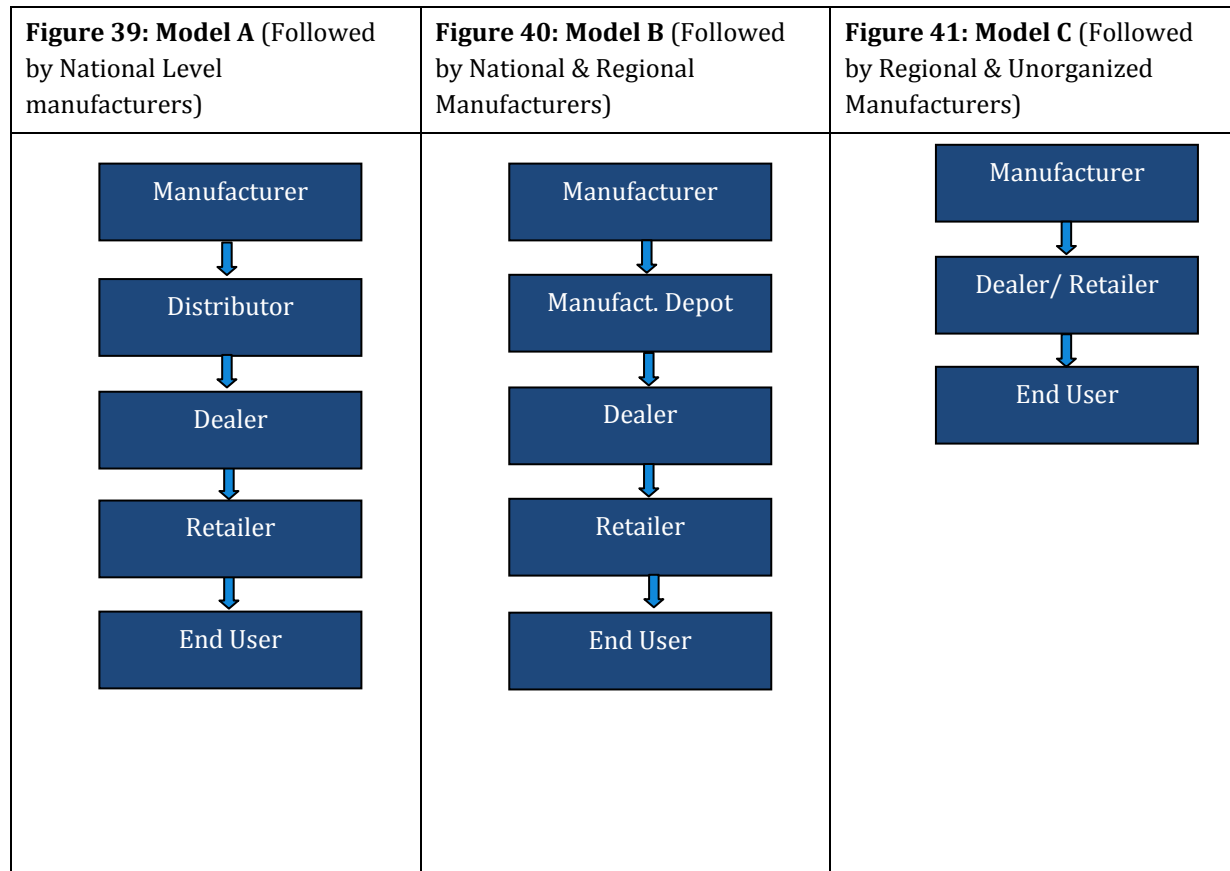
The value chain for different segments of pumps is similar in structure. However the distributors and dealers who deal in agriculture & domestic pumps are different from those who deal in industrial pumps



- The distributors for industrial pumps are different from agriculture pump as it forms a separate segment of the pump industry
- The nature of the end customer is also very different and the end customers may directly contact the manufacturer, in case of industrial pumps

Value Chain models for Agricultural Pumps

In Indian pump industry, 3 different models of value chain for agricultural pumps are adopted by the manufacturers. The type of value chain followed by these manufacturers largely depends on the addressable target market based on the potential of manufacturer.



- Model A is conventionally followed by most of the national level manufacturers to have a country wide distribution network
- Model B is followed by most of the regional manufacturers and also by few national level manufacturers such as Texmo in order to reduce distribution costs
- Model C is widely prevalent among the unorganized manufacturers and is also followed by a number of regional manufacturers as these manufacturers require very limited distribution network

3.2.4.STAR RATING PUMPS

Brief of Ag DSM program

In order to promote energy efficiency methods in agriculture sector, BEE initiated an Agriculture Demand Side Management (Ag DSM) program. Under the provision of this program, up-gradation of pump set efficiency is planned to be carried out across the country through Public Private Partnership (PPP) mode.

As per the framework, different states were ranked in order to select most preferred states to initiate the implementation of agricultural DSM projects based on the following six attributes:

- Total connected load
- Share of energy consumption in agricultural sector
- Status of feeder separation
- Aggregate technical and commercial (AT&C) loss
- Overexploited ground water situation
- State power sector performance rating

As a result of selection procedure, five states Maharashtra, Gujarat, Rajasthan, Haryana and Punjab were selected for phase-I implementation of Agricultural DSM program.

The first Pilot Ag DSM from BEE was launched at Mangalwedha subdivision of Solapur Circle in Maharashtra. This pilot project covers 3,530 agriculture pumps connected through five feeders (Nandeshwar, Bramhapuri, Borale, Kharatwadi and Bhose) in Pandharpur and Mangalwedha subdivisions.

BEE is looking forward for the preparation of Ag DSM DPRs (Detailed Project Reports) for pilot projects in other selected states.⁵⁰

Importance of efficiency among farmers

- In most of the states such as Uttar Pradesh, Madhya Pradesh, Rajasthan, Andhra Pradesh, Gujarat and Karnataka, farmers have to make flat payments for consumed electricity hence they consider efficiency of pumps less important. However, in Maharashtra importance of efficiency is high among farmers as they have to make per unit based payments
- In Punjab and Tamil Nadu due to free electricity availability from government the importance of efficiency is low

Key attributes which can be used for promoting efficient pumps

Low voltage prevalence is the most common problem in villages of India. Farmers are not in favour of spending additional money for energy efficiency. However, they are willing to pay premium for the other pump features such as low voltage compatibility, high water throwing capacity, extended warranty and high durability. Farmers consider these features as the most sought attributes for an efficient pump.

Farmers across most of the states such as Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab & Haryana, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal associate low voltage compatibility with efficient pumps. High water throwing capacity is considered as another important attribute for a pump to be efficient by most of the farmers. High quality standards and extended warranty are also among the most sought parameters by farmers in most states as these attributes assures them hassle free functioning and manufacturer support. Farmers in few states also consider high durability, energy saving and lower heat generation as necessary attributes for efficient pumps.

Awareness level & sales trend

⁵⁰ BEE Agricultural Demand Side Management Programme; Bureau of Energy Efficiency; <http://www.beeindia.in/content.php?page=schemes/schemes.php?id=5>

- Awareness level is low in farmers due to minimal understanding of star rating and its benefits in states such as Punjab & Haryana, Uttar Pradesh, West Bengal, Madhya Pradesh, Rajasthan, Maharashtra, Gujarat and Karnataka. However, farmers in Andhra Pradesh and Tamil Nadu are moderately aware about star rating pumps and understand its benefits such as low electricity bill and high quality
- Usually farmers only understand ISI marking and star rating is a new concept to them
- Farmers are willing to install such pumps in case they are made more aware about its functioning and benefits
- Sale of star rated pumps is low in all the states except in Tamil Nadu where its sale is high due to government rule which makes such pumps mandatory for new connections
- Sales trend for star rated pumps is increasing in all the states as quality and brand awareness is increasing among farmers
- In states like Maharashtra farmers have to pay unit based electricity bill hence they are focusing more on energy efficient pump to save more on electricity costs
- Dealer's initiative to promote star rated pumps in states like Punjab & Haryana, Uttar Pradesh and Madhya Pradesh is also contributing towards increasing sales trend

Opinion of farmer and manufacturer on making star rating mandatory

- Farmers of all the states are in positive view to make star rating mandatory and are motivated due to various reasons such as lower consumption of electricity, high durability, government certification and good quality. However, the priority of these reasons vary from place to place
- Farmers want star rating should be explained to them first with the help of demonstration in their villages before making it mandatory
- As a response to government initiative of free star rating pump installation in few states such as Tamil Nadu and Rajasthan, farmers are more interested in long term intervention from government. Farmers seek an expanded role of government involving operation and maintenance assurance of star rating pumps rather than just installation.
- Farmers are also of the opinion that they can try the star rated pumps provided the cost is low
- According to retailers in Madhya Pradesh, Rajasthan, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu, manufacturers are in favor of making star rating mandatory as then they can sell more pumps as farmers' trust will increase in their brand
- However, few manufacturers also believe that their profit margin will reduce as competition with local brand will further increase on price front

4. COMMERCIAL & TECHNICAL ASPECTS OF SUPPLY SIDE

In this section we will be analyzing the operations at the supply side of industry i.e. the manufacturers of agriculture pumps. Some of the key points answered in the section will include manufacturing facilities and costs, manufacturers view on star rating pumps, steps being taken from supply side to comply with star rating, barriers in implementation of star labeling etc. Primary interviews conducted with the manufacturers are source for the drawn inferences and conclusions. The insights and information from these interviews have been validated from a number of manufacturers and Indian Pump Manufacturer Association (IPMA).

4.1. STATUS OF OUTSOURCING AND TESTING

Extent of outsourcing

- **National Level Manufacturers:** Most of these manufacturers outsource the casting work to third party vendors. Outsourcing of casting job is a cost effective solution as compared to the establishment of an in-house foundry
- **Regional Level Manufacturers:** Alike national manufacturers, almost all of the regional manufacturers also outsource casting work to third party vendors as a cost effective method. Few small regional manufacturers also outsource the machining job along with the casting work
- **Unorganized Manufacturers:** All of the manufacturers from unorganized sector outsource the casting and machining work. A large section of these manufacturers is involved in just assembling of the pumpsets and hence outsource all other related jobs due to lack of facility and capital to invest

Testing labs

- **National Level Manufacturers:** These manufacturers have complete and well equipped in-house testing facility
- **Regional Level Manufacturers:** Regional level manufacturers usually have complete in-house testing facility. However, some of the small regional manufacturers do not have in-house testing facility and hence depend on facility of other regional manufacturers for testing purposes. Some challenges faced by few regional manufacturers during testing are:
 - Shortage of skilled persons for testing purposes
 - Problem in accurate calibration of testing equipments and hence at times they have to rely on testing facility of some nearby medium level regional manufacturer
- **Unorganized Manufacturers:** These manufacturers usually do not have any requirement for testing as they do not follow any testing norms

4.2. PRODUCTION COSTS INVOLVED IN MANUFACTURING OF PUMPS

Major cost components

Components	Unit Price
Stainless Steel Body	INR 1.10/mm (420mm consumed)

Impeller	INR 65/piece
Sand Guard	INR 12/piece
Shaft	INR 240/kg
Rotor	INR 1400
Stamping	INR 6/piece
End Ring	INR 10/piece
Copper Ring	INR 800-900/Kg (minimum 4 kg is consumed)

***Average cost estimation for V6 -6 stage submersible pumpset components**

Incremental costs for star rating pumps

Sr. No.	Component	Cost percentage for non star rated pump	Cost percentage for star rated pump
1	Copper	30	40
2	Steel	20	30
3	Cast Iron	20	10
4	Fastener	10	10
5	Processing	20	10

4.3. INTRA SEGMENT COMPARISONS (INDUSTRIAL AND AGRICULTURE)

Intra segment comparison

Segment wise extent of conformance with BIS and BEE standards

- Typically the industrial pumps are designed to have high efficiency and star labeling adds value to the quality and enhances the reliability factor among the end users. In addition, industries have to pay heavy electricity bill based on commercial rates, hence industries are already using energy efficient pumps and equipments unlike in agriculture segment
- In agriculture segment, conformance to BIS standards is high among manufacturers as it is widely demanded and is considered to be synonymous with high quality of pumps. However, BEE's star rating programme is fairly new and not as wide spread in the market, since the manufacturers are constrained by limited market size and insignificant demand by the end users. restricted to manufacture limited quantity of star rated pumps due to its insignificant sales response

Competitive advantages

BEE Star rating

- National Level Manufacturers:** Manufacturers in the organized sector, consider BEE star rating as the most important competitive advantage. Star rating helps in enhancing the brand image and reputation of company among farmers. BEE is being considered as the latest big thing on technical front among the manufacturers. Hence, in order to sustain or improve their reputation in market and also to maintain their market presence with latest upgradation, manufacturers are launching a number of star rating models. In addition, as per the seriousness of efficiency issue, it can be expected that star rating pumps would be mandatory in coming future. This is expected

to result in a significant increase in market share of organized sector. In such a scenario, historical evidences of experience and presence of manufacturers in star rating pump manufacturing might be a key attribute for the manufacturers to leverage on. Early move to star rating pump manufacturing may also be beneficial to have a good brand recall and more acceptability of their brand among farmers by then

- **Regional Manufacturers:** The manufacturers believe that star rating symbol associated with their brand is perceived as a high quality attribute and add to credentials of company. Hence, association of few models with star rating has even resulted in increased sales of company's non-star rated pumpsets. Also, the manufacturers expect that in coming future star rating would be mandatory and being an early mover in star rating pump market would help them to attain a significant market share in future Low maintenance attribute

Low Maintenance

National & regional manufacturers: These consider low maintenance attribute of pumpsets as the second important parameter, as it has a significant influence on farmers. With the help of this attribute manufacturers from the organized sector try to lower the operational costs associated with the frequent repairing of pumpsets and hence justify the initial higher price. It reduces the overall operational cost to the farmers and they recognize it as a cost saving feature, curbing the recurring expenses in servicing and reinstallation of pumpsets

Replacement of motor burnout

- **National Level Manufacturers:** These manufacturers provide replacement of motor burnout as an influential factor for enhancing the brand image. This provides a competitive advantage to build trust for their brand among the farmers and offer them quality customer service as a differentiator. This in turn hedges the farmers risk against frequent voltage fluctuations which often leads to motor burnout
- **Regional Level Manufacturers:** These manufacturers consider replacement of motor burnout as their commitment towards prompt customer care. It helps in creating a good brand image among customers and in reducing lag in customer service as such service requirement are on urgent basis especially during peak season.

After Sales Service

- **National Level Manufacturers:** In order to deal with the prevailing competition, manufacturers try to differentiate their brand through prompt customer service. Manufacturers consider strong maintenance network as a pre-requisite to deliver efficient after sales service support. In the present scenario of irregular electricity along with fluctuations in voltage levels, pumpsets require regular maintenance. In such a scenario, strong maintenance network of the company acts as a competitive advantage
- **Regional Level Manufacturers:** Since these manufacturers operate their business in specific regions hence they have be more conscious about the reputation of their brand. These manufacturers have to face stiff competition from the unorganized manufacturers operating within the region and offer pumps already at low costs. These manufacturers seek after sales

service as an opportunity and a competitive advantage to sustain/increase their market share and deal with prevailing competition

Lower price and low voltage compatibility

- **Regional and Unorganized Manufacturers:** The regional manufacturers and unorganized manufacturers consider lower prices and low voltage compatibility of their pumpsets as a competitive advantage. These manufacturers generally do not follow BIS or BEE norms and offer below standard quality leading to low cost of pumpsets. Also, small manufacturers distribute pumpsets in nearby areas due to limited production capabilities, which facilitate them to provide prompt after sales service to their end customers

Interactions and skill sharing

- **National Level Manufacturers:** Most of the national level manufacturers are present in all three segments of pumps (i.e. industrial pumps, agricultural pumps and domestic pumps). In such companies, the adherence of one segment to star rating does not affect the other segment
- **Regional Level Manufacturers:** Most of the regional level *manufacturers* manufacture agricultural and domestic pumpsets only

Few factors which easily spread in the segment are:

- **Skill set of workers:** Manufacturers of industrial pumps have standardized manufacturing processes for which they require much experienced and skilled workers. In agricultural segment, unorganized sector has a strong hold and consists of a large number of small manufacturers. These small manufacturers generally do not follow procedural guidelines and hence skill set requirement is less as compared to industrial pumps. However, with the introduction of star labeling program, the manufacturers from organized sector of agriculture segment are now focusing more on quality and design parameters which is increasing the demand of skill sets among workers.
- **Cost reduction strategies:** The manufacturers of industrial and agriculture pumps aim to reduce their costs through efficient supply chain, raw materials and outsourcing the manufacturing of components
 - **Supply chain:** In industrial segment, pump business is mostly B2B hence the manufacturers keep a limited distribution channel which commonly consists of distributors/wholesalers only. These companies also deal directly with their end customers and save a share of distribution margin. In agricultural segment, few manufacturers such as CRI have squeezed their distribution network by eliminating the distributors. This again helps to save on distribution margins.
 - **Material choice:** Industrial segment uses high quality material in order to achieve high efficiency. However, agriculture segment often trades off with the quality of material to achieve low manufacturing cost such as using plastic parts instead of steel and using less copper in winding.
 - **Outsourcing:** In industrial and agricultural segment most of the manufacturers outsource the casting work as they consider it as a cost-effective approach. Few medium level and small players outsource machining jobs also to reduce costs.

4.4. VIEWS AND SHORTCOMINGS OF STAR RATING/LABELING PROGRAM

Market view

In the present scenario, the star labeling program has been successful in gaining good response from the supply side i.e. manufacturers. However, low acceptance among the farmers is quite evident.

Manufacturer's response to star labeling program

National level manufacturers

- Most of the manufacturers consider star labeling program as the right move to save electricity and for efficient consumption of electricity
- Manufacturers are keenly participating in this program and are taking active steps to get star rating on various models
- The major driving factors for manufacturers to manufacture star rated pumps are:
 - To participate in government tenders
 - To prepare for the future market where star rating of the pumps would be mandatory
 - To enhance their brand image and reputation among the farmers

Regional Manufacturers

- Most of the regional manufacturers are including star rating pumps in their product portfolio in order to compete with the national brands
- The manufacturing of star rating pumps entails an increment in cost for them but this is not the case with National level manufacturers due to the economies of scale. This poses a challenge to the regional manufacturers
- The major driving factor for regional manufacturers to manufacture star rating pumps is to prepare for the future market where star rating would be mandatory

Unorganized Manufacturers

- According to the manufacturers from the unorganized sector, low cost pumpsets with low voltage compatibility are the basic requirement of farmers. These manufacturers are of the opinion that at present market is not ready for the star rating pumps
- Proper availability of electricity is the pre-requisite for star rating pumps and as per the past and ongoing scenario, improvement in electricity status to farmers has a long way to go

Response to ISI marking

- Majority of the farmers are aware of ISI mark as an assurance for high quality standards. The farmers willing to purchase a branded pump prefer to purchase pumps with ISI mark
- The BIS team conducts a number of inspection of manufacturers' production facility and products on quality standards which has lead to almost negligible scope for practicing false ISI mark
 - These checks deter the manufactures to manufacture pumps with efficiency below BIS norms and distributing it with ISI mark
 - However, this practice might be prevalent among some small or local players in industry

Barriers in implementation

Supply Side

National Level Manufacturers

- Most manufacturers are trying to get star rating across a large number of models. However, at present BEE have only 4 authorized testing facilities which make the BEE testing procedure very slow. As a result it takes minimum 6 to 8 months to get star label, which drastically affects the sales volumes
- Few manufacturers are of the view that the efficiency target of BEE (i.e. 20% above BIS) is not feasible for all agriculture pumps of different power ratings. The idea of increasing efficiency by 20% holds good and is practical for the pumpsets which are currently having low efficiency as in the case of pumpsets from medium and small manufacturers. However, for pumpsets already having high efficiencies, as from most of the national level manufacturers, further increment of efficiency by 20% is a difficult situation according to these manufacturers

Regional level Manufacturers

- Low acceptance of star labeling pumps among the farmers, mainly due to the low voltage incompatibility and lack of awareness, is limiting the manufacturing of these pumps in high volumes
- The agriculture pump market is extremely price-sensitive with significant hold of unorganized sector providing low cost pumpsets. According to the manufacturers, even a marginal increase of INR 500 in pumpset price could lead the farmer to switch to a different brand. On the other hand, the manufacturers from the organized sector have to increase the pumps price in order to account for the additional cost associated with star labeling. Such a scenario decreases the ability of manufacturers in the organized market to compete on price

Demand Side

- The price increment associated with the star rated pumps doesn't align with the demand of low cost pump from majority of the farmers
- Incompatibility of star rating standards with the prevalent voltage levels and ground water levels across the country limits the end purchase of these pumpsets
- Farmers are not conscious about saving electricity as a result of flat rate of electricity billing in most of the states
- Lack of any direct incentive or subsidy on installation of star rated pump sets in most of the states restricts the farmers' selection to non-star rated pumpsets. In few states such as Haryana and Rajasthan, government has taken initiative of providing a subsidy of INR 400 and INR 500 per HP on installation of star rating pumps. In addition, government has planned for installation of free star rating pumpsets also through Public Private Partnership (PPP) mode in few states such as Maharashtra and Tamil Nadu. However, such initiatives are very few in number

Response for prospective up-gradation of star rating criteria

National Level Manufacturers

- Most of the manufacturers are open for up gradation in case of any changes in the BEE norms. For large manufacturers, the incremental cost is quite low as even in their non-star rating pumps quality is already high.

Regional Manufacturers

- For regional manufacturers up-gradation of star rating criteria might entails a significant cost as they then have to upgrade their manufacturing practice and raw materials in terms of quality. As a result, increment in cost would then be transferred to the end user leading to hike in prices of their pumpsets

Manufacturers of high efficiency pumps

- The manufacturers making high efficiency pumps (star rating pumps) are CRI, Texmo, Lubi, Varuna, Falcon, KSB, Kirloskar, Shakti, Oswal, Besten, Duke, Besten, Sabar, Crompton Greaves, Amrut, Mahendra, Atalanta, Swastik, Deccan, Aquaflow, Techno, Chetan, Vikrant, Waterman, Maxwell, Rishi, Shaktiman, U-Neel, Eleen, Endura, Jasco etc.
- In order to improve pump efficiency, the manufacturers of star rating pumps concentrate on better designs, use of better material such as stainless steel and increase in copper weight

Level of difficulty in following two standards

- Large manufacturers do not experience any difficulty in following two standards as their non-star rating pumps are more or less of the same standards
- Few of these manufacturers operate two different production lines and some manufacturers manufacture star and non-star on the same production lines
- Few medium level manufacturers are of the opinion that following two standards leads to reduced margins as enhancing the quality of pumps is a costly preposition

Prevalence of efficiency-gap between test data given for BIS and the actual pump in the market

Such practice has a very limited scope as BIS conducts market inspection too often. However, this practice might be prevalent among some small or local players only in industry

4.5. MARKETING STRATEGIES

High Quality & Competitive Pricing

- Competitive price with high quality is basic market strategy adopted by most of the national level manufacturers from organized sector. These manufacturers manufacture the star rating pumps and non-star rating pumps on the same production lines. The efficiency levels of their non-star rating pumps are also close to their star rating pumps
- Most of the manufacturers keep separate portfolios of star rated pumps and non-star rating pumps simultaneously. This helps them to leverage the enhanced brand image gained by flaunting their association with star rating for the sales of non-star rating pumps also

Interaction with end users and collection of feedbacks

- Manufacturers are also making dedicated efforts to increase their interaction with farmers to get their feedback, understand their issues and provide them best optimal solution. For instance,

Deccan pump operates a retailing center in its production facility and senior management is directly involved in addressing the issues of farmers

- Few large companies also have their market research teams operating across India to gauge the market requirements and developments. This team works in coordination with R&D and sales team of the company

Effective Promotion strategies

- Manufacturers are also concentrating on marketing efforts by increasing the visibility of their brand with the help of banners and marketing vans across villages
- Manufacturers are also involving local technicians and other influencing persons in villages such as Gram Pradhan for promotion of their brands through word-of-mouth publicity

Customer Service

- After sales service is another aspect where most of the manufacturers are dedicating their efforts in order to enhance brand image and gain more acceptability among farmers. Companies are now concentrating their efforts on different aspects of this field for e.g. Texmo extended its warranty period upto 2 years. Most of the national manufacturers are expanding their customer service network in order to provide a fast response to farmer's service requirement. Many regional manufacturers are providing prompt replacement of motor burnouts. Manufacturers from unorganized sector also claim to provide prompt after sales service as they are located in the proximity of their end customers

Other Initiatives

- Low voltage incompatibility of pumps is the major hurdle for the manufacturers from the organized sector. Few manufacturers such as Falcon have now designed new pumps to address this major issue among farmers
- Extended warranty by Texmo has proved itself as an effective strategy as this has led to the increased trust factor regarding better after sales service and reliability among farmers

4.6. EXIM SCENARIO

Types of pumps exported

- Agricultural pumps of 10HP & 15HP are most popular in export market. These pumps have efficiency level with the range of 40% to 80%

USP of Indian pumps in export markets

- High quality, low maintenance and low cost are considered to be the USP of Indian pumps in export markets

Technology differences from normal pumps

- These pumps are more energy efficient than pumps for domestic market. On technological grounds these two categories are same however, in pumps for export market; high quality material is used along with good finishing.

5. CONCLUSION AND RECOMMENDATIONS FROM THE STUDY

5.1 CONCLUSION

The farmers across India are not concerned about the efficient use of electricity due to the prevalent pump horse power based flat rates of electricity for agriculture in most of the states. The farmers are more inclined towards factors such as low cost of pumpsets, low voltage compatibility and high water output. Such a situation reflects a significant gap between the star rating programme and preference of farmers. This indicates the necessity to focus on other aspects of pumps in alignment with farmer's preference as well along with the energy efficient attribute of star rating pumps.

Star rating of pumps is receiving a favorable response from supply side of agriculture pump market. Manufacturers are actively participating in promoting the energy efficient pumps by seeking BEE's star rating approval for their pumpsets. Despite of the faint response from demand side, the manufacturers are preparing themselves expecting star rating to be mandatory in all states in coming. However, the star rating programme is having certain loopholes raising concerns among the manufacturers. At present, BEE only has 4 testing laboratories across India which leads to the long waiting periods for star rating approval and hence delays in launch of star rated pumps in market.

Additional steps by BEE would act as the primary source of action from increase usage of energy efficient products. Increased incentives to manufacturer can increase initiatives to push the energy efficient products in market. Increased responsibility with retailers can assist both push from manufactures and pull from end users. Enhancement in awareness for end users would enable the pull from end users to use more energy efficient products.

5.2 RECOMMENDATIONS

Recommendation-1

Issue	<ul style="list-style-type: none"> Low awareness about star rating pumps among farmers <p><i>*As per the farmer interviews, out of 135 farmers only 25 farmers were aware about star rating pumps</i></p>
Influence	<ul style="list-style-type: none"> Low sales of star rating pumps across the country <p><i>*Star rating pumps are having a market share of 6% by volume in agricultural segment</i></p>

Recommendatio

Combined effort of manufacturers is required for increasing awareness

Action Points

Manufacturer (Execution: Phase-I)

- Devising different marketing programs such as: Panchayat meet, Open interactions with farmers
- Starting marketing campaign highlighting high standards, effective after sales service, higher water throwing capacity, durability, low maintenance of star rating pumps

** As per the opinions of farmers & retailers, low voltage compatibility, warranty, price, high standards, after sales service, higher water o/p, durability & low maintenance are among the top attributes for pump selection.*

Recommendation-2

Issue	<ul style="list-style-type: none"> High price sensitivity of the agriculture pump market <i>* As per the farmer & dealer interviews across India, price is among the top 3 attributes for pump</i>
Influence	<ul style="list-style-type: none"> Farmers more inclined towards local made pumps considering them as a cost effective solution

Recommendation

Combined efforts of stakeholders required for educating farmers on cost aspects of pumpsets

Action Points

Manufacturer (Execution: Phase-I)

- Manufacturers can conduct sessions for training & educating dealers about low cost associated with star rating pumps in long run owing to the low maintenance, higher durability and less electricity consumption
- Manufacturers can also use print media to convey the cost effectiveness of star rating pumps with non-star rating pumps and local pumps in long run
- Manufacturers can devise a incentive/ target policy for their channel partners for star rating pump sales

Dealer (Execution: Phase-I)

- Dealers must educate and convince farmers by comparing long run cost effectiveness associated with star rating pumpsets
- Dealers can also provide examples of the existing star rating pumps customers

Government (Execution: Phase-II)

- Government authorities must enforce strict implementation of law for ISI mark on the pumpsets from manufacturers in order to eliminate the local pumpsets from the market

Recommendation-3

Issue	<ul style="list-style-type: none"> ▪ Low voltage incompatibility of star rating pumps & lack of any direct incentive/ subsidy to farmers * <i>As per the conducted interviews, low voltage compatibility is the most important pump selection attribute for demand side and third most important for supply side depicting the criticality of the issue</i>
Influence	<ul style="list-style-type: none"> ▪ Low acceptance of star rating pumps among the farmers hence manufacturers skeptical about the market success of star rating pumps ▪ Farmers less motivated for electricity saving * <i>In most of the states, farmers are paying HP based flat rates as agricultural electricity payments irrespective of the units consumed</i>

Recommendatio

Combined efforts of stakeholders required for abridging the gap between local voltage conditions and pumpset requirement

Action Points

Manufacturer & BEE (Execution: Phase-II)

- Joint efforts of BEE and manufacturers in R&D of low voltage compatible star rating pumps with broader range of operating voltage can prove to be fruitful

Government (Execution: Phase-III)

- Efforts from state government to understand and improve electricity status in agricultural regions is highly required in order to make star labelling mandatory
- * *Out of the 11 states (considering Punjab & Haryana separate), in 6 states farmers are facing low voltages*

Recommendation-4

Issue	<ul style="list-style-type: none"> ▪ Long approval time due to limited number of testing facilities with BEE which result in long pipeline for pumpset testing <p><i>* As per the manufacturers' interviews, BEE is having only 4 testing labs across India. This makes the BEE testing procedure very slow and acts as a barrier in implementation of star rating for manufacturers</i></p>
Influence	<ul style="list-style-type: none"> ▪ Increases the time-to-market of pumpsets ▪ Also causes delay in product launch and hence returns on investments made by manufacturers ▪ Manufacturers also face a concern of losing their market shares as because of this delay they are not able to compete in market with other manufacturers at right time ▪ Manufacturers are prone to loose on the competitive advantage of being an early mover in this

Recommendatio

BEE's must take initiative for fast approval in order to reduce time-to-market of star rating pumps

Action Points

BEE (Execution: Phase-II)

- Setting up more testing labs in manufacturing hubs could help the manufacturers in getting fast approval for star rating from BEE
- With fast star rating approvals, manufacturers will be able to launch their star labelled pumps faster in market and motivate non-star rated manufacturers to apply for the same

** Manufacturers expect that in coming future star rating would be mandatory and being an early mover in star rating pump market would help them to attain a significant market share then*

BIS (Execution: Phase-II)

- Star labeling in fact is a next step after BIS certification for manufacturing efficient pumps
- A special programme or common testing for dual certification i.e. ISI & star labeling may help in reducing the time and procedural complexities involved in star rating approval

** As per the manufacturers' insights, BIS certification is a pre-requisite for star rating approval which takes minimum 6to 8 months*

Recommendation-5

Issue	<ul style="list-style-type: none"> Longer turnaround time for after sales service from national/regional manufacturers as compared to unorganized manufacturer <p><i>* Other insights from farmers & retailers</i></p>
Influence	<ul style="list-style-type: none"> In many regions farmers prefer pumpsets from unorganized manufacturers because of the faster after sales service from the manufacturers <p><i>* Observation of researcher</i></p>

Recommendatio

Effective customer service & grievance handling by manufacturers & associations

Action Points

Manufacturer (Execution: Phase-I)	Association (Execution: Phase-III)	BEE (Execution: Phase-III)
<ul style="list-style-type: none"> Rapid expansion in after sales service network or deputing a number of authorized technicians in different regions may help manufacturers to cater customer service requirements more efficiently 	<ul style="list-style-type: none"> An open forum for farmers under the supervision of an association may help the farmers in flagging key issues It can also provide a platform to farmers for providing their feedback on product quality and after sales service from the manufacturers of branded pumps 	<ul style="list-style-type: none"> Association's feedback may be considered by BEE while approving the star rating certification for manufacturers BEE's interference to assure the good after-sales service is required to maintain the reputation of star-rated pumps

Recommendation-6

Issue	<ul style="list-style-type: none"> Manufacturers interested in BEE star labeling certification but not in proportionate manufacturing of star labelled pumps <p><i>* Observation of researcher</i></p>
Influence	<ul style="list-style-type: none"> After certification the production of these models are not carried on as a scheduled activity. As a result of such practice, the star rated pumps are having limited presence in market leading to low awareness of farmers about star labelled pumps

Recommendatio

Manufacturers should be given minimum production target for star rating pumps after certification

Action Points

BEE (Execution: Phase-III)

- Before successive approvals for star labeling certification of different models from manufacturers, BEE can take assurance for the proportionate production of each star rated model in manufacturer's facility

Recommendation-7

Issue	<ul style="list-style-type: none"> ▪ Limited accessibility to BEE due to its single representative office (located in Delhi) * <i>Other insights from manufacturers and association</i>
Influence	<ul style="list-style-type: none"> ▪ Manufacturers often face difficulty in reaching to BEE while seeking any guidance or clarification ▪ Associations also face limitation in order to have frequent discussion on different important aspects related to star rating pumps' implementation

Recommendatio

BEE's must increase its presence in manufacturing hubs across India

Action Points

BEE (Execution: Phase-III)

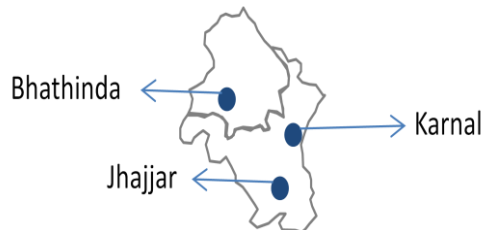
- Establishment of BEE offices in each manufacturing hub i.e. Coimbatore, Ahmedabad and Rajkot might help in increasing its accessibility among manufacturers
- This can assist manufactures and associations to work closely with BEE and have its guidance time-to-time and might enhance technical know-how of manufacturers

* *Observation of researcher*

6. APPENDIX

STATE PROFILES

6.1.1 PUNJAB & HARYANA



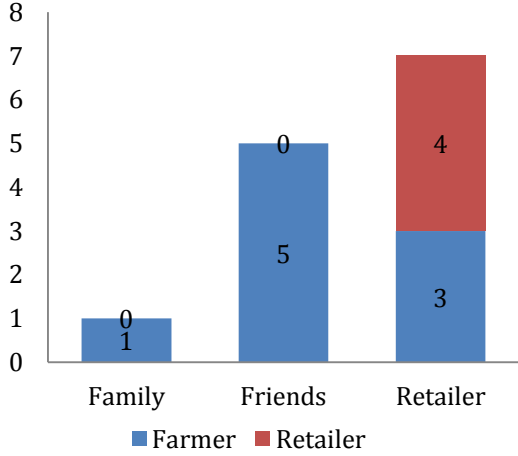

Ground water level

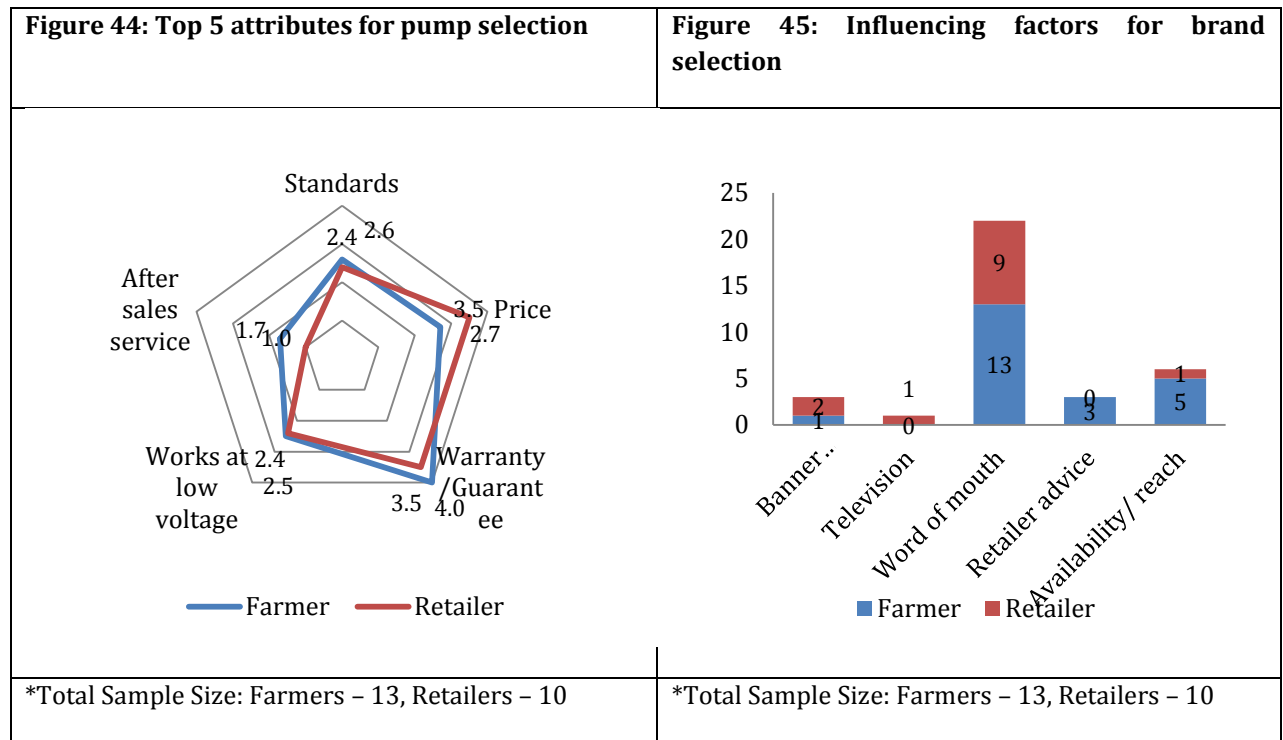
The ground water level is continuously depleting in Punjab. In spite of five rivers flowing through Punjab, ground water level is going down and water for irrigation is available at approximately 250 foot Haryana has similar ground water scenario.

Electricity scenario

Rural regions of Punjab are having good availability of electricity for nearly 6 to 8 hours per day. However, there is lot of fluctuations in voltage levels. The farmers receive free electricity in Punjab. Unlike the good availability of electricity in Punjab, the rural areas in Haryana suffer from poor availability for 3 to 4 hours per day with low voltage levels. The farmers of Haryana have to pay flat rates of electricity based on the HP of pumpsets for agriculture purposes.

KEY FINDINGS

Figure 42: Key Decision Influencers	Figure 43: Purchase point of pumps																		
 <p>A stacked bar chart with the y-axis ranging from 0 to 8. The x-axis categories are Family, Friends, and Retailer. The legend indicates blue for Farmer and red for Retailer.</p> <table border="1"> <thead> <tr> <th>Influencer</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Family</td> <td>1</td> <td>0</td> </tr> <tr> <td>Friends</td> <td>5</td> <td>0</td> </tr> <tr> <td>Retailer</td> <td>3</td> <td>4</td> </tr> </tbody> </table>	Influencer	Farmer	Retailer	Family	1	0	Friends	5	0	Retailer	3	4	 <p>A bar chart with the y-axis ranging from 5.4 to 7.2. The x-axis categories are Local retail shop in village and Big retailer/ dealer in nearby town.</p> <table border="1"> <thead> <tr> <th>Purchase Point</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Local retail shop in village</td> <td>6</td> </tr> <tr> <td>Big retailer/ dealer in nearby town</td> <td>7</td> </tr> </tbody> </table>	Purchase Point	Count	Local retail shop in village	6	Big retailer/ dealer in nearby town	7
Influencer	Farmer	Retailer																	
Family	1	0																	
Friends	5	0																	
Retailer	3	4																	
Purchase Point	Count																		
Local retail shop in village	6																		
Big retailer/ dealer in nearby town	7																		
*Total Sample Size: Farmers – 13, Retailers – 10	*Total Sample Size: Farmers – 13																		



PUMP SELECTION

Decision makers in pump selection

- Retailer advice is the most influential factor in Punjab & Haryana for pump selection as farmers seek more knowledge based recommendation from retailers
- Advices/feedbacks received from friends/fellow farmers also contribute significantly for pump selection as such inputs are based on practical experience
- Apart from their friends, few farmers consult their family members for valuable insights

Key attributes for pump selection

Demand Side:

- As a result of fluctuating voltage levels, farmers often suffer burnouts of pumpset windings which incur additional expense and disruption in operational activities. Hence, farmers give highest weight age to the warranty/guarantee of the equipment
- The second most important attribute for pump selection among farmers is the price of pumpset. Farmers have a perception that in the current scenario of electricity availability they will have to incur additional expenses on after sale repair irrespective of the quality and brand. Hence, they restrict their budget on the initial expenditure.
- Within their budget, farmers demand the highest possible standards of pumpsets
- In most of the rural regions especially in Haryana; voltage levels are often low hence, farmers prefer pumpsets with low voltage compatibility
- Farmers also consider after sales service as an important attribute for pump selection

Supply Side:

- According to retailers, warranty/guarantee of the pumpsets is the most important attribute for farmers in order to avoid the service related costs
- Price of pumpset is another significant attribute influencing the pump selection. Especially in Haryana, farmers are very conscious about the prices as they find a number of local pumpsets options with significant price difference in market
- Standards of pumpsets holds importance while selection due to the voltage fluctuations and rugged use of equipment
- As per the retailers, farmers demand low voltage compatible pumpsets as it's a major challenge in the operation of pumpsets
- The operation of pumpsets for irrigation purposes involves rugged usage of the pumpsets and hence require timely servicing of the equipment, the after sales service is considered as an important attribute for the farmers

Influencing factors for brand selection

- Word of mouth has the most significant influence on brand selection
- Availability or proximity of retailers forms second most important factor influencing the brand selection by farmers. Farmers often consider proximity to retailers as an assurance for quick response for service issues.
- Retailer's advice forms another important factor influencing the brand selection. Farmers trust the known retailers in their region and consider their feedbacks or recommendation important
- Banner advertisement holds importance for very few farmers and is often considered as a source of visibility only

Branded vs. regional pumps

In Haryana, as a result of low voltage issue faced by farmers, local pumps are more popular as compared to the branded pumps. Branded pumps are generally being preferred by big farmers. The farmers in Punjab are more aware about branded pumps as compared to Haryana. However, regional pumps still have a significant hold especially among the medium and small level farmers. Retailers are experiencing an increase in the sale of star rating pumps. Farmers generally purchase them as a result of retailers convincing ability irrespective of its true benefit.

Criterion in selecting pipe size

The pipe size typically depends on depth of ground water level, pump size and diameter of flange outlet of pump. Farmers also follow retailer's recommendations for pipe size estimation and type of pipe.

POINT – OF - PURCHASE

Purchase point of pumps

The farmers mostly prefer to purchase pumpsets from big retailers in suburban or nearby town seeking better prices especially for the branded pumps. However, few farmers also buy pumps from local retailer in nearby village often due to word of mouth publicity.

Dealer inputs in pump purchase and pump head

In most of the cases, dealer advice farmers for pump head on the basis of calculation charts provided by different manufacturing companies combined with his experience in a given region for water level conditions. The dealers also recommend specific brands based on field and electricity conditions.

Typical conversation:

The farmer approaches the dealer with few suggestions from his friends and family members and asks for dealer's feedback over them. The dealer then understands his requirement and priorities and suggests the farmer for the best possible solution within his budget. After the consensus, farmer negotiates for price with the purpose to purchase it.

Add-on accessories bought with pumps

Farmers commonly use Auto-starter as most known and common accessory. Other accessories such as Auto cut and Ampere meter are also used by few farmers.

Profit margins & incentives given to the dealers

As per the dealers, in the present scenario, the margin difference between regional brands and national brands have squeezed from around 5% to 2% only. The dealers receive a certain percentage of the total billing amount based on the total billed quantity, other than the margins, as incentive from the companies.

STAR RATING PUMPS

Importance of efficiency among farmers

In Punjab, farmers receive free electricity for agriculture and hence most of the farmers are not enthusiastic about power efficiency of the pumpsets. However, few big farmers feel the necessity of saving power in agriculture also. Similarly, in Haryana, farmers have to make flat payments towards electricity bill and give very low priority to power efficiency of pumpsets.

Key attributes which can be used for promoting efficient pumps

As per the farmers survey in the state the attributes to be associated with the efficient pumps for their promotion

- Extended warranty
- Low voltage compatibility
- High quality standards

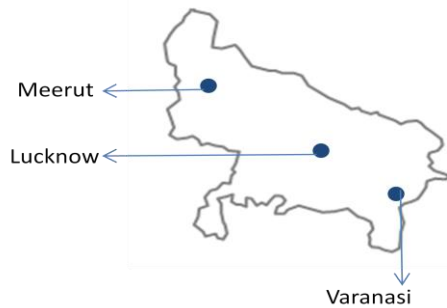
Awareness level & sales trends

- Farmers in states are unaware about the star labeled pumpset and its benefits
- The farmers look for any direct benefit such as subsidy on pumpset prices from the installation of such pumpsets
- The increasing awareness about the branded pumps and retailer's initiative to sell star labeled pumps have lead to increase in sales of these pumps

Opinion of farmer and manufacturer on making star rating mandatory

- As per the opinion of retailers, farmers are willing to buy the star rating pumps in case it is made mandatory. However, a significant price difference might discourage them from buying the star rated pump and can in turn increase the market share of pumps from unorganized market

6.1.2 UTTAR PRADESH



Ground water level

The ground water level is depleting rapidly in Uttar Pradesh. The ground water levels range from 130 ft to 240 ft. As a result, submersible pumps have gained prominence in the region.

Electricity scenario

The region suffers from poor availability of electricity and low voltage levels. Throughout the state, electricity is available for hardly 3 to 4 hours per day. This coupled with low voltages reduces the efficiency and usability of the branded and star rated pumps. The farmers have to make flat rate payment for electricity irrespective of the units consumed.

KEY FINDINGS

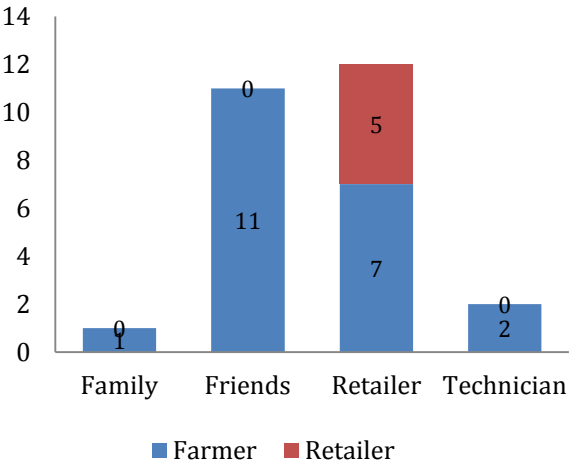

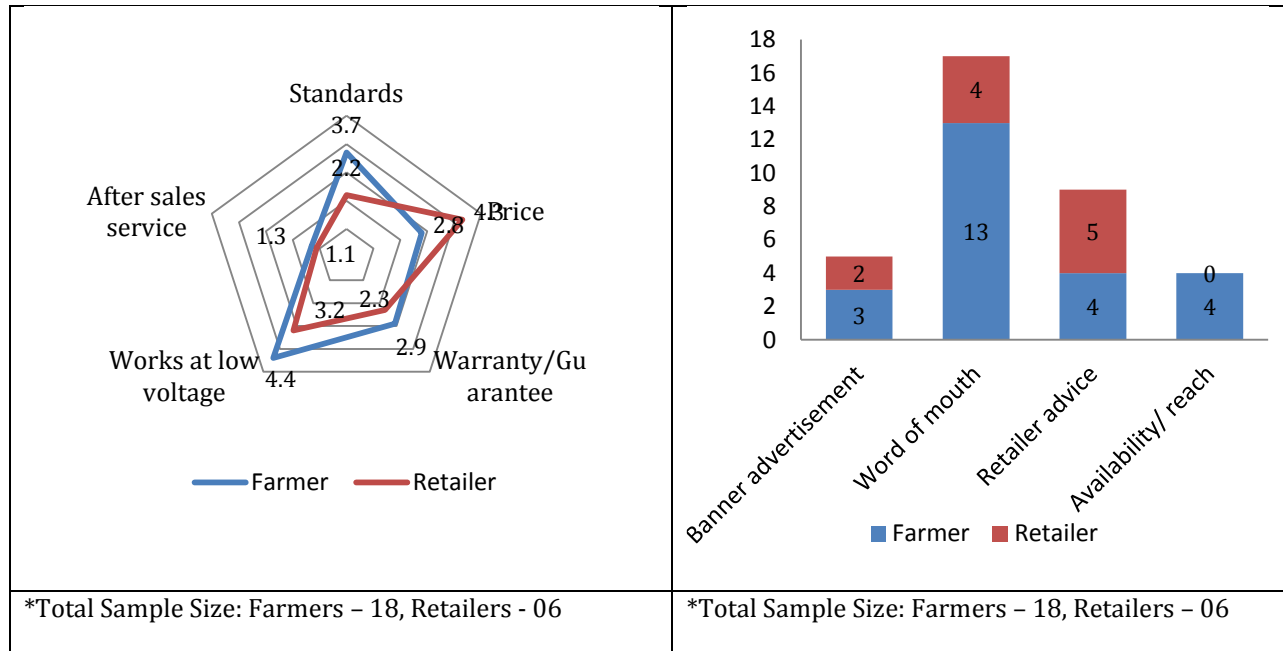
Figure 46: Key Decision Influencers	Figure 47: Purchase point of pumps
 <p>A stacked bar chart with the y-axis ranging from 0 to 14. The x-axis categories are Family, Friends, Retailer, and Technician. The legend indicates blue for Farmer and red for Retailer. The data points are: Family (Farmer: 1, Retailer: 0), Friends (Farmer: 11, Retailer: 0), Retailer (Farmer: 7, Retailer: 5), Technician (Farmer: 2, Retailer: 0).</p>	 <p>A bar chart with the y-axis ranging from 0 to 14. The x-axis categories are Local retail shop in village and Big retailer/ dealer in nearby town. The data points are: Local retail shop in village (5), Big retailer/ dealer in nearby town (13).</p>
*Total Sample Size: Farmers – 18, Retailers - 06	*Total Sample Size: Farmers – 18

Figure 48: Top 5 attributes for pump selection	Figure 49: Influencing factor for brand selection



PUMP SELECTION

Decision makers in pump selection

- The farmers consider retailers as second most important source for the feedback and suggestion about various brands
- The farmers in state mostly rely on inputs from other farmers
 - The farmer considers these feedbacks with utmost importance. Such inputs are generally based on benefits, low voltage compatibility and challenges faced by different pumpset owners
- Technician often acts as counselor to farmers explaining the implications of different technical aspects in local conditions of the village. Hence, farmers also seek his advice and often involve him in decision making

Key attributes for pump selection

Demand Side:

- Owing to low voltages of electricity in rural regions of Uttar Pradesh, compatibility of pumpsets with low voltage holds highest priority for the farmers
- Installation of pumpsets involves high labor costs. Hence, any defect in the pumpset leading to reinstallation of pumpset after its maintenance may accrue burden of extra expenditure. In order to avoid such reinstallation expenditure, farmers demand high standards of pumpsets available in their budget
- Farmers also consider the warranty/guarantee period as one of the indicator of quality assurance
- Though the farmers have limited budget however, they could extend their budget for pumpsets with better functionality such as high water throwing capability
- After sales service holds last priority as farmers generally depend more on local technician

Supply Side:

- According to retailers, price of the pumpsets is the most important attribute
- Compatibility of pumpsets with prevalent low voltage levels is another important attribute in decision making process. This factor limits the choice of farmers and restrict the varieties of brand for farmers
- Warranty/ guarantee period is associated with reliability of brand by the farmers and is perceived as a no-expenditure-period in terms of the maintenance and service related issues
- Farmers generally have the perception that pumpsets operate hassle free for warranty period and after then they have to depend on technician. Hence, good standard of pump form an essential attribute and have motivated the farmers to purchase the branded pumpsets in recent years
- After sales service holds last priority to farmers as they rely on local technician for any service issue

Influencing factors for brand selection

- Word of mouth publicity has the most significant influence on brand selection and is perceived to be based on the quality of functioning of its pumpsets among farmers
- Retailer's advice is the second most important factor influencing brand selection. These retailers are perceived to be knowledgeable about the most compatible brand in any specific location. Also, recommendation of any retailer by fellow farmer in village further adds value to his advice
- Banner advertisement is the prime tool for companies to increase visibility of their brand and also for increasing its brand recall. It motivates the farmers to inquire about the brand in the market
- Few farmers are also influenced by the proximity of a particular brand of retailers as it ensures quick service response

Branded vs. regional pumps

The farmers in Uttar Pradesh are showing increasing level of awareness for branded pumps. The middle level and big farmers now prefer the branded pumps over regional pumps. However, the small farmers are still biased towards the regional pumps primarily due to the low costs. Low voltage compatibility compels many farmers to purchase the regional pumps; but the high standards and the reliability provided with branded pumps is attracting the farmers especially the young generation.

In Uttar Pradesh, farmers prefer CRI, Texmo, Varuna and KSB among the national level brands and Hi-tech, Rama and Aroma among regional level brands.

Criterion in selecting pipe size

The pipe size typically depends on depth of ground water level, pump size and diameter of flange outlet of pump. Farmers also follow technician's recommendations for pipe size estimation as his opinion is based on practical insights.

POINT – OF - PURCHASE

Purchase point of pumps

The farmers prefer to purchase pumpsets from big retailers in suburban or nearby town as they provide large varieties and better prices. The pumpset owners in villages also recommend few retailers which are mostly located in town area owing to the good product quality and satisfactory service offered.

Dealer inputs in pump purchase and pump head

In most of the cases, dealer advises farmers for pump head on the basis of calculation charts provided by different manufacturing companies. During this, the water levels in that particular region, is an important parameter under consideration. Also, the dealers keep technician to advise the farmers for various calculations involved.

Typical conversation:

The farmer asks the retailer for some pre-determine brands and their prices. The dealer then assess farmer's selection attributes and try to convince him on his recommendation while discussing farmer's requirement, budget and the water & electricity scenario. After the selection is done further negotiation for price takes place.

Add-on accessories bought with pumps

Auto-starter is the most known and common accessory being used by the farmers in Uttar Pradesh and is available easily within a price range of INR 1800 -5000. Few farmers also use voltage stabilizers.

Profit margins & incentives given to the dealers

The retailers in different regions used to promote the regional brands in past due to higher profit margins (approximately 3% to 4%) than the branded pumpsets. However, now farmers are quite familiar with most of the brands and have increased level of awareness leading to the increasing demand for branded pumpsets.

Further, as a result of stiff competition, dealers concentrate more on customer service for retention and attracting customers. In such a scenario, higher profit margins associated with local pumpsets are becoming irrelevant. The national companies provide different cash incentives based on the sales achieved. Other incentives from national companies for motivating its dealers include domestic tours and gifts at different occasions.

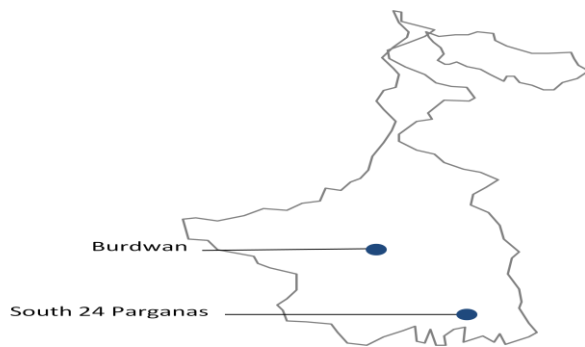
STAR RATING PUMPS

Importance of efficiency among farmers

Since in Uttar Pradesh, the farmers have to make flat payments for electricity bill irrespective of the units consumed, there is no direct motivation for saving electricity. Very few farmers among the middle level and big farmers consider it a personal motive to save electricity for nation.

Key attributes which can be used for promoting efficient pumps

As per the farmers surveyed the key attributes to be associated with the efficient pumps are



- Low voltage compatibility
- High water throwing capacity
- Less heat dispensing ability
- High quality standards
- Extended warranty

Awareness level & sales trends

- Very limited number of farmers in state are aware about the star labeled pumps
- Since farmers in the state have to pay a flat

amount irrespective of the units consumed hence, they are not motivated to pay extra amount for purchase of star labeled pumpsets

- Lack of any direct benefit to the farmers associated with the installation of the star labeled pumpsets is the major restraint for its acceptance among farmers
- Personal initiative in electricity saving and expected longevity of such pumps due to less heat dispense are the drivers among limited number of farmers for its acceptance
- Sales of the star rating pumps have increased over the period. However, this is not because of power saving features rather due to the dealer's recommendation and association of high quality with star rating by the farmers

Opinion of farmer and manufacturer on making star rating mandatory

- As per the opinion of retailers, big farmers might be widely accepting the star rating pumps
- Since middle level farmers now prefer branded pumpsets, they might accept these star labeled pumps as would not be left with other options in branded pumpsets
- Small farmers might be resistive and prefer regional pumpsets in case of any significant price difference
- The retailers feel that if star rating is made mandatory, the national manufacturers have to face stiff competition from regional pump market. The manufacturers might have to also squeeze their profit margins

6.1.3 WEST BENGAL

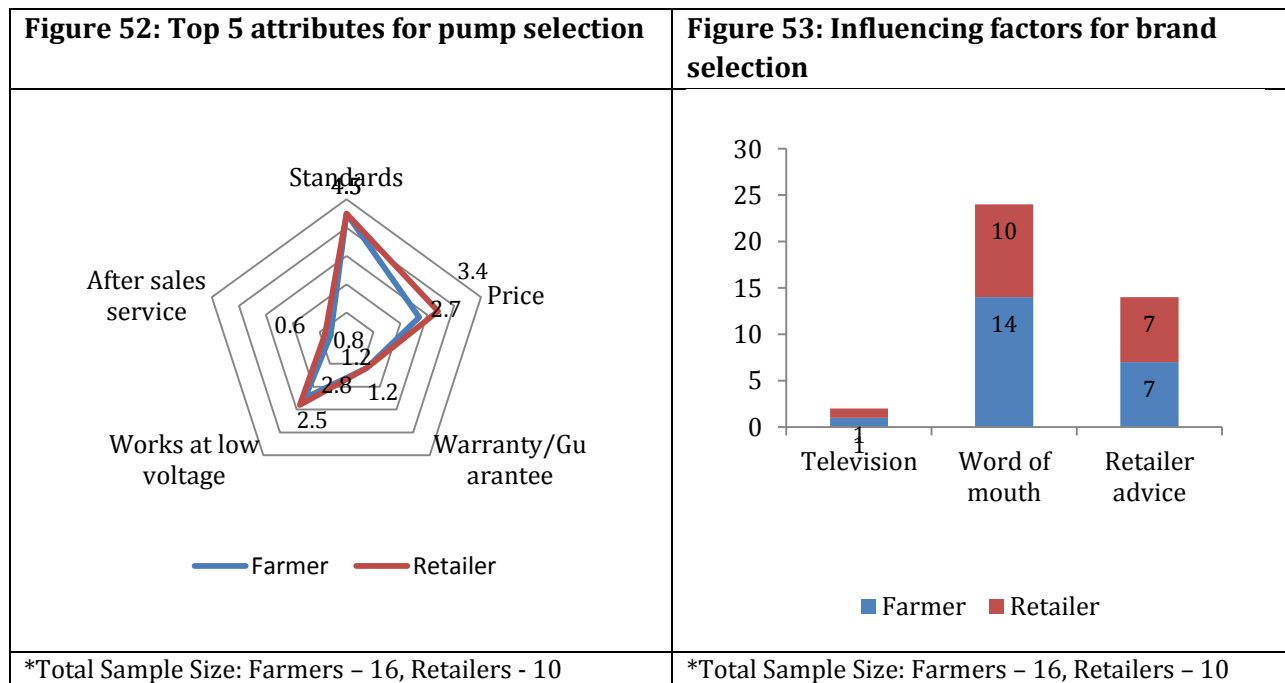
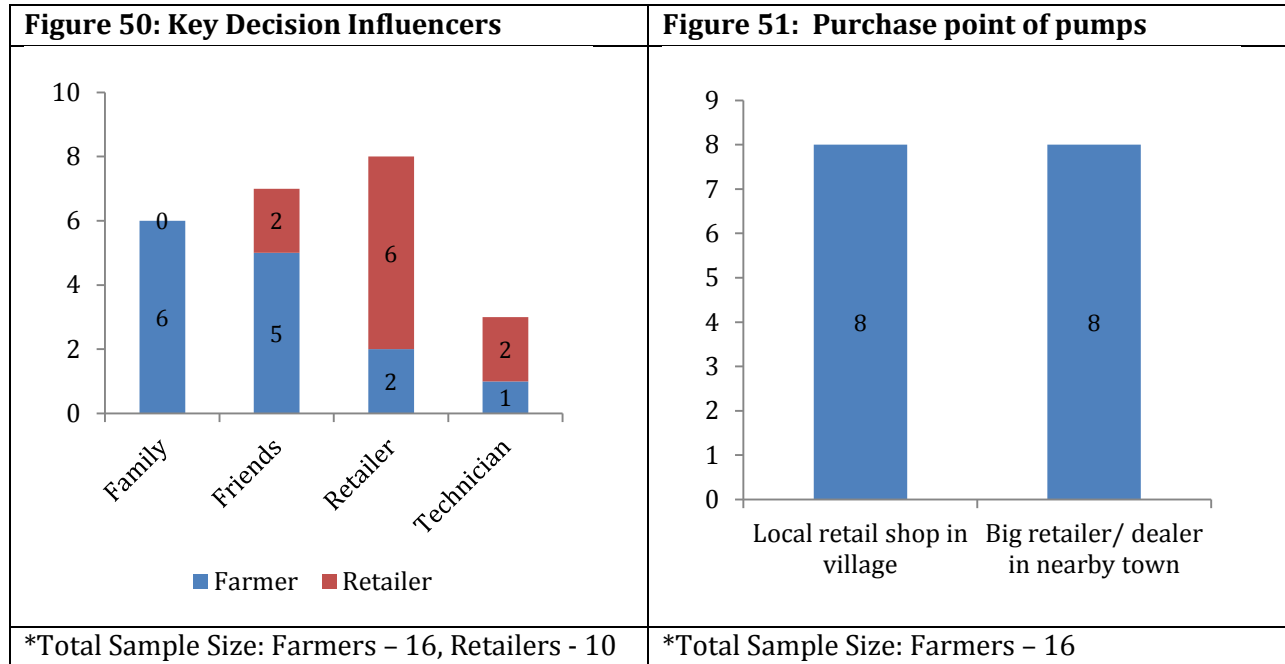
Ground water level

Ground water ranges throughout the state. Water is available at 250-450 ft in Burdwan district whereas it is at 600-750 feet in South 24 Parganas. Earlier, monoblock pumps were used, but with water level is going down over the years, the preference has now shifted to submersible pumps; mostly submersible pumps are being used now.

Electricity scenario

In most of the areas, electricity is still not available. However, in the places, where electricity is available, the average availability of electricity to farmers is excellent with 10-12 hours of power with sufficient voltage required for submersible pumps.

KEY FINDINGS



PUMP SELECTION

Decision makers in Pump selection

- Farmers rely heavily on suggestions provided by friends and family members. Farmers consider them as reliable sources for valuable inputs which are based on the practical functioning of the pumpsets
- Retailers also play a crucial role in providing advice to farmers in terms of brands and model. They suggest brands on the basis of the farmer's budget and area of cultivation
- In some case local plumbers / technician too guide farmers on the brand to purchase as the awareness of farmers about the technical aspects is very limited

Key attributes in Pump selection

Demand Side:

- Farmers consider standard as the topmost attribute while choosing their pumps since farmers feel that a good quality pump would last longer and would provide hassle free functioning along with high efficiency
- Price is next on the priority list of farmers and they look for a quality pump which is value for money
- Due to fluctuating voltage, ability of pumps to work at low voltages is also an important factor
- Other attributes like prior experience, warranty and after sales services are also some of the attributes that farmers look into while selecting the pumps

Supply Side:

- Based on the retailer's feedback standard/quality is the topmost parameter for the selection of pumps by farmers
- In these regions markets are highly price sensitive & farmers prefer low cost equipments owing to their limited budget
- Selection of brands is also area specific. The brands which are more popular in a specific area are preferred by the new buyers as well. Farmers generally take advice from the existing users in the same locality before taking decisions to select a pump
- Ability of the pump to work at low voltage is also a very important factor. Frequent voltage fluctuations shortens the pumps life; thus farmers enquire about the pumps efficiency at different voltages before purchase

Influencing factors for brand selection

- Word of mouth is a major influencing factor while making brand selection. Generally it has been observed that a brand which has gained faith of a few farmers in a particular village becomes the most trusted brand in that area
- Retailer advice is the next key influencing factor for farmers, since they are considered as experts in the domain of pumps and thus believe in what they say or the brand they push for sales

Branded vs. local pumps

Local & Chinese pumps have greater market share than the branded pumps as a result of their low prices. The Chinese pumps are also very fuel efficient which is again beneficial for the farmers. The existing users of Chinese pumps are recommending these products to new buyers.

Also, the profit margins in case of Chinese & local pumps are relatively higher as compared to branded ones. So, even the retailers generally push these products to the farmers.

In West Bengal there is a strong hold of Chinese brands such as Tricycle and CD. Mahendra, Texmo, KSB, CRI, Crompton and Varuna are most popular names among the national brands and Villiers, Kalama and Atul Shakti among the regional brands.

Criteria in selecting pipe size

- The pipe size depends on the flange outlet of the pump. Sometimes farmers opt for expander and reducer, which can adjust the diameter of the pipe.
- The type of pump and area of land are also the key factors for selecting pipe size.
- For the submersible pumps, mostly 6" suction pipe and 4" delivery pipes are used. Based on the area of land, type of crops and capacity of the pumps, 5" suction pipe and 3" delivery pipes are also used.
- For monoblock pumps, generally 3" suction pipe and 3" delivery pipes are used

POINT – OF – PURCHASE

Purchase Points of Pumps

- Farmers generally purchase pumpsets from nearby smaller towns since in villages there are no retailers. Purchasing pumps from them provides a better deal and greater discount
- Along with a variety of brands, dealers in town provide greater reliability & good after sales services

Dealer Inputs in Decision Making

- In majority of cases, farmers ask for opinion of dealers on pump head, uplifting etc.
- Dealers proactively participate in discussion pertaining to the brand selection, even with the farmers with pre-determined mindsets, in order to earn goodwill among farmers
- Dealers suggest and persuade the farmers for best deals so that farmer may have flawless functioning of the pumpsets. Such honest suggestions from dealers increases customer satisfaction which in turn pave grounds for future business

Typical conversation:

The farmer shares his requirement, budget along with the area of cultivation/land for irrigation and then the dealer based on his experience along-with his understanding of the topography suggests him the brands & models that would fit his budget. The farmer then takes a decision on the final purchase based on his purchasing power, area of land, brand of pump, uplifting capacity of the pump, retailer/dealer suggestion.

Add-on accessories

The Auto-starter is the most known and common accessory being used by the farmers in West Bengal and is usually available in the market within the price range of INR 1200-2200.

Profit margins & incentives given to the dealers

- The profit margins for the retailers vary based on the types of brands and price of brands
- The average profit margin ranges between 4%-7%
- The profit margins are higher for the local brands or Chinese pumps than the national brands. To sell the national brands, the dealers or retailers have to give the discounts to the farmers and it leads to lower profit margins, though the variance is not too high
- Very few manufacturers provide incentives to the dealers or retailers and it depends upon the bulk sales and also upon dealer-retailer relationship. Discounts are also sometimes offered to them. Seasonal incentives, prizes, tours and parties are also arranged for them.

STAR RATING PUMPS

Importance of efficiency of pump as a Factor

Most of the farmers consider that efficiency of pumps is very important factor. The farmers consider that reduction of electricity bills will help their cause & will result in higher profitability.

Key Attributes for Promotion of Efficient Pumps

Based on their feedback, the most important attributes to be associated with the efficient pumps for their promotion are

- Capability to work at low voltage
- High water throwing capacity
- Energy saving characteristics and
- Ability to work for a long duration

Awareness level/sales trend

- The opinion of retailers about the awareness level of star labeled pumps varies across the districts.
- In some regions such as Burdwan, the retailers are not much aware about star rated pumps
 - In other regions like South 24 Paraganas star labeled pumps have been recently introduced. In these regions, retailers also are showing interest in selling such pumps and are experiencing an increase in acceptance level among farmers as a cost effective solution in long run

Opinion on Making Star Rating Mandatory

Retailers expressed that if it becomes mandatory, farmers will be interested in purchasing such pumps. At the same time, they are not very much sure about the sustainability of the high value products in such a highly competitive and price-sensitive market. Since awareness level among the farmers are very low, substantially higher prices of star rated pumps, will shift the consumers towards Chinese and local pumps.

Though most of the farmers are not aware of such products but expressed their interest in star labeled pumps. If this can be a cost-effective option for them, they will be interested to purchase star-rated pumps. The general opinion of farmers is that, before making it mandatory, a proper demonstration should be provided. Since, most of the farmers rely on other’s experience and feedback; they first want to ensure its efficiency before purchasing.

6.1.4 MADHYA PRADESH

Ground water level

Ground water availability in the state is approximately at 100 to 300 feet. Irrigation by submersible pumps has gained importance due to continuous decrease in ground water level and phase out monoblock pumps. Though Narsinghpur region has canals, it is not yet fully operational leading to the usage of submersible pumps. Farmers usually irrigate one crop in rain water during monsoons. Average rainfall is 1017 mm.

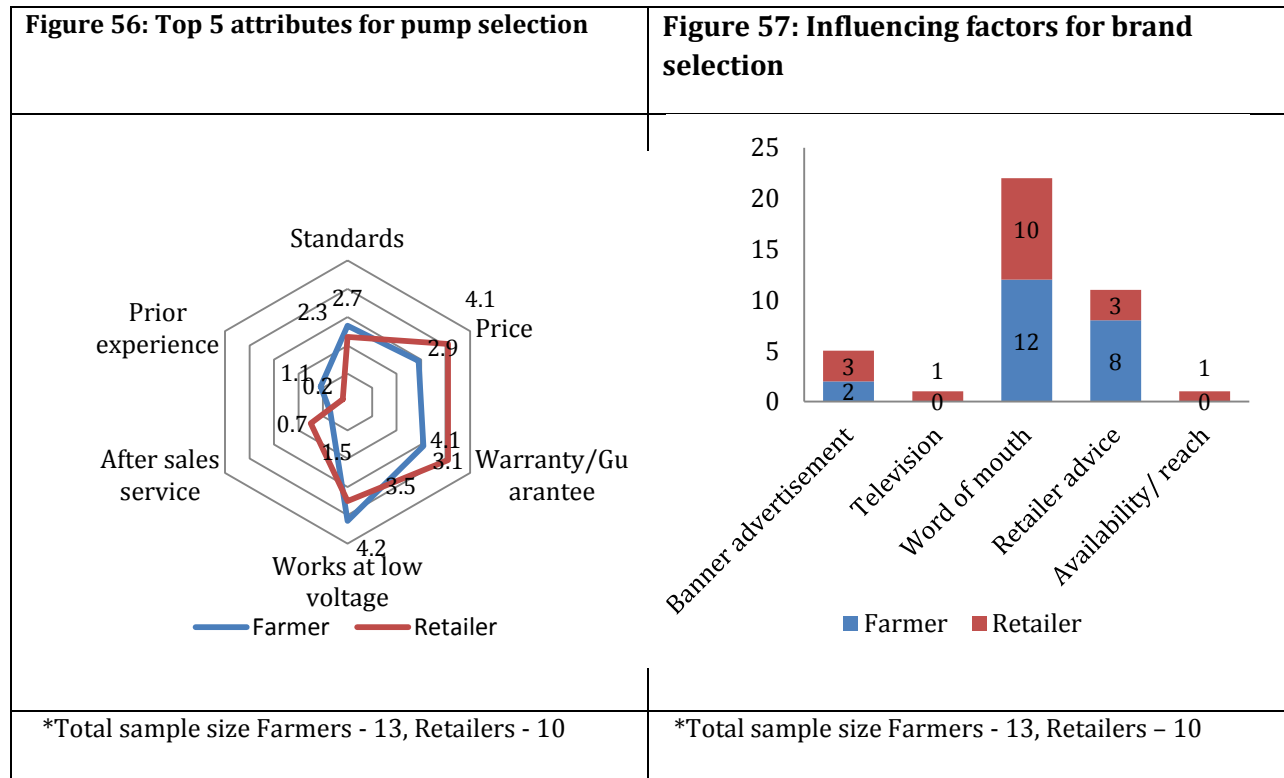


Electricity scenario

The average electricity available to farmers is 6 to 8 hours per day with low voltage. Electricity is available at subsidized rate to farmers. Metered connections limited in numbers. Farmers are billed according to the HP rating of the pumps.

KEY FINDINGS

Figure 54: Key Decision Influencers	Figure 55: Purchase point of pumps																					
<table border="1"> <caption>Data for Figure 54: Key Decision Influencers</caption> <thead> <tr> <th>Influencer</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Family</td> <td>0</td> <td>1</td> </tr> <tr> <td>Friends</td> <td>6</td> <td>5</td> </tr> <tr> <td>Retailer</td> <td>5</td> <td>6</td> </tr> <tr> <td>Technician</td> <td>5</td> <td>0</td> </tr> </tbody> </table>	Influencer	Farmer	Retailer	Family	0	1	Friends	6	5	Retailer	5	6	Technician	5	0	<table border="1"> <caption>Data for Figure 55: Purchase point of pumps</caption> <thead> <tr> <th>Purchase Point</th> <th>Farmer</th> </tr> </thead> <tbody> <tr> <td>Local Retail shop in village</td> <td>1</td> </tr> <tr> <td>Big retailer/dealer in nearby town</td> <td>12</td> </tr> </tbody> </table>	Purchase Point	Farmer	Local Retail shop in village	1	Big retailer/dealer in nearby town	12
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*Total sample size Farmers - 13, Retailers - 10	*Total sample size Farmers – 13																					



PUMP SELECTION

Decision makers in Pump selection

- Farmers primarily consult their friends who guide them with their own experience with a particular brand of pump
- Retailers act as another key source of information and guide the farmers according to their own experience and the manufacturer's technical brochure
- Local technicians are the first point of contact for farmers at the time of pump installation and provide technical on-ground knowledge

Key attributes for Pump selection

Demand Side:

- The ability of the pump to work at low voltages is the top attribute for farmers for pump selection
- Farmers consider warranty as an important criterion in pump selection as they purchase pump on the basis of brand and retailers' commitment of warranty for a particular period
- Since electricity supply is low, farmers also consider water output of a pump so that pumps give higher output of water in limited time

Supply Side:

- Budget constraints of farmers make price an important factor and sometimes retailers also provide credit facility
- Low voltage compatibility is important attribute due to low voltage availability in the region
- Warranty and after sales service is an important attribute in pump selection as farmers purchase pump from a retailer who assures good after sale service
- In last 2 to 3 years farmers have become more conscious about quality of pumps as it leads to lower breakdown of motors (windings are burnt lesser number of times)

Influencing factors for brand selection

- Word of mouth is the top influencing factor in brand selection due to the following reasons
 - Farmers consult their neighboring farmer to get performance review on his brand and also consult with his friends in the village
 - Farmers develop a trust factor on particular brand because to its performance i.e. pumps work on low voltage and higher water output in a geographical area or village
- Retailers also influence farmer decision in brand selection because farmers trust retailers, and they provide solution within farmer's budget
- Pump manufacturer's promote their products to farmers by following modes
 - Circulating company van in villages
 - Live demonstration to farmers
 - Banners

Branded vs. Regional pumps

Branded pumps are more popular and farmers are now accepting more branded pumps due to quality awareness and less maintenance cost of branded pumps. Branded pumps have gained the trust of farmers for better performance. Texmo, CRI and Kirloskar are top three brands prevalent in this state. However regional pumps still have its market mainly in regions where voltage supply is low and additionally they are cheap in comparison to the branded ones. Local companies like Dhanush, Akash, Jal Ganga and Classic are prevalent in this state.

Criterion in selecting pipe size

Most of the farmers consider diameter of flange outlet of pump in selecting pipe size. Maximum farmers are using 7 inch casing pipe. It allows easy removal and installation of motors for repair. Cost is also a factor in pipe selection as cost increases when farmer decides to use larger pipe. Some farmers also have the notion that larger the pipe size more is the water output.

POINT - OF - PURCHASE

Purchase point of pumps

Most of the farmers purchase pumps from nearby cities. There are several factors for this:

- Cities have a wide variety of pumps
- Presence of multiple retailers in the cities offers competitive pricing and better product quality
- Purchasing the pump from cities also acts as a status factor for farmers
- Very limited number of farmers purchase pump from local shop in village

Dealer inputs in pump purchase and pump head

In most cases, dealers give inputs to farmers based on ground water level found in farmers land after boring, area under irrigation and manufacturer's technical brochure. Dealer also uses his prior experience to provide suggestion on pumps head to farmers.

Add-on accessories bought with pumps

Auto starter is the most common accessory purchased with pumps. A branded auto starter is available in the range of INR 2000-3000, whereas a local made is in range of INR 1000-1600.

Profit margins & incentives given to the dealers

Profit margins from branded players are 5 to 10%. Profit margins from local players are 10 to 15%. Branded and regional manufacturers provide additional discounts to dealers if they sell more pumps in a quarter. Some branded manufacturers provide tours to dealers on completion of target in a year.

STAR RATING PUMPS

Importance of efficiency among farmers

Importance of efficiency is low for farmers because of limited supply of electricity to villages. As such, their focus area is not efficiency and they want higher water output to irrigate the land. Maximum farmers have temporary connection in which electricity bill is fixed according to pump HP so they are not concerned about efficiency.

Key attributes which can be used for promoting efficient pumps

Top attribute to promote efficient pumps are ability to work on low voltage and high water output so that more sprinklers can be used. Farmers also complaint about burning of motor winding due to voltage fluctuation so this need gap should also be fulfilled by efficient pumps.

Awareness level & sales trends

Awareness in farmers is very low due to less understanding of Star rating and its benefits. Usually farmers only understand ISI marking and Star rating is a new concept to them.

Sale of star rated pumps in Madhya Pradesh is low at approximately 2% to 5% due to low awareness. The only sales which take place is by retailers convincing the farmers about efficiency of pumps and lower electricity bills.

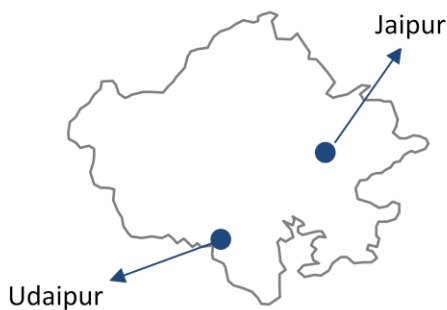
Opinion of farmer and manufacturer on making star rating mandatory

- Most of the farmers are in favor of making star rating mandatory if less electricity is consumed by star rated pumps and their bill is less. However given a choice farmers are not much interested in star rating
- Star rating should be explained to farmers with the help of demonstration in their villages. Cost should be less for star rated pumps so that farmers can try these pumps
- According to manufacturer's price of these pumps will be higher but since star rating is certified by government farmers can trust these pumps in efficiency. Most of the branded companies like

CRI, Texmo and Kirloskar are selling both star and non star rated pumps to compete with local bands in pricing

- Branded manufacturers think star rating is good for efficiency improvement in pumps
- As per the opinion of a retailer, branded companies look for margins only and are not much concerned about efficiency and star rating. They only launch star rated pumps due to competition
- Shakti motors, a branded player in the pump market is doing promotion in villages these days claiming that they have developed a pump that can work on low voltage

6.1.5 RAJASTHAN



Ground water level

The ground water availability in Rajasthan is low and is in the range of 300 to 400 feet. Irrigation is mostly done by submersible pumps except few places like Udaipur where monoblock are still in use due to good ground water availability. Due to depleting ground water government has declared few zones in the state as dark zones where government permission is required for new boring and submersible pump installation. Average rainfall is 650 mm (southeastern part).

Electricity scenario

The average electricity available to farmers is 6 hours with moderate to good voltage. Government gives subsidy on electricity to farmers on installation of star rated pumps i.e. INR 750 per HP

KEY FINDINGS

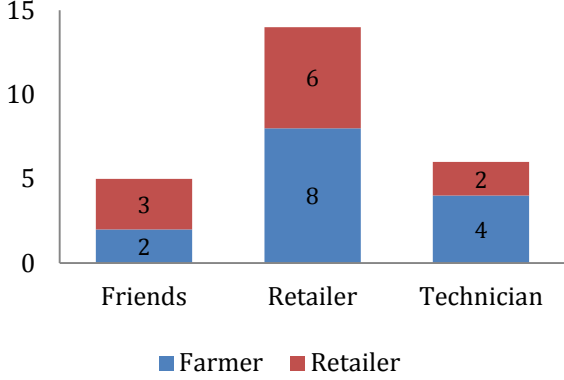

Figure 58: Key Decision Influencers	Figure 59: Purchase point of pumps																		
 <p>A stacked bar chart showing the number of farmers (blue) and retailers (red) who cited different influencers. The y-axis ranges from 0 to 15. The x-axis categories are Friends, Retailer, and Technician.</p> <table border="1"> <thead> <tr> <th>Influencer</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Friends</td> <td>2</td> <td>3</td> </tr> <tr> <td>Retailer</td> <td>8</td> <td>6</td> </tr> <tr> <td>Technician</td> <td>4</td> <td>2</td> </tr> </tbody> </table>	Influencer	Farmer	Retailer	Friends	2	3	Retailer	8	6	Technician	4	2	 <p>A bar chart showing the number of farmers who purchased pumps from different sources. The y-axis ranges from 0 to 14. The x-axis categories are Local Retail shop in village and Big retailer/ dealer in nearby town.</p> <table border="1"> <thead> <tr> <th>Purchase Point</th> <th>Farmer Count</th> </tr> </thead> <tbody> <tr> <td>Local Retail shop in village</td> <td>1</td> </tr> <tr> <td>Big retailer/ dealer in nearby town</td> <td>13</td> </tr> </tbody> </table>	Purchase Point	Farmer Count	Local Retail shop in village	1	Big retailer/ dealer in nearby town	13
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Figure 60: Top 5 attributes for pump selection	Figure 61: Influencing factor for brand selection																																	
<table border="1"> <caption>Data for Figure 60: Top 5 attributes for pump selection</caption> <thead> <tr> <th>Attribute</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Standards</td> <td>2.6</td> <td>2.0</td> </tr> <tr> <td>Price</td> <td>2.3</td> <td>4.3</td> </tr> <tr> <td>Warranty/Guarantee</td> <td>4.2</td> <td>1.4</td> </tr> <tr> <td>Works at low voltage</td> <td>1.2</td> <td>1.6</td> </tr> <tr> <td>Durability</td> <td>1.5</td> <td>0.8</td> </tr> </tbody> </table>	Attribute	Farmer	Retailer	Standards	2.6	2.0	Price	2.3	4.3	Warranty/Guarantee	4.2	1.4	Works at low voltage	1.2	1.6	Durability	1.5	0.8	<table border="1"> <caption>Data for Figure 61: Influencing factor for brand selection</caption> <thead> <tr> <th>Influencing Factor</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Television</td> <td>0</td> <td>1</td> </tr> <tr> <td>Word of mouth</td> <td>12</td> <td>9</td> </tr> <tr> <td>Retailer advice</td> <td>5</td> <td>3</td> </tr> <tr> <td>Availability/reach</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Influencing Factor	Farmer	Retailer	Television	0	1	Word of mouth	12	9	Retailer advice	5	3	Availability/reach	1	0
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PUMP SELECTION

Decision makers in Pump selection

- Retailers play an important role in pump selection as they first ask from farmer few details like ground water availability, area to be covered under irrigation and budget of farmer. Based on the above data and their own experience they suggest a particular pump to farmer
- Farmer also seek advice from local technician and is considered to have high reliability

Main attributes in Pump selection

Demand Side:

- Warranty which generally includes replacement and free repair of burnt motor up to 3 times in a year, depending upon company policy, is the top attribute farmers considers in pump selection
- Price is an important factor in pump selection given the budget constraints of farmers. Farmer usually takes quotation from many retailers before finalizing a pump
- Standard is also an important factor in pump selection as maintenance cost is less in good quality pumps
- The ability of pump to work at low voltage is also a important attribute in some villages where voltage supply is moderate to low

Supply Side:

- As per retailer's opinion, price is the most important factor in choosing a pump brand due to budget constraints of farmers
- Farmers are now more conscious about warranty and after sales service. Few companies like Texmo has utilized this opportunity to gain market share by providing 2 year warranty to farmers
- Farmers these days demand for a pump with higher water output

Influencing factors for brand selection

- Word of mouth is the top influencing factor in brand selection
- Retailers also influence farmer decision in brand selection as farmer thinks retailer is a expert in this field and will provide best solution according to farmer needs and budget
- Farmer consults and visit neighboring farmers to gauge the performance of pumps used by them. Farmers develop a trust factor on particular brand because of prior experience and some performance parameters i.e. higher water output and less maintenance cost. In turn they promote that brand among other farmers
- Higher water output is also an important factor because ground water availability is low in Rajasthan
- Availability of a brand in nearby town is also a factor in pump selection as farmers usually purchase pump from nearby town

Branded Vs Regional Pumps

Both branded and regional pumps are prevalent in Rajasthan. However the usage of branded pumps has increased in last 2-3 years due to good quality, awareness and trust for a brand. Texmo, CRI and Varuna are top three brands used. Regional pumps are used mainly because they are cheaper. Farmers think regional pump will come in half the price as compare to branded pump and will work for 4-5 years. Local brands like Chetan and Ambuja are used.

Criterion in selecting pipe size

Most of the farmers consider diameter of flange outlet of pump in selecting pipe size. Most farmers are using 8 inch casing pipe these days as they think more water is available by 8 inch pipe and in near future more horsepower motor can be fitted when water level goes down.

POINT -OF - PURCHASE

Purchase point of pumps

Maximum farmers purchase pumps from nearby cities because of wide variety of pumps and availability of retailers. In cities farmers get an opportunity to purchase pump according to his budget. Very few farmers purchase pump from local shop in village.

Dealer inputs in pump purchase and pump head

Dealers are important source of information to farmers; in the rest farmer comes pre-decided. Dealer inputs are based on ground water level and manufacturer's technical brochure.

Typical conversation:

The dealer asks farmer's requirement, ground water level, electricity connection type and budget from farmer. After analyzing these factors dealer then provide best solution and brand from his side. Farmer asks for quotation to get the cost of pump and the accessories. The farmer then selects from the offered options based on his mind set, budget and dealer assurance.

Add-on accessories bought with pumps

- Auto starter is the most common accessory purchased with pumps and is available within a price range of 2500 to 4000

Profit margins & incentives given to the dealers

Profit margin difference between branded and local player is not significant. Dealers usually keep one brand as a prominent selling proposition. Branded and local manufacturers provide additional discounts to dealers based on sales slabs and sometimes branded players provide international tour packages on completion of highest sales target.

STAR RATING PUMPS

Importance of efficiency among farmers

Importance of efficiency in pumps is moderate to low in farmers as electricity supply is limited and they want pump to have high water output. Moreover electricity bills are fixed and are based on pump HP. In some areas where electricity supply is good with permanent meter connection only those farmers think of efficiency and saving on electricity bills.

Key attributes which can be used for promoting efficient pumps

Top attribute to promote efficient pumps are high water output. Burning of motor should be less due to voltage fluctuation.

Awareness level & sales trends

- Awareness about star rated pumps in farmers is very low due to very limited understanding of Star rating and its benefits. Very few star rated pumps are installed in villages so word of mouth publicity is also low
- Farmers having temporary connection in which electricity bill is fixed has not shown any interest in using star rated pumps
- Some farmers think that in star rated pumps less electricity is consumed so issue of motor burnout would be less. Others are of the opinion that star labeled pumps will give accurate reading at the time of electricity load checking as old pump gives more reading and farmer has to face penalty

Sales trends

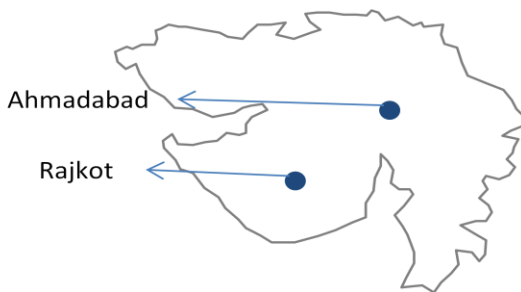
- Earlier Rajasthan government had made a rule that new connection will only be supplied with star rated pumps which had resulted in good sale of star rated pump. But after removal of that rule in few months, the sales have decreased. As of now it accounts for only 4 to 5% in the branded market segment due to low awareness

- Some farmers would like to try star rated pumps due to government subsidy and electricity savings. According to retailers, all models are not star rated in single and triple phase so they have to sell non star rated pumps to farmers

Opinion of farmer and manufacturer on making star rating mandatory

- Most of the farmers are in favor of making star rating mandatory as it will help them in identifying the right pump to save electricity. However they want star rating should be explained and pumps should be demonstrated to them before making it mandatory
- According to a retailer, many manufacturers have two to three pumps at par with star ratings norms and specifications. They present these pumps to the government engineers who visit for quality check and thus obtain star rating for the brand, even though all pumps do not meet the standards of star rating. Star rating norms should be stringent to ensure best quality

6.1.6 GUJARAT



Ground Water Scenario

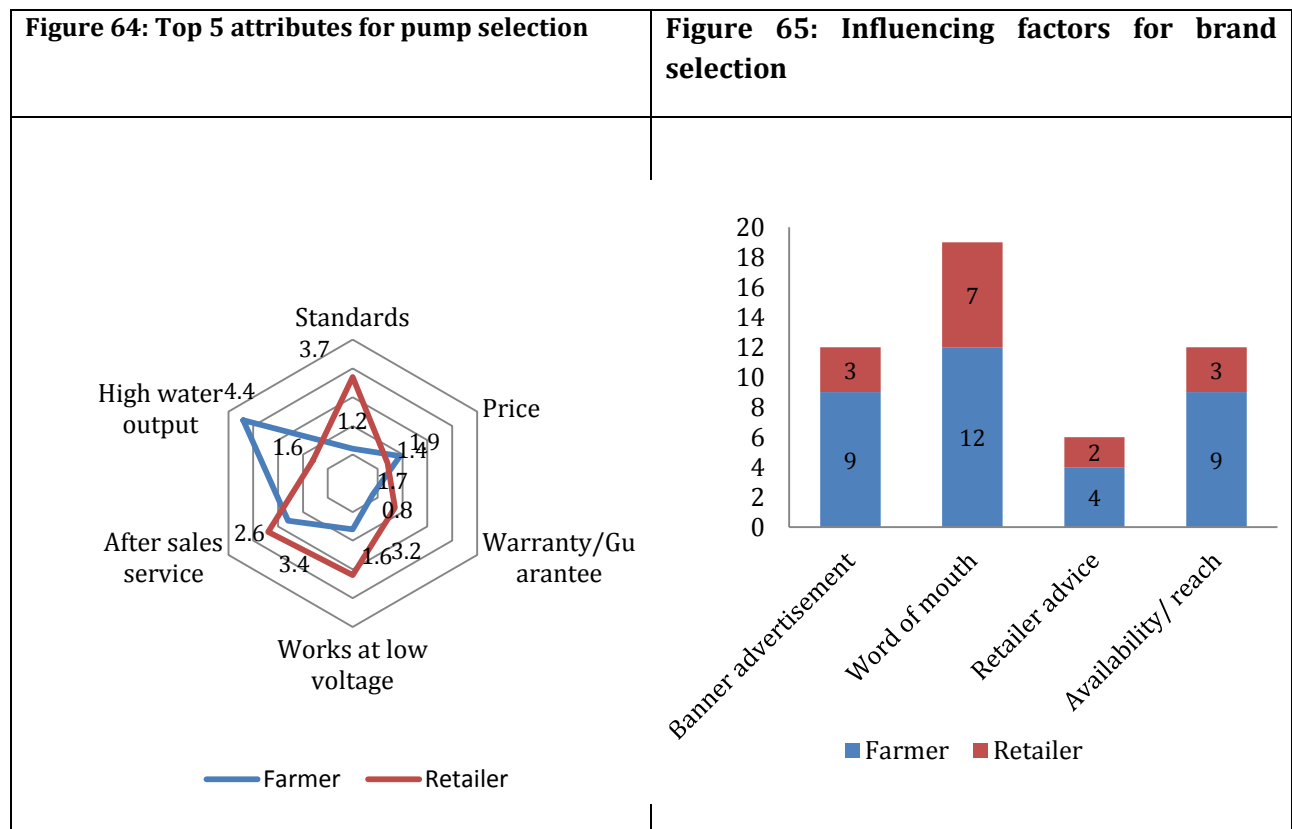
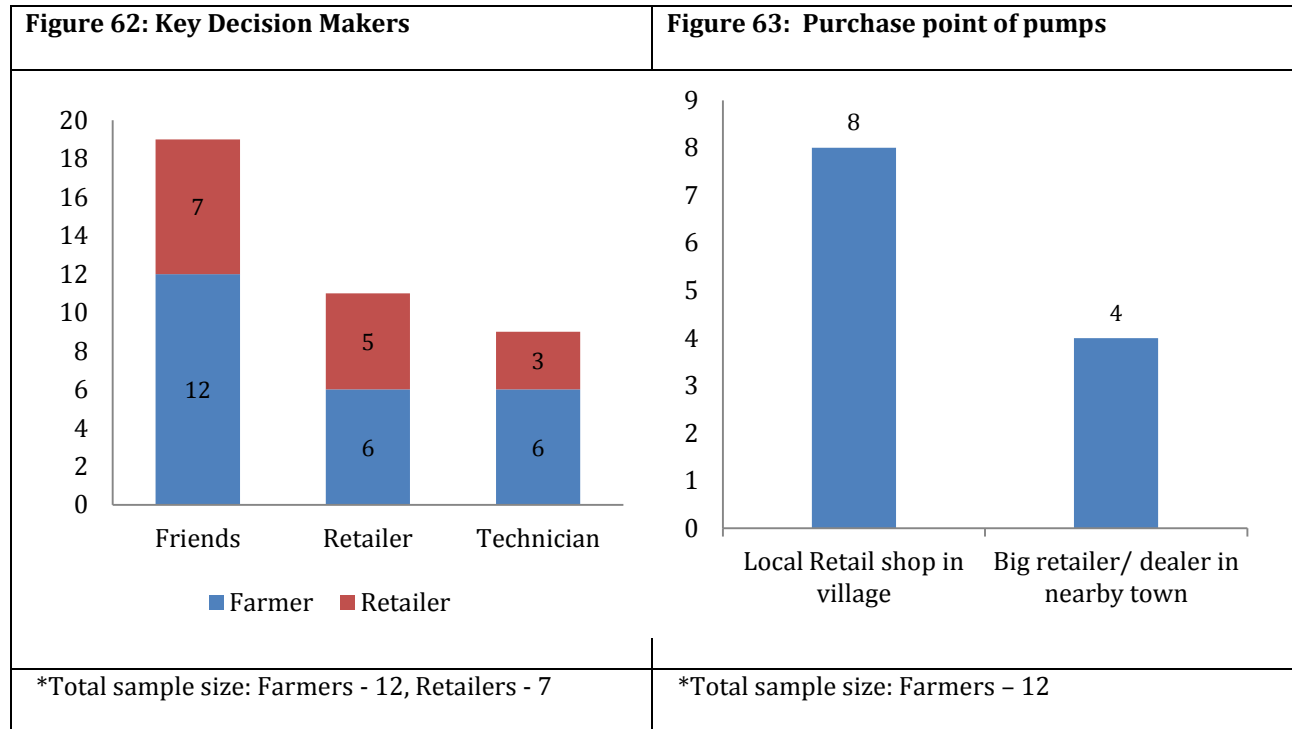
Ground water level is depleting fast in Gujarat and at present it ranges from 500 ft to 700 ft. As a result, submersible pumps have gained prominence in most of the regions in state. Gujarat mainland region receives an average annual rainfall of 800 to 2000 mm, while Saurashtra has an average annual rainfall

of 400 to 800 mm.

Electricity Scenario

The average electricity availability for agriculture is 7 to 8 hours per day with 300 to 400 volts. Permanent connections are provided with meters however billing is on an average basis depending upon pump horsepower. It is difficult to get a new electricity connection for agriculture purpose and farmers have to wait for around 3 to 5 years.

KEY FINDINGS



*Total sample size: Farmers - 12, Retailers - 7	*Total sample size: Farmers - 12, Retailers - 7
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PUMP SELECTION

Decision makers in Pump selection

- Most of the farmers rely on opinion of neighboring farmers and friends as their guidance and feedback is based on their own experience with pumpsets
- Retailer advices and suggestions are considered to have high influence on farmer's decision. Retailers brief them about a variety of brands and benefits associated with them. Retailers help the farmers in choosing right pump head and they also provide assurance for good after sales service support to the farmers
- Suggestions from technician in local regions are also considered to have high importance among farmers. These suggestions are based on his day-to-day experience. They also have better understanding of farmer's profile, their exact requirement and budget. Hence, farmers rely on these technicians as a key source of information

Key attributes for Pump selection

Demand Side:

- Ability of a pumpset to give higher water output holds the top priority for pump selection
- Good after sales support is considered as an important attribute as pump repairing is required almost every year due to sandy and salty water
- Price is another important factor in pump selection owing to the limited budget of farmers and requirement of high horsepower pumpset. As a result of deep ground water level i.e. 500ft – 600ft farmers have to install expensive high horse power pumps in order good water output. Hence, for these farmers price of the pumpsets holds high importance while pump selection
 - Farmers in central Gujarat region usually use high horsepower submersible pump i.e. 40 HP to 60 HP however in other regions, farmers manage their irrigation requirements with 15 HP pumpsets only due to budget constraints
- Farmers prefer to get change of name plate (higher HP motor installed in lower HP label) as they have to pay electricity bill according to pump horsepower. Hence, in order to have more water output at lesser electricity cost, farmers prefer this attribute
- The farmers are also conscious about standards of pumpsets and want the best quality within their budget limit
- Compatibility of high horsepower pumpset with medium voltage supply is also desired by farmers

Supply Side:

- According to retailers, high water output is the top attribute in pump selection due to depleting ground water level in Gujarat

- Price is also an important factor in pump selection as the pump installation requires heavy investment. Also, the availability of local pumps at roughly half the price as compared to branded pumps further makes the farmers more price-sensitive
- Since the pumpsets require frequent service and maintenance, farmers purchase pump from a retailer who assures them for full support post sales
- In last few years farmers have become more conscious about quality of pumps in order to save on the recurring maintenance cost. Farmers are now more aware about different quality parameters
- Farmers desire change in name plate of pumps as they want to install higher horsepower motor in lower horsepower label to get more water and save on electricity bill
- Further compatibility of pumpsets with prevailing voltage level in region without compromising on water output, is also a determinant factor

Influencing factors for brand selection

- Word of mouth publicity is the top influencing factor in brand selection as it is based on the feedbacks received from neighboring farmers and friends on functioning of pumpsets
- Availability/reach is also an important factor in brand selection as majority of farmers purchase pump from local retail shop in village in order to have prompt service response
- Banner advertisement is an important tool for companies to increase their visibility and it motivates the farmers to enquire about their brand in market
- Retailers also influence farmer's decision in brand selection. They provide the best possible solution to the farmers based on their requirement and budget. Farmers also trust the advices and suggestions received from the retailers

Branded vs regional pumps

Regional pumps such as Shiv Shakti, Jagdish and Freedom have a strong hold in Gujarat owing to their compatibility with prevailing ground water and voltage conditions. As a result of the low ground water level, farmers have to install high horsepower pumpsets. These pumps are expensive so majority of farmers choose regional pumps as they are half the price of branded pumps. All the manufacturers (except Texmo which offer 2 year warranty) offer a warranty period of one year. In terms of the after sales support, the regional manufacturers are considered to be more prompt in their responses as compared to the branded ones. The acceptance of branded pumps is limited to big farmers only due to their high cost. Unnati, Lubi and Varuna are top three national brands prevalent in this state.

Criterion in selecting pipe size

Farmers consider diameter of flange outlet of pump as a criteria in selecting pipe size. Most of the farmers are using 10 to 12 inch casing pipe these days taking the large size of high horsepower pumpsets into consideration. In case of any requirement of servicing, the pumpset can be easily withdrawn from the casing and could be reinstalled safely. Farmers also use bigger pipe size because they think that after few years when pipe ruptures than they can insert smaller pipe easily in that same boring.

POINT - OF - PURCHASE

Purchase point of pumps

Most of the farmers prefer to purchase pumps from local retail shop in village due to the following factors:

- Availability of variety of regional brand and assembled pumps
- Quick after sales support from the retailer's end
- Retailer in village is perceived to have better understanding of local conditions

However, few farmers also prefer to purchase pumpsets from big retailers seeking better prices and high quality products.

Dealer inputs in pump purchase and pump head

In most cases, dealers give inputs to farmers based on ground water level, area under irrigation and manufacturer's technical brochure. Dealer also uses his prior experience to suggest on pumps head to farmers.

Typical Conversation:

The farmer asks for the variety of pumpsets within his budget. The farmer then discusses his requirement and local conditions of water level and electricity voltages. Dealer offers him the available variety and conveys the benefits associated with each brand. After final decision dealer than advices the farmer about other components and pump head calculations based on his experiences in farmer's region and calculation charts.

Add-on accessories bought with pumps

Auto starter is the most common accessory purchased with pumps. A branded auto starter is available in the range of INR 1000-2000, whereas a local made is in range of INR 400-1000

Profit margins & incentives given to the dealers

Local players provide 5 to 10% higher profit margins than branded players. Branded players provide gifts and incentives to retailers on completion of targets in a quarter.

STAR RATING PUMPS

Importance of efficiency among farmers

Importance of efficiency in pumps is low among farmers because of low awareness and also due to the HP based average electricity billing. According to the farmers, high water output is the prime focus and important criteria for selecting a pumpset. Pump efficiency holds very low importance for them. Also the farmers perceive star rating pumps as a costly affair and hence demand subsidy from government for star rated pump installation.

Key attributes which can be used for promoting efficient pumps

As per the farmers surveyed in the state the key attributes to be associated with the efficient pumps are:

- High water output
- Low price
- Less maintenance cost
- Good after sales support

Awareness level & sales trends

- Awareness regarding the star rating pumps is very low as the prime focus of farmers is high water output and not the energy efficiency feature of pumpset

Sales trends

- Sale of star rated pumps in Gujarat is quite low i.e. around 5 to 7% due to low awareness and incompatibility of these pumps with the local conditions. However, some retailers manage to sell few star rated pumps through their convincing ability

Opinion of farmer and manufacturer on making star rating mandatory

- Farmers are not much interested in star rating as flat rate electricity bill is provided to them.
- Some farmers think star rated pumps cannot be successful in prevailing low ground water level & electricity conditions because of the narrow operating voltage range
- Star rating trend is increasing among manufacturers in order to maintain their market presence and reputation among farmers. However, currently the sale of star rating is very low
- Large manufacturers think star rating is good for efficiency improvement. In contrast, most of the regional manufacturer do not consider it wise to focus on efficiency improvement as it will increase the cost of pump

6.1.7 MAHARASHTRA



Ground water level

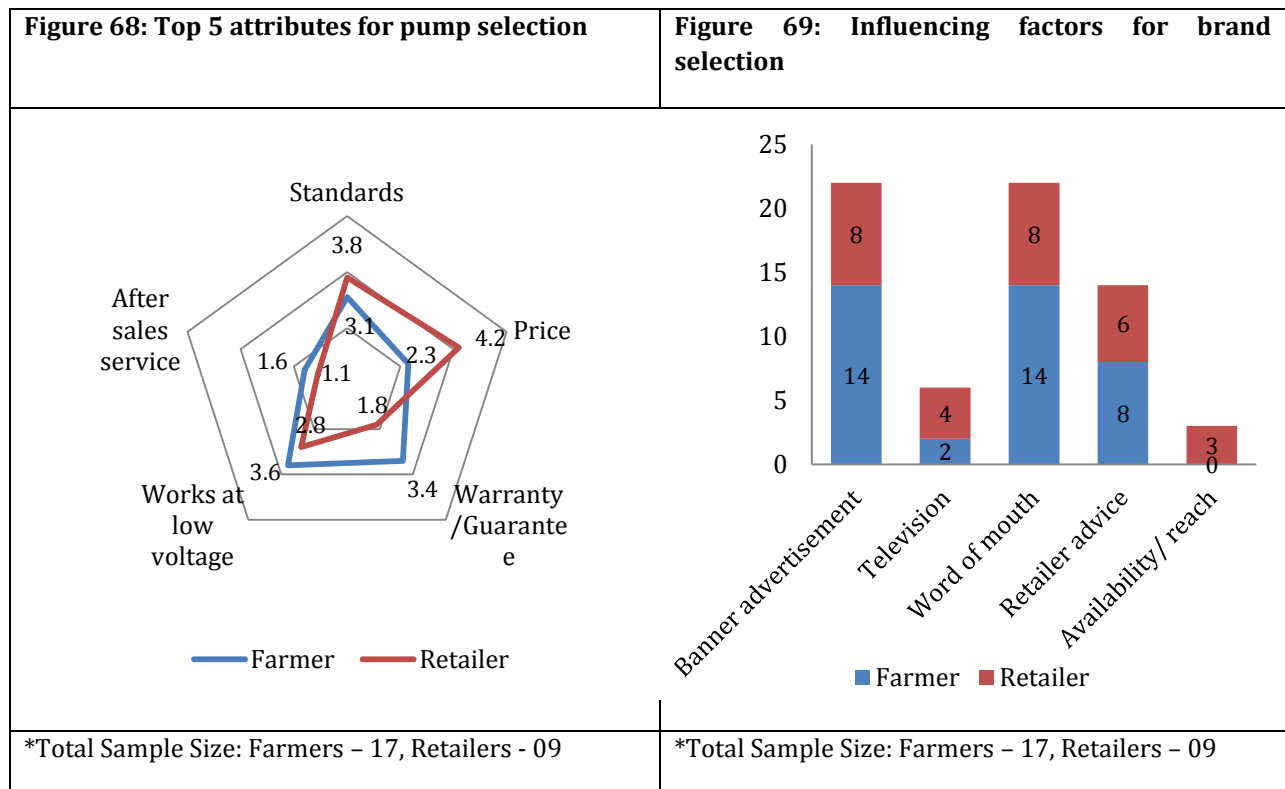
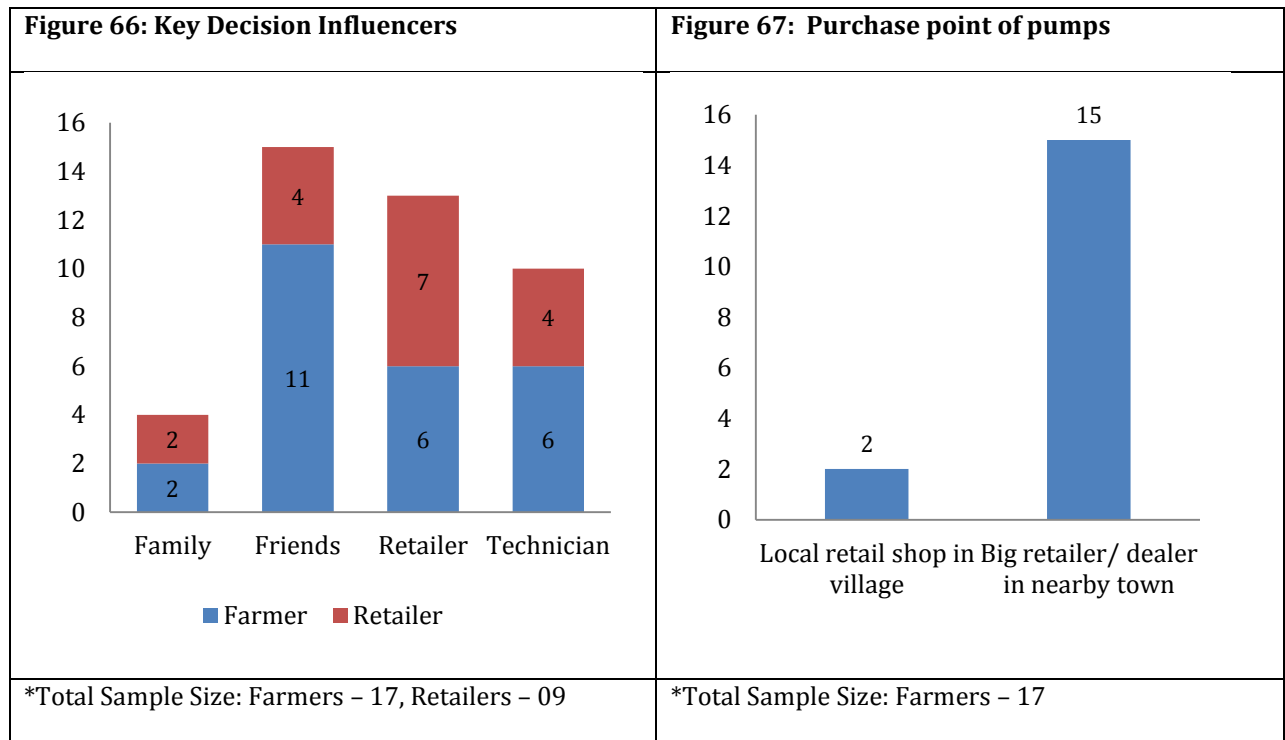
The water level in the state is quite uneven ranging from 40ft to 150ft and so is the selection of monoblock and submersible pumps. Regions such as Nagpur with healthy level of ground water i.e. 40ft to 70ft are still using monoblock

pumps. However, in other regions such as Kolhapur and Ahmednagar, with low ground water levels, submersible pumps are very popular. The continuous depletion of ground water level has phased out the monoblock pumps in most of the regions.

Electricity scenario

On an average, electricity is available for 8 hours to 10 hours per day. However, most of the regions suffer fluctuations in voltage levels and low voltage levels are prevalent. Presently, the farmers in state have to make unit based payments at a rate of INR 0.50- 0.60 per unit for electricity used in agriculture.

KEY FINDINGS



PUMP SELECTION

Decision makers in pump selection

- Most of the farmers rely on first hand opinions and experiences of their friends
- Further, inputs from the retailers provide confirmation on various attributes of the brands that they have heard about from friends, technicians etc
- The technician also plays an important role in decision making because of better understanding of the farmer's profile, exact requirement of the farmer and challenges faced by them
- Few farmers also seek opinion of their family members

Key attributes for pump selection

Demand Side:

- Capability of pumps to work at low voltage holds top priority in selection of pumps because of the prevalent low voltage levels in most of the regions
- Guarantee and standards forms the other important attribute as the farmers often experience burning of motor windings as a result of the fluctuating voltage levels
- Though the price of pumpsets is an important attribute, farmers are ready to pay higher prices for the above two attributes
- After sales service is another essential attribute as the functioning of pumps involves rugged usage

Supply Side:

- According to retailers limited budget of farmers makes price the most important attribute for the farmers while deciding the brand
- At the same time, farmers are now more conscious about the standards of the pumpsets and want best quality assurance for the pumpset within their budget limit
- Due to the low voltage prevalent in most of the regions except few such as Kolhapur, low voltage compatibility is the another important attribute
- Retailers find the guarantee/warranty as last priorities for the farmers while selection of the pump's brand by the farmers. Generally, the pumps operate flawlessly for at least two years irrespective of the guarantee/warranty

Influencing factors for brand selection

- Word of mouth and banner advertisement play significant role in influencing the farmers for any specific brand
- However, word of mouth is more biased and at times appears to have been created artificially by the technicians and retailers in order to promote specific brands in an area
- The farmers also seek retailer's advice in brand selection because they have knowledge about the functionality of pumpsets according to the regional conditions in the village
- Television advertisement is also an influencing factor; however its impact is comparatively lower. Few retailers are of the opinion that proximity of dealers of a particular brand also influences the farmers because of prompt after sales service

Branded vs. regional pumps

- In Maharashtra, regional pumps have competitive edge over the branded pumps. This is primarily because of ability of regional pumps to work at low voltages and the low awareness level among the farmers for branded pumps
- However, with more young farmers becoming the decision makers, the preference for the branded pumps is expected to continuously increase year after year
- As an influence of low voltage compatibility and cost effectiveness attributes the farmers are mostly guided to local pumps
- In Maharashtra, farmers prefer Texmo, Kirloskar, CRI, Varuna and Crompton among the national brands and Mahalakshmi, Wega, Alpha, Paras, Waterfall and Asian among regional brands

Criterion in selecting pipe size

- The pipe size typically depends on the diameter of flange outlet of pump, pump size and water level in the region

POINT – OF - PURCHASE

Purchase point of pumps

Most of the farmers prefer to purchase the pumpsets from big retailer/ dealer in nearby town with the expectation of lower prices, high reliability and wide variety

Dealer inputs in pump purchase and pump head

- In most of the cases, dealer advice farmers for the pump head on the basis of the calculation charts provided by the manufacturing companies
- The dealers also keep knowledge about the water level conditions in nearby villages for various calculations to be used while installations

Typical conversation:

The farmer discusses his requirement, budget and water & electricity scenario with the dealer, who then explains the best solution, brand and their respective features. The farmer might also inquire about few brands that he is aware of. After gathering all the information, the farmer finally selects one from the offered options.

Add-on accessories bought with pumps

The 'Auto-starter' is the most known and common accessory being used by the farmers and is available easily in market within a price range of INR 1500 -3000

Profit margins & incentives given to the dealers

- The retailers in different regions promote the regional brands as these brands have more selling ability owing to the low voltage compatibility and low prices along with 5%- 8% higher profit margins
- However, the national companies provide different incentives to increase their share such as sales slab based incentives, domestic tours & parties and gifts at different festive occasions

STAR RATING PUMPS

Importance of efficiency among farmers

Farmers in Maharashtra have to make subsidized payments for electricity bill according to the units consumed. Hence efficiency of the pumpset holds high importance as it helps the farmers in saving electricity cost. However, many farmers are of the opinion that in the ongoing scenario of poor voltage levels, farmers are more bothered about the basic operation of pumpsets only.

Key attributes which can be used for promoting efficient pumps

According to the farmers surveyed in the state the energy efficient pumps should have/be promoted on the following attributes

- Low voltage compatibility
- High water throwing capacity
- Energy saving characteristics

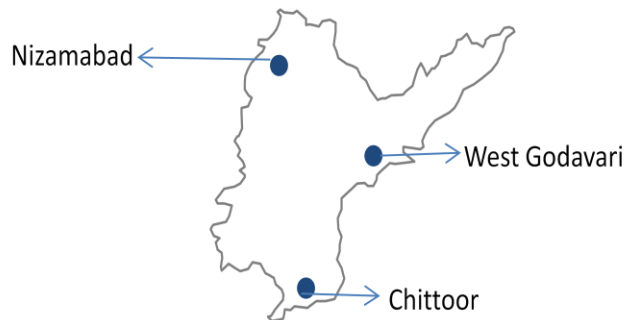
Awareness level & sales trends

- The farmers in the state are more or less negligent about the star labeled pumps
- They are willing to install such pumps in case they are made more aware about its functioning and benefits and if these pumps provide solution to the low voltage compatibility
- The perception regarding the low voltage incompatibility of branded pumps plays a major restraint for the level of awareness about branded pumps as they restrict themselves to local pumps only
- Since, the farmers in Maharashtra have to pay for electricity on per unit basis, they seem to be willing to install electricity saving equipments
- The retailers see an increase in the sale of star rating pumps but they sell such products on the basis of their reputation and ability to convince the farmers rather than the features of such pumps
- Acceptance and awareness of branded pumps needs to be increased in order to pave the path for star labeled pumps

Opinion of farmer and manufacturer on making star rating mandatory

- According to the retailers, there is an increase in the number of companies manufacturing star labeled pumps to match with the competitive portfolio
- However, the retailers feel that in case star rating is made mandatory, with the awareness levels of branded pumps remaining status quo, the regional pumps might have an increase in market share
- High cost of the star labeled pumps and incompatibility with low voltages might not appeal the farmers to select the branded pumps

6.1.8 ANDHRA PRADESH



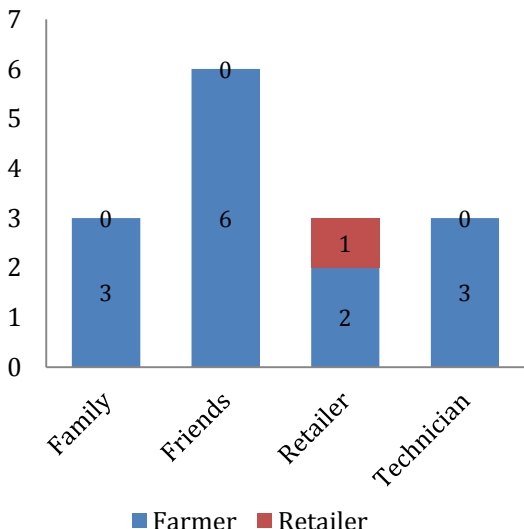

Ground water level

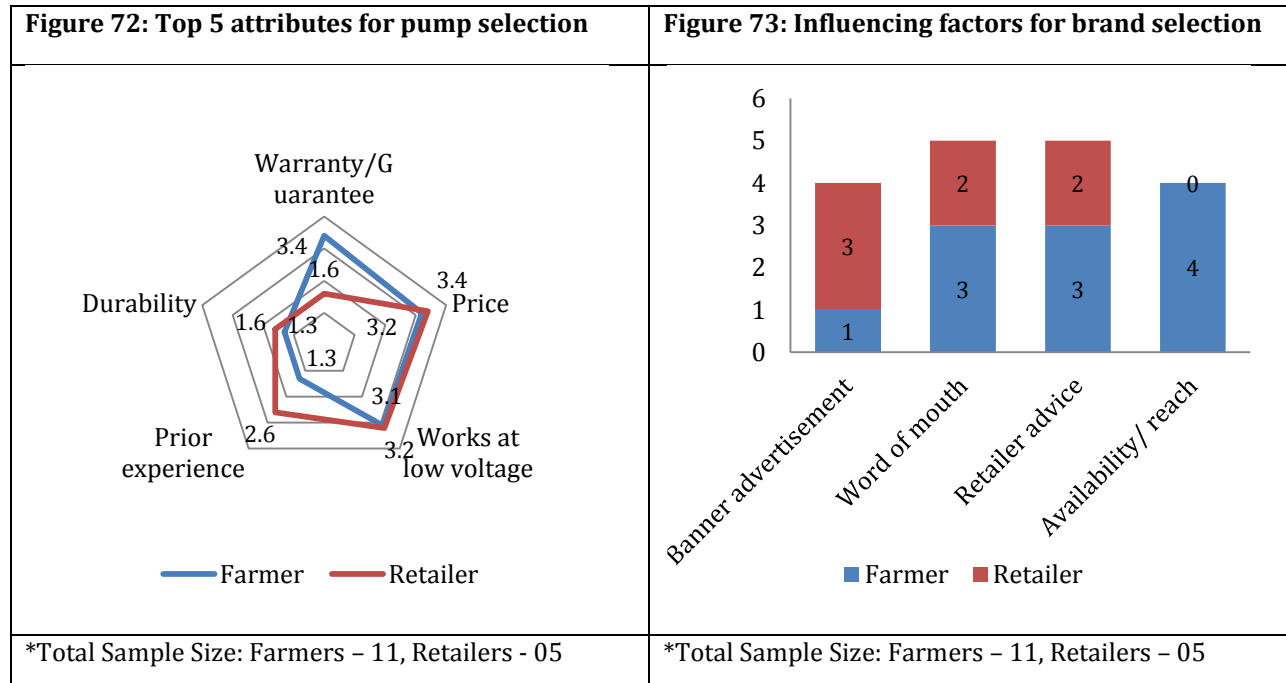
The water level in the state is quite uneven ranging from 170ft to 500ft. Coastal regions such as West Godavari and Chittoor have higher water levels as compared to regions like Nizamabad. As a result of continuous depletion of ground water level, submersible pumps are gaining popularity among farmers.

Electricity scenario

On an average, electricity is available for 6 hours to 7 hours per day. However, voltage fluctuations and low voltage levels are quite prevalent in various regions. Electricity for farmers is subsidized and they have to pay a fixed amount towards the electricity bill irrespective of the units consumed.

KEY FINDINGS

Figure 70: Key Decision Influencers	Figure 71: Purchase point of pumps																					
 <p>A stacked bar chart with four categories on the x-axis: Family, Friends, Retailer, and Technician. The y-axis ranges from 0 to 7. Blue bars represent Farmers and red bars represent Retailers. Data values are: Family (Farmer: 3, Retailer: 0), Friends (Farmer: 6, Retailer: 0), Retailer (Farmer: 2, Retailer: 1), Technician (Farmer: 3, Retailer: 0).</p> <table border="1"> <thead> <tr> <th>Influencer</th> <th>Farmer</th> <th>Retailer</th> </tr> </thead> <tbody> <tr> <td>Family</td> <td>3</td> <td>0</td> </tr> <tr> <td>Friends</td> <td>6</td> <td>0</td> </tr> <tr> <td>Retailer</td> <td>2</td> <td>1</td> </tr> <tr> <td>Technician</td> <td>3</td> <td>0</td> </tr> </tbody> </table>	Influencer	Farmer	Retailer	Family	3	0	Friends	6	0	Retailer	2	1	Technician	3	0	 <p>A bar chart with two categories on the x-axis: Local retail shop in village and Big retailer/dealer in nearby town. The y-axis ranges from 0 to 12. Blue bars represent the number of farmers. Data values are: Local retail shop in village (1), Big retailer/dealer in nearby town (10).</p> <table border="1"> <thead> <tr> <th>Purchase Point</th> <th>Farmers</th> </tr> </thead> <tbody> <tr> <td>Local retail shop in village</td> <td>1</td> </tr> <tr> <td>Big retailer/dealer in nearby town</td> <td>10</td> </tr> </tbody> </table>	Purchase Point	Farmers	Local retail shop in village	1	Big retailer/dealer in nearby town	10
Influencer	Farmer	Retailer																				
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Technician	3	0																				
Purchase Point	Farmers																					
Local retail shop in village	1																					
Big retailer/dealer in nearby town	10																					
*Total Sample Size: Farmers – 11, Retailers - 05	*Total Sample Size: Farmers – 11																					



PUMP SELECTION

Decision makers in pump selection

- Farmers mostly rely on the suggestions provided by their friends for pump selection. Such feedbacks/ suggestions are based on their experiences with their respective pumpsets installed
- Advices from family members also hold importance for the pump decision. Family members discuss their prior experience, pros & cons with pumps they have used in past
- Retailers are also consulted on functionality of different pumps in the farmer’s village. Farmers trust their feedback as retailer builds his understanding on responses from different farmers who are his customers
- Technician handles different requirements from farmers in village on daily basis. Hence, he is considered to be a good resource for inputs regarding the best possible solution for farmers. The technician builds his discretion by considering all the constraints of local conditions such as electricity availability, water level and budget as well

Key attributes for pump selection

Demand Side:

- Warranty/ Guarantee hold top priority as an attribute for pump selection as a result of fluctuations in voltage levels which in turn leads to the breakdown of pumpsets
- Due to budget constraints of farmers, price is one of the most important attributes during pump selection
- In Andhra Pradesh, farmers face major difficulty due to the prevalence of low voltage levels. According to the farmers most of the branded pumps are not functional at such low voltages hence, pumps ability to work at low voltages is an important criteria

- Since installation of pumpsets involve a huge expenditure hence farmers are less risk averse while pump selection and rely on their prior experience as an important attribute
- Durability of the pumpsets also holds a significant weightage while pump selection as it has a direct influence on their return on investments

Supply Side:

- According to retailers, farmers consider price as most important attribute for pump selection
- Farmers are very conscious about the low voltage compatibility of the pumpsets
- Farmers follow evidence based approach as an effective pump selection method and hence consider prior experience as an important attribute
- Pumpset installation involves a big investment from farmers and hence they want a durable solution with a warranty/ guarantee as an assurance for service assistance

Influencing factors for brand selection

- Word of mouth is the most influencing factor for brand selection. Farmers generally associate word of mouth with performance of pumpsets
- Retailer's advice also holds equal importance on brand selection by the farmers as their advice is based on knowledge about technical aspects and close observations of various brands which he receives as feedbacks from his existing customers
- Banner advertisement is considered an important influencing factor as it increases the visibility of the brands and hence enhances brand recall among farmers
- Farmers also consider availability/reach of the retailer as an influencing factor for brand selection as it assures them for quick after sales service

Branded vs. regional pumps

Awareness and acceptance levels for branded pumps have been increasing during the past few years. However, low voltage compatibility restricts a significant farmer population to opt for branded pumps.

In Andhra Pradesh, farmers prefer Texmo, CRI, Falcon and Suguna among the national brands and JK pumps and Lakshmi among the regional brands.

Criterion in selecting pipe size

The pipe size typically depends on depth of ground water level, pump size and diameter of flange outlet of pump. Retailers also advice farmers for pipe size estimation based on his experience in that locality.

POINT – OF - PURCHASE

Purchase point of pumps

The farmers prefer to purchase pumpsets from big retailers in suburban or nearby town as farmers perceive them to be more reliable. Also, big retailers offer them a good variety of pumpsets to select from and better prices along with detailed discussion on technical aspects.

Dealer inputs in pump purchase and pump head

Dealer advice farmers for pump head on the basis of calculation charts provided by different manufacturing companies and also on the basis of their prior experiences with water levels in those areas. Dealers assist the farmers in pump selection by suggesting them a variety of pumpsets based on his experiences and requirement of farmers.

Typical conversation:

The dealer asks farmer about his requirement, preference and budget. Based on these factors dealer suggests few brands and try to convince the farmer. Dealer also describes the features of these pumps and then after further negotiations, farmer makes the final selection.

Add-on accessories bought with pumps

Auto-starter is the most known and common accessory being used by the farmers in Andhra Pradesh and is available easily within a price range of INR 500 -2000. Other than Auto-starter, few farmers also use timer, expander and remote control through mobile too as accessories.

Profit margins & incentives given to the dealers

Retailers/ Dealers earn higher profit margin ranging from 5% to 10% by selling regional brands as compared to the national brands. Also, in order to sell the national brands the retailers often have to offer discounts to farmers. However, with increasing awareness about the benefits of branded pumps, the farmers now themselves are inclined towards the branded pumps.

As sales incentives, dealers receive different gifts from companies especially during festive seasons. Other than this, dealers also get discounts on pumps prices from company which increases dealer's profit margins.

STAR RATING PUMPS

Importance of efficiency among farmers

As a result of flat electricity bills for agricultural consumption, the farmers are not much motivated to save electricity. However, few farmers feel that efficient pumps ensure high quality and durability. Efficiency in terms of power saving does not hold much importance for the farmers in Andhra Pradesh.

Key attributes which can be used for promoting efficient pumps

As per the farmers surveyed in the state the key attributes to be associated with the efficient pumps are

- Low voltage compatibility
- Extended warranty
- High quality standards

- High water throwing capacity

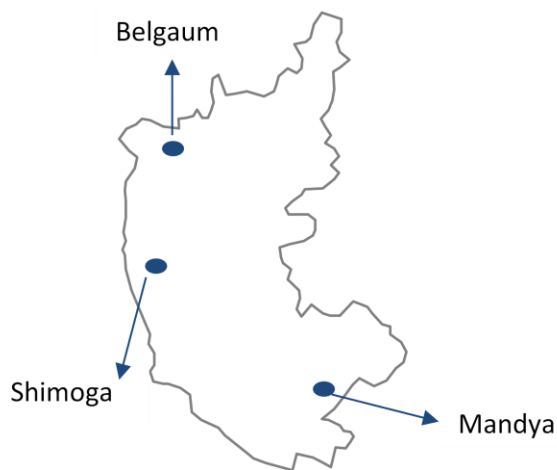
Awareness level & sales trends

- Farmers in Andhra Pradesh are generally aware about the star labeled pumps
- These farmers associate star label with high quality of pumpsets and hence their sales of star labeled pumps is experiencing an uplift
- However, few farmers also feel lack of any direct incentive such as subsidy on pumpset prices restrains them to purchase it

Opinion of farmer and manufacturer on making star rating mandatory

- Farmers in Andhra Pradesh are likely to accept the star labeled pumps provided prices for these pumps should not be substantially higher than the non-star rating pumps
- Making star rating pumps mandatory will help these manufacturers. Since it would be the only type of branded pumps available in the market hence it would lessen the efforts to persuade farmers for purchasing star labeled pumps

6.1.9 KARNATAKA



Ground water level

Ground water availability in the state ranges from 100 to 250 feet. Irrigation by submersible pump is mostly prevalent in the state. Open well irrigation using submersible pump can be found in Belgaum whereas Shimoga and Mandya region uses mostly deep tube irrigation using submersible pump. Average rainfall is 1248 mm.

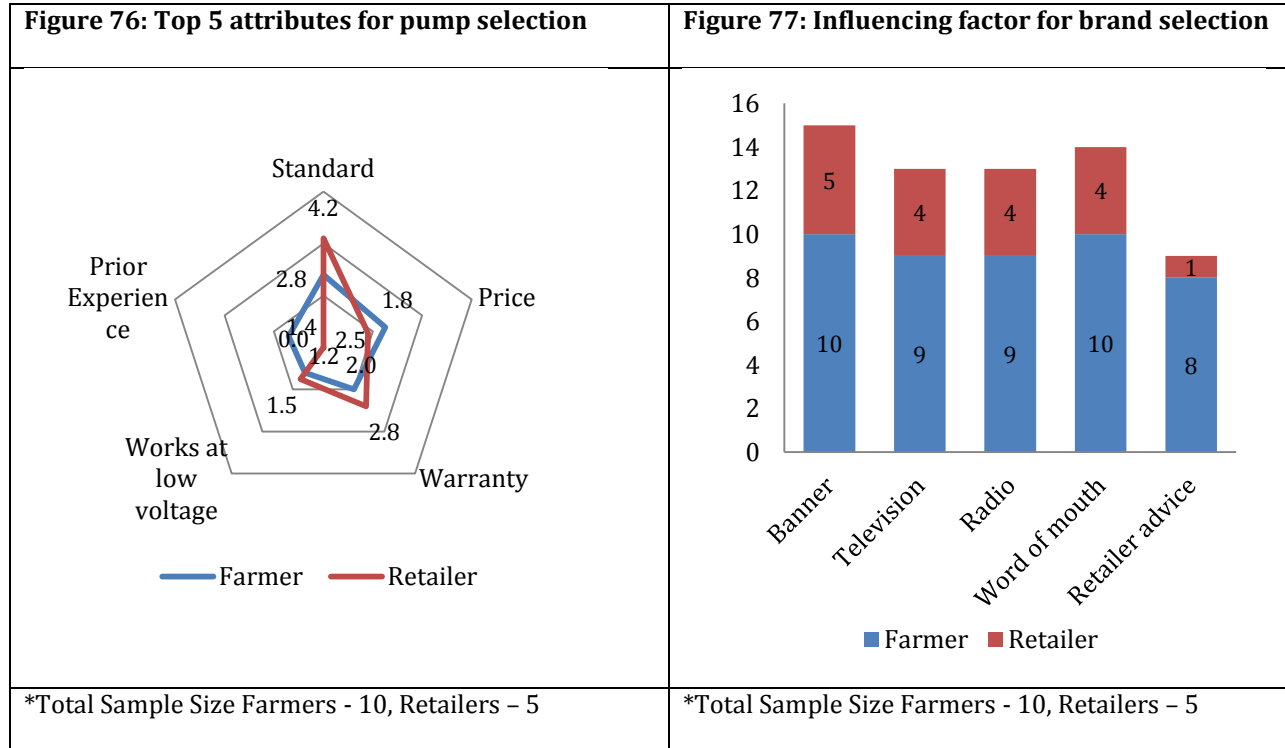
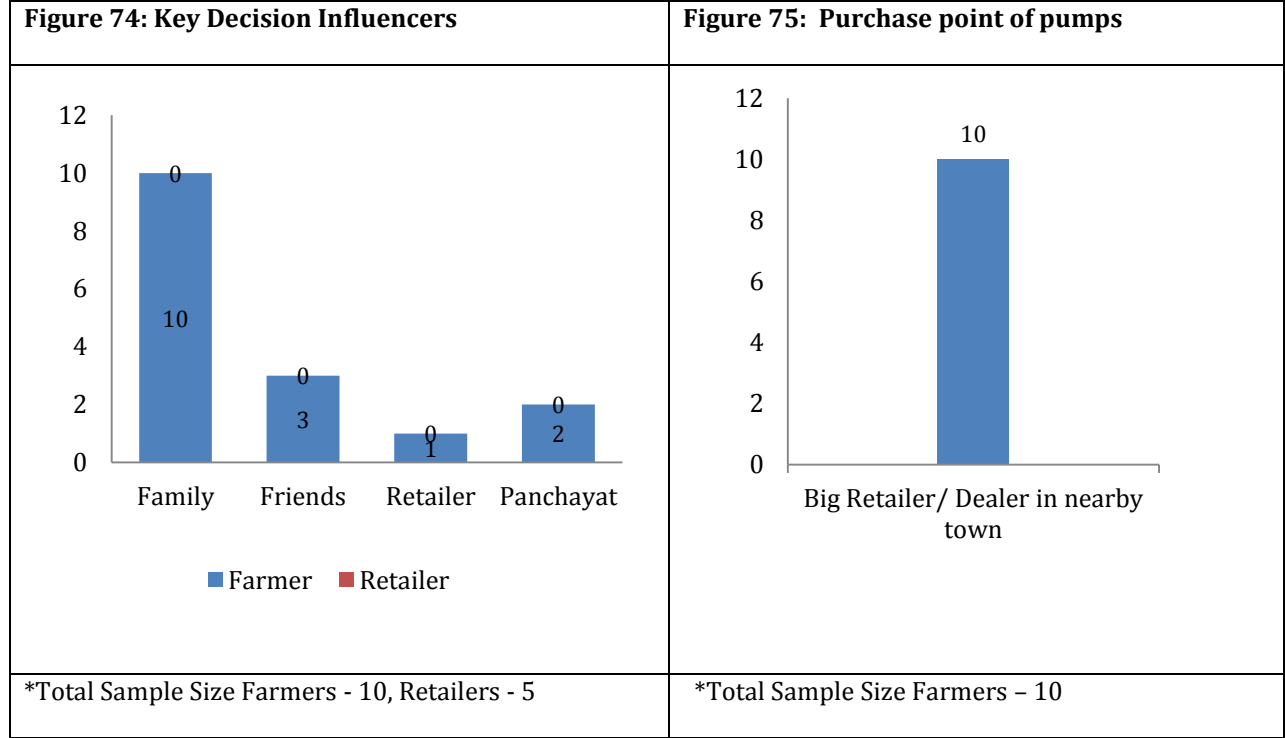
Electricity scenario

The average electricity available to farmers is 6 hours per day with moderate voltage (300 to

350 volts).

The Karnataka government provides electricity at subsidized rates to farmers. Most of the farmers do not have electric meters installed in their farms.

KEY FINDINGS



PUMP SELECTION

Decision makers in Pump selection

- The farmer is the key decision maker in pump selection. Usually farmers consult their family members who guide them for pump selection
- Friends also act as a key source of information who guide them with their own experience on a particular brand
- In some villages panchayat also helps farmer in choosing the right pump for farmer
- Very few farmers take retailers advice in pump selection as farmers trust their family members and friends more in pump selection

Key attributes for Pump selection

Demand Side:

- Standard is the top attribute which farmers consider while purchasing pump as farmers are more quality conscious and give due importance to pump performance
- Budget constraints of farmers, make price an important factor in pump selection
- Warranty is also an important attribute in pump selection as farmers look for a particular period in which burnt motor winding can be repaired free of cost

Supply Side:

- Standard is the top attribute which a farmer considers in pump selection as farmer thinks good quality pumps work for longer time and have lesser maintenance cost
- Warranty is also an important attribute which a farmer considers in pump selection as farmer want full assurance post sales in conditions like burning of motor winding and pump not working
- Farmers are more conscious about price as they want best quality in their budget
- Some farmers also demand pump which can work on low voltage depending upon the voltage supply in their area

Influencing factors for brand selection

- Banner advertisement and word of mouth are the top influencing factor in brand selection due to the following reasons
 - Farmers spread brand name and performance reviews to each other when they discuss about pumps
 - Banner advertisement also influence them as they get familiar by the brand name and then demand for a particular brand from retailer
- Television and radio are the second most influencing factor in brand selection process. The advertisement in a way connects the farmer to the advertised brand
- Retailers also influence farmer decision in brand selection because farmer trust retailer and consider their advice important

Branded vs. Regional pumps

Branded and Regional pumps both are popular in this state. Texmo, CRI and Kirloskar are the top three brands prevalent in this state. Regional pumps are used by farmers who give more

importance to price in selecting pump. Regional companies like V guard, Tormac and Mahindra are prevalent in this state

Criterion in selecting pipe size

Most of the farmers consider diameter of flange outlet of pump in selecting pipe size. Farmers also consider ground water level and pump HP in selecting pipe size.

POINT - OF - PURCHASE

Purchase point of pumps

All farmers purchase pumps from big retailer/dealer in nearby town seeking competitive price and wide variety of pumps.

Dealer inputs in pump purchase and pump head

In most cases, dealers give inputs to farmers based on ground water level. Dealer uses his prior experience in suggesting farmer about frilling length and pump head required for that length.

Typical conversation:

The farmer approaches the dealer with few suggestions from his family members and some known brand in mind. Farmer then explains his requirement and priorities to dealer like quality, low price, durability etc. Based on these parameters, the dealer provides solution to farmer within his budget along with his suggestion on a particular brand. In the end farmer negotiate for price with an idea to purchase it.

Add-on accessories bought with pumps

Timer and Auto starter are the most common accessories purchased with pumps. A timer is available in the range of INR 2500-3200, whereas auto starter is in range of INR 1500 to 2000.

Profit margins & incentives given to the dealers

Different manufacturers provide different profit margins to dealers. The variance in margins is in a range of 4% to 15%. Manufacturers provide credit facility to dealers to promote their pumps. Some manufacturers provide additional discounts.

STAR RATING PUMPS

Importance of efficiency among farmers

In Karnataka farmers have to make flat payments towards electricity bill and hence they give very low priority to power efficiency of pumps. Moreover electricity supply is also limited in villages; so farmer choose that pump which has high performance.

Key attributes which can be used for promoting efficient pumps

Top attributes to promote efficient pumps are the followings

- High quality
- Extended warranty
- High durability

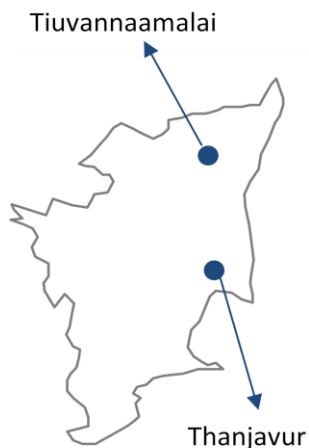
Awareness level & sales trends

Maximum farmers in this state are unaware about star rating and its benefits. Sale of star rated pumps in Karnataka is low i.e. around 2 to 5% due to low awareness. The only sales which take place is by retailers convincing the farmers about good quality, high efficiency and more durability of star rated pumps

Opinion of farmer and manufacturer on making star rating mandatory

- Most of the farmers are in favor of making star rating mandatory as they think star label will guarantee them best quality pump with more durability
- Since Karnataka has frequent power cuts, farmers support efficient pumps in order to save electricity
- According to some manufacturers star rated pumps will be more durable and less maintenance would be required so farmer can save money
- Some manufacturers also think with mandatory star rating they can sell more pumps as farmers trust will increase

6.1.10 TAMIL NADU



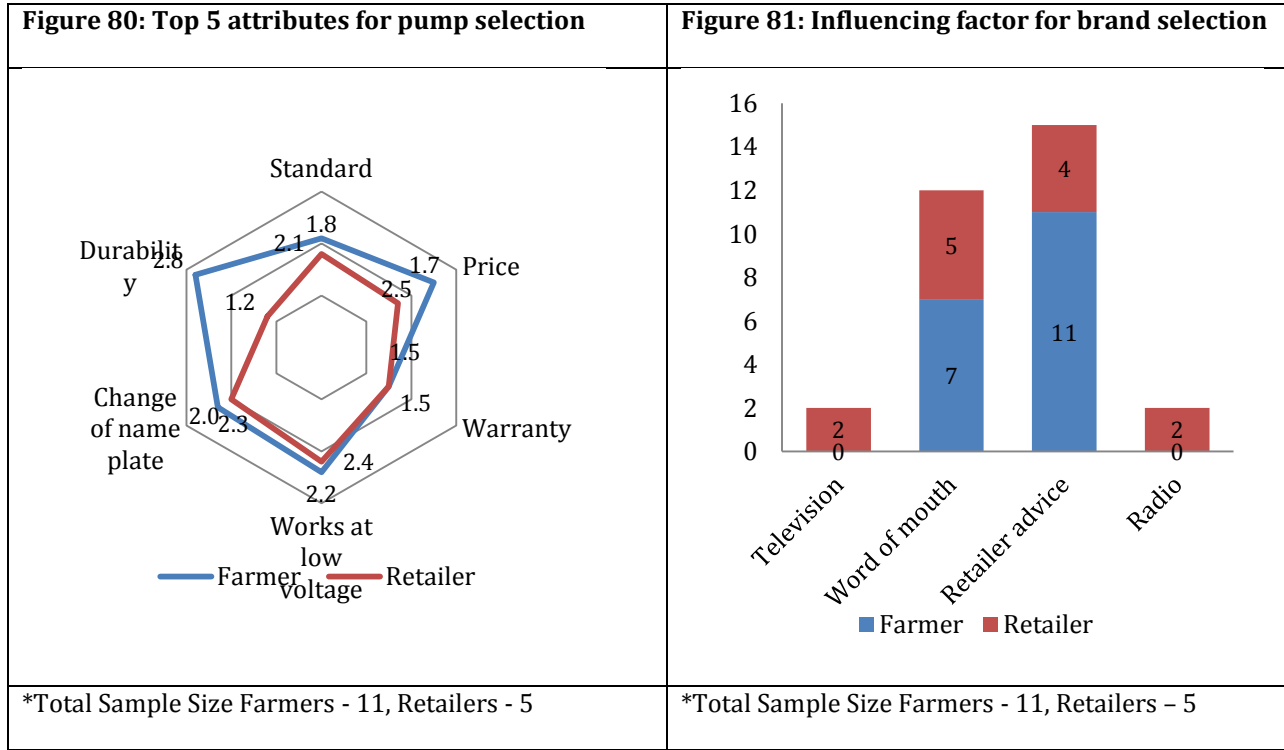
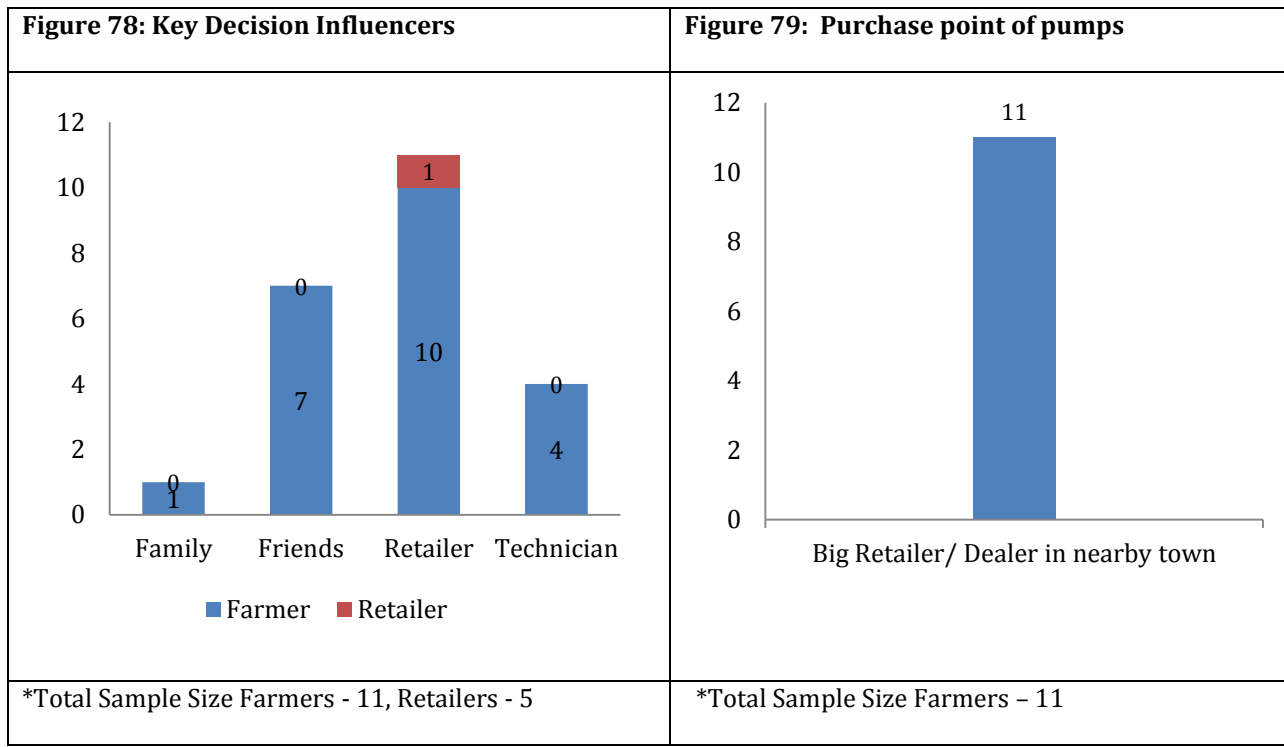
Ground water level

Ground water availability in the state ranges from 40 to 200 feet. Irrigation is done by both submersible and monoblock pumps. In Tiuvannamalai region open well method of irrigation is more prevalent using 3 to 5 HP monoblock pumps whereas in Thanjavur region deep tube well method is more prevalent using 5 to 10 HP submersible pumps.

Electricity scenario

The region suffers from poor availability of electricity and it is hardly available for 2 to 3 hours per day. Farmers receive free electricity in Tamil Nadu.

KEY FINDINGS



PUMP SELECTION

Decision makers in pump selection

- Farmers consider advice from retailers as the most important source for pump selection
- Friends also act as a key source of information who guide them with their own experience on a particular brand
- Local technician also advice farmer on technical aspects based on his own experience
- Few farmers also consult their family members who guide them for pump selection

Key attributes for pump selection

Demand Side:

- Durability is the top attribute which a farmer considers while selecting a pump as farmers look for a pump that can work for many years with low maintenance cost
- Budget constraints of small and medium farmers, make price an important factor in pump selection
- Ability of pump to work on low voltage is also an important attribute for pump selection as voltage availability is low in Tamil Nadu
- Change of name plate is also an important factor in pump selection as water output will be more
- Standard is also an important attribute which a farmer consider while purchasing a pump as farmers are more quality conscious
- Farmers also consider warranty period as no expenditure period in terms of the maintenance and service related issues

Supply Side:

- According to retailers, ability of pump to work on low voltage is the first priority of farmer as voltage availability is low in Tamil Nadu
- Change of name plate is the second most important factor in pump selection as water output will be more
- Standard is also an important factor in pump selection as farmer thinks good quality pumps works for longer time and maintenance cost is less
- Farmers are more conscious about price as they want best quality in their budget
- Warranty is also an attribute in pump selection as they associate it with reliability of brand and consider it as no expenditure period

Influencing factors for brand selection

- Retailer's advice is the top influencing factor in brand selection as retailers are perceived to be knowledgeable about the pump technicalities and compatible brand in their location
- Word of mouth is the second most influencing factor in brand selection as the performance reviews of other farmers are based on their own experience
- Television and radio also influence the brand selection as they connect brand directly to farmers

Branded vs. regional pumps

The farmers in Tamil Nadu are showing increasing level of awareness for branded pumps. The middle level and big farmers now prefer the branded pumps over regional pumps. Texmo, CRI and Kirloskar are top three brands prevalent in this state. The small farmers are still biased towards the regional pumps primarily due to the low costs. Regional companies like Krishna, Mak and Besten are popular in this state.

Criterion in selecting pipe size

Most of the farmers consider diameter of flange outlet of pump in selecting pipe size. Farmers also consider ground water level and pump HP in selecting pipe size. Some farmers also consider price factor in selecting pipe size.

POINT - OF - PURCHASE

Purchase point of pumps

The farmers prefer to purchase pump from big retailers in suburban or nearby town as they provide large varieties and competitive prices.

Dealer inputs in pump purchase and pump head

In most cases, dealers give inputs to farmers based on ground water level and area under irrigation. Dealer also uses his prior experience in suggesting a particular brand to farmer.

Typical conversation:

The farmer asks the retailer for some pre determined brands and their prices along with durability. The dealer then understands the farmer selection attributes along with his budget and provides solution to farmer. After selection is done farmer negotiate for price.

Add-on accessories bought with pumps

Auto starter are the most common accessory purchased with pumps. Auto starter is available in range of INR 500 to 2500. Few farmers also purchase timer and remote control using mobile.

Profit margins & incentives given to the dealers

Different manufacturers provide different profit margins to dealers. The variance in margins is in a range of minimum 5% to maximum 15%. Manufacturers provide additional discounts to dealers on completion of sales target. Some manufacturers also give Promotion material, Plumber Bag, Cap and Electrician tool box to promote their brand.

STAR RATING PUMPS

Importance of efficiency among farmers

In Tamil Nadu electricity is free from government and hence they give very low priority to efficiency of pumps. However government has launched a scheme for farmers in which the old pump sets of small and marginal farmers will be replaced with new power efficient units free of cost, and for other farmers a subsidy of 50 percent will be provided.

Key attributes which can be used for promoting efficient pumps

As per the farmers surveyed in the state the key attributes to be associated with the efficient pumps are

- High durability
- High quality standards
- Ability to work in low voltage

Awareness level & sales trends

Tamil Nadu government had made a rule in 2010, according to which new power connections would be given only to those farmers who purchase four or five star rated pumps. This in turn increased the awareness level among the farmers for star rating. This also led to significant increase in sale of star rated pumps.

Opinion of farmer and manufacturer on making star rating mandatory

- Farmers are purchasing star rated pumps only to get new electricity connection from government
- Manufacturers think star rating is good for electricity saving
- According to some manufacturers star rated pumps are good quality product and less maintenance would be required so farmer can save money

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