

## MARKET ANALYSIS OF IRRIGATION PUMPS IN SURAT AND NAVSARI DISTRICTS OF GUJARAT

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### ABSTRACT

The Indian agriculture sector is the largest consumer of pumps, with pumps being used in several applications such as irrigation and water distribution. This study was a part of project carried out for The Standard Agro Engineers headquartered in Rajkot, Gujarat. The study covered 200 farmers and 25 dealers, selected as per convenience from 8 villages of Surat and Navsari districts of Gujarat (4 villages from each district). It was found that the higher water output from the pumps was the most important factor behind the purchase of pumps followed by proximity to the specific brand dealer, low voltage compatibility, price, brand name, guarantee/warranty, low operating cost, credit facility, and quality standards such as ISI mark. Competitor analysis for The Standard Agro Engineers shows that majority of the market share was captured by Shiv Shakti pumps, followed by Freedom pumps, and V-Guard pumps. The market potential of irrigated pumps in the study area was estimated as INR Eighty Five Crores Twenty Five Lakhs. It was found that frequent breakdown/ burnout of the was the major problem faced by the farmers, followed by low lifting capacity, non-availability of repair and maintenance facility in close proximity, low efficiency of pump, and low voltage. With the existing competitive environment, it was suggested that The Standard Agro Engineers should create brand awareness among farming community and should also setup distribution channel in order to gain trust of the farmers.

**KEYWORDS:** Gujarat, Irrigation pumps, Market Potential, Competitor's analysis

### INTRODUCTION

The pump market in India was valued at INR 8,000 cr. in 2015, and is expected to reach INR 19,020 cr. by 2019, growing at a Compounded Annual Growth Rate (CAGR) of 17.5 percent. Large number of Small Scale Industries (SSI) units, large manufacturers and many overseas manufacturers comprise the Indian pump industry. The industry has both: organized and unorganised players, and faces tough competition from international companies with their base in India. Indian pump manufacturers appear to completely fulfill the domestic demand for pump usage, with more than 600 manufacturers producing around 1.2 million pumps annually (Anonymous 2012). The industry is balanced in terms of demand-supply, with domestic companies meeting 95 percent of the requirements and imports constituting the remaining 5 percent (Sant and Dixit, 2005).

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. There are four key entities

involved in the value chain for agriculture pumps in India, manufacturer, Distributor, Dealer, and Retailer (Rajasekaran and Krupa, 2013)

## GROWTH DRIVERS FOR AGRICULTURE PUMP SETS

- **Sinking Groundwater Levels in the Country:** Coupled with the increasing incidence of poor monsoons, this is posing a major challenge for Indian farmers. Therefore, 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, like heavily subsidized electricity and other schemes which has promoted the use of pumps year on year basis.
- **Increasing Preference for Quality Products:** With globalization and increasing market competition, there is a rising demand for high 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 pumps.
- **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.
- **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 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 India.

With this background, this study was conducted in Surat and Navsari districts of Gujarat (i) to examine the factors affecting buying decision of farmers, (ii) to conduct competitor analysis for The Standard Agro, (iii) to examine the market potential of Irrigation pump set, and (iv) to study the problems faced by farmers with the irrigation pumps.

## DATA AND METHODOLOGY

The study was carried out during 1st January 2016 to 30th April 2016, in Surat and Navsari districts of Gujarat. The study was conducted on a sample of 200 farmers selected from 8 villages (Pardi, Chikhli, Kathor, Khanpur villages of Surat District and Alipore, Dabhel, Jogwad, Viraval villages of Navsari District ) of these districts. A total of 25 dealers were also selected from these districts. The sampling method was Non probability sampling under which convenience sampling technique was used. Primary survey was done with the help of structured schedule. Secondary data were 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. Tabular Analysis, Graphical Presentation and Garrett's Ranking Technique was used to analyze different objectives of the study.

### Garrett's Ranking Technique

- First stage: The sample farmers were asked to rank problems.

- Second stage: Thus, ranks assigned by the individual respondents were converted into percent position value by using the formula.

$$\text{Per cent position} = 100(R_{ij} - 0.5) / N_j$$

Where,  $R_{ij}$  stands for rank given for  $i$ th factor by the  $j$ th individual.

$N_j$  stands for number of factors ranked by  $j$ th individual.

- Third stage: For each percent position, scores were obtained with reference to Garrett's Ranking Conversion table and each percent position value was converted into scores by reference to Garrett's Table.
- Fourth stage: Summation of these scores for each factor was worked out for the number of respondents who ranked for each factor. Mean scores were calculated by dividing the total score by the number of respondents.
- Fifth stage: Overall ranking was obtained by assigning ranks I, II, III, IV and V in the descending order of the mean score.

### LIMITATION OF THE STUDY

- The study was conducted in a specified time period, therefore could have been more exhaustive if time period was extended.
- The sampling was done as per convenience. The selected sample might not be the true representative of the population.
- The respondents may have been biased while giving information.
- Uneven availability of secondary data.

### RESULTS AND DISCUSSIONS

The results were analyzed mainly with respect to the response of the respondents. The response of the respondents were observed and noted down.

#### General Characteristics

At the aggregate level, data from the surveyed region stated that 48 per cent of the total farmers were small, 32 per cent were marginal farmers, 14 per cent were medium farmers, and around 6 per cent were large farmers. About 63 per cent of the respondents had their own land for cultivation where as 37 per cent of the farmers in the study region were farming on leased land. Even small and marginal farmers (nearly 20 per cent) had pumps, as most of these farmers used their pump for hiring out that makes pump purchase economically viable. Out of total sample surveyed, about 55 per cent respondents had only farming as their occupation or source of earning, 29 per cent were engaged in farming and services, and 12.5 per cent respondents were engaged in farming and business as well, to earn their living. About 53 per cent of the total cultivable land was irrigated and rest 42 per cent land was rainfed, indicating a huge scope for the pump market to grow in the study area. Major crops in this region were Rice followed by Sorghum, Wheat, Cotton, Pigeon pea, Indian bean, Banana and Sugarcane (Table 1). Pigeon pea and Indian bean are cultivated only in rainfed conditions while Wheat,

Banana, and Sugarcane are cultivated in irrigated conditions. Some crops like Rice, Sorghum and Cotton are those which can be cultivated in both the conditions. Since there are many crops in the study region grown under irrigated conditions, so we can say that there is huge demand of pump in this region.

### **Sources and Method of Irrigation**

Out of total sample farmers surveyed, about 64.5 per cent respondents were using canal as their prime source of irrigation, 28 per cent were using open well as their source of irrigation, and only 7.5 per cent respondents were dependent on tube well for irrigation.

At the aggregate level, data from the surveyed region stated that 92 per cent of the farmers were using flood irrigation technique on their farm for watering their crops, 6.5 per cent farmers were using drip irrigation, and only 1.5 per cent of the total farmers were using sprinkler in the study region. About 73 per cent of the respondents were having their own pump sets and only 27 per cent of the respondents were hiring pump set whenever needed. Therefore, 27 per cent of the respondents were the targeted customers who did not had own pump set, a primary need for farming.

### **Type of Pumps Used by the farmers**

Out of total sample surveyed, about 66.50 per cent respondents were using diesel engine pump set for irrigation purpose, 19.50 per cent were using Mono-block engines, and only 14 per cent were using submersible pumps because ground water availability in the study region was 50-100 feet only. As farmers easily get ground water in this region so there is not as much requirement of submersible pumps as compared to other regions of Gujarat District.

### **Penetration of Pumps' Brand in Study Area**

At the time of survey it has been found that Shiv Shakti was the market leader accounting for around 19.18 per cent of the total market share followed by Lubi having market share of 13 per cent. Jagdish was also having significant share accounting for around 10.27 per cent of the market share. Unnati, Varuna, V-guard, Freedom and Standard had market share of 8.9 per cent, 8.22 per cent, 7.53 per cent, 4.79 per cent and 4.11 per cent respectively (Table 2). Other local manufactures who produce at local level and were selling their product at cheaper rates had a huge market share of 23.97 per cent that include brands like Mahagujarat, Crompton, Wilo, Jyoti etc.

### **HP-Wise Pump Segmentation**

Around 45 per cent of respondents in the study area were using 7.5 HP pumps, 36 per cent were using pumps of 5 HP or below 5 HP. Farmers using 10 HP, 15 HP and 20 HP pumps accounted for 12 per cent, 5 per cent and 1 per cent respondents respectively.

### **Purchase Point of Pumps**

At the time of survey it has been found that 63 per cent farmers purchased pump sets from the local retailers and remaining 37 per cent farmers preferred to purchase their pump set from big dealers, selling branded pumps at higher prices as compared to local brands.

### **Factors Affecting Buying Decision of Farmers**

Table 3 presents the factors affecting buying decision of farmers. Farmers were asked to rank (in descending order) given parameters which they consider before buying pumps. The rank was converted to Garrett's score using Garrett's ranking technique. It was found that the higher water output from the pumps was the most important factor behind the purchase of pumps. It is followed by proximity of specific brand dealer, low voltage compatibility, price, Brand name, Guarantee/warranty, low operating cost, credit facility and Quality standards such as ISI mark.

### **Awareness of the BEE Star Rating Pumps**

At the time of survey it has been found that 53.50 per cent farmers were aware about the BEE star rating pumps available in the market. Remaining 46.50 per cent farmers were not aware of BEE Star rating pumps and their advantages.

### **Awareness of the Standard Agro Products**

It was found that 89 per cent farmers were not aware about the Standard Agro pumps available in the market. Remaining 11 per cent farmers were aware of Standard Agro pumps.

### **Factors Influencing Brand Selection**

Table 4 presents the factors influencing brand selection by the farmers. Farmers were asked to rank given parameters which influence them for purchasing a particular brand (in descending order). The rank was converted to Garrett's score using Garrett's ranking technique. It was found that the word of mouth was the major influencing factor for purchasing any branded pump. It was followed by Technician's advice, availability of retailer in close proximity, Retailer's advice and Advertisement.

### **Problems Faced by the Farmers Post the Purchase of the Pumps**

Data from the surveyed region stated that (Table 5) frequent breakdown/ burnout of the pump set was the major problem faced by the farmers (reported by around 41 per cent farmers), followed by low lifting capacity (31 per cent farmers). Non-availability of repair and maintenance facility in close proximity, low /poor efficiency of pump and low voltage was reported by about 18 per cent, 8 per cent and 3 per cent respondents respectively.

### **Market Potential of Irrigation Pumps**

The survey suggested that it were medium and small farmers who preferred hiring water pumps. During survey of sample farms, it was revealed that around 27 per cent farmers hire irrigation pumps in the study area, while 73 per cent farmers own it. In Surat and Navsari Districts, around 2.22 lakh people were engaged in farming and allied activities (Census, 2011). Out of the surveyed farmers, only 27 per cent farmers hired irrigated pumps that could be the potential market for irrigation pump. So, estimated potential farmers were around 60,000. Assuming the sale of 1 pump (5 HP) per farmer, the potential sales could be of Rupees Eighty Five Crores and Twenty Five Lakh, given the cost of pump at Rs 14,200.

### **Previous Experiences of Dealers in Pump Business**

About 36 per cent pump dealers had 5 years experience, 28 per cent dealers had 20 years experience, 20 per cent

dealers had more than 20 years experience and 16 per cent dealers had 10 year of experience in the field of selling pump sets to the farmers.

### Brands of Pumps Stocked in Outlets

It is evident from Figure 1 that, 22.50 per cent of outlets preferred to stock Shiv Shakti pumps, 17.50 per cent of outlets preferred to stock Freedom pumps, 10 per cent of outlets preferred to stock Lubi pumps, followed by KSB, Unnati, local pumps, Kirloskar, Jagdish, Varuna and Standard.

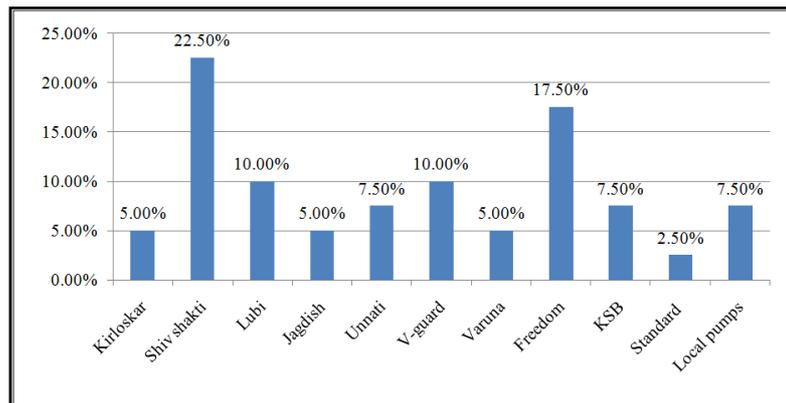


Figure 1: Brands of Pumps Stocked on Outlets

### Brand Wise Quantity of Pumps Stocked Annually

The data in table 7 elicits the frequency and percentage of purchases of different brands of pumps by the outlets. Maximum of the total market stock was with Shiv Shakti (25 per cent), followed by Freedom (16 per cent), V-guard (11 per cent), Lubi (10 per cent), Unnati and KSB (around nine per cent each), Mahagujarat (six per cent), Jagdish pumps (five per cent), Kirloskar (four per cent each), Varuna (3.5 per cent). The Standard agro stocked only two per cent of total stocks.

### Brand Wise Sales of Pumps per Month

Table 8 elicits a lucid picture on sales of different pump brands in outlets. Market share of Shiv Shakti pump was 25.42 per cent (60), followed by Freedom pumps at 16.53 per cent (39), V-guard at 11 per cent (26), Lubi pumps at 9.75 per cent (23), Unnati at nine per cent, KSB at 8.47 per cent. These were followed by the sales from Jagdish, Mahagujarat, Kirloskar and Varuna pumps. The share of Standard Agro in sales was around two per cent.

### Dealers' Response to Different Attributes of Competitor

Table 9 reveals dealers' response to different attributes of the competitors. According to the dealers, Mahagujarat was the company that provided highest credit period of 30 days as well as highest percent of profit margin. The leading company, Shiv Shakti had excellent after sale services, that no other competitor could provide. Shiv Shakti is also competing on price as its pumps are priced low and affordable than many others.

There were four kinds of distribution channel followed in the study area. These were:

- Type I- Manufacturer -> Dealer -> Distributor -> Retailer -> Farmer

- Type II – Manufacturer -> Distributor -> Retailer -> Farmer
- Type III – Manufacturer -> Retailer -> Farmer
- Type IV – Manufacturer -> Farmer

The top companies are following Type II for distribution.

## CONCLUSIONS

Out of the surveyed farmers, it was found that the higher water output from the pumps was the most important factor behind the purchase of pumps followed by proximity of specific brand dealer, low voltage compatibility, price, brand name, guarantee/warranty, low operating cost, credit facility, and quality standards such as ISI mark. The study elicits a lucid picture on sales of different pump brands in outlets. Market Share of Shiv Shakti pump was highest; V-guard, Luni, Unnati, KSB, Jagdish, Kirlosker etc were other major players. The Standard Agro Engineers had about two per cent share in the market. The market provides good opportunity to expand; the estimated potential sales could be of Rupees Eighty Five Crores and Twenty Five Lakh, considering those farmers too, who hire the pump for their on farm needs.

From the study, it was found that frequent breakdown/ burnout of the pump set was the major problem faced by the farmers, followed by low lifting capacity, Non-availability of repair and maintenance facility in close proximity, low poor efficiency of pump, and low voltage. They must be addressed timely, by the companies.

The Standard Agro should provide dealership in order to compete in market with at least 12 per cent margin and the credit period should be provided within 15 days with excellent after sale services. The company needs to follow type II distribution channel as in case Shiv Shakti brand.

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### APPENDICES

**Table 1: Major Crops in the Study Area Under Irrigated and Rainfed Conditions**

Crop	Irrigated (in percent)	Rainfed (in percent)
Rice	76.54	23.46
Sorghum	13.36	86.64
Wheat	100	0
Cotton	42.12	57.88
Pigeon Pea	0	100
Indian bean	0	100
Banana	100	0
Sugarcane	100	0

**Table 2: Penetration of Pumps' Brand in Study Area**

Brand	No. of Respondents	In Percent
Shiv Shakti	28	19.18
Lubi	19	13.01
Jagdish	15	10.27
Unnati	13	8.90
V-guard	11	7.53
Varuna	12	8.22
Freedom	7	4.79
Standard	6	4.11
Others	35	23.97

**Table 3: Factors Affecting Buying Decision of Farmers**

Parameters	Sum Garrett's Score	Mean Garrett's Score	Garrett Ranking
Brand name	6880	47.12	5
Low voltage compatibility	8630	59.11	3
Guarantee / Warrantee	6285	43.05	6
Credit facility	5502	37.68	8
Price	7459	51.09	4
Proximity of specific brand dealer	10045	68.80	2
Low operating cost	6175	42.29	7
Quality standards such as ISI mark	4738	32.45	9
High water output	12176	83.40	1

**Table 4: Factors Influencing Brand Selection**

Parameters	Sum Garrett's score	Mean Garrett's score	Garrett Ranking
Word of mouth	10020	68.63	1
Retailer's advice	5950	40.75	4
Availability of retailer in close proximity	6960	47.67	3
Advertisement	5375	36.82	5
Technician's advice	8195	56.13	2

**Table 5: Problems Faced by the Farmers Post the Purchase of Pumps**

Parameters	No of Respondents	Percentage
Low lifting capacity	73	30.80
Frequent breakdown/ burnout	96	40.51
Low voltage	7	2.95
Low /power efficiency of pump	19	8.02
Non-availability of repair and maintenance facility in close proximity	42	17.72

**Table 6: Market Potential of Irrigation Pumps**

	Surat District	Navsari District	Total
Total number of farmers	109549	112809	222358
Estimated potential farmers	29579	30459	60038
Cost of the pump (5 HP)	Rs. 14,200		
Potential Sales (Rs.)	42,00,21,800	43,25,17,800	85,25,39,600

**Table 7: Brand- Wise Quantity of Pumps Stocked Annually**

Brand	Units stocked by outlets	Percentage
Shiv Shakti	742	24.97
Freedom	479	16.13
V-guard	326	10.97
Lubi	289	9.72
Unnati	264	8.88
KSB	256	8.61
Mahagujarat	181	6.09
Jagdish	149	5.01
Kirloskar	126	4.24
Varuna	104	3.50
Standard	56	1.88
<b>Total</b>	<b>2972</b>	<b>100.00</b>

**Table 8: Brand -Wise Sales of Pumps Per Month**

Brand	Sales	In Percent
Shiv Shakti	60	25.42
Freedom	39	16.53
V-guard	26	11.02
Lubi	23	9.75
Unnati	21	8.90
KSB	20	8.47
Jagdish	14	5.93
mahagujarat	11	4.66
Kirloskar	10	4.24
Varuna	8	3.39
Standard	4	1.69
<b>Total</b>	<b>236</b>	<b>100.00</b>

**Table 9: Dealer's Response to Different Attributes of Competitor**

Brand	Price (Rs./5 HP Pump)	Credit Period	After Sale Services	Profit Margin	Distribution Channel	Incentive & Support
Shiv Shakti	14540	15 days	Excellent	12-14 per cent	Type II	Satisfied
Freedom	18300	20 days	Normal	8-10 per cent	Type II	Satisfied
V-guard	16500	10 days	Good	10-12 per cent	Type I	Satisfied
Lubi	17200	15 days	Normal	10-11 per cent	Type I	Normal
Unnati	14700	15 days	Poor	10-15 per cent	Type II	Dissatisfied
KSB	22500	10 days	Good	5-10 per cent	Type I	Satisfied
Jagdish	13580	20 days	Normal	10-14 per cent	Type II	Normal
Mahagujarat	14500	30 days	Good	15-20 per cent	Type III	Satisfied
Kirloskar	21227	7 days	Good	5-8 per cent	Type I	Satisfied
Varuna	16700	15 days	Normal	5-15 per cent	Type I	Normal
Standard	14200	-	Poor	0 per cent	Type IV	-