# An Empirical Study on Gur (Jaggery) Industry
## (with special reference to operational efficiency & profitability measurement)

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## Abstract

Gur (Jaggery) is a natural, traditional product of sugarcane. It can define as a honey brown coloured raw lump of sugar. Kushinagar[1] district of Uttar-Pradesh has large number of Gur manufacturing units, mostly located in the rural areas and the manufacturers are following conventional methods for producing this. In the district the major clusters which are having more numbers of manufacturing units are Sukraouli, Kasia, Hata and Padarauna. Around half of the rural population is employed in gur making industry in this region. Although, there is no R & D assistance and marketing institutions for support. It is found that the manufacturers are producing majorly for distilleries and local licker producers, not for the food-plate or common man's consumption.

The paper examines the cost-return analysis, profitability and operational efficiency of Gur manufacturing units in study area. The study revealed that units of medium and large sizes were able to cover their operating expenses with significant level of profit but small size units were earning a marginal profit. The profit earned by this category was very low as compared to other two sizes. The manufacturers are not interested in any new product of Gur, they just want to earn more profit through Gur only. This research will urged the policymakers to streamline strategies that promote stabilization of sugarcane economy and make the nation credible supplier of Gur in the International market, benefiting Gur makers, sugarcane growers and related stakeholders.

*Keywords:* Gur industry, Cost-return analysis, efficiency measurement, profitability ratio, operational efficiency.

[1] Kushinagar is the border district of U. P. for Bihar and also of India for Nepal.

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## I. Introduction

Gur (Jaggery) is a natural, traditional sweetener made by the concentration of sugarcane juice. Gut is consumed mostly by the rural population in India which is a natural mixture of sugar and molasses's. With enhanced standard of living and higher income, the Gur demand has shifted to white sugar. Gur can be defining as a honey brown colored raw lump of sugar. It contains all the minerals and vitamins present in sugarcane juice and that is why it is known as healthiest sugar in the world. In some of the South American countries it is known as *Panela.* At the time of production of sugar it requires a mix up of chemicals like sulphure- dioxide, lime, phosphoric-acid, formic-acid and bleaching agents, and that is why all the contents of sugarcane cannot be found in sugar, where as Gur has all the contents and even the scientists have proved that all the essential vitamins and minerals are missing from sugar as compared to Gur. In Ayurvedic way of medicine it is used as medicine, blood purifier and also it prevents disorders of bile.

Gur and Khandsari are among the major agro processing industries found in rural sector of our country. Nearly 50 per cent of total sugarcane produced in the country is used for manufacture of about 8 million tones Gur which is known as the most nutritious agent among all sweeteners (Madan, 2004). Even today, this sector utilizes about 45 to 50 per cent of the total sugarcane grown in the country and provides employment to about 2.5 million people. It is therefore, imperative to expand this sector due because, it provides higher food value Jaggery and khandsari at lower cost, it boosts-up the rural economic system, the transportation cost of raw material is low, and there is no need of highly technical machinery & labor (Soloman & Baboo, 1995). Jaggery & Khandsari, which still dominate in the preparation of Indian cookies, are of ancient origin. Gur making plants are generally tiny in size, and the machineries of the plants are fabricated by local artisans or engineering workshops. The plants are located in rural areas of Sugarcane leading zones of Uttar Pradesh (Cooperative Sugar, 2009).

As Compared to mill made sugar, it required very low capital requirement in production and is manufactured at the farmer's owned crushers o. It is recorded as 70 per cent of gur production is done by India as compared to world production (Jagannadha, 2006).

Sugar cultivation is done on around 4 million hectares of land in India and its production has fluctuated between 230-300 million tones in past several years. The ₹ 250 billion sugar industry has about 450 sugar mills in India with an average installed capacity of 18 million tones. India is the largest consumer of sugar and second largest producer in the world. 90 per cent of total sugarcane and sugar production in the country is with Maharashtra and Uttar Pradesh alone, accounting for 60 per cent of Indian's total sugar production. As against an average annual rise of 2.5 per cent in world sugar production during the past ten years, global sugar consumption has grown by about 2 per cent per annum, while in India the consumption has been higher at about 3.5 per cent per annum (LKP Research). Uttar-Pradesh is the largest sugarcane producing state in the country. It contributes 44 per cent to the country's total sugarcane production and is also the largest producer of sugar in the country (Sunil 2005).

In view of this scenario, it was felt necessary to carry out a research, which can reveal the present status of Gur industry in terms of its cost-return analysis, production efficiency and profitability analysis.

***Table 1.1: Jaggery Vs Sugar- Technological, Social and Economic Factors***

| | ***Jaggery (Gur)*** | | ***Mill Made Sugar*** |
|---|---|---|---|
| **1.** | Highly nutritive value. A Good source of minerals like iron, calcium, etc. It has medicinal value and increases food palatability. | ***1.*** | Source of Sucrose only. Serves as sweetening agent. |
| **2.** | Processing at the place of consumption which avoids transport of cane. | ***2.*** | Processing at place away from its consumption. Transport of cane to mill and sugar to people adds additional cost. |
| **3.** | Farmers can harvest the crop at his will and plan for next crop or intercultural operation. | ***3.*** | For harvesting, a farmer has to depend upon mill requirement. |
| **4.** | It is a decentralized industry. | ***4.*** | It is a centralized industry. |
| **5.** | Semi-skilled persons and village artisans can handle processing operations. | ***5.*** | Highly skilled and trained persons are required for processing. |
| **6.** | Locally made equipment and tools are used which do not require any foreign exchange. | ***6.*** | Machines and equipments are made in heavy industries increasing their transport charges to mill sites. |
| **7.** | Production from *gur* can be shifted to *khandsari* and *rab*(liquid jaggery). | ***7.*** | No shift in production is possible, only suger can be made. |
| **8.** | Cost of production is comparatively low. | ***8.*** | Cost of production is high. |
| **9.** | Quality control and storage is difficult. | ***9.*** | Quality control and storage is easy. |
| **10.** | Recovery is about 10 to 12 per cent. | ***10.*** | Recovery is about 10 percent. |

***Source:*** Solomon & Baboo (1995)

## II. Research Methodology

The survey was conducted on 30 random units of Gur manufacturing units of the major clusters of Kushinagar district. During the survey manufacturers were asked questions regarding the cost of production, marketing channels, major-barriers to industry and any kind of supports from government or private bodies. The Questionnaire and personal interviews had been conducted for data collection and conceptual thought behind this industry. The questions asked were open & closed ended and some of them were on rank based also.

During data collection it was observed that the units were producing on different scale of production ranged 5 to 30 finished Gur quintals per day and there is no such classification. For the appropriate study the units were classified in to three categories small, medium and large. This classification has been made according to the capital investment, crushing capacity and per day production capacity of the unit.

The Capital investment in establishing a Gur unit or plant is around ₹ 2,00,000 to 5,50,000, which can produce from 5 to 30 quintals finished marketable Gur every working day. On the basis of data and observation, working units were classified in three categories on the basis of their production size.

i. ***Small Unit-*** has production capacity of up to 10 quintals (Qtl) per day and sugar cane crushing capacity of around 75 to 100 Qtl per day. The capital investment in establishment of this size of plant is around ₹ 2,00,000 to 3,50,000 where cost of land & building is not included.

ii. ***Medium Unit***-has production capacity of 11 to 25 Qtl per day and sugar cane crushing capacity of around 100 to 200 Qtl per day. The capital investment in establishment of this size of plant is around ₹ 3,50,000 to 5,50,000 where cost of land & building is not included. And;

iii. ***Large Unit***- has production capacity of 26 to 30 quintals Gur per day and sugar cane crushing capacity of around 200 to 240 quintals per day. The capital investment in establishment of plant is around ₹ 3,50,000 to 5,50,000 where cost of land & building is not included.

**Table 2.1: Types of Production-Units**

| | ***Small Unit*** | ***Medium Unit*** | ***Large Unit*** |
|---|---|---|---|
| **Production Capacity** (Finished Gur in a working day) | Upto 10 (Qtls) | 11-25 (Qtls) | 26-30 (Qtls) |
| **Crushing Capacity** (In a working day) | 75-100 (Qtls) | 100-200 (Qtls) | 200-240 (Qtls) |
| **Capital Investment**[2] (for establishment of unit) | ₹ 2 -3.5 Lakhs | ₹ 3.5 – 5.5 Lakhs | ₹ 3.5 – 5.5 Lakhs |

***Source:*** Field Survey.

The Gur manufacturing plants are generally using vertical roller type crusher for juice extraction and it operated by diesel-engines[3] because it was found that electric supply[4] is not suitable for this business in rural areas of U.P. They are using round furnace made from ordinary bricks for boiling of cane-juice which is charging by dried baggas[5]. *Indian Institute of Petroleum (IIP)*, Dehrahdun has done realistic work on its furnace formation and fuel consumption.

## 2.1 Selection of Study Area

However in this age of modern technology, the entrepreneurs are still using their traditional way of processing Gur in their crusher[6]. Gur of Eastern U.P. is famous in the major commodity markets of India. It was observed that in Kushinagar more than 25 clusters are in producing at large scale of operation. In this study four major clusters were chosen for sampling and data collection. Three clusters i.e. Sukrauli, Hata and Kasia (*Table 2.2 & 2.3*) are situated at National highway No- 28, and Padarauna Cluster is very near to district headquarter which is far from National

[2] Capital Investment covers only machinery and equipments cost, the cost of land is not included. The land cost is varying according to the locality.
[3] The requirement of power for the manufacturing units is 8-20 hours in a day that depends on the category.
[4] In Rural areas of U.P. the electric supply is 8 hours in a day, whereas in town or district headquarter it is up to 20 hours.
[5] The dried baggas is using for charging the furnace and that is saving the additional cost of boiling cane juice.
[6] Gur producing units which has more than 15 quintals of finished gur production in a day is treated as Plant, whereas less than 15 is Crusher.

Highway. The thing which should be underlined here is, there is one established working sugar factory[7] which was closed by government due to low production & high-cost in nineties but factory restarted after 15 years due to political pressure and on this zone. In those 15 years the Gur production units were grown like anything in the area and they have paid considerable value to the farmers. The samples from Sukraouli, Kasia, Hata and Padrauna are 10, 8, 6 and 6 respectively.

**Table 2.2: Gur Clusters in Kushinagar**

| | |
|---|---|
| ***Sukrouli*** | Sukrouli is one of the largest and flourished clusters of Eastern U.P. region. In this cluster the maximum manufacturers are processing at large level of production, they are working more than 18 hours in a day and having all the possible required facilities for the industry, from this cluster, 10 sample units were randomly selected for the survey. |
| ***Kasia*** | Kasia is a block headquarter of the district which has the maximum number of crushers (small-units) in the district, 8 random units were chosen from Kasia cluster for the survey. |
| ***Hata*** | Hata is block headquarter of the district which is closely situated with Sukrouli cluster. This cluster has good number of Gur processing units but the production volume is much less than Sukrouli cluster, 6 random units were chosen for this study. |
| ***Padrauna*** | Padrauna Cluster is having less no. of manufacturing units than other clusters, but due to large sugarcane cropping area, this also has average no. of manufacturing units. Batarauli village has maximum no. of manufacturing units in Padarauna cluster. This village is very much known in the Gur suppliers of eastern U.P. for the variety of Gur (small, medium, brick sized Gur). |

The units of all four clusters have divided according to there production size in to two categories i.e. Plant & Crusher. A Gur producing units, which is producing more than15 Qtls in a working day is defined as plant and less than this size is crusher.

[7] The sugar factory was started but farmers preferred to sale the sugarcane to gur manufacturers for quick payments.

Out of 30 sample units 14 were found as plant and rest 16 as crusher. The distributions of these units are as follows:

**Table 2.3: Cluster wise Gur Producing units**

| ***Clusters*** | ***Sukrouli (N=10)*** | ***Kasia (N=08)*** | ***Hata (N=06)*** | ***Padarauna (N=06)*** | ***Overall (N=30)*** |
|---|---|---|---|---|---|
| Crusher | Nil | 07 (23.33) | 04 (13.33) | 05 (16.67) | 16 (53.33) |
| Plant | 10 (33.33) | 01 (3.33) | 02 (6.67) | 01 (3.33) | 14 (46.67) |

***Note:*** Figures in the parentheses indicates percentile values.
***Source:*** Field Survey.

## 2.2 Location of the Study Area

Gur industry is the most popular industry in sugarcane dominated area of Eastern U.P. i.e. Kushinagar (Map-1), Deoria, Gorakhpur, Mau, Ballia, and Azamgarh districts. Kushinagar is known for sugarcane production since long back, British govt. had established maximum factories in the region, currently more than 12 sugar factories are working in the district but their production capacity is declining day by day due to old technology, and that is the reason behind quick growth of Gur industry. Kushinagar is also known for Lord Gautam Buddha. Buddha had Maha-parinirvana (which occurs upon the death of the body of someone who has attained complete awakening) and got his ultimate.

According to population census of India 2001, total population[8] of Kushinagar is 22,35,505. The total male population is 11,52,464 and female population10,83041 and the Growth in population for 1981 to 1991 is around 28.09 percent. In the district agricultural laborers are 1,60,130 whereas people involved in business and trade are 23,189. Kushinagar is quite backward and still literacy rate is below 25 per cent (Govt. of Uttar-Pradesh).

[8] http://kushinagar.nic.in/stat1.htm

**Map 2.1: Location of Study Area (Kushinagar District)**


## 2.3 Objective of Study

Existing problem identification of Gur industry is the goals and objectives of this study, and finding out their appropriate reason will serve as fundamental factor for selecting strategies and investigating the prospects of their applicability. The specific objectives for the study are given below:

1. To explore the existing situation of Gur manufactures in study area and also so see the socio-economic status of gur makers.
2. To examine the Cost and Returns of Gur manufacturing units in study area.
3. To identify the major barriers facing by gur manufacturers of this industry in study area.

***i. Cost and return to the Gur Producing Units:***

This was used to determine the profit margin of Gur manufacturing units and is specified as follows:

$\pi$ = TR-TC

$\pi$ = (Price X Quantity) - TC

Where:

$\pi$ =Profit

TR=Total Revenue (Sales)

TC=Total Cost

Profit in terms of output is given by total revenue (TR) from the sale of output or income earned from business operation less the total cost (TC) incurred in producing the finished marketable output.

Total Revenue is quantity of product multiplied by the current market rate[9] of the output which is assumed to be constant**.**

Total cost is a function of output, because cost increases in the level of output. Hence, for this study, total cost is equal to Sugarcane cost (raw material) + operating cost + fixed cost.

***ii. Measurement of Unit Performance by Efficiency:***

As a measure of unit performance, efficiency ratio, profitability ratio and operational efficiency are specified as follows:

I. Efficiency ratio (ER)= TR / TC

II. Profitability ratio (PR)= $\pi$ / TC

However, if ER>1 and PR>1 then the unit evaluated is operationally efficient and vice-versa.

III. Long run unit cost minimization (LRUCM): The operational efficiencies with respect to local optimum and global optimum performances was calculated using LRUCM (Folayan, 2007) such that manufacturing unit with the minimum lowest output-unit cost industry size would be the most operationally efficient for that size locally and the one with that characteristic in the industry will be the most operationally efficient globally. The LRUCM is specified as follows as the value of the least unit-output cost incurred by the most efficient production unit ($\Omega_L$) divided by the value of unit-output cost incurred by the production unit whose performance is being compared ($\Omega_i$), multiply by 100 as specified below:

$$LRUCM = (\Omega_L / \Omega_{i)} \times 100$$

Where:

$\Omega_L$ denotes the production units with least production cost (cost efficient)

$\Omega_i$ denotes the production units whose output is being compared.

[9] During the study, rate of Gur/Jaggery was ₹ 35 per kg. and sugarcane was ₹ 280 per quintal.

## III. Results and Discussion

### 3.1 Socioeconomic status

Table 3.1 shows the socioeconomic status of the Jaggery manufacturers. From the data generated from field survey, the ages of the manufacturers interviewed raged between 32 to 60 years, with the mean age being 46.86 years. This implies that decisions were made by the active and productive age bracket (Osotimehin, 2004). Around 60 percent of the manufacturers were less than 50 year and this should, have a positive effect on productivity. As observed by earlier studies that a manufacturer's age and experience of work affects his efficiency in performing farm management decision (Adesimi, 1982).

**Table 3.1: Socio-Economic Status of Gur manufacturers**

| ***Factors*** | ***Small N=17*** | ***Medium N=8*** | ***Large N=5*** | ***Overall N=30*** |
|---|---|---|---|---|
| **Primary occupation** | | | | |
| **a)** Crusher | 16 (100) | Nil | Nil | 16 (53. 33) |
| **b)** Plant | Nil | 09 (64.3) | 5 (35.7) | 14 (46.67) |
| **Secondary Occupation** | | | | |
| **a)** Agriculture | 10 (62.5) | 04 (25) | 02 (12.5) | 16 (53.33) |
| **b)** Business | 07 (50) | 04 (28.5) | 03 (21.5) | 14 (46.67) |
| **Education** | | | | |
| **a)** Technical degree/ Training Certificate | Nil | Nil | Nil | Nil |
| **b)** Graduation | 04 (33.33) | 06 (50) | 02 (16.67) | 12 (40) |
| **c)** Intermediate | 04 (44.45) | 02 (22.22) | 03 (33.33) | 09 (30) |
| **d)** High School | 06 (100) | Nil | Nil | 06 (20) |
| **e)** Jr. High-School | 03 (100) | Nil | Nil | 03 (10) |
| **f)** Illiterate | Nil | Nil | Nil | Nil |
| **Avg. no. of dependents per household** | 07 | 07 | 06 | 6.66 |
| **Type of house** | | | | |
| **a)** Mix | 12 (75) | 02 (12.5) | 02 (12.5) | 16 (53.33) |
| **b)** Pukka | 05 (35.7) | 06 (42.8) | 03 (21.5) | 14 (46.67) |

***Note:*** Figures in the parentheses indicates percentile values. ***Source:*** Field Survey.

During the study it was found that in small category units (53.33 per cent) are dense and large in number in the area of study. As secondary occupation in large units manufacturers it was found that they were involved in businesses (60 per cent) rather than agriculture (40 per cent) where as in case of small manufacturers situation is just opposite than large units. Discussions with large manufacturers showed that although they are running Jaggery manufacturing units in season, they have another source of income for other than this business but in small manufacturers' case it is very tough time for them to manage the family expenditures in off season, they were working as laborer in other business or agriculture farms.

With respect to education or literacy status of manufacturers, the table reveals that all the sampled manufacturers had no technical degree or any kind of training certificate in concerned business. It was found that the whole sampled manufacturers were literate and around 90 per cent of them are at least educated up to secondary level. In medium and large categories of units, it was observed that graduates and senior secondary educated are more than 60 per cent where as the small category of unit was having 30 per cent graduates and around 40 percent senior secondary educated manufacturer. One thing which has to be underline is, there is no illiteracy found in the study sample like other cottage and small rural industries. There is no training & certificate program is available for Jaggery manufacturing technology and no such R&D institute is supporting the manufacturers.

From the samples it was found that the number of dependents in each category of units was 7, 7 and 6 in small, medium and large units respectively where as 6.67 is the overall status. This reveals that families were not so large but small category of units, which were earning around ₹ 1.5 lakhs (average) in a year had to face tough days although their dependents were also part of laborers in (small and some of medium size) the units.

The housing patterns of manufacturers were Mix type (mixture kaccha and pakka) and Pakka[10] type. There were no Kaccha[11] houses found in the sampled

[10] Pakka Houses are made of bricks, cement and flouring will be cemented, and this is of two or more floors.

respondents. Two third of small category units had mix type of houses where as more than 60 percent of medium and large size units manufacturers had pakka type of houses. Out of 17 small manufacturers five were had pakka house, this shows that the conditions of small manufacturers were below than the average in living standards

### 3.2 Cost and return Analysis

The result of cost and return analysis as a measure of profitability among the gur manufacturers exposed that Gur manufacturing units as whole recorded an average total cost and total revenue of ₹ 42,434.85 and 65288.66 respectively with an average profit of ₹ 22, 853.81. For the large size of production units were also had an average total cost and total revenue of ₹ 69.687.67 and 97,300.00 respectively with an average profit ₹ 27,612.33. In the medium size of production units average total cost and total revenue recorded as ₹ 55,116.88 and 72,625.00 respectively and an average profit ₹ 17,508.12. And in small size of production units an average total cost and total revenue of ₹ 25,090.27 and 25,941.00 respectively and an average profit in this category was found ₹ 850.73.

The study revealed that units of medium and large sizes were able to cover their operating expenses with significant level of profit but small size units were earning a marginal profit. The profit earned by this category was very low as compared to other two sizes.

**Table 3.2: Summary distribution of Cost and return analysis of Gur manufacturing units**

| Parameters | Small | Medium | Large | Overall |
|---|---|---|---|---|
| Total Cost ₹ | 25,090.27 | 55,116.88 | 69,687.67 | 42,434.85 |
| Total Revenue ₹ | 25,941.00 | 72,625.00 | 97,300.00 | 65,288.66 |
| Profit ₹ (π) | 850.73 | 17,508.12 | 27,612.33 | 22,853.81 |
| Profitability ratio (π /TC) | 0.034 | 0.318 | 0.396 | 0.539 |
| Efficiency ratio (TR/TC) | 1.034 | 1.318 | 1.396 | 1.539 |

[11] Kaccha houses are made of mud and straw, which were generally found in villages of Eastern U.P. region.

### 3.3 Measurement of performance of Gur Manufacturing Units

***I. Profitability Ratio:*** Table 3.2 is presenting the profitability ratios of Gur category wise small, medium and large manufacturing units 0.034, 0.318 and 0.396 respectively. This means that every ₹ 100 invested by small, medium and large units each gained ₹ 3.4, ₹ 31.8 and ₹ 39.6 respectively. This is showing that small units are 10 percent profitable as compared to medium and large gur manufacturing units.

***II. Efficiency Ratio:*** The calculated efficiency ratio for Gur manufacturers in small, medium and large the categories are 1.034, 1.318 &1.396 respectively although the whole sampled unit efficiency ratio is 1.539. It means that the whole sampled manufacturers are having a positive efficiency ratio and it also indication of efficient business operations.

***III. Long Run Unit Cost Minimization:*** Generate efficiency is a prime goal for all kind of manufacturers. This can be defined as "the ability for a production unit to execute its strategic plans while maintaining a fit balance between expenditure and productivity. In other words, it's the ability to get things done without costing the production unit a small fortune.

**Table 3.3: Summary of percentage distribution of operational efficiency of Gur manufacturing units**

| Score | Small | Medium | Large | Overall |
|---|---|---|---|---|
| Minimum Efficiency X (100) | 67.91% | 42.30% | 97.11% | 42.30% |
| Maximum Efficiency X (100) | 100.00% | 100.00% | 100.00% | 100.00% |
| Median Efficiency X (100) | 82.96% | 89.14% | 98.49% | 70.72% |
| Mean Efficiency X (100) | 84.63% | 76.18% | 98.65% | 72.02% |

Table 3.3 summaries the distribution of operational efficiency based on the long run unit cost minimization. The distribution found in the analysis ranged from 42.33% to 100% for overall sampled units with mean and median efficiency are 72.02% & 70.72% respectively. The distribution ranged minimum to maximum 67.91% to 100% with mean efficiency of 84.63% and median efficiency of 82.96% in small category manufacturing units. The medium category of manufacturing units ranged from

42.33% to 100% with mean efficiency of 76.18%. And the large category of manufacturing units ranged efficiency from 97.11% to 100% which is very high with mean efficiency of 98.65%. The data indicates the fact that computed operational efficiency for all the categories the manufacturing of Gur in terms of achieving least manufacturing cost is carrying out the gur production in the study area.

### 3.4 Hurdles facing by Gur manufacturers

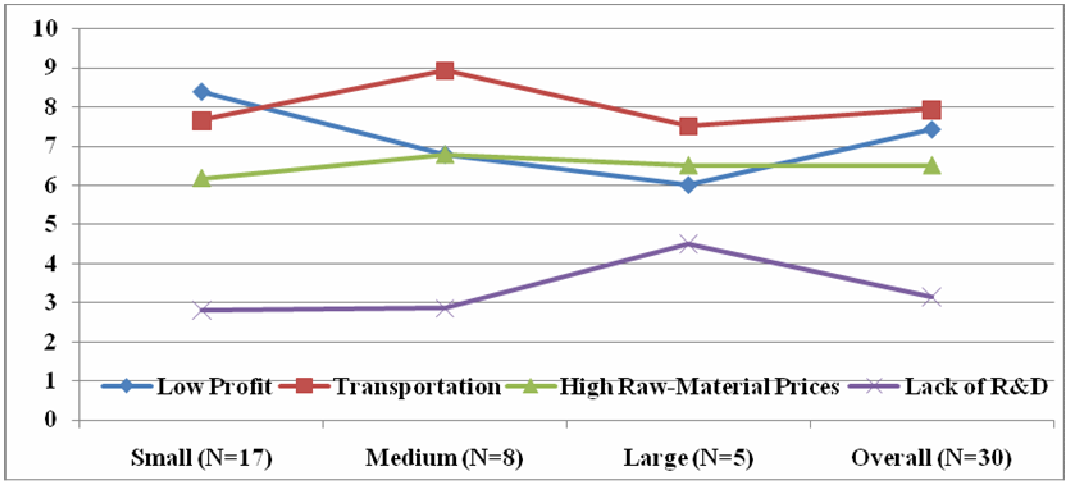
In the survey, it was observed that in all three categories (small, medium and large) manufacturer are facing common problems, but the impacts of these hurdles are different for each. The major problems which were identified are low profit, transportation, high raw material cost, and lack of R & D (Fig. 3.1) but after ranking these problems it was found that low profit is the major problem of small category of units whereas transportation is the major barrier for medium and large category manufacturers. While interviews during the survey, manufacturers were expressed their views that, “If we have our own transportation up to market (distilleries, exporters or zonal mandi) we would enjoy much more profit than current status”.

The reason identified that due to lack of unity and of inter-competition, the manufacturers are not ready to form any association, cooperative or society for development of transportation and R&D facilities and that is the mediators[12] are enjoying a better part of the profit by providing the transport and market facility to the manufacturers. Medium and large manufacturers were not much affected by high raw-material prices, because they were getting a huge market of licker/distillery industry.

For small category of manufacturer the low profit was major hurdle but they were also affected by lack of transportation facility because the major market for small manufacturer was local-mandi and zonal-mandi.

[12] The agency which is mediating between manufacturers and distilleries or exporters.

**Figure 3.1: Major hurdles to Gur manufactures**




The manufacturers of all the categories were not much aware about research and development part in this industry, and they were quite satisfied with their products. The reason was found behind this was, manufacturers thought that only Jaggery is a popular product by their business, no other product is having this much demand in the market like distilleries and lickers.

## IV. Suggestions

1. Those manufacturers, who are producing at medium or large size of production is able to generate good profit but small are just able to save their wages. It was found that if small unit is scale-up upto medium level of production it could become a profit oriented unit.
2. It was found during survey that there is no R&D for product development and value-addition of Gur products in the manufacturers units, although the value added products of Gur is having good market demand for example, Warana Bazar of Maharashta is successfully producing good range of its value added products and attracting market.
3. There is a need for improving the transport facilities for this industry. It was found that the Gur manufacturers are not in a mindset to form any kind of association of society for the cluster's development. One regulating authority which can conduct R&D and develop the business behavior among manufacturers is also needed.

4. There is need for financial assistance and marketing support to small manufacturers, they are not able to expand their business because of tough competition and low profit margin.

## V. Conclusion

Gur industry of Kushinagar is having large no of manufacturing units in all three categories. The dependency on this industry is quite dense in the study area. Current paper used cost and return measures of production operating efficiency such as profitability ratio, efficiency ratio and operational efficiency (based on least cost unit minimization) to examine the performance of Gur manufacturing units. The study found that medium and large manufacturing units are more profitable (more than 30 percent) whereas small manufacturers are just able to generate the minimum profit. The inference of this finding is that the manufacturing of Gur has the potential of improving the standard of living in the study area. With the development of this industry such problems like unemployment, low-level of education, could be alleviated. On the macro level this industry could be able to export good quality Gur if research and development facilities could be developed by government.

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