

**RIGA SUGAR CO. LTD.**

**DIRECTORS' REPORT**

To

**THE SHAREHOLDERS**

Your Directors have pleasure in presenting their Report and audited Accounts of the Company for the financial year ended 30th September, 2008.

**FINANCIAL & OPERATIONAL RESULTS**

	(Rs. in Lacs)	
<b>FINANCIAL RESULTS</b>	For the Financial Year ended <u>30<sup>th</sup> September, 2008</u>	For the financial Year ended <u>30<sup>th</sup> September, 2007</u>
(a) Operating Profit(Loss) Before Interest and Depreciation	1,298.13	(28.60)
(b) Interest	715.34	623.12
(c) Cash Accruals	582.79	(651.72)
(d) Depreciation	439.15	429.60
(e) Profit ( Loss) Before Tax	143.64	(1,081.32)
(f) Provision for Tax - Current Tax	5.95	(10.38)
- Deferred Tax	(53.63)	(222.69)
- Fringe Benefit Tax	6.50	7.25
(f) Net Profit ( Loss) After Tax	184.82	(855.50)
(g) Balance Brought Forward from last year	(321.07)	534.43
(h) Balance Carried to Balance Sheet	(136.25)	(321.07)

**DIVIDEND:**

Keeping in view insufficient profit made by the company your Directors do not recommend payment of dividend.

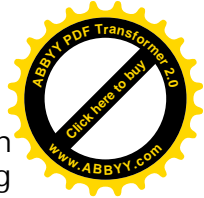
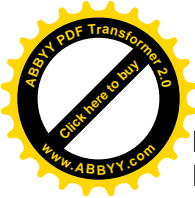
**OPERATIONAL RESULTS**

**SUGAR UNIT**

The comparative figures in regard to duration of season, cane crush and sugar recovery for the year/season 2007-08 and 2006-07 in respect of the Sugar Factory of your Company are given below:-

	Financial Year ended <u>30<sup>th</sup> September, 2008</u>	Financial Year ended <u>30<sup>th</sup> September, 2007</u>
1. Duration of crushing (gross days)	114	202
2. Cane crushed (Lac Qtls.)	36.75	62.42
3. Recovery (%)	9.00	8.05
4. Production (Lac Qtls.) – From Sugarcane	3.30	5.07

Due to unprecedented and record rainfall of 92 inches in 2007 against normal of 50 inches, the growth of sugarcane affected by stagnation of water for longer period. This reduced the yield of sugarcane, reduced the cane crushing from 62.42 Lacs in 06-07 to 36.75 Lacs in 07-08. Rain infested sugarcane carried mud and created problem in clarification house basically in Dorr and filter. Excess presence of mud in cane not allowed the clarification plant to run smoothly. This often creates problem and ultimately the crushing rate was reduced to suit the reduced clarification capacity due to excessive mud problem. The deteriorated quality of sugarcane also



lower recovery. Due to intermittent stoppage and mixing of higher quantity of water in handling mud the requirement of steam increased and thus steam % was highest and no saving of bagasse- main fuel. After closing of season 07-08 the company has given order for Oliver Filter at cost of Rs. 60 Lacs which will be installed in next season 08-09.

Sugar price in the beginning of the year was very weak. Prices gained some momentum & strength in the second half of the financial year under review. Export of large quantity of sugar from India and forecast of lower sugar production for season 08-09 brought the price little upward.

Past two sugar seasons of 2006-07 and 2007-08 has seen record sugar production resulting in large stock of sugar and fall in sugar prices even below cost of cane. Sugar companies in India passed through severe cash flow crunch during the past two years. Sluggish sugar price and continuous losses resulted in massive cane arrears across all States. After great persuasion by the sugar mills, Central Government, in order to help liquidate cane dues at the earliest, came out with excise loan scheme. Interest free loans have been granted to the sugar companies by banks based on excise payment made during the 2006-07 and estimated excise duty payable during 2007-08. Your company has received Rs. 687 Lacs loans under the scheme. This loan shall be repaid in 24 monthly installments after a moratorium of two years from the date of disbursement.

The Government of India created two buffer stocks of 20 Lac tonnes and 30 Lac tonnes during the year to ease cash flow position of sugar companies to help them to liquidate cane arrears. Under the buffer stock scheme, the carrying cost of sugar is reimbursed to the companies. However, both these buffer stocks have since been dismantled after completion of one year.

The state government of Bihar also came forward to help industry in the form of cane price subsidy directly to the farmers at the rate of Rs.7/- per qtl.

### **Expansion of Sugar Plant Capacity**

The expansion project of sugar factory from 3500 TCD to 4500/5000 TCD has been completed and trial was done in season 07-08. It is expected that in the season 08-09 the factory will crush at enhanced capacity.

### **DISTILLERY UNIT**

The Distillery Unit of your company produced 71.09 lacs B.L. of Industrial Alcohol during the financial year 07-08 as against 91.64 Lac B.L. during previous year. The lower production was due to lower availability of Molasses from own factory as well as from the sugar factories of the state due to short season. Moreover the state government allowed export of molasses outside the Bihar without considering the requirement of the state that causes further shortage of molasses in the state.

The Ethanol Plant supplied during the year 11.16 Lacs B.L. to Oil companies at different locations in Bihar and Jharkhand for admixing with Petrol at fixed price of Rs.21.50 per ltr plus Central excise duty.

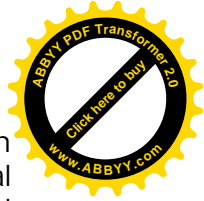
The company has further strengthen its capacity to achieve prescribed Zero Discharge norms of CPCB by adopting following measures:

- (a) Installing R.O. Membranes Plant for filtration of Digester treated effluent from Distillery thus reducing BOD/COD level. With a view to further augment the RO, company is further upgrading the RO system at cost of Rs.1.75 Crores.
- (b) Increased the capacity of Bio-Composting which uses distillery treated effluent which not only result into zero discharge but also produce bio-fertiliser whose marketing is on increasing trend.

The fresh water generating from effluent treatment is recycled/ reused. With aforesaid measures company have achieved full capacity utilization and thus is in position to continue its production in monsoon season also.

### **INDUSTRY STRUCTURE**

Our Industry, is seasonal in nature and directly dependent on monsoon for availability of adequate sugar cane. India is the largest consumer and second largest producer of sugar in the world, contributing over 15 percent of the world's sugar production through over 500 sugar factories situated in different parts of the country. The sugar Industry is second largest agro based industries in India. This industry also provides valuable by-products like bagasse, molasses and press mud. The availability of these by-products had led to setting up of Alcohol/Ethanol/co-generation of Power and Organic Manure plants. Over 5 Crore farmers and



their families besides large mass of agricultural labour are involved in sugarcane cultivation and its harvesting operations. The growth of sugar industry has a powerful impact on the rural economy. Integrated Sugar Industry (comprising sugar, alcohol and molasses) enjoys annual turnover of about Rs. 50,000 Crore and contribute about Rs.3,000 crore to the Central Government Exchequer by way of central excise duty every year beside state taxes on sugarcane and hefty taxes collected by state as excise and VAT on sale of spirit in the state which run an estimated Rs.10,000 crores annually. Beside the direct taxes by way income is additional source of revenue to the government from sugar industry. Sugar Industry accelerates rural development through farm employment as well as business opportunities in transport and communication.

Sugar has been declared as an 'essential commodity' under the Essential Commodities Act, 1955. Under Sugarcane (Control) Order 1966, the Government of India fixes the Statutory Minimum Price (SMP) for sugarcane every year based on the recommendations of the Commission on Agricultural Costs & Prices. 10% of sugar production is earmarked as Levy sold under PDS and balance as free which is regulated by government through monthly release.

The Indian sugar industry is characterized by cycle of high and low sugar production. This cycle of 5-7 years is broadly of two types viz. Natural comprising climatic variation, water availability and pest attacks. The other is induced cyclicity which have sequence like -- higher sugar production and accumulation of stock -- decline in sugar prices & profitability -- higher sugarcane arrears -- decline in area under cultivation & Lower cane production -- lower sugar production -- lower sugar availability and stock and thus increase in sugar prices --- improved profitability & low cane arrears -- higher cane production --higher sugar production and so on. Every time the cyclicity reaches its low government have to step in to provide Fiscal support in the form of Export subsidy, Buffer Stock creation, Interest Free Loans etc.

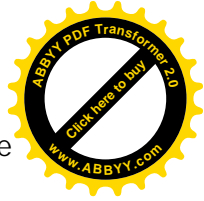
The fundamental problem of the Indian Sugar Industry is that there is no relation between the price of raw material i.e. sugarcane and its finished goods i.e. Sugar. In some states cane price is fixed by the state government at unreasonably high. Sugar Price are regulated by Union Government through varieties of measures including regulation of monthly release and control on international trade. Such illogical intervention of state government cause wide economical distortion in sugar industry. In almost all major sugar producing countries of the world the price of cane paid to the farmers depends realization from sugar. The central government thus should seriously take up the matter of sugarcane pricing which should be linked to sugar price and state government intervention should be dispensed. The well devised Bhargava Formula should be enforced which states that whenever there is extra realization over and above the sugar price fixed on the basis of SMP the same should be shared equally between the farmers and factory.

The government procure levy sugar at fixed price for distribution to BPL family. But during the period when open market price is higher than levy price the sizable quantity of levy sugar lifted by state government nominee is diverted by unscrupulous traders in the open market and not actually goes to concerned poor family. As such Industry demand that government should directly procure sugar from open market like other crops and sell to the BPL consumers as it is their responsibility and the industry should not be compel to extend subsidy. When the market price fall below Levy price during current downtrend the allotted levy were not lifted by the government nominees and thus factories were affected adversely. Sugar is the only commodities which is being subsidized by industry and not by government of India.

Movement and distribution of Molasses and Alcohol (co-products) are governed by the State Governments. Here also due to lack of clear cut cohesive policy which varies from state to state it take considerable time to even allot the sugar factory's own molasses to Distillery and allotment of finished goods Alcohol due to several bureaucratic hurdles. The permission to produce Ethanol out of alcohol also takes considerable time from state authority due to perceptible fear of losing revenue and meeting state requirement for potable.

#### CANE & SUGAR POLICY

- The ratio of levy and free sale sugar remained unchanged at 10:90.
- The Statutory Minimum Cane Price (SMP) for the season 07-08 was fixed by the Central Government at Rs.81.18 per Qtl. linked with basic recovery of 9.0% against Rs.80.25 per qtl. for the previous season 06-07 thereby hike of Re. 0.93 per qtl. In the case of the sugar factory of your Company, the SMP was fixed at Rs. 81.18 per Qtl. as against Rs. 83.85 per Qtl. for the season 06-07. However your company paid 3 tier cane price of Rs.98 (Early variety), Rs.93 (Normal variety) and Rs.86 (Rejected variety) for season 07-08 against Rs. 120, Rs.115 and Rs.111 respectively in previous season. For out-centre price were Rs. 8.50 lower than the above covering part of transport cost.



- The levy sugar price has been not revised from last four season and the government is asking to deliver levy at rate of Rs.1409.30 per Qtl. pending decision.
- Effective from 16<sup>th</sup> April, 2008 government has restored to grain-to-grain basis for Import of duty free raw sugar under Advance License and the earlier facility of tonne to tonne basis has been withdrawn. This means that white sugar for re-export has to be processed from the same raw sugar imported duty-free against Advance License /Advance Authorisation. The export obligation is one tonne of white sugar for every 1.05 tonnes of raw sugar imported and is to be fulfilled within 24 months of the date of issue of the License. This is welcome step as sugar factory having idle capacity due to short season can process raw sugar and export it. The earlier tonne to tonne basis was beneficial to traders only.
- The government has extended dispensation of the release order requirement for export of sugar till December, 08.
- The Govt. of India has discontinued the transport subsidy on exports since 30<sup>th</sup> September, 2008
- Ethanol price has been fixed at Rs.21.50 per litre ex-factory same as last year as agreed by the Industry with the Govt.
- The Government created Buffer Stock of 20 Lac Qtls. w.e.f. 01.05.07 and additional 30 Lac Qtls. from 01.08.2007 for period of 1 years from respective date of creation. The Government further notified that maximum rate of interest allowable on such Buffer disbursement will be 12% apart from Storage and Insurance charges of 1.5% p.a. The said Buffer was dismantled on completion of one year and gradually being released for sale in the market.
- The Government has mandated doping of 5% ethanol from 1<sup>st</sup> October, 2007, and have announced to increase the level to 10% from 1<sup>st</sup> October, 2008.

## **INDUSTRY OVERVIEW**

The sugar year 07-08 opened with a stock of 92 lac M/T against 36 lac M/T in 06-07. The production for the season 07-08 was at 263 lac M/T as against 283 lac MT during previous season. The domestic consumption of sugar for 07-08 is estimated at 225 lac M/T. The export of sugar was at staggering record of 50 Lac MT against 17 Lac MT in previous year. The closing stock is thus at 80 lac MT which is equivalent to about 5 months of Domestic consumption, which level is near to ideal.

## **OPPORTUNITIES AND THREATS**

### **OPPORTUNITIES**

#### **Sugar**

The estimated global sugar deficit in next 2 years due to lower production and increasing consumption trend despite the economic downtrend has been strengthening the sugar price which will accelerate growth of sugar industry.

#### **Distillery**

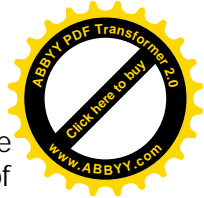
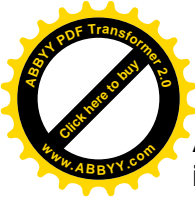
The increase of demand of Rectified Spirit /Ethyl Alcohol in varied segment and mandatory provision of ethanol doping of 5% and its proposed increase to 10% will have strong support for growth sugar industry.

#### **Bio-Compost Fertiliser**

The bio-compost and vermi-compost fertilizer being produced by the company have got immense scope of demand in all major agriculture cultivation as it not only preserve the soil from excessive use of chemical fertilizer but also increase its fertility. The company is using distillery effluent and press mud from sugar and other agricultural waste to produce bio-compost which is very cost efficient. Thus the company apart from treatment of effluent and zero discharge adding value and thus expect good cash flow in near future.

### **THREATS**

#### **Sugar**



Any changes in policy of the government to allow the import of white sugar or lowering the import duty instead of allowing raw sugar import under advance license to ward off the wary of short supply or price increase will threat the interest of sugar factories and farmers at large.

### Distillery

The shortage of molasses and its increased price are threat to the growth of Alcohol and Ethanol Sector.

### **SEGMENT-WISE PERFORMANCE:**

In 07-08, sugar segment contributed 77 percent of net sales of the company whereas Distillery accounted for 23 percent. The company identified two business segments in line with the Accounting Standard on Segment Reporting, Segment-wise Revenue, Results and Capital Employed is stated in Note No.16 of Schedule 14 of Audited Accounts enclosed with the Annual Report.

### **FUTURE PROSPECTS/OUTLOOK**

Sugar production in the country during the season 07-08 was at 263 Lac tonnes as against 283 Lac tonnes during the previous season. The sugar production forecast for the season 2008-09 is at much lower at 195 Lac tonnes approximately.

Reason for lower production estimate for season 08-09 may be attributed to lower area under sugar cane as well as lower yield of cane crop. This phenomena is visible across all parts of the country. Cane price arrears over the last couple of years caused by losses incurred by the industry resulted diversion of area under cane to alternate crops.

Sugar price in the domestic market is expected to remain at reasonable level as the excess inventory shall be absorbed in the system because of estimated lower sugar production in the country and worldwide deficit.

The Government of India has increased the level of blending of ethanol from 5% to 10% effective October 2008. However the complete blending upto 5% is yet to be achieved in the country.

In view of persistent power shortage in the country the Govt. of India has set the target growth rate of 10% in power sector during the Eleventh Plan period. In order to achieve this target, the Government has opened up power sector to attract investments resulting into more sugar companies to set up cogeneration power projects.

### **Global Scenario:**

In last season 07-08 India became third largest sugar exporter after Brazil and Thailand. Importantly India was main raw sugar supplier to world's largest sugar supplier in Dubai, replacing Brazil. However anticipating lower production in 08-09 it is unlikely to repeat the stunning performance.

The global surplus phase of sugar has ended and the market is moving toward deficit phase. The International Sugar Organization has forecast the global production fall to 162.3 million tones in 08-09, a massive 6.4 million tones down from last season. However the world consumption trend will continue to grow at 2.5% annually. Thus the world sugar deficit will be 3.60 million tonnes in 08-09 against surplus of 7.25 million tonnes in 07-08. Production shortfall is mainly due to lower production in India and European Union. Most of the production shortfall in exporting countries are expected to be covered from stock accumulated during previous season. Further the first tentative indication as predicted by ISO show that the season 2009-10 will further wide the gap between world consumption and production

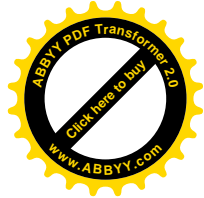
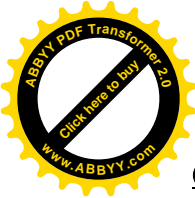
For season 08-09 Brazil's sugar output is anticipated to increase slightly. Brazil, the world's largest grower of sugar cane will continue to dominate the supply side. The main uncertainties' are the future exchange rate of BRL and effect of credit crunch on cane processing expansion programmes .

Sugar production in Indonesia, Thailand, China is expected to increase marginally.

Australia, one of the world's largest raw sugar exporters is expected lower production this year due to drop in harvesting due to seasonal factor.

The European Union will replace Russia as world's largest raw sugar buyer in 08-09 due to EU sugar market reforms and cut in Russian buying.

ISO expect that under above circumstances sugar prices will rebound. Consequently the current fundamentals outlook is the most encouraging.



## **Company's Plan:**

### **SUGAR**

The expansion of sugar factory to 4500/5000 TCD ensure higher production by the company with increase in recovery. This will also increase the production of molasses which will help to produce higher alcohol and Ethanol and reduce the dependence on molasses from outside factory.

The company is planning and taking action to increase the cane availability to cater the expanded capacity of the plant. To restore the productivity and the fertility of the soil which has been deteriorated physically, chemically and biologically the company has established laboratories Tissue Culture Laboratory, Soil Testing Laboratory & Microbial Culture Laboratory. The Microbial Culture Laboratory will produce four types of Microbes:-

- i) Acetobactor – for fixation & assimilation of atmospheric Nitrogen.
- ii) Phosphorus solubilising bacteria for providing phosphorous to the plant.
- iii) Potash mobilizing bacteria – to provide potassium to the plant.
- iv) Tricoderma viridae – Organo decomposer as well as bio pesticide.

There is tremendous commercial scope of above mentioned products not only in our factory area but also in other market.

## **RISK AND CONCERN**

### **SUGAR**

- (a) Delay in evolving a rational Sugarcane Pricing Policy- having link with sugar price- is detrimental to growth of the industry.
- (b) The output of sugar, an agro-based product, is influenced by climatic vagaries.
- (c) Sugar Industry being cyclic in nature, the growth is hampered during downtrend.
- (d) Due to global liquidity crisis the financing of growth plan will be hampered and increased cost of fund will have adverse impact on profitability.

### **DISTILLERY**

- (a) Lack of clear cut policy of the State Government and time consuming regulation of the movement and distribution of molasses are major concerns in respect of Distillery operations.
- (b) Inconsistent policy of the Central and State government in the implementation of the Ethanol Blending Programme and its stringent pricing issue are matter of concern.

## **INTERNAL CONTROL SYSTEMS AND THEIR ADEQUACY:**

Your Company has adequate systems and internal control procedures to safeguard the assets of the company and to ensure maintenance of proper accounting records. Computersied Information System is available to capture, present and analyse the data for management information and decision-making. The company has installed ERP system for entire factory operation including sugarcane, raw material, Store, manpower, sales, accounting Management. The management and control of factory operation is also under computerization and automation. There is also an Internal Audit System in place which reviews the key business and controls and also test checks on routine transactions and reports deviations. Besides, an Audit Committee periodically reviews the functioning of the entire system.

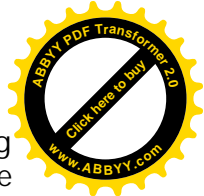
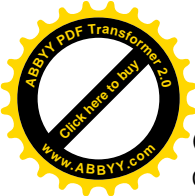
### **FIXED DEPOSITS:**

The company has not accepted/renewed any Fixed Deposits during the year. There is no overdue Fixed Deposit or Interest thereon at the end of the year.

### **AUDITORS' REPORT:**

The Notes on the Statement of Accounts referred to in the Report of the Auditors have been suitably explained by way of 'Notes on Accounts'.

### **COST AUDIT:**



Cost Audit of Accounts of the Company for the year ended 30<sup>th</sup> September, 2008 is being conducted by M/s. Mani & Co., Cost Accountants, Kolkata, and necessary Report will be submitted to the Department of Company Affairs, Government of India, well in time.

#### **DIRECTORS:**

Mr Pankaj Tibrawalla, Director retires by rotation at the ensuing Annual General Meeting and being eligible offer himself for re-appointment.

Mr. Suyash Borar , Director who retires by rotation at the ensuing Annual General Meeting and being eligible offer himself for re-appointment.

Mr. O.P. Dhanuka, who was appointed as Managing Director on 1<sup>st</sup> March, 2003 for a period of 5 years which term is expiring on 28<sup>th</sup> February, 2008. The Board of Director in their meeting held on 27<sup>th</sup> December, 2008 has re-appointed Mr. O.P. Dhanuka as Managing Director with effect from 1<sup>st</sup> March, 2008, subject to approval of shareholders as special resolution in the ensuing Annual General Meeting.

#### **DIRECTORS' REPONSIBILITY STATEMENT:**

Pursuant to the provisions of Section 217(2AA) of the Companies Act, 1956, as amended, with respect to the Directors' Responsibility Statement, it is hereby confirmed:

- (i) That in preparation of accounts for the year ended 30<sup>th</sup> September, 2008, the applicable accounting standards have been followed along with proper explanation relating to the material departures;
- (ii) That the Directors of the Company have selected such accounting policies and applied them consistently and made judgements and estimates that are reasonable and prudent so as to give a true and fair view of the state of affairs of the Company as at 30<sup>th</sup> September, 2008 and of the profit of the Company for the year ended 30<sup>th</sup> September, 2008.
- (iii) That the Directors of the Company have taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of the Companies Act, 1956 for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities.
- (iv) That the Directors of the Company have prepared the accounts of the Company for the year ended 30<sup>th</sup> September, 2008 on 'going concern' basis.

#### **CORPORATE GOVERNANCE:**

The Corporate Governance form an integral part of this Report and are set out as separate annexures to this Report. The certificate from the Auditors of the company certifying compliance of condition of Corporate Governance stipulated in Clause 49 of the Listing Agreement with the Stock Exchanges is also annexed to Report on Corporate governance.

#### **PERSONNEL:**

There was no employee of the Company getting remuneration so as to attract the provisions of Section 217(2A) of the Companies Act, 1956 read with the Companies (Particulars of Employees) Rules, 1975 as amended as on date.

#### **LISTING OF SHARES:**

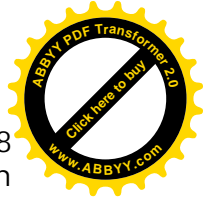
The Shares of the Company are listed on the Stock Exchanges of Calcutta and Mumbai. The Company has been regularly paying the Listing Fees to each Stock Exchanges.

#### **CREDIT RATING**

As per Base-II norms in june, 2008 the company has been assigned BBB-/Stable rating by CRISIL on Credit facilities from Banks which means "Investible Grade". With the further expected strengthening of financial position the company's rating will definitely increase.

#### **Change in Capital Structure:**

On 25<sup>th</sup> January, 2008 the company has allotted 9,25,925 optionally converted equity share warrants of Rs. 27/- each on preferential allotment basis to promoters group and to others for total amount of Rs. 250 Lacs as per SEBI guideline after taking consent of shareholder by way of special resolution dated 2<sup>nd</sup> January, 2008. The company received a sum of Rs.2.70 per warrant being the 10% of the subscription price as application money. The said warrants was to be converted into shares within 18 months of its allotment. Out of that 4,80,000 warrants was



converted into equity shares of Rs.10/- each at a premium of Rs.17/- on 15<sup>th</sup> September, 2008 after receiving the balance amount. The entire proceeds from such private placements has been utilized for strengthening the financial parameters of the company for bank finance.

**CONSERVATION OF ENERGY:**

Particulars in respect of conservation of energy, technology absorption and Foreign Exchange earning and outgo as required under Section 217(1)(e) of the Companies Act, 1956 are given in a separate annexure hereto and forming part of this report.

**AUDITORS:**

M/s. K.N. Gutgutia & Co., Chartered Accountants, Kolkata, Auditors of the Company, retire and being eligible offer themselves for re-appointment.

**APPRECIATION:**

Your Directors express their appreciation for the support and contribution by Cane Growers, Bankers, Central and State Government, Suppliers, Customers and the valuable services rendered by the Employees at all levels.

Kolkata,  
Dated: 27<sup>th</sup> December, 2008

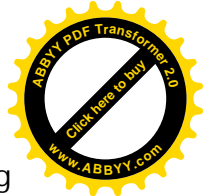
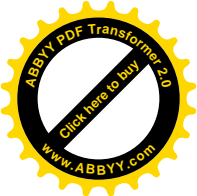
For and on behalf of the Board,

O.P. Dhanuka  
Chairman & Managing Director



Information pursuant to the Companies (Disclosure of particulars in the report of Board of Directors) Rules, 1988 and forming part of the Directors' Report for the year ended 30<sup>th</sup> September, 2008:

**A. CONSERVATION OF ENERGY:**

**Energy Conservation measures taken:**

- a) Your Company continues to give priority to conservation of energy on an ongoing basis.
- b) Total energy consumption and energy consumption per unit of production – Given separately in Form 'A' annexed hereto.

**B. TECHNOLOGY ABSORPTION:****Research & Development ( R & D):**

- a) Specific areas in which R & D is being carried out by the Company:

**Agriculture Development:**

- 1) Soil Analysis and Nutrition
- 2) Soil Testing Lab
- 3) Tissue Culture
- 4) Microbial Culture Laboratory
- 5) Biological Control of Cane Crop
- 6) Heat Treatment Therapy to treat Sugarcane Seeds
- 7) Pest Control Measures to protect Sugar Cane from diseases.
- 8) Multiplication of foundation Cane Seeds by rearing in Nurseries
- 9) Ratoon Management for Sugar Cane crops.
- 10) Plantation of Jhatropa- a Bio- Diesel Plant

**Manufacturing Process:**

- 1) Increase in operational efficiency of the Plant
- 2) Reduction of Sugar losses in process
- 3) The Company has implemented the Technological Upgradation-cum-Capacity Optimisation Scheme as per advice from the Sugar Technology Mission of the Government of India. The Scheme on implementation has resulted in saving in Power and Steam, improvement in recovery and Sugar quality, apart from increasing the per day crushing rate.

**Utilisation of by-products:**

Manufacture of Bio-Compost & Vermi- Compost by using Pressmud and Distillery Effluents.

- b) Benefits derived as a result of above R & D:

- 1) By the measures under caption "Agricultural Development": Availability of high yielding disease-free cane and higher financial return to the Cane Growers. Microbial Lab will increase the fertility of soil by restoring its vital components.
- 2) By the measures under caption "Manufacturing Process": Improvement in production efficiency and reduction in sugar losses and achievement of zero discharge level and air water pollution level much below the maximum norms set by government.
- 3) By the measures under caption "utilisation of by-products": Advent of Bio-Fertilizer and cheaper duly treated Effluent Water, rich in nutrients, which are beneficial to the farmers, factory and environment and achievement of zero water discharge and pollution level much below the maximum norms set by government.

- c) Future Plans of Actions:

- 1) Continuous research of better yielding disease-free variety of cane.
- 2) Contemplating scheme to reduce sugar loss in the process and simultaneously increasing operational efficiencies.

- d) Expenditure on R & D:

- 1) Capital : Rs.3.00 lac
- 2) Recurring : Rs. 12.00 Lacs approx. per annum
- 3) Total : Rs. 15.00 Lacs approx.
- 4) Total R & D Expenditure: 0.19% of total turnover.  
as percentage of total turnover

- e) Technology absorption, Adaptation and Innovation:

- i) Efforts, in brief, made towards technology absorption, adaptation and innovation: