

**TOGETHER WE SOW.  
TOGETHER WE HARVEST.  
TOGETHER WE PROSPER.**



**67<sup>th</sup>** वार्षिक रिपोर्ट  
**ANNUAL REPORT**  
**2010 - 2011**



दि फर्टिलाइजर्स एण्ड केमिकल्स ट्रावन्कोर लिमिटेड  
**THE FERTILISERS AND CHEMICALS TRAVANCORE LIMITED**

# THE FERTILISERS AND CHEMICALS TRAVANCORE LIMITED

Registered Office: Eloor, Udyogamandal, Kochi.

## NOTICE TO SHAREHOLDERS

NOTICE is hereby given that the 67th Annual General Meeting of the Company will be held on Thursday the 29th day of September, 2011 at 11.00 A.M at Udyogamandal Club at Eloor, Udyogamandal, Kochi to transact the following business:

### Ordinary Business

1. To receive, consider and adopt the audited Balance Sheet as at 31st March, 2011 and the Profit and Loss Account for the year ended on that date and Reports of the Directors and Auditors thereon.
2. To elect a Director in place of Ms. Pratibha Karan who retires at the Annual General Meeting and being eligible, offers herself for re-election.
3. To elect a Director in place of Shri T.M.Jeyachandran who retires at the Annual General Meeting and being eligible, offers himself for re-election.
4. To elect a Director in place of Shri Khan Masood Ahmad who retires at the Annual General Meeting and being eligible, offers himself for re-election.
5. To elect a Director in place of Dr.R.K.Mishra who retires at the Annual General Meeting and being eligible, offers himself for re-election.
6. To elect a Director in place of Dr.B.S.Ghuman who retires at the Annual General Meeting and being eligible, offers himself for re-election.
7. To elect a Director in place of Dr.B.Bodeiah who retires at the Annual General Meeting and being eligible, offers himself for re-election.
8. To elect a Director in place of Shri S.Balan who retires at the Annual General Meeting and being eligible, offers himself for re-election.

### Special Business

9. To elect Shri S.C.Gupta as a Director of the company.

The Company has received Notice in terms of Section 257 of the Companies Act, 1956 proposing Shri S.C.Gupta for election as a Director of the Company at this Annual General Meeting.

10. To elect Shri V. Rajagopalan as a Director of the company.

The Company has received Notice in terms of Section 257 of the Companies Act, 1956 proposing Shri V.Rajagopalan for election as a Director of the Company at this Annual General Meeting.

By Order of the Board of Directors.

Sd/-  
**K.V.Balakrishnan Nair**  
Company Secretary

Eloor, Udyogamandal  
Date: August 30, 2011

#### **Notes:**

1. The Register of Members will be closed from 27th September 2011 to 29th September 2011 both days inclusive.
2. A Member entitled to attend and vote at the Meeting is entitled to appoint a proxy to attend and vote instead of himself and the proxy need not be a member.
3. The relative explanatory statement required under Section 173 of the Companies Act, 1956 is given below:

#### **Explanatory Statement Under Section 173 of the Companies Act, 1956 in respect of the Special Business to be transacted at the Meeting.**

##### **Item No.9**

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers vide Order No. 130/8/2003-HR-1 dated 8th August, 2011 appointed Shri S.C.Gupta, Joint Secretary (F&P), Department of Fertilisers, Ministry of Chemicals and Fertilisers as a Part-time Official Director of the Company in pursuance of Article 80 (c) of the Articles of Association of the Company. To comply with the relative Company Law requirement, Shri S.C.Gupta was co-opted as additional Director of the Company with effect from 12-08-2011. For a fresh term from the close of the AGM, to meet the requirements under the Companies Act, he needs to be elected as a Director.

No Director other than Shri S.C.Gupta is interested in the resolution.

##### **Item No.10**

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers vide Order No. 130/8/2003-HR-1 dated 8th August, 2011 appointed Dr. V.Rajagopalan, Additional Secretary & Financial Adviser(AS&FA), Department of Fertilisers, Ministry of Chemicals and Fertilisers as a Part-time Official Director of the Company in pursuance of Article 80 (c) of the Articles of Association of the Company. To comply with the relative Company Law requirement, Dr. V.Rajagopalan was co-opted as additional Director of the Company with effect from 12-08-2011. For a fresh term from the close of the AGM, to meet the requirements under the Companies Act, he needs to be elected as a Director.

No Director other than Shri V.Rajagopalan is interested in the resolution.

## BOARD OF DIRECTORS

**Shri Sham Lal Goyal**

Chairman & Managing Director (w.e.f 01.03.2011)

**Shri P. Muthusamy**

Director (Finance) (w.e.f. 18.03.2011)

**Shri V.K. Anil**

Director (Technical) (w.e.f. 28.06.2011)

**Dr. V. Rajagopalan**

Part-time Official Director ( w.e.f. 12.08.2011)

**Shri S.C. Gupta**

Part-time Official Director ( w.e.f. 12.08.2011)

**Shri Satish Chandra**

Part-time Official Director ( upto 12.08.2011)

**Shri V.G. Sankaranarayanan**

Chairman & Mg. Director ( from 01.09.2010 to 28.02.2011)  
Director (Technical) - (upto 30.04.2011)

**Shri K. Mathevan Pillai**

Chairman & Mg. Director ( from 01.07.2010 to 31.08.2010)

**Shri A. Asokan**

Chairman & Mg. Director ( from 01.12.2009 to 30.06.2010)

**Shri Mathew C. Kunnumkal**

Part-time Official Director ( upto 03.05.2010)

**Shri Sudhir Bhargava**

Part-time Official Director ( upto 03.05.2010)

**Ms.Pratibha Karan**

Non-Official Part-time Director

**Shri T.M.Jeyachandran**

Non-official Part-time Director

**Prof. Khan Masood Ahmad**

Non-Official Part-time Director

**Prof. R.K. Mishra**

Non-Official Part-time Director

**Dr.B.S.Ghuman**

Non-Official Part-time Director

**Dr.B. Bodeiah**

Non-Official Part-time Director

**Shri S. Balan**

Non-Official Part-time Director

**Chief Vigilance Officer**

Shri Rajesh Kundan

**Company Secretary**

Shri K.V. Balakrishnan Nair

### AUDITORS

**Statutory Auditors**

M/s. Babu A. Kallivayalil & Co.  
Kochi

**Branch Auditors**

M/s. A. John Moris & Co.  
Chennai

**Cost Auditors**

M/s. Sukumaran & Co.  
Cost Accountants, Thiruvananthapuram

M/s. Ramanatham & Rao  
Chartered Accountants, Hyderabad

### BANKERS

State Bank of Travancore, Bank of Baroda, State Bank of India  
State Bank of Hyderabad, Bank of India, Canara Bank, Dena Bank

## DIRECTORS' REPORT

To the Members,

Your Directors have pleasure in presenting the 67th Annual Report of your Company together with the Audited Accounts and the report of the Auditors for the year 2010-2011.

We are happy to inform you that FACT has been able to maintain an impressive level in the overall performance during the financial year 2010-11. Turn over of the company touched an all time record of ₹ 2512 crore.

### HIGHLIGHTS

- All time high sales turnover • All time record sale of Gypsum
- Impressive sale of Caprolactam
- New record in production and sale of Bio-Fertilisers
- Award and Laurels in Safety and Pollution Control

### PERFORMANCE - PRODUCTION, SALES AND PROFITABILITY

	2010-2011	2009-2010
<b>1 Production / In Tonnes</b>		
<b>Factamfos 20:20</b>	<b>644454</b>	753744
<b>Ammonium Sulphate</b>	<b>200311</b>	179546
<b>Caprolactam</b>	<b>44345</b>	42006
<b>2 Sales / In Tonnes</b>		
<b>Fertilisers</b>	<b>932670</b>	1044893
<b>Caprolactam</b>	<b>44136</b>	38253
<b>3 Financial / ₹ lakh</b>		
<b>Turnover</b>	<b>251183</b>	214161
<b>Profit before interest, depreciation &amp; taxes</b>	<b>13438.72</b>	3654.11
<b>Profit/Loss (-) after tax</b>	<b>(-)4932.67</b>	(-)10383.51

During the year 2010-11, the company has achieved considerable improvement in the production of Ammonium Sulphate and Caprolactam.

The main reason for shortfall in the production of Factamfos as compared to previous year is the shortage of phosphoric acid.

The reason for the reduction in the sale of Factamfos as compared to 2009-10 is attributable to lower production.

Financial results of the company for the year 2010-11 shows a loss of ₹49.33 crore as against the loss of ₹103.84 crore during the year 2009-10.

Due to the accumulated loss, your Directors are not recommending any dividend for the year 2010-2011.

The loss incurred for the year under review is mainly due to the provision for gratuity, loss on sales of Fertilisers bonds provided in the accounts and huge burden on interest and financing charges.

Consequent to the increase in gratuity limit from ₹3.5 lakh to ₹10 lakh, the liability towards Gratuity provision and leave encashment

debited in the profit and loss account for the year 2010-11 is ₹85.04 crore as against ₹20.64 crore during the previous year.

Under a buy-back scheme announced by the Government of India, the Fertiliser bonds amounting to ₹265.76 crore have been sold by the Company to RBI on 31.3.2011 and 26.7.2011. Government of India agreed to compensate not less than 50% loss suffered on account of buy-back arrangement. Loss of ₹18.48 crore being 50% of loss on reduction in face value of bonds has been provided in the Annual Accounts for the year 2010-11.

The company has incurred additional expenditure of ₹25.11 crore on account of interest and financing charges for the year 2010-11 as compared to last year and the total interest and financing charges provided in the accounts for the year 2010-11 is ₹141 crore.

The production and the financial performance of the company during the first quarter of the financial year 2011-12 is also not encouraging. Due to shortage of raw materials the production fell much below the targeted levels.

The Company has taken steps to ensure availability of raw materials to optimize production in the remaining months of the financial year 2011-12. The Company has laid down plans to maximize the production of captive phosphoric acid. The availability of imported phosphoric acid is also showing some improvement. FACT has entered into a long term arrangement for supply of phosphoric acid with indigenous supplier. The Company is also proposing to enter into long term arrangement for supply of Rock phosphate. To facilitate procurement of bulk consignment of Sulphuric acid, the company has hired a Sulphuric acid storage facility at Willingdon Island.

In order to improve the turnover and profitability, the company is concentrating in marketing of traded products. During the year 2011-12, FACT has already handled a Urea ship of 32996 MT at Cochin Port. FACT is anticipating another Urea ship during the second quarter of the financial year 2011-12. Offers have already been received for import of MOP through MMTC and FACT plans to import 50000 to 75000 MT of MOP during the financial year 2011-12.

To promote Integrated Plant Nutrient Management, FACT is expanding the sale of organic manure to the State of Tamil Nadu. During the year 2011-12, FACT has considerably increased the sale of bulk Gypsum and plans to sell 50,000 MT of bagged Gypsum. The sale of bulk Gypsum is set to touch an all time record of 6 to 7 lakh MT during the year 2011-12.

On materializing the above, the Company hopes to improve its physical and financial performance and to show a positive result for the financial year 2011-12.

The Joint Venture project with RCF for manufacturing gypsum-based building material is nearing completion and the project is expected to be commissioned shortly.

#### **MANAGEMENT DISCUSSION AND ANALYSIS REPORT**

A Management Discussion and Analysis Report covering the operational aspects during the year 2010-2011 is enclosed.

#### **DIRECTORS' RESPONSIBILITY STATEMENT**

Pursuant to Sec.217(2AA) of the Companies Act, 1956, your Directors hereby state :

that in the preparation of annual accounts, the applicable accounting standards had been followed along with proper explanation relating to material departures.

that the directors had selected such accounting policies and applied them consistently and made judgments 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 March 31, 2011 and of profit and loss account for the year ended March 31, 2011.

that the directors have taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of this Act, for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities.

that the directors had prepared the annual accounts on a going concern basis.

#### **REPORT ON CORPORATE GOVERNANCE**

Your Directors are pleased to state that your Company has been

practicing the principles of good Corporate Governance. The Board lays emphasis on transparency and accountability for the benefit of all stake-holders of the Company. Report on Corporate Governance in accordance with the listing agreement is annexed to this report.

#### **STATUTORY AUDITORS, COST AUDITORS**

M/s. Babu A.Kallivayalil & Co., Chartered Accountants, Kochi, was re-appointed as Statutory Auditors of the Company for the year 2010-11 by the Comptroller and Auditor General of India. M/s. A.John Moris & Co, Chartered Accountants, Chennai was re-appointed as Branch Auditors for Tamilnadu and Kerala area and M/s.Ramanatham & Rao, Chartered Accountants, Hyderabad was re-appointed as Branch Auditors for Karnataka and Andhra Pradesh area of the Company for the year 2010-11 by the Comptroller and Auditor General of India.

M/s. Sukumaran & Co., Cost Accountants, Thiruvananthapuram has been appointed as Cost Auditors of the Company for the year 2010-11.

#### **Comments of Statutory Auditors**

The Statutory Auditors in their report has made certain comments on the Accounts of the Company for the year 2010-11. The reply to the comments of Statutory Auditors are annexed to this report.

#### **DIRECTORS RETIREMENT & APPOINTMENTS**

Shri A.Asokan, Director (Marketing) who was holding additional charge of Chairman and Managing Director, has retired from the services of FACT on superannuation on 30.06.2010.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers vide Order No.86/5/2008-HR-I dated 30th June 2010 entrusted additional charge of the post of Chairman and Managing Director to Shri K.Mathevan Pillai, Director (Finance), and Shri K.Mathevan Pillai had assumed charge of Chairman and Managing Director with effect from 01.07.2010. Shri K.Mathevan Pillai, superannuated from the service of FACT on 31.08.2010.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers vide Order No. 86/5/2008-HR-I dated 6th September 2010 entrusted additional charge of the post of Chairman and Managing Director to Shri V.G.Sankaranarayanan, Director (Technical). Shri V.G.Sankaranarayanan had assumed charge of Chairman and Managing Director with effect from 01.09.2010 and held the additional charge upto 28.2.2011. Shri V.G.Sankaranarayanan, Director (Technical) superannuated from the service of FACT on 30.4.2011.

Department of Fertilisers, Ministry of Chemicals and Fertilisers, Government of India, vide Order No.130/8/2003-HR-1 dated 3rd May 2010 notified the appointment of Shri Satish Chandra, Joint Secretary, Department of Fertilisers and Shri Deepak Singhal, Joint Secretary, Department of Fertilisers, on the Board of Directors of FACT in place of Shri Mathew C,Kunnumkal, Director and Shri Sudhir Bhargava, Director, respectively.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers, vide Order No.130/8/2003-HR-I dated 3rd November 2010 notified the appointment of Shri Sham Lal Goyal, Joint Secretary (P&P), Department of Fertilisers as a Director on the Board of FACT in place of Shri Deepak Singhal, Director.

Government of India, Ministry of Chemicals and Fertilisers,

Department of Fertilisers vide Order No. 86/5/2008-HR-I dated 28th February 2011 entrusted additional charge of the post of Chairman and Managing Director to Shri. Sham Lal Goyal, Joint Secretary (P&P), Department of Fertilisers, Ministry of Chemicals and Fertilisers. Shri Sham Lal Goyal has assumed charge of Chairman and Managing Director with effect from 01.03.2011.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers, vide Order No.86/4/2009-HR-I dated 20th December 2010 notified the appointment of Shri P.Muthusamy, as Director (Finance). Shri P.Muthusamy has assumed charge with effect from 18.03.2011.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers, vide Order No.86/1/2010-HR-I dated 28th June 2011 notified the appointment of Shri V.K.Anil, as Director (Technical). Shri V.K.Anil has assumed charge with effect from 28.06.2011.

Government of India, Ministry of Chemicals and Fertilisers, Department of Fertilisers, vide Order No.130/8/2003-HR-1 dated 8th August 2011 notified the appointment of Dr.V.Rajagopalan, Additional Secretary & Financial Adviser, Department of Fertilisers and Shri S.C.Gupta, Joint Secretary (F&P), Department of Fertilisers, as Part-time Official Directors on the Board of FACT in place of Shri Satish Chandra and Shri Sham Lal Goyal respectively.

The Board place on record its appreciation of the valuable services rendered by Shri A. Asokan, Director (Marketing), Shri K.Mathevan Pillai, Director (Finance), Shri V.G.Sankaranarayanan, Director (Technical), Shri Mathew C. Kunnumkal, Director, Shri Sudhir Bhargava, Director, Shri Deepak Singal, Director and Shri Satish Chandra, Director.

#### **AUDIT COMMITTEE**

In line with the Provision of Section 292(A) of the Companies (Amendment) Act, 2000 and Clause 49 of the listing agreement with Stock Exchange, an Audit Committee of the Board has

been constituted.

#### **PUBLIC DEPOSITS**

The total amount of Fixed Deposits as on 31st March 2011 was ₹4873.24 lakh. As on 31-03-2011, 10 depositors have not claimed their deposits amounting to ₹ 90.35 lakh.

#### **CONSERVATION OF ENERGY, TECHNOLOGY ABSORPTION AND FOREIGN EXCHANGE EARNINGS AND OUTGO**

Information regarding the conservation of energy, technology absorption, adaptation & innovation and foreign exchange earnings and-outgo required as per Section 217(1) (e) of the Companies Act, 1956 is set out in a separate statement attached to this report and forms part of it.

#### **EMPLOYEES PARTICULARS, REMUNERATION ETC.**

During the year no employee had received remuneration within the purview of Section 217(2A) of the Companies Act, 1956.

#### **ACKNOWLEDGEMENT**

Your Directors gratefully acknowledge the valuable guidance and support extended by the Government of India, Department of Fertilisers and the State Governments of Kerala, Tamilnadu, Karnataka and Andhra Pradesh.

The Directors deeply appreciate the committed efforts put in by the employees and look forward to their dedicated services and endeavour in the years ahead to enable the Company to scale greater heights.

The Directors also acknowledge the continued support extended by the Shareholders, Depositors, Dealers, Suppliers and Customers of the Company, the Press and Electronic Media.

For and on behalf of the Board of Directors.

Sd/-

Udyogamandal

Sham Lal Goyal

Date: August 30, 2011

Chairman and Managing Director

### **ANNEXURE TO DIRECTORS' REPORT**

#### **Particulars Required under Companies**

(Disclosure of particulars in the report of Directors) Rules 1988

#### **A. Conservation of Energy**

1. Raw materials/Utilities consumption of all the products is monitored regularly by evaluating the critical parameters. The energy efficiency is reviewed on a monthly basis to identify the weak area and rectify the short-comings.
2. A variable frequency drive was installed for Cooling Tower Fan (75KW) in Captive Power Plant in Ammonia Complex. Variable frequency drives were fitted for CO2 blower in Ammonia complex and Fume Fan in 4th Stage Ammophos plant. Energy reduction resulting in savings above ₹ 11 lakh per year is realized.
3. Upgradation of insulation for Hadsa reactor and circulation system was carried out which caused reduction in load of Ammonia compressor drive turbine

in Hyam plant of Petrochemical Division. Steam consumption for the turbine has reduced from 41 TPH to 40 TPH.

4. For optimum steam balancing of Udyogamandal Steam network, Motor driven Air Blower in SO2 acid plant was lined up instead of Steam driven blower.
5. A large solar water heater having a capacity of 4000 litres per day has been installed at Udyogamandal Cafeteria.

#### **B. Technology Absorption, Adaptation and Innovation Efforts in brief**

1. In Petrochemical Division the working speed of Variable Frequency Drive of a 75 KW for AGT 4501B was reduced by 18% for energy saving.

2. A bio-gas plant has been installed in Udyogamandal for processing the food waste generated in the canteen in eco-friendly way and reducing fuel requirement at the same time.
3. A critical heat exchanger required for ISRO for their 6MW Plasma Wind Tunnel facility was designed by FEDO and fabricated by FEW successfully and has earned appreciation.

#### Benefits derived

1. Operation of Variable Frequency Drive of 75 KW for AGT 4501B in reduced speed has resulted in savings ₹ 1.5 lakh per annum in energy cost.
2. Bio-gas generated is used as fuel for cooking and has reduced LPG consumption.
3. ISRO has expressed keen desire for continued association with FEW and further orders are expected.

### 3. R & D Activities

Details of Research & Development (R&D) activities are given in Form B.

#### C. Foreign Exchange Earnings and Outgo- Details of activities relating to export; Initiatives taken to increase exports; development of new export market.

During the financial year 2010-11, 11985 MT of Caprolactam was exported as against 9571 MT during 2009-10. The exports were mainly to China, Thailand and Malaysia. FACT is an associate member of Federation of Indian Export Organisation and holding Two Star Export House Status.

Details of foreign exchange earning and outgo are given separately.

<b>FOREIGN EXCHANGE EARNINGS AND OUTGO</b>		
Foreign Exchange Outgo	Current Year ₹ in Lakh	Previous Year ₹ in Lakh
(i) C.I.F. Value of Imports:		
(a) Raw Materials	<b>77069.04</b>	92880.83
(b) Spares and Other Materials	<b>148.24</b>	162.17
(c) Capital Goods	<b>62.54</b>	5.28
	<b>77279.82</b>	93048.28
(ii) Expenditure in Foreign Currency (Cash Basis)		
(a) Consultancy Service	<b>156.08</b>	0.00
(b) Others	<b>18.30</b>	20.64
	<b>174.38</b>	20.64
Total (i) + (ii)	<b>77454.20</b>	93068.92
Foreign exchange earned	<b>13443.85</b>	9215.79



**FORM – A**

Form for disclosure of particulars with respect to conservation of energy: 2010-2011

**(A) POWER AND FUEL CONSUMPTION**

Particulars	Udyogamandal Division		Cochin Division		Petrochemical Division	
	2010-11	2009-10	2010-11	2009-10	2010-11	2009-10
<b>(1) ELECTRICITY</b>						
(a) Purchased						
Unit: Lakh KWH	<b>508.95</b>	495.05	<b>517.72</b>	497.70	<b>236.58</b>	249.80
Amount ₹ in lakh	<b>1864.95</b>	1785.06	<b>1904.74</b>	1810.22	<b>867.44</b>	900.23
Rate/Unit: ₹/KWH	<b>3.66</b>	3.60	<b>3.68</b>	3.64	<b>3.66</b>	3.60
(b) Own Generation						
(i) Through Steam						
Turbine/Generator						
Unit: Lakh KWH	<b>239.34</b>	237.07	-	-	<b>555.09</b>	531.39
Unit per litre of fuel						
KWH/litre	<b>3.58</b>	3.52	-	-	<b>3.33</b>	3.61
Cost/Unit: ₹/KWH at normative levels	<b>9.89</b>	7.82	-	-	<b>8.94</b>	7.97
(ii) Transfer from other Divisions						
Unit: Lakh KWH		-	-	-	<b>26.26</b>	38.65
Unit per litre of fuel						
KWH/litre		-	-	-	<b>3.58</b>	3.52
Cost/Unit: ₹/KWH at normative levels		-	-	-	<b>9.89</b>	7.82
<b>(2) FURNACE OIL/LSHS</b>						
Quantity: Tonnes	<b>52135</b>	48334	11450	12128	<b>55191</b>	54073
Total Cost ₹ in Lakh	<b>13389</b>	10795	2823	2426	<b>14352</b>	12095
Average Rate ₹ /MT	<b>25682</b>	22334	24654	20006	<b>26004</b>	22368

**(B) CONSUMPTION PER UNIT OF PRODUCTION**

SI.No	PRODUCT	ELECTRICITY			NAPHTHA			FURNACE OIL/LSHS			
		Unit	2010-11	2009-10	Unit	2010-11	2009-10	Unit	2010-11	2009-10	
1	<b>UDYOGAMANDAL DIVISION</b>										
	Ammonia	KWH	<b>129</b>	131	MT	0.6970	0.6980	MT	<b>0.2301</b>	0.2403	*
	Sulphuric Acid	KWH	<b>76</b>	83	-			-			
	Phosphoric Acid	KWH		-	-			-			
	Ammonium Sulphate	KWH	<b>45</b>	50							
	Factamfos 20:20	KWH	<b>44</b>	41	-			MT	<b>0.0204</b>	0.2080	
2	<b>COCHIN DIVISION</b>										
	Sulphuric Acid	KWH	<b>14</b>	20	-			MT	<b>0.0033</b>	0.0019	
	Phosphoric Acid	KWH	<b>288</b>	405	-			-			
	Factamfos 20:20	KWH	<b>66</b>	63	-			MT	<b>0.0200</b>	0.0191	
3	<b>PETROCHEMICAL DIVISION</b>										
	Caprolactam	KWH	<b>1847</b>	1532				MT	<b>1.3249</b>	1.3501	*

\* Includes fuel oil used for power generation

**FORM – B**  
**RESEARCH AND DEVELOPMENT (R&D)**

The Research and Development Centre function with the aim of carrying out in-depth research in new fertiliser formulations, innovation in the fertiliser production for cost control and value addition of by-products, existing product lines and waste utilisation in the organisation. R & D is carrying out the specialised services such as the monitoring and controlling the quality of the finished products before they are dispatched to the market and periodical collection of product samples from field godowns, distributors, dealers for the evaluation of post dispatch quality as a part of three tiers quality control system being practiced by the Company. R & D Centre is also producing biofertilisers and despatching directly to marketing area of the company in all the four southern states.

**1. Specific Areas on which the Company carries out R&D.**

**a) Development of Coir pith based formulation for Agri/ Horti End use:**

A preliminary investigative study was conducted on Coir pith compost developed by the Central Coir Research Institute, Alleppy for marketing the same.

**b) Optimization of raw-material Consumption**

R&D Centre carried out research on optimization of Raw-material consumption in the production of Factamfos 20:20:0:13.

**c) Coloring of Zincated Factamfos**

R&D Centre carried out research/study to make suitable color to Zincated Factamfos with eco-friendly materials.

**d) Bio-fertilisers**

R&D continued the production of Bio-fertilisers such as Rhizobium, Azospirillum and Phosphobacter(Bacillus Megatherium) from its 150 TPA plant.

**e) Micro-nutrient fortification**

R&D Centre has conducted study on Micro-nutrient fortification in complex fertilizers.

**2. Benefits derived**

- a) The study on Coir pith compost has identified shortfall in parameters prescribed on the Fertiliser Control Order 1985. An alternate study was requested on this area by Central Coir Research Institute, Alleppy to formulate a marketable Coir pith Compost meeting all the parameters referred in the FCO.
- b) Based on the research on the raw-material consumption, R&D has devised a formula for feed rates of inputs for Factamfos 20:20:0:13 based on the product composition, mole ratio and plant load for 100% yield. It is most suitable and handy for any complex fertiliser manufacturing plants at FACT.
- c) On successful completion of study on coloring of Zincated Factamfos, 250kg of dye was prepared at R&D Centre to carry out trial run production of colored Factamfos. Trial run production of Zincated Factamfos with color was completed at 150 TPD plant successfully.
- d) During the year 2010-11 R&D Centre has enhanced the Bio-fertiliser production to the level about 75 MT.
- e) R&D Centre has developed Micro-nutrient Fortified Complex fertilizer. Micro-nutrient Fortification in Complex Fertilizers will bring 10% additional income to the Company.

**3. Future Plan of Action**

- (i) Continue the quality control cell activities covering entire marketing network of FACT.
- (ii) Ensuring the productivity of biofertilisers in accordance with the demand from the Marketing Division.
- (iii) The study on incorporation of micronutrient Boron in Factamfos.
- (iv) Extending value added service to other departments and divisions.

**4. Expenditure on R&D**

Details of expenditure on R&D are given separately.

EXPENDITURE ON R&D				
Year	Capital	Revenue	Total	₹ in Lakh
				As % of total Turnover
2008-2009	0.00	36.24	36.24	0.017
2009-2010	0.00	48.39	48.39	0.023
<b>2010-2011</b>	<b>0.00</b>	<b>73.27</b>	<b>73.27</b>	<b>0.029</b>