

FACT A STORY

**FERTILISING THE NATION
SINCE INDEPENDENCE**

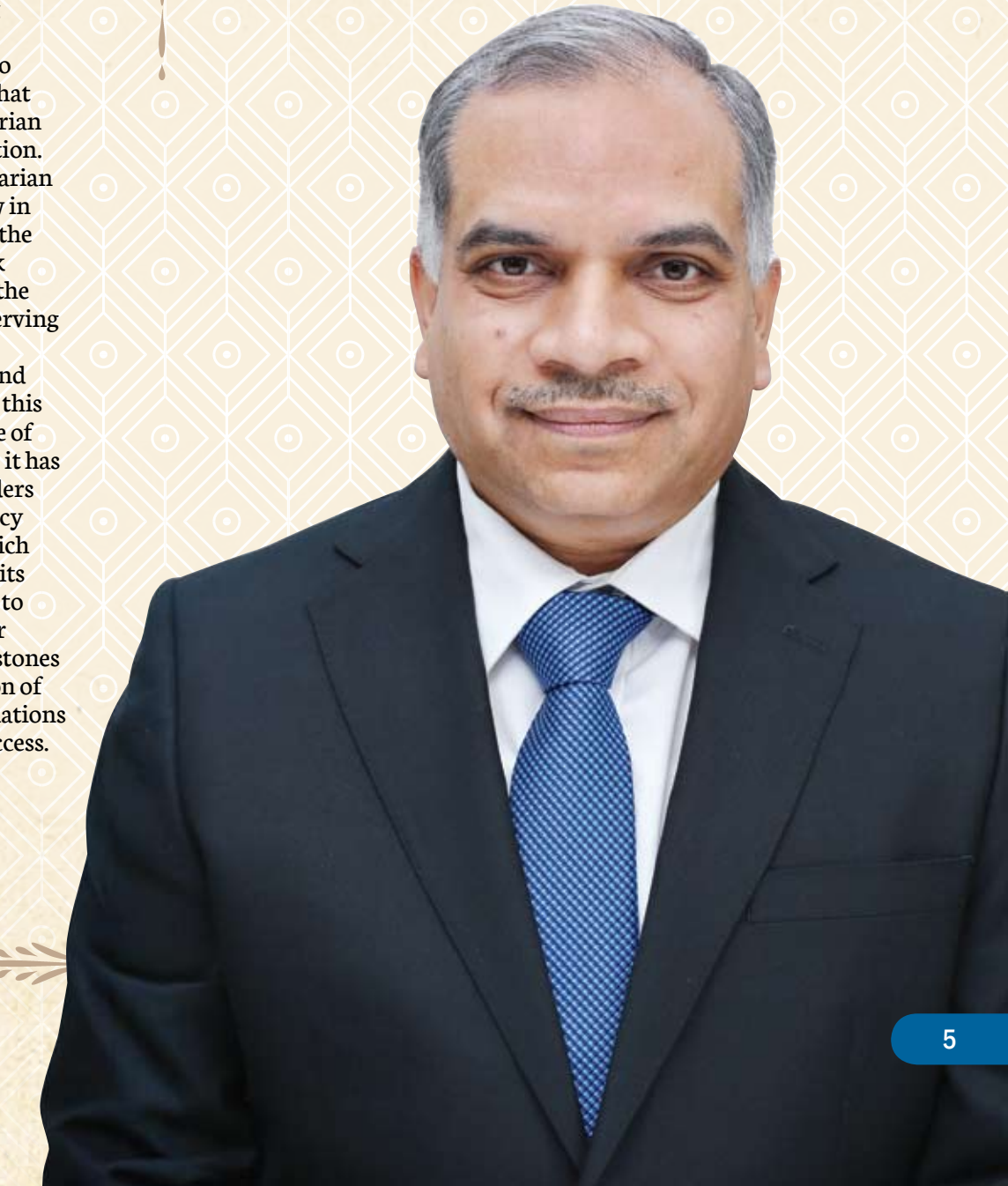






As they say, the journey of a thousand miles begins with a single step and the odyssey of Fertilisers and Chemicals Travancore Ltd (FACT) is nothing short of fascinating. What began as a seedling when India was on the cusp of attaining freedom from the British yoke has struck deep roots over the decades to become a colossal entity. I can say with immense pride that this enterprise has an enviable place in the nation's agrarian history and its quest for self-sustenance in food production. From its inception as an industrial unit to fulfill the agrarian aspirations of a princely state in south India, FACT grew in stature so much that it was able to be at the vanguard of the struggle to fertilise newly independent India. As we look back at FACT's eventful journey, I recall with gratitude the members of the management and all employees, both serving as well as retired, who played their part in moulding the destiny of this establishment. I salute their vision, grit and resilience in standing shoulder to shoulder and steering this PSU during stormy weather. Though it had its fair share of ups and downs, the story of FACT is truly remarkable as it has overcome tribulations to grow in stature and rub shoulders with other mighty PSUs in the country. In short, its legacy is synonymous with perseverance and achievement, which is truly inspiring. I am hopeful that FACT will continue its voyage of success and attain greater heights in the years to come. I extend my best wishes to this literary endeavour which will be an edifying testament in print to the milestones clocked by this glorious enterprise. It will also be a beacon of inspiration for future generations. My hearty congratulations to the team that strove to make this initiative a great success.

S C MUDGERIKAR
CHAIRMAN & MANAGING DIRECTOR



CHAIRMAN & DIRECTORS



S C MUDGERIKAR
CHAIRMAN & MANAGING DIRECTOR



ANUPAM MISRA
DIRECTOR-MARKETING



SAKTIMANI S
DIRECTOR-FINANCE



Dr K JAYACHANDRAN
DIRECTOR-TECHNICAL





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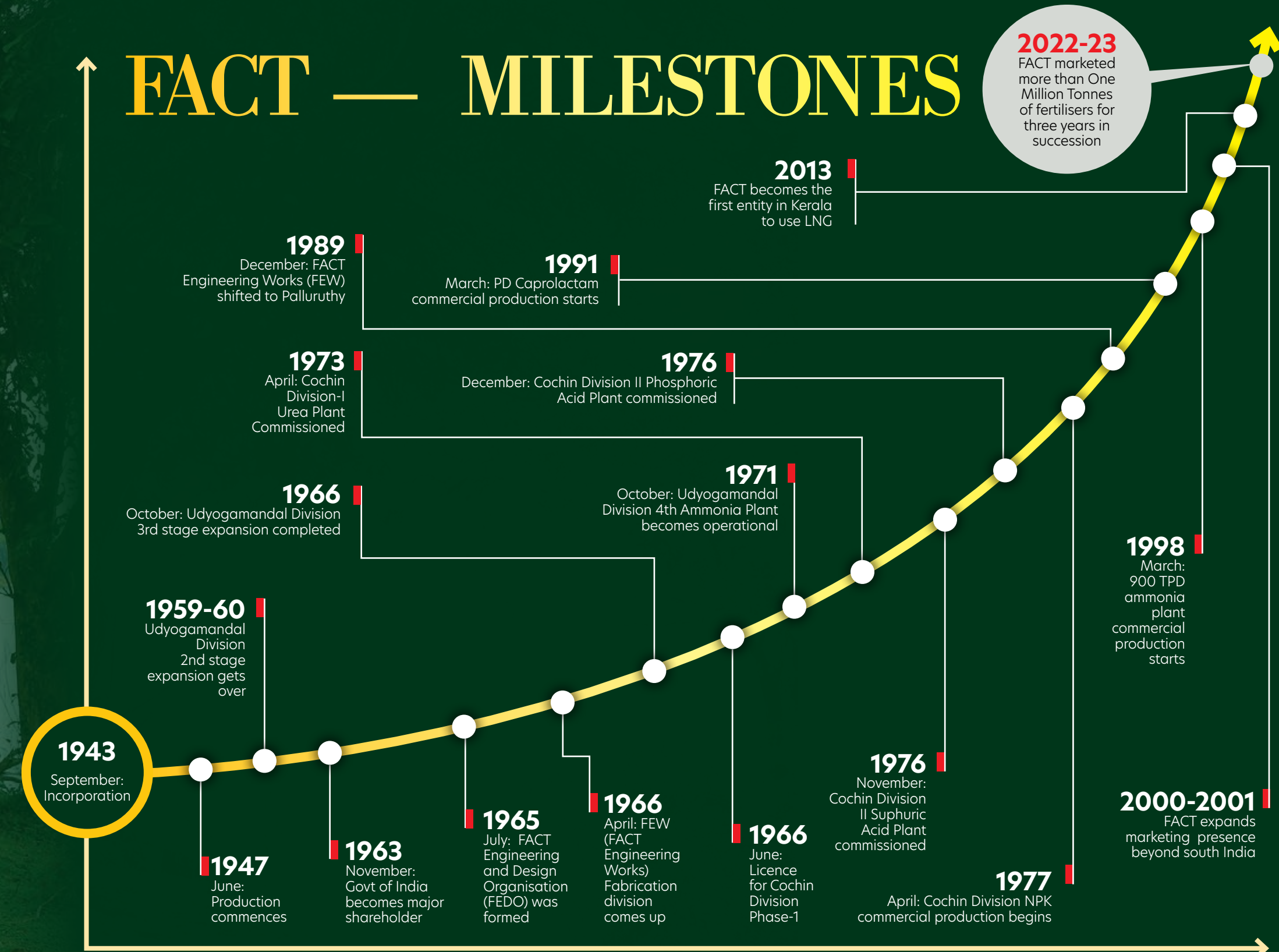
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CREATIVITY:
ART LENDS VALUE
ADDITION TO FACT**





FACT — MILESTONES



A MAGICAL ENTERPRISE

THE GENESIS

Amid the jubilant celebration of 'Azadi Ka Amrit Mahotsav', the 75th anniversary of India's Independence in 2023, the public sector in the country crossed a momentous milestone as well – the diamond jubilee of the Fertilisers and Chemicals Travancore (FACT), the nation's foremost fertiliser manufacturer. It was a historic coincidence -- the 75th anniversary of Independence from British Rule in 1947 coincided with the establishment of FACT's first factory in the then sleepy village of Udyogamandal in Eloor near Kochi. The

journey, which began with the production of ammonium sulphate using wood as raw material, was aimed at propelling India towards self-sufficiency in food production, consequent to the tragedy of the Bengal famine.

In 1943, against the backdrop of the devastating famine, Sir CP Ramaswamy Iyer, then Diwan of Travancore under the reign of Sree Chithira Thirunal Balarama Varma, responded to the urgent call of the Central Government for food security. The famine resulted in thousands of people losing their lives in Bengal, and its ripple effect was felt across the country, including distant Kerala. Food was in short sup-

ply and the problem was accentuated by the loss of Burma (present-day Myanmar), which broke away from India in 1937. More food means more productive agriculture, which in turn necessitates the need for fertilisers.

Recognising the pivotal role of fertilisers in enhancing agricultural productivity, Sir CP embarked on the ambitious task of establishing a fertiliser factory in Travancore. He invited Madras-based industrialists, brothers V Seshasayee and VK Seshasayee, to set up a fertiliser company. Despite the absence of conventional fuel resources like coal or natural gas in Kerala, the determined trio forged ahead. The duo,

already entrepreneurs with ventures such as power distribution in Tiruchirappalli and Mettur Chemicals (manufacturers of caustic soda), brought to the fore their expertise.

With the unwavering support of Sir CP and the Travancore Government, the House of Seshasayees went ahead with the ambitious project to set up the first fertiliser factory. An overwhelming majority of FACT's equity stake was held by the Travancore Government while Seshasayees Company had a meagre investment. The plant was initially proposed at Kundara in Kollam. The land was acquired, a building constructed, and an order for a Sulphuric acid and

a super-phosphate plant was placed. However, fate had other plans. The recommendation of the Gowing Commission, to establish a large ammonium sulphate plant in the coal-rich region of Sindri in Bihar, prompted a change in direction. It was a pointer to the importance of the ammonia base and nitrogenous fertiliser production. Taking the cue and leveraging the timber resources of the Malayattoor forest, an ammonia plant became the new focus, necessitating a shift in location.

By then, Alwaye (present-day Aluva) had already been zeroed in as the site for industrialisation of the state, with the Indian Alumin-

IN 1943, SIR CP EMBARKED ON THE AMBITIOUS TASK OF ESTABLISHING A FERTILISER FACTORY IN TRAVANCORE

ium Company establishing its unit on Eloor. The availability of land, water and electricity prompted the choice of the new company's location. Thus, on August 14, 1944, the industrial hub of Udyogamandal was born.

FACT set up its first factory in the quaint village of Eloor on the banks of the Periyar. The area was later named Udyogamandal, thanks to a post office that came up near the factory in

the same year. In Hindi, 'udyog' means industry, and 'Udyogamandal' stands for industrial place. In later years, the area became an industrial hub, with several establishments setting up units in the area.

A major challenge was finding the suitable raw material. This is where the judgement and sagacity of Seshasayee brothers came in. They introduced the singular process for ammo-

nia production utilising firewood, which was abundantly available in the region. This decision, though expensive and unique, proved to be the lifeline that ensured FACT's survival and laid the foundation for its future success. Forest Industries Ltd, entrusted with the task of supplying firewood to FACT, was allocated a vast expanse of forest, nearly 100 square miles, by the government. Eloor island, once thinly populated and seemingly inconspicuous, emerged as the unlikely epicentre of industrialisation, setting a precedent for the industrial landscape of the entire nation. The construction of the FACT factory and the infrastructure setting

1948 – Dr Rajendra Prasad, Hon'ble President of India, inaugurates the Ammonium Sulphate Plant at FACT Udyogamandal. V Seshasayee, then chairman of FACT (second from right), is also seen.

1947 – The Wood Gasification Plant, the first of its kind in the world to produce hydrogen and nitrogen for the production of ammonia using wood as raw material

were completed and production commenced on a trial basis in 1947.

Some of the key persons who played decisive roles in the initial phase of FACT's evolution were Rao Sahib Anand Subramania Iyer, Sir John Higgings and his American colleagues Felio Giles and Renahan. As the representative of the Managing Agency (as it was initially known which later came to be known as public sector undertaking) in Eloor during its nascent stages, it was Iyer who helped the company navigate the uncharted waters and meet the requirements of the developing industry at a time when even the basic facilities were a luxury. The other top leadership, with its unwavering resolve, galvanised the inaugural workforce of FACT, instilling in them a spirit of innovation and excellence that would become the hallmark of the institution.

The pivotal moment arrived in 1948, when President Dr Rajendra Prasad inaugurated the FACT plant at Udyogamandal. With an initial capacity of 75 tonnes per day (TPD) of ammonia, and 150 TPD of ammonium sulphate, FACT emerged as the largest chemical fertiliser firm in Independent India. Superphosphate and fertiliser mixtures, among others, rounded out the initial product line-up, heralding the dawn of a new era in agricultural innovation.

The journey was not without its share of challenges, and the staff mastered the art of running a chemical plant the hard way. Operating in an era devoid of formal management development schemes, they embraced the ethos of hands-on learning, transforming FACT into a primary training institution for future engineers and craftsmen. Soon, their expertise transcended the confines of FACT, as trained manpower from the institution became integral to the burgeoning chemical industry in India.

In July 1957, eminent economist Dr John Matthai became the Chairman of FACT, bringing with him a wealth of experience garnered from his illustrious tenure as chairman of the reconstituted State Bank of India (SBI), and as director of Tata Sons. FACT reported its first profits in 1958. Dr Matthai's

visionary leadership steered FACT through a transformative period until July 31, 1959, setting the stage for the next phase of growth.

MKK Nayar assumed the role of general manager on the same day. The Companies Act was amended to end the 'Managing Agency' system, ushering in a new era of corporate governance. Nayar became the first Managing Director of the company on August 15, 1960, marking a significant milestone in its evolution.

The period also saw the newly formed Kerala state taking off. The state came into being on November 1, 1956, from the states of Travancore-Cochin, the Malabar district and the Kasaragod taluk of the South Canara district of Madras state. The government under EMS Namboodiripad came to power in the Assembly polls in 1957. The first phase of FACT's development was charted by

**THE PIVOTAL
MOMENT ARRIVED
IN 1948 WHEN
PRESIDENT DR
RAJENDRA PRASAD
INAUGURATED THE
FACT PLANT AT
UDYOGAMANDAL**

Kasthurirangan, general superintendent, and Paul Pothen, the chief engineer. FACT became a Kerala State Public Sector Enterprise on August 15, 1960.

FACT was then a company with an investment of Rs 2 crore, the majority of which was funded by the Kerala Government. It also had a loan of Rs 2.25 crore from the Industrial Finance Corporation. At the time, FACT was one of the only two large-scale fertiliser factories in India, and was the backbone of the nation's economy. The second stage of FACT's expansion was completed in 1962, and the stage was set for a third one. However, the management decided not to take up any more projects that



Construction of Lactam Plant in progress (old pic)

**FACTORY IN
DOUBLE-QUICK TIME**

FACT's first factory was built in a remarkably quick time between November 1945 and May 1947. That was a time when the Indian industry was young, and the engineering industry and its source of materials, the metallurgical industry, hardly existed. The import content of FACT was high and the hassles of timely supply were avoided.

SALT-FREE WATER

A prolonged study, which lasted over 18 months, was conducted to ensure salt-free water to FACT. The upshot of this extended work was the decision to locate a filter plant on the Manjummel reach of the Periyar. An advantage could be derived from the annual construction of a bund across this reach of Manjummel, which prevented salt water ingress.

required electricity on a massive scale after the plants remained idle when they failed to get a steady and required supply of power. But then, difficult situations call for ingenious solutions. That's precisely what FACT did to turn things around.

**OUT-OF-THE-BOX THINKING:
FIREWOOD AS FEEDSTOCK**

The chemical industry was traditionally secretive in nature, and it was difficult to enter this charmed circle. In the 1940s, under the leadership of Seth Walchand Hirachand, the Hindustan Aircraft Ltd was established in Bangalore (present-day Bengaluru). This activity was taken up with the active involvement of an American entrepreneur William Pawley, who was instrumental in building the aircraft industry in China for the Chiang Kai-shek Government. However, he was overwhelmed by Mao Zedong's forces.

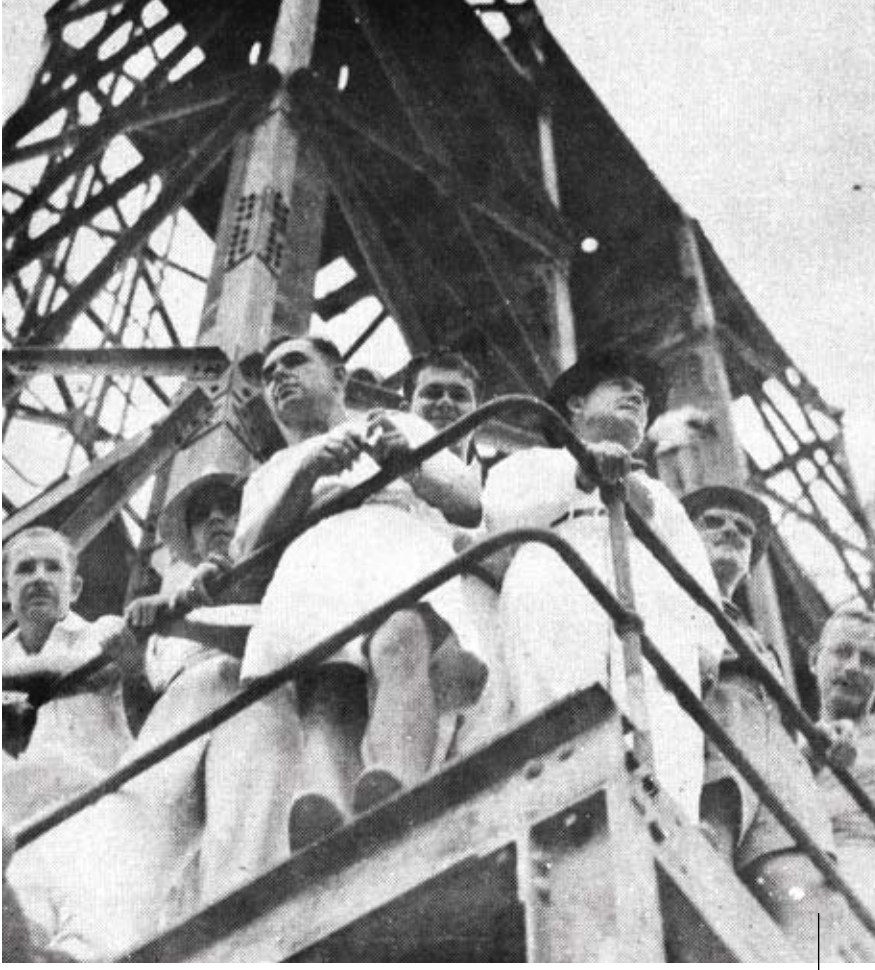
When Chiang's government finally fell, Pawley and associates were looking for other opportunities and Bengaluru became their next port of call. The theatre of the World War had shifted to the Pacific and India had become a major supply base.

The new military presence displaced the American entrepreneur from his efforts in Bengaluru. This presented Seshasayee with a golden opportunity. He got in touch with Pawley, who, in his typical American attitude of 'can do,' agreed to look into the proposal. Firewood was introduced as raw material to an industry, which until then had used natural gas or gas made from coke by the water gas process as the known base. Power Gas Corporation of Stockton-on-Tees, UK, as a party well-versed in gasification technology, was brought into the project.

Pawley was roped in as a consultant while Charles Owen Brown, former Chief Engineer of the Nitrogen Engineering Corporation of New York, was made a specialist consultant. To coordinate the entire operation, Pawley founded the Intercontinental Corporation and collaborated with Singmaster and Breyer Con.

FUTURISTIC DIWAN

Following the Bengal famine of 1943, the Government of India appointed an expert committee headed by a senior expert from Imperial Chemical Industries, UK, to advise it on fertiliser production, process to be adopted and the selection of an ideal location to set up the plant. Based on the recommendations of this panel, it was decided to establish the Sindri Fertiliser Plant in Bihar with a capacity of 3.5 lakh tonnes of ammonium sulphate based on coke and gypsum as raw materials. But, before the Government of India could implement the plan, the Diwan of the erstwhile State of Travancore Sir CP Ramaswamy Iyer, realising the precarious situation regarding the food supplies in the state, invited Seshasayee Brothers Ltd, a Managing Agency company with a proven track record, to set up a fertiliser plant in the state. FACT entered into a turnkey contract with Intercontinental Corporation, a US company, with vast experience in building large factories in India and abroad, to set up the factory for producing 50,000 tonnes of ammonium sulphate per annum using wood and gypsum as main raw materials.



Senior officials including HG Felio, LC McCarty of Intercontinental Corporation, the turnkey contractor for the setting up of FACT, watch the progress of the work from the top of a converter under construction, in 1946



Sir CP Ramaswamy Iyer congratulates Pawley and McCarty on the successful completion of work in 1947

A GLIMPSE OF FACT'S HISTORY THROUGH THE LENS



Construction of FACT begins at Udyogamandal in 1944



SCT Bhavan
inauguration by
Marthanda Varma
Elaya Raja



Banks of
the Periyar
before the
setting up of
FACT



Stone-laying
ceremony
before the
construction
activities
of FACT
kicked off



Guests arrive for the stone-laying ceremony



The then Maharaja of Travancore arrives for the stone-laying ceremony



The then Maharaja of Travancore being welcomed by FACT officials when he came to attend the stone-laying ceremony

FACT team visits Stamicarbon's (Netherlands) Caprolactam Plant in Mexico

900 TPA Ammonia Plant Construction in progress



Construction of the 900 TPA Ammonia Plant



Construction materials being brought to the site to set up the 900 TPA Ammonia Plant



1952: PM Jawaharlal Nehru and three future Prime Ministers Indira Gandhi, Rajiv Gandhi and Lal Bahadur Shastri at FACT



When world renowned engineer Sir M Visvesvaraya visited FACT in 1951



CMD MKK Nayar welcomes JRD Tata to FACT



1965: Union Minister for Petroleum and Chemicals Prof Humayun Kabir presenting the first ICMA Award, bestowed on FACT for forward development of technology, to General Manager V N Kasturirangan

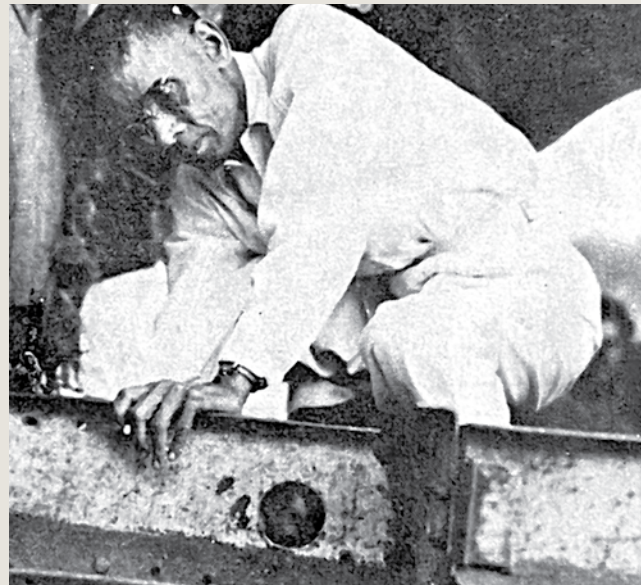


Nobel Laureate Sir C V Raman along with his wife visiting FACT in 1959. Also seen are FACT senior executives Paul Pothan and VN Kasthurirangan

1984 – Foundation stone
for the Caprolactam Plant
laid by Vasant
Sathe, Union Minister of
State for Chemicals, and
Fertilisers in the presence
of CM K Karunakaran,
E Ahamed, Minister for
Industries, and
NB Chandran, CMD



1946 –
Founding MD
of FACT,
V Seshasayee,
who was
also the first
workman of
the fertiliser
maker, in
action



1948 – HRH Chithira Thirunal, Maharaja of Travancore, with V Seshasayee (Founder-Chairman) and CM Pattom Thanu Pillai (extreme right) at FACT



FACT MD MKK Nayar, with Vice President of India GS Pathak



1988 - R Prabhu, Union Minister of State for Fertilisers, KR Gouri Amma, Kerala Minister for Industries and Social Welfare, and Leader of Opposition K Karunakaran (second from left) being received by CMD NB Chandran, at FACT Day celebrations



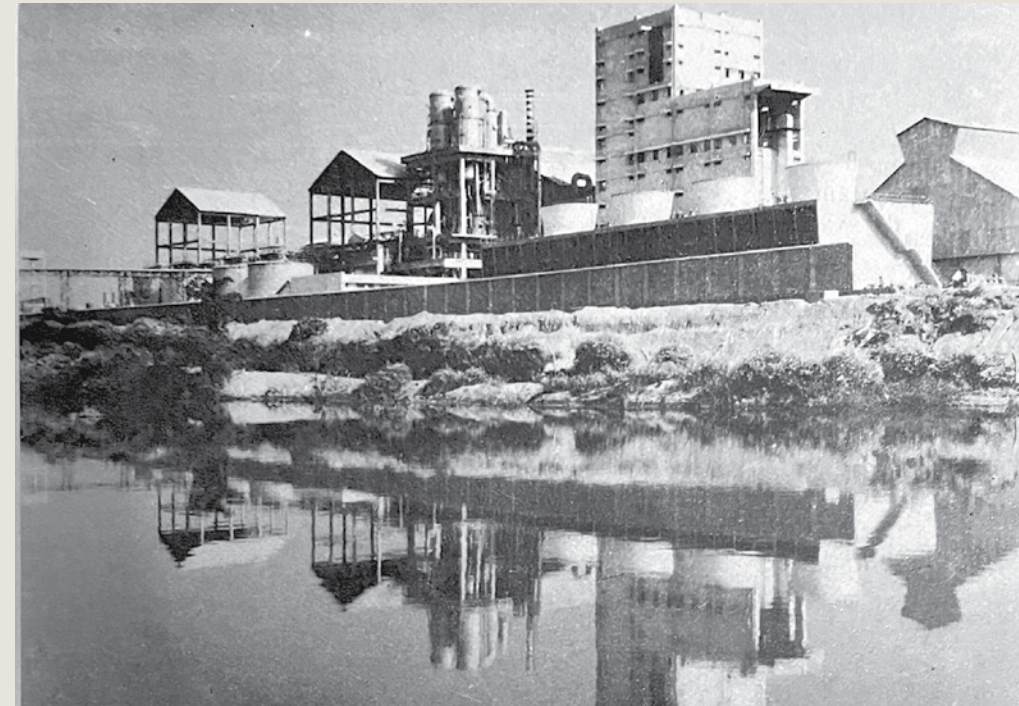
Former FACT CMD MKK Nayar with EMS Namboodiripad, the first Chief Minister of Kerala



120 TPD Ammonia Plant at Udyogamandal



1993 - K Karunakaran, Chief Minister of Kerala, laying the foundation stone for the 900 TPD new Ammonia Plant. Then FACT CMD PP Vorah can also be seen (extreme left).



360 TPD Phosphoric Acid Plant at Cochin Division



1987 - PM Rajiv Gandhi presents the Government of India Award for Excellence in Performance (1986-87) to CMD NB Chandran

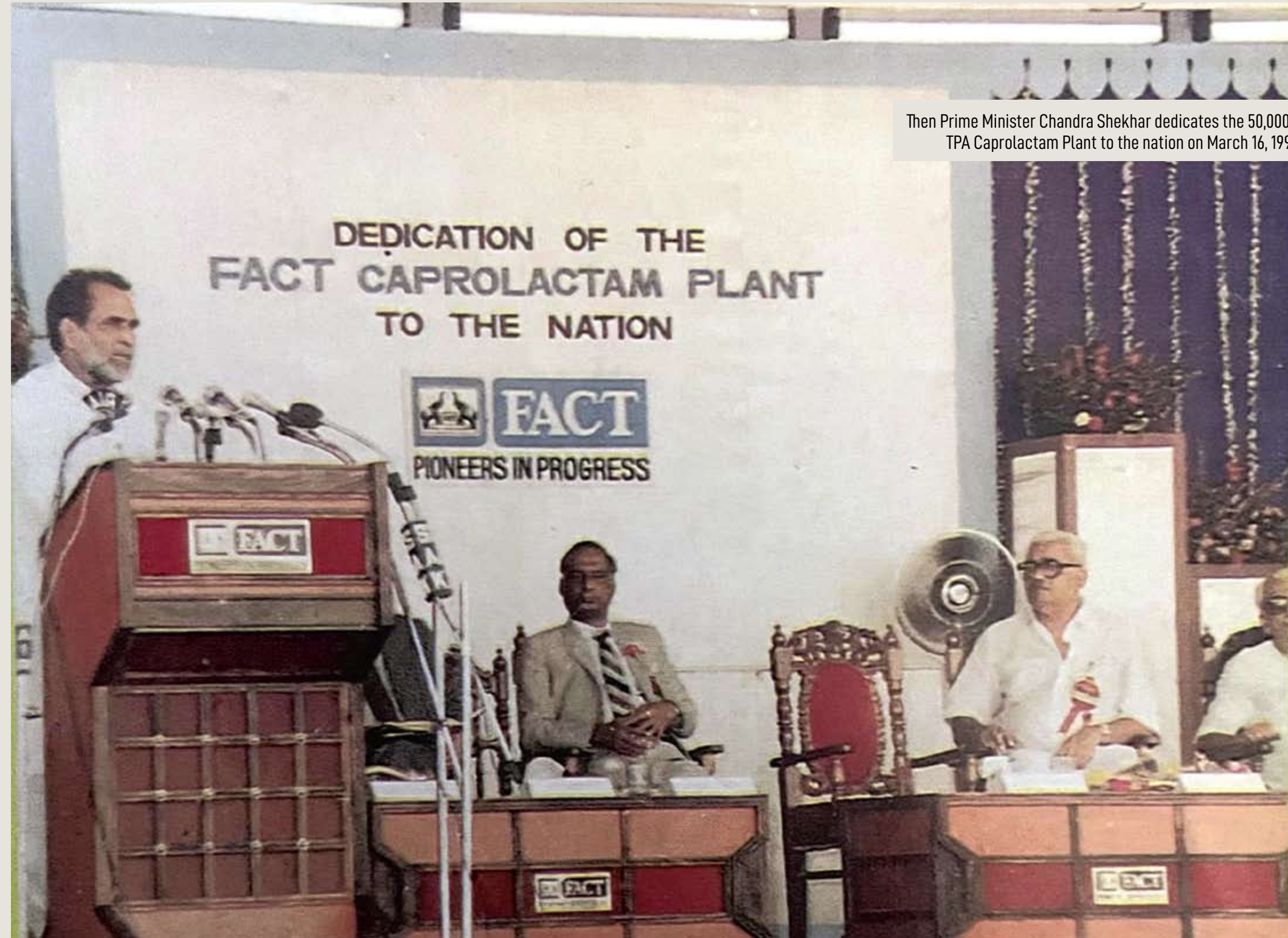


Ram Vilas Paswan, Union Minister for Chemicals and Fertilisers, received by S Balan, CMD



1994 – Kerala CM K Karunakaran and Ram Lakhan Singh Yadav, Union Minister for Chemicals and Fertilisers, at the Golden Jubilee celebrations of FACT. Then CMD Abraham Thomas can also be seen (on the left)

Then Prime Minister Chandra Shekhar dedicates the 50,000-TPA Caprolactam Plant to the nation on March 16, 1991



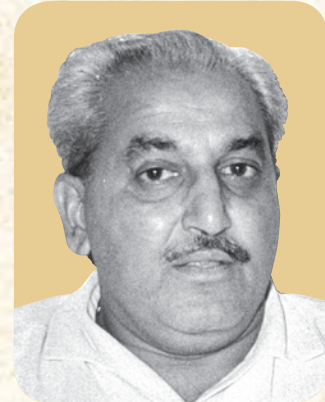
Bhagwanth Khuba, Union Minister of State for Chemicals and, Fertilisers, rededicates to the nation the 50,000-TPA Caprolactam Plant in October 2021. Then CMD Kishor Rungta is also seen.

INSPIRING LEADERS

CHAIRMAN & MANAGING DIRECTORS SINCE INCEPTION



MKK NAYAR
(1960-1971)



BK KHANNA
(1971-1977)



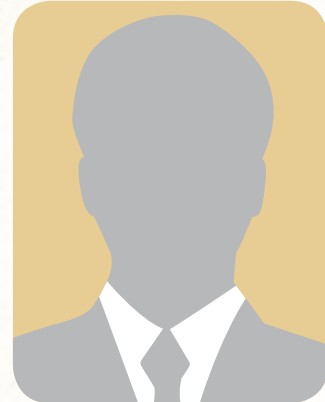
DR PK NARAYANASWAMY
(1977-1982)



T GOPALAKRISHNAN
(JAN,1982 - MAR,1982)



V SUBRAMANIAN
(1982-1983)



AN SIVARAMAKRISHNAN
(1983)



NB CHANDRAN
(1983 -1990)



SM JAIN
(1990-1992)



PP VORAH
(1992-1994)



ABRAHAM THOMAS
(1994-1998)



DK VARMA
(APR, 1998 - DEC, 1998)



VN RAI
(1998 - 2001)



TT THOMAS
(JUL, 2001 - OCT, 2001)



R S SHENOY
(NOV, 2001 - SEP, 2002)



PR BALASUBRAMANIAN
(2002 - 2004)



S BALAN
(2004-2005)



DR GC GOPALAN PILLAI
(2005 - 2007)



GS MANGAT
(JAN, 2007 - JUL, 2007)



DR GEORGE SREEBA
(2007-2009)



A ASOKAN
(2009 - 2010)



K MADHAVAN PILLAI
(JUL, 2010 - AUG, 2010)



VG SANKARAN NARAYANAN
(2010 - 2011)



SHAM LAL GOYAL
(2011 - 2013)



JAIVEER SRIVASTAVA
(2013-2016)



AB KHARE
(2016 - 2017)



SK LOKHANI
(2017 - 2018)



MANOJ MISHRA
(2018 - 2019)



KISHOR RUNGTA
(2019 - 2024)



S C MUDGERIKAR
(2024)

‘There is only one thing that makes a dream impossible to achieve: the fear of failure.’ Paulo Coelho.

In the annals of corporate history, there are figures whose names become synonymous with transformation, whose leadership shapes not just the destiny of a company but the very landscape of the industry it inhabits. Well, in the case of FACT, Meppally Keshava Pillai Krishnakutty Nayar, more familiar to Malayalis and people elsewhere as MKK Nayar, was the chosen one.

When Nayar assumed the role of General Manager at FACT on July 31, 1959, at the age of 39, he brought a reputation that preceded him. When the commissioning of the Bhilai Steel Plant was getting delayed, Prime Minister Jawaharlal Nehru, on the advice of TT Krishnamachari, then Minister of Industries and Commerce, entrusted Nayar with the task of commissioning it, which he accomplished in 1959.

A true stalwart with a futuristic outlook in the fullest sense of the word, Nayar was born to Kesava Pillai and Janaki Amma in Thiruvananthapuram on December 29, 1920. He was elevated to the post of FACT’s Managing Director on August 15, 1960, a little over a year after having assumed charge as General Manager.

A diligent student, Nayar who belonged to the BSc Physics Class of 1939 at the University of Madras, graduated with a gold medal. He started his career as a divisional accountant in the Travancore Civil Service, where he had the opportunity to work under then Diwan CP Ramaswamy Iyer. Later, Nayar joined the Telephone Department as an accountant before relocating to Secunderabad to join the Ordnance Factory under the Ministry of Defence in 1943 as a civilian gazetted officer, only one of the first four civilian gazetted officers in the British Indian Army, and served as a planning officer. He worked there until 1947

MKK NAYAR VISIONARY COLOSSUS



when he quit the job to appear for the Indian Administrative Service examination and joined the service in 1949. Around that time, Nayar came in contact with senior IAS officer VP Menon, a close associate of Sardar Vallabhbhai Patel.

Nayar took over as General Manager of FACT at a crucial time when it embarked on its first major expansion since its inception. He recognised the imperative to break away from the traditional methods of ammonia production using firewood. The pivotal decision underscored his foresight and determination to modernise FACT’s operations, setting the stage for a new era of growth and sustainability.

FACT’s initial products - ammonium sulphate, superphosphate, and fertiliser mixtures - had laid the foundation for its success since the commencement of operations in 1947. The company reported profits for the first time in 1958, albeit in a small way. Nayar realised that for growth and survival, FACT had to expand, have an effective executive cadre and employ good managers and engineers. He also decided that the company had to formulate a strategy to sell all its fertilisers.

Central to Nayar’s vision was the transition from firewood-based ammonia production to more sustainable methods. The company set up a plant to produce 80 tonnes of ammonia from naphtha, positioning itself as the leader in technological innovation within the industry. Nayar’s foresight resulted in the introduction of a complex fertiliser -- ammonium phosphate-- and its branding as FACTAMFOS. The mixed fertiliser brand went on to become the driver of the company’s sales.

Around that time, the Second Five-Year Plan was drawing to a close and the Third Five-Year Plan was being put together. By sheer coincidence, the focus of the Third Five-Year Plan was fertilisers, the production of which was to be increased four-fold. Nayar’s astute leadership ensured that FACT was well-positioned to capitalise on this

THE PLAN TO EXPAND FACT TO AMBALAMEDU WAS NAYAR’S BRAINCHILD. IN THE 1960S, AMBALAMEDU WAS A SPARSELY POPULATED AREA COMPRISING HILLS AND FIELDS

burgeoning demand, thereby solidifying its status as a key player in India’s agricultural landscape.

“The second stage expansion of FACT was completed in 1962. But since the assured electricity was not available, the plants remained idle. We decided not to take on any more projects that needed more electricity. For the Third Plan period, we proposed major expansions with an outlay of Rs 11 crore to ramp up ammonia production to 240 tonnes per day (TPD), sulphuric acid to 720 TPD, and ammonium sulphate and ammonium phosphate by three and four times,” Nayar says in his autobiography ‘Without Malice Towards None -- The Chronicle of an Era’.

Facing a financial impasse with the Kerala government unable to invest in FACT’s ventures, Nayar turned to the Union Government for support. The latter agreed to make the full investment, but on the condition that it would take full control of FACT. Nayar was also instrumental in FACT succeeding in its efforts to convince the Kerala Government to bring more industries to Udyogamandal and Eloor areas, which would use the products of FACT and TCC (Travancore Cochin Chemicals Ltd). The plan to expand FACT to Ambalamedu was also the brainchild of Nayar.

In the late 1960s, Ambalamedu was a sparsely populated area comprising hills, valleys, paddy fields, and a shrubby dump yard. Due to the handsome compensation



The statue of MKK Nayar at the South Gate entrance

package offered to local residents, the land acquisition was completed for the project. As far as jobs were concerned, there were 150 persons who had completed Class X. FACT hired them as apprentices and arranged three years of training for them.

The establishment of FACT Cochin Division in Ambalamedu, 30 km from Udyogamandal, in the 1970s marked a significant milestone in the public sector giant’s expansion. Adjacent to Cochin Refineries and well connected by rail, road and waterways, the factory site became a strategic hub for production and distribution. The present production facility includes the manufacture of 4,85,000 TPA of complex fertiliser (FACTAMFOS 20:20:0:13), 3,30,000 TPA of sulphuric acid, and 1,15,200 TPA phosphoric acid.

The credit for establishing ancillary institutions such as FEDO (FACT Engineering and Design Organisation), and FEW (FACT Engineering Works), also belonged to Nayar. These institutions bolstered FACT’s internal capabilities and contributed to the development of the engineering sector.

Besides the Visionary Manager that he was, Nayar played a major role in FACT’s active participation in Kerala’s cultural, arts and sports activities. A Kathakali aficionado, Nayar promoted the traditional art form. Nayar stayed on at FACT until he was appointed as a Joint Secretary in the Planning Commission of India (since shelved) in 1971. The curtain came down on an eventful life marked by a glittering career on September 27, 1987, in Thiruvananthapuram, when he succumbed to cancer. He was 66.

REFULGENT MEMORY

The Kerala Management Association (KMA) has instituted the annual MKK Nayar Memorial Lecture in honour of Nayar, and a community centre in Eloor has been named after him. The MKK Nayar Foundation has instituted the MKK Nayar Award for excellence in performing arts.



एफएसीटी
FACT

ദി ഫെർട്ടിലൈസേഴ്സ് ആൻഡ് കെമിക്കൽസ് ട്രാവൻകൂർ ലിമിറ്റഡ്
THE FERTILISERS AND CHEMICALS TRAVANCORE LTD
UDYOGAMANDAL

THE FERTILISERS AND CHEMICALS TRAVANCORE LTD.
UDYOGAMANDAL

FACT
UDYOGAMANDAL

PETROCHEMICAL PLANTS

PLANTS AT FACT UDYOGAMANDAL COMPLEX			
S. NO	NAME OF PLANT	YEAR OF COMMISSIONING	वि. फर्टिलाइजर्स एण्ड केमिकल्स ट्रावणकोर लिमिटेड (प्राप्त कलकत्ता कारखाना)
			PRODUCTS & DESIGN CAPACITY (TPD)
1	300 TPD FACTAMFOS PLANT	1966	TECHNOLOGY
			DOCK OVERSEER, USA
2	150 TPD FACTAMFOS PLANT	1972	FACTAMFOS - 150
			FACTO INDIA
3	AMMONIUM SULPHATE PLANT	1990	AMMONIUM SULPHATE - 682
			TSC, JAPAN
4	DCDA SULPHURIC ACID PLANT	1965 / 1981	SULPHURIC ACID (98.4 %) - 275, OLEUM (14% FREE SO ₃) - 108
			SHIMON CAVELER DE FACTO INDIA
5	SO ₂ SULPHURIC ACID PLANT	1983	SULPHURIC ACID (98.4 %) - 175, SO ₂ EQUIVALENT ACID - 275
			FACTO INDIA
6	AMMONIA PLANT	1998	AMMONIA - 900, SYNTHESIS GAS - 10000 Nm ³ /h, CO ₂
			HAZARD RESPONSE, DUBAI
7	EFFLUENT TREATMENT PLANT	1981	TREATED EFFLUENT - 350 m ³ /h
			WATER INDIA, FACTO INDIA
8	CAPTIVE POWER PLANT	1998	POWER - 6 MW
			DOCK OVERSEER, USA
9	WATER TREATMENT PLANT	1988	TREATED WATER - 2000 m ³ /h
			HYDROXYLAMINE SULPHATE (100%) - 114, NITRIC ACID (55%) - 12
10	HYAM PLANT	1990	CYCLOHEXANONE - 135
			ISIA STAMBOURG, NETHERLANDS
11	ANONE PLANT	1990	CAPROLACTAM - 157, AMMONIUM SULPHATE (100%) - 182
			TREATED EFFLUENT - 80 m ³ /h, SODA ASH - 12,
12	LACTAM PLANT	1990	COLOURED AMMONIUM SULPHATE - 5
			DOCK OVERSEER, USA
13	EFFLUENT TREATMENT PLANT & OFFSITES	1990	POWER - 16 MW
			DOCK OVERSEER, USA
14	CAPTIVE POWER PLANT	1990	POWER - 16 MW
			DOCK OVERSEER, USA

UNVEILED BY
SHRI. K. KARUNAKARAN
HON'BLE CHIEF MINISTER OF KERALA
TO COMMEMORATE
THE GOLDEN JUBILEE CELEBRATIONS OF FACT
ON 26TH SEPTEMBER 1994
AT A FUNCTION GRACED BY
SHRI. RAM LAKHAN SINGH YADAV
HON'BLE UNION MINISTER FOR CHEMICALS AND FERTILISERS
AS CHIEF GUEST.

TO MARK THE INAUGURATION OF
THE COMMUNITY DEVELOPMENT PROGRAMME
IN CONNECTION WITH THE
FACT GOLDEN JUBILEE CELEBRATIONS
PLAQUE UNVEILED BY
SRI. N. KARUNAKARAN
HON'BLE CHIEF MINISTER
OF KERALA
SRI. RAM LAKHAN SINGH YADAVJI
AND HON'BLE UNION MINISTER FOR
CHEMICALS AND FERTILISERS
ON 26TH SEPTEMBER 1994

Entrance of Sree
Chitra Bhavan
administrative
building at
Udyogamandal
complex



The phosphoric acid receiving station at Udyogamandal Complex. FACT's Udyogamandal plant manufactures chemicals as intermediate products like sulphuric acid, anhydrous ammonia, phosphoric acid, sulphur dioxide, oleum, etc. Trucks receive phosphoric acid solution from ships at Kochi port and bring it to the plants.

PHOSPHORIC ACID RECEIVING SECTION
STORAGES
RECEIVING TANK T6221
CAPACITY-541M3(46-74MT) For 52(P 205)
SILO No1 T6223A
SILO No2 T6223B
SILO No3 T6223C
CAPACITY-345192 M3(300 MT) IN EACH TANK

MATERIAL SAFETY DATA SHEET OF PHOSPHORIC ACID	
1. Product Name: Phosphoric Acid	2. Synonyms: Orthophosphoric acid, Phosphoric acid, Phosphoric acid solution
3. Hazardous Properties: Corrosive, Irritant	4. Precautionary Statements: Avoid contact with skin and eyes. Wear protective clothing and gloves.
5. First Aid Measures: In case of contact with skin, wash immediately with plenty of water. In case of contact with eyes, rinse immediately with plenty of water.	6. Fire Fighting Measures: Phosphoric acid is not flammable. It is a weak oxidizing agent. It may react with strong oxidizing agents.
7. Accidental Release Measures: Contain the spillage. Do not allow it to enter the drainage system. Collect the spillage in a suitable container for disposal.	8. Transport Information: Transport as Corrosive liquid (UN 1805). Use suitable containers and packaging.
9. Exposure Controls/Personal Protection: Use appropriate PPE (goggles, gloves, apron). Avoid breathing dust or fumes.	10. Environmental Protection: Do not discharge into the environment. Dispose of the waste in a suitable manner.



The ammonia control room at the complex



The bagging unit
at the Ammonium
Sulphate Plant



THE SECOND COMING ETCHED IN GOLDEN LETTERS



The early 1960s marked a pivotal period for FACT. With an eye on expansion and modernisation, the company found itself at the forefront of a transformative era. Concurrently, across the globe, US company Texaco achieved a groundbreaking feat by developing a process to gasify naphtha, a development that would revolutionise the production of ammonia. This technological breakthrough set the stage for FACT's evolution into a major player in the country.

Under the stewardship of MKK Nayar, its first Managing Director since becoming a public sector undertaking, FACT embarked on a path of growth and diversification. With the transition from a management agency system to a Public Sector Undertaking after the nationalisation of the industry in 1960, FACT assumed a key role in driving industrial development in the nation.

One of the main decisions that propelled FACT's ascent was the strategic shift towards modernising its production processes. Recognising the need for innovation and sustainability, the company opted to establish a plant to produce ammonia (80 tonnes capacity) from naphtha, a departure from the traditional use of firewood. It also introduced a complex fertiliser, ammonium phosphate sulphate, and branded it as 'FACTAMFOS'. It went on to become one of the most in-demand fertiliser products, aiding FACT to cement its position



as a pioneer in the industry.

The timing of FACT's expansion drive coincided with the Third Five-Year Plan, which emphasised the need to ramp up fertiliser production fourfold to meet the nation's agricultural requirements. Seizing the opportunity, the firm proposed an ambitious expansion plan, envisioning a substantial increase in production capacities across key fertiliser components -- the proposed Rs 11 crore aimed to raise the production of ammonia to 240 metric tonnes per day (TPD), sulphuric acid to 720 TPD, and ammonium sulphate and ammonium phosphate by three to four times.

However, the road to expansion was not without its challenges. The Kerala government expressed its inability to further invest in the

company. Undeterred, FACT turned to the Union Government for assistance, ultimately striking a landmark deal that would shape its future trajectory. The agreement, brokered with the condition of government control, heralded a new chapter for FACT.

A series of meetings were held with the then Chief Minister Pattom A Thanu Pillai, who agreed to the same on two conditions:

- 1) FACT would first meet Kerala's demand for fertilisers before allocating the rest to other states
- 2) As long as the Kerala Government had shares in FACT, the state would have two representatives on the board of directors.

The company's evolution into a Central Public Sector Undertaking (CPSU) in 1962 marked

FACT TURNED TO THE UNION GOVERNMENT FOR ASSISTANCE, ULTIMATELY STRIKING A LANDMARK DEAL THAT WOULD SHAPE ITS FUTURE TRAJECTORY. THE AGREEMENT HERALDED A NEW CHAPTER

a significant milestone, solidifying its status as a cornerstone of the nation's industrial development. In August 1964, FACT garnered prestigious recognition by winning the Institute of Cost and Management Accountants Award for its innovative utilisation of by-product gypsum. This by-product, phosphogypsum, derived from the manufacture of phosphoric acid, found a new market as a crucial ingredient in cement manufacturing and plaster production.

The 1960s heralded a period of remarkable progress for India in almost all sectors, with FACT playing a pivotal role in driving industrial growth. During the transformative decade, the company underwent a strategic re-orientation, aligning its objectives with the nation's imperative of enhancing food production. Moving beyond mere capacity utilisation concerns, FACT embraced a proactive stance towards catalysing agricultural growth, forging closer ties with farmers and stakeholders. Central to this paradigm shift was a renewed focus on marketing and agricultural management, underscoring the firm's commitment to empowering agriculturists and bolstering food production.

The ensuing years witnessed FACT expanding and diversifying into a multi-divisional organisation with varied activities. The parent division at Udyogamandal underwent four stages of expansion until 1972, upgrading technology and increasing capacity. A second fertiliser unit at Ambalamedu was established. A design engineering consultancy division also took shape. Recognising the imperative of developing indigenous capabilities in the design and construction of chemical and fertiliser plants, the company established the FACT Engineering & Design Organisation (FEDO) in July 1965. A fabrication division, FEW (FACT Engineering Works), was also set up in April 1966.

FEDO won laurels within two years of its inception, leveraging FACT's accumulated expertise to plan, design, and execute fertiliser plants with unparalleled precision. At the time, only a few Indian companies had the ex-



AFTER THE STATE EXPRESSED ITS INABILITY TO MAKE FURTHER INVESTMENTS IN FACT, THE CENTRE STEPPED IN. IN 1962-63, FACT BECAME A CENTRAL PSU WITH THE GOVERNMENT OF INDIA

pertise to provide such complex engineering services. On October 15, 1966, FACT reached yet another milestone with the completion of its third phase of expansion, underscoring the company's unwavering commitment to progress and innovation.

EXPANDING ITS FOOTPRINT

Over the past few decades, FACT has undergone a remarkable journey of expansion and modernisation, giving up old and obsolete technology and installing new and sophis-

ticated plants making use of naphtha as raw material.

AMMONIA PROJECT

A key milestone in FACT's expansion narrative was the establishment of a state-of-the-art Ammonia Plant at Udyogamandal, the works of which were kicked off in the early 1990s. An investment of Rs 619 crore was earmarked following the approval of the project. K Karunakaran, then Chief Minister, laid the foundation stone for the 900 TDP

capacity Ammonia Plant on September 25, 1993.

The decision to embark on this ambitious endeavour was underscored by the imperative to retire three ageing Ammonia Plants, characterised by obsolete technology and escalating maintenance costs. The plants, having only a combined capacity of 340 TDP, were also not adequately reliable to be the back-up facility for the supply of hydrogen to the capital-intensive petrochemical plants. A study done on these three plants, which were then 20 to 27 years-old, revealed that they could not be revamped or renovated within any justifiable cost or with significant improvement in operation efficiency or energy economy. It was also found that the requirement of over 22.5 MW of electric power to produce 340 TPD of

ammonia for the existing plants was a prohibitively uneconomical utilisation of electrical energy.

The study also forecast that the international price of ammonia would increase in the coming decade, leading to FACT's strategic decision to increase domestic capacity. The new plant would also meet the ammonia requirements of the Cochin Phase II and the petrochemical plants at Udyogamandal division, which were till then dependent on imported ammonia. Its other purpose was to supply hydrogen and carbon dioxide to the Caprolactam Plant.

FACT partnered with global leaders such as Haldor Topsoe, Denmark, for setting up the main process plant, and BASF, Germany, for the CO₂ removal system. FEDO did the de-

tailed engineering design.

The commissioning of the 900 TDP Ammonia Plant, costing Rs 642 crore, in March 1998 heralded a new era of efficiency and sustainability. The project, which had financial assistance from the Overseas Economic Cooperation Fund (OECF), Japan, to the tune of Yen 24.482 million, not only enhanced domestic production capabilities but also paved the way for reduced reliance on imported ammonia, thereby fortifying India's self-reliance in critical sectors. FACT Udyogamandal plants received ISO 14001 certification in March 2000 for conforming to the Environmental Management System standards, reaffirming the company's role as a responsible corporate citizen.

As of 2023-24, FACT stands as a beacon of in-

dustrial prowess, boasting an annual installed capacity of 6.33 lakh MT of complex fertilisers (NP 20:20:0:13), 2.25 lakh MT of ammonium sulphate and 0.5 lakh MT of caprolactam. The company's transition from naphtha to Re-gasified Liquefied Natural Gas (RLNG) in 2013-14, further exemplifies its proactive approach towards embracing sustainable practices.

ZOOMING HIGHER

Amid a dynamic business environment, FACT has embarked on a series of CAPEX projects aimed at bolstering its production capabilities and optimising operational efficiency. From the commissioning of sulphuric acid storage to the reconstruction of berths for import and the deployment of barges for the transportation of ammonia, the company's ongoing ini-

FACT HAS AN ANNUAL INSTALLED CAPACITY OF 6.33 LAKH MT OF COMPLEX FERTILISERS (NP 20:20:0:13), 2.25 LAKH MT OF AMMONIUM SULPHATE AND 0.5 LAKH MT OF CAPROLACTAM

tiatives underscore its unwavering dedication to modernisation and infrastructure development.

Other initiatives like capacity enhancement of NP 20:20:0:13, ammonia storage tank, phosphoric acid storage tank, etc, are at various stages of completion. Capital projects for enhancement of production capacity are expected to be commissioned during 2024-25. With these projects nearing completion, FACT anticipates a substantial increase in its annual production capacity from 10 lakh MT to 15 lakh MT, with a corresponding rise in its turnover to 9,000 crore.

FACT's commitment to sustainability and long-term viability is evident in its strategic investments in energy-saving initiatives and capacity expansion projects. By envisioning CAPEX projects aimed at enhancing the production capacity of critical units such as the capacity expansion of the Ammonia Plant, Phosphoric Acid Plant and Sulphuric Acid Plant, it underscores its proactive approach toward securing its operational future.

The total financial commitment estimated for these projects is Rs 1,040 crore. FACT is planning to implement these projects from its internal resources. In 2022-23, FACT achieved its highest-ever turnover of Rs 6,198 crore and earned a net profit of Rs 612.99 crore. As of March 31, 2023, FACT is among the top 500 listed companies based on market capitalisation.

Situated in the neighbourhood of Kochi Refineries Ltd, FACT Cochin Division's major advantage is its central location and thereby its road, rail and waterways connectivity. A well-designed effluent treatment and waste water recycle system, too, are its key highlights. Besides, there is a facility to import and store raw materials required for FACT at its Willingdon Island installation.

HAND IN HAND: INDUSTRIES AS NATURE'S BRIDESMAID

Located amid a picturesque green carpet of nature in the quaint township of Eloor in God's Own Country, FACT's commitment to pollution control initiatives is not just a corporate obligation, but a deeply ingrained ethos, reflecting a harmonious coexistence between industry and nature.

At FACT, every effort is made to uphold environmental protection, maintain ecological balance and mitigate pollution to the maximum possible extent. It spares no expense in implementing cutting-edge pollution control systems and waste disposal schemes across its installations, investing several crores in these endeavours. Such unwavering commitment to environmental responsibility has earned FACT the ISO-14001 certificate across all its divisions, a testament to its excellence in environmental protection.

A cornerstone of FACT's pollution control initiatives lies in its unwavering commitment to providing clean air and a better living environment for neighbourhood communities. Alongside its manufacturing plants, FACT diligently

operates effluent treatment plants and emission control facilities round the year. The treated effluents and gas emissions from these plants unfailingly adhere to stringent standards laid down by the Kerala State Pollution Control Board (KSPCB), reflecting the company's unwavering dedication to environmental compliance. Adhering to the directives from the Central Pollution Control Board (CPCB) and the KSPCB, FACT has implemented continuous online monitoring systems, with data uploaded to designated web platforms. This ensures real-time tracking of pollution levels, with analysers installed in accordance with regulatory norms. FACT's Caprolactam Plant maintained a constant online presence throughout the 2022-23 fiscal, underscoring its commitment to pollution control efforts.

FACT actively collaborates with Kerala Enviro Infrastructure Limited (KEIL) to manage hazardous waste, including spent V2O5 catalysts, ETP sludge, Sulphur Muck, and E-waste. The hazardous waste is safely transported to KEIL for final disposal, ensuring compliance with regulatory requirements and minimising environmental fallout.

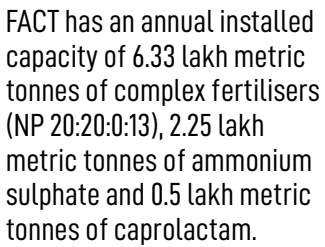
Another aerial view of the Cochin Division

UDYOGAMANDAL PLANT: COOLING TOWER

The cooling tower is the most important piece of equipment in chemical and fertiliser plants. The purpose is to remove heat from the processes while minimising water usage. A fertiliser plant requires robust cooling equipment that will not fail under extreme pH conditions.

Cooling towers are part of particular industrial methods where heat has to be taken out to continue the process: if the heat isn't removed, it would accumulate making it difficult to continue production.







RIVERSIDE VIEW OF UDYOGAMANDAL COMPLEX

Nestled between the Periyar and its tributary Muttar in Ernakulam lies Udyogamandal. FACT owns about 450 acres of riverside land here, providing the premises a picturesque setting.

FACT Udyogamandal
Ammonia Plant



FACT Udyogamandal
Sulphuric Acid Plant



PETROCHEMICAL PLANTS

MODERN LAUNCHPADS FOR 21ST CENTURY

As industries evolve and markets shift, the ability to adapt and diversify becomes paramount for sustained growth and competitiveness. FACT has consistently exemplified this ethos by staying ahead of the curve and diversifying. Among its strategic diversification efforts, its leap into petrochemicals reveals its foresight, agility, and commitment to innovate.

The evolution of the firm's venture into petrochemicals can be traced all the way to the early 1980s when it recognised the need to diversify its portfolio. Spurred by the growing demand for petrochemical products, FACT initiated plans to commence caprolactam production. The foundation stone for the ambitious project, initially called the Ammonium Sulphate Caprolactam Project, was laid on March 8, 1984. The plant was commissioned on October 25, 1990, and it was dedicated to the nation by then Prime Minister Chandra Shekhar on March 16, 1991, marking a momentous milestone in FACT's journey of diversification and expansion.

With a production capacity of 50,000 TPA, the FACT-Petrochemical Plant stands as a beacon of quality and reliability in the realm of caprolactam manufacturing. The petrochemical product basically goes into

the production of Nylon-6, which is a raw material for tyre cords, fishing nets, filament yarn, engineering plastics, and a host of other products.

Over half of the world's caprolactam consumption is directed towards Nylon-6 fibres, serving as a backbone of textile, carpet, and industrial yarn production. Nearly a fourth of caprolactam finds its way into the production of Nylon-6 resins and films, and the remainder is accounted for by the manufacture of polymer chips. Nylon resins are used as engineering plastics, with applications in the automotive industry, specialty packaging and wire and cabling solutions.

At the heart of FACT's caprolactam manufacturing process lies the Raschig Route, a sophisticated methodology that underscores efficiency, quality, and sustainability. The licence and process know-how for this state-of-the-art technique were sourced from Stamicarbon BV, a subsidiary of Dutch State Mines (DSM). The company partnered with Chiyoda Corporation, Japan, for the basic engineering of its Caprolactam Plant, thus harnessing Japanese precision and technological prowess to design a world-class manufacturing facility. FEDO carried out the detailed engineering.

With an annual capacity of 50,000 metric

tonnes, the plant stands as a testament to its commitment to scale, quality, and reliability. Notably, the plant also yields by-products such as ammonium sulphate, nitric acid, and soda ash, thus enhancing its economic viability and environmental sustainability.

Ammonium sulphate has witnessed record production levels, reaching 2,44,732 metric tonnes during 2022-23. The raw materials used in caprolactam production, include benzene, sulphur (in the form of sulphur dioxide and oleum), ammonia and carbon dioxide.

The applications of caprolactam extend across myriad industries, with a particular focus on textiles and automobiles. The superior quality of FACT caprolactam makes it a preferred choice for manufacturers seeking reliability, performance, and sustainability in their end products. Small quantities of nitric acid and soda ash derived from the plant serve as revenue streams.

The 2022-23 period witnessed a full-year production of caprolactam after FACT restarted the plant in 2021-22 after seven years of repair works. During the 2022-23 fiscal, the sale of caprolactam increased 110% from 20,835 tonnes to 44,754 tonnes. The total revenue through the sale of caprolactam increased to Rs 696.42 crore in 2022-23 from Rs 333.67 crore the previous year.



The intermediate tank farm at FACT's petrochemical plants, Udyogamandal Division

FACT-PETROCHEMICAL PLANTS COMPRISE THE FOLLOWING MAIN SECTIONS

- i) Anone plant benzene hydrogenation cyclohexane oxidation
- ii) HYAM (Hydroxylamine sulphate) plant
- iii) Lactam plant

An effluent treatment section with aerobic and anaerobic treatment & off-site area with ancillary facilities also available.

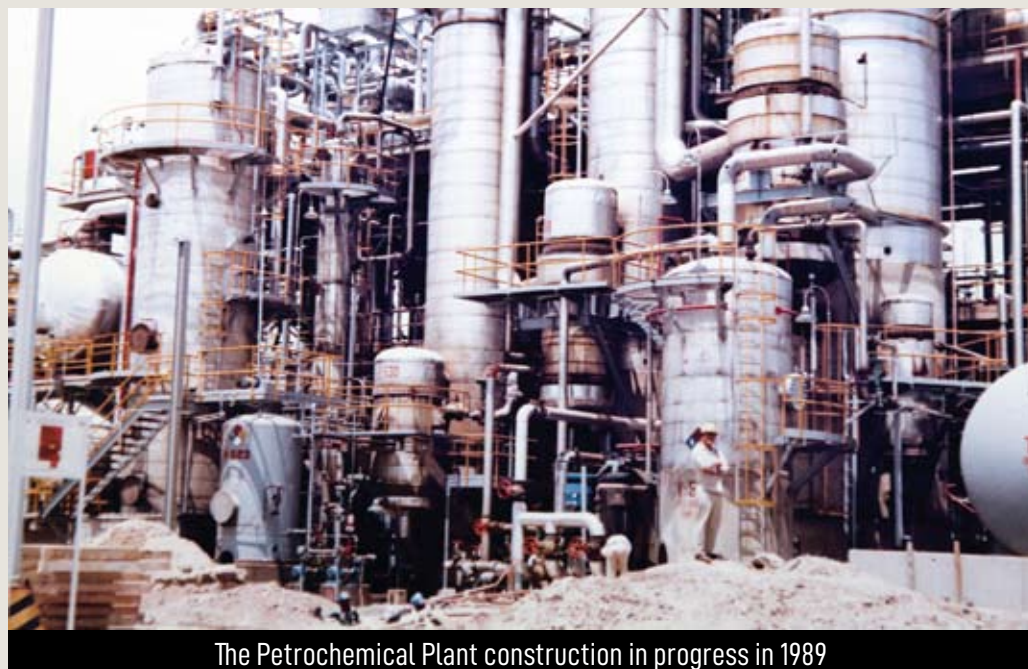
An aerial view of the petrochemical plants. The intermediate tank farm and effluent treatment facilities can also be seen.



PETROCHEMICAL PLANT



Petrochemical Reactor (old pic)



The Petrochemical Plant construction in progress in 1989



Construction of Lactam Plant (old pic)



Caprolactam storage facility at the Petrochemical plants. The quality of FACT Caprolactam is among the best available in the world. Its annual capacity is 50,000 TPA. Small quantities of nitric acid and soda ash are obtained as by-products.

FLAGSHIP PRODUCT

CAPROLACTAM ADDS ZING TO FACT LINE-UP



Loading of caprolactam on to the waiting trucks. Each sack weighs 25 kg

Fostering the spirit of 'Atmanirbhar Bharat', Caprolactam, the unique petrochemical product manufactured by FACT, has emerged as a key player in the country's march towards self-reliance.

When production fuelled by LNG as a primary feedstock resumed at FACT in 2021 after a gap of seven years, the public sector company

not only succeeded in meeting the domestic demand, but it also heralded a new era of import substitution. The resumption promised to add approximately Rs 700 crore annually to the firm's turnover, a testament to its economic significance.

The production of caprolactam started in India in 1974 when Gujarat State Fertilisers & Chemicals Ltd (GSFC) commissioned a 20,000

THE TIDE IS TURNING AND THE CURRENT DEMAND FORECASTS A FUTURE WHERE CAPROLACTAM'S SIGNIFICANCE WILL ONLY GROW

TPA plant in Vadodara. This capacity was stagnant till FACT commissioned its 50,000 TPA plant in 1990. But it was in recent years that the demand has surged, outpacing production and necessitating imports. The tide is turning and the country's caprolactam industry is poised for a renaissance. The current demand, estimated at 1,20,000 to 1,30,000 MT annually, forecasts a future where caprolactam's significance will only grow.

Caprolactam is mainly used as a raw material for Nylon-6, a vital ingredient in the production of tyre-cord, engineering plastics, etc. The quality of FACT caprolactam is among the best in the world. With a production capacity of 50,000 metric tonnes per annum, FACT sets the bar high, ensuring that every batch meets the most stringent standards of excellence.

But FACT's contribution orchestrates a harmony of industrial ecosystems, where the by-product of caprolactam manufacture yields 2.25 lakh metric tonnes of ammonium sulphate fertiliser, which nurtures both industry and agriculture.



Caprolactam bagging

Caprolactam bagging at the Petrochemical plants. Caprolactam is manufactured from raw materials such as benzene, sulphur (as sulphur dioxide and oleum), ammonia, and carbon dioxide. It is used in the manufacture of nylon tyre cord, nylon filament yarn, engineering plastics, etc.



Another view of the bagging process



FACT COCHIN DIVISION, AMBALAMEDU

The water intake well of Cochin Division on the beautiful Ambalamedu Lake. The water from the well, which is treated, is mostly used for industrial use, and also for human consumption. To meet the high demand of water in manufacturing fertilisers, over 250 acres were converted into a lake by constructing an earthen dam.



The eye-catching entrance of FACT Cochin Division's administrative building featuring the stunning artwork of Kanayi Kunhiraman



The CISF security check point at Cochin Division



The graffiti painting at the entrance of the FACT Administrative Office at Cochin Division

COCHIN DIVISION ADDS SHEEN BLAZE OF GLORY

THE 'FACT' BEHIND KERALA'S RISE AS A FERTILISER HUB



lighted the proposal put up by Kerala, land next to Cochin Refineries was earmarked for the project in the early 1970s.

FACT acquired 1,400 acres, including sparsely populated areas, water bodies, and 1,000 acres of forest land. With rail and road connectivity plus water transport, the location of the mega facility could not have been more suitable as it ensured hassle-free movement of raw materials and finished products. The Cochin Division, FACT's second fertiliser unit, came to life in two thrilling phases at Ambalamedu. Phase I, featuring the Ammonia-Urea Complex, kicked off in 1973, and Phase II, with Sulphuric Acid, Phosphoric Acid, and a Complex Fertiliser Plant, went on stream between 1976 and 1978.

FACT ACQUIRED 1,400 ACRES OF LAND, COMPRISING SPARSELY POPULATED AREAS, WATER BODIES AND 1,000 ACRES OF FOREST LAND IN AMBALAMEDU FOR THE COCHIN DIVISION

This division hums with activity, churning out 485,000 TPA of complex fertiliser (FACTAMFOS 20:20:0:13), 330,000 TPA of sulphuric acid, and 115,200 TPA of phosphoric acid. It has an effluent treatment and wastewater recycling system. Raw materials like sulphur, rock phosphate and ammonia are imported and stored at the Willingdon Island facility, which is enhanced by a top-notch ship unloading system and storage unit.

Kochi Division is now an ISO 14001:2004-certified facility for Environment Management Systems by DNV and an ISO 9001:2008-certified powerhouse for producing complex fertilisers.

In the 1960s, the Union government was not too keen on letting states have more than one fertiliser factory. Nonetheless, FACT, which was led by the ebullient and highly enterprising MKK Nayar, had bigger plans. The PSU decided to push for a colossal new plant at Ambalamedu, about 30 km from Udyoga-

mandal, right next to Kochi Refineries (present-day BPCL-Kochi Refinery).

The idea was to establish a state-of-the-art fertiliser plant powered by naphtha from Cochin Refineries. FACT's top brass worked their magic, convincing Prime Minister Lal Bahadur Shastri of the project's necessity. The efforts paid off and Kerala shot to fame

as India's largest per capita consumer of chemical fertilisers.

Cash crops like pepper, cardamom, tea and coffee were the main consumers of the fertilisers, with exports boosting forex earnings. With natural rubber imports soaring, the urgency to produce more fertilisers was quite understandable. After the Centre green-



An aerial view of the rail side at FACT's Cochin Division, Ambalamedu. FACT Cochin Division was set up in the 1970s in Ambalamedu, about 30 km from Udyogamandal. The factory site is well connected by rail, road and waterways.

The gypsum yard of the Phosphoric Plant at the Cochin Division. Gypsum is a by-product of phosphoric acid. It is marketed under the brand name FACT Gypsum. It contains 16% sulphur and 22% calcium. They are plant nutrients required for the growth of crops and improvement of the quality of crop produce. Sulphur containing gypsum helps improve oil content in oil seed crops. In addition, this is a fertilising soil ameliorant helpful for reducing the alkalinity.







Firefighters of Fire
& Safety wing at
Cochin Division



CRANE-WORKSHOP
MAX CAPACITY: 10 TONNES
SAFE WORK LOAD: 08 TONNES
EXT TEST DUE DATE: 9/3/2024

DRINKING
WATER

The plant
workshop





**COCHIN DIVISION
SUBSTATION**

A view of the substation at
FACT's Cochin Division





NP PLANT

FACT has an annual installed capacity of 6.33 lakh MT of complex fertilisers (NP 20:20:0:13), 2.25 lakh MT of ammonium sulphate and 0.5 lakh MT of caprolactam. It moved from naphtha-based operations to Regasified Liquefied Natural Gas (RLNG)-based operations in 2013-14. The Central PSU is expanding its fertiliser production capacity by setting up an additional Complex NP Plant with a capacity of 1,650 tonnes per day. The work is in progress and the plant is expected to become operational shortly.





The granulator
at Cochin
Division



An inside view
of the NP Plant,
Cochin Division



The NP Plant control room at Cochin Division



Sulphuric acid Plant at Cochin Division

**THE FILTER OF THE
PHOSPHORIC ACID
PLANT AT COCHIN
DIVISION**

The plant can manufacture
1,15,200 TPA of phosphoric acid





**THE EFFLUENT
TREATMENT PLANT AT
COCHIN DIVISION**

FACT has a well designed effluent treatment and waste water recycle system at its Cochin Division. The effluent treatment plant and emission control facilities are kept in operation along with the production plant throughout the year. The treated liquid effluents and gas emission conform to the standards prescribed by the Kerala State Pollution Control Board.

The ammonia
barge jetty at
Cochin Division









FACT'S IMPORT FACILITY AT WILLINGDON ISLAND

Fertilisers and Chemicals Travancore Ltd (FACT) meets a share of its massive raw material requirement through imports from countries like Morocco, Togo, Egypt, and Qatar. The raw materials include rock phosphate (bulk), phosphoric acid and sulphuric acid.

The Public Sector Company has a dedicated ship unloading system at Q-10 berth in Willingdon Island. During peak operation period, the daily unloading rate goes up to

6,000 tonnes. An additional acid unloading facility at Q-9 berth was inaugurated in January 2024.

Nearly 50 ships visit the facility annually. The raw materials are unloaded and then shipped to Udyogamandal and Cochin Divisions on barges and also by road. There are three Phosphoric Acid plants (6,500 tonnes each) and two Sulphuric Acid plants (8,200 tonnes), besides two godowns, each having a storage capacity of 15,000 tonnes.





The ship carrying bulk raw materials at FACT's Q10 berth at Willingdon Island. The sulphur and rock phosphate brought in bulk carrier ships is transported to Udyogamandal and Ambalamedu in barges.

AN IMPRESSIVE LINE-UP FROM FACT'S STABLE



FACTAMFOS

FACTAMFOS 20.20.0.13 (ammonium phosphate sulphate) is a chemical blend of 40 parts of ammonium phosphate and 60 parts of ammonium sulphate. It contains 20% N and 20% P2O5. The entire N is in ammoniacal form and P is completely water-soluble. In addition, FACTAMFOS contains 13% sulphur, a secondary plant nutrient which is now attaining great importance in agriculture. FACTAMFOS 20.20.0.13 with granular form and non-hygroscopic and free flowing nature, has excellent physical properties. It is ideal for application in all types of soil and crops. FACTAMFOS can also be used for foliar applications.



IMPORTED FERTILISERS

FACT imports urea and potash from Gulf countries, Russia, etc. Urea with 46% nitrogen in granular/prilled form and potash with 60% K2O serve the nutritional requirement of soil in north Indian states.



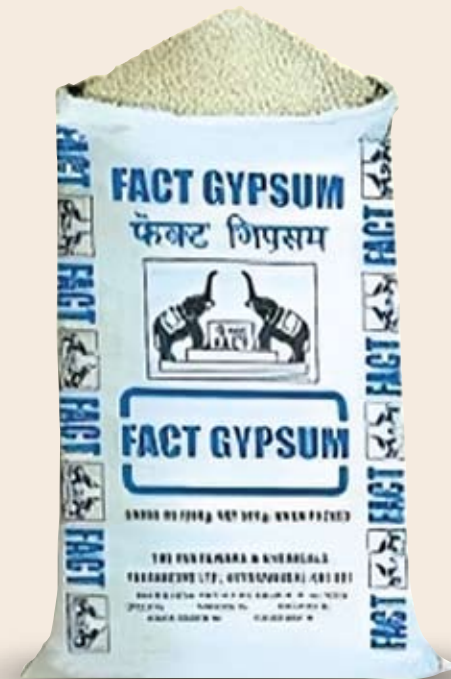
AMMONIUM SULPHATE

Ammonium sulphate is a nitrogenous fertiliser containing 20.6% nitrogen, entirely in ammoniacal form. It has excellent physical properties and is non-hygroscopic, crystalline and free flowing. It is ideal as a straight nitrogenous fertiliser and also as an ingredient in fertiliser mixtures. It is the most widely preferred nitrogenous fertiliser for top dressing on all crops. Another unique advantage is that it contains 24% sulphur, an important secondary nutrient.

ZINCATED FACTAMFOS

This fertiliser is a value addition to FACTAMFOS 20.20.0.13. This contains essential micronutrient zinc at 0.5% in addition to major nutrients nitrogen and phosphorus and secondary nutrient sulphur. The fertiliser is mainly suitable for crops such as paddy, banana and sugarcane where zinc deficiency is normally observed in states such as Tamil Nadu, Karnataka, Andhra Pradesh and Telangana.





GYPSUM

A by-product of phosphoric acid, gypsum is a rich and cost-effective source of 16% sulphur and 22% calcium. FACT is marketing packaged gypsum in bags under the brand name FACT Gypsum in all southern states as a soil conditioner with fertilising properties. Gypsum (95% by weight CaSO_4) is an ingredient for manufacturing portland cement, plaster of paris, gypcrete, gypboard, etc. and is also used as an inert filler in pharmaceuticals, paper, paints, insecticidal dusts, etc. It also has widespread usage as soil ameliorant with liming properties.



FACT ORGANIC

FACT is also marketing organic manure produced from city compost, under the brand name FACT Organic, which complies with the Fertiliser Control Order standards. Besides improving the physical characteristics of soil, the organic manure supplies small quantities of NPK (nitrogen, phosphorus, and potassium) and sufficient quantities of micronutrients.

BIOFERTILISER

Three types of biofertilisers, namely Azospirillum, Phosphobacter, and Rhizobium, are produced and marketed as 'Bio FACT'.



FACT ORGANIC PLUS

FACT Organic Plus is the enriched form of Organic Manure (chick manure). The physical and chemical properties of FACT Organic Plus are similar to those of FACT Organic.





GLITTERING FARE

FEDO IS FACT'S CROWNING GLORY

In the early 1960s, India stood at a crossroads in its quest for economic development. Recognising the pivotal role of agriculture in propelling the nation towards prosperity, the government laid emphasis on agricultural advancement and supporting industrial infrastructure in its Third Five-Year Plan (1961-66). Among the main objectives, the expansion of basic industries like fertilisers, chemicals, steel, machine building, fuel and power was paramount. The goal was clear: a rapid increase in agricultural production, underpinned by a substantial boost in fertiliser output.

A cornerstone of this vision was the production of nitrogen, an essential component in fertilisers, aiming to quickly scale up to a million tonnes. To achieve the lofty target, India needed not only the raw materials but also the expertise to construct and operate state-of-the-art fertiliser plants.

FACT sensed a big opportunity, pooled in its expertise gained over the years, and gave shape to an engineering consultancy division dedicated to planning, design, construction and operationalisation of projects in fertilisers, petrochemicals and allied industries. Thus in 1965, FACT Engineering & Design Organisation (FEDO) was born.

Within just two years of its inception, FEDO garnered accolades from the global fertiliser industry, setting the stage for its evolution into a comprehensive engineering consultancy. FEDO's capabilities expanded to cover every facet of project engineering and management. In

OVER THE PAST FIVE DECADES, FEDO HAS BECOME AN ENGINEERING POWERHOUSE THAT ENCOMPASSES EVERY FACET OF PROJECT ENGINEERING AND MANAGEMENT

PRIDE OF PLACE

DEFINING MOMENTS

2007
Single Point Mooring for BPCL. (Along with M/s Intec) and Shore Tank farm at Kochi (Rs 300 crore/ 3.72 crore)

2012
FRBL Plant (a joint venture of FACT and Rashtriya Chemicals & Fertilisers, Mumbai)- Fibre Reinforced Wall Panel Plant

1968
Collaboration with Davy Power Gas Ltd, UK, for Ammonia Plant at FACT Cochin Division

1980
Tie-up with MW Kellogg for Ammonia Plant Technology

2013
Revamp of 900 TPD Ammonia Plant at FACT-UC for feedstock flexibility

2014
NIT Nagaland Phase-II (Rs 236 crore)

1984
Collaboration with Stamicarbon, Netherlands, for Caprolactam Plant at FACT Udyogamandal Division

2017
Terminal Automation System for Indian Oil Corporation Ltd, Tamil Nadu, for 9 locations

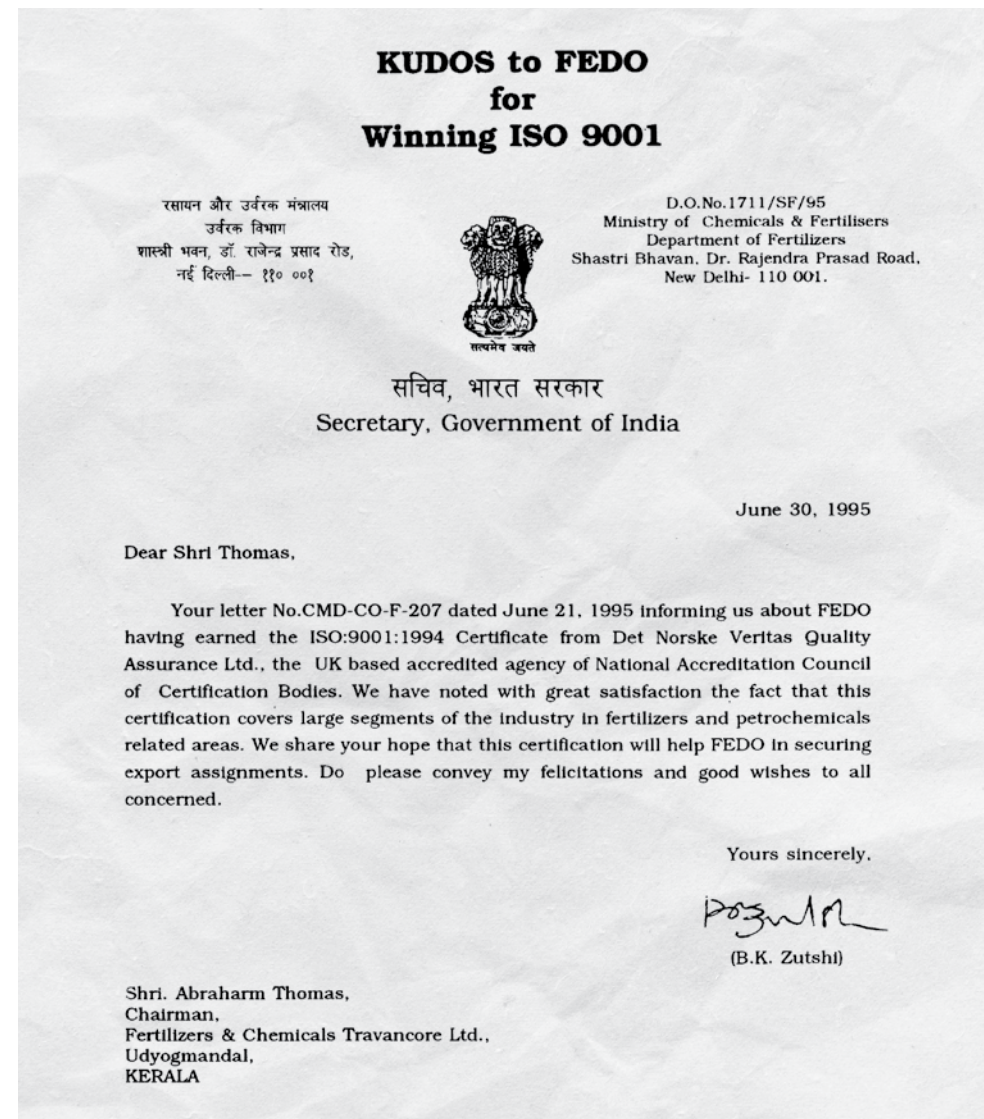
1988
Collaboration with Toyo Engineering Corp Japan for Methanol Plant for Gujarat Narmada Valley Fertilisers & Chemicals Ltd

2018
Residential Township for BPCL-Kochi Refinery

2024
FEDO was the project management consultant for Indian Oil Corporation Ltd's mega LPG Import Terminal at Puthuvype in Kochi. Prime Minister Narendra Modi dedicated the project to the nation on January 17, 2024

FEDO's portfolio expertise ranges from boardroom to plant floor mode, right from pre-project activities/surveys, and basic/residual/detailed engineering to project implementation





June 1995, it became the first project engineering consultant in India to receive Det Norske Veritas ISO 9001 certification.

FEDO's expertise is not confined to fertiliser plant projects. The organisation has made significant inroads into the petrochemical industry as well, exemplified by the successful commissioning of complex projects like caprolactam and methanol production facilities. Furthermore, FEDO has demonstrated its prowess in retrofitting jobs for the production

of ammonia, petrochemical/CPP feedstock fuel mix, etc. In the oil and gas sector, particularly in midstream and downstream refinery operations, FEDO has left an indelible mark not just in India but also in the Gulf region.

One of the pillars of its success has been its strategic technical alliances with world-renowned consultants and basic technology suppliers and licensors such as Haldor Topsoe (Denmark), Kellogg Brown & Root (USA), Stamicarbon (The Netherlands), BASF (Germany),

Lurgi/Monsanto (France), Toyo Engineering Corporation (Japan) Outokumpu (Finland), Coppee Lavalin (Belgium), and Technimont (Italy).

Lately, FEDO has diversified into PMC (Project Management Consultancy) services and depository jobs on a wider scale. This includes the development of industrial, IT, Start-up incubation parks, townships, and high-rise academic, commercial, and residential buildings. By catering to an elite clientele, FEDO is contribut-

ing to nation-building in collaboration with various industry and academic bodies.

As a pioneer in Project Management Consultancy and Engineering, Procurement and Construction Management (EPMC), FEDO has developed a robust capability for setting up and managing complex projects. It has amassed significant engineering know-how in the setting up plants such as ammonia, sulphuric acid, phosphoric acid, and hydrogen. FEDO is also an expert in the implementation of projects

involving various fertilisers like urea, ammonium sulphate, single superphosphate, diammonium phosphate (DAP), ammonium chloride and also complex fertilisers like Nitrogen, Phosphorous, and Potassium.

FEDO's journey from its initial focus on the fertiliser and chemical sectors to its current involvement in petrochemical, oil and gas sectors, and industrial and IT infrastructure development, underscores its strategic expansion. Notably, it has played a pivotal role in

the development of industrial and IT/start-up incubation parks and allied infrastructure, reinforcing its position as a profitable centre and leading brand under FACT. Beyond its industrial projects, FEDO has carved a niche in civil and architectural works, particularly in the academic sector.

The organisation has been instrumental in developing campuses for universities and National Institutes of Technology (NITs), as well as residential townships. By tapping into the

growing infrastructure projects in India's current ecosystem, FEDO is positioning itself for sustained future growth.

FEDO's commitment to excellence is reflected in its recent achievements and ongoing projects. In 2022-23, it successfully completed several capital-expenditure (Capex) projects for FACT, including the construction of a sulphuric acid storage tank at the Cochin Division and the reconstruction of the South Coal Berth in Willingdon Island. These projects under-



FEDO HAS MADE SIGNIFICANT INROADS INTO THE PETROCHEMICAL INDUSTRY, EXEMPLIFIED BY THE SUCCESSFUL COMMISSIONING OF COMPLEX PROJECTS LIKE CAPROLACTAM PRODUCTION FACILITIES

score FEDO's technical capability and project execution efficiency. Currently, FEDO is actively participating in several Capex projects, including the construction of a 1,650 metric tonne per day (MTPD) NP plant at the Cochin Division, a 10,000 metric tonne ammonia storage tank (Cochin Division), and two Phosphoric Acid Storage Tanks in Willingdon Island.

IOCL PARADIP PROJECT

Among its many successful projects, the comprehensive project management consultancy service extended as part of the Indian Oil Corporation Limited's (IOCL) Paradip refinery project in Odisha stands as a testament to FEDO's capability and expertise. Completed in 2013, the project underscores FEDO's proficiency in managing large-scale industrial projects.

The Rs 2,700-crore project involved the setting up of a mega crude and product storage facility. It includes 11 crude oil floating roof tanks, each with a diameter of 79 metres and a height of 13.6 metres. These tanks have a storage capacity of 59,555 cubic metres, designed to safely store large volumes of crude oil. There are 25 product tanks with a capacity of up to 38,284 cubic metres. The facility also includes 15 pressurised LPG/propylene bullets, each with a capacity of 1,300 metric tonnes.

FEDO: PROJECTS AT A GLANCE



COMPRESSED BIOGAS (CBG) PROCESSING PLANT AT BADAUN, UP

FEDO has undertaken the challenging task of overseeing the design, development, and execution of the pioneering CBG Processing Plant at Badaun in Uttar Pradesh. The agreement for the Project Management Consultancy (PMC) service for the mega project was signed in November 2020.

The CBG Processing Plant, with a design capacity to process 100 tonnes of rice straw per day, represents a beacon of innovation and environmental stewardship. Rice straw burning, a prevalent practice in many agricultural regions, poses severe environmental hazards, including air pollution and greenhouse gas emissions.

FEDO's initiative to build the first large-scale rice straw processing plant in the country converts this waste into valuable biogas. The project's success reflects the role of FACT's specialised wing in spearheading the Green Revolution and transforming challenges into opportunities.

FEDO carried out meticulous research to identify optimal technologies to convert rice straw to CBG, enabling it to prepare a comprehensive tender document and seek industry-wide participation and competitive proposals. It also successfully completed the design and construction phases. Currently, the CBG Processing Plant is in the commissioning stage.



IN BADAUN IN UTTAR PRADESH, FEDO UNDERTOOK THE CONSTRUCTION OF THE FIRST LARGE- SCALE RICE STRAW PROCESSING PLANT IN THE COUNTRY THAT CONVERTS WASTE INTO BIOGAS

NIT NAGALAND

In 2014, FEDO was awarded the Engineering and Project Management Consultant services for the second phase of the NIT campus in Nagaland. This Rs 150-crore project is a testament to FEDO's commitment to educational advancement, even in the most challenging terrains of northeast India. Spread over 300 acres of land in Dimapur, the largest city in Nagaland, the NIT Campus project involves comprehensive architectural services, detailed

engineering, project management consultancy services, site management, and finance management.

The Master Plan was drafted and approved by the Board of Governors. There has been steady progress in the construction activities, that include the construction of Academic blocks, Library block-Computer Centre, Canteen building, Hostel buildings, open-air amphitheatre, and other development works. The following are the major ongoing construction works:

- Five academic blocks are under construction of which three blocks comprise 3,700 sq mt and the remaining two are spread across 4,262 sq mt.
- A central library cum computer centre (2,250sq mt)
- A canteen building-amenity centre is also in the final stages of completion. It has facilities like Stationery and Departmental stores and house, the bank and Medical Centre.
- An Open-Air Amphitheatre (OAT) for conducting various events is under construction adjacent to the administrative block. It can house 300 students and has a self-sufficient green room, projector facilities, changing rooms, and washrooms.
- Two hostels, which can accommodate 240 students, are in the final stage of completion
- Construction is underway for 48 units of type IV (special) quarters to house the faculty members and officers. Blueprints are also being prepared for the construction of type-V, type-111, and type-11 quarters.



LPG IMPORT TERMINAL AT PUTHUVYPE

FEDO CONSULTANT FOR MAMMOTH VENTURES

The mega LPG import terminal built by the Indian Oil Corporation Ltd (IOCL) at Puthuvype SEZ in Kochi is set to usher in a new era in liquefied petroleum gas distribution. Prime Minister Narendra Modi dedicated the mammoth venture to the nation at an impressive gathering at Puthuvype on January 17, 2024. FACT Engineering Design Organisation (FEDO) was the project consultant.

The import terminal comprises two LPG mounded storage vessels consisting of four Propane and four Butane bullets as well as associated structures like a booster pump house, fire water tanks, administrative block, office block, truck bay, etc.

The design capacity of the LPG import terminal is 6,000,00 TPA and it has the facility for import, storage and distribution of LPG. The terminal serves as a key infrastructure for meeting the increasing demand for LPG in the region. Besides being equipped with storage tanks, handling facilities and associated infrastructure to receive, store and distribute LPG, the terminal includes berthing facilities for LPG vessels, unloading arms, pipelines and storage tanks with a significant storage capacity.

THE LOWDOWN

The LPG Import Terminal of IOCL has come up on 15.5 hectares taken from Cochin Port Trust (CPT). The site is adjacent to the Crude Oil Terminal of Kochi Refineries Limited and is also in the vicinity of the Petronet LNG Terminal and GAIL Gas Cracker Unit in Kochi.



THE DESIGN CAPACITY OF THE LPG IMPORT TERMINAL IS 6,000,00 TPA. THE TERMINAL WILL SERVE AS A KEY INFRASTRUCTURE FOR MEETING THE INCREASING DEMAND FOR LPG IN THE REGION

Butane and propane would be separately imported at Kochi LPG Import Terminal, which would be then blended to form LPG for subsequent dispatch by pipeline / road to various IOCL LPG Bottling Plants. Butane and propane

are separately imported in cryogenic condition using refrigerated carriers of capacities ranging from 13,000 MT to 20,000 MT at -40C for butane and -430C for propane.

These tankers would be berthed at a multi-

CRUCIAL ROLE

FEDO was appointed as the Project Management Consultant (PMC) for the mammoth project. Though the total outlay came to Rs 1,200 crore, FEDO's scope was limited to Rs 350 crore for detailed engineering of the mounded vessel and associated buildings and PMC for total project.

user jetty constructed by CoPT (Cochin Port Trust) and would be discharged to the storage tanks of the IOCL LPG Import Terminal (situated around 3.5 km from the jetty) through marine unloading arms and cross-country pipeline(s). Before pumping in to cross a country pipeline, propane and butane are heated to 150C by heat exchangers installed at the jetty.

Butane and propane thus received at the Terminal would be stored in separate storage vessels. These vessels shall be 4 nos 1,925 MT suitable for propane storage and 4 nos 1,925 MT suitable for LPG/ butane storage thereby providing a total of 15,400 MT storage capacities. LPG is subsequently formed by blending Butane and Propane streams using an inline Static Blender which is then odorised by dosing Ethyl Mercaptan before its dispatch to bottling plants through tank trucks using a 16-bay mass flow meter-based truck loading system and cross country pipelines.



OFF-SITE FACILITIES

- Marine Unloading Arms (MULA) at the jetty
- Receipt manifold, control valves and instrumentation at jetty
- Flow metering system at jetty
- Heating of Propane and Butane to 150C through Sea Water Heat Exchangers
- Sea Water Pumping system
- Air compressors for actuators and instrumentation at jetty
- Substation with emergency power supply arrangements at jetty
- Nitrogen purging arrangements at jetty
- Jetty control room and control system
- Communication systems (ship to shore and jetty to terminal)
- Hazard detection (gas, heat, flame, smoke) and suppression (water/ gas) system at jetty
- Cross country pipeline from jetty to the terminal
- HSD Storage area



ON-SITE FACILITIES

- Butane and propane mounded storage tanks
- LPG pumps for product dispatch
- LPG blending system
- Mercaptan dosing system
- Mass flow meter-based tank truck loading system
- Electronic weighbridges for cross verifying loaded trucks
- LPG compressor for unloading sick tank trucks
- LPG/ air/ water piping system
- Air compressors for actuators and instrumentation
- Electrical power system, substation and standby generators including lighting (including high mast towers), lightning protection and earthing systems
- Hazard detection (gas, heat, flame, smoke detection) and suppression (hydrant / MV spray / gas based suppression) systems
- Instrumentation, metering, terminal automation, communication, CCTV, control and shutdown systems
- Land development, plant buildings, roads, drains, culverts, civil works-related HSD Storage facility and other civil structures

MAJOR INFRA PROJECTS

PMC FOR BPCL-KOCHI REFINERIES



CONSTRUCTION & CIVIL ENGINEERING

The civil engineering and construction group of FEDO has evolved into an engineering powerhouse catering to the varied needs of industrial infrastructure and a wide spectrum of development and construction projects.

ASSOCIATIONS WITH GLOBAL PLAYERS

FEDO has wide technical associations with world-renowned consultants and basic technology suppliers & licensors like Haldor Topsoe (Denmark), Kellogg Brown & Root (USA), Stamicarbon (Netherlands), BASF (Germany), Lurgi/Monsanto (France), Toyo Engineering Corporation (Japan), Outokumpu (Finland), Coppee Lavalin (Belgium), and Technimont (Italy).

A PLETHORA OF SERVICES

- DPR for residential, commercial, industrial & infrastructure projects
- Topographical, contour and cadastral survey
- Soil exploration & subsoil investigations
- Architectural services
- Structural engineering services
- Transportation engineering services
- Water resources, cost estimation, valuation & tendering
- Quantity survey, cost estimation, valuation & tendering
- Project management services, including site supervision and management information system

■ FEDO successfully undertook Project Management Consultancy (PMC) for setting up a residential township for BPCL-Kochi Refineries in Kochi. The PMC involved a residential tower complex (3 towers with 13 levels each) project on 8.23 acres comprising 65 residential apartments. The PMC involved one bungalow and 15 transit accommodation, a clubhouse with a multi-purpose hall to accommodate approximately 1,000 persons, utilities like power installations, solar power plant, water storage tanks, a waste disposal/sewage treatment plant, a solid waste disposal facility, miscellaneous facilities like security cabin, watch tower, substation, maintenance office gate, covered/open parking, amenity building, street lighting, roads, drains, etc. FEDO executed the work in December 2018.

■ PMC for Phase-II expansion of the campus for National Institute of Technology, Nagaland on 291 acres of land comprising academic buildings, administrative buildings, lecture hall complex, library building, computer centre, residential buildings, guest house, hostels for 800 students and other utility buildings with a project cost of Rs 236 crore



AN IMPRESSIVE CLIENT LINE-UP

Over the years, FEDO has actively participated in the industrialisation process by joining hands with firms in the public, private, joint and cooperative sectors to set up viable units in a time-bound manner. Some of the major clients include:

OIL AND GAS

- Indian Oil Corporation Ltd
- BPCL, Kochi Refinery
- Oil & Natural Gas Corporation Ltd
- Gas Authority of India Ltd
- Hindustan Petroleum Corporation Ltd
- Bharat Petroleum Corporation Ltd
- IBP Co Ltd
- Chennai Petroleum Corporation Ltd
- Oil India Ltd

FERTILISERS

- National Fertilisers Ltd (Panipat, Batinda and Nangal)
- Krishak Bharti Cooperative Ltd
- Indian Farmers' Fertiliser Cooperative Ltd
- Madras Fertilisers Limited
- Paradip Phosphates & Chemicals Ltd
- Indo Gulf Fertilizers & Chemicals Corporation Ltd (Hindalco, Dahej)
- Oswal Chemicals & Fertilisers Ltd (IFFCO Paradeep)
- Gujarat State Fertilisers Corporation
- Gujarat Narmada Valley Fertiliser Corporation

OTHERS

- Mangalore Refinery & Petrochemicals Ltd
- Hindustan Organic Chemicals Ltd
- Hindustan Zinc Ltd
- Hindustan Copper Ltd
- Kerala Chemicals & Proteins Ltd
- Travancore Titanium Products Ltd
- Binani Zinc Ltd
- Hindustan Insecticides Ltd



INFRASTRUCTURE

- GIDA (Goshree Islands Development Authority)
- KINFRA (Kerala Industrial Infrastructure Development Corporation)
- KSIDC (Kerala State Industrial Development Corporation)
- RBDCK (Roads & Bridges Development Corporation, Kerala)

LIST OF PROJECTS

- FEDO has executed a number of projects, either using its own process know-how or know-how obtained from other process licensors
- Four petrochemical plants (phenol, caprolactam, methanol, and monochloro benzene)
- Thirteen ammonia/hydrogen plants based on steam reforming of hydrocarbons
- 19 sulphuric acid plants
- Five phosphoric acid plants
- Two formic acid plants, 2 nitric acid plants and 3 mini cement plants





FEW: FACT'S FABRICATION WING IS PIONEER

FACT Engineering Works (FEW), the fabrication division of the Public Sector Unit, is a pioneer in fabrication and has an astounding legacy spanning more than 40 years. Started in 1966 as a diversification of FACT in the engineering field, FEW achieved excellence in a short span of time.

Located on a lush green 14-acre campus at Palluruthy on the banks of the Kochi backwaters, FEW is just 2 km from the Arabian Sea. The proximity to the sea gives FEW an advantage since this makes it all the more easy to ferry heavy equipment.

Over the years, FEW developed capabilities in the manufacture of Heavy Pressure Vessels, Heat Exchangers, Columns, Towers, Reactors, Storage Tanks, etc. for the fertiliser, petro-

chemical and petroleum industries. The fabrication division has to its credit many highly challenging and precise works demanding highly competent technical expertise. Its clients include ISRO, VSSC, ONGC, BPCL, CPCL, Cochin Shipyard, KSEB, etc.

FEW has been awarded ISO 9001 by Det Norske Veritas of Holland for its services in design, fabrication and supply of pressure vessels, heat exchangers and storage tanks; fabrication and erection of plant and equipment for process industries, cross-country pipelines, in-plant and offshore piping. The entire range of fabrication services carries the ISO 9001 stamp of quality, which includes products at the workshop as well as those at the site.

PRODUCTS AT FEW WORKSHOP

FEW has a fully automated and finely integrated workshop equipped with state-of-the-art machinery and the latest solutions in fabrication, testing, and welding. The workshop offers the fabrication of almost all equipment vital to the processing industry like

- Heat Exchangers
- Pressure Vessels
- Columns & Towers
- Storage Tanks in ferrous & non-ferrous metals
- Reactors

PROJECTS AT SITE

FEW also has the capability and resources to undertake fabrication projects at the site. A highly skilled team of engineers and craftsmen is available for projects of any description at any given site.

FEW can also undertake the design, engineering, fabrication, and erection of:

- Dry seal/wet seal industrial gas holders of vertical / spiral lifts
- Plant piping and offshore piping for process industries
- Spillway shutters, penstock pipes
 - Large sized storage tanks, vessels and other items of process industries
- Cross-country piping
- Oil terminals on turnkey basis
 - Columns, Towers
 - Floating roof tanks, etc.
- Refinery shutdown inspection services



Shipping component for CSL - accommodation block for ship



Heat exchanger for VSSC



Stainless steel vessel for bag filter-KMML-2011



ROLL OF HONOUR

PROJECTS EXECUTED

BENGALURU WATER SUPPLY & SEWERAGE BOARD, BENGALURU

- Fabrication, laying & commissioning of 1,800mm dia pumping main (cross country) - 34 km

BHARAT PETROLEUM CORPORATION LTD, KOCHI

- Laying of petroleum product twin pipeline 600 NB (cross country) 19 km.

MADRAS FERTILISERS LTD, MANALI, CHENNAI

- Design, fabrication, site erection and commissioning of MDEA Tank Package

BPCL/KOCHI REFINERIES LTD, AMBALAMUGAL

- Erection of equipment/machinery, fabrication and erection of piping for the aromatic project
- Fabrication and erection of piping, tankages, erection of equipment, etc., for relocation of Asphalt Filling Plant

COCHIN SHIPYARD LTD, KOCHI

- Rolling welding and supply of Conductor Guides/ Conductor Protectors - ONGC Project. Ship Hatch Covers

KSEB, THIRUVANANTHAPURAM

- Erection of 1,650 MT of steel liners for the Lower Periyar Hydro Electric Power Project

FACT COCHIN DIVISION, AMBALAMEDU

- Design, supply, fabrication, erection and commissioning of Floating Roof Naphtha Storage Tank of 3,900 m3 capacity

FACT, UDYOGAMANDAL

- Fabrication, erection, testing, etc. of off-site storage tank
- Design, engineering, manufacture/fabrication, site erection of Ammonia Storage System (5,000 GMT capacity)
- Erection of underground piping for cooling water, fire hydrant and raw water
- Fabrication, erection and testing of column and towers, drums and press vessels -26 nos

KMML

- Heat exchangers & pressure vessels

IOCL

- Rail mounted LPG bullets

Its inception heralded a new era of agricultural productivity, promising to transform barren lands into verdant fields and usher in an era of self-sustenance. However, for India's first large-scale fertiliser firm, the road to prosperity was fraught with obstacles. FACT was not immune to the ebb and flow of economic tides.

One of the most formidable challenges FACT encountered was a prolonged period of financial adversity, characterised by continuous losses until the 2017-18 fiscal. The devastating flood compounded the struggles. Yet, amid the gloom, FACT refused to succumb to despair. Instead, it embraced adversity as an opportunity for transformation and growth.

In February 2018, Kishor Rungra took over the reins as the Chairman and Managing Director of FACT, ready to take on the Herculean task of effecting a turnaround in the PSU's fortunes. Rather than resting on the laurels of its past glory or cursing the adversities, the company charted a course towards brighter horizons. The stage was set for an epic turnaround, redefining the company's destiny.

The new management hit the ground running, wasting no time in acknowledging the colossal task ahead. Realising that firing up the workforce and ironing out organisational kinks were non-negotiable, the management swiftly swung into action. The morale had taken a hit from prolonged adversity and the company's gears were grinding painfully slow. Buoyed by a bold vision and decisive action, FACT began its phoenix-like rise from the ashes.

A DREAMLIKE RESURGENCE

A game-changing moment arrived with a much-needed infusion of funds from the Kerala Government, which extended a lifeline just when the company needed it the most. A sum of Rs 980 crore was received following the sale of land. The management set apart a lion's share, Rs 780 crore, for capex - to establish a new fertiliser plant and only Rs 200 crore to rotate the working capital.

"It gave me breathing space. A SWOT analysis was done and whatever weaknesses were there,

AN AMAZING TURNAROUND



we tried to overcome them. We decided not to compromise with production, as it meant compromising with sales and your market share being taken by somebody else. The market will never wait for you. Either you sell or somebody else will sell," said former CMD Rungra.

Recognising that in the fast-paced arena of business, sluggish decision-making can

spell disaster, FACT embarked on a mission to streamline its processes and accelerate its response time. The management understood that to compete with industry giants such as Coromandel, IFFCO, and KRIBHCO, it needed to match their prowess with agility and innovation. Armed with this insight, FACT embarked on a dual strategy of ramping up production

and accelerating sales, while simultaneously ploughing back profits into the system. This strategic manoeuvre not only bolstered its market position, but also facilitated the rapid rotation of working capital, injecting vitality into its operation and fuelling its upward trajectory.

Surprisingly, the trade unions numbering around 7-8 wholeheartedly backed the tough decisions of the management, thanks to transparent communication and collaborative ethos. The stark truth that either you deliver or perish served as a rallying cry for unity and collaboration, transcending traditional divides and forging a common purpose.

SPECTACULAR PERFORMANCE

The results were nothing short of spectacular. FACT witnessed a meteoric rise in its financial fortunes, clocking a staggering net profit of Rs 163.14 crore in 2018-19, signalling the dawn of a new era of consistent growth. Fast forward to the 2022-23 financial year, and FACT surpassed all records, with operational profits skyrocketing to a jaw-dropping Rs 613 crore. And the turnover -- a whopping Rs 6,198 crore, compared to Rs 4,425 crore in the previous year. Furthermore, FACT's market capitalisation crossed the Rs 50,000-crore milestone at the start of 2024, solidifying its position as a net worth-positive and dividend-paying company.

Half-yearly results of the 2023-24 fiscal revealed that FACT's profit further soared to Rs 177 crore. Its turnover grew at the rate of 25 to 30 per cent YoY in the four years up to 2022-23, and the accumulated losses wiped out. The turnover for 2023-24 matched that of the previous year, breaching the Rs 6,000-crore mark yet again. Before 2018, FACT's production was in the range of 7.5 to 8 lakh tonnes. From 2019 onwards, it has been more than 1 million tonnes (10 lakh tonnes).

But it wasn't a smooth voyage. FACT faced its fair share of challenges, including sporadic shortages of raw materials like ammonia. Yet, quick thinking and lightning-fast decision-making saw them through the storm. Embrac-



FACT witnessed a meteoric rise in its financial fortunes, clocking a staggering net profit of Rs 163.14 crore in 2018-19, signalling the dawn of a new era

ing an agile mindset, they ploughed profits back into the system, turbo-charging the working capital turnover and keeping the wheels of progress spinning. Looking ahead, FACT is gearing up to supercharge its production capacity with the rollout of a state-of-the-art NP (nitrogen, phosphorus) plant. This expansion promises to ramp up production to dizzying heights, about 16 lakh tonnes, churning out a variety of fertilisers, including the coveted DAP (Di-ammonium phosphate).

Yet, the realisation of the vision required more than the construction of just a state-of-

the-art plant. It necessitated a comprehensive overhaul of infrastructure to support its operations. From ammonia tanks to phosphoric acid storage facilities, FACT spared no effort in ensuring that every aspect of its operations was primed for success. Under the Sagarmala Project, FACT secured a dedicated berth at the port, providing essential logistical support for the transportation and handling of crucial raw materials.

DEVISING ROAD MAP

FACT is embarking on a strategic expansion

initiative aimed at capturing a significant market share in India's dynamic fertiliser industry. The company is ramping up its production capacity by an additional six lakh tonnes. Trading in fertilisers is a top priority for the company. Moreover, it has begun importing fertilisers to supplement its domestic production. In the 2018-19 financial year alone, FACT imported 1.70 lakh tonnes of MoP or Muriate of Potash.

The Indian fertiliser market presents immense opportunities and challenges. With a demand of 63 million tonnes or 630 lakh metric tonnes, the market is fuelled by a diverse

array of products, including urea (50%), DAP, NPK, and other fertilisers.

FACT relies on imports as well to meet the evolving demands of the market. While it fully imports MoP, the company imports 14-15 % of the complex fertiliser NPK. Similarly, half the requirements in DAP are met by imports. For urea, the company produces 260-270 lakh metric tonnes, while the remaining 60 to 70 lakh tonnes are imported.

One of the key challenges facing the fertiliser industry is the volatility of raw material prices, particularly in the wake of geopolitical tensions such as the Ukraine War. However, FACT has demonstrated its resilience and adaptability in the face of adversity, leveraging government subsidies to stabilise prices and ensure affordability for farmers. By strategically managing its trading operations and focusing on cost-effective sourcing strategies, it has successfully navigated turbulent waters while safeguarding its profitability. Leveraging its iconic brands such as FACTAMFOS (the Two Elephants brand), FACT has cultivated a loyal customer base, particularly in south India, where its products are highly regarded for their quality and reliability.

UNCHARTED WATERS

FACT has embarked on a strategic expansion initiative aimed at diversifying its market presence and mitigating the risks associated with regional dependence. This bold strategy encompasses the penetration of new markets in northern India, Gujarat and West Bengal. The impetus behind the expansion stems from FACT's recognition of the inherent vulnerabilities of its sales model, which is heavily dependent on climatic conditions. Variations in rainfall patterns can significantly impact demand for fertilisers, exposing the company to considerable risk. By expanding its market footprint, FACT aims to cultivate brand recognition and capture market share in previously untapped territories.

The expansion not only diversifies FACT's customer base, but also enhances its flexibility and responsiveness to government require-



ments. By broadening its product portfolio and market reach, FACT can accommodate fluctuations in demand and fulfil government mandates, such as addressing shortfalls in specific fertiliser types.

However, FACT remains committed to preserving its stronghold in south India, where it caters to 25% of the market. The company recognises the importance of maintaining its presence in traditional markets, where it benefits from established distribution networks and low freight costs.

While talk of disinvestment once swirled around FACT, there's currently no such proposal on the table. Instead, the company is ex-

ploring avenues like a follow-on public offer (FPO) to raise funds, pending the green signal. These initiatives are geared toward fuelling expansion plans and cementing FACT's status as a dominant player in the market.

A NOSTALGIC LINK

As FACT continues its meteoric rise under a visionary leadership, all eyes are on the company's trajectory and its impact on the people of Kerala. With a cutting-edge plant on the horizon, questions swirl about hiring. FACT's staffing strategy is carefully calibrated to sync with the plant's operations. While senior management is not looking to swell its ranks, ongo-

ing recruitment at entry-level positions augurs well for job seekers in Kerala. With a young workforce, FACT is well-positioned to tackle challenges lying ahead. Currently, it has 1,550 regular employees and nearly 500 contractual staff.

But it's not just about the bottom line. FACT is doubling down on its commitment to community engagement and Corporate Social Responsibility (CSR). From supporting healthcare infrastructure to nurturing Kerala's cultural heritage, its CSR endeavours resonate with its ethos of giving back and making a positive impact. Amid the pandemic challenges, FACT demonstrated its unwavering commitment to



Sri Kishor Rungta, CMD (2019-2024 FEB)

public health by donating four oxygen plants to the state and two outside it. It supported students during the transition to distance learning, by providing tablets.

FACT actively promotes sports activities, recognising their intrinsic value in fostering social cohesion and individual well-being. The Seshasayee Tournament, hailed as one of Kerala's premier badminton events, stands as a testament to its dedication to sports excellence. The company's support for football and cricket initiatives underscores its commitment to nur-

FACT HAS ITS SIGHTS SET ON THE COVETED MINI RATNA STATUS, GRANTED TO COMPANIES RAKING IN CONSISTENT PROFITS EXCEEDING ₹40 CR FOR 3 CONSECUTIVE YEARS



The cooling tower at the Petrochemicals Division

turing sporting talent and promoting a healthy lifestyle among the youth. With a robust performance, including reported profits of Rs 400 crore, FACT finds itself in a position to further amplify its CSR impact. But that's not all. The FACT's guest house is poised to become a revenue-generating facility, playing host to everything from glitzy film shoots to enchanting pre-wedding soirees. With its picture-perfect locale and impeccable amenities, it's a magnet for high-profile events and glamorous productions.

DIAMOND CLASS !

FACT has its sights set on Mini Ratna status, a coveted designation reserved for firms that rake in consistent profits exceeding Rs 40 crore for three consecutive years. If granted, the status would grant FACT greater financial autonomy, turbocharging decision-making and potentially opening doors to even loftier distinctions. But FACT is not going it alone. With the unwavering support of various ministries, it is primed to navigate regulatory hurdles and emerge stronger than ever.

Among the glittering jewels in FACT's crown, it's the mastery of fertiliser marketing which shines the brightest. The public sector giant is not just a leader; but a trailblazer rather, revolutionising the farming sector with unparalleled innovation and dedication. Its philosophy is as bold as it's simple: The prosperity of farmers is the company's prosperity; FACT is not just peddling products, it's revolutionising farming.

THE STRATEGY

A two-pronged action plan aimed at building a robust distribution infrastructure and launching an extensive education programme on fertiliser use and scientific farming, all communicated in a manner, which is easily understandable to farmers. Initially, FACT's focus was on selling its products, with the plantation sector in south India being a key market due to its existing demand for chemical fertilisers. By the early 1960s, Tamil Nadu and Andhra Pradesh were emerging as prime markets, particularly for single superphosphate and nitrogenous fertilisers. Despite the plantation sector being dominated by foreign managements, FACT broke through and established a strong presence by the mid-decade, supplying major players like Kannan Devan Hills Produce Company in Munnar and various tea estates in Coonoor.

The key to FACT's expansion was a strategic market approach. In the 1960s, it took a decisive step by taking over about 50 depots from the Agriculture Department and expanding its network to 71 in Kerala. By 1969, FACT had established around 100 central depots across south India and set up a direct marketing organisation in all the southern states. Innovative farmer education initiatives followed, such as fertiliser festivals, group farming and various demonstration projects. FACT's efforts were pivotal in the green revolution that swept the southern states. The impact was undeniable: fertiliser consumption in south India grew annually by over 20% in the 1960s.

FARMER FIRST MARKETING BLITZ AIDING SONS OF SOIL



The European Economic Community funded the construction of this building

The 1980s marked the next big leap for FACT. With the stabilisation of production of their complex fertilisers, the output soared from 36,000 tonnes in 1980-81 to 4,50,000 tonnes by 1985-86. FACT became the first Indian company to produce complex fertilisers,

with its flagship product being FACTAMFOS 20-20. Despite stiff competition, its innovative marketing strategies saw sales skyrocket from 35,000 tonnes in 1980-81 to 6,44,000 tonnes by 1991-92, creating a brand name in a market where it first seemed impossible to enter and

maintain its presence.

By the 2020s, FACT's marketing network extended across Kerala, TN, Puducherry, Karnataka, Andhra Pradesh and Telangana, supported by 42 Agro-service centres, 43 stock point dealers, 56 field storage points, and over



Farmers Meeting in Telangana



Farmers Meeting in Andhra Pradesh



Karnataka Dealers Visit to Plant



The demonstration plot of FACT in Kinassery in Kerala's Palakkad district. This is an organic fertiliser demonstration plot. Paddy is cultivated in this two-acres plot. This was established as part of FACT's 'Field Demonstration Programme.

6,000 retail points. Their innovative farmer education and fertiliser promotion programmes have significantly boosted scientific farming awareness. FACT's reach is expanding to Maharashtra, West Bengal, Odisha, and Gujarat, with plans to increase production by 6,00,000 tonnes. This strategic expansion mitigates the risks of adverse weather in the primary markets and supports government initiatives to address fertiliser shortages.

AGRO-SERVICE CENTRES

FACT has transformed major selling points into Agro-Service Centres, offering essential agricultural inputs and advisory services. These centres provide modern farm management techniques, credit availability, marketing prospects and detailed farm plans. FACT's marketing network includes around 100 field storage points and 7,000 retail points in southern states. Fertilisers are also available through cooperative marketing federations and agro-industries corporations.

SOIL HEALTH CARDS

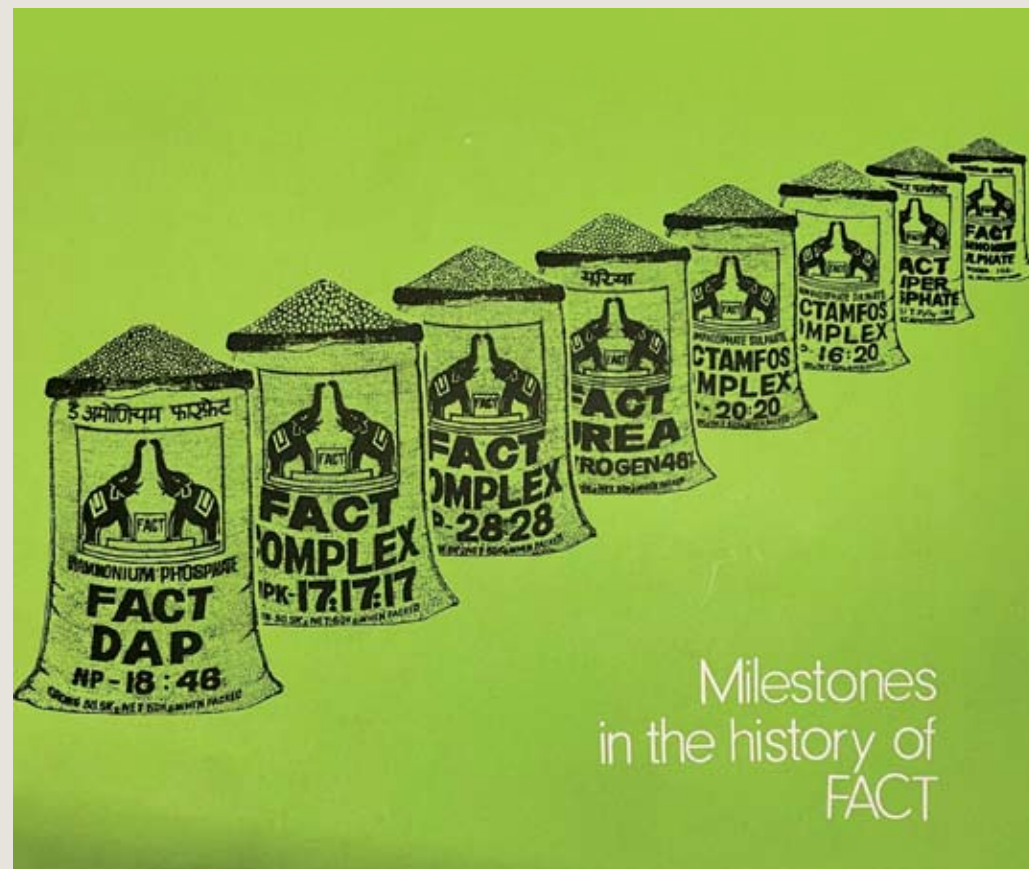
FACT's well-equipped soil testing laboratory in Udyogamandal analyses around 10,000 soil samples annually, issuing soil health cards with tailored fertiliser recommendations. Among others, it encourages balanced fertiliser use, reinforcing its role as a catalyst for agricultural transformation. The FACT team conducts field demonstrations for fertilisers and organics across south India.

TIE-UPS WITH MAJOR PSUS

FACT achieved remarkable sales growth in chemicals and petrochemical products, by collaborating with other PSUs like Hindustan Insecticides Ltd (HIL), Rashtriya Chemicals and Fertilisers Limited (RCF) and Brahmaputra Valley Fertiliser Corporation Ltd (BVFCL). The company achieved 110% growth in the sale of Caprolactam and 14% growth in Gypsum sales. The tie-ups also resulted in the introduction of new products like Cyclohexane and Cyclohexanone, which boosted the turnover.



FACT'S MARKETING NETWORK IS SPREAD OVER ENTIRE SOUTH INDIA. THE DISTRIBUTION NETWORK CONSISTS OF 42 AGRO-SERVICE CENTRES, 43 STOCK POINT DEALERS, 56 FIELD STORAGE POINTS AND OVER 6,000 RETAIL SELLING POINTS IN THESE STATES



FACT: EMPOWERING FARMERS VIA TECHNOLOGY

In a country like ours, where agriculture remains the backbone of the economy, drone technology has emerged as a game-changer, equipping farmers to enhance productivity, optimising resource utilisation and mitigating risks. FACT plays a crucial role in touching the lives of farmers by extending the benefits of such technologies and helping them become beneficiaries of various Central Govt schemes.

MAHILA KISAN DRONE KENDRA/ NAMO DRONE DIDI PROGRAMME

Prime Minister Narendra Modi launched the NAMO Drone Didi Scheme on November 30, 2023, with the main objective of empowering women Self-Help Groups (SHGs) by providing them an additional income generation mode. The Centre provides drones at subsidised rates to SHGs, who in turn use them for rental purposes.

Farmers can avail themselves of the service and employ the drones for a host of agricultural activities including spraying pesticides and fertilisers. Besides facilitating additional income generation for women SHGs, the initiative helps cut operational costs for farmers while increasing efficiency.

Under the NAMO Drone Didi Scheme, a subsidy, amounting to 80% of the drone cost, or a maximum of Rs 8 lakh, will be provided to Women SHGs to purchase drones for commercial purposes. Loan Facility from the National Agriculture India Financing Facility (AIF) is also extended to the SHGs to cover the remaining cost of purchase.

However, members have to mandatorily complete the drone pilot training programme to avail themselves of the subsidy. It is estimated



Farmers watch a live drone demonstration as part of the VBSY programme

that beneficiaries can earn an additional income of Rs 1 lakh per year with the help of the drones. Only Women SHGs are eligible to claim the subsidy to purchase drones under the scheme. The beneficiaries can contact the nearest gramapanchayat or Pradhan Mantri Kisan Samriddhi Kendra to know about the application process or get further information about the scheme.

FACT'S ROLE

FACT Ltd was entrusted with the selection and training of 99 Women Drone Pilots under the scheme. The company bought nearly 100 Agri Drones from Garuda Aerospace Ltd, Chennai, and a 15-day on & off drone training programme was conducted for the SHGs.



Kerala Governor Arif Mohammad Khan flagging off the IEC van at the launch of the VBSY initiative



A 'Drone Didi' receives the drone pilot license after completion of the training programme

The members, who completed the training programme, were awarded the Drone Pilot Licence, Course Completion Certificate and Drones. Now the Drone Didis are undergoing training with agricultural departments closer home and Agri drone services to farmers have begun on a commercial basis.

PRADHAN MANTRI KISAN SAMRIDHI KENDRA

The Pradhan Mantri Kisan Samriddhi Kendra (PMKSK) is an initiative launched by the Department of Fertilisers, Ministry of Chemicals & Fertilisers, in August 2022. It aims to convert existing village/ block/sub district/ taluk and district-level fertiliser retail shops into Model Fertiliser Retail Shops that will function as a 'One-Stop Shop' for all the agriculture-related inputs and services. A total of 3.3 lakh PMKSKs are being established across the country.

'ONE-STOP SHOP' FOR FARMERS

- To provide quality Agri-inputs like fertilisers, seeds and pesticides at reasonable prices under one roof
- Make available Soil/Seed/Fertiliser testing facilities (or) connect farmers to these centres
- To ensure availability of small and large farm implements through sale or Custom Hiring centres
- To create awareness among farmers regarding good agricultural practices
- To provide information on various schemes related to farmers
- To ensure regular capacity building of retailers at block/district-level outlets

FACT'S ROLE

FACT is entrusted with the task of convert-



Operating a drone in a field in Malappuram

ing fertiliser retail shops in various districts in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Telangana & Puducherry into Model Fertiliser Retail Shops. It has converted 3,800 out of the total target of 4,100 retail outlets in these states.

VIKSIT BHARAT SANKALP YATRA

The VBSY Programme (Viksit Bharat Sankalp Yatra) is a nationwide campaign launched on November 15, 2023, to raise awareness through outreach activities to achieve the saturation of welfare schemes of the Union Government. The outreach extends to all the gramapanchayats, Nagar Panchayats and Urban

Local Bodies. The state-level programme was inaugurated by Kerala Governor Arif Mohammad Khan at Agali, in Palakkad, by flagging off the IEC (Information, Education and Communication) van. Union Minister of State for External Affairs and Parliamentary Affairs V Muraleedharan presided.

LIVE DEMO

FACT organised live drone demonstrations in all rural gramapanchayats in Kerala, Odisha and Telangana. In Kerala, the fertiliser giant covered 941 GPs with 941 live Drone Demonstrations with the help of Agricultural Graduates (Technical Person) & Drone Vendor Garuda Aero space Ltd, Chennai.

RESEARCH AND DEVELOPMENT

POWERING PROGRESS

In the dynamic realm of the chemical industry, research is the heart beat. It's a world where staying ahead means being ever-vigilant, keeping pace with the lightning-fast evolution of production processes and technological advancements. Endless possibilities abound in the realms of raw materials, processes and products.

These innovations not only usher in new applications but also propel the chemical industry forward. In a developing nation like ours, industrial research is paramount. From finding alternatives for scarce raw materials to refining manufacturing processes and maximising resource utilisation, researchers leave no stone unturned in their pursuit of excellence.

At FACT, the focus of research has always been on homegrown solutions. Instead of relying on foreign techniques, it invested in indigenous technology and process know-how. FACT's cutting-edge techniques such as utilising byproduct gypsum from wet process phosphoric acid plants, manufacturing sodium fluoride from fluorine content of phosphoric acid and the recovery of ammonium sulphate and iron oxide from titania waste acid (TWA) are path-breaking.

FACT's R&D journey began in 1962 under the leadership of Dr KV Nair and the visionary MKK Nayar. Starting with just four individuals in a modest laboratory at the Udyogamandal unit, the objective was clear: make the most of the company's by-products that include sodium silico fluoride, sodium fluoride, hydrated calcium silicate and synthetic cryolite.

Cryolite, which is used in electrolytic pro-



OVER THE YEARS, FACT'S R&D GREW INTO A FULL-FLEDGED DIVISION, EQUIPPED WITH SOPHISTICATED ANALYTICAL EQUIPMENT, GOOD PLANT FACILITIES, ANALYTICAL FACILITIES FOR FERTILISERS

duction of aluminium metal, is being manufactured in large quantities and supplied to aluminium industries. Over the years, the

FACT Research and Development grew into a full-fledged division, boasting modern sophisticated equipment, air pollution moni-

toring mobile van and analytical facilities for fertilisers, rock phosphate, inorganic chemicals and certain pharmaceutical products.

Some of the achievements of the R&D wing, include the production of Zincated FACTAMFOS, Humic-based Phosphorus Rich Organic Manure (PROM) and a collaborative project with Coir Board to develop compost from raw coir pith. Zincated Factamfos is a game-changer for crops and soils deficient in zinc.

MAJOR R&D ACTIVITIES

■ Quality Control Cell: It efficiently monitors the quality of finished chemical fertilisers both in the manufacturing unit and field (godowns, distributors and dealers)

■ Testing and Certification of Rock Phosphate (RP) and Single Super Phosphate (SSP) samples

■ Biofertiliser Products: The R&D produces carrier-based biofertilisers such as Azospirillum, Rhizobium and Phosphate Solubilising Bacteria from its 150 TPA plant at the R&D Centre. The product under the BIOFACT label is marketed in all the five southern states.



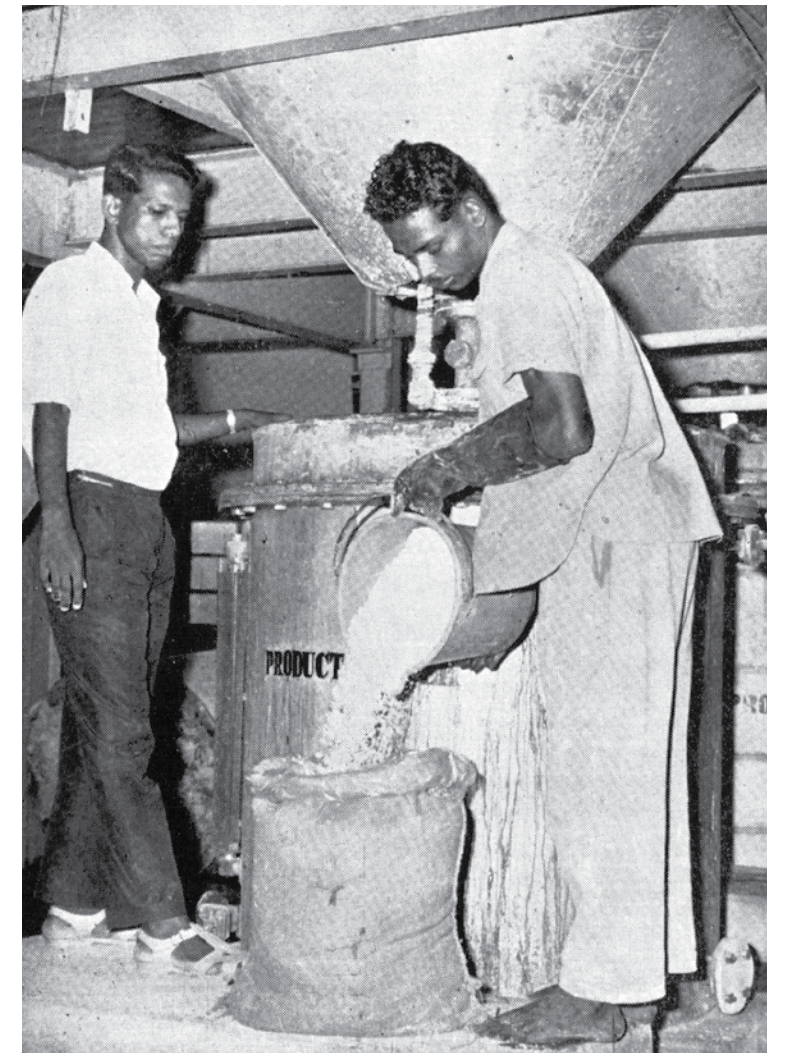
CONVERTING WASTE INTO USEFUL PRODUCTS

The sodium fluoride process at FACT generates impure sodium silicate as a waste byproduct. But instead of letting it go to waste, the R&D wing devised a technique to purify the silica content of this effluent, transforming it into high-oil-absorption hydrated calcium silicate. It also successfully developed a process to recover sodium hydroxide for reuse in the sodium fluoride plant. This constitutes yet another example of the service rendered by research, which has rightly been called the 'Handmaiden to Science'.

MAKING VALUABLE SODIUM FLUORIDE FROM EFFLUENTS

A large quantity of rock phosphate is imported for the manufacture of phosphatic fertilisers. The rock phosphate contains fluorine, but this fluorine has all along been going waste as effluent gases into the atmosphere or as fluorides in fertilisers. Effluent gases cause air pollution and fluoride in fertilisers can be harmful to plant growth. The research and technology department of FACT took up this problem and started investigations into the prospect of economically recovering the fluorine content in rock phosphates and converting the same into a marketable product. The efforts have resulted in a new process for the recovery of waste fluoride and its conversion into sodium fluoride, a valuable chemical. This was particularly advantageous as the Indian Rare Earths Ltd, which was situated in the Udyogamandal neighbourhood of FACT, required sodium fluoride for use in their rare earth fluorides. The process, which was developed and successfully undertaken on a pilot basis, has now been adopted for regular manufacture. The entire requirement of Indian Rare Earths was met by FACT. Considering the fact that the former was till then importing this chemical, the forex savings made possible on account of this was appreciable.

Sodium fluoride is a white-coloured chemical powder having a melting point of 992 degree Celsius, boiling point of 1,704 degree Celsius, specific gravity of 2.29 and approximate solubility of 4 gm/100 gm of water at 0 degree and 100 degree Celsius.



PATENTS RECEIVED BY FACT

- Cement Phosphogypsum blocks and a method of manufacture thereof: Patent was granted in 2007: **Patent No. 204222**
- A process for the preparation of slow release fertilisers: Patent was granted in 2008: **Patent No. 231021**
- A process for the preparation of a cleaning composition for utensils and the like from industrial waste/by-products: Patent granted in 2005: **Patent No. 197906**
- Improvements in or relating to the process for manufacturing urea phosphate: Patent granted in 1971: **Patent No. 122682**
- A process for the preparation of sodium thiosulphate pentahydrate from waste sulphur muck obtained from sulphuric acid plants
- A method of manufacturing synthetic cryolite from alkali fluorides: **Patent No. 113619**
- A process for the manufacture of ammonium sulphate and/or iron oxide pigments from industrial waste liquors containing free sulphuric acid and/or sulphates in solution: Patent granted in 1968: **Patent No. 109279**
- A method of processing commercial sodium silicate or waste silicate liquors containing phosphates, fluorides and like impurities for the manufacture of hydrated calcium silicate: Patent granted in 1968: **Patent No. 112455**
- A process for purifying fertiliser grade wet process phosphoric acid: Patent granted in 1969: **Patent No. 112454**
- A method of concentrating dilute mineral acids by azeotropic distillation of its water content: Patent granted in 1969: **Patent No. 112774**
- A new process for manufacturing sulphuric acid from calcium sulphate: Patent granted in 1968: **Patent No. 108466**
- Continuous recycling process for manufacture of ammonium phosphate from rock phosphate and calcium sulphate -- Patent granted in 1968: **Patent No. 108467**



GENIUS UNSPOOLED

‘SLOW AND CONTROLLED RELEASE’ FERTILISERS

The FACT Research & Development wing has been engaged in efforts to formulate products which release the nutrients very slowly to the soil so that plants are able to absorb more of the fertilisers applied. These products, which have higher use efficiency, are called slow/controlled release fertilisers.

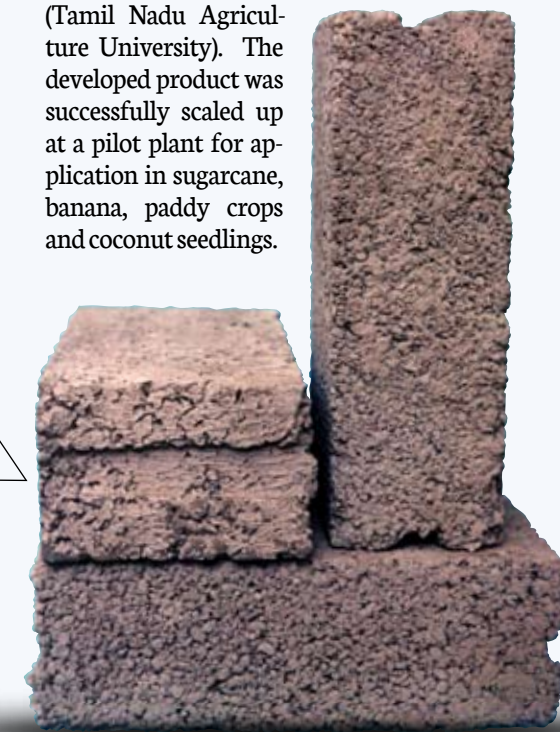
The project on slow release fertilisers was selected by the Department of Scientific and Industrial Research (DSIR) for the Programme Aimed at Technological Self Reliance (PATSER) Scheme. The aim is to develop a process for the preparation of slow release fertilisers and their

production at the pilot plant level with a view to commercially exploit the process later.

The project was executed by FACT-R&D in collaboration with the National Research Development Corporation (NRDC). The field testing was done at KAU (Kerala Agriculture University) and TNAU (Tamil Nadu Agriculture University). The developed product was successfully scaled up at a pilot plant for application in sugarcane, banana, paddy crops and coconut seedlings.

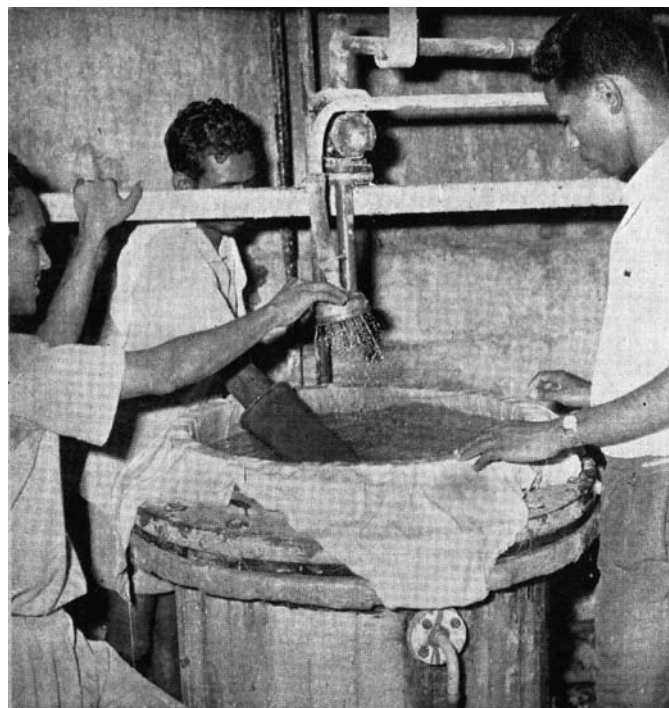
CEMENT PHOSPHOGYPSUM BLOCKS

FACT R&D has developed bricks from phosphogypsum, a solid waste released from the phosphoric acid plant. The bricks were 30% cheaper than clay bricks and were comparable in strength, water absorption and efflorescence to country bricks. The development solved FACT's vexed problem related to the disposal of the massive phosphogypsum waste. The breakthrough was achieved after extensive investigation, and successful trial runs. Being cost effective, it also addressed the problem of ecological imbalance caused by depletion of scarce river sand.

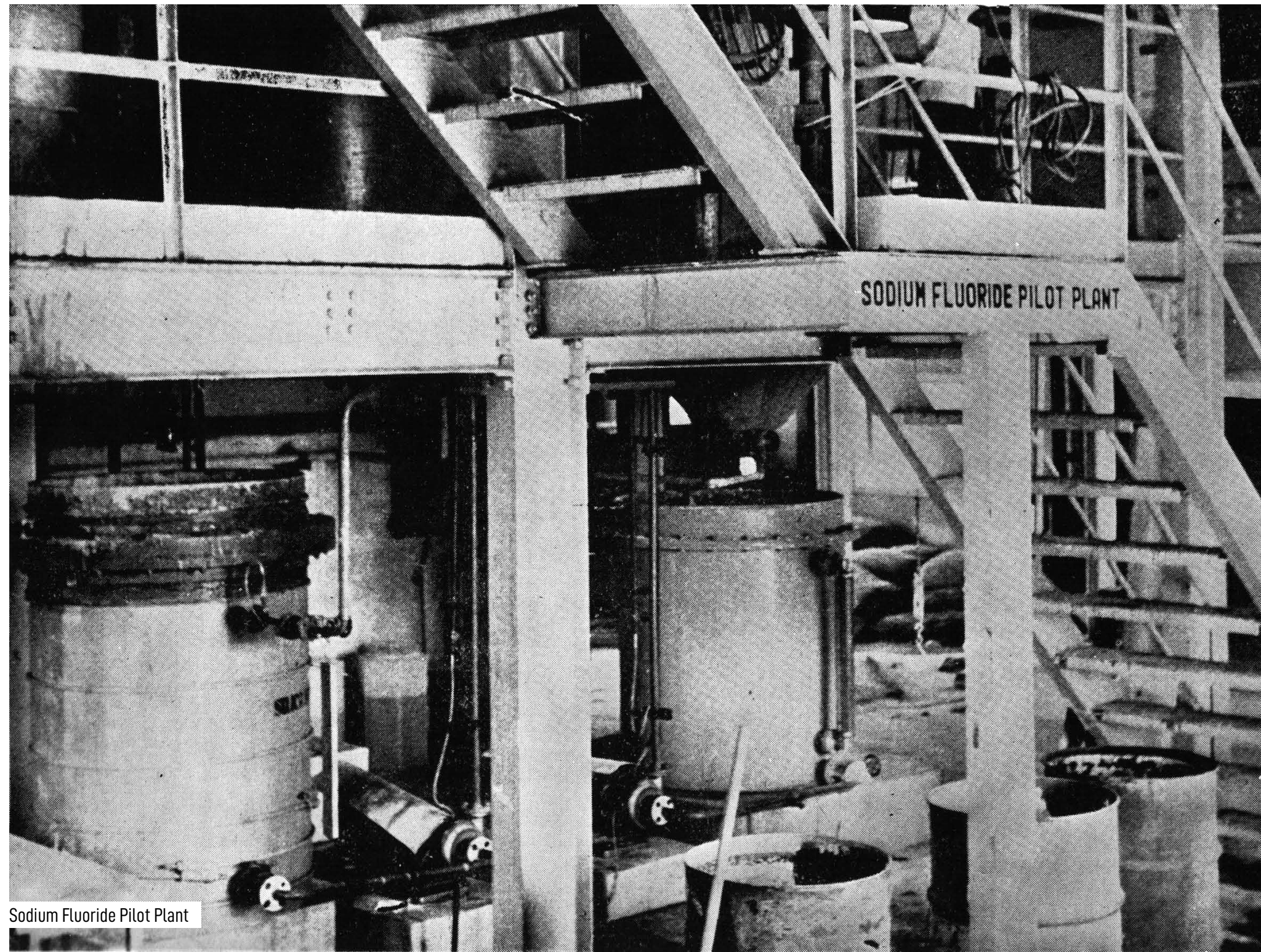




A general view of the Sodium Fluoride Plant



Vacuum Filter



Sodium Fluoride Pilot Plant

USES OF SODIUM FLUORIDE

- Rimming steel
- Soldering compositions and metallurgical fluxes
- Picking stainless steel
- Insecticide
- Wood preservative
- Fluoridation of water
- Opacifier in enamel manufacture
- Anti fermentative and antiseptic compositions
- Manufacture of coated paper
- Frosting glass

SYNTHETIC CRYOLITE

Cryolite is a naturally occurring mineral and is so-called because of its resemblance to ice cubes when immersed in water. In the aluminium industry, cryolite is not used as a source of the metal (though it was employed for this purpose for some time), but as a molten electrolyte in which bauxite, the oxide of aluminium, is dissolved for electrolysis. Natural cryolite is in short supply because of the enormous growth of the aluminium industry world over and at present, most of the cryolite used is synthetic.



QUALITY CONTROL

FACT was involved in the development of slow release fertilisers like urea form and NP (nitrogen and phosphorus) tablets using urea form and rock phosphate. These have been given to Hindustan Paper Corporation (now Hindustan Newsprint Ltd). They were tested in Vazhachal, Kerala, for eucalyptus plants. The results were good and encouraging.

■ Urea form, slow release fertilisers was supplied to Coconut Research Centre, Krishnapuram in Alappuzha

■ Central Plantation Crops Research Institute (CPCRI), Kasaragod, conducted seminars on slow release fertilisers developed by FACT

■ Seminar on R&D projects in Sindri in Jharkhand on August 23, 24, 2002. The seminar highlighted the importance of slow release fertilisers.

■ Another contribution of FACT's research & development wing is the utilisation of rubber seed oil and cashew nutshell liquid (CNSL) for preparing alkyd resin which can be utilised for making anti-corrosive paints

■ Development of alkyd resin utilising karinjatta oil (Samadera Indica), which can be utilised for improving the quality like gloss, malleability, flexibility of industrial paints. This was a breakthrough made by the FACT R&D wing back in 1972.



BACKWATER LOGISTICS

INLAND WATERWAYS TRANSPORTATION

All through its existence of amazing growth and evolution, Fertilisers and Chemicals Travancore (FACT) Ltd laid special focus on enhancing safety, reducing environmental impact and ensuring the supply of essential materials. Over a decade ago, it turned to the transportation of ammonia through waterways in a major way. The initiative not only set a precedent for the industries sector, but also highlighted the importance of innovation and sustainability.

The barge 'MAB Hail Mary' began transporting liquefied ammonia from the import facility at Willingdon Island and the main division at Udyogamandal to Ambalamedu on November 27, 2013. Until then, FACT had relied heavily on rail wagons and road tankers. Over the past decade, 'MAB Hail Mary' ferried a staggering 6,76,857 metric tonnes of liquefied ammonia. The shift from road to the eco-friendly mode of transport significantly reduced traffic congestion and environmental pollution, besides eliminating risks. Under a public-private partnership project initiative, the barge was supplied by Backwater Navigation Co. while the ammonia gas bullets mounted on it were built by FACT.

Despite the success of 'MAB Hail Mary', the barge's capacity of 192 tonnes per trip was insufficient to meet FACT's ammonia requirements. To address this, FACT launched its own barge, 'Pragatiyan', in June 2017. Built by FEW, 'Pragatiyan' features six ammonia bullets with a capacity of 32 tonnes each and advanced safety features like twin safety valves, a water spray system, trolley-mounted breathing apparatus, and full-body chemical suits. FACT introduced a second barge 'Pearl of Periyar', five years later. Designed by FEDO and fabricated by FEW the barge can carry up to 350 tonnes of liquefied ammonia. FACT's decade-long exercise of ferrying ammonia in barges is a testament to its forward-thinking approach and dedication to sustainable practices.



Ten years of outstanding service in an eco-friendly manner





The ammonia barge movement at Cochin Division. The ammonia manufactured at Udyogamandal plant is transported to Ambalamedu plant using a barge.



Ammonia barge at Cochin Division



FACT TRAINING & DEVELOPMENT CENTRE, UDYOGAMANDAL



CRAFTING EMPOWERED EMPLOYEES EQUIPPING SKILLS FOR LONGER TERM

A well-trained and fully equipped workforce is indispensable to ensure the sustainability of any organisation, big or small. The principle behind this is the inalienable right of employees to undergo regular training for realising their optimum potential. The goal of training and development is to have a competent and motivated workforce even while enabling avenues for professional growth and personality development of individual employees.

Until the late 1990s, training for FACT employees was imparted by various departments, including the FACT Management Development Centre (FTDC), which was set up in 1978 for managerial cadre, and the Divisional Training Schools for non-managerial cadre. However, from April 2004, training was centralised and brought under the ambit of FACT Training and Development Centre (FTDC) for optimising resources and identifying the training needs of all employees on a uniform approach. The primary aim of FTDC is to ensure that the workforce is capable of carrying out their duties safely and effectively, meeting targets, and ensuring productivity. The training centre is dedicated to continuous quality enhancement by fostering a learning culture and facilitating upskilling.

KEY OBJECTIVES & PROGRAMMES

The FTDC meticulously aligns its training programmes with the specific job content and spe-

cialised skill sets required for each role. This ensures that employees are proficient in the tasks and responsibilities relevant to their posts. The initiative aims to identify and address gaps in employee capabilities and competence. It focuses on the continuous improvement of employee skills, technical know-how and administrative or functional capabilities. The programmes are designed to enhance analyti-

UNTIL THE LATE 1990S, TRAINING FOR FACT EMPLOYEES WAS IMPARTED BY VARIOUS DEPARTMENTS, INCLUDING THE FACT MANAGEMENT DEVELOPMENT CENTRE

cal thinking, fostering a deeper understanding of complex problems and effective decision-making. Additionally, the FTDC emphasises the development of value systems that align with the organisation's ethical standards and operational principles. It also places a strong emphasis on developing soft skills, such as leadership, communication and teamwork.

Conducting thorough orientation training for new recruits is a priority. The same helps

newcomers blend smoothly into the organisational culture and style of functioning. The FTDC ensures that employees receive statutory training to comply with industry regulations and standards. It facilitates professional advancement through regular workshops, seminars and management development programmes.

Training in safety, health and cost/energy-saving concepts is integral to FTDC's programmes. Employees are trained to adhere to the highest safety standards, understand health protocols and implement cost-saving measures effectively. Similarly, specialised training on handling and transporting hazardous chemicals ensures that employees are well-versed in safety procedures and protocols, thus minimising the risks. FACT also considers the long-term well-being of employees by facilitating retirement planning for those nearing superannuation.

THE FOLLOWING ARE THE MAJOR FUNCTIONS OF FTDC:

- Identify training needs of employees across all levels, based on uniform criteria
- Train officers and staff for improved performance
- Meet training needs with specific reference to ISO 9001:2000, ISO 14001:2004, and ISO 50001:2018 standard requirements
- Maintain good database of training details
- Meet obligations as per Apprentices Act 1961/1973
- Facilitate post-qualification training, in-plant training and project work for students



IN-HOUSE TRAINING

The FTDC conducts In-Service Training for both managerial and non-managerial employees. It's designed to enhance technical, non-technical, and behavioural skills, ensuring that the workforce remains proficient and up-to-date with the latest industry standards and practices. It includes specialised refresher courses in various technical divisions, such as Mechanical, Electrical, Instrumentation, Civil and Unit Operations. The training sessions are conducted at internal and external venues.

KEY PROGRAMMES

■ **Orientation training for new recruits**
It combines classroom sessions by experienced faculties with practical sessions. This comprehensive approach ensures that they are well-prepared before they begin on-the-job training, facilitating a smooth transition into their roles.

■ **Management Development Programmes**
Since 2022, the FTDC has been conducting five-day residential Management Development Programmes for senior-level officers at the Indian Institute of Management (IIM), Kozhikode. This is part of FACT's commitment to enhancing leadership capabilities within its workforce.

■ **Empowering Top Brass@IIM-K**
Senior executives from FACT undergo a transformative journey at IIM, Kozhikode (IIM-K). Over the course of three intensive batches, each comprising 15 senior officials, the programme has facilitated a remarkable metamorphosis. Participants were guided by expert facilitators through a spectrum of critical management topics. The comprehensive curriculum was designed to foster the right attitude, spark team motivation and hone essential skills.

The feedback from participants has been overwhelmingly positive, highlighting the programme as a catalyst for personal and professional growth. Bonds among participants were strengthened, motivation was reignited and a newfound sense of purpose permeated

the teams. The programme not only enhanced individual leadership potential but also reinforced a collaborative spirit. A similar tie-up with the Indian Institute of Technology (IIT), Chennai, is being planned, which indicates the FTDC's commitment to providing high-quality leadership training.

■ **Enhancing Professionalism, Soft Skills**

Various sessions on lifestyle disorders, Ayurveda, preventive vigilance, POSH (Prevention Of Sexual Harassment), public procurement and technological advancements among others are extended. They are delivered through webinars, conferences, seminars and workshops, offering employees valuable insights and exposure to Statutory Training. FTDC provides statutory training for supervisors of Major Accident Hazard (MAH) industries. The 21-day course is periodically arranged for both FACT staff and external participants. In-house training programmes are also extended on topics like fire fighting, safety, health, first aid, accident prevention and productivity. Notably, intensive on-the-job training was held for technicians and engineers to facilitate the restart of the Caprolactam Plant.

EXTERNAL TRAINING

The FTDC provides external training opportunities for employees. These programmes, conducted by professional organisations such as the Productivity Council, Safety Council and the Fertilisers' Associations of India (FAI), are held both within and outside Kerala. Participants are also nominated to various external training programmes through the Government of India's Online Training Nomination System (OTNS).

APPRENTICESHIP TRAINING

The FTDC, which diligently fulfils its obligations under the Apprentices Act of 1961/1973, is an approved centre under the Board of Apprenticeship Training (BOAT) and the Regional Directorate of Apprenticeship Training (RDAT), Chennai. Every year, the company recruits and trains approxi-



mately 150 to 200 apprentices, while aligning with the quotas established by RDAT and BOAT.

Apprentices are recruited from various Industrial Training Institute (ITI) trades and engineering disciplines at both the diploma and graduation levels. They must register on the National Council for Vocational Training (NCVT) portal for ITI streams and the National Apprenticeship Training Scheme (NATS) portal for diploma and graduate

levels. The FTDC also provides industrial training for students pursuing professional courses such as Chartered Accountancy (CA), Cost and Management Accountancy (CMA) and Company Secretary (CS). SKILL DEVELOPMENT PROGRAMME

The FTDC is dedicated to enhancing the employability of youth through various skill development courses, leveraging the company's expertise and resources. Here are the key skill development courses offered by FTDC:

FIRE AND SAFETY ENGINEERING

The one-year full-time diploma course in Fire and Safety Engineering is designed to meet the growing demand for qualified fire and safety professionals. Leveraging the expertise of qualified staff and using state-of-the-art fire fighting equipment, this course offers comprehensive training in fire and safety management.

Students are given exposure to actual in-



dustrial scenarios apart from on-the-job training for six months on course completion. Faculties are from the Fire, Safety and Engineering departments. The eligibility for admission is pass in Plus 2 or ITI Course (two-year duration). The course is approved by the State Council for Vocational Training (SCVT), Government of Kerala. Since its inception, 16 batches have been trained and about 500 students have successfully completed the course.

HEAVY EQUIPMENT OPERATION

The FACT Management Development Centre conducts a three-month Certificate Course in Heavy Equipment Operation covering about 40 hours of theory classes and eight hours of practical training in the operation of heavy machinery such as excavators, front-end loaders, cranes, and forklifts. The centre has so far trained 39 batches, totalling almost 780 students.

WELDING A BRIGHT FUTURE

In collaboration with the Department of Factories and Boilers, FACT established the Kerala Institute of Welding and Research (KIWR) on the FTDC premises to address the demand for skilled welders. KIWR admits ITI passed/ experienced welders for a three-month course and awards a Certificate in Welding as 'IBR qualified (Indian Boiler Regulations) welders.

Besides the basic welding courses for Class

X pass students, the specialised ones include Metal Inert Gas (MIG) welding, Tungsten Inert Gas (TIG) welding, and Submerged Arc welding. KIWR is recognised by the American Welding Society. SC/ST/OEC students are offered educational concessions by the state government.

ACADEMIC PROGRAMMES

FTDC functions as a facilitation centre, providing opportunities for those pursuing engineering, BBA and MBA as well as other students to engage in Organisation Study and In-plant Training. This service extends to diploma, graduate, and postgraduate students in various disciplines, including science, commerce, and management streams. Students benefit from the guidance of professionally competent mentors during their project work. To access this facility, students must remit a nominal fee and submit documentation from their respective institutions. FTDC also offers post-qualification training.

HANDS-ON IT AND SAP TRAINING

The FTDC has established a comprehensive hands-on facility for imparting training on IT and SAP systems, capable of accommodating 12 to 15 participants at a time.

LEARNING MANAGEMENT SYSTEM

A full-fledged Learning Management System (LMS) is also being commissioned to provide scalable, flexible and accessible learning resources to employees. The LMS is designed to enhance capacity building with the following outcomes:

- Access high-quality, standardised learning content anytime through a web-enabled system
- Courses tailored to meet specific training needs
- System-generated certificates of completion, merit or proficiency



FACT OCCUPATIONAL HEALTH CENTRE
SHOWS THE WAY

HEALTH IS WHERE HEART IS

Though the fertiliser industry is generally regarded as safe, it's sometimes associated with potential hazards as well. Right from its inception FACT has always laid special emphasis on protecting the health of its workforce—the 'most valuable asset'.

The company, all through its growth from a single-plant nitrogenous fertiliser factory into

a multi-product, multi-divisional corporation, has rolled out a range of appropriate welfare amenities for its staff, including health schemes, incentives and subsidy schemes.

While its employees enjoy comprehensive health insurance with pan-India coverage, there are two fully functional Occupational Health Centres (OHCs) for its Udyogamandal and Cochin Divisions.

The company has empanelled 10 multi-

specialty hospitals in Ernakulam alone for the healthcare needs of its staff and their dependents. The OHCs serve as the primary treatment point, having all basic emergency equipment. A round-the-clock treatment facility is available for accident cases and emergencies. While the company has two in-house ambulances, it has also outsourced the service for meeting any additional emergency requirement.



THE COMPANY HAS
EMPANELLED 10
MULTI-SPECIALTY
HOSPITALS IN
ERNAKULAM
ALONE FOR THE
HEALTHCARE NEEDS
OF ITS STAFF AND
THEIR DEPENDENTS

A periodic health check-up is provided to all the employees, based on their classifications and factors like exposure to chemicals. The OHC can also be used by the public and is located close to the Eloor Road. Two multi-specialty hospitals, having facilities such as operation theatres and the like functioned till 2008 before paving the way for OHCs. "This was when we tied up with the leading multi-specialty hospitals nearby," said Dr Indulekha Lalitha, Deputy Medical Superintendent, OHC, Udyogamandal.

It is the policy of FACT to comply with employment, health, safety and environmental laws. The company is committed to maintaining a safe, secure and healthy work environment for employees and others.

ENSURING WELL-BEING

- Blood donation camp in association with Ernakulam General Hospital in 2023 on the occasion of the 75th anniversary of FACT.
- Breast Cancer Camp in 2023
- Health check-up for truck drivers on January 30, 2024. Free spectacles were provided to the needy

SAFETY FIREWALL MITIGATING RISK OF HAZARDS

In the dynamic and often hazardous world of industrial operations, the importance of fire and safety cannot be undermined in any manner. The risk of occupational hazards and accidents continues to exist despite an organisation's best attempts to maintain the highest safety standards. For a leading Central PSU like FACT, its operations encompass a vast array of processes involving hazardous materials like petroleum products, and inherently involve various risks associated with fire and industrial accidents.

FACT's commitment to fire and safety extends beyond its immediate operation and statutory compulsion. It has established full-fledged Fire & Safety wings, equipped with state-of-the-art fire-fighting equipment and well-trained personnel, at both its Udyogamandal and Cochin divisions. The Udyogamandal division alone boasts 50 Fire personnel and four most modern multi-purpose fire tenders that use fire-fighting foam and dry chemical powder, in addition to water, to put out the blaze.

Besides meeting the internal requirements, the Fire & Safety department caters to the whole Eloor Industrial belt, where a number of industries are located, as part of its Corporate Social Responsibility. Since its inception in 1948, the FACT Fire & Safety wing has played a crucial role on multiple occasions in dousing major fires. They include the massive blaze that

FACT HAS SET UP FULL FLEDGED FIRE & SAFETY WINGS, EQUIPPED WITH STATE-OF-THE-ART FIRE-FIGHTING EQUIPMENT

broke out at Guruvayur temple on November 30, 1970, and the CS2 fire in 2016 (when a tanker carrying carbon disulfide caught fire while unloading at the HIL, Udyogamandal unit). The FACT Fire & Safety department has entered into a pact with organisations such as Petronet LNG Ltd, Bharat Petroleum Corporation Ltd (BPCL) and DP World for providing mutual assistance in the event of emergencies. It is also tasked with the strict implementation of the statutory safety standards and has a well-defined contingency plan, including that for the transit of ammonia through the water route. A speed boat is also deployed for facilitating quick response in case of an emergency.

Through its well-defined risk management and contingency plans, advanced technology, rigorous training, regulatory compliance, and a commitment to continuous improvement, FACT has exemplified how a proactive approach to safety can lead to sustainable and successful industrial operations.



A mock fire drill in progress as part of continuously assessing the firefighting capabilities



CISF personnel interact with fire-fighters before the start of a mock drill



Fire-fighters using emergency gear during a mock drill held at Udyogamandal Division

FACT's firemen carry out a 'rescue mission' during a drill



Fire personnel attempt to douse an industrial fire during a mock drill



CSR ACTIVITIES

GIVING BACK IN AMPLE MEASURE

FACT has a well-devised corporate social responsibility (CSR) programme as the company recognises its responsibility as a corporate citizen, which ought to contribute towards the sustainable development of society. This CSR policy is formulated by the requirements of Section 135 of the Companies Act, 2013, and the Companies (Corporate Social Responsibility Policy) Rules, 2014. It outlines FACT's approach to CSR that will make a positive impact on communities and the environment in which it operates.

CSR VISION AND MISSION

FACT's CSR vision is to support responsible and sustainable initiatives and enhance the quality of life and economic well-being of communities through the operations of the company. The company's mission facilitates collaborative development to enhance the economic, environmental and social performance of communities with which it engages. FACT accords priority to various social responsibility measures for the benefit of weaker sections of society and to improve the standard of living of residents near the factory site. FACT lays emphasis primarily on CSR activities in local communities in and around areas of the company's operations. It implements CSR activities to empower weaker, less privileged and marginalised sections of society to create social capital. FACT has given special attention for the development of SC/ST communities.

SOME OF THE RECENT CSR INITIATIVES OF FACT INCLUDE

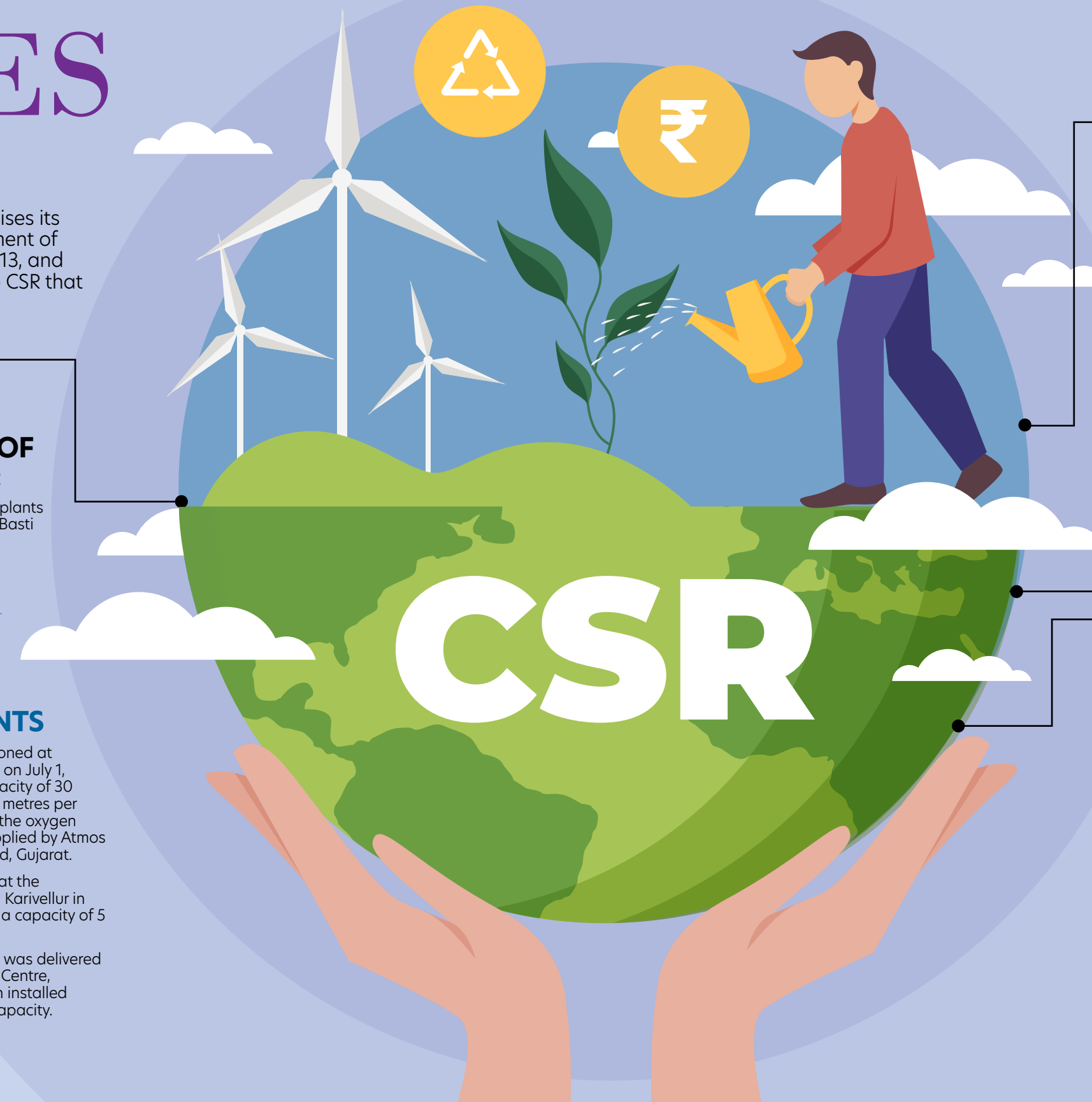


PROMOTION OF HEALTHCARE:

Supply of medical oxygen plants -- Kannur, Ernakulam and Basti (Uttar Pradesh)

DETAILS OF OXYGEN PLANTS

- A plant was commissioned at OPEC Kaili Hospital, Basti, on July 1, 2021. The plant has a capacity of 30 NM3/hour (normal cubic metres per hour). Costing Rs 48 lakh, the oxygen generation plant was supplied by Atmos Power Pvt Ltd, Ahmedabad, Gujarat.
- A plant was delivered at the Community Health Centre, Karivellur in Kannur, Kerala, which has a capacity of 5 NM3/hour capacity
- The third oxygen plant was delivered for the Community Health Centre, Ramamangalam. It has an installed capacity of 5 NM3/hour capacity.



PROMOTION OF EDUCATION

Supply of 100 Lenovo tablets to students in Ernakulam (Kerala)

RURAL DEVELOPMENT PROJECTS

Insecticidal Mosquito Nets - Ballari, Hassan, Mysuru and Belagavi (Karnataka)

PROMOTION OF HEALTHCARE

Supply of ambulance Ernakulam (Kerala)

Undertook relief measures in connection with COVID, community kitchen, etc: Ernakulam (Kerala)





Handing over of school buses to Government LP School, Eloor, and Buds Rehabilitation Centre in Vadavucode, Puthencruz



→ Blood Sampling Analyser

Handing over a Blood Sampling Analyser to General Hospital, Ernakulam ←

FACT,
installed
two
oxygen
plants for
Kerala and
one for
UP, which
faced
acute
oxygen
shortage
during
the COVID
period



FACT
provided 100
agricultural
drones to
NAMO Drone
Didis in
Kerala, Tamil
Nadu and
Karnataka



FACT gifting
wheelchairs
to Ernakulam
Jn Railway
Station for use
by differently-
abled and sick
passengers

GUEST HOUSE & TOWNSHIP

AMBALAMEDU HOUSE

Established in 1970, it functions as FACT's guest house. Spread across 70 acres of greenery, it is surrounded by a man-made lake to serve the drinking water purposes of the township and the factory. The building was designed by renowned artist and sculptor MV Devan, who was also the architectural advisor to FEDO at the time.

SCENIC AMBALAMEDU HOUSE

OASIS OF LUXURY IN NATURE'S LAP

Nestled deep inside a sprawling 1,600-acre natural forest, the Ambalamedu Guest House rises like a beacon of luxury on a 40-acre island within the FACT Cochin Division campus. Surrounded by a sprawling 165-acre artificial lake, this oasis is conveniently situated near the Kochi Airport (just 35 km away) and Ernakulam Railway Station (a mere 16 km), offering the perfect blend of untamed wilderness and urban comforts.

Its architecture seamlessly fuses modern elegance with traditional Kerala charm, boasting two opulent suites and two auditoriums equipped with state-of-the-art facilities. The verdant landscape beckons adventurers for camping, trekking and adventures in the wild. Since its grand opening in 1970, the Ambalamedu House has been the preferred venue for seminars and workshops. It also pampers FACT's VIP guests in its 4,700 sq m complex.

The Ambalamedu township is a masterpiece of urban planning, seamlessly integrating with the breathtaking natural beauty that envelops it. Set in the midst of lush greenery and rare flora, this haven has amenities such as schools, parks, stores, and hospitals within arm's reach, creating a living experience like

THE AMBALAMEDU TOWNSHIP IS A MASTERPIECE OF URBAN PLANNING, SEAMLESSLY INTEGRATING WITH THE BREATHTAKING NATURAL BEAUTY THAT ENVELOPS IT

no other. Despite its industrial backdrop, Ambalamedu remains a serene sanctuary insulated from the hustle and bustle of city life.

FACT's dedication to education shines through its institutions, such as the Ambalamedu High School, inaugurated in 1970 under the Cochin Division. Once a shining beacon of academic excellence, the school transitioned to private management in 2004. Similarly, the Udyogamandal School, which was set up in 1968, quickly rose to fame under the visionary leadership of the late, MKK Nayar. In December 2020, FACT entrusted the management of this esteemed institution to the Kasturba Educational Trust, thus ensuring that its legacy of brilliance lives on.





An aerial view of the FACT Township, consisting of several residential units for employees



UDYOGAMANDAL HOUSE

The Udyogamandal House functions as the guest house of FACT at its corporate office in Udyogamandal, Eloor

NURTURING ARTS AND SPORTS

FACT UDYOGAMANDAL CLUB

The club was established to organise cultural activities such as music and drama, and stage sports events like tennis, basketball and table tennis competitions



UDYOGAMANDAL CLUB

Aerial view of the Udyogamandal Club, which also houses a swimming pool. It was established for enhancing the well-rounded experience for the PSU's employees.



NOURISHING CREATIVITY

ART LENDS VALUE ADDITION TO FACT

The creative strain in the field of fine arts received a major fillip from the FACT management during the halcyon days of the fertiliser pioneer. Crucially, FACT could factor in the significance of arts, culture and sports in the nation-building process. As a Central PSU, it actively promoted diverse activities that contributed to the holistic development of individuals.

The emphasis on promoting cultural activities and sports echoed independent India's vision of nurturing a broad and educated citizenry. The PSU's presence in the cultural and sports spheres of the state was remarkable. It was home to some of the finest sportsmen and fielded national-level teams across various sports events.

Litterateur T Padmanabhan was an esteemed FACT employee, serving in various capacities, including as the head of Materials Division. His dedicated service extended until his retirement as deputy general manager in 1989. Legendary goalkeeper Simon Sundararaj, a shining star of Team India during the 1960 Rome Olympics, who was also the coach of the Kerala State Football team in 1973, contributed his expertise to FACT. His coaching stint with FACT ended with his retirement in 1997.

Another legendary footballer TK Subramanian, affectionately called 'Captain Mani,' who was a member of the Kerala squad that won the Santosh Trophy for the first time, was a notable employee of the PSU. Even after the end of his



MKK Nayar (third from left) and VP Menon (third from right) with Kathakali artists Padmabhushan Matavoor Vasudevan Nair (Vattamudi, second from left), Padmashri Guru Chengannur Raman Pillai (Kathi, in the middle), Padmashri Kalamandalam Krishnan Nair (Pacha, second from right) and Kudamaloorkarunakaran Nair (Minukku, extreme right) at the cultural programme of the UN ECAFE Conference in Bengaluru in 1956

illustrious playing career, he stayed on as assistant coach of the FACT football team for an astounding 31 years. The fertiliser manufacturer boasted the most formidable football team in the state during the early 1990s. The team's prowess

was evident in victories against the formidable Kerala Police on multiple occasions and they clinched various tournament titles. A crucial element which contributed to FACT's success was that the team had its own football ground.

THE VITALITY OF SOCIAL LIFE WITHIN THE FACT DIVISIONS REMAINS UNMATCHED AND IS FONDLY CHERISHED BY RETIRED EMPLOYEES, ATTESTING TO ITS LASTING IMPACT

FACT COCHIN DIVISION

→ AMBALAMEDU RECREATION CLUB

Set up by employees of the Cochin Division, this club provides recreational and cultural facilities

→ AMBALAMEDU CLUB

Promoting sports and cultural activities, including organising the prestigious Dr PK Narayana Swamy Memorial All India Table Tennis Tournament

→ AMBALAMEDU FILM CLUB

Founded in 1981, the club was aimed at entertaining and educating employees and their families on cinema by holding weekly screenings—a rare social occurrence at that time. This initiative contributed to a vibrant cultural environment within the Ambalamedu Division.



MKK Nayar with CN Srikantan Nair, CI Parameswaran Pillai, Dr Guru Gopinath at the All-India Writers' Conference in Udyogamandal in 1965

**BLOSSOMING OF ARTS AND
LEGACY OF LALITHAKALA
KENDRA**

When MKK Nayar joined FACT, he brought with him a profound appreciation for traditional performing arts, particularly Kathakali. His leadership catalysed the establishment of FACT Lalithakala Kendra, with a special focus on the preservation and promotion of this classical dance-drama. It was legendary actor Satyan who lit the lamp and inaugurated the building on February 11, 1966.

Nayar's vision was clear: in the absence of royal patronage, it was incumbent upon institutions like FACT to take up the mantle of preserving cherished art forms like Kathakali. The Kendra, which was set up within the Udyogamandal campus as part of this mission, quickly emerged as an independent entity focused on imparting rigorous training to promising talents. It enlisted the services of eminent artists, including Kalamandalam Karunakaran (Kathakali doyen), Kalamandalam Kesavan (chenda), Kalamandalam Hyderali (Kathakali music), Chalakudy Nambisan (maddalam), Kalamandalam Sankara Warriar (maddalam), Kalamandalam Sankaran Embrathiri and Kalamandalam Sugandhi.

For artists and students, the opportunity at FACT Lalithakala Kendra proved to be a blessing. The centre provided not only expert training, but also essential facilities such as stipends and accommodation. The support system enabled artists to focus entirely on mastering their craft. Six dedicated students, including the likes of Padmanabhan, Gopalakrishnan, and Bhaskaran, all of whom later became Kathakali exponents, underwent rigorous training for seven years.

Their hard work and the high-quality training they received under the guidance of their Gurus played a crucial role in the revival and popularisation of this traditional art form. The legacy of FACT Lalithakala Kendra is also reflected in the pride with which Kathakali exponents like Padmanabhan prefixed 'FACT' to their names. This not only bestowed honour on the institution but also symbolised the high



MKK Nayar with HVR Iyengar, then Union Commerce Secretary, at the ECafe Conference in Bengaluru in 1955

KATHAKALI WAS STAGED EVERY WEEK (ON THURSDAYS) DURING THE TOURIST SEASON (OCTOBER-MARCH), AND SENIOR ARTISTS PERFORMED. THE SIX-MONTH PROGRAMME WAS PLANNED, DOWN TO THE MINUTEST DETAIL

standards of training and the cultural value that the Kendra stood for.

The Udyogamandal Kathakali Club, formed earlier, staged enthralling performances both

within the country and abroad under the aegis of the Lalithakala Kendra, bringing global repute to the fertiliser giant.

The troupe featuring popular artists, em-

barked on successful European trips from 1970 to 1978, besides extensively touring the country. While Kathakali remained at the heart of Lalithakala Kendra's mission, the centre did not restrict itself to a single art form. It embraced a wide array of cultural expressions like classical dance and music, theatre and folk arts, visual arts and literary pursuits, thereby creating a vibrant ecosystem for the arts. Some of the luminaries, who performed at the centre, include the likes of M S Subbulakshmi, Padma Subrahmanyam, M Balamuralikrishna, K J Ye-

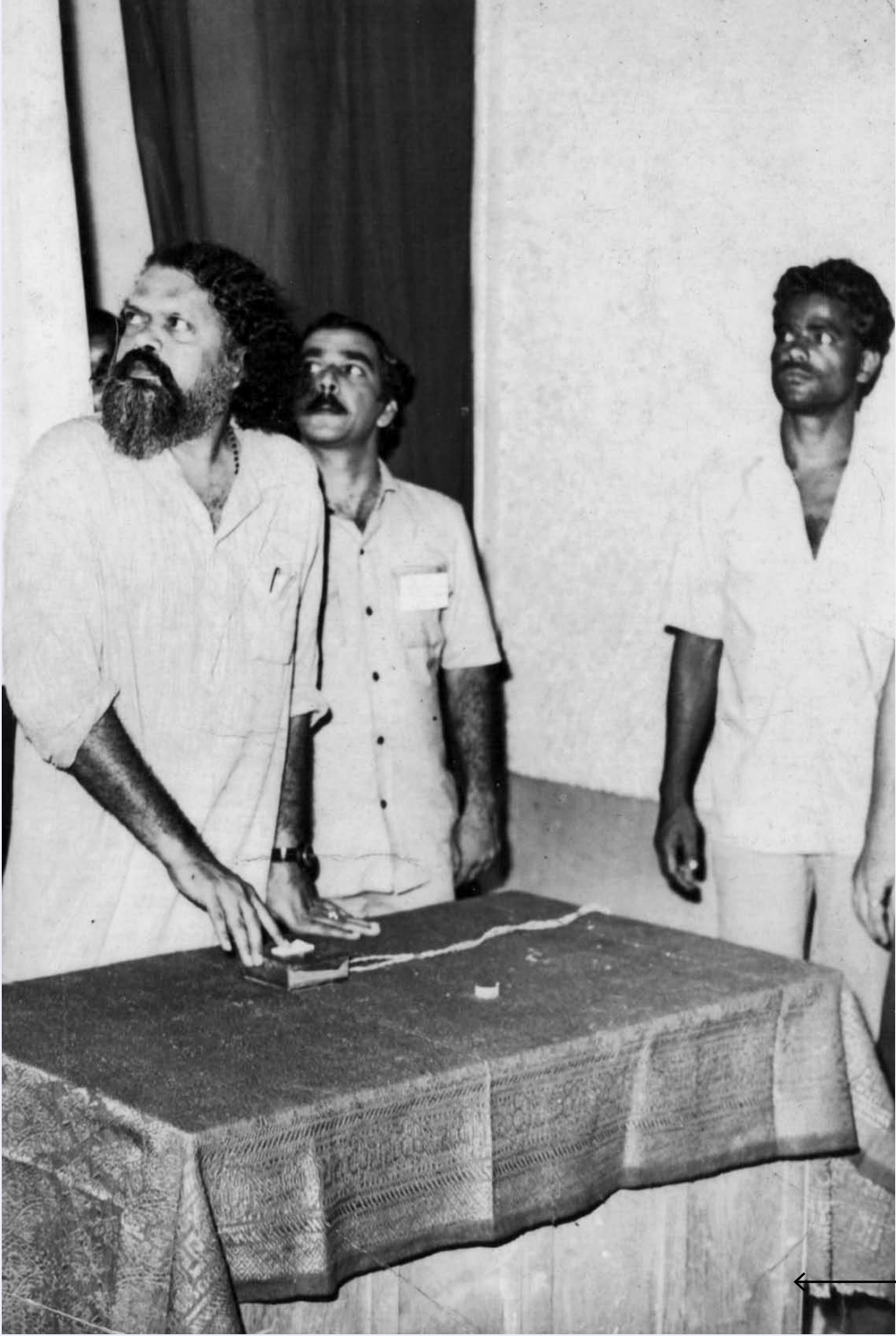


FACT Padmanabhan recalls his days at FACT Lalithakala Kendra

sudas, Guru Vempati Chinna Satyam, Chitti Babu and Maharajapuram Santhanam. Former Tamil Nadu Chief Minister, the late J Jayalithaa, in her glory days as actor-performer, too staged an enthralling dance recital there. The centre also hosted numerous short story and theatre workshops, literary discussions and events like 'Kaviyarangu' poetry sessions).

The opening up of the amenities to social, cultural and sports activities within the two divisions instilled a sense of pride among the employees and their families in being associated with the company. This dedication was channelled towards establishing and nurturing a dynamic and inspiring atmosphere for the workforce. Numerous children residing in FACT quarters and attending schools run by the PSU have gone on to become prominent figures.

The vitality of social life within the FACT divisions remains unmatched and is fondly cherished by retired employees. The company's commitment to fostering a holistic environment is evident in the dedicated facilities instituted in both the Udyogamandal and Ambalamedu divisions.



Celebrated film-maker G Aravindan inaugurates the Ambalamedu Film Club's activities by switching on the film projector at the Cochin Division in 1982

UDYOGAMANDAL DIVISION

**FACT LALITHAKALA
KENDRA**

This unique institution, run by employees, played a pivotal role by instituting awards recognising outstanding contributions in literature, music, management and fine arts. Recipients were selected from across Kerala, contributing to the promotion and appreciation of diverse talents.

UDYOGAMANDAL CLUB

Established to organise cultural activities, including tennis and table tennis fixtures

**FACT KATHAKALI
KENDRAM**

Recognising the importance of preserving traditional arts, FACT initiated the Kathakali Kendram in Udyogamandal, offering training in Kathakali. Renowned performers from Kerala were invited to instruct and inspire, moulding some of today's finest artists. The Kathakali Kendram's students and teachers formed a troupe that toured France, England, USA, Germany and Russia, thus promoting awareness of these traditional art forms at the global level.

**FACT SPORTS
ASSOCIATION**

In the 1960s, FACT displayed interest in promoting sports and nurturing talents. The association successfully trained and produced notable players in football, basketball, table tennis, volleyball and other disciplines.



The sprawling
playground at FACT
Cochin Division

The cricket pitch at the Cochin Division



Kishor Rungta, CMD, with prize winners of the 50th Seshasayee Badminton (Shuttle) Tournament 2019 held at Udyogamandal Club. Former Indian shuttler and national coach Vimal Kumar (third from left) is also seen.

Simon Sundararaj and MO Jose, representing FACT football team, receiving the Chakola Trophy



The FACT Sports Association and Lalithakala Kendra foster talent in sports, recreational and cultural avenues not only for FACT employees but also their family members



FACT badminton court in Udyogamandal is among the badminton courts with professionally-trained coaches. It is well-equipped to help you enjoy a good game. The court is open from 5 am to 10.30 pm throughout the week.



SETTING THE COURT ON FIRE
FACT's Seshasayee Tournament is one of the best badminton tournaments in the state and it has witnessed several outstanding players in action



A view of the basketball court at FACT. It had a good team during the 1980-90s, when its women's team won the state and national championships. Some team members also represented India at international events.



The FACT Basketball team that won the 1988-89 Federation Cup for the third time





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Chief General Manager (FEDO & FEW): **Sajo K F**

General Manager (Operations), Udyogamandal Complex: **Dr Babu Jose**

General Manager (Finance): **Pradeep Kumar C**

General Manager (Marketing - Fertilisers): **Jeetendra Kumar**

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