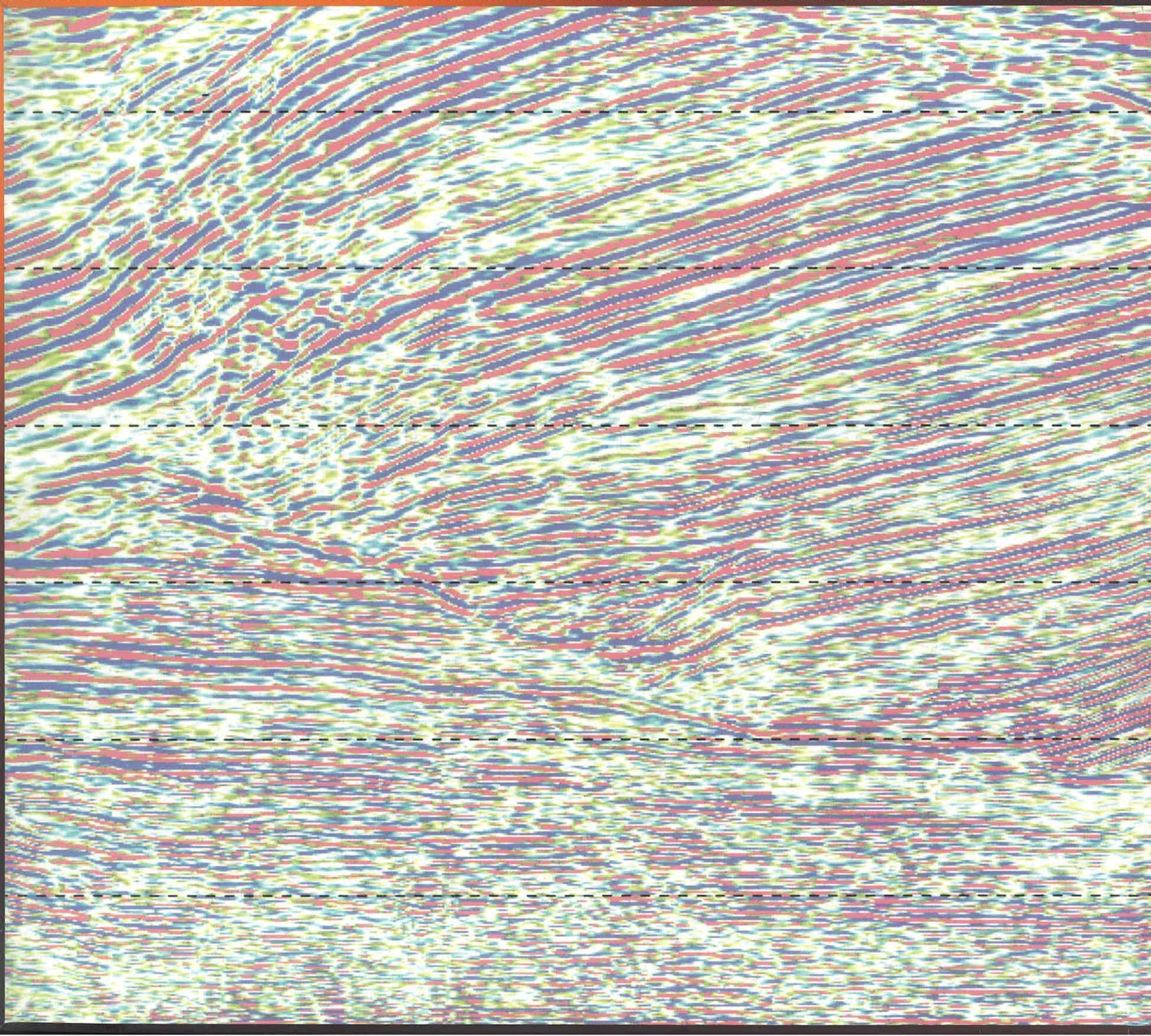
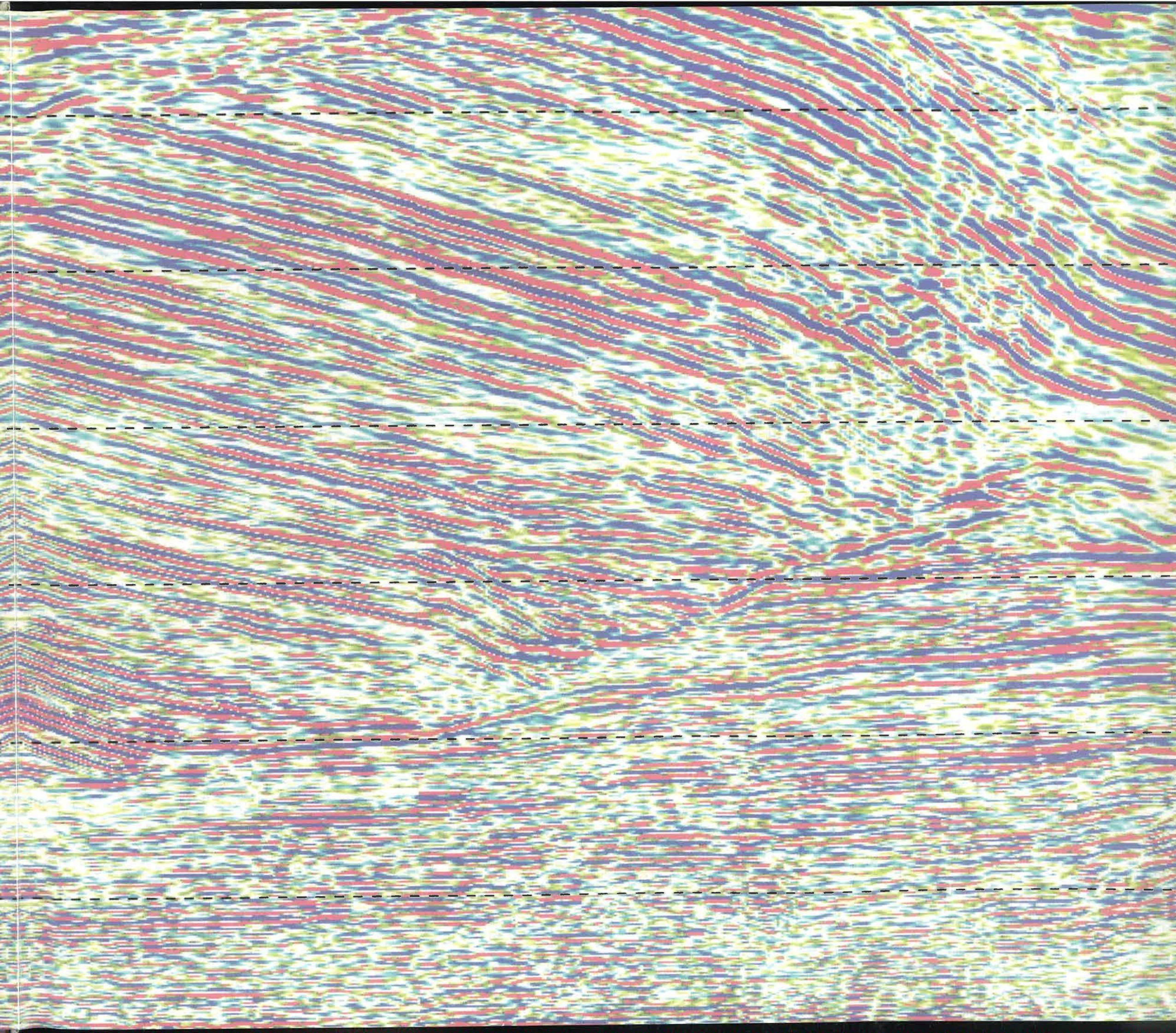




Exploring Excellence ...
... 50 years of **ONGC**





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ONGC history as it was happening

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1957



1960-65



1965-75



1975-85



1985-87



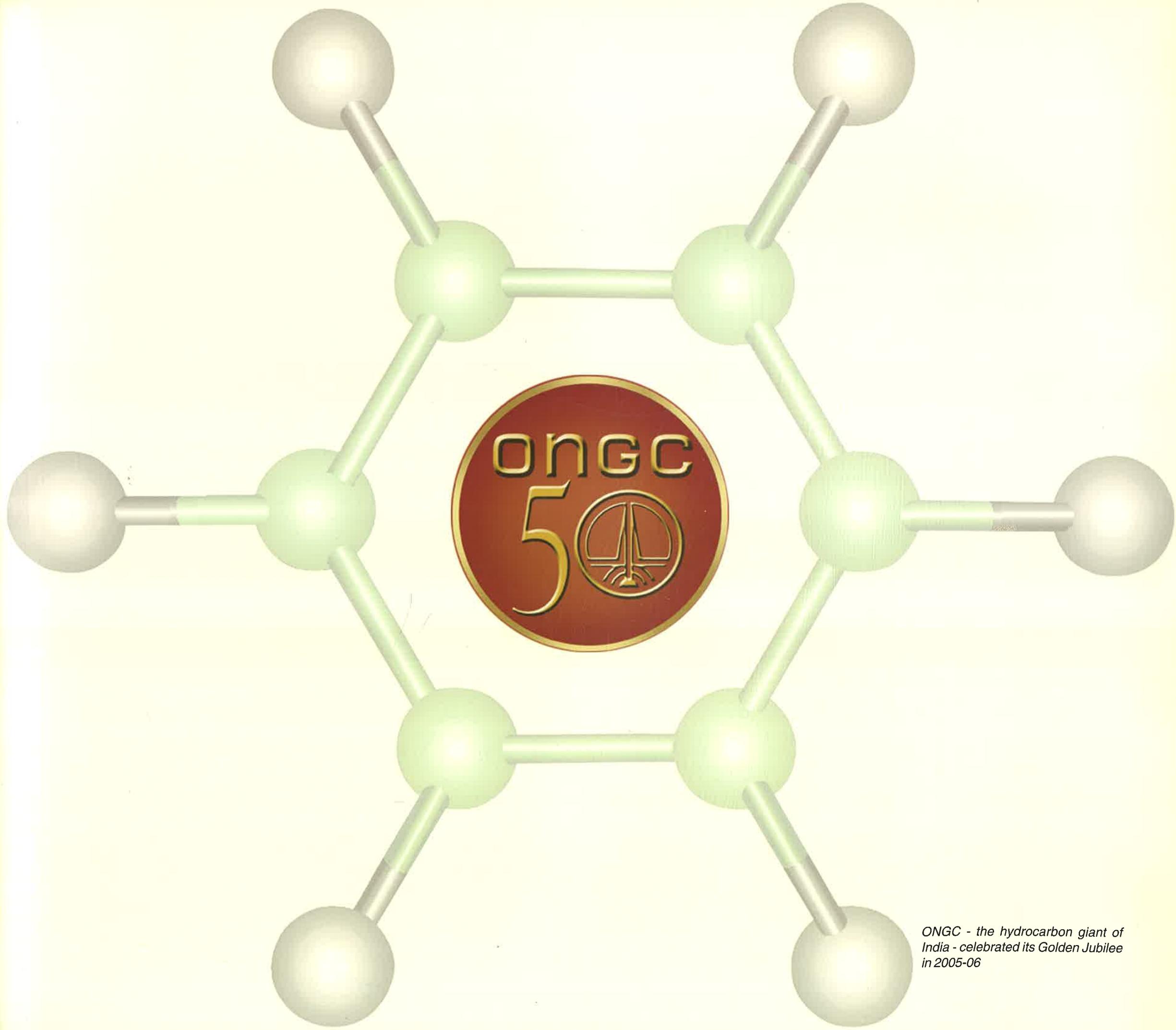
1988-2004



The design of the first logo was intricate and detailed. This hemispherical symbol is called the Vasudhara, after the name given to first oil well of ONGC by Jawaharlal Nehru. In the course of decades it has been developed, refined and improved. To make the logo more balanced and make it breathe a little more, the last design (left) was adopted in 2004.



A duty station of ONGCians. Nature's frontiers
beckon Oilmen. It's game for the adventurous bravehearts



*ONGC - the hydrocarbon giant of
India - celebrated its Golden Jubilee
in 2005-06*



*A small body of determined spirits,
fired by an unquenchable faith
in their mission,
can alter the course of history.*

- Mahatma Gandhi



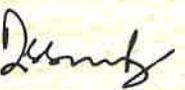
Foreword

Half a century of evolution of a large organization like ONGC was bound to be fuelled by exciting moments and turnarounds. Starting from scratch with a handful of geo-scientists, the organization has braved all adversaries to progress to an elite global club of energy majors.

While celebrating the Golden Jubilee of ONGC, we decided to salute the spirit of adventure and never-say-die approach of the ONGCians, from whom we have inherited this Crown Jewel of India, by presenting the events in the saga through a tapestry of pictures and words, in a Coffee Table Book.

The pictures, patterns, colours and words in the book endeavour to capture some emotions of ONGC along the journey, since its formation fifty years ago. The history, the business, the excitement, the intense feelings reside somewhere in the words, the imagery, or somewhere in their interplay.

I appreciate the contributions of the picture and text editors, viz. our seniors P K Chandra, P K Shrivastava and G L Agarwal and my junior colleagues M Rajagopala Rao and Debasish Mukherjee for their untiring efforts in bringing out this lively publication, to commemorate the Golden Jubilee of ONGC. I look forward to enjoyable reading and viewing by all. Besides narrating the story of ONGC, I hope this Book ignites a sense of passion for excellence in its readers.



R S Sharma

Chairman and Managing Director



Oil - the fuel of the current century - owes its origin to the ultimate source of all energy on earth - the Sun

Prologue

This is not the tale of yet another Oil company.

This is a tale of those visionary few who refused to give up when the battle seemed lost even before it began.

This is the tale of an institution riding on an indomitable spirit that scripted the hydrocarbon saga of independent India. A touchstone Spirit creating an alchemy that made people give more, much more than was expected of them.

This Spirit has inspired an institution in its business – in its search for life that had existed millions of years ago, metamorphosed as hydrocarbons in the depths of this planet.

This is the tale of a fearless band of people who dared to venture into lands and seas where no one had gone before ... taking risk, dreaming the impossible, overcoming incredible challenges ... reaching out to more than what others believed was practical.

This book is not an account of the evolution of an Institution ... it is the contour of events that exemplify a fundamental Spirit of Independence ... this is a living saga of the Courage to Explore, Knowledge to Excel and Technology to Exceed.

If 20th century is the most progressive hundred years humanity has seen, its second half is when ONGC's first five decades unfolded – half a century which prepared the country to face the new millennium.

Welcome aboard a historical flight across the landscape of a remarkable institution of independent India – ONGC.



Acknowledgement

Documenting the history of an institution like ONGC – over a period of fifty eventful years – is a gigantic task.

However the task has, finally, been completed, thanks to the involved people who matched up to it.

Foremost, I must acknowledge the members of the Contributors' Team – Dr. N B Prasad, Col. S P Wahi, S K Manglik, Dr. Hari Narain, Dr. A K Mitra, S N Talukdar, Dr. A K Malhotra, R Srinivasan, D N Awasthi, Dr. S Ramanathan, D P Bansal, I A Farooqi, G V Ramakrishna, Dr. Vijay L Kelkar, Dr. S N Visvanath, Prabir Sengupta, P K Kaul, P K Chandra, L L Bhandari and G D Dhingra.

The research team also deserves special mention for their work. It comprised of S H A Jafri, M L Dora, Ashok Malaviya, S K Goyal, K G Gupta, D L Vohra, S N Shukla, Gurcharan Singh, R C Garg, Dr. K L Goyal, Chiman Lal, P P Gupta, Suresh Kumar and Lakshman Singh.

Credits are also due to the photographic team of P K Shrivastava, G L Agarwal, P K Ganguly and U K Chachra.

The in-house editors – Debasish Mukherjee and Tapas Mitra – have done a remarkable job in writing the text in a limited time.

The help received from the Ministries and the concerned Government departments also need to be acknowledged.

P K Chandra has been the guiding force behind this publication; without his relentless support it would have been difficult to bring this publication out.

Designer Adrian Cowasjee, language editor Vijaya Ghose and printers M/s Thomson Press (India) Ltd. are acknowledged for their contributions in bringing out this beautiful publication. The useful suggestions of Satish Pandita during informal discussions have added value to the elegant design.

Last, but not the least, M Rajagopala Rao, who has coordinated the entire exercise and edited the final copy, deserves special mention.

A handwritten signature in black ink, appearing to read "Ashok Kumar Balyan".

(Dr. Ashok Kumar Balyan)
Director (Human Resource)

From the depths of our heart

If working in ONGC has been a series of excitements, opportunity to capture its glorious history in words and pictures was the mother of all. We have felt so fortunate, the innumerable obstacles, challenges and set-backs never deterred us from the task.

Capturing fifty years of history of an institution is a daunting task – to say the least. One had to work backwards, putting together collective recollections of the people who lived the history. Fortunately, we had quite a few of them, who readily contributed materials, pleasantly reminding us that it is one big family to which we all belong.

We were also fortunate on two more counts. The guidance of the seniors and the understanding of ONGC's top management, especially CMD R S Sharma and Director (HR) Dr. A K Balyan – of the inherent challenges in preparing this publication, made our job, if not simpler, more enjoyable, and hence enabled us to focus our energy on enhancing the quality of publication.

Bringing out this publication enriched us with quite a few lessons. Most important, contrary to the popular belief that preparing a Coffee Table book is just putting together some photographs, we learnt, the hard way, that efforts required are as intensive as any other publication.

Weaving the emotional aspects of ONGC's lively history into the photographs, captions and the accompanying text has been as thrilling as it was demanding. Our efforts will be richly rewarded if even a part of the elation is esthused in the readers while going through the publication.

The Editors



The decision of the first Prime Minister of independent India Jawaharlal Nehru – to start an indigenous petroleum industry in the country - was a reflection of his faith in the nation's scientific and technical community. The scientists and engineers of ONGC have lived up to the faith, making ONGC the numero uno Exploration & Production company of Asia today. The picture shows Jawaharlal Nehru naming the rig 'Vijaya' which drilled the first successful well in Cambay, Gujarat in the late fifties

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Life that existed millions of years ago - a fossilised creature tells stories to the trained geologist about the environment in which it lived. And the geologist in turn visualizes the locales favorable for accumulation of oil and gas

The Birth of a Vision

The policy of being too cautious is the greatest risk of all.

- Jawaharlal Nehru

So strong was the pessimism that a western Oil expert challenged that if India could produce oil outside Assam, he was ready to drink it! After five decades of ONGC's relentless efforts, India is now ready to host a 'tea party' of more than a million barrels every day!

It was the early nineteen fifties. Two and a half centuries of colonial rule had just given way to a revitalized India that was full of aspirations but had limited means to achieve them.

India - the Crown Jewel of the East - had been drained dry by the colonial regime. India's share of world GDP dropped from a whopping one fourth to less than one per cent in the period between arrival of East India Company to the time when the British quit India!

Political independence thus imposed a bigger responsibility on the country: to be economically self-reliant, once again.

There were strong provocations for the nation to fall prey to economic re-colonization. The strongest of them was an overwhelming opinion that India is not geologically rich in Oil except for minor reserves in the North-East.

This opinion was stoked by all



The seeds of a mighty institution. A room in the office of the Geological Survey of India with A M N Ghosh – the first Director of the Oil and Gas Directorate



H B Medlicott – the first in the world to apply geoscience in petroleum exploration – worked for GSI

Hydrocarbon exploration started early in India. H B Medlicott, the first oil-geologist of the world, was deputed by the Geological Survey of India (GSI) in 1865 to study oil formations in Assam.

As if this was not enough, indigenous know-how was virtually absent. Though the story of oil exploration in India goes back to almost the same time when Edwin Drake drilled the world's first commercial oil well, educated Indians of a newly independent nation were groomed to oil the administrative machinery of the colonial rulers, not search for oil – an elusive commodity that had put even advanced western knowledge to test.

To make matters worse, rivalry between the Seven Sisters (the cartel of Western oil multinationals) and Soviet Russia had forced international crude prices down, weakening the case for a domestic E&P industry further.

However, in this conservative milieu, a handful of Indian visionaries saw the strategic importance of access to oil in global politics and power, as demonstrated by the two World Wars. With the advent of popularly-priced automobiles, the world had switched from King Coal to Royal Oil.

This prescient foresight gave birth to a vision and that ignited the idea of a national oil industry.

As far back as the 1950s, Keshava Deva Malaviya, a young legislator fired by nationalistic fervor, wrote to the then Indian Prime Minister Jawaharlal

Nehru, 'Not having a domestic oil industry may result in economic dependence on external powers for a couple of centuries more.'

Malaviya knew that Indians were extraordinarily talented when in 1953 he saw the Burmah Oil Company's oil field in Nahorkatiya in Upper Assam being managed primarily by Indians who seemed to have picked up the required skills. Though the expertise of the foreign oil companies working in India was not available to build an indigenous industry, the Upper Assam experience convinced Malaviya that young Indians could quickly assimilate the intricacies and nuances of the trade.

Pandit Nehru, who was well aware of the strategic dimensions of oil emerging from the overlap of politics and economics since the 1940s, endorsed Malaviya's point.

Thus was born the national petroleum industry of independent India. The Oil and Natural Gas Directorate was formed towards the end of 1955 out of the oil wing of the Geological Survey of India (GSI) with A.M.N.

Ghosh, a Superintending Geologist at GSI, as its first Director.

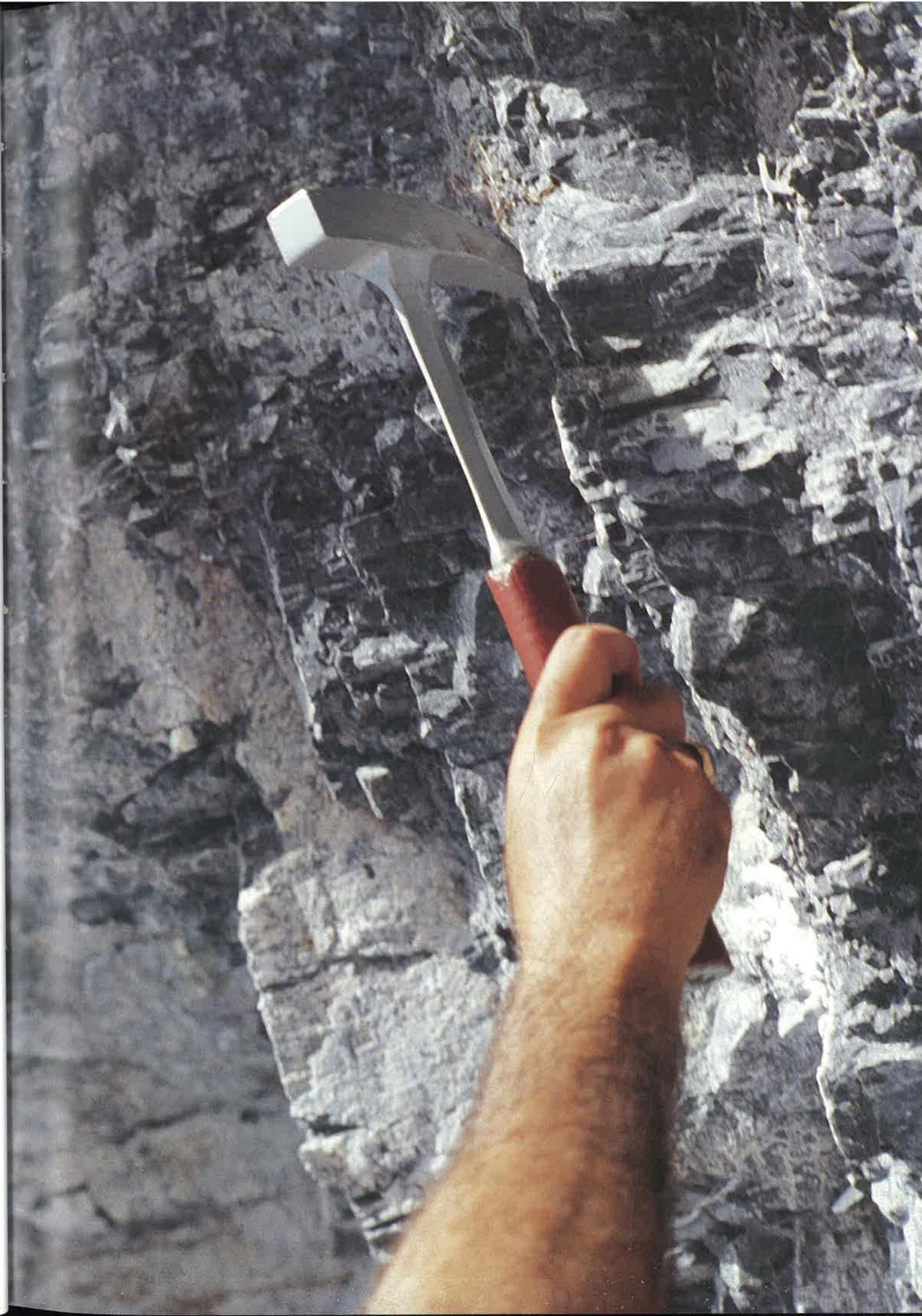
The following year, the second Industrial Policy Resolution put oil in the core list, under exclusive state control.

A handful of geoscientists began their tryst with destiny. They had no experience – no equipment, no technology, but were fired with nationalistic fervor. ONGC is perhaps the first oil company in the world to have started without a barrel of oil, without a cubic meter of Gas, and without a single oil expert!

They had, however, a conviction – that dedication and discipline will lead them in their quest of Energy for independent India.



Keshava Deva Malaviya – the father of the Indian Petroleum Industry



Exploration is not skin-deep. It needs to chisel out the peripheries to gain deeper insights



A cluster of core samples – avenues to enquire about the existence of hydrocarbons below the earth



A view of the pores in a rock (the habitat of oil and gas) – magnified several million times through an Electron Microscope

THE FOUNDERS



M.B.R. Rao
The Geoscientist



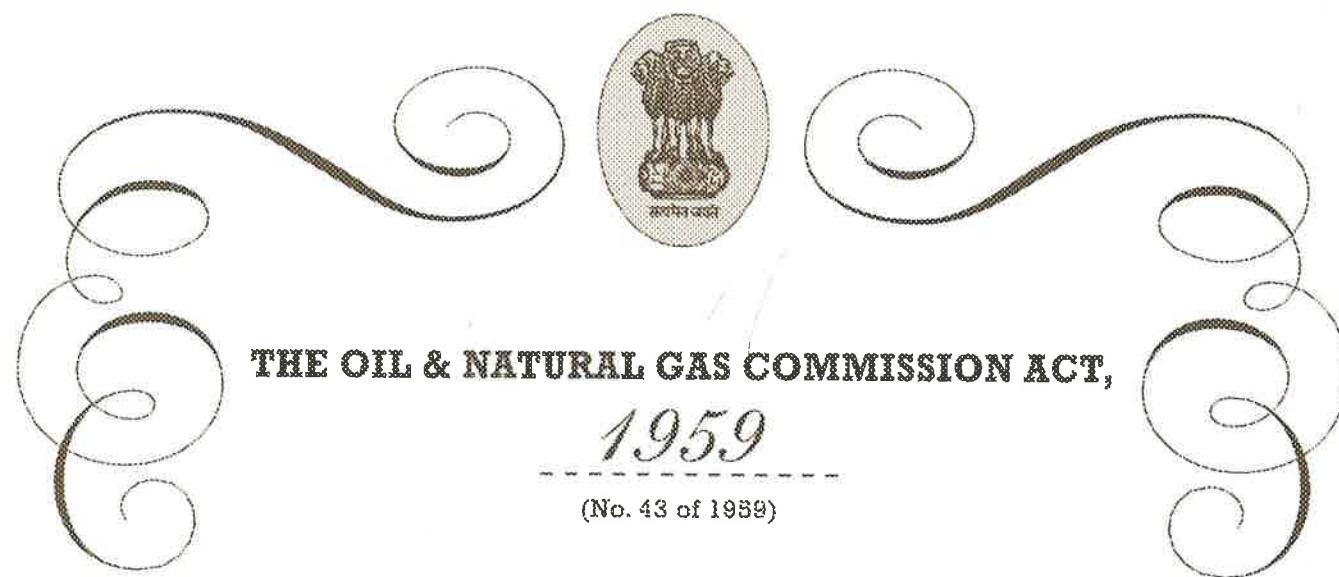
A.M.N. Ghosh
Geologist and
Chief Executive



B.S. Negi
Geophysicist



L.P. Mathur
Petroleum
Geologist



An Act to provide for the establishment of a Commission for the development of petroleum resources and the production and sale of petroleum and petroleum products produced by it and for matters connected therewith.

BE it enacted by Parliament in the Tenth Year of the Republic of India...



प्राप्त एक

Form 1

निगमन का प्रभाग-पत्र

Certificate of Incorporation

सं० 55-54155 शक 19 15

No. 55-54155 of 19 93-94

मैं एतद् द्वारा प्रमाणित करता हूँ कि ग्राज... आॅयल इण्ड नेहरूल गैट
कारपोरेशन लिमिटेड

कम्पनी अधिनियम 1956 (1956 का 1) के अधीन निगमित को गई है और यह
कम्पनी परिसीमित है।

I hereby certify that OIL AND NATURAL GAS
CORPORATION LIMITED

is this day incorporated under the Companies Act, 1956 (No. 1 of 1956)
and that the Company is Limited.

मेरे हस्ताक्षर से ग्राज ता० 2 आषाढ़, 1915 को दिया गया।

Given under my hand at NEW DELHI this TWENTY THIRD
day of JUNE One thousand nine hundred and NINETY THREE



१२१-२१८
। एच.एस. शर्मा ।
अधर कम्पनी रजिस्ट्रार
दिल्ली एवं हरियाणा
(H.S. SHARMA)
ADDL. Registrar of Companies
DELHI & HARYANA

The Voyage Begins

Do not wait; the time will never be 'just right'. Start where you stand, and work with whatever tools you may have at your command and better tools will be found as you go along.

- Napoleon Hill

In those days, the difference between the oil and gas business from other exploratory endeavors was known to only a few. In a broad sense, the business demanded exploration and development of the resources in Earth's

sub-surface, a totally unfamiliar area. Engineering within this virtually inaccessible subterrain - the proverbial netherworld - is more complex than exploring Space.

With no comprehensive experience



A meeting of the Oil and Natural Gas Commission in the Patiala House in 1957 – (from left, facing the camera) L P Mathur, Iqbal Chand, T N Barua, A M N Ghosh, K D Malaviya. A Russian expert is also seen participating in the meeting (on the extreme left of the picture)



Firm steps forward: K D Malaviya (in white) led India's entry to the global hydrocarbon club; seen here with Russian experts

of total basin exploration, the scientists and engineers of ONGC were not yet equipped in their quest of an unknown domain. But what they lacked in experience was made up by their missionary zeal that fired them 'To do something great for the country'.

Without a clue as to where oil and gas may be found, it was easy to get lost in the vast expanses of India's sedimentary basins – spread over more than three million square kilometers. No country, except the USSR, came forward to help

... continued on page 10





The historic Patiala House in Dehradun - bought by ONGC in 1956 - became its Head Quarters. It was later re-christened Tel Bhawan - the Mansion of oil

Nikolai Alexandrovich Kalinin – the Soviet geoscientist played a pivotal role in starting the petroleum industry in India



The Union Public Service Commission (UPSC) completed the selection of the first batch of geoscientists in a record time. Five of them later rose to the Board of ONGC.



Nehru (extreme left) in Dehra Dun with Russian Chief Drilling Engineer Zagrabants (facing camera) in 1957

... continued from page 8

India in her quest for Oil. Nehru's socialist inclinations had brought India close to the Soviets who readily offered to help India establish a national oil exploration industry.

It was post World War II and by then, the Soviet oil industry, with its substantial oil reserves, was well developed. USSR - an eternal rival to the Seven Sisters - decided to help newly-independent nations establish their national Oil industries.

A team of Soviet experts led by the legendary geologist, NA Kalinin, took a look at the Indian basins and came up with an exploration plan. Kalinin, a recipient of the Lenin Prize (the Russian equivalent of the Nobel Prize), immediately recommended the



A view of the Naaz Building in Dehra Dun, which served as the first laboratory and library of ONGC in 1956. Though demolished a few years ago - it was the forerunner of the present day scientific might of ONGC

recruitment of geoscientists and drillers and purchase of oil-field equipment.

Despite continued criticism of the fledgling nation investing in the costly and risky venture, Nehru's vision and Malaviya's missionary zeal finally overcame the hurdles.

On August 14, 1956 Oil and Natural Gas Commission (ONGC), incorporating the Oil and Gas Directorate of Geological Survey of India, was formed.

Keshava Deva Malaviya, then a junior minister for Natural Resources in Nehru's cabinet became its first Chairman. In later years he was referred to as the father of the

Indian oil industry.

Around 150 First Class M. Sc degree holders, and some engineering graduates, the first technical cadres, joined ONGC in 1956 as apprentices.

The unknown voyage into the depths of the Earth began.



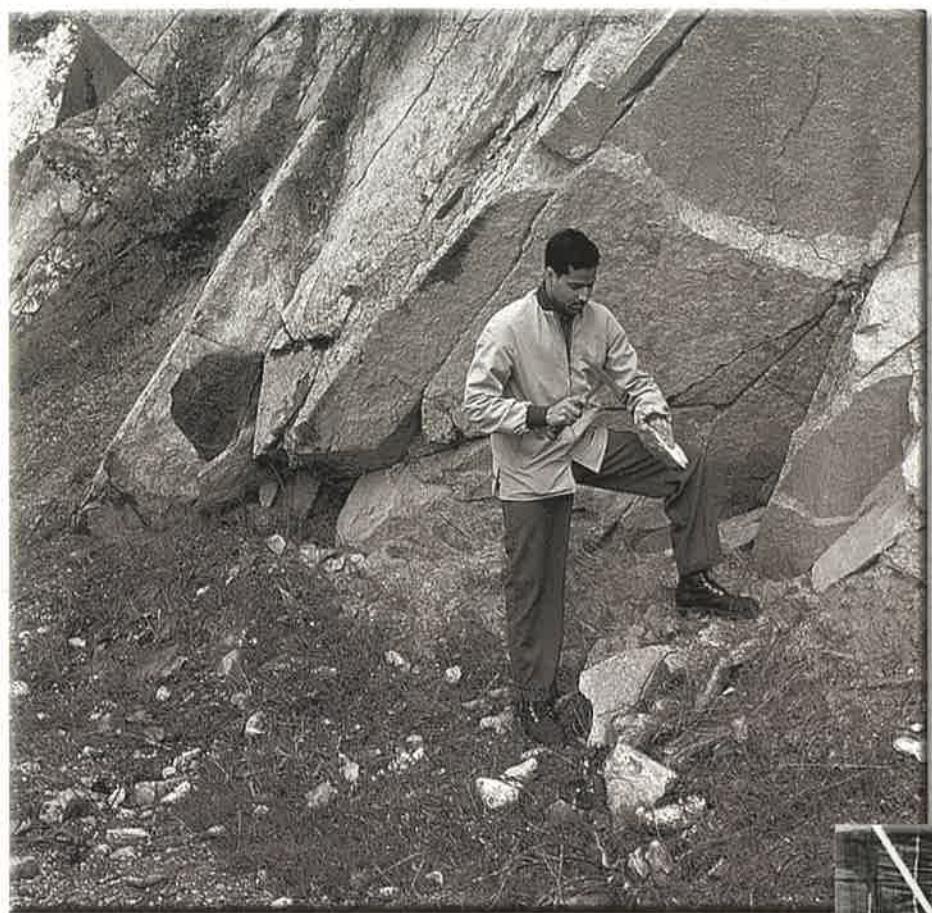
Trying to gain insights - the geoscientific laboratory at Naaz



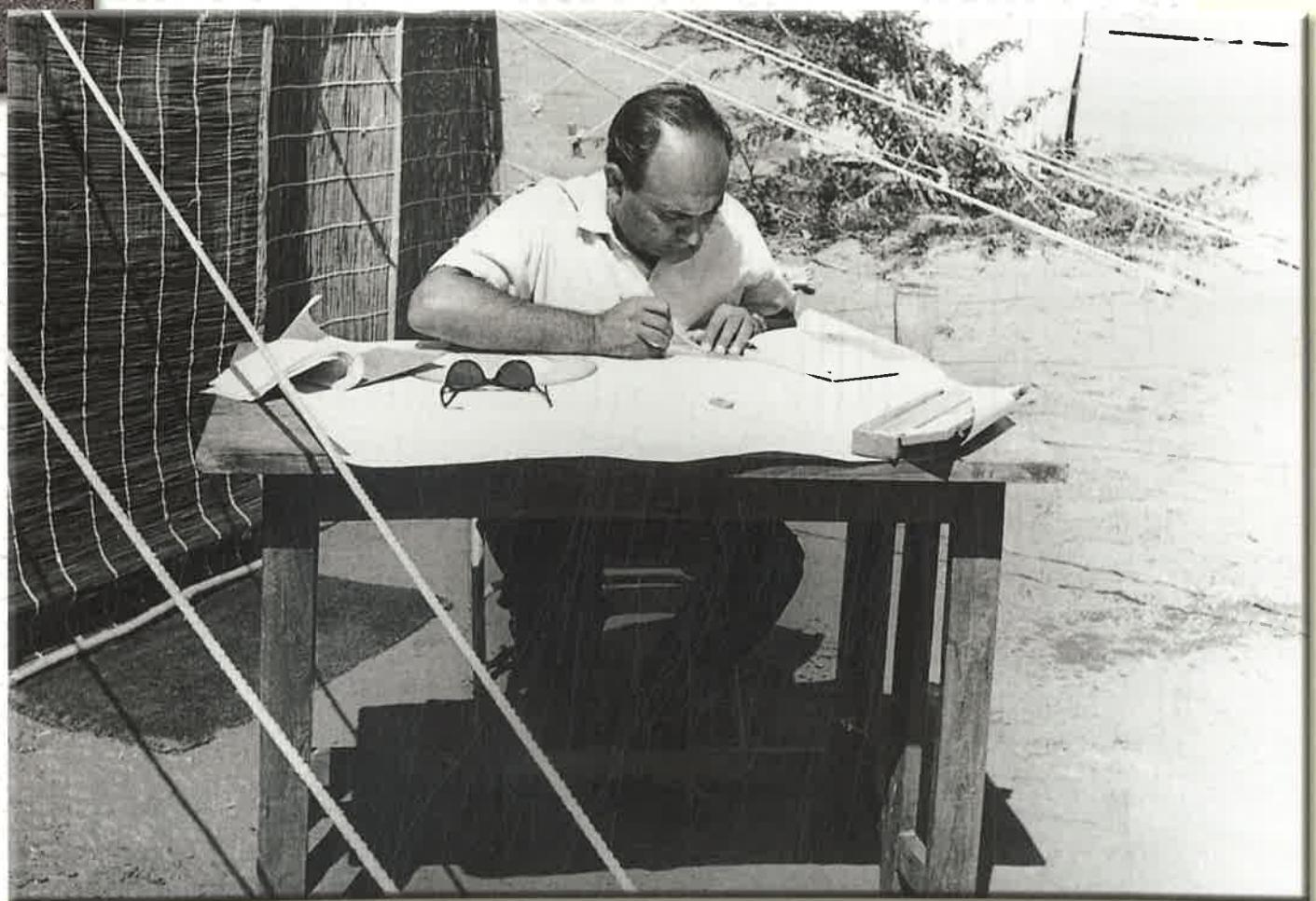
Prime Minister Jawahar Lal Nehru is seen with the senior officers of the Commission during his first visit to Patiala House in Dehradun in 1957. Chairman K D Malaviya (sitting second from right) and two Members - Member (Technical) A M N Ghosh (sitting extreme left) and Member (Finance) A C Bose ((sitting extreme right), along with a Russian Advisor to the Commission (sitting second from left) are also seen here



An uphill task - Geological Mapping in progress in the Himalayas



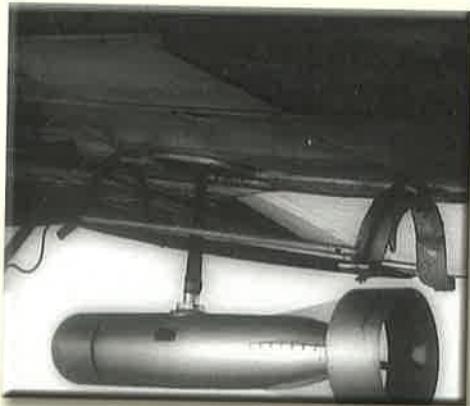
A field geologist busy seeking his tryst with the Indian petroleum systems



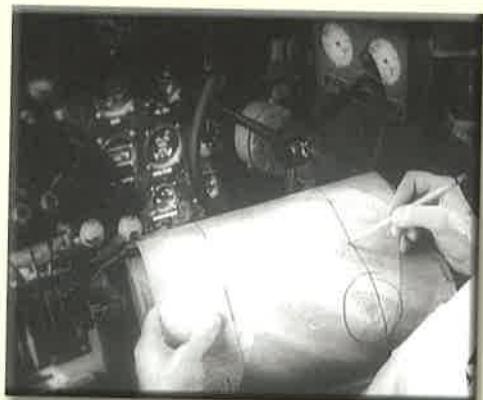
A hard day's work must be transferred on the geological map before lanterns are lit



An eye on the future - a geoscientist of ONGC working on a Worden Gravity Meter



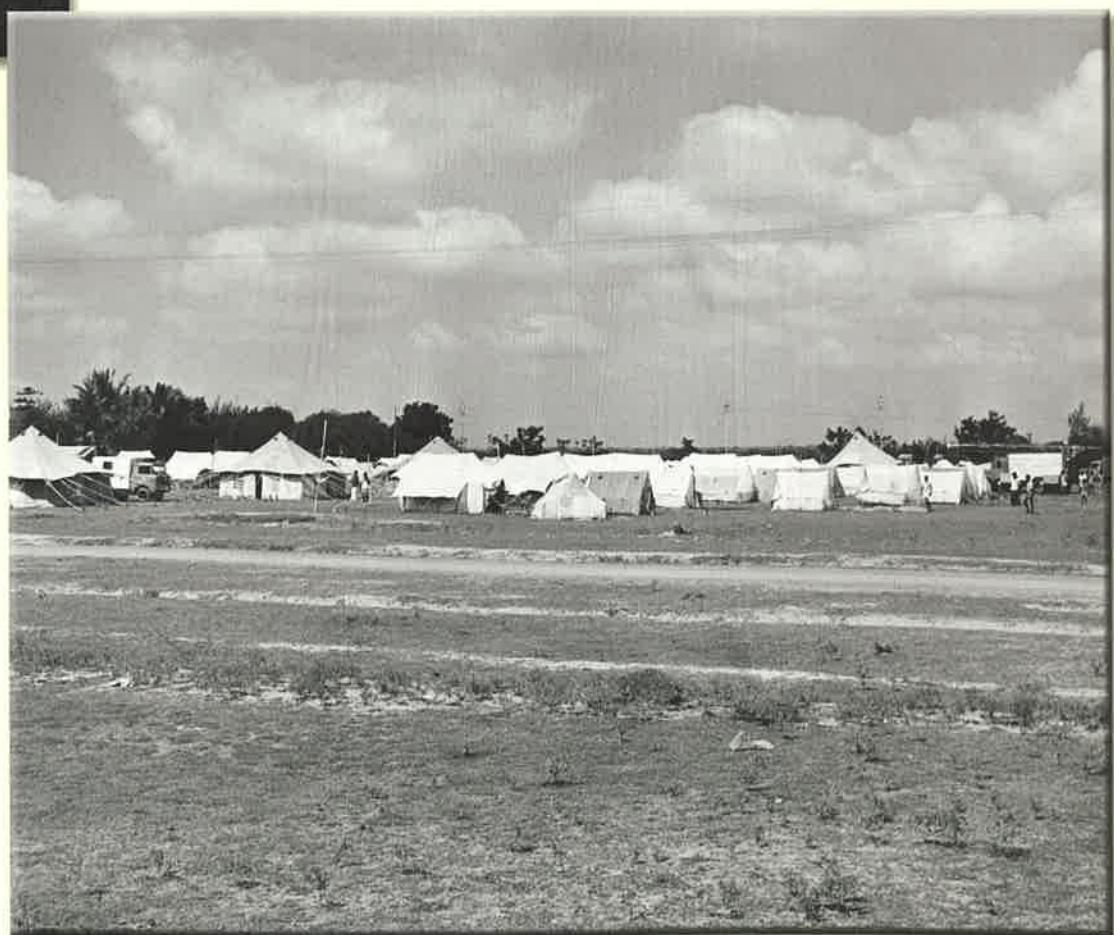
One of the most cost-effective options to survey the vast sedimentary tracts - Aero-magnetic survey - 1955-56



Aero-magnetic recording on board of an aircraft - 1955-56



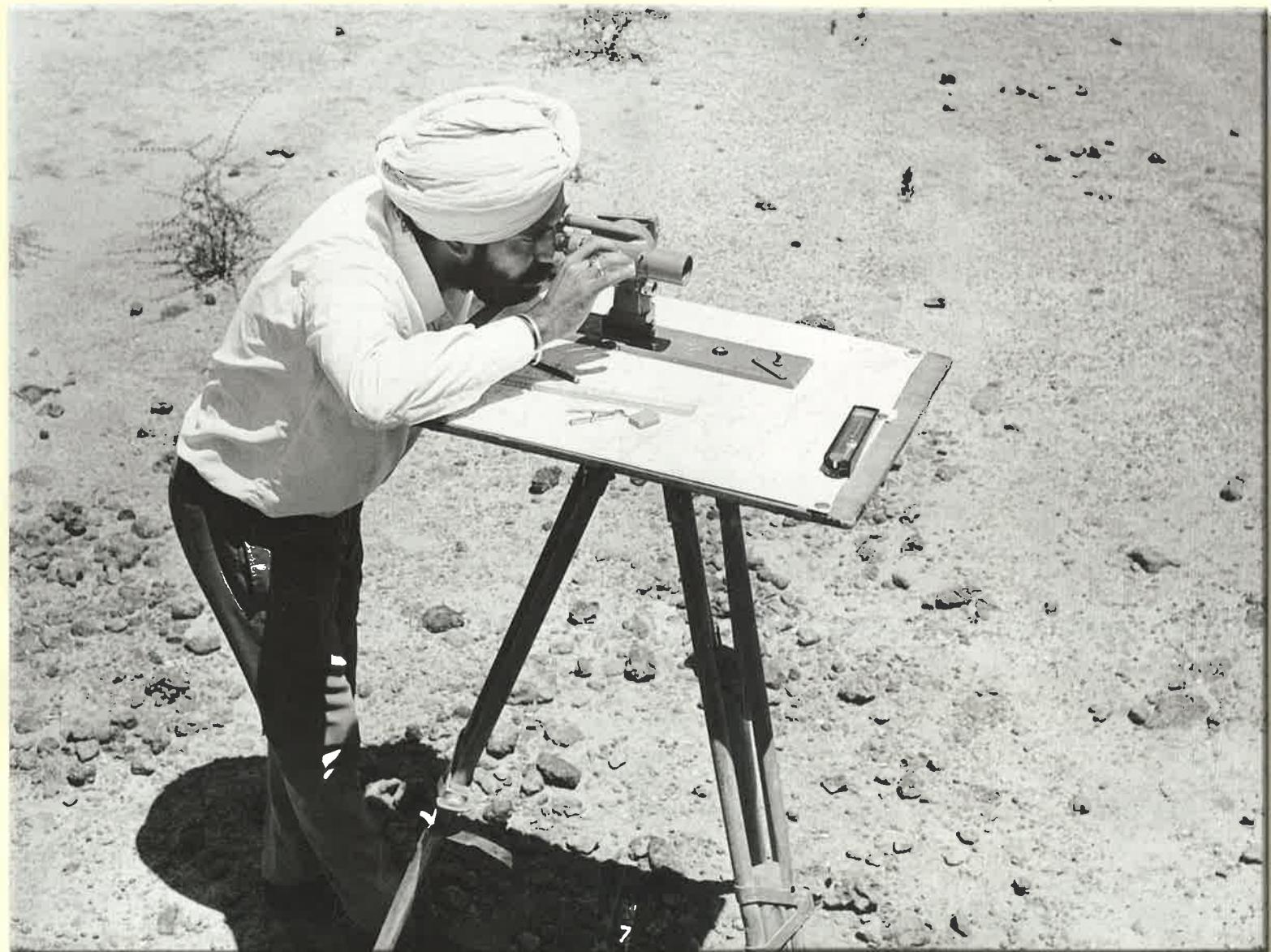
Braving hostile terrains a daily routine - a field party camp in 1957



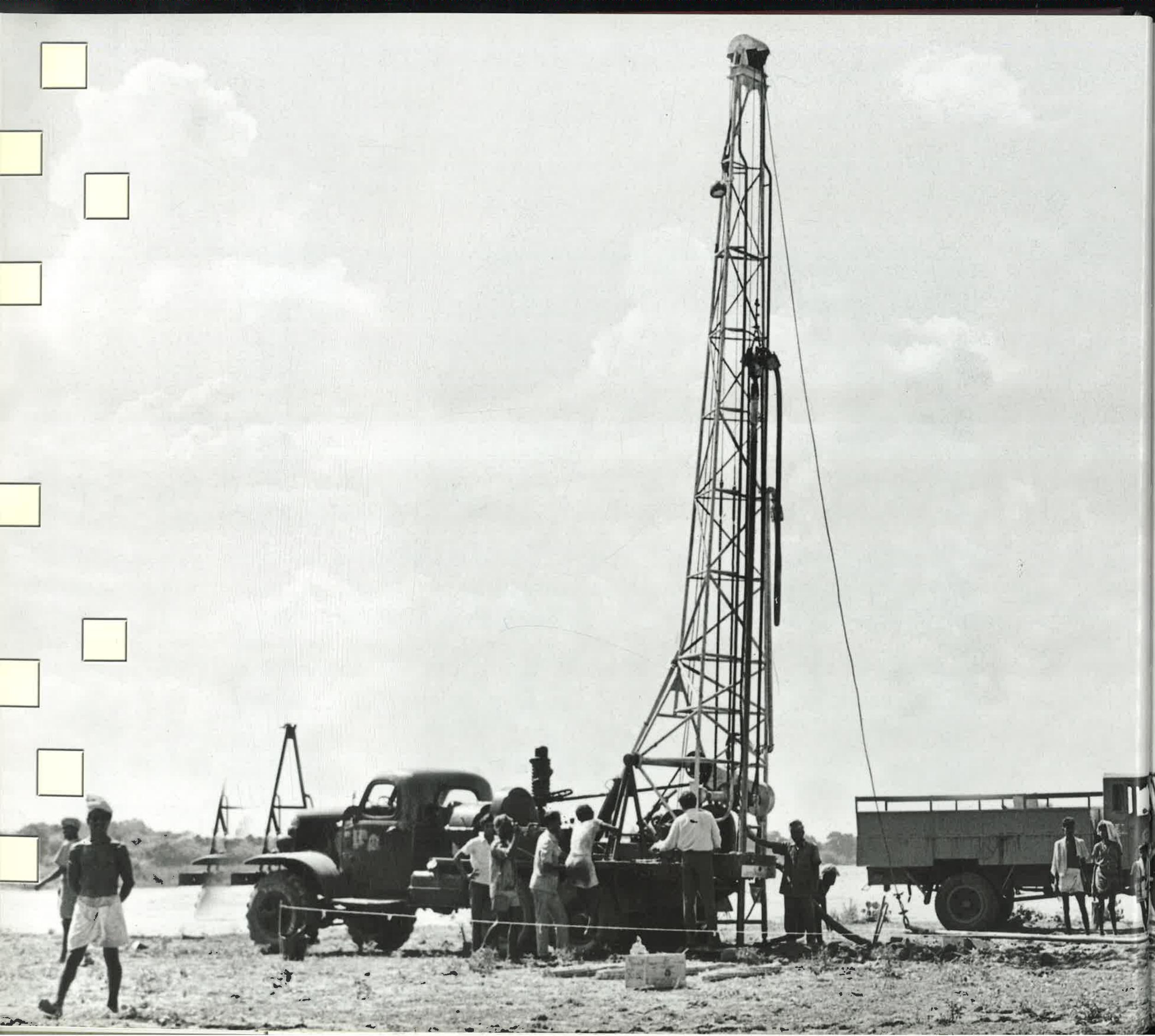
A make-shift habitat away from human habitat. A seismic field party camp in Punjab in 1957



Beginning oil exploration in a vast country like India was a mammoth job. The picture shows staking of a drilling location



Looking for the big picture - a Plane-table survey





An artificial earthquake is created by blasting a dynamite. To avoid dissipation of energy into atmosphere and achieve deeper penetration, the dynamite is placed in a shot-hole drilled to a depth of 10-30 metres or more. The picture shows the first stage in seismic survey - Drilling a shot-hole, using a truck-mounted rig.



Lowering explosive charge into the shot-hole - the next stage



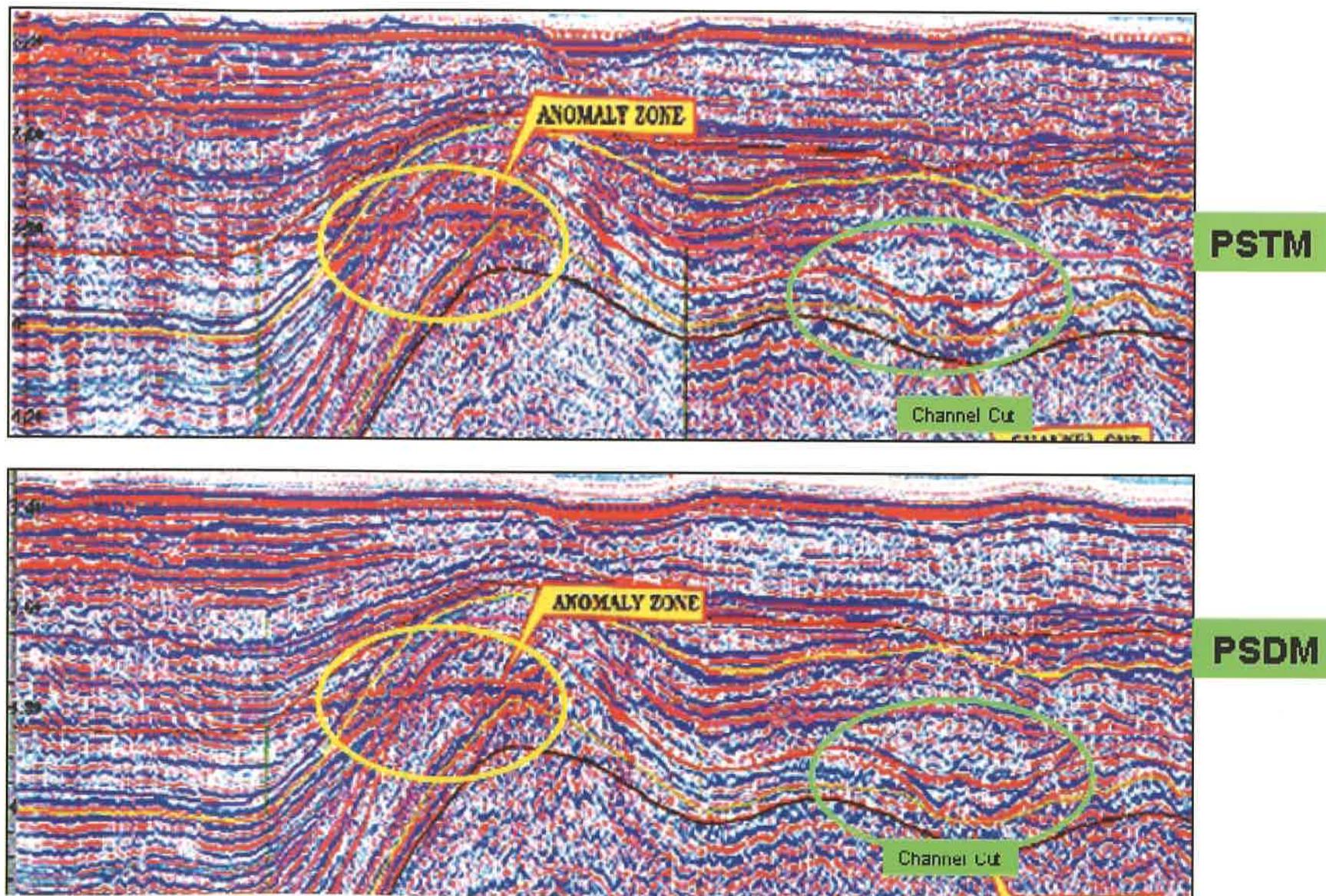
Artificial earthquake by seismic blast - the earth wakes up to speak out its innermost secrets



A seismic camera record, held up for drying, is eagerly examined by a geophysicist for early clues. Nowadays, more sophisticated computerised printers and plotters are used for on-site monitoring



The geoscientists of ONGC were intent on learning and sharing knowledge. The picture captures a Study in progress at a camp



Even after acquiring data with all these efforts, it takes a lot of ingenuity and hardwork to create the final seismic sections that bring out picture of the internal strcutures. The two seismic sections above show (Top) 2D Pre-Stack Time Migration (PSTM) Imaging in Godavari Deep, East Coast of India and (Bottom) its improved Imaging (PSDM - Pre-stack Depth Migration) of discordant events with channel-cut features

Spudding Hope

All who have accomplished great things have had a great aim; have fixed their gaze on a goal which was high, one which sometimes seemed impossible.

- Orison Swett Marden

Spudding is a driller's term signifying start of drilling an oil well, when the drill bit touches the ground.

The Romanians had brought a drilling rig for an exhibition at New Delhi in 1956. ONGC bought this rig, and set out to enter the oil business. On a cool April morning in 1957, the rig, capable of drilling up to 2500 meters, spudded ONGC's first well on a structure facing the holy shrine of Jwalamukhi, known for its eternal flame, in the hills of north India.

Though there was a feeble flow of Gas in the well, this maiden venture turned out to be non-commercial.

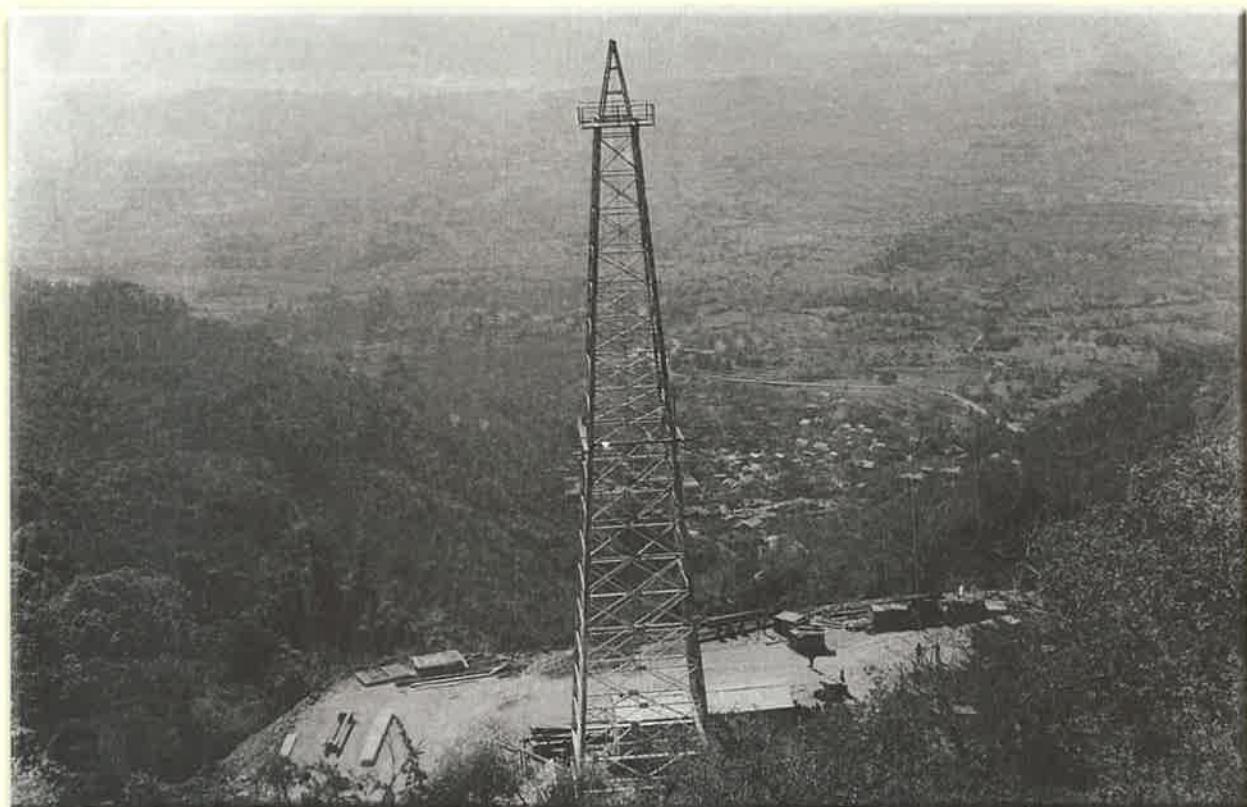
But the faith of the ONGCians kept the flame of perseverance burning in them.

Though no finds were registered initially, these on-the-job exposures gave ONGC the required knowledge to build a pool of trained cadres of geoscientists and drilling engineers in the organization. Incidentally, ONGC's expert Exploration and Production (E&P) cadres, one of the best and largest in the world today, are playing a major role in sustaining the global petroleum industry, facing its worst ever trained manpower crisis now..

In those days, the criticism against the formation of ONGC was also directed at incidental activities like drilling dry wells.

However, The dry wells, characteristic of any E&P endeavor, provided a lot of insight and hands-on exposure.

Here's an example. When interpretation of geophysical data opened up prospects of a thick sedimentary fill in the Gulf of Cambay in Gujarat, a go-ahead for deep



An aerial view of Jwalamukhi Well number 1 - the first-ever well drilled by ONGC. Though not a commercial producer, it served as a class-room and on-the-job training ground for the enthusiastic drilling engineers and geoscientists of ONGC





Internalizing knowledge - LP Mathur (third from left) with Romanian drilling engineer Petcu (to his left) at Jwalamukhi drill site in 1957

Friends in need: From Left - Selimkhanov, Zagrabants, Khanjankov, N A Kalinin and K V Balakrishnan in the field camp at Hosiarpur in 1957



drilling was needed to confirm the geological prospects. However, the geoscientists of Standard Vacuum and Burmah Oil - whose opinion was sought - advised against drilling, terming the survey findings erroneous. This negative attitude was compounded by Indian financial authorities who wanted to spend the

money on other developmental activities in the country than 'digging more holes'. It was only after geoscientists M B R Rao and a few others convinced Chairman Malaviya, that the venture got the green signal.

These are the terms actually used at drill site!

Cat Head: A small spool rotated by the draw-works.

Cat Line: Extension of the shaft of the draw-works.

Dirty Ship: The ship that carries crude oil or heavy petroleum products.

Dirty Trade: Jargon used to indicate a trade in crude oil and heavy products like lubricating oil, Fuel Oil etc.

Dog House: A small bunkhouse located on the rig floor for the driller-in-charge.

Dog Leg: A sharp 'elbow' change from the vertical in the profile of a well.

Fish: Piece of drilling equipment or tools or a part of drill string left in the bore hole.

Fishing: An operation to recover a fish from the bore hole.

Go-devil: A scraper with self adjusting spring blades.

Monkey Board: Elevated platform on mast for the topman

Mouse Hole: A hole under the derrick floor used to temporarily keep a drill pipe .

Rat Hole: A slanting pipe in which Kelly is kept when not in use.

Wild Cat: An exploratory well drilled on virgin geologic structure.



The Russian and Romanians pitched in with their oil-field equipment also. The picture shows a Russian equipment used in Drilling services

Victory at Last

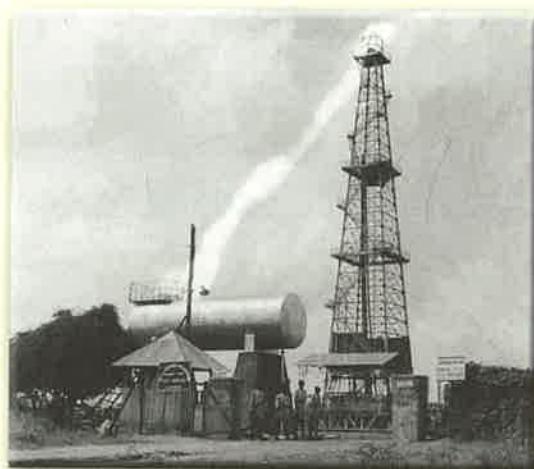
God said, 'Let there be Light and there was Light'

- *The Bible*

Through the ONGC Act of 1959, the Indian Parliament – the highest policy-making body in the country, accorded statutory status to ONGC – placing on it the responsibility of the entire national oil industry – from exploration through refining to marketing...

After getting the long-awaited clearance, drilling started in Cambay with a Russian rig at Lunej in Cambay basin in Gujarat. Even after drilling down to more than a kilometer, there was no indication of hydrocarbons. Anticipating another dry well, they were told to stop drilling to save further expenditure on a dry well. But the geoscientists of ONGC, seeing symptoms of marine fossils in rock cuttings, continued drilling a few days more.

Their persistence paid off. Within a



A view of a drilling rig those days

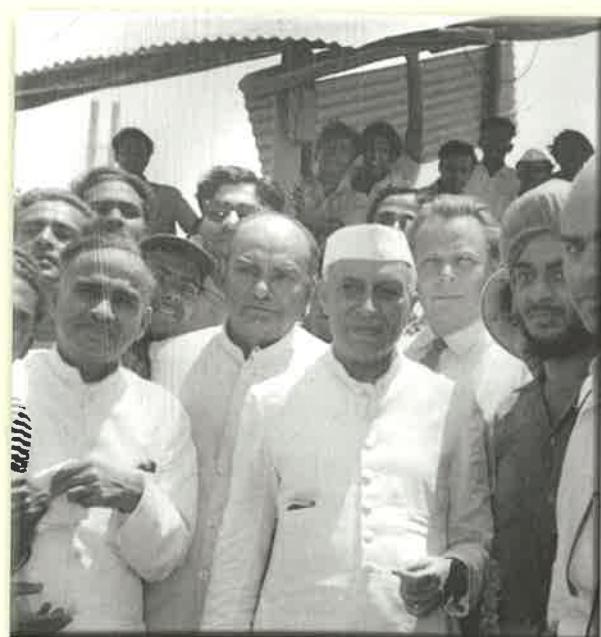
few days after that and around two years after ONGC was formed - oil was struck! The myth that 'there is no oil in India except in North-East', was dispelled forever.

It was a hard-earned victory for ONGC. It was a victory for those few, who did not give up even when the battle seemed lost.

That was September 1958.

While these developments were taking place in India, important events were unfolding on the global scene.

With two price cuts announced unilaterally by the oil cartels in 1959 and 1960, five of the major oil producing nations joined hands to form the Organization of Petroleum Exporting Countries – OPEC.



Smiles at last. Jawaharlal Nehru with K D Malaviya and A M N Ghosh at the site of ONGC's first discovery at Lunej

The Cold War between western democratic countries and the Eastern Communist block was at its peak. Oil was used as a political tool by Soviets who exported cheap Russian oil to Western Europe. This worried the USA and the big international oil companies, who saw it as a threat to their economic survival.

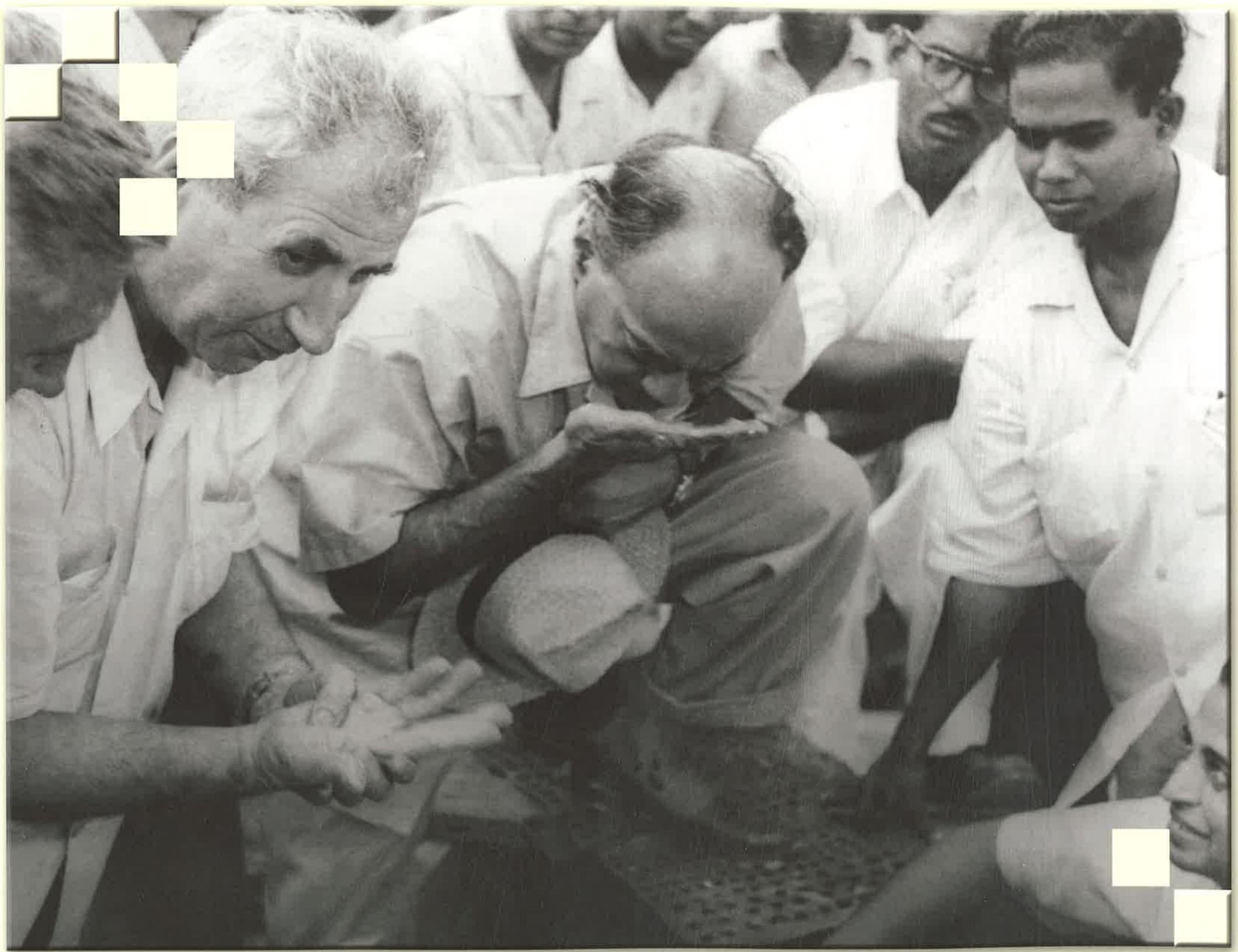
These developments prompted India to seek refining of Russian crude in the Indian refineries run by international integrated oil firms. The western firms did not accept this. Instead, they offered a lower price for their crude. It was a sustainable business proposition for the

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The scientists and engineers lived up to the faith reposed on them by Indian Prime Minister Jawaharlal Nehru and struck oil at Cambay in 1958. Nehru is seen at the pit for test production of oil at Cambay-1





Smelling success - Zagrabians and A M N Ghosh closely examining the oil in the drilling mud at Lunej



The first-ever railway rake with Ankleshwar crude oil from Panoli Railway Siding on its way to Burmah Shell Refinery in Bombay - 1st September, 1961

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vertically integrated oil companies, as they could manage pricing intervention in their favour, anywhere in the long business chain.

In India, critics of domestic exploration were also silenced after the oil and gas strikes in Gujarat. The Government of India granted greater



autonomy to ONGC – changing it from a government department to a statutory body. Rules and regulations were more attuned to the business of oil, though intervention from the government continued.

Soon after, a more impressive discovery was made in the first half of 1960, near the small town of Ankleshwar (again in Gujarat).

Nehru visited this oil well in 1960 and



Evidence of Energy. Gas bubbles in the historic pond called Bulbulakund near Ankleshwar

named it Vasudhara – the fountain of prosperity. Even today, after four and a half decades, Ankleshwar produces one of the sweetest and lightest crudes in the world. Significantly, the emblem of ONGC embodies this fountain of prosperity – Vasudhara.

The multi-layer completion of the Ankleshwar field in those times was a remarkable technical feat achieved by the reservoir engineers of ONGC, under the supervision of Soviets. In many ways, the Ankleshwar experience of ONGC was unique. The structure, at first glance,



Panoli railway siding near Ankleshwar -- the first rail rake being loaded with oil produced at Ankleshwar - India's own oil

Crude oil of exceptionally good quality was struck on May 14, 1960 in the deep well no. 1 at Hajat. Drilling of the well began on February 26, 1960 and was completed in 60 days. The total depth was 1960m. Oil gushed out of the well on the second day of testing operations.

Later, Prime Minister Jawahar Lal Nehru christened the first well in the Ankleswar region, Vasudhara, the stream of prosperity.

Prime Minister Nehru had a fine oil spray bath at Lunej while inspecting test well No. 1 during his visit to the Cambay oil field on April 4, 1960.

While boarding the I.A.F Dakota for Delhi he said that he was carrying, on his shewani, the evidence of India's own oil!

People of the nearby village Hajat celebrated the gift from Mother Nature. They collected the oil in small earthen lamps and lit them at home, thus ushering in the goddess of wealth



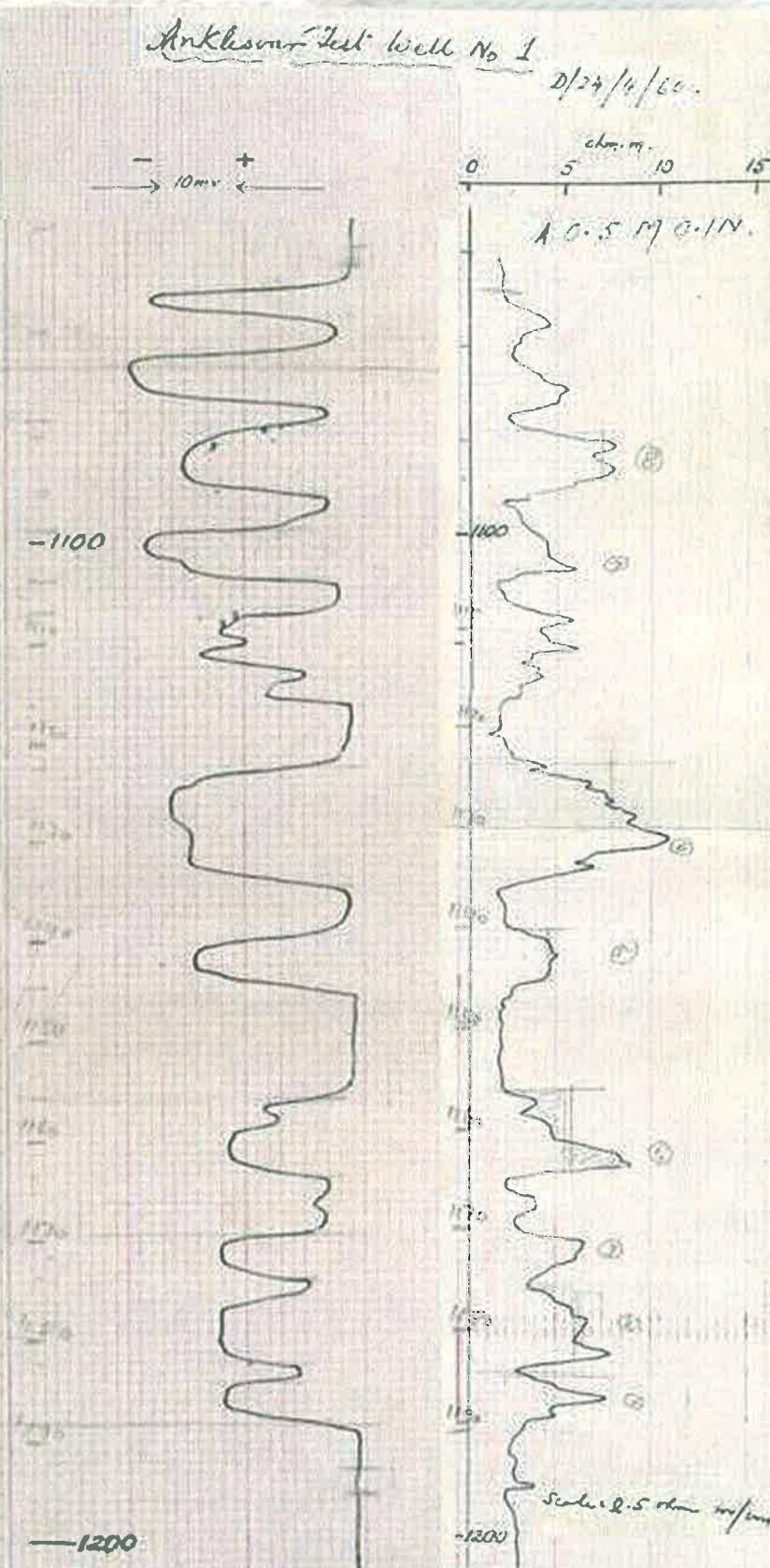
Rudrasagar Well number 1 in Assam - ONGC's first discovery in the East in December 1960 - brought in progressive changes in the socio-economic conditions in the region

seemed to be taken right out of a geology text-book; the crude was ideal and the reservoir management by ONGC also was one of the best in the world. In fact, the recovery, till 2005, is a phenomenal fifty-two per cent and is still continuing.

More discoveries in western India followed in quick succession: Kalol, Sanand and Nawagam were discovered in the next three years.

Having busted the 'No Oil' myth in western India, ONGC went east. Though the maiden experience at Disangmukh in the east was a dry one, the second well at Rudrasagar in Assam struck oil in December 1960 – ONGC's first discovery in the east.

The discoveries in Gujarat and Assam placed the petroleum industry of independent India on a strong footing. Far more significant was the confidence that was reinforced within ONGC – *We Can Do It!*



Passport for India's entry to the global hydrocarbon club. The log of the first well of Ankleswar field – the first prolific producer of ONGC. In a way, this well – which still produces one of the sweetest and lightest crudes in the world – heralded India's graduation from a agro-based nation to an industrialized one





*ONGC is known as a Company
that Cares - taking out earth's
sub-surface resources, preserving
those on the surface*

Moving Ahead

*You can't wait for inspiration.
You have to go after it with a club.*

- Jack London

The global experience in oil business shows that after each bonanza, bottlenecks crop up. This is inevitable because when attention shifts to developing discoveries and monetizing assets, focus on further exploration is lost, leading to a dry spell. The events in North Sea, one of the most prolific oil-producing provinces on Earth, were no different.

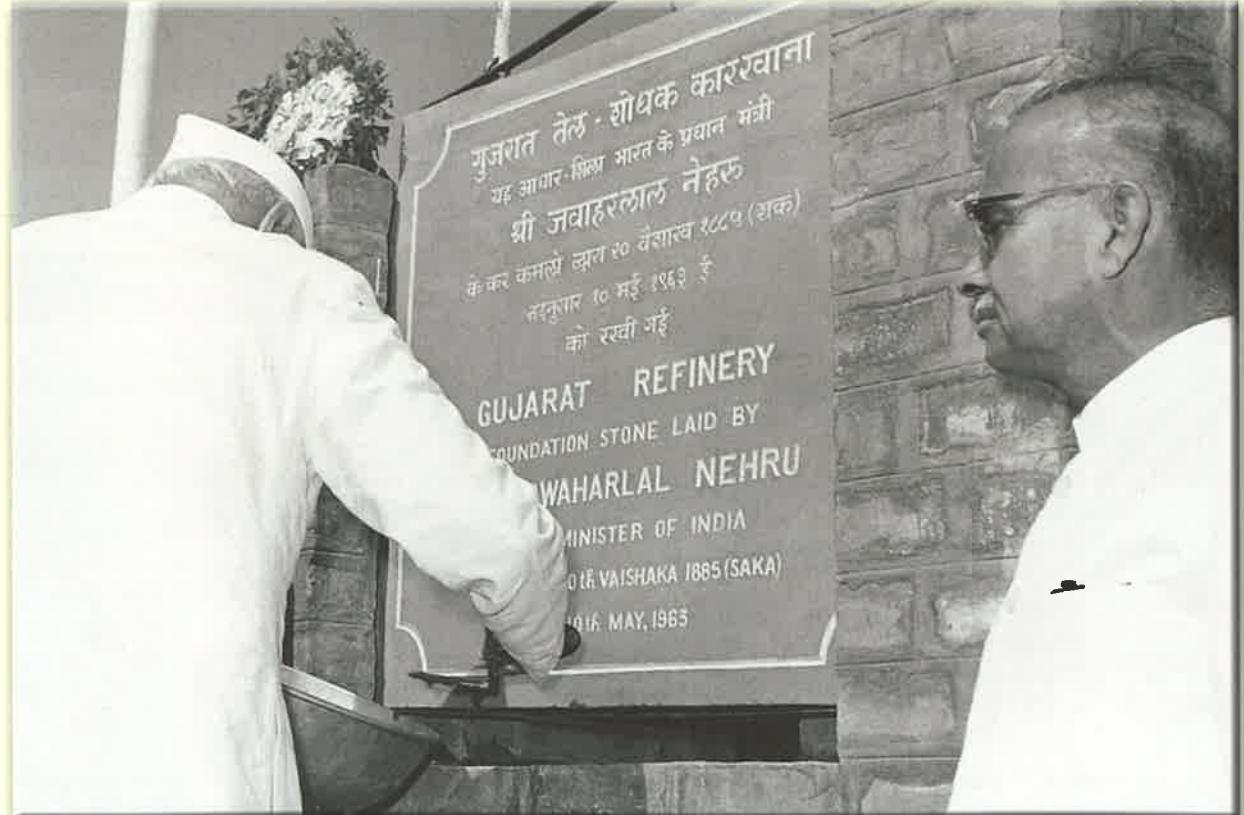
In ONGC, intensive exploration activities supervised by Russian experts, continued till 1963. Notwithstanding limited knowledge and experience of oil business, the efforts delivered good discoveries, with a major one at Ankleshwar. This major discovery soared everyone's expectations from ONGC phenomenally.

However, after Ankleshwar, efforts of ONGC were canalized into developing the field. In the next few years, there was no major discovery matching the elevated expectations.

Notwithstanding the slowdown, a learning culture, shared values, and free exchange of knowledge among the confident scientists and engineers, were

driving the organization. The open channels of communication fostered an organizational bond - a pride of belonging to a great institution-in-the-making.

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The threat of multinational cartel was answered by the strong-as-steel Malaviya; he asked ONGC to build its own refinery to process Ankleshwar crude. The picture shows the foundation stone of the Koyali (Gujarat) refinery being laid by Prime Minister Nehru, accompanied by Malaviya





After the major oil discovery at Ankleshwar, the expectations of the country from ONGC increased manifold



The fruits of exploration take long to ripen. Oil needs to be explored, drilled for, produced and transported, which may take several years, before it brings in the revenues

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In view of the big find at Ankleshwar, an accelerated drilling program for fast development of the field was required. Heavy Russian rigs could not be mobilized fast from site-to-site as shifting them took time.

So, ONGC wanted to buy two light NAT-45 rigs from USA worth half a million US dollars. As further discoveries assuring continued use of the rigs were not possible to predict, the foreign exchange proposal was turned down.

Malaviya had to lobby yet again with Pandit Nehru to reason with the Indian



A view of the Koyali refinery - when it was still with ONGC; later on it was handed over to Indian Refineries Limited - a precursor to Indian Oil Corporation

Planning Commission and convince them that oil production would get accelerated with these rigs, fetching more benefits to the nation than the investment involved. The rigs arrived in the beginning of 1961.

This way, western drilling technology and equipment were inducted by ONGC along with Russian guidance, balancing and complementing the business approach.

Refining was also included in the business of ONGC in the ONGC Act of 1959. After discoveries at Ankleshwar and Kalol, ONGC proposed a refinery at Koyali. ONGC started Construction of the refinery, but later was asked to give it away to the newly formed Indian Refineries Limited. Though in the charter, integration had to wait four more decades before ONGC could enter refining sector.

Partners in Progress

Don't walk behind me, I may not lead. Don't walk in front of me, I may not follow. Just walk beside me and be my friend.

- Albert Camus

ONGC was, perhaps, the only organization in the world, to have adopted the contrasting oil-field practices of a number of schools in the industry. Thanks to the approach of ONGC, Indians came to be known as sponges – soaking everything that came their way.

ONGC's spirited approach secured the support of many friends in times of need. Support came in three spheres – Training, Equipment and Infrastructure.

The Soviets were the most significant partners – they provided hands-on training to ONGC personnel in the field. The Russians also helped significantly in Engineering Planning and establishment of workshops at Baroda and Sibsagar. They also played a major role in the inception of the Hind Oil Design Institute (HODI) in ONGC, which later became the independent Engineers India Limited (EIL).

While the Soviets and Romanians helped ONGC to form drilling and geoscience cadres and develop infrastructure at the beginning, ONGC also secured the assistance of a number of foreign institutions.

In the formative years of ONGC, different agencies and schemes like

United Nation Technical Assistance (UNTA), United Nation Development Program (UNDP), Technical Co-operation Mission (TCM), Colombo Plan, Institute Francaise du Petrol (IFP), various Canadian and US institutes, the Royal Dutch Shell, also trained scientists and engineers of ONGC in petroleum technology.

Yugoslavs and Poles also pitched in with support in the form of services as well as oil-field equipment. ENI of Italy helped ONGC in drilling a few deep-wells in north India, which unfortunately went dry. Later, IFP of France helped coach ONGC during the establishment of the Institute of Reservoir Studies (IRS).

The cooperation from Russians still continues. In 2004, the Skochinsky Institute of Mining in Russia has teamed up with ONGC to share their technology in Underground Coal Gasification

(UCG). This will enable ONGC to utilize substantial reserves of 'unmineable' coal in India.

Different from the live-it-out today western approach, the state owned long-term strategy of the Soviets and Romanians proved more useful to ONGC in its formative stage. That approach entailed using and preserving national resources optimally for the citizen of the country. The rupee-payment terms also came in handy in those days of financial frugality.

Such free-flowing exchanges of infrastructure and intellect, with friendly nations, have been live throughout the journey of ONGC. The exchanges extended beyond business; in different work centres, the expatriate experts and their families developed social relationships with those in ONGC and even participated in national festivals.





ONGC's eagerness to imbibe technology - ONGCians facility with new tools and equipment helped absorbing the new skills from their Russian teachers



Nurturing Talent

Training is everything. The peach was once a bitter almond; cauliflower is nothing but cabbage with a college education.

- Mark Twain

Being in a knowledge-intensive industry, ONGC was alive to the need of developing human capital from the very beginning. Young scientists and engineers were deputed abroad, mostly to USSR, for training in the nuances of the trade. Heavy investment in this effort made by ONGC at that time and ever since has built the best pool of English speaking experts having vast practical experience. It is benefiting not only ONGC, but the nation and even the domestic and global oil sector in general, given the present unprecedented demand for skilled human resources in the industry.

Since the government was aware of the work being done by ONGC, there was no objection to sending them abroad for training. The training was intense and comprehensive, extending as long as even a year in many cases.

Though Russians helped ONGC develop its E&P expertise initially, geoscientists and engineers of ONGC

further consolidated the knowledge-gains through their own efforts. The teaching of Russians were internalized and an Indian approach was evolved to search for and develop oil & gas resources.

Realizing the importance of research in petroleum sciences, a Research and Training Institute was set up at Dehradun in 1963 with the assistance of the United Nations Development Program (UNDP). With the growth of ONGC, this Institute has grown into one of the finest research institutes in the country. It was renamed Keshava Deva Malaviya Institute of Petroleum Exploration in 1981 by the then Prime Minister Indira Gandhi.

It was during the development of Ankleshwar

field that ONGC realized the importance of reservoir engineering. A number of senior geologists received special training in USA, Canada and France for setting up the Institute of Reservoir Studies at Ahmedabad. The institute was

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An artist's impression of the temple of E&P Science. The vast expanse of Keshava Deva Malaviya Institute of Petroleum Exploration (KDMIPE) complex in Dehradun



Zeroing in on the prospect. Hunting oil and gas targets is a specialized game. Apart from academic knowledge, it requires skills, acumen and insights gained through experience as well. ONGC trains its top geoscientists for such jobs which are crucial in the industry, for the future of the company and the country. The picture shows a geoscientist savouring the 3-dimensional perspective of an aerial photograph of an oil basin through a stereoscope



Where Science Meets Technology





Managing the hydrocarbon reservoirs - skills to maximize recoveries and optimize costs are honed through research at ONGC's Institute of Reservoir Studies (IRS) at Ahmedabad

Laboratories of the Keshava Deva Malaviya Institute of Petroleum Exploration – a premier institute set up by ONGC at Dehradun for exploring the sedimentary basins of the country and the world



There was a craze during that time leading people to join the petroleum division of ISM. In fact, many IAS aspirants switched camps in view of the job guarantee provided by ONGC.

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intended for comprehensive studies in reservoir engineering and secondary recovery methods. Set up in 1976, this Institute helped in monitoring reserves, solving reserve-related problems and formulating reservoir policies, thus reducing dependence on foreign expertise.

A large computer facility was also set up for reservoir modeling by 1982.

A number of other institutes came up in due course for research and development in respective realms of E&P business to provide a smooth interface between frontier technologies and operations. The Institute of Oil and Gas Production Technology (IOGPT), the Institute of Drilling Technology (IDT) and the Institute of Engineering and Ocean Technology (IEOT) were set up. Subsequently, the Institute of Petroleum Safety, Health and Environment Management (IPSHEM) and Institute of Bio-technology and Geo-tectonic Studies (INBIGS) were also set up. The knowledge-base of geoscientists, engineers and computer professionals of ONGC started getting noticed all over.

This, however, had a mixed impact on

the organization. The expertise nurtured by ONGC over the years made its personnel very valuable and hence vulnerable to poaching. Many of these trained talents left the public enterprise to enrich other organizations – ranging from the Indian private sector to even the Middle East, North Africa, Australia and western countries. These former ONGCians played a crucial role in creating intellectual wealth for those organizations.

This is, perhaps, the biggest contribution of ONGC to the global E&P industry – a parent institution that has groomed E&P intellectuals.

As there was no academic institute for petroleum studies in the country, senior scientists of ONGC helped form the Petroleum Engineering Division in the Indian School of Mines (ISM) at Dhanbad in 1959. Apart from faculty-support, ONGC provided job-guarantee to first class pass-outs from the Petroleum division, attracting quite a few bright young people to the sunrise industry.

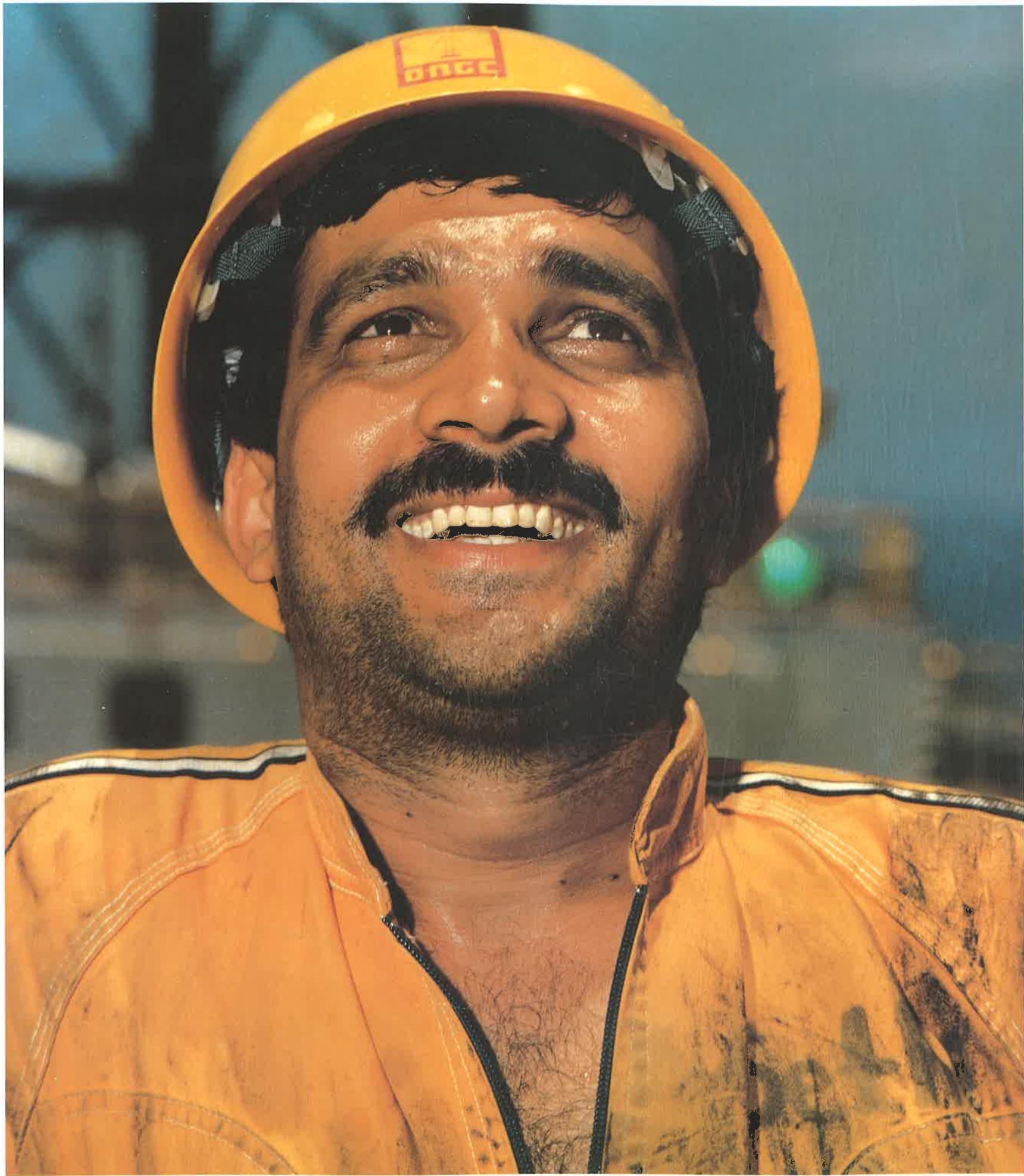
The faculty of ISM, even today, comprise many retired ONGCians, who decide to join academics after a field career.



ONGC is among the pioneers in the In-situ Combustion method of Enhanced Oil Recovery in the world. The photograph shows a Thermal Laboratory in ONGC's Institute of Reservoir Studies (IRS)



The Institute of Reservoir Studies (IRS) monitors the health of reservoirs and formulates reservoir-related policies



*The triumph of
discovery is worth
the hard work in the
search*





Working 24X7 throughout the year under difficult conditions, ONGC has discovered six of the seven producing Basins of India, establishing over 6.4 billion tonnes of In-place hydrocarbon reserves with more than 350 discoveries of Oil and Gas

Advent of Discipline

Obstacles cannot crush me. Every obstacle yields to stern resolve. He who is fixed to a star does not change his mind.

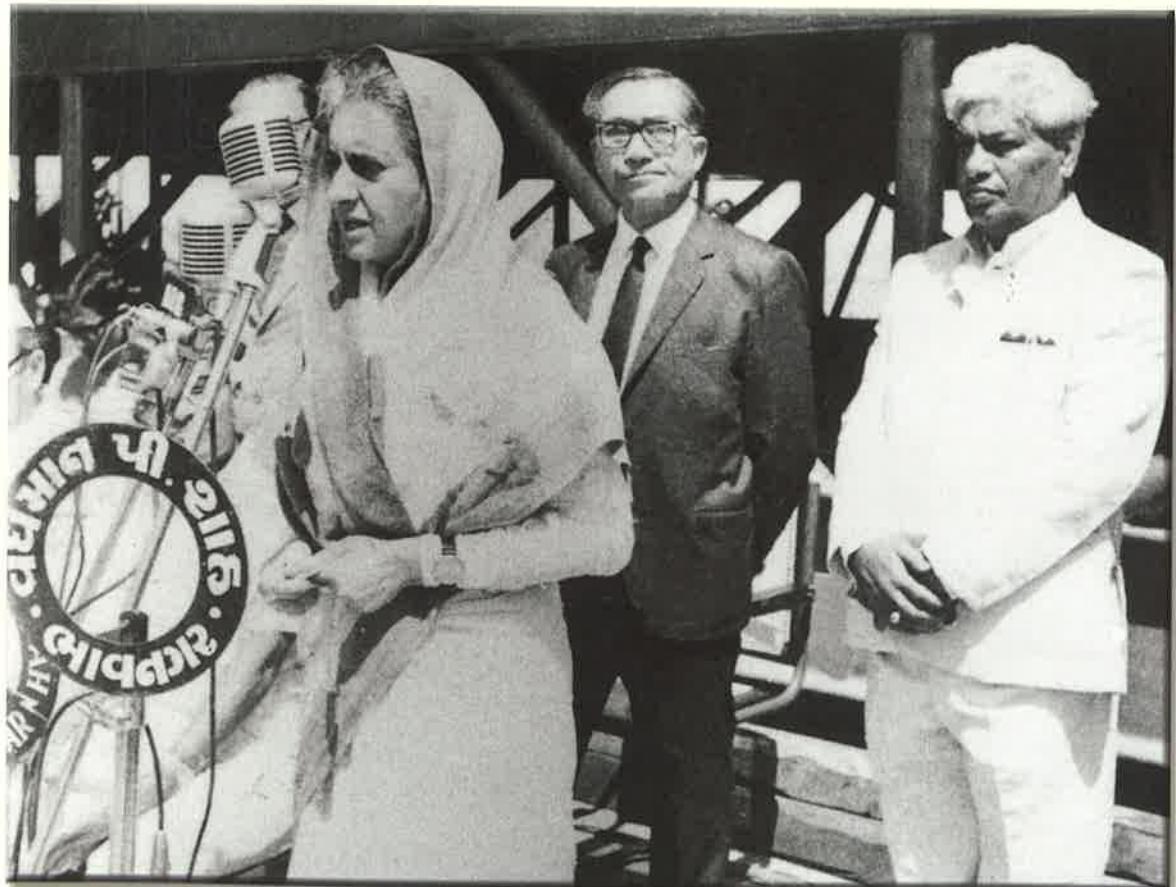
- Leonardo da Vinci

By the mid-sixties, different cadres had developed in ONGC for exploration, drilling and production. Specialization in these disciplines brought in a new issue: connectivity among the islands of excellence.

The quick change of leaders at the helm at that time did not help in continuity in administration. The operational efficiency, especially in drilling, was at an all-time low and slippage in targets was the rule rather than the exception.

In 1966, L.J. Johnson, a Civil Servant but with a business outlook, took over as chairman of ONGC. Though a bureaucrat by profession, Johnson was a scientific manager by choice. A number of administrative reforms were ushered in during his regime, bringing business-like discipline and work-culture in the Commission.

An artist at heart and by hobby, Johnson introduced some revolutionary changes. Discipline in



ONGC's (and India's) first offshore venture was carried out on an indigenously-fabricated structure at Aliabet. The then Prime Minister Indira Gandhi is seen congratulating ONGCians on their courageous endeavour to get oil from the sea. ONGC has never looked back: from drilling at water-depths of 8 metres in Aliabet, it is now the second operator in the world (after Chevron Texaco) to drill at water-depths of 3000+ metres, under its Deepwater Exploration Campaign



ONGC improved. He also devised an incentive scheme to accelerate the pace of work in 1968 itself.

Substituting Russian experts by Indians and brief working papers in place of lengthy file notings were also ushered in. He helped raise the sagging morale of the heads of matrix structures prevailing at that time.

He initiated a 'Control Room' to monitor field operations all over the country on a daily basis. At operational level, teams and positions in the field were created. Major reforms in inventory control were also instituted. The first Book of Delegated Powers was adopted during his time.

While Johnson did bring in some control and motivation in the people during his time with his revolutionary concepts, his enduring discord with his ministerial colleagues slowed down the reforms within ONGC.

His era had a number of engineering accomplishments to its credit, like the first offshore platform fabricated at Aliabet and offshore survey vessel



The arrival of L J Johnson (left) at the helm of ONGC helped the organization bring some order in the apparent chaos of a number of disciplines in the oil business

rigged indigenously. Equally notable were the coordination among the various disciplines and starting a scheme, in

1968, which became a forerunner to the Production-linked incentive-scheme, introduced in ONGC two decades later.

Mid-Sixties' Blues

Success usually comes to those who are too busy to be looking for it.

- Henry David Thoreau

The second half of the sixties was a time of trial for the organization. The sudden exit of K D Malaviya from chairmanship of ONGC in mid 1963, gave little time to the organization to groom another leader. A M N Ghosh had died in harness earlier. Prime Minister Jawaharlal Nehru also expired soon after, depriving ONGC of its paternal shield.

The simplest option, that of appointing a Civil Servant, was resorted to by the Government. But the Cabinet Secretary, who was appointed as Chairman of ONGC, could hardly devote any meaningful time to this 'additional responsibility'.

The next incumbent, a Secretary in the Petroleum Ministry, also could not do much for the organization in the limited period he was there. A third Civil Servant officiated as Chairman of ONGC, but again for a short span, and failed to live up to the expectations of the growing organization.

Such make-shift arrangements in the top echelons of ONGC led to deep frustration among the ONGCians, a matter of serious concern for any E&P crew.

After the retirement of L P Mathur, the position of Head of Exploration - Member (Exploration) - was downgraded and a Member (Engineering) took over.

However, the momentum gained through earlier organized efforts led to the continuation of discoveries till the midsixties. Fields like Nawagam, Kalol in West and Geleky and Lakwa in the East were added to ONGC's kitty. Even the early indications of Bombay High came at this time.

Some not-so-significant discoveries in isolated locations that came ONGC's way could not be monetized due to infrastructural constraints, like lack of pipelines. Though Gujarat in the west had industries to take the Gas, the east had limited infrastructure to utilize the discovered resources. So, addition of reserves did not translate into commensurate development. In fact, for some time, rigs were free and chasing locations. The failures in the Cauvery and West Bengal basins made matters worse.

With the morale of the people at an all-time low, many left ONGC, bringing down the strength of organization for the first time. Worse still, the government,

seeing there was no major discovery for years, asked ONGC for a 25 per cent reduction in strength, comprising mainly of expert cadres built over the past decade.

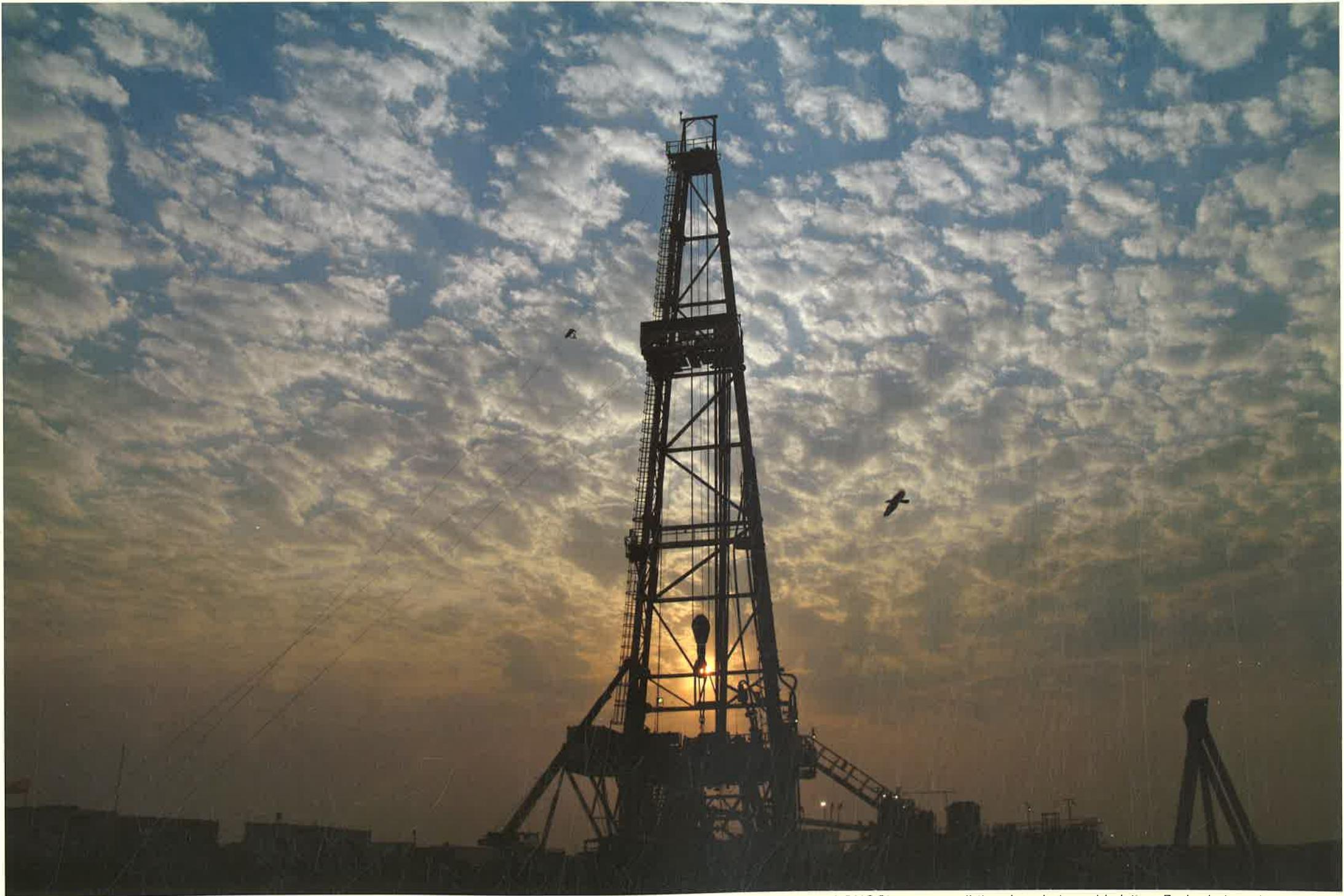
Unlike other global oil majors, ONGC did not have the luxury of an assortment of prospective basins world over. Consequently, ONGC, during such long dry spells, had nowhere to migrate to.

ONGC however, did not lose heart. The situation, instead, compelled ONGC to change its concept of exploration onland, looking for stratigraphic traps in search for oil potential.

While analyzing the stratigraphies and negotiating the structural subtleties, ONGC also eyed the unexplored offshore areas in the Gulf of Cambay.

This change of concept paid off. On land, a series of stratigraphic accumulations were discovered. But more importantly, just a decade after its formation, ONGC laid the foundations of the Indian offshore E&P industry – which came about another decade later.





Make-shift arrangements in top echelons and delay in monetization due to infrastructural constraints brought down morale of ONGCians to an all-time low during mid-sixties. Brain-drain reduced ONGC strength by 25%

Lifting Anchor

Courage and perseverance have a magical talisman, before which difficulties disappear and obstacles vanish into air.

- John Quincy Adams

The question of drilling Bombay High was discussed at Tel Bhavan. The house was vertically divided on the issue. Finally, B S Negi suggested they take a vote. Departing from tradition, he proposed that all technical people vote, irrespective of their seniority.

The majority voted for probing the structure through drilling.

ONGC had begun offshore exploration in 1962 itself with an improvised survey ship *S S Mahindra*. Navigation in the Gulf of Cambay was difficult as the tides there are among the highest in the world.

The experiment continued during 1964-67, with the Russian ship *Akademik Arkhangelsky* making extensive preliminary seismic surveys off the west coast of India, revealing geological structures suitable for accumulation of oil and gas.

In 1970, young ONGC - yet to find firm foothold on land - gathered courage to launch a blitzkrieg in yet another and more difficult arena - offshore drilling. The first venture was taken up under Operation *Leap Frog*.

An indigenously-designed and built fixed offshore platform was installed at Aliabet in the Gulf of Cambay, at the mouth of the Narmada river. It was a laudable achievement of Indian engineers as this came within five years after the first fixed offshore platform was erected in the North Sea in 1965.

The offshore adventure began with the erection of a structure in the sea at a depth of 8 metres at high tide.

From shallow-waters - 8 metres at Aliabet to 3000 metres in deep sea - with giant strides, ONGC reached the coveted position of second operator in the world to drill at water-depths beyond 3000 metres, after Chevron Texaco.

The then Prime Minister of India Indira Gandhi inaugurated the first offshore venture in March 1970. The well could not locate any commercial hydrocarbon reserves and was



The Soviet Seismic Ship *Akademik Arkhangelsky* first located the Bombay High structure in the Arabian Sea in 1964

abandoned. However, the initial steps of a technological adventure had been taken and just before Johnson left ONGC, a proposal to buy an offshore jack-up rig was considered.

The maiden projects of oil search, on land at Jwalamukhi and offshore at Aliabet, served as classrooms for ONGC that were to pay rich dividends later.

Thanks to offshore exploration efforts, five structures were recognized in the Arabian Sea, around a hundred and sixty kilometers away from the Bombay coastline. These later became famous as Bombay High, Bassein, Panna, Heera and Tapti - all producing structures in the offshore.

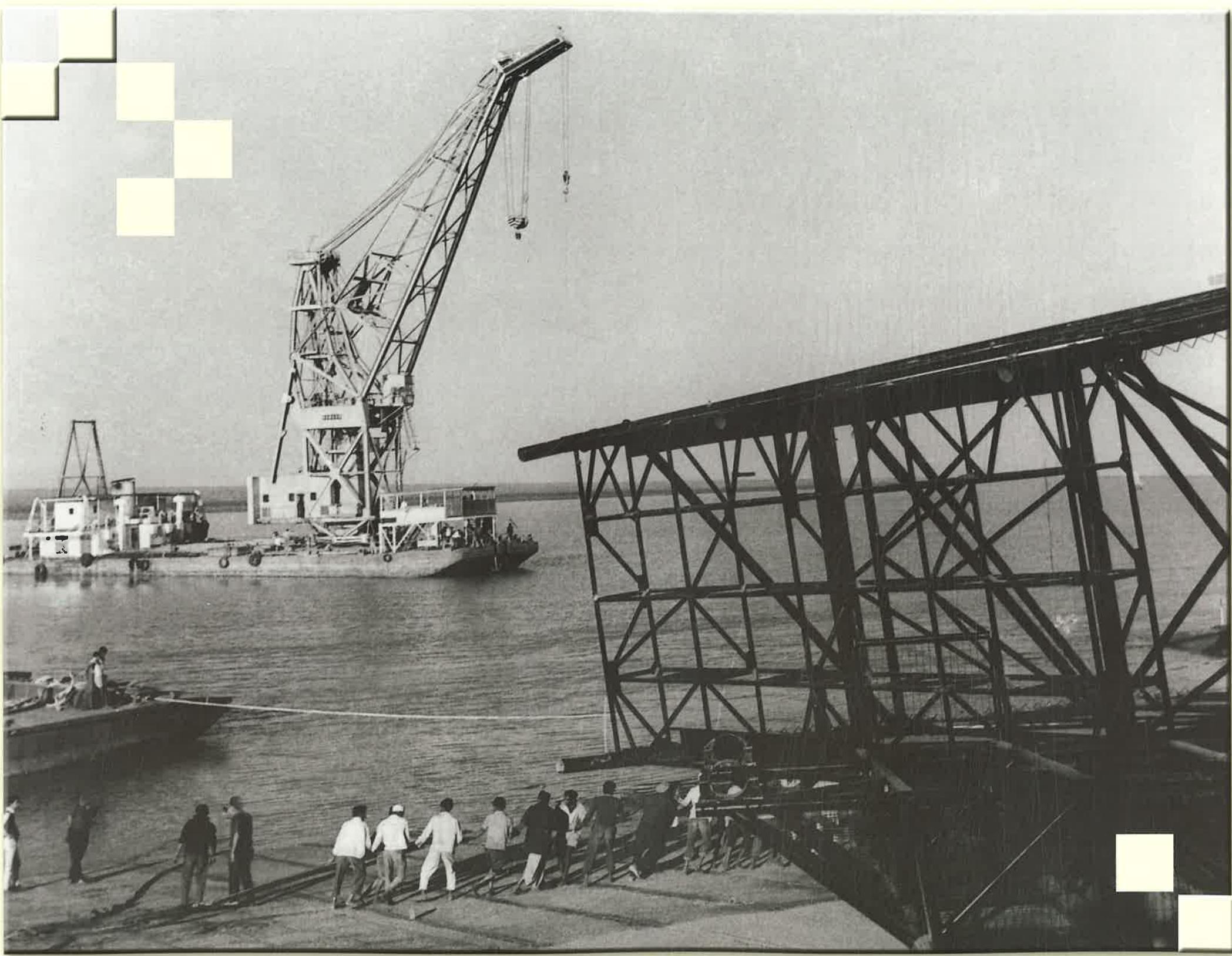
The difficult offshore conditions in



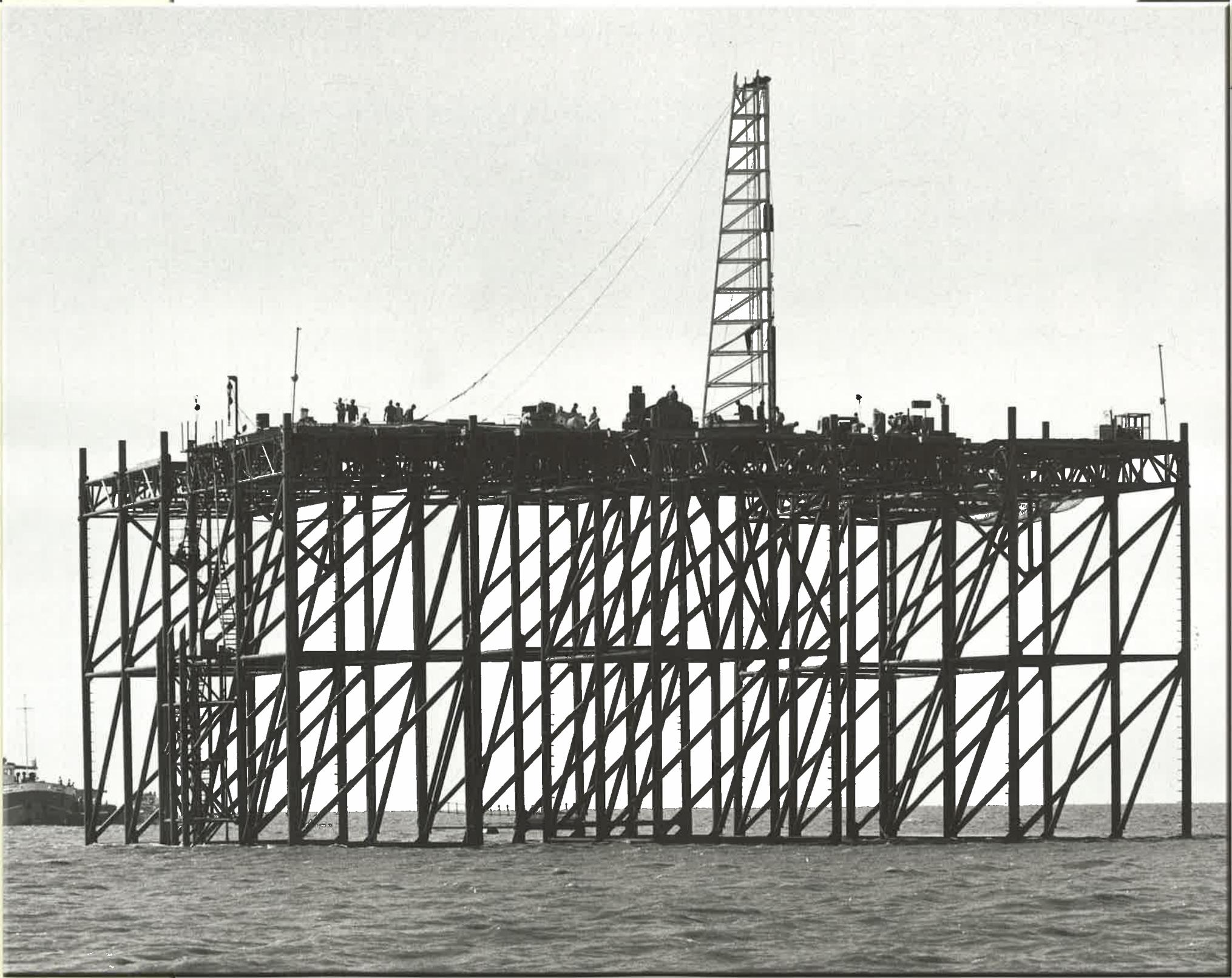
S S Mahindra - the first indigenously-built offshore seismic vessel surveying in the Gulf of Cambay in 1963. Aliabet structure was identified in this effort

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India's first offshore drilling venture. The Aliabet fixed platform under construction



The Engineering knowledge was being challenged as much as the courage and grit of young ONGC engineers



The offshore saga of India, painstakingly put together piece-by-piece - Rig-building in progress at Aliabet



Sagar Samrat - the first drilling rig of ONGC and veteran of many a battle. The rig - imported from Japan in 1974 - is still going strong after three decades

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Initially, waiting for the Weather to improve, Sagar Samrat was anchored off the Bombay coast and was visible from the Gateway of India. The imposing site of this Jack-up Rig drew large crowds to the shore.

the Arabian Sea called for meticulous selection of drilling rigs and equipment to take the plunge. After in-house debates, ONGC, under stewardship of B.S.Negi, placed an order for a self-propelled mercury class jack-up rig from Japan. Two years later, this rig – Sagar Samrat – ‘the emperor of the seas’ arrived in Indian waters, at a cost of 127 million Indian rupees.

On February 19, 1974 oil was discovered in a limestone reservoir at a depth of only 950 meters, opening up a big field – Bombay High – lighting up vistas of prosperity for the nation.

Buoyed by success, further drilling was done and resulted in the discovery of another giant limestone reservoir L-III in the same structure at 1300 meters depth on February 5, 1975. This was followed by discovery of a giant Gas field – Bassein.

With these discoveries, ONGC put India on the world hydrocarbon map. The



Structures of Steel - to secure the precious drops of energy. A jack-up drilling rig of ONGC - drilling in shallow waters

production from Bombay High scaled a peak of 20 million tonnes a year (400,000 BOPD) in 1989-90.

The crude of Bombay High is one of best available in the world, a light crude of 43.6 degree API.

Just after the major offshore find at Bombay High at the fag end of B.S. Negi's austere-yet-exploration-focused chairmanship, N.B. Prasad took over as chairman of ONGC with a clear mandate to deliver. A nuclear engineer, he brought in the commercial culture of outsourcing non-core services, focussing in-house resources only on the core activities.

Belying many foreign experts' forecast of a longer gestation, the offshore produce arrived on land by May 1976. A world record at that time, it was a remarkable accomplishment for a country in its first encounter with offshore systems. This was quoted as a

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The marine fleet of ONGC is the second-biggest in the country. The picture shows an indigenous Offshore Supply Vessel (OSV) taking supplies to offshore installations

Action on the derrick floor. ONGCians busy on the rig, keeping the rotary table moving – to keep the wheels of the country moving





*The offshore discoveries - mainly
Bombay High - brought a new sunrise
over the fortunes of the nation*

... contd. from page 58

feat in the famous book – ‘In Search of Excellence’.

Initially, the produce was transported through oil tankers. Subsequently, in the second half of 1978, two sub-marine pipelines, a 26-inch oil pipeline and a 30 inch gas pipeline, were laid from Bombay High to meet the shore at Uran, covering a distance of 204 kilometres, another major engineering feat of independent India.

The success at offshore operations was



H S Cheema, General Manager, ONGC, Bombay Offshore Project Handing over the first oil produced from Bombay High to Krishnaswamy, Chairman of HPCL, at a ceremony on INS Poshak



Two Prime Ministers and an ONGC Chairman in one frame. The then Prime Minister Indira Gandhi is seen penning her comments in the visitors' book on an offshore installation in Bombay High, along with Rajiv Gandhi (centre), the future Prime Minister and the then Chairman of ONGC N B Prasad (right)

due to singular focus and strict project management with a rigor that was new not only to the organization, but to the nation as well. Prasad proved equal to his mandate. Choosing the right people for the right jobs, he delivered results.

Abolishing technical directorates at Dehradun, N.B. Prasad removed the

control of Headquarters and devolved the power to the operating regions.

However, this performance-oriented approach, that brought produce to land in record time, remained confined to offshore. It was only later that the excellence in offshore infected the land operations as well.

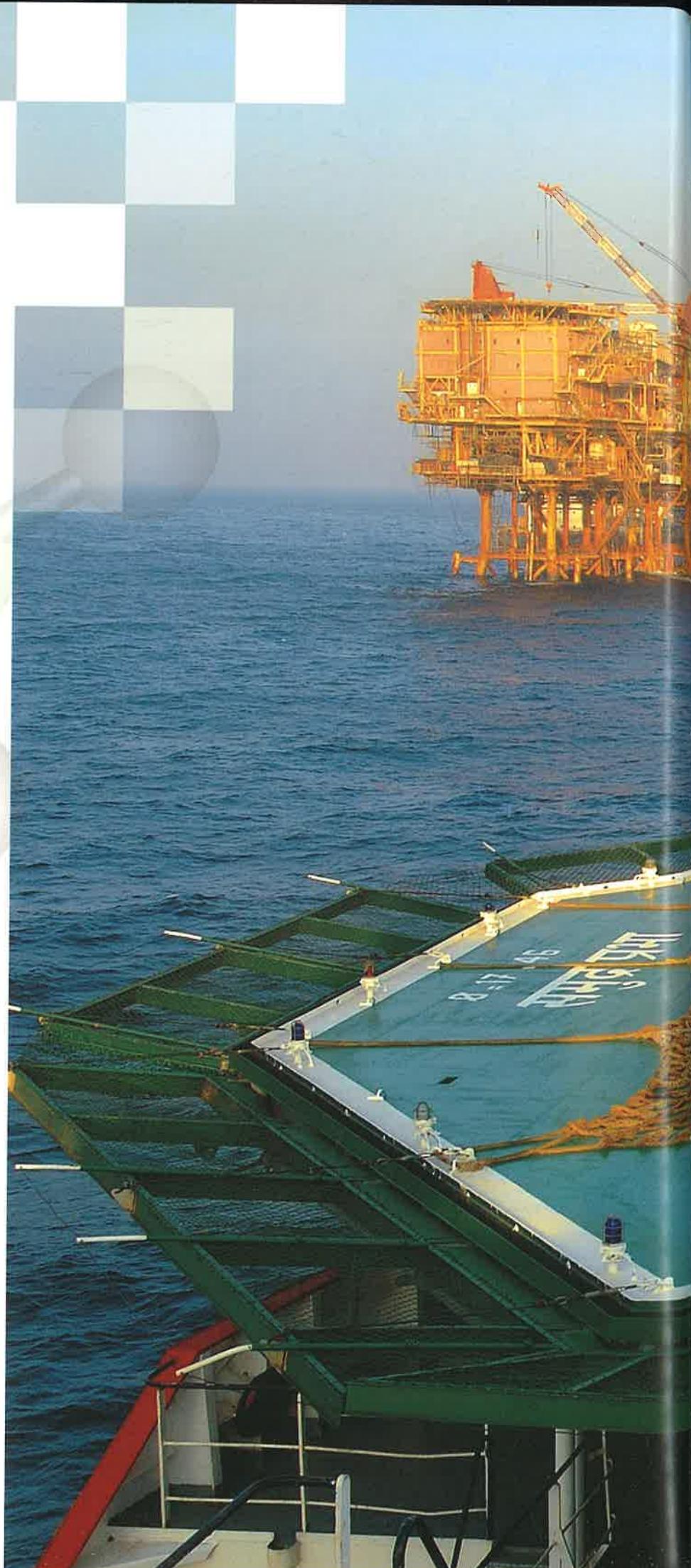
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Celebration of technology on the High Seas. The picture captures a stage in the construction of an offshore production platform



The first production system in offshore - a tanker drawing crude from a Single-Buoy-Moore



A long shot of ONGC's offshore production systems from the Helideck of Support Vessel Samudra Prabha





Brought it on land – elusive underwater and underground reserves now tangible wealth on surface storage at Uran



Every sixth LPG (cooking gas) cylinder in India is produced by ONGC. The picture shows LPG plant of ONGC at Uran in Maharashtra

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Apart from the triumph in project management, Prasad's tenure highlighted another significant milestone in the field of Human Resource Development (HRD). Realizing the importance of young people in the organization, Prasad

started inducting young science and engineering graduates from 1975. The cream thus inducted were put through a year-long multi-disciplinary training program in preparation for bigger responsibilities.

The period also saw the primacy of human competence over structural frameworks. N B Prasad did not favour the creation of posts first and then filling them up with appropriate individuals. Instead, he interviewed various candidates, quite often personally, and depending upon the competence of the identified ones, created positions for them.

During this time, Member (Personnel) T N Seshan – who went on to become Cabinet Secretary and later Chief Election Commissioner – framed the first unified Recruitment and Promotion (R&P) rules of ONGC.

Majority of functional Directors on the Board of ONGC are from these engineers – groomed during Prasad's regime. Around ninety per cent of the Key Executives are also from these recruits.



A bird's eye view of the Terminal at Uran - where the offshore treasure is processed before despatch to refineries



A jack-up drilling rig of ONGC exploring for hydrocarbons in the shallow waters of Arabian Sea



A landing station on the high seas. An unmanned offshore installation of ONGC with a larger view of a heli-deck

Braving Battles

Success in business requires training, discipline and hard work. But if you're not frightened by these things, the opportunities are just as great today as they ever were.

- David Rockefeller

The lives of many ONGCians were not much different from those of uniformed personnel, focused, with optimum application of scarce resources. Their operations in many places like Assam, Andamans and Offshore, had limited fair-weather windows.

In 1962, Chinese aggression came right up to north Tezpur in Assam, threatening operations of ONGC in the East. ONGC – a civilian organization - did not abandon ship.

It rose to the national crisis. To deprive the approaching enemy access to Oil, the 'Christmas trees' were removed and the wells plugged. The Chinese retreated after some time from the area. For ONGC, it was business as usual.

Even during the Indian wars in 1965 and 1971 with its neighbour, ONGC's operations in the western region were affected. Notwithstanding setbacks, ONGC lived up to the national cause. In fact, ONGC production in 1965 was almost double that in 1964.

External aggressions apart, the managers in ONGC had steered the organization through on several occasions of environmental turmoils, at times no less severe than battles. In fact, a few of them resulted in human casualties. The need of a Territorial Army was felt during those times and

subsequently. An ONGC Territorial Army was raised to prepare the organization adequately to face such situations.

As managers, ONGCians operated effortlessly under different dispensations, irrespective of the ... contd. on page 72



As ONGC grew, the pressures from the Union leaders also grew. Some of the Union leaders, with whom ONGC had to deal with, were quite powerful. The picture shows Promod Gogoi (left) – Union leader in Assam and Sanat Mehta – Union leader of Gujarat, signing agreements with the management of ONGC



Employees' Union and ONGC management during a Collective bargaining session – Raja Kulkarni (third from right) with Chairman P T Venugopal (left)

... contd. from page 70

political environs. Ranging from widespread social unrest in some regions to militant trade-unionism in others, ONGCians were up against varied battle-fronts for securing Oil

and Gas. Braving cross-fires every now and then was taken in the stride - as an integral part of its business.



Narayan Murthy, Raja Kulkarni and other union leaders with the then Director (Finance) I N Chatterjee (right)



Where Eagles Dare. The business of ONGC has no boundaries, reaching out even to unfriendly environs in search of energy for India





Weathering Shocks

You must have an aim, a vision, a goal. For the man sailing through life with no destination or 'port-of-call', every wind is the wrong wind.

- Tracy Brinkmann

The World oil shock of 1973 triggered chaos in the West. International price of crude quadrupled to nearly US\$ 12 a barrel in 1974. In the United States, the retail price of a gallon of gasoline rose from a national average of 38.5 cents in May 1973 to 55.1 cents in May 1974.

India did not initially figure in the list of countries exempted from the OPEC embargo. So, for the first time - just within a couple of years of the 1971 war, India realized its vulnerability in the face of such shocks.

Though international prices went up significantly for the first time, the Administered Pricing Mechanism (APM) instituted by the Government in 1976, protected the Indian consumers

from the fallout. The APM kept the indigenous prices of petroleum products in India far more stable than in other countries.

The production from Bombay High could not have arrived at a better time. The fast monetization of the field was quite contextual. The domestic production from this prolific field of ONGC helped the government sustain the APM even in the face of rising national demand. Unlike the Organization for Economic Co-operation and Development (OECD) countries, which reined in their post-Shock demand by 15 per cent, Indian prices remained more or less the same. However, a fall-out of the controlled pricing was that there was no effective restraint on Indian consumption

of the taken-for-granted resources.

By the time the Iranian Revolution brought about the second oil shock in 1979, more offshore finds were made and developed by ONGC. With the first major process platform commissioned, the produce from Bombay High itself went up from 80,000 Barrels of Oil Per Day (BOPD) in 1978 to 195,000 BOPD in 1981, making India self-sufficient in oil for some time – in the sense that the incremental domestic demand was met fully from indigenous production.

Among the developing countries, India came out relatively unscathed from the oil shocks - thanks to the vision of Nehru and Malaviya, creating ONGC a quarter century earlier.



Clouds of despair ruled the skies of ONGC in the later half of the sixties

Addressing Aspirations

Without ambition one starts nothing. Without work one finishes nothing.

- Ralph Waldo Emerson

With Bombay High significantly developed, Col. S P Wahi, a former engineer of the Indian Army, became Chairman of ONGC. A seasoned manager with a track-record of turning around public enterprises, he brought in a new model of management, which had been successful in India's contemporary manufacturing sector. Based on a SWOT analysis, a major structural re-orientation was carried out in 1984, forming self-contained functional Business Groups for Exploration, Drilling, Production and Technical Services (for Engineering Support). The changes helped ONGC move a step towards the goal of centralized policy-making and decentralized execution and ushered



Prime Minister Indira Gandhi dedicated ONGC's Institute of Petroleum Exploration (IPE) to the memory of Keshava Deva Malaviya (KDM) and named it KDMIPE





One of the early process platforms in offshore - Bombay High North (BHN) platform

in considerable delegation of decision-making power.

Believing in open communication, he brought in behavioural changes in the human resource department with special emphasis on training. harbouring a grand vision for ONGC, he brought in progressive promotional practices, enabling faster career growth.

More significant for the organization was a marked shift from a production-centric approach – in vogue in the late seventies for early monetization of

Bombay High – to a legitimate refocus on exploration. He re-created the position of Member (Exploration).

The idea of a Common Basin approach and a long-term exploration plan were introduced. This holistic and unified Exploration and Development strategy – ensuring optimum utilization of available technological resources – resulted in significant improvement in balance recoverable reserves by 1987.

ONGC took some autonomous

decisions during this period – it implemented the motivational ‘production-linked-incentive-scheme’ tactfully, overcoming some initial objections from the Bureau of Public Enterprises.

As enhanced production during that period (with Bombay High at its peak) enabled the nation to save on scarce foreign exchange by reducing oil import, the government tacitly allowed increased latitude availed by ONGC in taking its own decisions.



The offshore facility to process sour gas from South Bassein field

Engineers and scientists inducted and trained during the late seventies achieved quite a few technological innovations during that time. Significant among them were the system of sub-sea completion, horizontal drilling in the offshore to

improve productivity and 3-dimensional seismic studies – state-of-the-art technologies in vogue worldwide.

Some other practices also took roots in the era. One was indigenization. The other was the practice of awarding mega turnkey contracts to other public



ONGC's maiden encounter with offshore systems proved to be quite successful. Belying the public sector image of inefficiency, ONGC benchmarked quite a few global best practices to monetize the resources beyond the shores



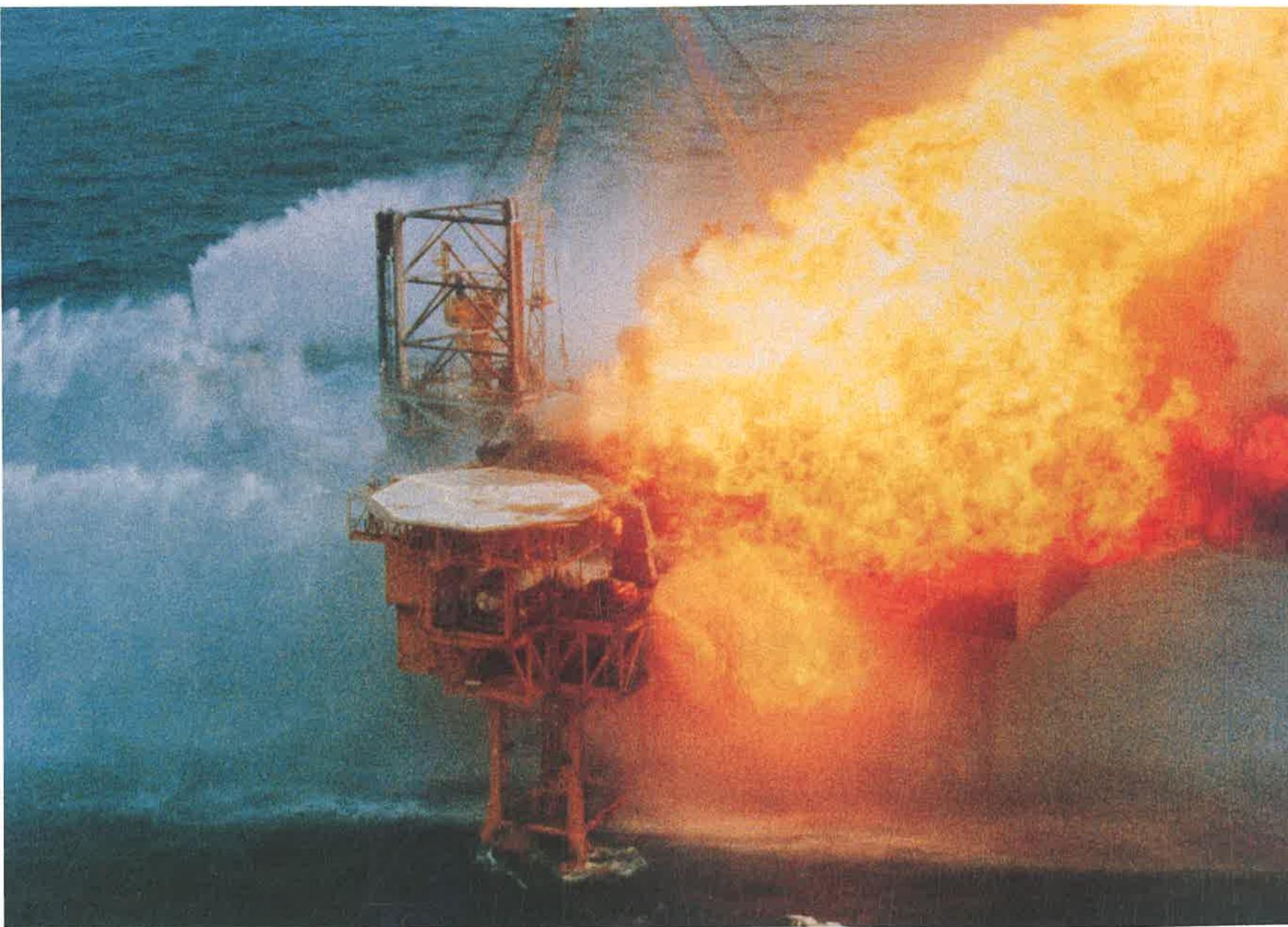
ONGC is perhaps, the only organization in the world to have all its installations - offshore and onland - accredited for Health, Safety and Environment Management. The picture captures a glimpse of a mock fire-fighting exercise offshore, undertaken to improve emergency-preparedness

enterprises – Mazagaon Docks Limited (MDL), Cochin Shipyards Limited (CSL), Bharat Heavy Electricals Limited (BHEL) and others.

For the first time in the organization, the distance between ranks and Board members was bridged. In-house talents were recognized and elevated to Board level.

One notable feature was the production enhancement from Bombay High. Due to a variety of factors—including aftermath of the second oil

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The blow-out at Offshore rig Sagar Vikas. ONGC not only capped this blow-out, but created a communication-in-crisis case history which has found its way to academic studies as well



Spraying away crisis – the control of offshore blow-out at Sagar Vikas was a landmark event in ONGC; a technology-cum-communications victory

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shock and Indira Gandhi coming back to power with a huge majority – there was a strong national urge to go all out on its crude production from this prolific offshore field.

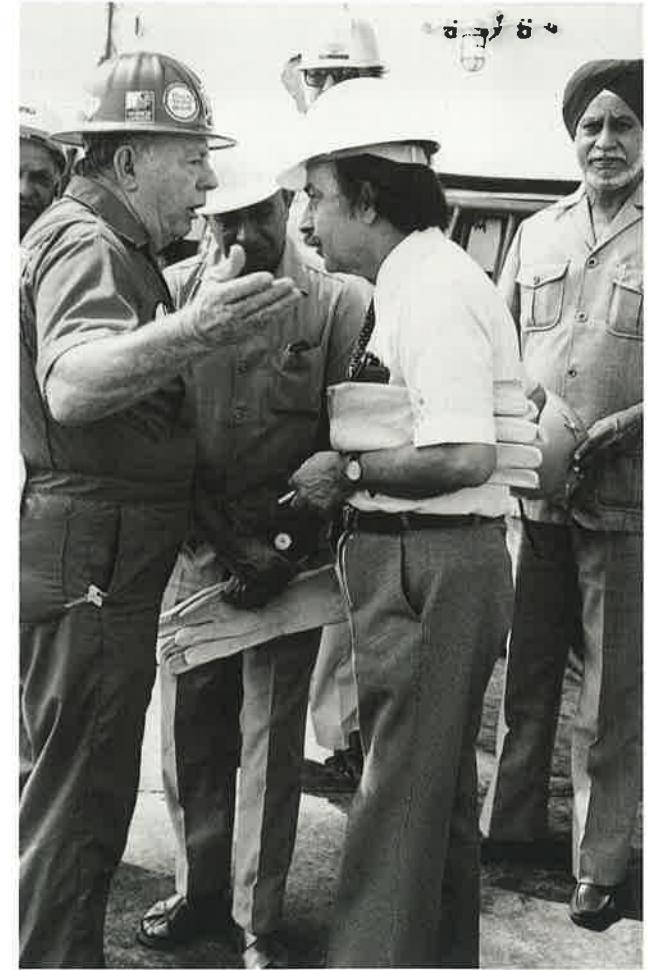
Against this backdrop, ONGC sustained its production advancement - national health was placed higher on the agenda than reservoir health; in any case, the latter was addressed competently and adequately with

technological interventions while redeveloping the field later.

A landmark initiative of the era was the thrust on Corporate Communications, possibly one of the foremost attempts by a government undertaking to keep the media regularly informed. Col. Wahi brought in a talismanic touch in the Public Relations departments, rechristening it as Corporate Communications. Such communication practices helped ONGC translate a possible criticism during the blow-out in the offshore drilling-rig Sagar Vikas into a Communications victory. Instead of the blow-out coming into focus, ONGC was praised all over the media for its speedy control of the well: *The quiet confidence of India's oil-men in handling the crisis*. That remains a case study in Corporate Communications. A more significant victory, perhaps, was the confidence that grew in the cadres of ONGC after this incident.

Along with some other small onland fields, Gandhar in western India discovered in the mid-eighties,

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Sagar Vikas Blowout, Bombay, Sept. 1982. Red Adair, the American Blowout Expert (left), in discussion with Col. Wahi, ONGC Chairman (second from right), Lovraj Kumar, Secretary Petroleum (centre). H S Cheema (extreme right), Group General Manager (Offshore) looks on



Job finished successfully - a group photograph of the leaders who participated day in and day out in the control of the first major offshore blowout at Bombay on rig Sagar Vikas in Sept. 1982. Seen in the picture: Dr. A K Malhotra, Member (Offshore) [extreme left], Col. S P Wahi, Red Adair, Lovraj Kumar (3rd, 4th & 5th from left respectively), H S Cheema (2nd from right)





... contd. from page 80

developed into a good producer. It was one of the biggest onland fields of the world at that time.

As a result of these discoveries and introduction of 'Early Production System', onland crude production rose from 5 million metric tonnes (MMT) in 1980 to more than 8.5 MMT in 1989. Gas production also improved during this period.

Significant discoveries were made offshore as well – both off the east and west coasts. An exceptional approach adopted by ONGC in offshore was trial production in substantial quantities from the offshore discoveries at Neelam and Mukta – a feature unheard of in the world oil industry at that time. Trial production from Ravva was also conceived during this time.

Due to augmented production, both onland and offshore, gross revenue of ONGC rose from 4.37 billion rupees in 1980 to almost 7 billion rupees in 1989, making ONGC financially independent. This was despite ONGC getting Administered Price - less than half the price of international crude. International prices were ruling around US \$ 20 a barrel, till the Gulf War erupted in 1990, after which prices shot up.

Enhancing production from offshore gave ONGC confidence to Think Big. A number of scientists and engineers were inducted in the eighties, in preparation for its future business

Rice Bowls and Green Hills

Your chances of success in any undertaking can always be measured by your belief in yourself

- Robert Collier



Rice Above, Oil Below – Exploring the Rice Bowl - a drilling rig in search of hydrocarbons in Cauvery Basin at Karaikal in south India

After initial focus on Himalayan foot-hills, surveys were conducted in coastal belts of south India and in the hills of North-East as well as the Andamans.

Of these, the exploration history of peninsular India's Cauvery Basin referred to as the Rice Bowl of India, offers important lessons, not only to ONGC but to the science of oil exploration itself. It taught the oil industry that Passion, Patience and Perseverance - the three 'P's - provide the alchemy for success in oil exploration.

The story in other Rice Bowl - the West Godavari district in Andhra Pradesh – was quite different. It provided early success at Narsapur and Razole. There were a series of Gas discoveries in Godavari onland at a number of places like Tatipaka, Pasarlapudi and a minor oil find at Lingala on the fringe of Krishna basin, followed by the offshore discovery at Ravva (diamond in the local language, Telugu).



Opening a new chapter - the skid-mounted mini-refinery at Tatipaka in Andhra Pradesh, which was set up by ONGC to refine its condensate produced there, in the absence of other refineries in the neighbourhood

Cauvery Basin, however, posed a different challenge. ONGC started exploration in the Cauvery delta in 1958. Success eluded ONGC in the first exploratory well in Cauvery Basin drilled in August 1964, though oil indications were noticed.

Over the next 12 years, ONGC drilled 16 more exploratory wells on 12

different prospects but unfortunately, commercial discoveries could not be made.

The 18th well, drilled very near to the first well, gave a self-flow of oil, confirming the adage, *oil is where you find it!*

However, delineating the oil accumulations was difficult. It was

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On top of the world after a hard grind!! ONGCians returning to camp after a satisfying day's work in the North-East



A Sucker Rod Pump – a common sight in ONGC's oil-fields. ONGC has, cumulatively, produced over 780 Million Metric Tonnes (MMT) of crude and 450 Billion Cubic Metres (BCM) of Natural Gas, from 115 fields. ONGC has drawn up a strategic plan to improve recovery rate from 28 per cent to 40 per cent by 2020, by aggressively investing in technologies to redevelop 15 of these fields, which yield 80 per cent of its production

... contd. from page 84

decided that the features needed detailed understanding prior to a commercial venture.

ONGC wanted to fathom the geological features of the region which were different from those encountered elsewhere.

In the meantime, as the sedimentary basin extended to the adjoining offshore in the Bay of Bengal and Indian Ocean, ONGC ventured offshore, acquired data and identified structures for exploratory drilling. The first offshore well drilled in 1978 was off the mark.

Undeterred, ONGC went on and within two years, a small gas field PH-1 was found off the coast of Pondicherry in 1980. While ONGC made these discoveries, unfortunately, these fields are no longer with it.

The very next year, another small oil find was made in the Palk Bay area. ONGC had to wait for 7 more years for the next oil discovery, it was a significant one.

By this time, a better geological model of the basin was arrived at, and in August 1984, drilling was resumed onland. Even after drilling for 129 days, there was no indication of a commercial find.

Perseverance paid off. At last, an oil zone was reached in Narimanam on February 11, 1985 establishing the first onland commercial oil and gas field in the Cauvery Basin. Well before the excitement faded, a second discovery was made, just a couple of kilometres south of the first well drilled in 1964, more than two decades earlier. It was the

beginning. Successes then poured in.

Another interesting saga unfolded in the plains and serene blue hills of North-

Subsequently, in the sixties and early seventies, ONGC geologists mapped these areas in detail. Such efforts



Another jewel (Ravva - which means 'Diamond' in local language Telugu) discovered by ONGC in Krishna-Godavari Basin. The picture shows an offshore drilling rig at the discovery well Ravva-2. The producing field later went out of ONGC fold

East India. Ventures by Assam Oil Company (AOC) in Nagaland were discouraging. After initial success at Badarpur, AOC's further exploration in the Cachar area drew a blank. ONGC drilled its first well in Nagaland in 1969-71, and struck significant reserves in sequences older than the established target - even the fractured basement (granite) produced prolific amount of oil.

The Tripura area was initially geologically mapped by GSI and Gas shows were reported at different places.

resulted in gas discoveries in Baramura and other structures in Tripura. ONGC now plans to monetize these Gas reserves by venturing into the power sector (downstream Gas Chain) as industrial off-take is limited in this part of the country.

Similarly, continued efforts in Cachar led to three gas finds.

Explorations in the Rice Bowls and Blue Hills simply reinforced the adage – *No one has heard the last word on a basin.*



Oil was struck in commercial quantities in the Cauvery Basin after years of painstaking perseverance. The picture shows the Crude from Cauvery Project being unloaded from rail wagons



A drilling rig of ONGC - India's Greenest Company - in the deep jungles of North-East India



Corporate Citizenship

You make a living by what you get, but you make a life by what you give

- *Anonymous*

ONGC placed Environment Management high on its agenda. An Institute of Biotechnology and Geotectonics (INBIGS) came up in Assam. In Mehsana (Gujarat), vegetables were grown by ONGC in its effluent water to demonstrate to the community the environment-friendly nature of its operations.

The vision behind the genesis of ONGC continues to inspire its endeavors in uplifting the socio-economic status of the nation. ONGC, throughout these fifty years, has lived the vision through a holistic approach.

The business of ONGC itself has a direct impact on the socio-economic status of a billion Indians. ONGC is alive to aspirations of these citizens for a better quality of life, with energy consumption at a globally accepted benchmark.

But business apart, ONGC touches the lives of people with its pro-active efforts in other social spheres as well.

ONGC believes Corporate Social Responsibility (CSR) is not charity. For ONGC, Corporate Social Equity comprises of:

- Health, Safety and Environment
- Corporate Governance

- Building self-sustaining support systems for the community around

HEALTH: In addition to making community health accessible to all, ONGC is intent on enhancing the health of people around.

Health care comes as a priority for ONGC while disbursing its funds under its Socio-Economic Development Programs (SEDP).

One major goal of ONGC's health care is to ensure that no person living within 25-30 kilometres of all its installations suffers curable blindness. In fact, some of the Drill Site Accommodations (DSAs) have been converted into makeshift eye camps.

To support ophthalmic research in eradication of curable blindness at institutional level, ONGC donated a corpus fund of twenty million Indian rupees to institute the department of

Genetics and Molecular Biology in Sankara Nethralaya, a premier institute for research in Ocular Sciences, Therapy and Surgery at Chennai.

ONGC has strengthened local medical centres and provided equipment



Eminent personalities have lauded ONGC's sensitivity towards its role in the community, beyond mere oil and gas business. Noble Laureate Mother Teresa during her visit to ONGC

and ambulances to help them serve the community better. It sponsored a cancer research center in eastern India. A number of special campaigns like HIV awareness are held at ONGC's work centres to educate and sensitize the public for a better and healthier society.

SAFETY: ONGC takes all possible measures to secure the safety of its employees and the community around.

ONGC's in-house Institute of Petroleum Safety, Health and Environment Management (IPSHEM) not only looks after ONGC's interests but also helps others. Recently, it presented a plan for Oil Spill Management for the Gujarat State Petroleum Corporation (GSPC). The expertise of this Institute is also being utilized by foreign companies.

ONGC has one of the best medi-care schemes in the country. The picture shows a patient undergoing surgical intervention in an ONGC Hospital





ONGC has undertaken a CSR project to help people in draught-prone areas. 'ONGC Project Saraswati' is leveraging ONGC's geoscientific expertise to find deep underground water resources not explored by any agency. A well drilled to 550 metres depth near Jaisalmer test-flowed 76,000 litres/hour of relatively less saline water



ONGC has always been very sensitive to the environment. The picture shows water from ONGC's installation at Lakwa in Assam being treated at an Effluent Treatment Plant (ETP)

ENVIRONMENT: Well aware that there is only one Blue Planet, ONGC has a strong Green agenda, the main thrust being Bio-remediation of oil-contaminated sites – for preserving soils – as per the Montreal Protocol.

ONGC's Institute of Drilling Technology (IDT) has developed a green drilling fluid.

ONGC is the first company to achieve zero-gas-flaring in offshore.

An eco-friendly technology developed in Netherlands for

de-sludging crude oil storage tanks has been adopted.

ONGC is 'India's Greenest Company', as per Business Today-AC Nielson ORG Marg Survey, 2004.

Clean Coal Technology

To reach the global average of 1.68 Tonnes of Oil Equivalent (TOE) per capita energy consumption per year, India has to achieve a five-fold increase from its current level of 0.32 TOE (with every point increase representing a billion tonne increase in absolute terms).

This leaves ONGC with no choice but to exploit the country's coal reserves with accelerated investments in frontier Clean Coal Technologies like Underground Coal Gasification (UCG).

Accessing the enormous untapped coal reserves, which are not normally mineable as they may lie at depths of a kilometre or more, is high on the priority agenda of ONGC, like the deepwater exploration for Oil and Gas. UCG inherently addresses the issues of environment pollution and site restoration.

Building self-sustaining support systems for the community

ONGC believes in honest Corporate Social Responsibility, i.e. Corporate support should act as the nucleus and beneficiaries should themselves build



Inclusive development. ONGC believes in involving every stakeholder in its business. ONGCians talking with villagers in the neighbourhood of its oil and Gas installations

facilities with the seed money, develop them and own them.

Inspired by the vision of Dr. A P J Abdul Kalam to Provide Urban amenities in Rural Areas (PURA), ONGC has taken the lead in providing four connectivities: Physical, Electronic, Knowledge and Economic, in remote rural areas adopted by it. ONGC will be creating an ONGC PURA in each state

where it operates. A PURA already operates in Tripura (north-eastern India) where Gas wells, idling for want of market, are being used to provide power to the neighbouring community at a fraction of the regular tariff – power which can be used for irrigation and lighting.

Apart from PURA, many other self-sustaining systems have been supported by ONGC.

In places in and around its operational centres, ONGC has promoted self-help groups by identifying NGOs. ONGC funds the basic infrastructure and the running credit is obtained by the beneficiary from banks.

For underprivileged sections of the society like spastics, ONGC buys the livelihood factor and donates it to the beneficiaries, who generate the running income for their own maintenance.

Disaster Relief

When the devastating Tsunami paralyzed coastal south India in December 2004, ONGC stopped its rig movements and diverted its cranes and trailers to clear debris from roads to enable relief materials to reach the region. ONGC donated substantial amounts to the Relief Funds of the Prime Minister and Chief Ministers of the Tsunami-affected states.

A similar relief effort was piloted by ONGC during the 'Super Cyclone' that hit the Orissa coast. ONGC assigned one of its senior executives Dr. A K Balyan to supervise the relief operations, which were acclaimed as one of the best. The assistance provided after the 'Uttar Kashi', 'Latur' and 'Bhuj' earthquakes are yet other examples of ONGC's concern for the disaster-afflicted people.



To take Indian Football global, ONGC has title-sponsored the 9th National Football League (NFL), contributing 70 million rupees. It also sponsored the 10th NFL



Like ONGC, let Indian sports scale global heights: ONGC has consistently promoted all kinds of sports in this country. The photograph captures Hon'ble Prime Minister Dr. Manmohan Singh, with ONGC former C&MD Subir Raha on his left, kick-starting the 9th National Football League, sponsored by ONGC

On a different Turf

Realizing that all work and no play is not conducive to good health, ONGC plays a proactive role in promoting sports in the country. It has patronized Sports from the very beginning. Two ONGCians – its drilling engineer Asim Mukherjee and security officer Ram Bahadur Chhetri – represented the country in Olympics football.

Currently, it has around 150 active sports-persons on its rolls (spread over 15 sports disciplines), out of which 89 are internationals, regularly representing the country in Cricket, Chess, Table tennis, Athletics, Volleyball, Hockey, Lawn Tennis, Football, Basketball, Kabaddi, Billiards and Snooker. Some sport-stars of India who are also proud ONGCians are: Virender Sehwag, Gautam Gambhir (Cricket), Jaspal Rana (Shooting), Koneru Humpy and K Sasikiran (Chess), B S Barua (Athletics), Sandeep Dhillon (Badminton), Pankaj Advani and Alok Kumar (Billiards).

ONGC's contribution to sports has been recognized by various institutions. The latest recognition is the 'Best Corporate Initiative in Sports' Award, instituted by the Federation of Indian Chambers of Commerce and Industry (FICCI), presented to ONGC by the Hon'ble Finance Minister Mr. P Chidambaram.

Sports helped ONGC secure overseas Oil and Gas as well. Football has helped forge strong ties with African nation Sudan in recent times, facilitating business.



Catching them young! Several sportstars have been nurtured by ONGC. Pankaj Advani, amateur billiards and snooker world champion in action

*ONGC mining Gold for India in Doha
Asiad (2006): ONGCians Jaspal
Rana (Top right) in Shooting,
Koneru Humpy (Top) in Chess and
K Sasikiran (Bottom) in Chess*



Never a dull boy, ONGC has proactively promoted sports in this country. The photograph captures action during the 9th National Football League, sponsored by ONGC

*ONGCians have brought
innumerable laurels to India
in the field of sports. Visakha
Vijay cornered 3 Golds in
table tennis at the SAF Games
in 2004*





ONGC has around hundred international sportspersons on its rolls. A number of stars - like Indian batting icon Virender Sehwag - were caught early in their lives and groomed





As Nehru dreamt, the scientific and technical installations of ONGC have been the Temples of Modern India. Many Indian Presidents visited these institutes.
Anti clockwise from top left:
1. V V Giri
2. Fakr-ud-din Ali Ahmad
3. Giani Zail Singh
4. Neelam Sanjiva Reddy and
5. S. Venkataraman



Col. S P Wahi's era marked the beginning of a transparent image of ONGC, willing to share information with the public at large. Col. Wahi putting across a point to President S Venkataraman at an ONGC installation

Corporate Governance

ONGC is not content in merely ensuring compliance with the listing agreement. Its involvement in corporate governance goes much further, incorporating a value system and ethics in the way business is managed. ONGC believes in the societal model of corporation – business has to add value to and create wealth for all its stakeholders – including the community, business partners and people at large.

ONGC was India's 'Biggest Wealth Creator' during 1999-2004: Motilal Oswal Securities & Trading (MOST) Awards 2005 – a transparent



Prime Minister Deve Gowda with former CMD B C Bora at ONGC, Dehradun



The ladies in the ONGC family played a proactive role in making ONGC a model organization. Shobhana Wahi, wife of Col. S P Wahi, was instrumental in setting up polytechnics for women at various ONGC work-centres. The pictures show Mrs. Wahi with TN Seshan - then Member (Personnel) of ONGC (top), and with Member of Parliament P Chidambaram (bottom)

and market-determined assessment. ONGC has created more wealth than any other Indian company - wealth of a trillion rupees for its owners, a billion citizens of India. This is over and above royalty, taxes and duties in excess of a trillion rupees paid to government.

ONGC allocates 0.75 percent of its Net Profit (a substantial amount) for its Socio-Economic Development Programs (SEDP), spending most of it (around 40 to 50 per cent) on education projects like computerization.

ONGC is a member of the Global Compact Society of India. Global Compact is an international initiative to bring companies together with UN agencies, Labor and Civil Society to support principles relating to Human Rights, Labor, Environment and Anti-Corruption-enshrined in the UN Charter.

This voluntary approach to Corporate Citizenship is expected to make a substantive contribution to the lives of people around.



T N Seshan, as Member (Personnel) of ONGC, addressing the aspirations of a growing organization, framed a comprehensive Recruitment and Promotion Policy for ONGC. The picture shows Seshan (left) with the then Chairman P T Venugopal



Sobhana Wahi, Patron, ONGC Ladies Club with Margaret Alva, M.P. visiting ONGC Vocational Centre, Dehradun

Price of Progress

*To avoid criticism, do nothing,
say nothing, be nothing.*

- Elbert Hubbard

Possibly on account of the unorganized way it had to commence business in the late fifties, no home-grown transactional practices had evolved in ONGC. Contracting practices and rules of different organizations were imported on various occasions, a majority of which could not get internalized.

Characteristic of its Exploration and Production (E&P) business, crisis management had become an integral part of ONGC's working culture. Many a times, it was felt that either one could follow rules, or get oil. ONGC chose the

latter. In a way, the approach was not entirely dysfunctional, since crisis-preparedness is a necessary strength in E&P business.

However, at times, the consequent lack of systemic integrity did claim its pound of flesh..

Post Bombay High, a culture of contracting took root in ONGC. The financial figures associated with such E&P contracts were substantial, luring stakeholders in those contracts to go to any length to get a piece of the cake in the emerging business opportunities. In a bid to secure high-

stake contractual advantages, those – who lost out – cried foul every time decisions concerning award and administration of contracts were, per force, made by interpreting those inherently flexible rules of ONGC. These isolated instances, to some extent, stained the otherwise clean image of ONGC.

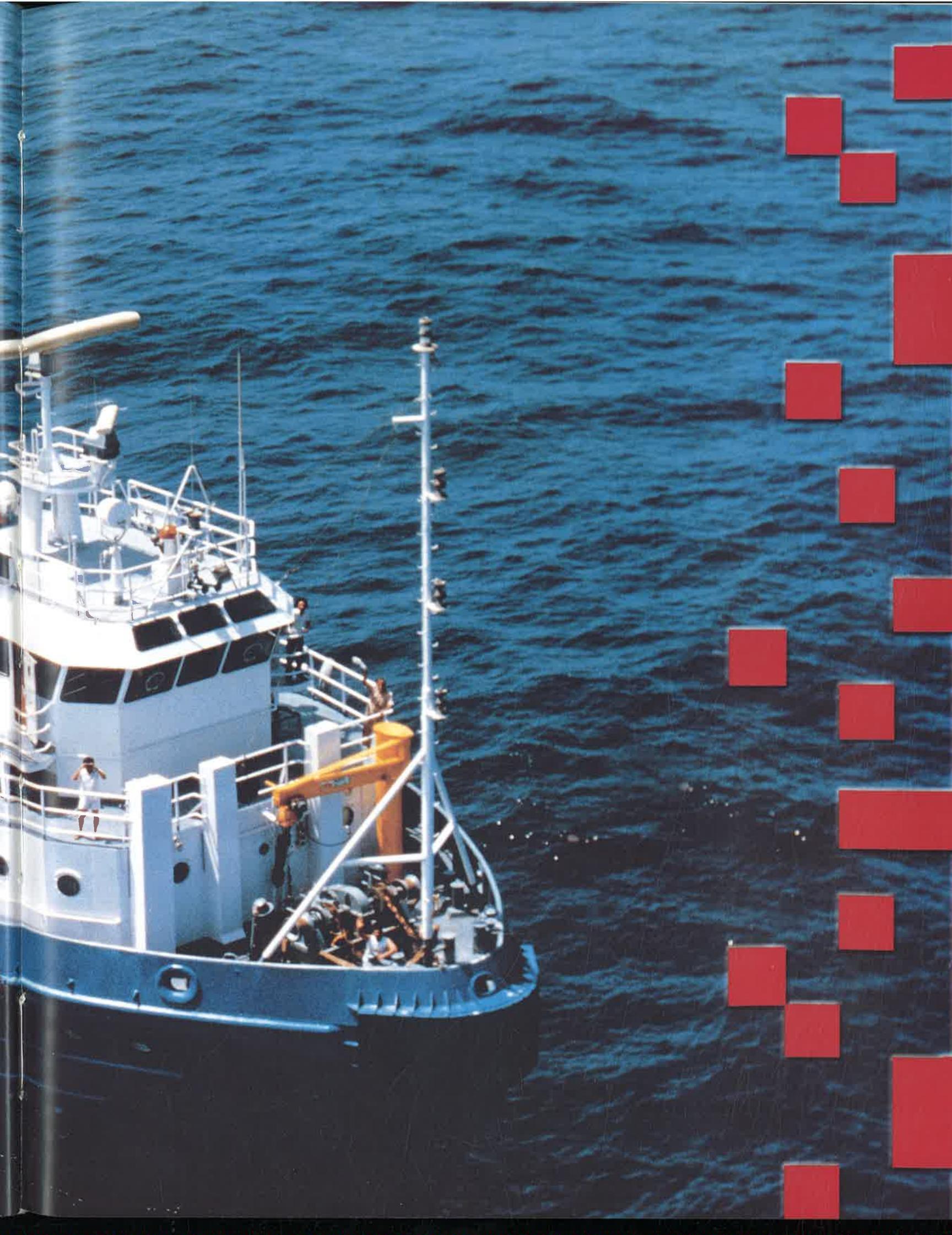
Getting work done was religion to ONGC – not succumbing to procedural dictates and delays which would have held up progress in the crucial stages of its evolution. But the price of progress had to be paid.





After discovery of Bombay High, activities of ONGC increased many-fold, requiring extensive outsourcing to manage business risk





A hired offshore supply vessel. Though ONGC owns a huge fleet of Offshore Supply Vessels (OSVs) and Multipurpose Support Vessels (MSVs), many vessels are hired as well to manage tidal loads

Shrinking Horizons

Success is not final, failure is not fatal: it is the courage to continue that counts

- Winston Churchill

The second half of the eighties could as well have been termed the golden era of ONGC but for a few unfortunate trends that were to have far-reaching consequences in the nineties.

ONGC had little control over the state of affairs though. Ironically enough, it was its good work over the years in establishing the Indian petroleum industry that led business houses to get tempted by the enormity of value in it.

By late eighties, the work of ONGC over the decades made the hydrocarbon prospects of India so visible globally that private players started feeling the excitement in the petroleum business of the country.



A large part of the nineties were dark days for ONGC. Some of its assets slipped away through its fingers, and production from its fields declined, bringing down the morale of the ONGCians who had built these national assets from scratch - at tremendous individual risks and costs



The Indian Government, on its part, wanted to speed up the exploration in the numerous sedimentary basins of the country, requiring massive investments. With limited Foreign Exchange, government had little choice.

International financial institutions, in their advisory capacity, opined that opening up the Indian petroleum sector would bring in the much-required investments to bridge the increasing gap between indigenous demand and supply.

Though ONGC was transformed from a Commission to a Corporation in 1994 and subsequently accorded greater financial autonomy as a Navaratna (one of nine precious jewels) status, the decade saw ONGC going through one of its most difficult times.

After years of pioneering efforts at great risks and costs by ONGC in basic

data acquisition, processing and interpretation of the Indian basins, the prospective acreages in proved-basins were opened up for bidding.

Private enterprises tied up with multinationals and without having to wage any long-drawn battle to undertake basic exploration in the country (the



S K Manglik – the first Chairman and Managing Director (CMD) of Oil and Natural Gas Corporation Ltd. (ONGC)



Engineering marvel on the High Seas - a Process Platform on Mumbai High

way ONGC did), jumped onto the oil appercart.

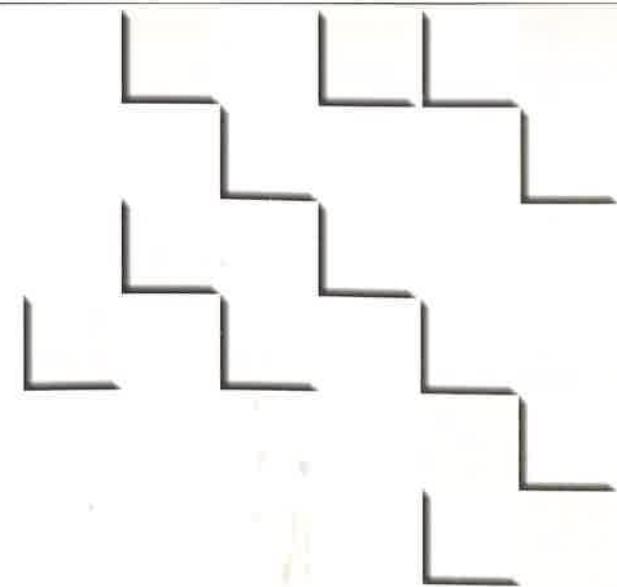
These companies not only secured the data collected through the sweat and toil of ONGC for a song but also got many of the superannuated experts of ONGC to assist them in the business. Thus ONGC became a source of experienced personnel for these companies, and continued to play a role in development of Indian oil industry.

ONGC was no longer the sole proprietor of the wealth, intellectual and

... contd. on page 107



ONGC is probably the only company in the world to engage highly qualified geophysicists in data acquisition. This provides for on the site innovation and high quality acquisition through evaluation of data in the field. Today all geophysical field parties of ONGC are equipped with field data processing systems for on the spot QC – Experts planning the data acquisition strategy in a field camp of ONGC



... contd. from page 105

material, created by it through years of painstaking efforts.

Some prospective blocks, especially those in the offshore Krishna-Godavari Basin, went away from ONGC into the hands of new private entrants.

Thanks to the years of groundwork put in by ONGC on basic exploration, which was available on a platter to the new players, zeroing in on the exact locations was easy and discoveries were made quickly. The new entrants stood on the shoulders of a giant and could see far.

More discoveries were made subsequently by other organizations. However, the credit of discovering six out of the seven producing basins of India today remains with ONGC, the seventh one was discovered much prior to the birth of ONGC by a company which eventually became another national oil company – Oil India Limited. No basin has yet been opened up by any of the late entrants.

In the business of exploration, getting stuck in a model proves disadvantageous at times. The new entrants ventured into the fields with new approaches – and succeeded.

ONGC has once been the beneficiary of this reality. As pointed out earlier, it had discovered oilfields in Nagaland in the North-East India – after Assam Oil Company had explored earlier and failed. This is a universal truth in exploration business – in the North Sea also, small operators succeeded after the giants walked off.

In Gas business as well, the downstream opportunities – devoid of the upstream risk – viz. Processing, Transporting and Marketing of gas were gradually taken out of ONGC in 1992 and given to Gas Authority of India Limited (GAIL) – formed in August 1984. ONGC was involved in the Hazira-Bijapur-Jagdishpur (HBJ) trunk pipeline, which also was handed over to GAIL. The



ONGC had the downstream Gas business with it - supplying Gas to domestic consumers. Subsequently this business was transferred to the newly formed Gas Authority of India Limited (GAIL)

value-added segment went out of ONGC, leaving it with the risk-laden sector.

Worse still, the fields discovered by ONGC, along with the development strategies formulated by ONGC, went to the private sector, presumably on the advice of international financial institutions to the Indian Government to hand over cost and technology-intensive fields to private operators.

... contd. on page 110



ONGCians, through sheer hard work, discovered 6 of the 7 Petroleum Basins currently producing. Some of the fruits of this labour went to new entrants who came much later into the business



A number of players joined the Indian petroleum industry towards the end of the last millennium but no new basin has been opened up so far



ONGC is trying to get value from the huge reserves of coal in this country. The photograph shows ONGC's former CMD Subir Raha visiting the Coal Bed Methane (CBM) Project at Jharia in North India

... contd. from page 107

The Ravva field in Krishna-Godavari Basin went to a consortium in 1994, after all the studies and major investments for the field were made by ONGC. The Mukta field - where ONGC had installed a platform and started production - reached Enron. The field is producing only from that very platform even today. Similar fate befell a number of fields discovered with

significant investments by ONGC – like South Tapti.

All these resulted in a loss of morale in the ranks of ONGC. A significant part of their lives were spent in creating this wealth for the owners of ONGC, the billion citizens of India. The crude production from its maturing fields, which was at 32 million metric tonnes (MMT) in 1990, declined drastically to 27 MMT the very next year – a cause for serious concern for the organization faced with trials on property front.

To make matters worse, efforts were even made to take away ONGC's main producing asset Bombay High in the late nineties when the field was entering its matured phase. Here, the plea was that ONGC, a public enterprise, was unable to adopt the appropriate technology to exploit the full potential of this giant field. The argument was surprising - only a few years ago international institutes had lauded the production management of Bombay High by ONGC.

The good work of ONGC done to develop its fields came under motivated criticism in select circles. It was a different matter that the foreign oil companies working in India (after the initial bidding rounds) neither brought in any new technology, nor could make any find. In fact, ONGC struck oil in the



Another view of CBM project of ONGC

same area (in the Krishna-Godavari Basin) where Amoco explored and failed to make any strike.

The efforts to privatize Bombay High were well orchestrated and it reached the office of the Indian Prime Minister. But a strong move from within ONGC led by the then Chairman & Managing Director Bikash Chandra Bora opposed the efforts and it was proven at the highest level that ONGC has the capability to induct the



best-available technology for the field. This is also borne out by the fact that foreign operators could not commit anything more than what was planned and done by ONGC.

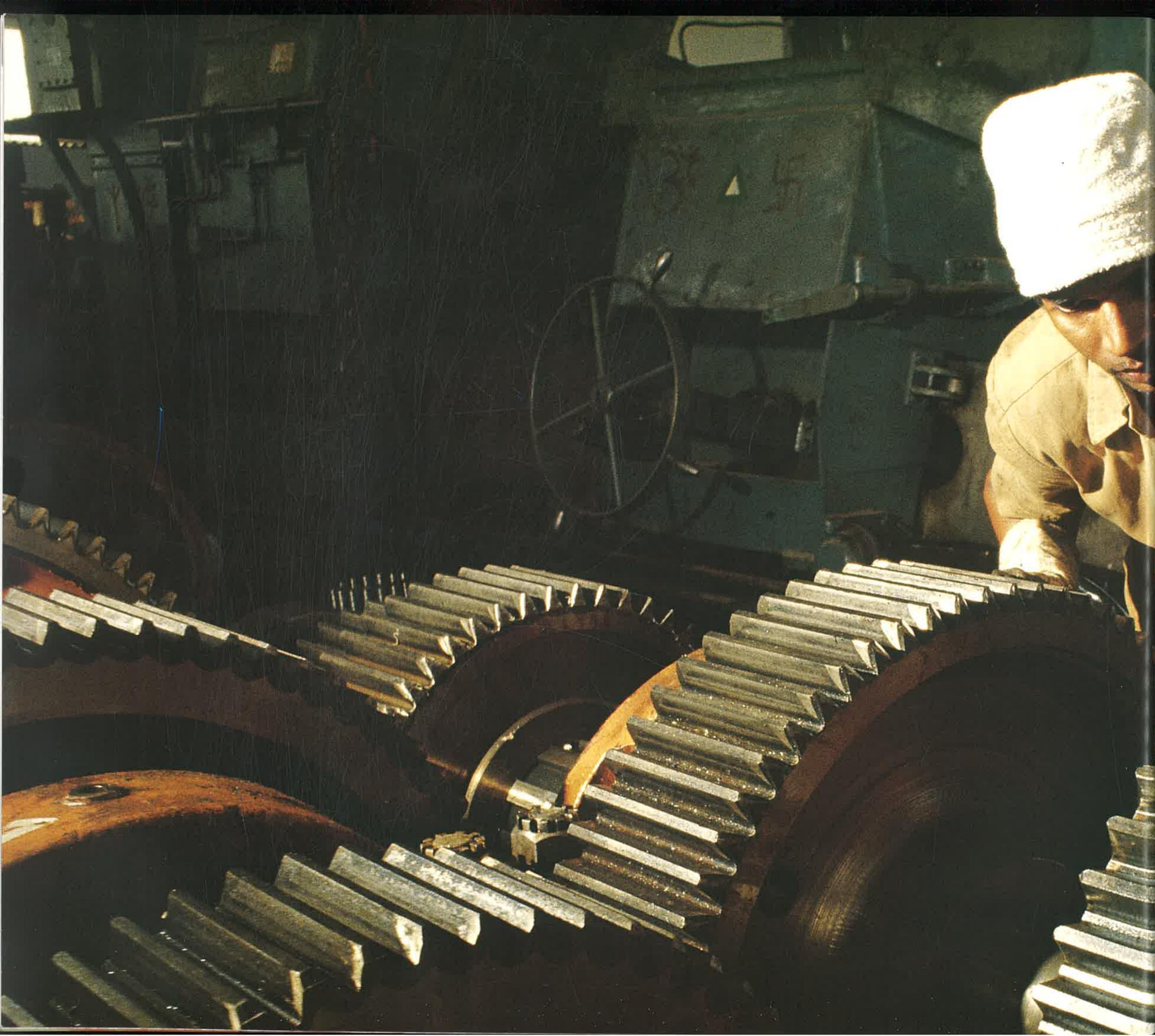
It was in this context that a few years later, the Mumbai High (Bombay High rechristened) Redevelopment Project was taken up in 1999 with a sizeable investment of around 8 billion Indian rupees, to improve the recovery factor from this ageing field by amalgamating the best technologies available anywhere in the world.

Notwithstanding the severance of the properties from their generic lineage, ONGC survived. The spirit of 'Never Say Die' saw it through the difficult times.

In a few years, ONGC moved up fast on the learning curve in competitive bidding to gain hydrocarbon acreages. After becoming empowered as a corporation in 1993, in the subsequent rounds of bidding, ONGC established its competitive edge. Out of the 110 blocks awarded till the fifth NELP round in 2005, ONGC, belying speculation, secured more than half of them – 61. In the two CBM rounds also, ONGC won 7 out of the 13 blocks awarded.

ONGC's persistent vigour enabled it to gain hydrocarbon acreages abroad. ONGC Videsh Limited with its 38 properties in 18 countries, is one of the biggest Indian multinationals







Moving the wheels of prosperity - ONGC has developed in-house expertise in various oil-field engineering areas. The picture shows a view of a Workshop of ONGC

The first computer system used by ONGC was Honeywell 400. This obsolete system was not suitable to ONGC's work even at the time. However, as the Indian Government had procured 10-12 such systems one of them was forced upon ONGC. Subsequently ONGC purchased the Geodata System, an analog processing system for seismic data. It used optical sensors for carrying out corrections on seismic traces. Then in 1971, ONGC acquired the Texas Instruments Office Processing System (TIOPS), a specialized computer for seismic data processing. It had a 192 KW hard disk. The disk was very special and operated in a helium atmosphere. All the software required for seismic processing like stacking, velocity analysis was developed in-house. In 1975, an IBM 370 system was procured for processing the voluminous offshore seismic data.

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Triumph of Technology

The only way to protect your technology is to move very, very fast.

- Roger Beteille

Beginning with practically nothing, ONGC has built up a magnificent technological edifice in the Indian E&P industry. The technological strength of ONGC in many E&P branches is the best available anywhere in the world.

Computational and Telecom infrastructure

The need for massive computerization was felt in the early eighties and computing capabilities were built to international standards. Processing and interpretation of enormous quantities of geophysical and seismic data called for the highest computing capability in the country, at par with meteorological, defense and space applications.



The technology brought in by ONGC was praiseworthy. Former President S Radhakrishnan looks at a technical model in an ONGC laboratory

Scientific applications apart, computerization has been used by ONGC in its softer disciplines like finance, human resource, materials. The ERP (Enterprise Resource Planning) exercise carried out to consolidate information pockets and integrating them into a single organizational platform was the biggest in Asia and one of the biggest in the world.

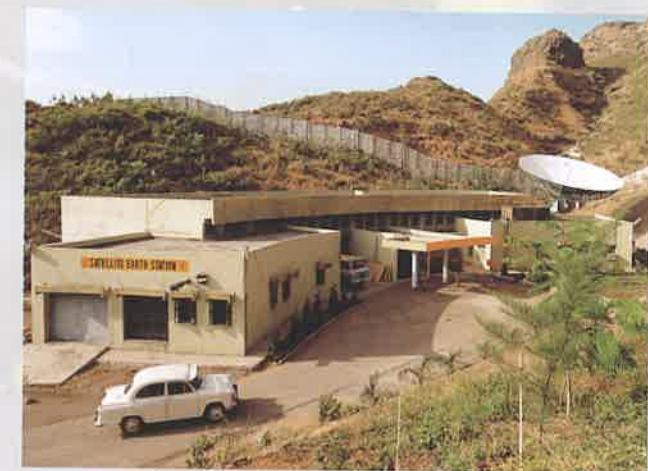
Various telecom initiatives have been introduced in recent years facilitating its business. Real-time well monitoring and control, both offshore and onland have been major achievements.

Besides computerization, ONGC has been harnessing technology right from the beginning. Some of them are worth mentioning, beginning with managing production from its Bassein offshore Gas field.

Taming the Sour Factor

The Bassein field in the Arabian Sea is a giant Gas field discovered in 1976. The field, however, turned out to be a sour Gas one, with its own sulphur related production problems.

The magnitude of the problem was colossal; while a sulphur content of



The communication technology and infrastructure of ONGC have improved dramatically over the years. The picture shows a Satellite Earth Station established by ONGC more than two decades earlier



The Bassein field of ONGC is one of the largest sour gas fields of the world. Picture shows a platform complex in this field in the Arabian Sea - processing sour gas before it is sent to the gas-sweetening plant onshore

... contd. from page 114

Seismograph Service Limited (SSL) supplied the seismic processing software for this system. While benchmarking the software at supplier's site, it showed less than 7 seconds per record. However, after installation it was taking 32 seconds per record. In spite of their best efforts, SSL could not improve it and surrendered. ONGC experts took on the challenge and made it run under 6 seconds in a month's time!

100 ppm could prove fatal, the sulphur content in the Bassein sour gas was as high as 3000 ppm!

However, this maiden encounter with 'sourness' did not sour the spirits of ONGC. High-intensity technological interventions were brought in – metallurgical changes were made in separators and new pipelines laid. Chemical administration was mastered and a Gas-sweetening complex, the first of its kind in the country, was set up at Hazira. Few projects in India at the time were of the value of five billion rupees,



A panoramic view of the Hazira complex of ONGC in Gujarat - set up by ONGC to sweeten the sour gas from its Bassein field. Few projects in the country that time were of the value invested by ONGC in this plant - five billion Indian rupees



Rajiv Gandhi, then an MP, inaugurated a state-of-the-art communication facility in an offshore installation at Bombay High. Even Indian Navy, at times, used ONGC facilities for some of their emergency requirements

the investment made by ONGC to tame the sour factor.

Threats of Calamity

ONGC has encountered high-pressure zones in a number of fields posing constant threat of the wells blowing out.

From the very beginning, ONGC went all out for prevention and, in case a situation went out of hand, proactive management of blow-outs.



ONGC has the grit to meet unexpected adversities with composure and emerge successful in the face of grave disasters.

From the early days of its journey in the industry, a number of ONGC experts have chaired technical sessions in international seminars like World Petroleum Congress and International Geological Congress.

A number of geoscientists of ONGC have won the National Mineral Awards, the highest Indian award in Geoscience.

Such incidents not only lead to loss of lives and property but have far-reaching effects like at times triggering an over-cautious approach of using heavier drilling fluids, damaging formations.

While the Russians helped in capping the initial blowouts at Ankleshwar and Rudrasagar, ONGC quickly developed in-house expertise. All the subsequent blowouts were handled by ONGC on its own, including the one in offshore on the rig Sagar Vikas and onland at Pasarlapudi in Andhra Pradesh – third largest in intensity in the world.



ONGC - over the years - has developed in-house expertise in capping blow-outs. The picture demonstrate the capping of the blow-out at Pasarlapudi in Andhra Pradesh - considered the blow-out with the third-largest intensity in the world



A P J Abdul Kalam, Scientific Advisor to the Government of India at that time, visited an ONGC institute. In his address, the Father of India's Guided Missile Program said that in his younger days he considered ONGC as institution worthy of being a role model

Blowout simulators to impart training for blow-out-control, were installed. ONGC's Institute of Drilling Technology developed a full-fledged Well-Control School, the only one of its kind in this part of the world that is being used to train engineers in crisis-management, not only Indians but from other nationals

as well. The Crisis Management Team (CMT) of ONGC remains fully prepared to deal with any well-related eventualities.

Apart from well control, other technological advancements have been attempted by ONGC since the late seventies, like horizontal drilling.

India's venture coincided with the first offshore horizontal well drilling in the West in 1981.

Placing India on the world EOR map

Few developing countries have worked on such a wide range of Enhanced Oil Recovery (EOR) methods as ONGC. The most significant of these is the Thermal

EOR, a pioneering effort that could well be a World Record in itself!

ONGC's oil-fields in north Gujarat produce heavy crude with a high viscosity range of 50-1500 centipoise. Primary Recovery can produce at best 15 per cent of such in-place crude, due to adverse mobility contrast between oil and water.

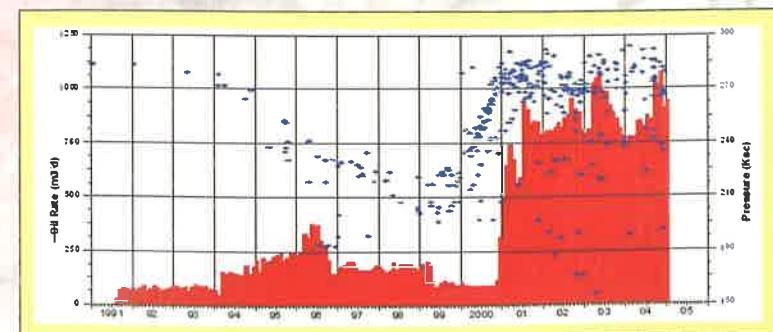
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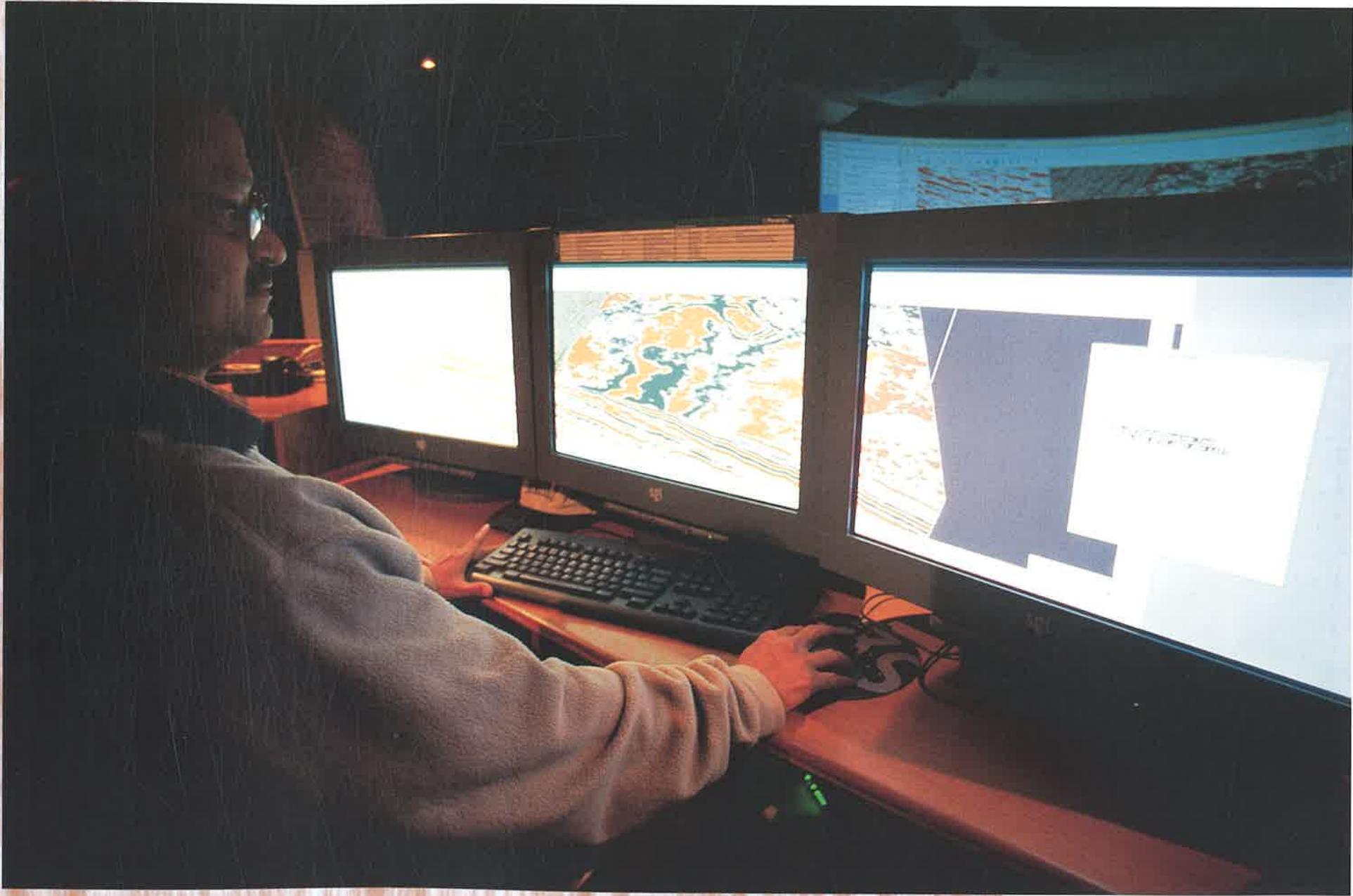
The plant which represents ONGC's technological triumph over Heavy oil. A night view of In-situ Combustion Plant at Balol in North Gujarat



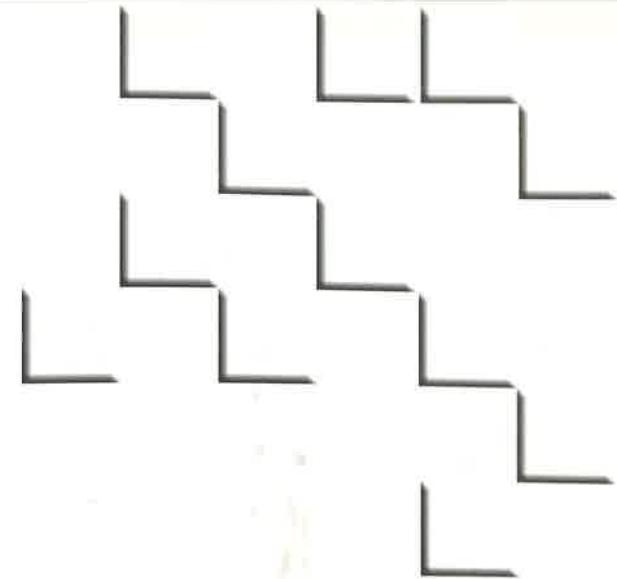
An Enhanced Oil Recovery (EOR) Plant



EOR oil gain from Miscible Gas process in Gandhar Oil Field



ONGC has always remained at the forefront of technology. A '3rd Eye' - virtual reality centre at Mumbai with capability for realtime online monitoring and control of offshore operations



... contd. from page 117

Way back in late seventies, ONGC's reservoir specialists identified an appropriate Thermal Enhanced Oil Recovery (TEOR) technique, the In-situ Combustion process, based on heating of oil in the reservoir, reducing viscosity and improving mobility. The process increased recovery to 40 per cent plus of In-place oil in ONGC's Santhal and Balol fields in 1997.

ONGC pioneered commercially successful fireflood operations at depths of a kilometer. Even today, this in-situ combustion process has been used commercially only in a few countries like Romania and Canada, that too, in shallower wells. Today ONGC – and with it India – has perhaps the biggest In-situ Combustion Project in the world, with around 50 injectors pumping in air @ 1.4 MMNm³/d in the two fields, yielding more than 1800 Tonnes Per Day (TPD) of oil. Even underground

movement of fire-front is ingeniously monitored through repeat 3D (4D) seismic surveys.

Apart from In-situ Combustion, ONGC introduced many other advanced EOR variants like use of high-temperature-tolerant bacteria for microbial EOR, and others, while they were still in the pilot stages elsewhere in the world.

The identification of Fractures in basement rocks, Freshwater log interpretation, Cased Hole Formation Resistivity (CHFR) are some of the numerous other technical milestones crossed by ONGC in its odyssey, building steadily in-house expertise in all facets of E&P business.

Virtual Reality Centers

Organizations are classified not by the volume of business but by the level of technology they use. By this yardstick,

ONGC and Saudi Aramco (the company with one of the highest reserves) fall in the same category, as they operate with the same cutting-edge technologies in their business. To improve its success rate in exploration, facilitate 3-D visualization of the earth's sub-surface geology and real-time remote monitoring and control of offshore operations, ONGC employs three of the few Virtual Reality Centers available around the world.

Smart Wells

The first digital deepwater field of India is being developed by ONGC for production from its G1 and G15 fields in eastern offshore. The concept of smart wells which need minimal post-completion interventions have been introduced for sub-sea completions, optimizing life-cycle costs over a fifteen-year span.

Even oil-rich third world countries that started their oil industry around the same time as India, did not develop much indigenous technical know-how, from virtually nothing, ONGC has catalysed the petroleum industry into a technologically-advanced one in India.



A rare sight for people from the land. Offshore logistics is a vital segment of ONGC's business. After defense and civil aviation, ONGC is, perhaps, the biggest user of air transportation. ONGC has 21.5% holding in Pawan Hans Helicopters Ltd., which is the largest operator of Helicopter flights in India



A supply vessel with a heli-deck. ONGC has a well-maintained fleet of offshore supply and support vessels



1

Construction of an offshore platform, massive and complex structure of thousands of tonnes of steel, is an engineering feat in itself. The eight pictures capture the sequential stages in the construction at an ONGC oil field in the Arabian Sea



Several Support Vessels and Barges need to work in tandem to achieve the mammoth engineering feat

2



3

High capacity cranes lifting heavy loads with minute precision



Various plants, instruments and machines are squeezed into the limited space available on offshore platforms; some of such platform modules being taken to site on a barge

4



5

Every nut and bolt is precisely engineered to achieve high standards of Safety



Top Deck being mated with the Base, with a precision comparable to docking of space station



7

It is an artificial island created in offshore



Men and machine work in sync in the limited confines of an offshore platform

8

Reaching out to the World

If opportunity doesn't knock, build a door

- Milton Berle

ONGC experts were advisors to the governments of Mauritius, Tanzania and Seychelles. They were also a part of UN efforts for development of petroleum industries in third world nations.

By the mid-sixties, it was becoming increasingly evident that domestic hydrocarbon acreages would never be enough to fuel the rising energy aspirations of a populous nation. So, energy security that depended on domestic hydrocarbon resources was almost ruled out by experts.

ONGC's quest for equity oil abroad can be traced back to 1965 when it formed Hydrocarbons India Limited (HIL) - a wing for overseas operations.

HIL began operations in the Persian Gulf with an office in Teheran. Entering the Gulf was easy as pro-East Iran and Iraq were positive about the technical strength of ONGC.

HIL, along with Philips Petroleum of USA, took equity participation in six Iranian blocks, with AGIP of Italy as operator; the National oil Company of Iran had a carried interest in the venture. Two large fields were discovered –



ONGC's first Offshore Joint Venture with IMINOCO in Raksh field in Iran. Photograph shows a drilling platform in July 1971

Rustom and Raksh. These produced six million tonnes per year and HIL's share was one million tonne.

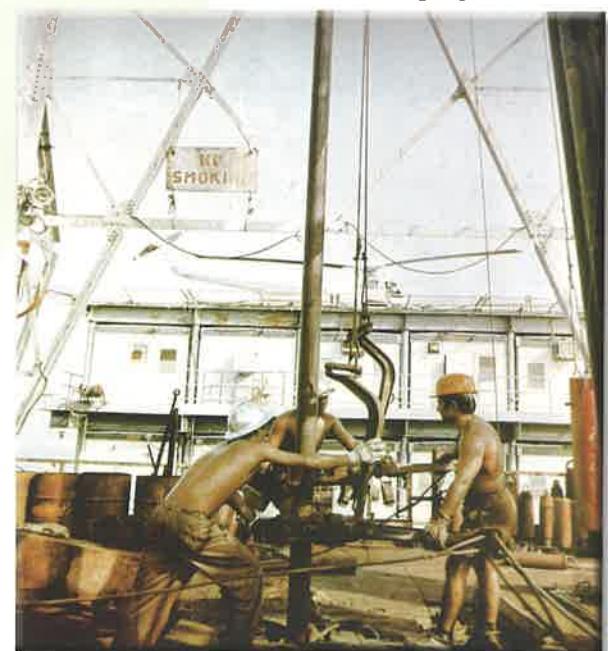
However, soon after the Shah of Iran was dethroned, activities of HIL in Iran had to be discontinued.

HIL was also involved in an exploratory block in Iraq, which could not advance further.

In the eighties, Hydrocarbons India Limited was rechristened ONGC Videsh Limited (OVL), a wholly-owned subsidiary of ONGC. 'Videsh' means

'Abroad' in the national language Hindi. It got its first foothold on Vietnam, an investment which is producing now.

It was only in the late nineties that
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A development well under drilling in the first Joint Venture with IMINOCO in the Persian Gulf in July 1971

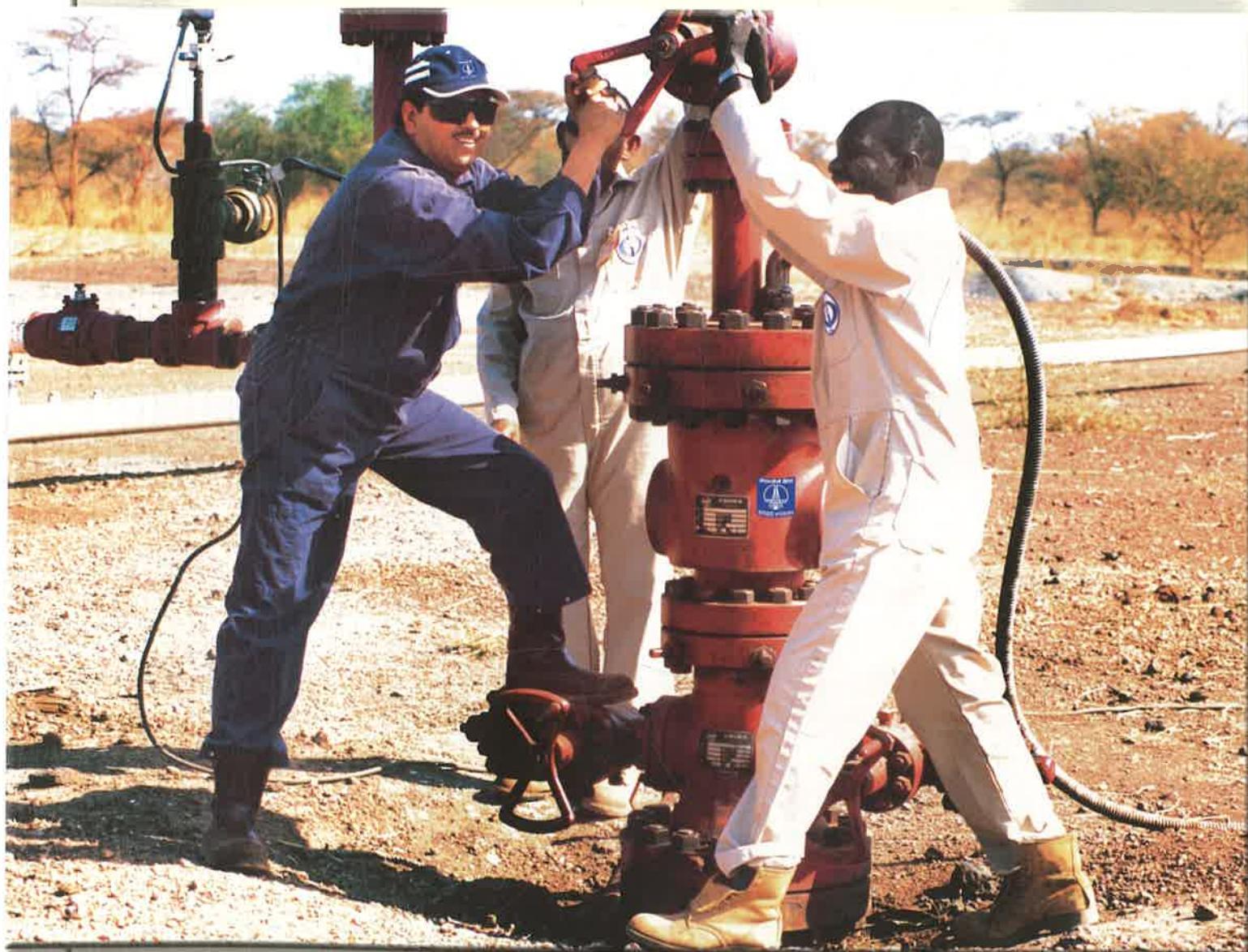


ONGC's efforts earned India an entry in to the global league. The national flag is seen flying high in Sudan - thanks to in-roads made by ONGC Videsh Limited (OVL) into the oil-rich African nation





*The world is my playground - an
ONGC oil Well in Sudan*



Scientists and engineers of ONGC have proved their competence in foreign fields while working with multinational teams

... contd. from page 130

OVL picked up pace and made headways into foreign hydrocarbon acreages. Thanks to the diplomatic support provided by the Indian Government, it has now gained strong footholds in hydrocarbon acreages in various countries.

The investment of ONGC in Sakhalin in Russia, was the highest Indian investment ever in an overseas venture.

OVL, today, has 38 properties in 18 countries: Myanmar, Sudan, Colombia, Vietnam, Libya, Egypt, Cuba, Syria, Nigeria, Qatar, Nigeria STP JDZ, Brazil, Russia, Iran, Iraq, Turkmenistan, Congo Brazzaville and Venezuela.

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Cooperation with foreign countries extends beyond field operations to sharing of knowledge. A seminar in Sudan with Indian and African delegates



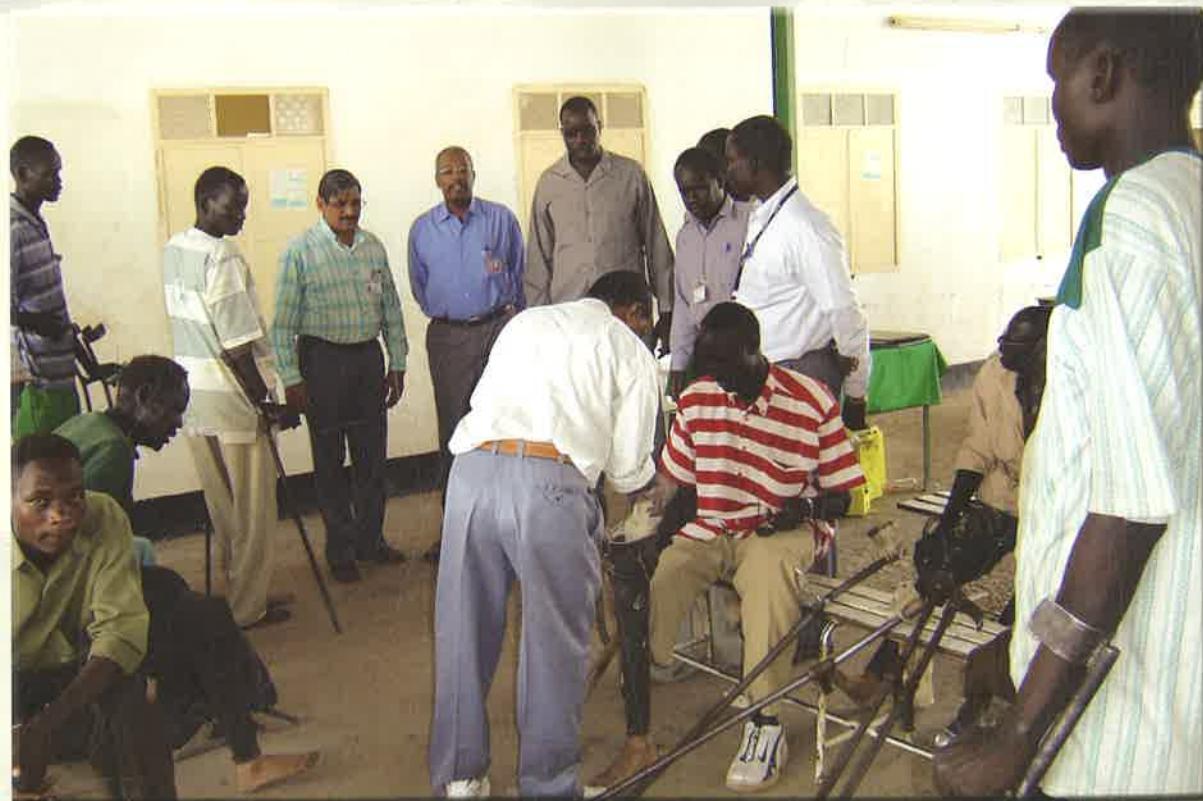
Be it strength or precision, ONGCians have it in them. Their excellence has been recognized in all the countries they are working in

... contd. from page 135

The reputation of the knowledge of the ONGCians – and Indians - has spread all over the oil and gas fields of the world.

OVL has made progress in the downstream sphere as well. The Sudan Pipeline Project (751 kilometers from the Khartoum Refinery to Port Sudan), at a cost of US dollar 194 million is the first engineering project ever of the ONGC group abroad. ONGC's expertise in pipelines is unquestionable. It owns and operates more than 11,000 kilometres of pipelines in India (almost the earth's diameter), including 3,200 kilometres of sub-sea pipelines. No other company in India operates even 50 per cent of this route length.

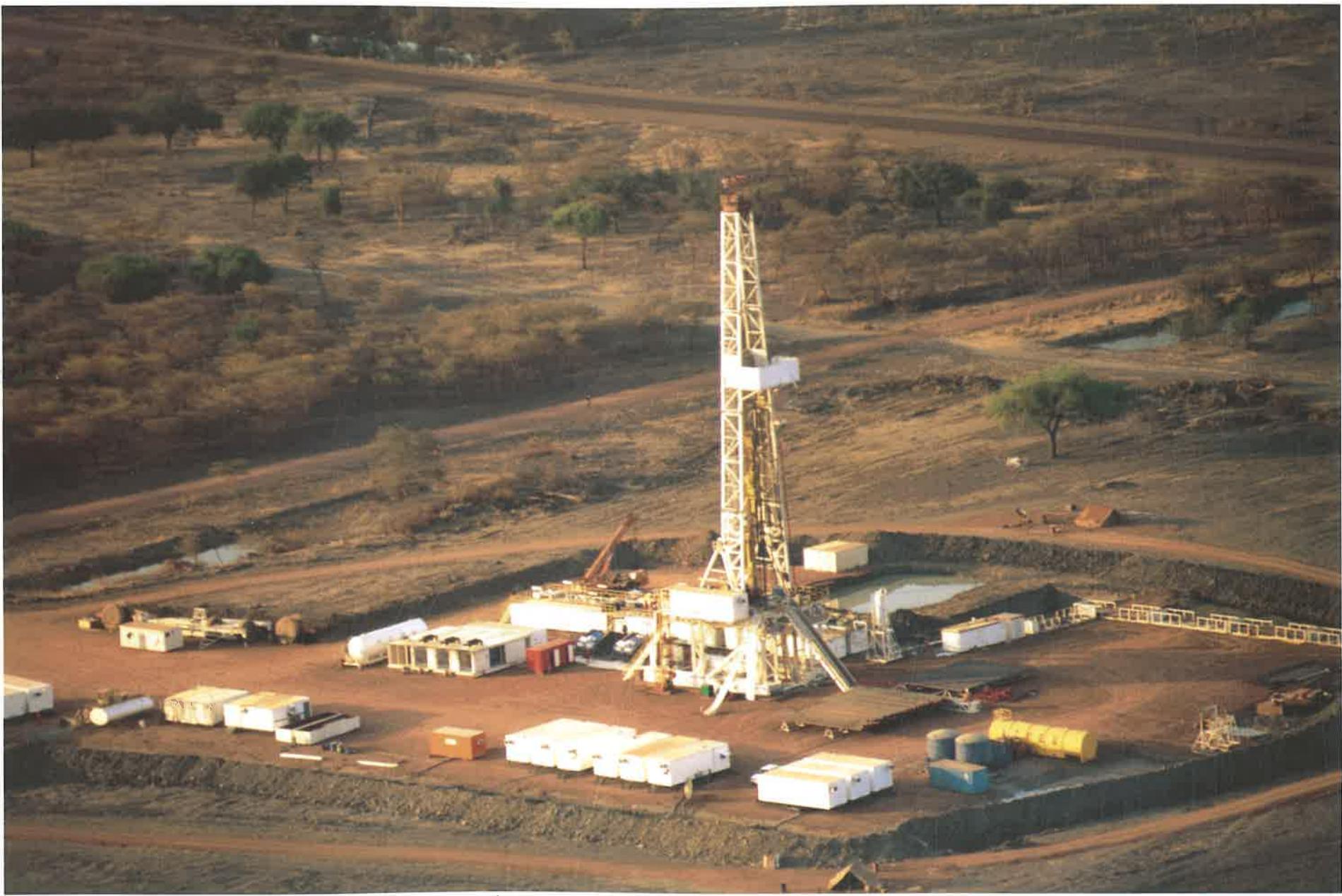
OVL's investment commitment overseas stands at 5 billion US dollars, of which about 64 per cent (2.75 billion US dollars) have actually been invested till March 31, 2005. This made OVL the biggest Indian multinational corporate.



Wherever ONGC goes, its benevolent corporate attitude follows. An ONGC-sponsored medical establishment in an African country



Is it saluting the indomitable spirit of ONGC? The mast of a rig being erected in a foreign land



In search of energy security. As perceived capacity of Indian Sedimentary Basins falls short of the domestic demand, ONGC has been aggressively pursuing oil and gas opportunities abroad. Picture shows a drilling rig of ONGC in a province, geologically considered to be more-endowed with oil, in Africa



Cooperation in the oil field extends to social gatherings. A cross-cultural get-together after a hard day's work



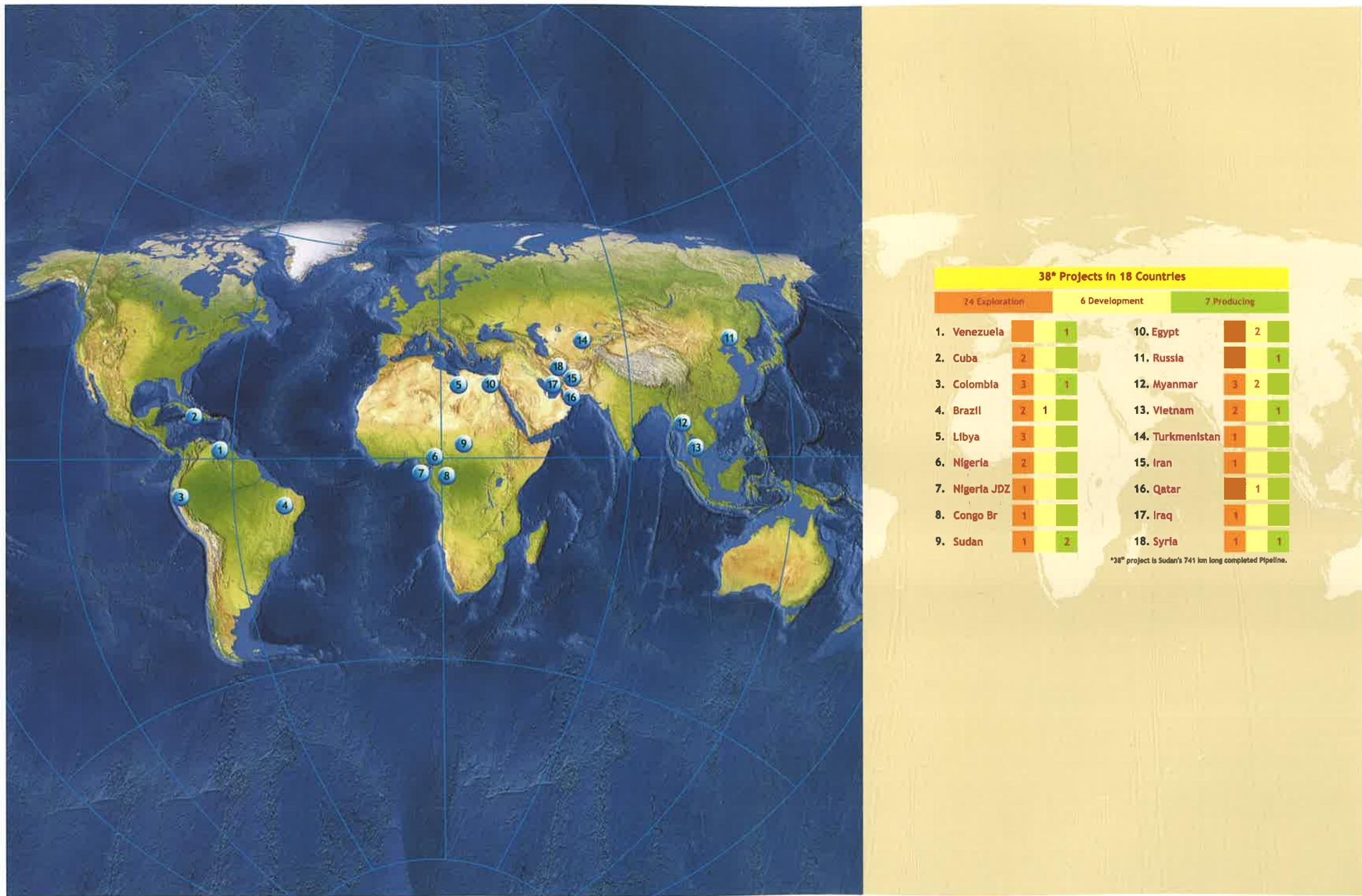
Making tomorrow brighter for the world. Through its business, ONGC helps African children realize their dreams



A view of Orlan Platform in Sakhalin (Russia), where ONGC has a stake - probably the most formidable frontiers of oil exploration on this earth



ONGC has moved up in the oil industry services sector. The Group is taking up projects related to revamping of refineries in foreign countries. ONGC Videsh Ltd. has also formed an overseas joint venture, ONGC Mittal Energy Services Ltd. (OMESL).



ONGC is among the biggest multinationals in India, with an overseas investment of over US\$ 5 billion, spread over 38 projects in 18 countries

Dawn and the Hour Before

Management is doing things right; leadership is doing the right things.

- Peter F Drucker

Though the new millennium arrived, ONGC was yet to emerge from the blues of the nineties.

February 2001 – perhaps the lowest period in ONGC's checkered existence – was marked by negative omens.

- An internationally recognized management consultant, after a study of ONGC, cautioned the Indian Government on the risk of its imminent collapse.
- The Association of Scientific and Technical Officers (ASTO) passed a no-confidence motion against the Board of Directors of ONGC.
- The share price of ONGC reached a low of 130 Indian rupees.

Three months later, in May the

same year, Subir Raha – the then part-time member of ONGC Board and known for his bold initiatives in the downstream petroleum industry – took over as the Chairman and Managing Director of ONGC.

For the third time in the history of ONGC, the organization was shaken up for the better. The first mild tremors had come with Johnson but unfortunately, no major discovery was there to capitalize on the occasion. Prasad's commanding tenure comprised the second shake-up, with Bombay High joining in to make the period memorable.

And then, in its darkest hour, ONGC was waiting for a new dawn.

Subir Raha challenged the status quo. The issues related to discipline, work

... contd. on page 146

ONGCians were eagerly waiting for a new dawn





ONGC has lived through ups and downs in its 50-year history. The biggest turnaround came just after dawn of the new millennium

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pattern, performance, productivity, efficiency and effectiveness were met head-on in the next few years.

A unique get-together of First and Second Batch Graduate Trainees (GTs) called 'Vichar Manthan' was organized to celebrate their 'Silver Jubilee' in ONGC by the 'ONGC Academy' at Lonawala in Maharashtra. Raha seized this opportunity and personally conducted a 'Lens' exercise for the two senior GT batches (1976 and 1977) who were in top positions just below the board level at that time. The directors on the Board, who were also present were asked to participate. Skillfully, Raha steered the group in to identifying the top three challenges for ONGC, the three best opportunities and the three top priority actions. It was evident Raha meant business and 'business at lightening pace'.

One of the first interventions was the organization-wide rollout of the restructuring exercise termed Corporate Rejuvenation Campaign (CRC). The organizational structure of major global petroleum companies was adopted to focus on the core business of oil & gas Exploration and Production.

Known for his fast pace of work, within 60 days of assuming office Raha orchestrated three strategic targets for 2001-2020 period in ONGC's core E&P business. No enterprise in India, either in the private or the public sector had ever set their sights so high. These are:

- (i) Having accreted 6 billion tonnes of hydrocarbon reserves during the last 45 years (1956-2000) of its existence, ONGC now aims to accrete another 6 billion tonnes (i.e. doubling of its reserves) by 2020.
- (ii) Improving recovery (of original in-place oil) to 40 per cent (from the earlier figure of 28 per cent)
- (iii) Aiming at 20 million tonnes per year Equity oil from abroad.

All these three goals together, on 30-year NPV, imply a mind-boggling sum of ten trillion rupees.

Delving in Deepwaters

After going through trials, tribulations and triumphs onland and in shallow-waters, ONGC has mounted an assault on the final frontiers – the Deep-waters. The Deep Water Exploration Group was constituted in 1989-90 to make

comprehensive studies on deep offshore prospects in Indian waters. It was clear that 'easily-accessible oil and gas' have already been located, and the country's future sources of oil and gas are to be explored in logically challenging frontiers and deep-water basins.

Realizing this, ONGC set an ambitious target of establishing up to four billion tonnes of reserves from its deep-water blocks, out of the additional six billion tonnes it had targeted by 2020. This is the approach all over the world, as the deepwaters have been accepted worldwide as the last frontiers for searching hydrocarbons on this blue planet.

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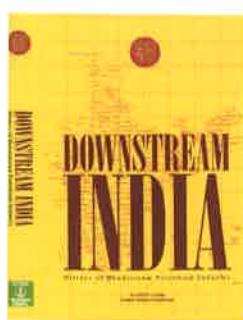
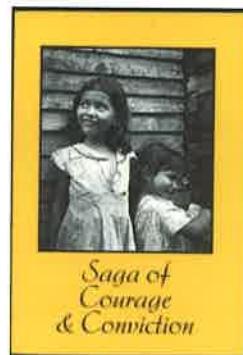
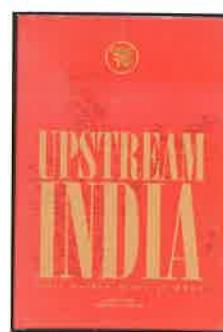


The expanding ventures of ONGC into new frontiers demand specialized services like deep-sea diving and underwater engineering works



ONGC has played a crucial role in helping the industry go forward. A number of Conferences and Exhibitions have been organized by ONGC, in India as well as abroad, to showcase technology and business processes to share knowledge. The pictures above and below (right) capture some of the events. ONGC organized five of the seven Petrotechs held so far (latest one on top left). ONGC also participated in the India Pavilions in the World Petroleum Congresses held (one held in Johannesburg is shown above right); another one at Offshore Technology Conference (OTC) at Houston, USA is shown on top (extreme right). ONGC also organizes Conference-cum-Exhibition of Society of Petroleum Geophysicists (SPG) every alternate year (the one held in 2008 in Hyderabad is at bottom right).

To disseminate knowledge, ONGC plays a vital role in funding publication of books; many books are directly published by ONGC also. Some of the recently published books are shown here (below). ONGC also promotes use of national language (Rashtra Bhasha), in which book of poems has been published.



... contd. from page 146

A new set of technological challenges are now to be faced and won.

On the strategic platform, ONGC pursued a four-pronged approach: Monetising Assets, Assetising Money, Integrating Forward and New Business.

For Monetizing Assets, new fields were developed, enhanced and improved oil recovery methods were adopted while Marginal Fields were exploited. The Mumbai High Redevelopment Project got a major thrust during this time, due to which the production from the ageing Mumbai High field improved to 2,70,000 BOPD.

To Assetize Money, the existing facilities are being modernized and expanded, state-of-the-art technologies are being inducted and massive investments are being made for growth. Every year, 2 billion US dollars are invested to create and renew assets.

Further, technology is being deployed for exploring new frontiers, upgrading seismic data API (Acquisition, Processing and Interpretation), improving the exploration success ratio,



The Institutes of ONGC are recognized all over the World. The picture captures a long-shot of the shrine where the future managers of the organization are baptised - ONGC Academy and its serene backdrop. It now coaches petroleum managers of other countries as well.

augmenting drilling & production facilities, improving production rate by efforts like redevelopment

(redeveloping 15 fields yielding 80 per cent production), and minimizing gas flaring and other wastages.



Felicitating the builders of ONGC. Former CMD Subir Raha presenting a memento to former Chairman Dr. N B Prasad during celebrations commemorating 30 years of Mumbai High.

The move to Assetize Money reflects a change in approach – to business in general and financial management in particular. The erstwhile approach of holding cash in bank, and receiving an

assured minimum return was abandoned. The new doctrine held that the purpose of business is to create wealth for the stakeholders and that can be achieved only by investing the money in business.

The hurdle rate for investments has been lowered.

One of the world's biggest ERP (Enterprise Resource Planning) packages, across 400 locations of ONGC, has also been rolled out. This will enable ONGC to use the collective intellectual capability of the organization, to convert knowledge to wealth more effectively.

Proactive steps were taken for Forward Integration and New Business.

Changes in approach were evident in the field of Human Resource Development (HRD) as well. ONGC took concrete steps to sharpen the Human Resources, by launching several novel and structured development programs for its employees. ONGC administered two qualification-upgradation programs ('Unnati Prayas' –

As a mark of gratitude to the early ONGCians who built ONGC from scratch, a special pension scheme called 'Agrani Samman' (respect for predecessors), has been instituted. It has come as a boon for them as they had retired with very few financial benefits.

The present ONGC Board with an average age of 55 years is the youngest in ONGC's fifty-year history. More important, almost all the members of the Board are home grown, a great motivating factor for all ONGCians.



Indian currency salutes ONGC - the wealth creator for India: a 50 rupee coin and a 5 rupee coin were released on the occasion of Golden Jubilee of ONGC



A stamp of approval. ONGC's first offshore drilling rig Sagar Samrat represented the aspirations and achievements of a resurgent India. It was celebrated with a one rupee postal stamp. Another stamp (below) was realeased on the occasion of Golden Jubilee of ONGC in 2005



Graduate Engineering program and 'Super Unnati Prayas' – MBA program) to fulfill the dreams of its employees to acquire professional qualifications. These efforts are, perhaps, the first of their kind in any organization in India, particularly in the Public Sector. Programs have also been launched to groom the future leaders of ONGC.

Another organized attempt being made is to re-define the Rosters, Roles and Responsibilities (Project Arcube) of all the ONGCians, by re-establishing the

manning norms for the various E&P operations.

A completely new style of professional management is discernible now. Transfer of values and sharing of experiences with leaders of yesteryears, to facilitate consistency and continuity, is another hallmark of the emerging culture in ONGC.

Further, to get the organizational pyramid that had gone off-proportion over the years, back in shape, career advancements in the corporate cadres



ONGC received a number of awards for its efforts to mitigate Climate Change. The picture shows ONGC Director A K Hazarika (2nd from right) receiving the Golden Peacock award for ONGC's Clean Development Mechanism (CDM) projects



ONGC's first offshore drilling rig *Sagar Samrat* is featured on one rupee and thousand rupee currency notes



have been restricted only to the deserving ones.

After the 'low' experienced in the late nineties, this period [2002 on wards] proved to be a 'high' for ONGC. Apart from better performance, the public perception of ONGC as an organization improved. ONGC is also known as an organization that respects process integrity, encourages achievement orientation and places a premium on merit.

Arguably, the biggest gain perceived by an average ONGCian is the change in public image: *She/he is proud to be an ONGCian now.*

It would be the dream of any organization in the world to get all its

installations accredited in the field of Quality, Health, Safety and Environment (QHSE). ONGC has realized this dream.

Another erstwhile business practice that came under attack was 'tendering' as a tool for outsourcing. Realising that instead of spending precious time on processing tenders, it can be better utilized in field operations, best practices from around the world are being directly adopted. For inducting cutting-edge technology in E&P operations, the practice now is to go to the best and then work out the best commercial terms, in a win-win paradigm, where ONGC gains enormously on the time and costs saved directly as well as in terms of encashing

the opportunities.

To erase the spots that stained the reputation of ONGC, an Integrity Pact, a tool of Transparency International to fight corruption in public contracts has been adopted. ONGC is the first Indian company to adopt this Pact.

The ONGC Group trebled its turnover from 5 billion US dollars to 15 billion US dollars during 2001-2005 and it aims to go to 50 billion US dollars in the next 4 years. This implies an ambitious annual growth rate (compounded) of 40-50 per cent.

To proactively address QHSE (Quality, Health, Safety and Environment) issues, all installations of ONGC, have been accredited on integrated QHSE certifications (ISO 9001, ISO 14001 and OHSAS 18001). This makes ONGC unique in the world to have done so. ONGC is also the first central public enterprise in India to have four of its Clean Development Mechanism (CDM) projects registered by the United Nations Framework Convention on Climate Change (UNFCCC).

The Global Doctrine

Don't limit yourself. Many people limit themselves to what they think they can do. You can go as far as your mind lets you. What you believe, remember, you can achieve.

- Mary Kay Ash

One of the contributions of ONGC to the national hydrocarbon industry is to align itself to the global business model - the doctrine of vertical integration.

This Vertical Integration was essential in the Indian context, since it was the only major country where petroleum companies were not integrated. In international business, both in the western economy as well as in Russia and China, every major oil and gas company is integrated. All Fortune 500 oil majors, like Exxon-Mobil, Chevron-Texaco, Royal-Dutch-Shell have come up as integrated companies. From the mid-1990s, integrated companies have merged with one another to leverage maximum business.

Integration is driven by economics. An integrated company is protected against price volatilities inherent in the crude business and remains neutralized against sectoral downsides. Integration is also essential to focus on core E&P business. Globally, exploration risk is

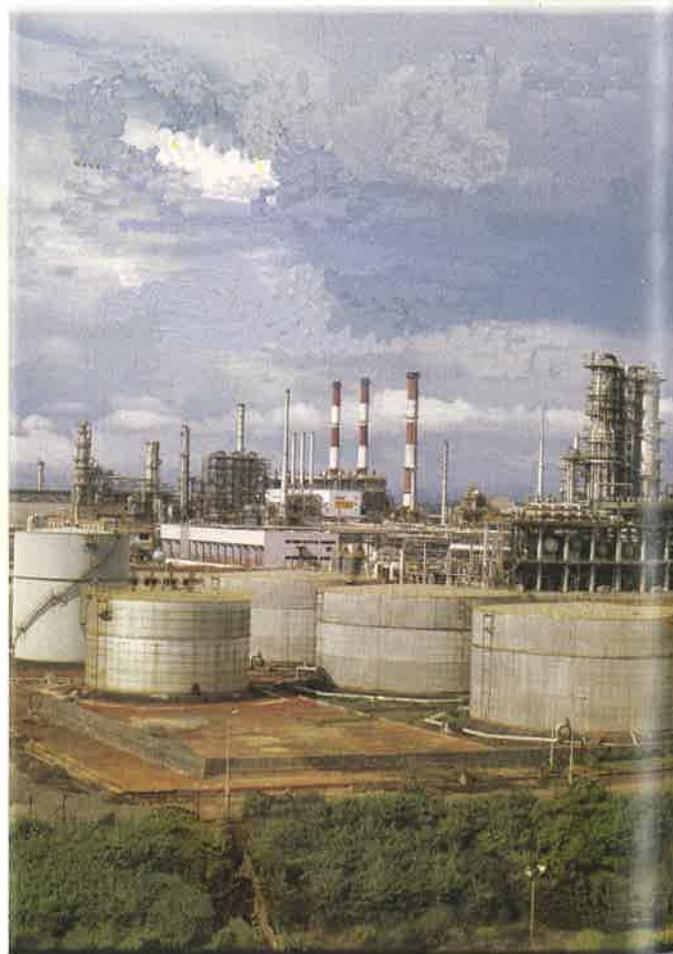
carried on the balance sheet of the E&P company, which needs to be strengthened by downstream business. Particularly in the Indian context, significant value can be added by exploiting the hydrocarbon molecule fully, which can then be reinvested to explore more hydrocarbons, the global doctrine of self-sustenance.

ONGC ended the sectoral regime in the Indian hydrocarbon industry by taking up equity in the ailing Mangalore Refinery & Petrochemicals Limited (MRPL) in March 2003.

ONGC also took up a 23 per cent stake in the 364-km-long Mangalore-Hasan-Bangalore (MHB) product pipeline, connecting the refinery to the Karnataka hinterland.

Integration gave ONGC much needed stability to its business profile, which, till then, was deriving all its revenues and earnings from producing oil and was vulnerable to external developments.

... contd. on page 155



Turning around the ailing Mangalore Refinery and Petrochemicals Limited (MRPL) by ONGC in 368 days was a classic case-study of a joint sector company, on the brink, being revived by a public sector company





ONGC owns and operates more than 11,000 kilometres (almost the diameter of Earth) of pipelines in India, including nearly 3,200 kilometres of sub-sea pipelines. No other organization in the country manages even half this route length



As an operator ONGC is moving up the ladder, juxtaposed with global benchmarks

... contd. from page 152

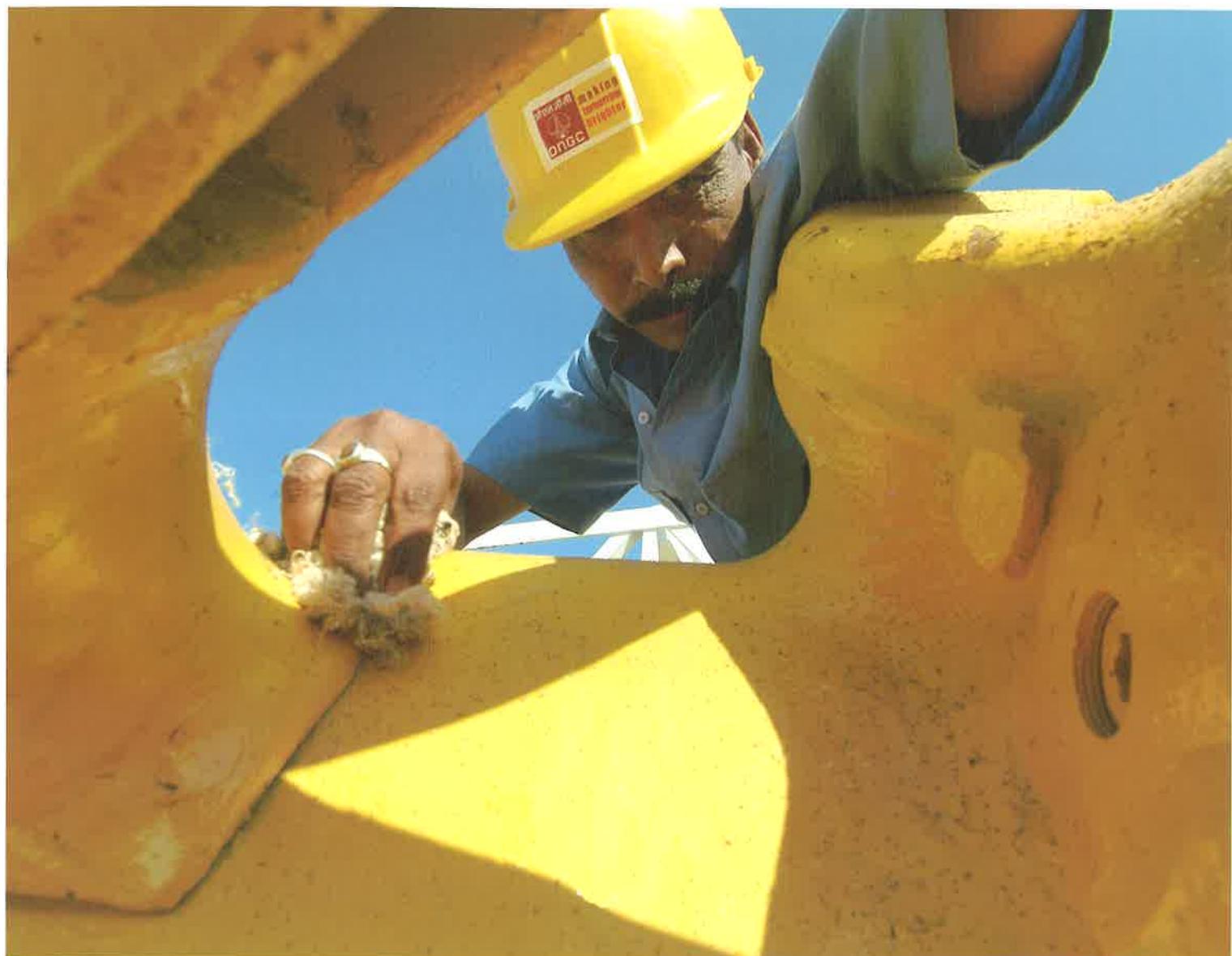
Turning around sick enterprises

Mangalore Refinery and Petrochemicals Limited (MRPL) where ONGC now owns 71.6 per cent equity – was a sick company when it was taken over by ONGC in March 2003. Under ONGC's management control, in just 368 days, MRPL has seen a major turnaround with its market valuation having increased by 1100 per cent and profitability by 900 per cent. MRPL now trades at more than 28 times historical earnings, compared to around 6 for leading state-run Indian refiners.

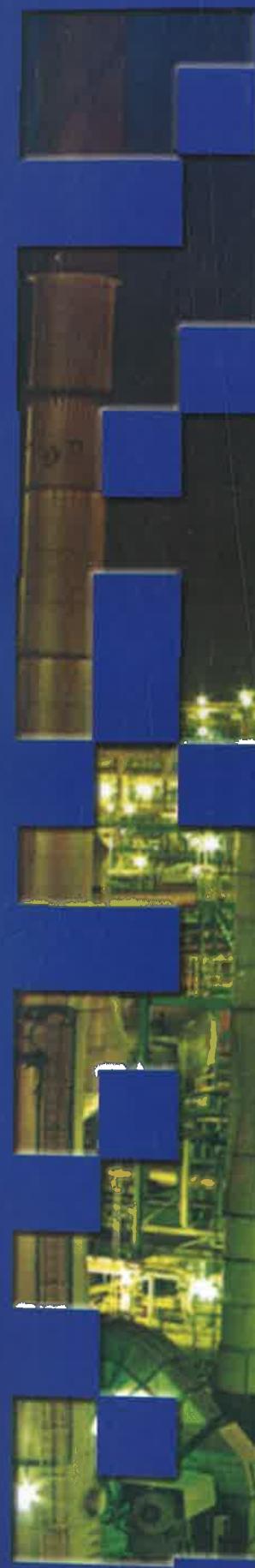
MRPL's acquisition by ONGC – globally the least-cost refinery acquisition – and its revival, is a management case-study in itself. Recently, it has become the first Indian refinery to produce Euro-III transportation fuels.

MRPL is the most energy efficient refinery in the country with a two-digit energy index of 85 per cent, whereas the energy indices of every other Indian refinery are more than 105 per cent.

... contd. on page 157



Safer, Better, Cheaper is ONGC's credo





... contd. from page 155

Shattering the popular image of ONGC, by turning around MRPL (conceptualized as a joint-venture company), has demonstrated convincingly that even PSUs can revive joint or private sector companies.

The synergies within the ONGC group have resulted in its diversification into other value-added downstream linkages in energy business like petrochemicals and power.

ONGC's first outlet to retail transportation fuels (under the Brand name OVaL, which has secured an award for innovative brand strategy) has been opened at Mangalore in March 2005, completing the cycle from Drilling to Dispensing. The values which ONGC, and all its products stand for are: Ethics in Business, Excellence in Technology and Sincerity in Service. ONGC's retail brands are expected to bring in a new experience to the consumers.

ONGC's brand value is Creating Relationships.

MRPL is a case-study in turnaround management. After ONGC took it over, this 9.69 million tonne refinery displayed improvements on all fronts, wiping out cumulative losses and declaring a maiden dividend in 2005 fiscal

Recognitions at Last

The rewards go to the risk-takers, those who are willing to put their egos on the line and reach out to other people and to a richer, fuller life for themselves.

- Susan RoAne

After the success of the Public Issue, the then CMD of ONGC said, "One of the biggest contributions of this Issue is that it has redeemed faith in the working of the Indian Public sector."

CMDs of ONGC with their charismatic personalities and inspired leadership have been responsible for some well-deserved organizational recognitions for ONGC joining the global league.

In the last few years, ONGC has been conferred a number of global and national recognitions and accolades. It is now Asia's Best oil and gas Company and 2nd Best Global E&P company. Several other recognitions have started pouring in.

ONGC's 10 per cent equity sale (India's highest-ever equity offer) in March 2004 received unprecedented global investor recognition. Sold out in 11 minutes, it was a landmark in Indian equity market, establishing beyond doubt, the respect ONGC's professional management commands among the global investor community. More importantly, it redeemed the reputation of public enterprises.

According to a report published in *The Asian Wall Street Journal* (Hongkong), ONGC's Public Issue brought in 20 Foreign Institutional Investors (FIIs) to India, as 'they could not ignore the company representing India's energy security'.



ONGC CMD R S Sharma (left) receiving NDTV 'Business Leadership Award' in Oil and Gas sector from the Prime Minister



Former CMD Subir Raha (left) receiving SCOPE Best Chief Executive Award from Prime Minister Dr. Manmohan Singh

The vision of Nehru and Malaviya and the hard work of ONGCians over decades finally created enormous wealth and recognition for Indian citizens.





Thanks to the hard work of ONGCians in these 50 years, ONGC is now a global E&P giant, expanding into an energy corporation to reckon with



OVaL petrol pump in Mangalore - a perspective



ONGC's subsidiary MRPL is gearing up to play an anchor role in the development of India's first Petroleum, Chemicals, Petrochemicals Investment Region (PCPIR). MRPL, an ONGC group company, is on expansion drive. With Capacity build-up, quality and downstream value linkages, it is poised to play a major role in India's energy security.

Back to Future

*The best time to plant a tree was 20 years ago.
The second best time is now.*

- Eastern Proverb

The deepwater exploration campaign, in a way, is reminiscent of how ONGC began its journey, Big Dream, Big Risks, Big Skills, and certainly Very Big Rewards.

In its first fifty years, ONGC created and sustained unprecedented wealth in its business – a trillion Indian rupees - for its owners, the billion citizen of India.

Having done this, ONGC is now working to discover the next billion tonnes of hydrocarbons.

To reach that milestone, ONGC is moving ahead, fuelled by its core competence – Knowledge - its biggest resource.

Destination Deep-waters

Of the six billion tonnes of reserve accretion it has targeted by 2020, two thirds is expected to come from Deepwaters. ONGC has ventured into this uncharted territory, armed with advanced technological competence and significantly higher investments, thereby undertaking the biggest-ever deepwater

exploration campaign globally (by a single operator).

It is now spending over 80 million rupees every day on exploration, including the deepwater campaign.

Preliminary calculations put the distributed payout at six trillion Indian rupees (140 billion US dollars), which, at a discount factor of 50 per cent, translates to a Net Present Value of three trillion rupees – the equivalent of ten national annual budgets!

Quite a few significant hydrocarbon strikes have been made recently in the deep-water acreages (including in ultra-deepwaters), apart from a number of finds in shallower waters as well as onland.

The first deepwater production system is also in progress to bring produce from deepwater to onshore processing facilities on the east coast

... contd. on page 165





*ONGCians have a bigger purpose
to serve - to bring smiles to the
billion citizen who call India their
home. Few jobs on earth can be
more satisfying*

Today, we are India's largest
integrated Oil and Gas Corporate.

Tomorrow, we will go further.



We carry the flame of knowledge,
ideas and energy. A flame that shines on
technologies for growth,
and opportunities for tomorrow.
A flame that leads the way,
and enriches the quality of life.
A flame that touches every Indian, everyday.
It's a flame for making tomorrow brighter.



COURAGE TO EXPLORE | KNOWLEDGE TO EXCEED | TECHNOLOGY TO EXCEL



Hon'ble Prime Minister Dr. Manmohan Singh (extreme right) keenly observing a model of 'Rajiv Gandhi Urja Bhavan' being set up by ONGC for holistic research on Alternate Energy Sources. Delhi Lt. Governor Tejinder Khanna, UPA Chairperson Ms. Sonia Gandhi, Minister of Petroleum & Natural Gas (P&NG) Murli Deora, Delhi Chief Minister Ms. Sheila Dikshit and Minister of State (P&NG) Disha Patel are also seen with ONGC CMD R S Sharma (back, 2nd from right), and MD of OVL R S Butola (extreme left)

... contd. from page 162

within the expected field-life of 15 years. This is India's first *Digital oil and gas Field*, incorporating remotely monitored and controlled *Smart Wells*.

The discovery of the next billion tonnes of hydrocarbons, will also create the next trillion rupees or more of wealth for the nation.

Integrating Forward

The integration into power, in most cases, is to monetize its unutilized Natural gas reserves in isolated parts of the country, moving ahead in the gas chain towards more value-added products, augmenting national power production at the same time.

While remaining focused on its core business of oil & gas E&P, ONGC is now also looking to the future and has promoted an Energy Centre for holistic research in energy sources with emphasis on 'Mind to market'.

This Energy R&D centre to be housed in Rajiv Gandhi Urja Bhavan will be a National Institute for holistic Research in alternate energy sources beyond Oil and Coal, specifically research on Thermo-chemical generation of

Hydrogen on a massive scale, Geo-Bio reactors for in-situ generation of Methane in deeper coal seams and oil reservoirs, Efficient use of electricity for lighting using SSL (Solid State Lighting), Development of fuel cells with Transport and Power Generation applications as objectives and Participation in the efforts for mass production of solar grade Silicon rods for Photovoltaic cells.

Fossil Familiarity

ONGC is also entering new business on the fossil fuel value chain. In view of the huge reserves of coal in India, ONGC is venturing into Coal Bed Methane (CBM) and Underground Coal Gasification (UCG) in a big way.

ONGC is also looking at Gas Hydrates, as it is one possible source that could make India self-sufficient in energy on a sustained basis. ONGC is also into indigenous production of Helium from its Cauvery Asset in South Tamilnadu, which could make India one of the few nations in the world to secure this distinction.

The discovery of the next billion tonnes of hydrocarbons, once made -

will work out to one tonne for every single Indian man, woman and child.



Well of hopes - an artiste's impression of the Indian optimism looking up after the courage of ONGC paid off

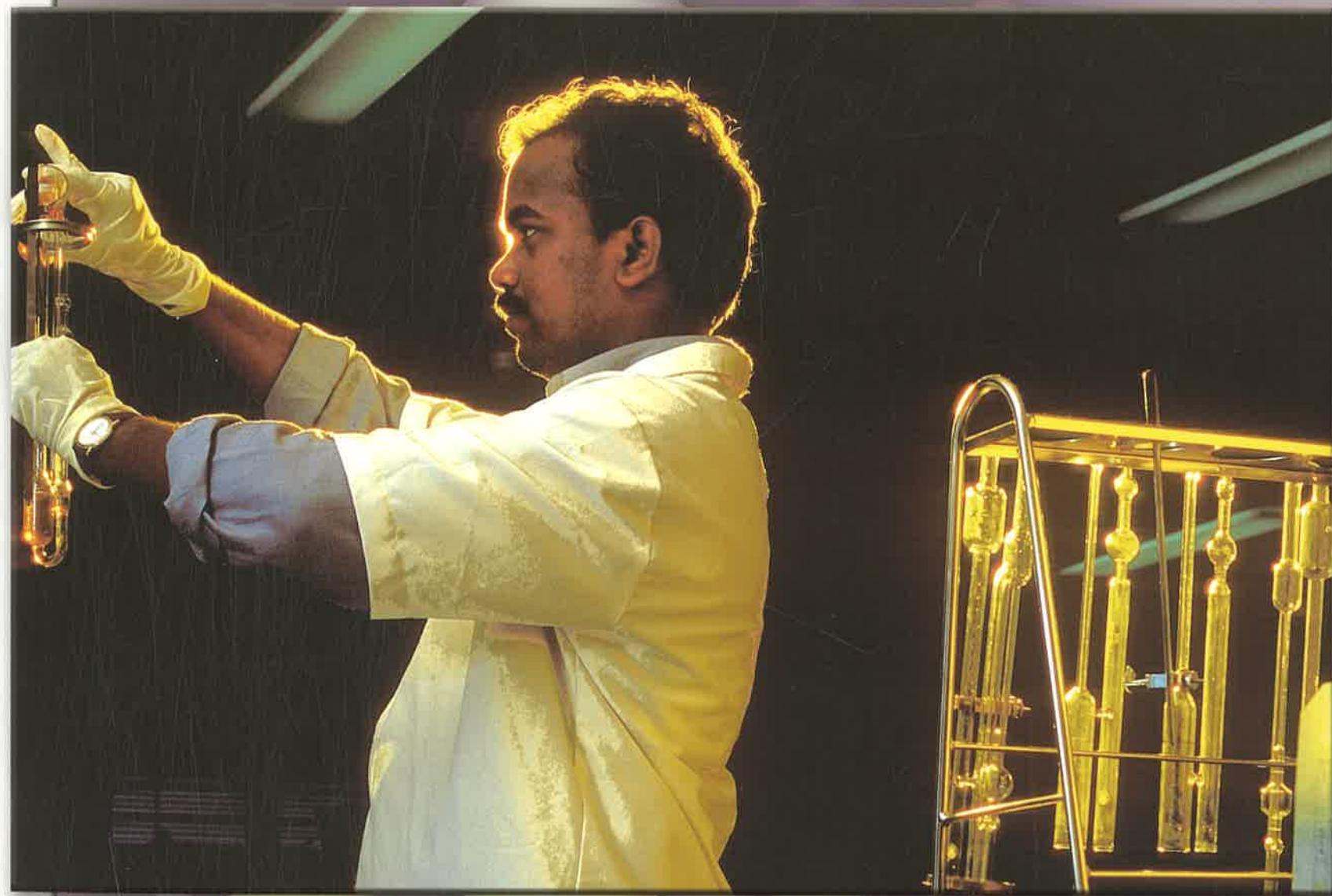
This is the Power of a Dream - the Dream of Nehru and Malaviya to have founded ONGC - and the ability of ONGC to follow and realize this Dream.

As per BRICS forecast, India is going to be among the first five economies in the world by 2050, along with Brazil, Russia, China and South Africa.

ONGC is poised to play a major role in enabling the Indian graduation.



*A spark of innovation.
Through conscious
policies and systems,
ONGC strives to
transfer the innovations
in the laboratories
to the field operations.
There is a periodic
rotation of personnel
between field and
laboratory assignments
to keep the flow
of ideas continuous
and smooth*





An eye on quality. At ONGC, quality is a relentless pursuit, a priceless achievement

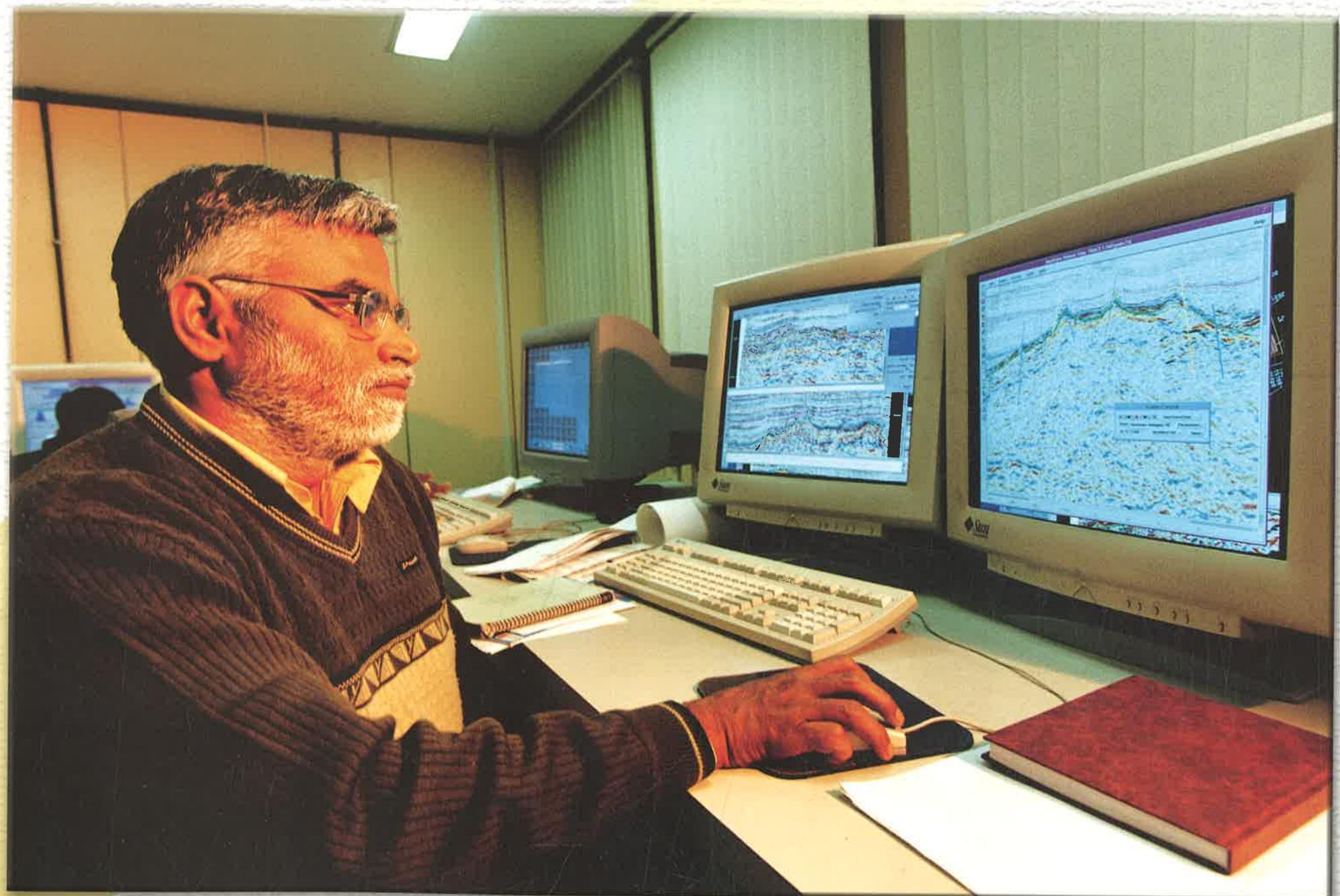




Oil-field work is a precious balance between courage and caution



ONGC is the second oil-field operator in the world, only after Chevron Texaco, to have drilled at water-depth over 3,000 metres



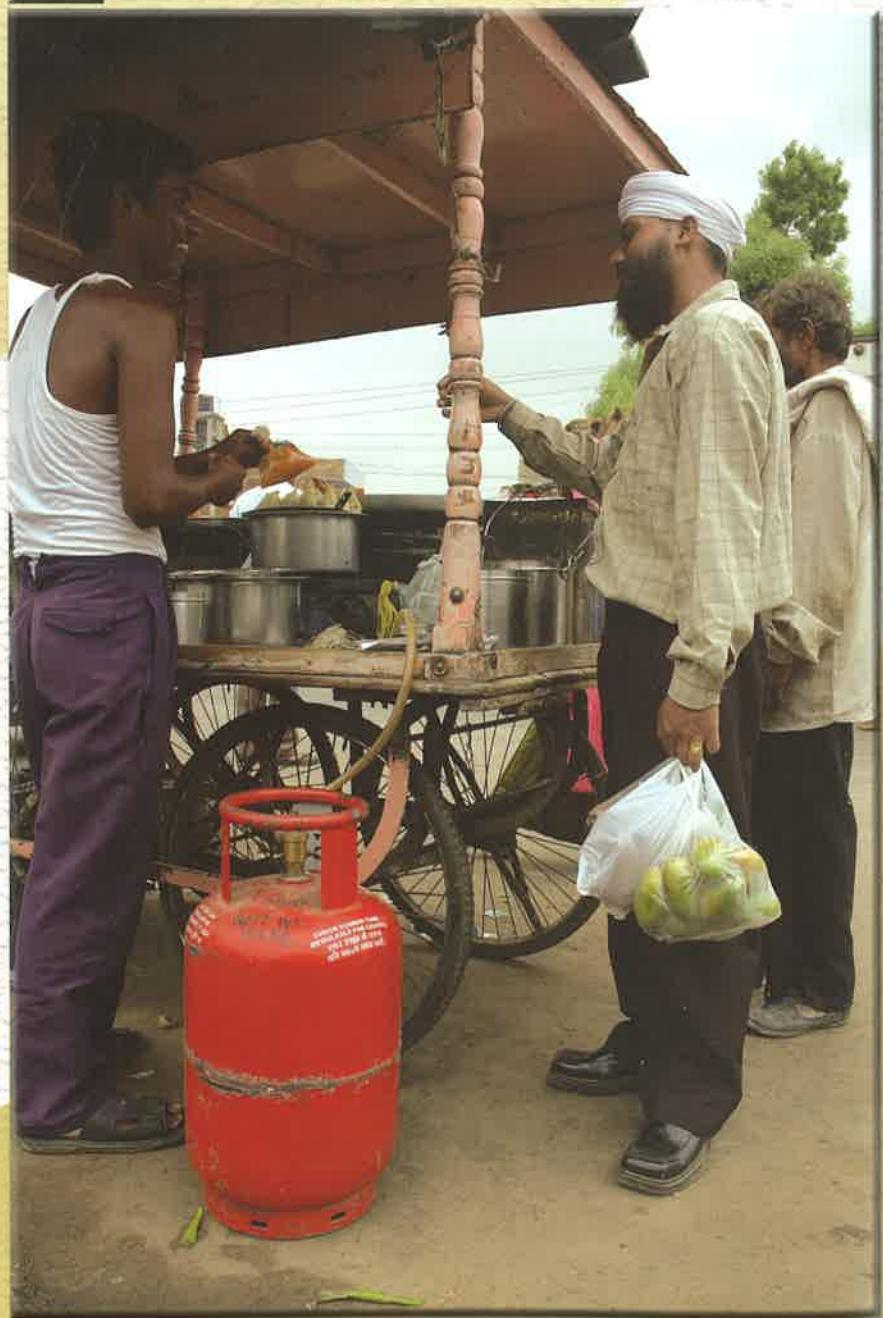
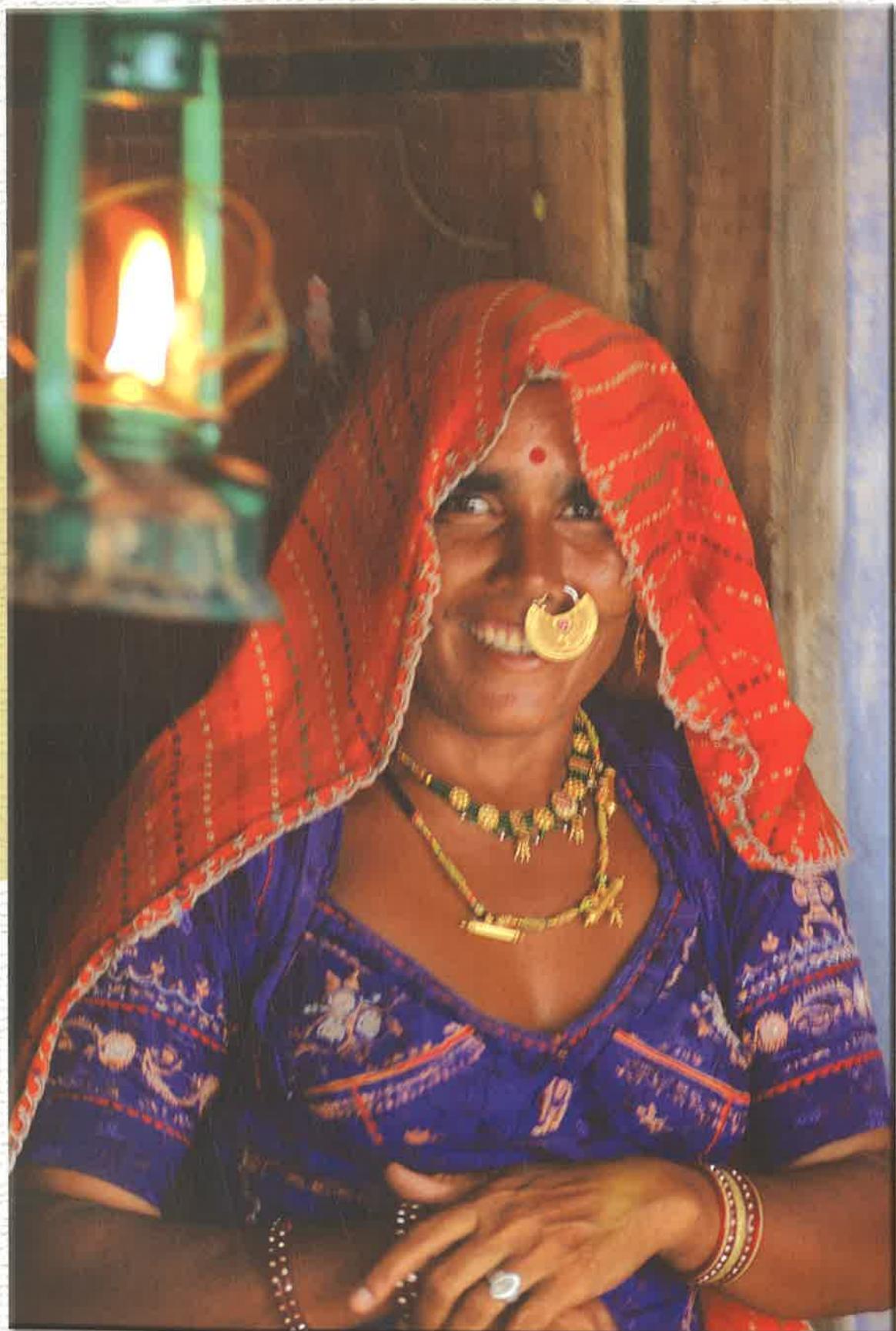
The petroleum industry requires specializations in diverse disciplines. So the work environment is enriching. The picture features a geoscientist glued to the seismic lines on his workstation to locate prospects of oil and gas



ONGC has instituted a 'Technology Development Group' to continuously scan and monitor world-wide developments, technology benchmarks on the one hand and ONGC requirements on the other to map the gaps and identify methods of bridging them in a time-bound manner



ONGC is the first-ever Indian Corporate in the Fortune magazine's list of 'World's Most Admired Companies' 2007. Seen with the Award are ONGC CMD R S Sharma (middle), Director (Human Resource) Dr. A K Balyan (right) and Director (Offshore) N K Mitra



ONGC's visible role in the lives of common people. Lighting up smiles (left), cooking a delicious future (right)

ONGC Touching Lives

There is a bit of ONGC in every aspect of our daily lives. For instance, the Fertilizer and Power sectors - two core sectors of Indian economy - in the country are critically dependant on Natural Gas, more than 80 per cent of which is produced by ONGC.



Building roads to prosperity - the asphalt comes from crude produced by ONGC

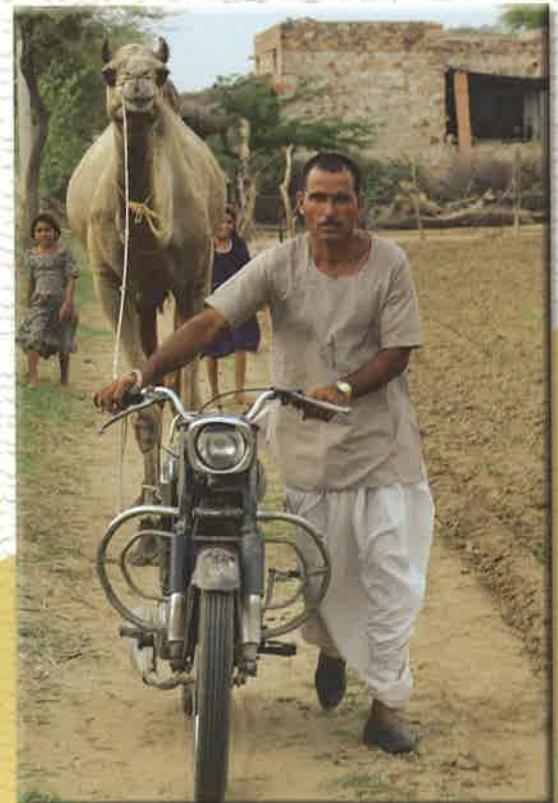
Energising Lives in more ways than one



Securing energy for their future: ONGC is not only striving for energy for today, it has an eye on the future as well. ONGC manages a number of schools to groom the future citizens of India.

We are in the business of energy: Motor Spirit and Diesel for cars and trucks, fuelling of flights, fuel to industries, cooking gas for homes, kerosene to the interiors of this vast land, ONGC is everywhere.

But as we progress, so does our vision, reaching out to new frontiers of energy; providing more services to our customers; enhancing stakeholder value; fostering innovation as the normal way of thinking; working and building a strong self-reliant nation is a part of ONGC's broader objective.



Wealth from the earth. The energy produced by ONGC helps the agricultural community produce food to energize the Indians.



ONGC also obtains other value-added products while processing the produced crude oil and natural gas



Sulphur - a byproduct of ONGC's operations



Both the fuel for the tractor and the fertilizer for the fields come from produce of ONGC



Noise, greese, sultry environment, hard labour - yet an ONGCian starts yearning to return to his work at the end of a well-deserved off-duty period



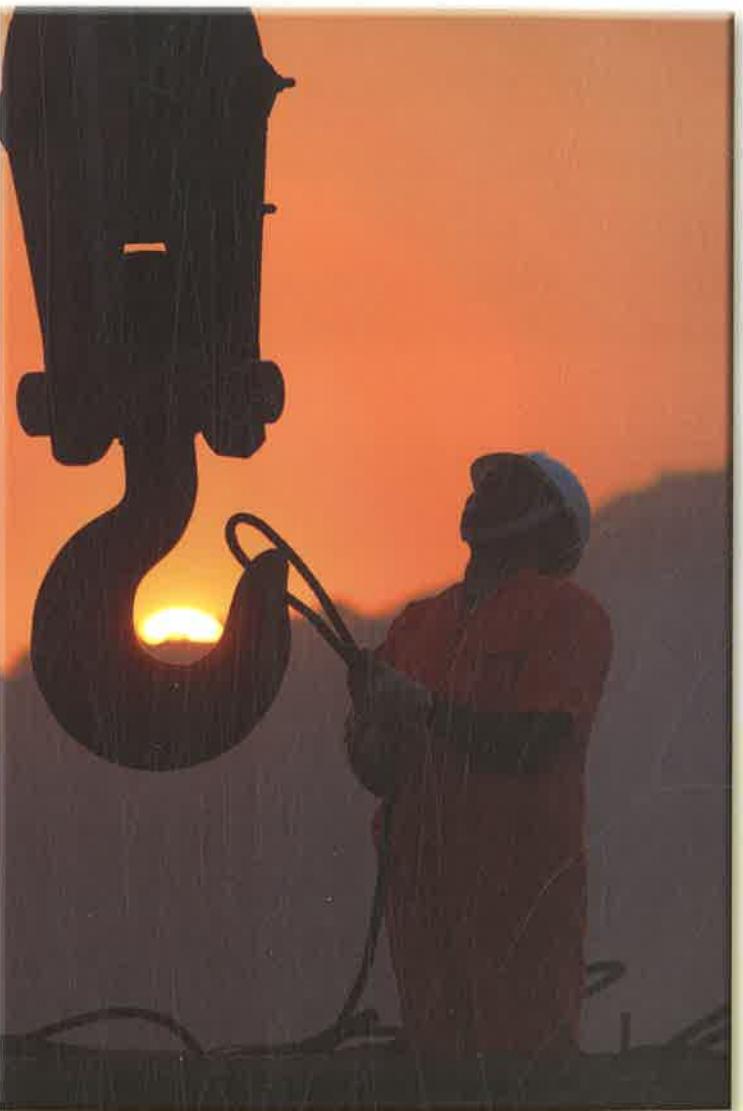
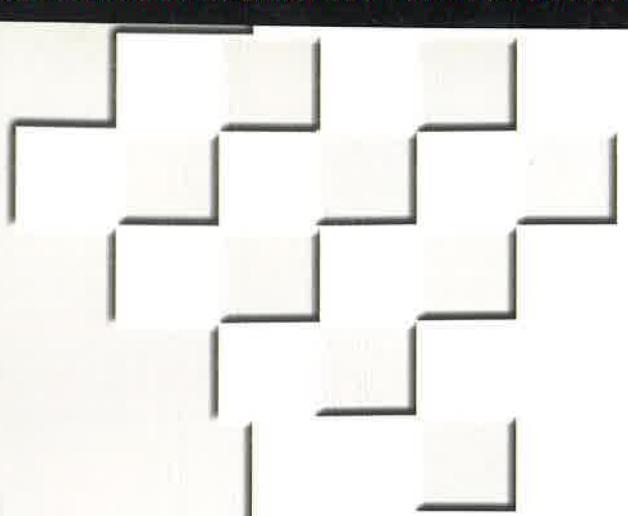
Meticulous planning, an eye for detail, concentration keep the work place safe and work an enjoyment for the ONGCians



Top management of ONGC is not confined to rarefied environment in offices. The picture shows CMD and Directors during a meeting on an offshore installation



It's hard work at the drill-site. ONGCians seen maintaining drilling fluid system of an onshore drilling rig

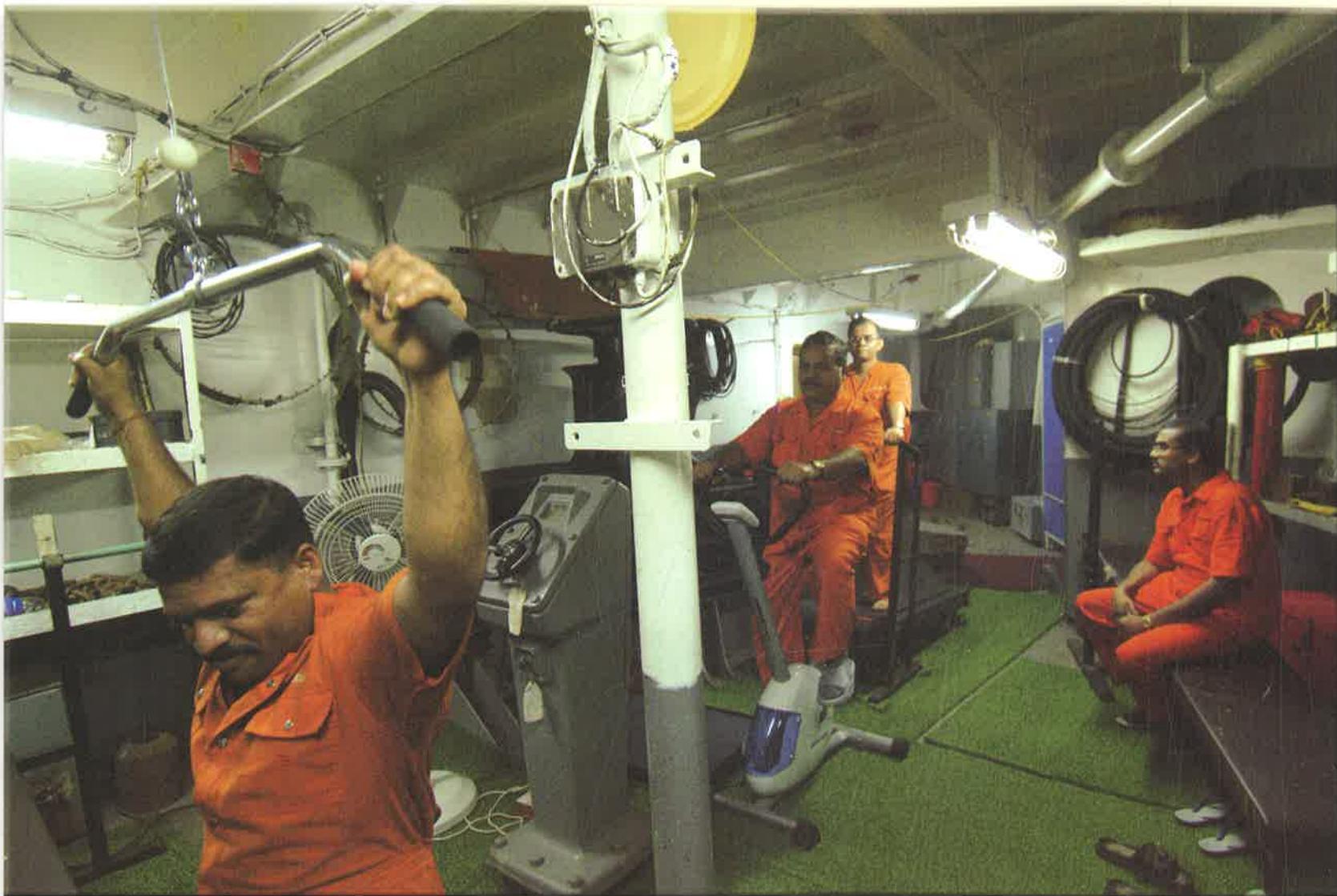


Timing and precision are the hallmarks of oil-field efficiency, which may make or break work-life rhythm on site. No amount of caution is too much when it comes to securing the life and limb of oneself and one's colleagues



It's a Different Life

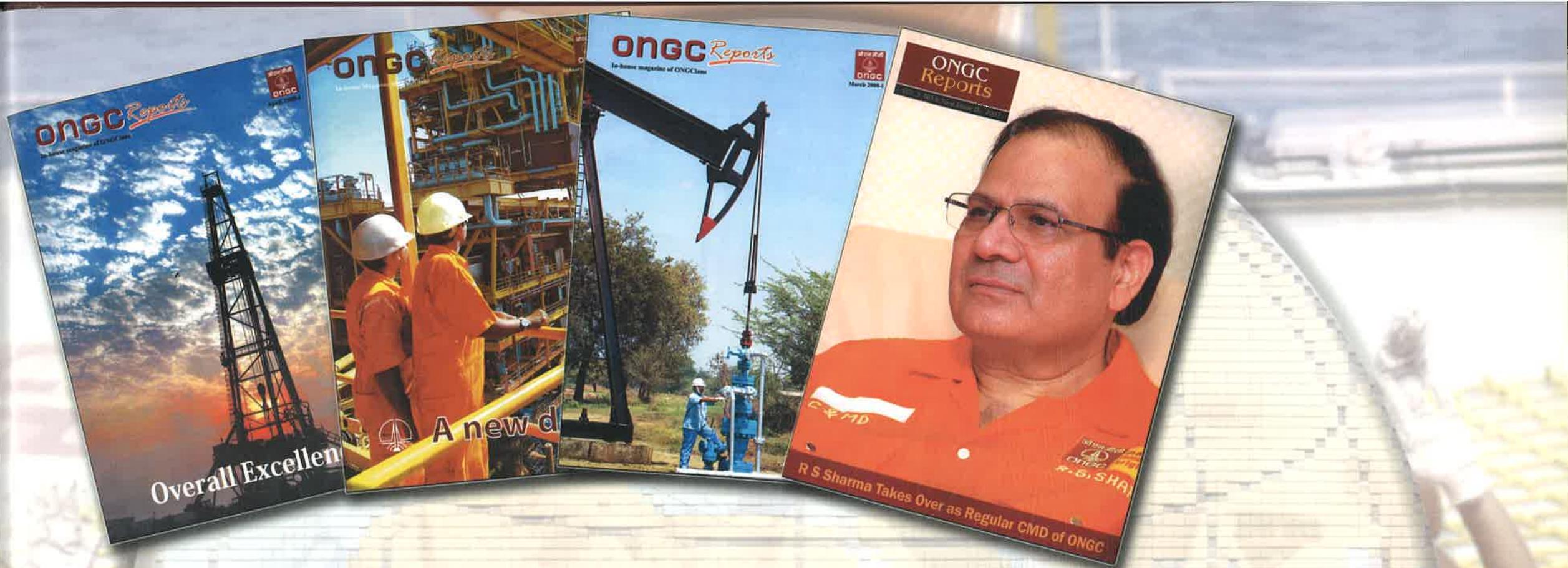
The business of oil and gas takes place away from usual human habitat. So the lives of ONGCians are different, if not difficult. The following pictures offer an insight into the lives of ONGCians who work for securing oil and gas – affecting lives of each person in this vast country.



We keep fit even in our remote work places



High seas are the home for us for a good fortnight every month - ONGCians stay on their offshore installations round the clock in 14 day shifts. To compensate for the 2-week absence from their families, they spend the next 14 days with their families, to complete a cycle



ONGC has an intranet portal 'ongcreports.net' to connect 32,000 plus ONGCians at diverse geographies, on real-time. Introduced in 2002, this is perhaps, the first such online portal in Indian corporate world. It has a fortnightly digest in print (top), in various Indian languages.

Driven by this portal, ONGC was nominated to have the best internal communication system in corporate India.

Welcome: D MURKESWARI
Last Logon: May 28, 2008 05:21 PM

ONGC on BSE 864.30 (953.70)
NSE 866.20 (963.26)

MNPL on BSE 87.65 (94.40)
NSE 83.10 (84.40)

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Energy conservation tip of the day :: "In Gen Set- ensure clean, cool and dry air for intake and proper radiator cap fitting"

CMD Speaks

CMD in Media

What's New

ReaderSpeak

BULLETIN BOARD

Annual Transfers 2008

Relocation / Reassignments of Senior Executives

Knowledge Management

GYANODAY - Sarvashar

You opinion can influence the path ONGC takes for developing its Knowledge Management system. Please spare few minutes of your valuable time and answer this questionnaire developed by Infosys for ONGC.

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Pay Committee recommendations: A recipe for rejuvenation

May 31, 2008 11:12:49 AM

The Pay committee constituted by the Government of India for considering and recommending Compensation to ...

Crude prices and India's fiscal deficit

May 30, 2008 3:30:19 PM

Everyone was pleasantly surprised with the projection of a fiscal deficit of 2.5% of GDP in the Union Budget 2008...

Breezing through with Flying Colours

May 30, 2008 9:24:34 AM

Meet Harshit Malli, son of Mr. Krishan Pal, DGM-Chemistry, Mud Services, Mumbai, for whom winning laurels ...

Crude Concerns

May 29, 2008 3:52:59 PM

Spiralling crude prices have become a matter of concern all across the globe. Declining production from ageing and ...

It's Tee Time for Baselines

May 31, 2008 1:54:20 PM

ONGC has been an enabling factor in the making of many a sportspersons of national and international stature...

WDB, Mumbai conducts SAMPAIC sensitization programme

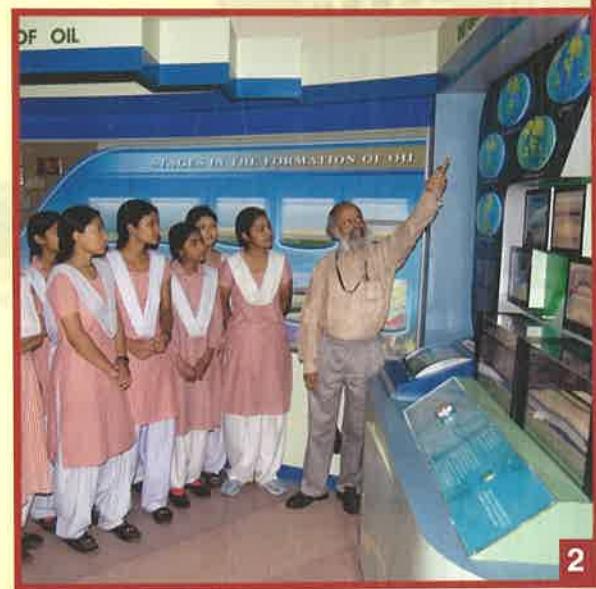
May 31, 2008 10:56:44 AM

Western Offshore Basin, Mumbai organized a "Samprati" sensitization program on May 27, 2008...

Quotable Quotes



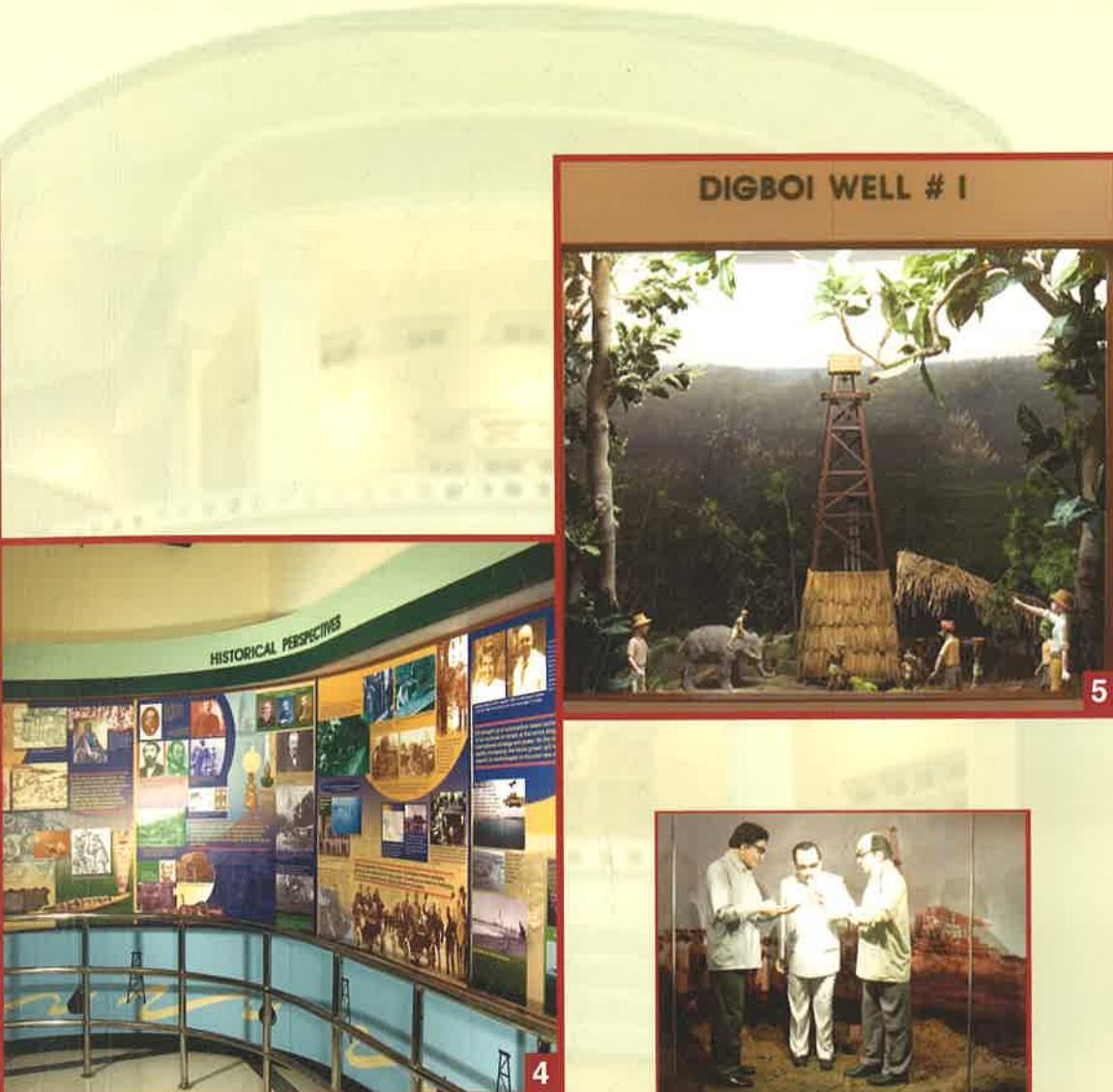
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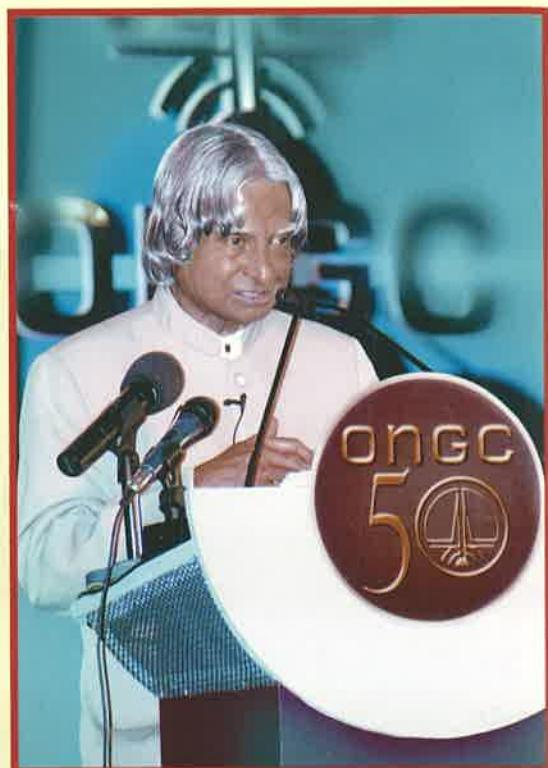
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7



ONGC Golden Jubilee Museum, the first and only one of its kind in India is a world class oil museum. It was inaugurated by former President of India Dr. APJ Abdul Kalam on 14th August, 2005 to mark the launch of Golden Jubilee celebrations of ONGC. Photographs show glimpses of the museum building and the exhibits

1. The theme exhibit - Faucault's pendulum - depicts the dynamism of earth
2. School children listen attentively to the story of how plate tectonics shaped the earth's surface over millions of years
3. The historic 'Patiala House' is now the ONGC Golden Jubilee Museum
4. History of global oil industry
5. India's first oil well being drilled at Digboi, Assam
6. The stalwarts L P Mathur, K D Malaviya and A M N Ghosh
7. Animated offshore jackup drilling rig

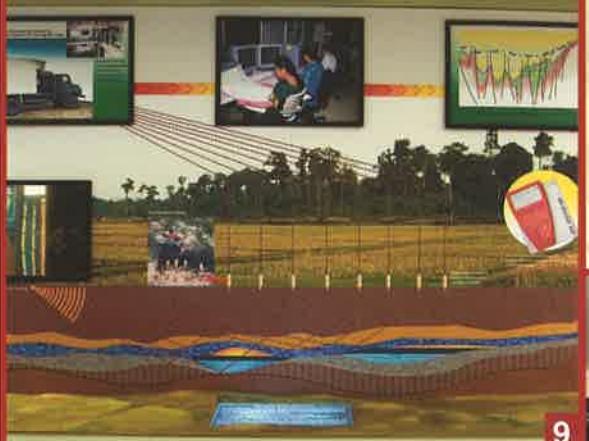
A New Vision

"I would suggest ONGC to give world leadership in management of energy sources, exploration of energy sources, diversification of energy sources, technology in Underground Coal Gasification and above all finding new ways of tapping energy wherever it is, to meet the ever growing demand of the country."

Let me greet all the members of ONGC on this Golden Jubilee occasion. My best wishes to the ONGC in their mission of making the nation energy independent before 2030."

Dr. A P J Abdul Kalam,
former President of India, while
launching ONGC Golden
Jubilee celebrations on
14th August, 2005, at ONGC
Headquarters, Dehradun

SEISMIC EXPLORATION



9



12



10



11



13



8

8. A history seeker - moving computer screen tells the story of ONGC
9. Animated interactive exhibit explains the seismic exploration technique
10. Safe working - a religion at ONGC
11. Wow - so many things of daily use come from petroleum !!
12. A sea-water aquarium with exotic fish and sea-creatures and a model of process platform
13. An interactive exhibit to understand process in an atmospheric distillation column and a vacuum distillation column in a refinery
14. Rear view of the museum building



14



The young pioneers - the first apprentice batch of scientists and engineers (inducted in 1956 into ONGC) with visiting central leader Babu Jagjivan Ram (top left). Half a century later, the baton passes on - the Graduate Trainee batch of 2006 in ONGC Academy (bottom right)





R S Sharma, CMD, ONGC
Chairman, ONGC Group



Dr. A K Balyan
Director (HR)



A K Hazarika
Director (Onshore)



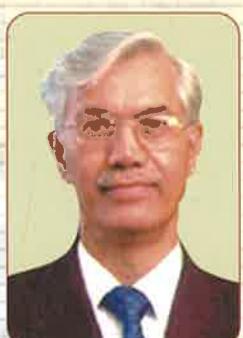
N K Mitra
Director (Offshore)



D K Pande
Director (Exploration)



U N Bose
Director (T&FS)



R S Butola
MD, OVL



R Rajamani
MD, MRPL



D K Sarraf
Director (Finance)



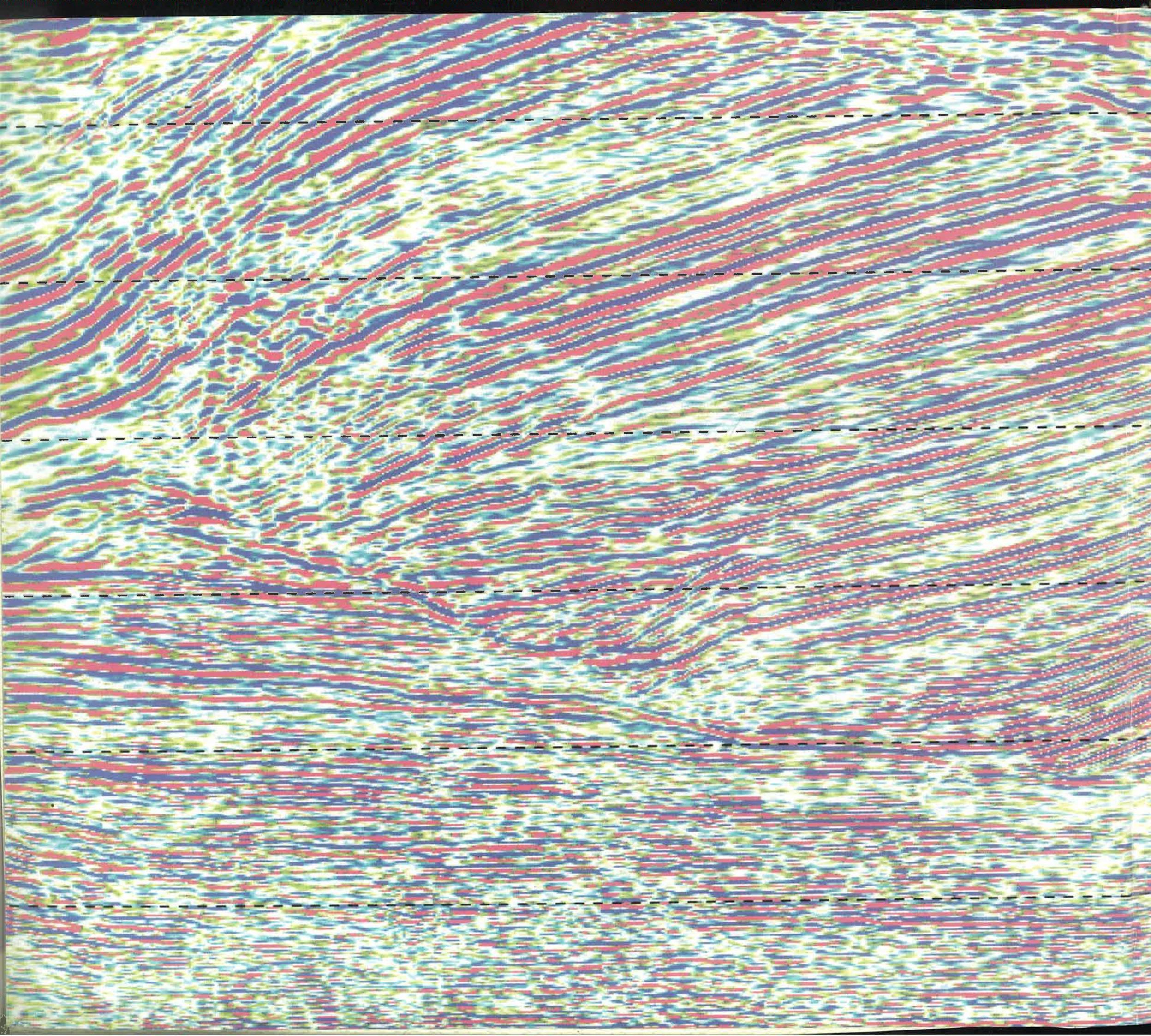
ONGC is present across the whole hydrocarbon value chain

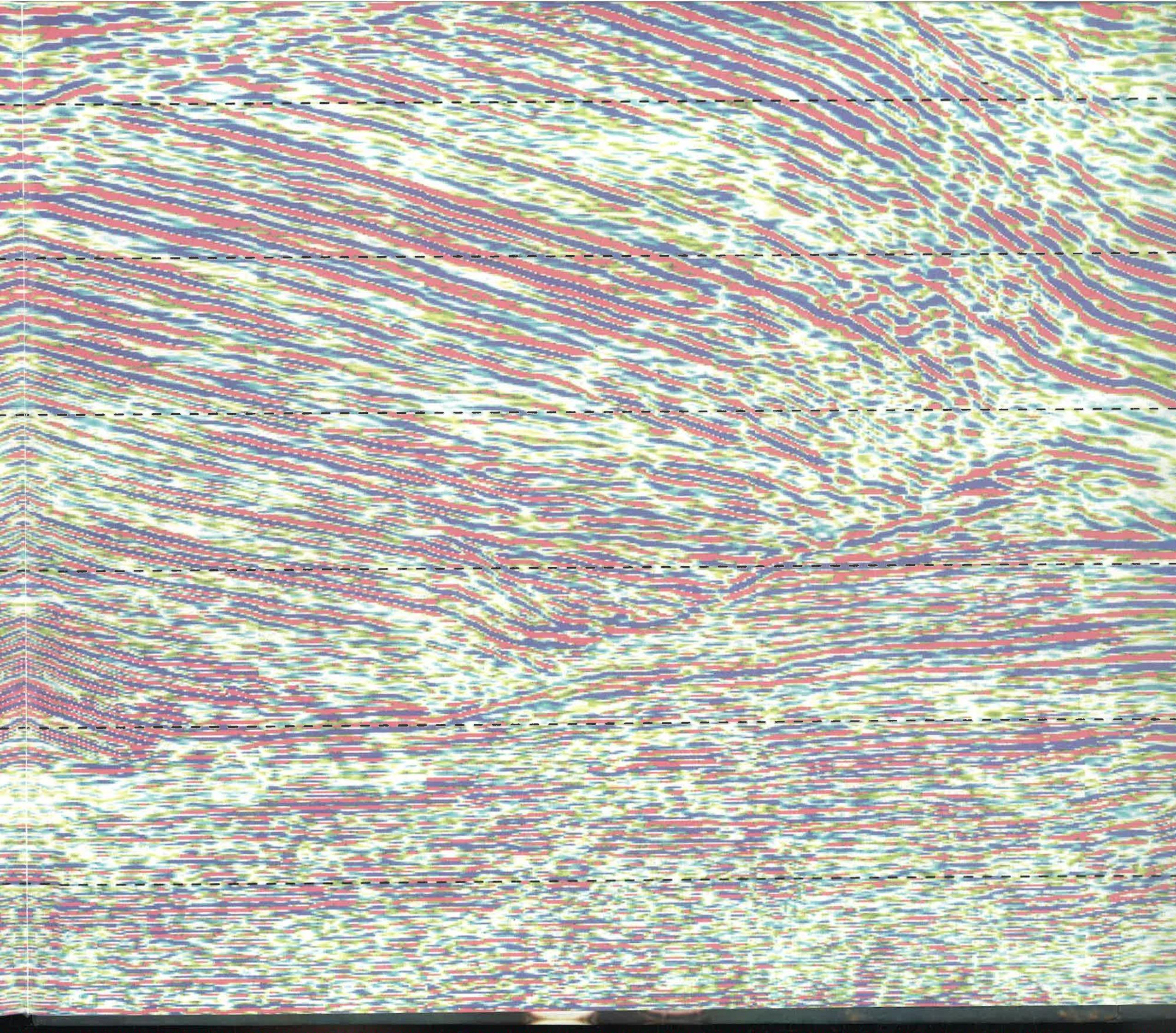


*Where the mind is without fear and the head is held high
Where knowledge is free
Where the world has not been broken up into fragments
By narrow domestic walls
Where words come out from the depths of truth
Where tireless striving stretches its arms towards perfection
Where clear stream of reason has not lost its way
Into the dreary desert sand of dead habit
Where the mind is led forward by thee
Into ever-widening thought and action
Into that heaven of freedom, my Father, let my country awake.*

- Rabindranath Tagore









ONGC Golden Jubilee Museum, Dehradun