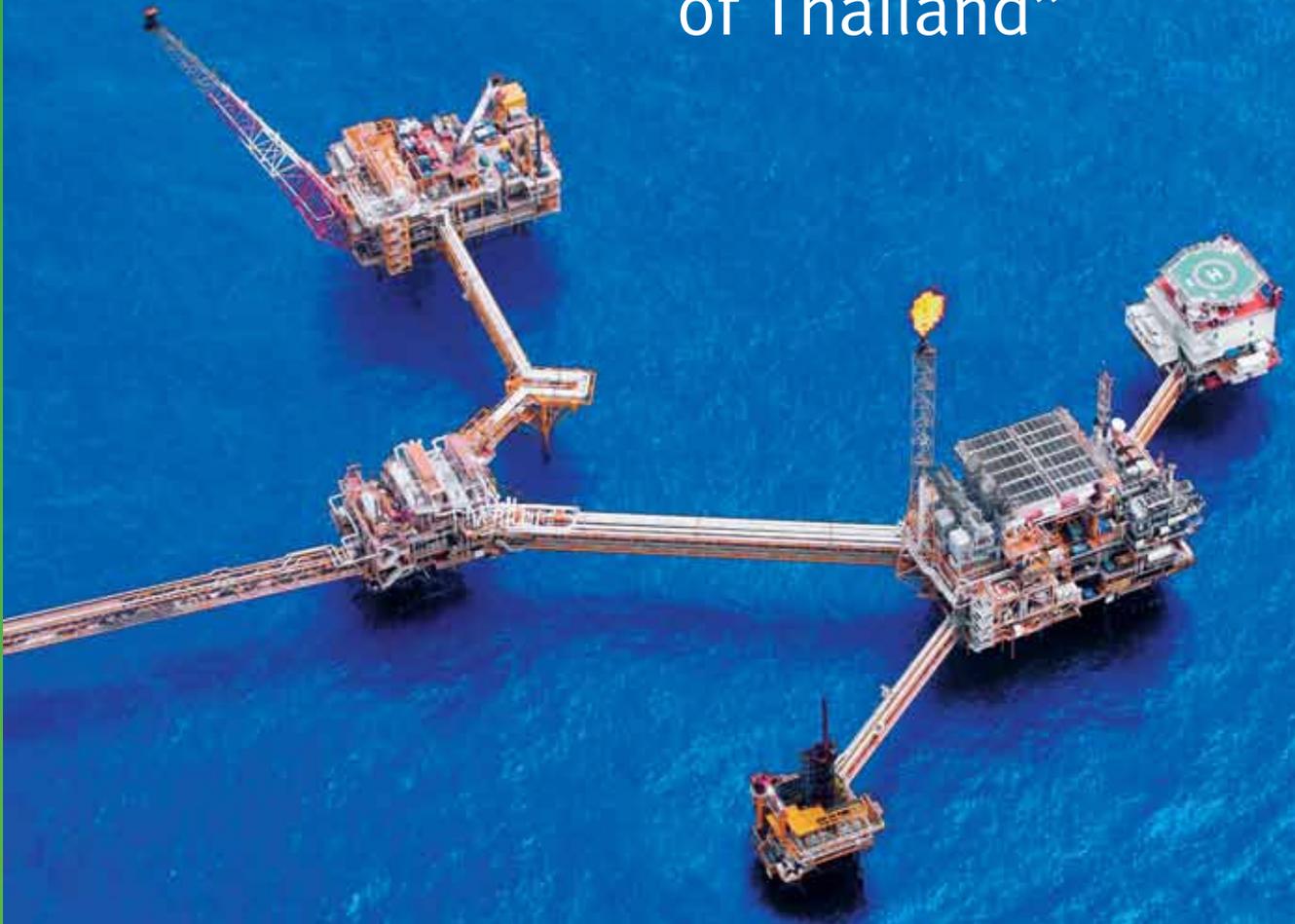


25th 
BONGKOT
Anniversary

“Tales of Wisdom
from the Gulf
of Thailand”



**25th Bongkot
Anniversary**

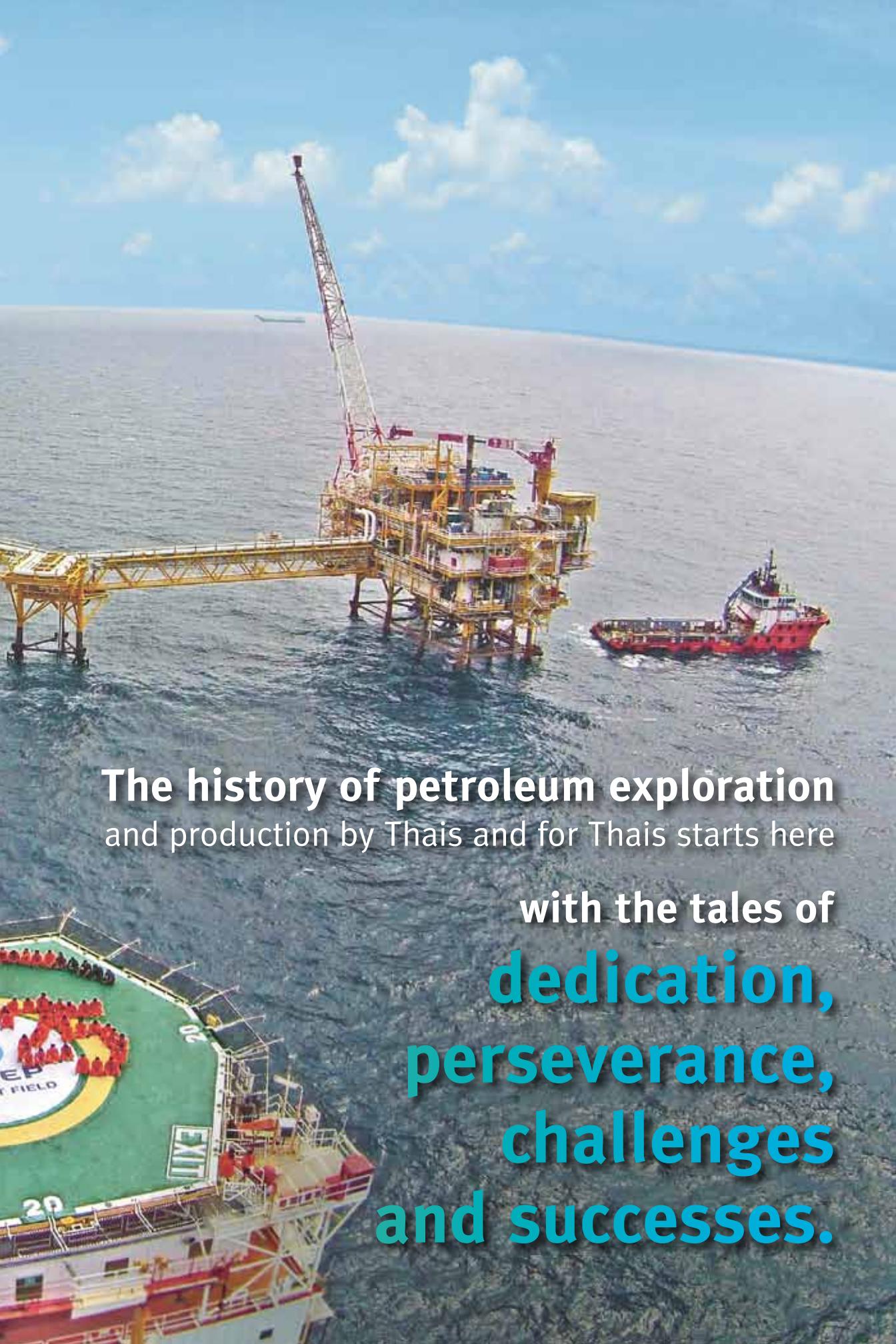
Tales of

Wisdom

from the Gulf

of Thailand





The history of petroleum exploration
and production by Thais and for Thais starts here

with the tales of
dedication,
perseverance,
challenges
and successes.



LIFE SAVING PROGRAM

- 1. Always wear your seat belt
- 2. Always wear your safety harness
- 3. Always use proper lifting techniques
- 4. Always use proper fall protection
- 5. Always use proper hand signals
- 6. Always use proper communication
- 7. Always use proper safety equipment
- 8. Always use proper safety procedures

- 1. No smoking
- 2. No alcohol
- 3. No drugs
- 4. No cell phones
- 5. No running
- 6. No horseplay
- 7. No climbing
- 8. No jumping

Chapter 1

The Legend:

The Pride Nestled

in the Gulf of Thailand



Chapter 2

The Wisdom:

Passing on the Knowledge to Search for Energy

by Thais and for Thais



Chapter 3

The Sustainability:

Growth,

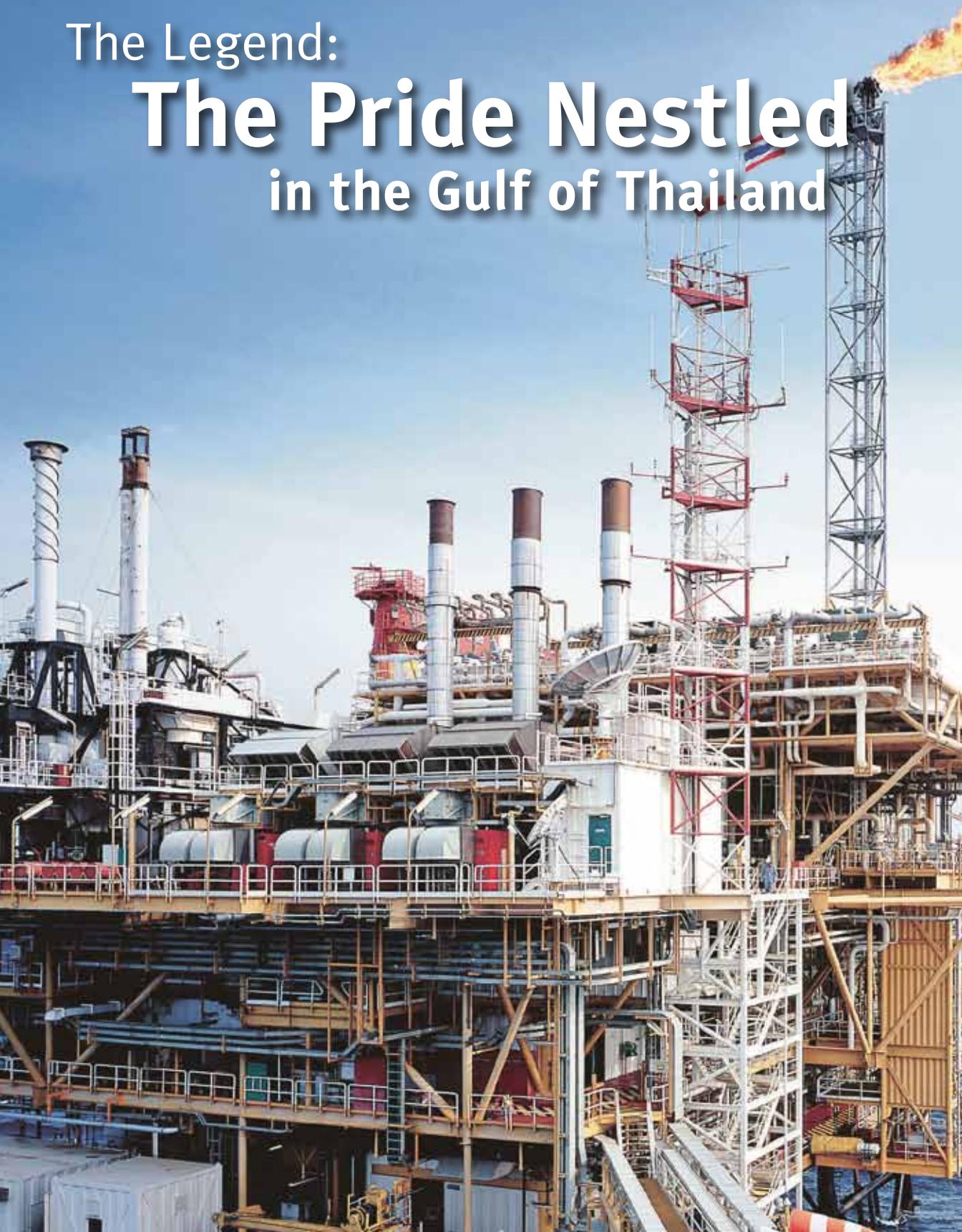
Future and Sustainability

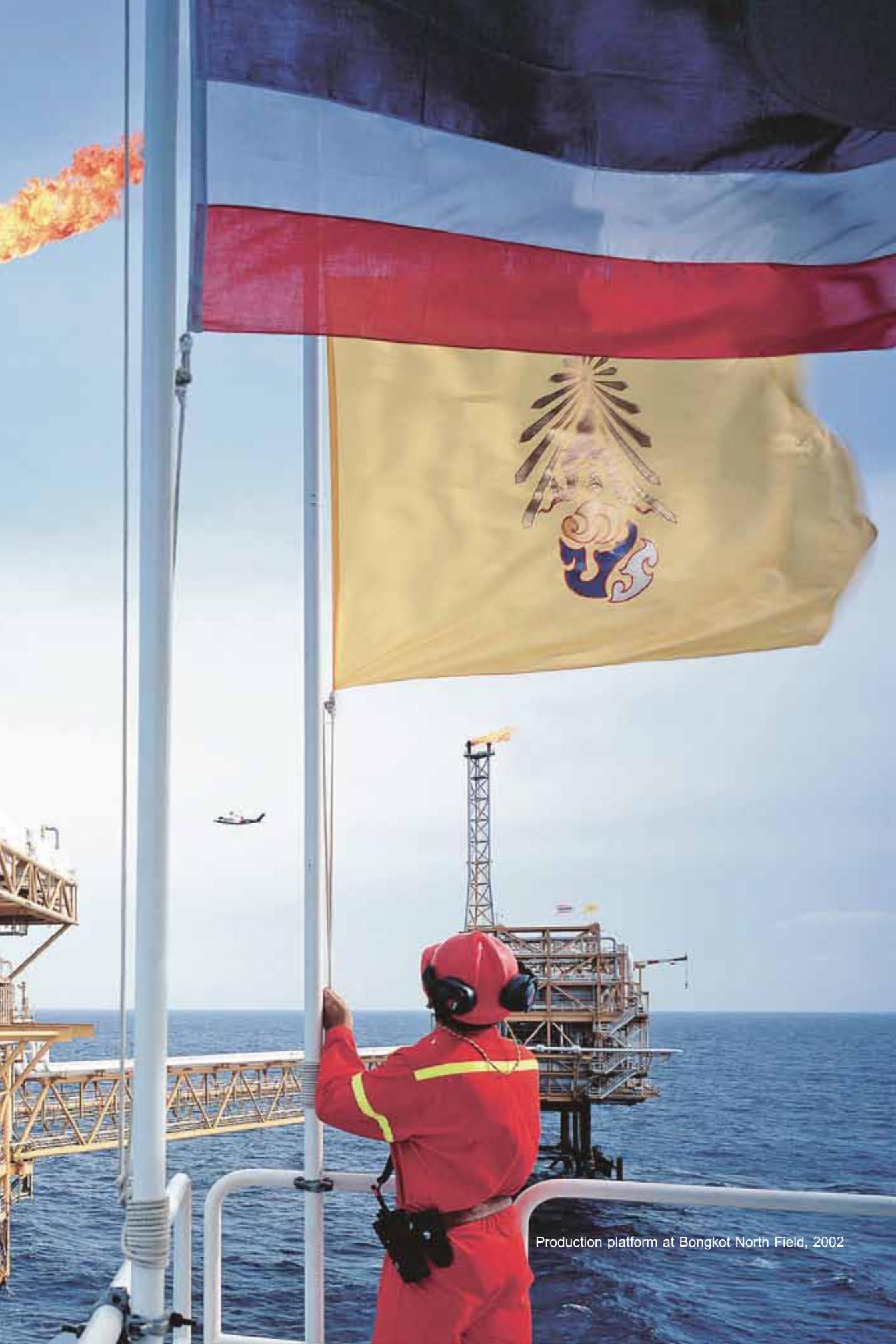


Chapter I

The Legend:

The Pride Nestled in the Gulf of Thailand





Production platform at Bongkot North Field, 2002



Lesson One

The glittering gold reflection of the flame from the gas flare moved in unison on the tips of the ocean waves. The sun had set low below the horizon and the stars came out to shine. Through darkness came bright light from the “**Bongkot natural gas field**” production platform revealing its monumental size. The equipment operated tirelessly as did every person there. All shared the same mission to search for natural gas which would be turned into “energy” for the Thai people.

The natural gas from the Bongkot field in the Gulf of Thailand most visibly is used to generate electricity, supporting vital industrial production that keeps the economy growing, hospitals ready to deal with any emergencies, or street lights that light our way home or even a small light bulb in a remote rural village. In addition, less obvious but just as important, the derived natural gas is used as a raw material for a myriad of petrochemical products encountered in our daily life.

“Natural gas” can truly be regarded as the first cog in all the machines in Thailand.

The history of natural gas exploration and production by Thais and for Thais began right here, with numerous tales of dedication, perseverance, challenges and successes.

In 1988, the Royal Thai Government at that time decided to repurchase the Texas Pacific concessions (now the Bongkot field). PTTEP was assigned to execute the deal, which was completed on 12 July 1988. PTTEP management



was given the authority to enter into joint ventures with international oil companies, to develop its capabilities to become an operator within 5 years from start-up of production of natural gas from the Bongkot field. The mission given by the Royal Thai Government was considered to be the turning point in the history of Thai energy in respect of petroleum exploration and production. A “Thai company” was tasked to be the guardian of the rightful national interest derived from the domestic resources on behalf of the State and its people, and to further national energy security.

The Bongkot field is located in the Gulf of Thailand, approximately 200 kilometers off the coast of Songkhla Province. Initially, no one expected there to be such a significant amount of natural gas reserves at the Bongkot field. Over time, through innovation and building up of the knowledge base, this natural gas field has

become one of the main pillars of Thailand’s energy. The current daily production capacity stands at 900 million cubic feet of natural gas and 30,000 barrels of condensate. At these production levels, it can fuel six 800-megawatt power plants, accounting for 20 percent of the national demand for natural gas and 30 percent of the domestic natural gas production capacity.

Throughout its 25 years over this body of water, the Bongkot field has been more than just a source of energy for the nation, it also has been Thailand’s first school for petroleum exploration and production. It has been a place of learning for generations of personnel that has enabled a Thai company to gain the expertise needed to develop petroleum fields, both domestic and overseas. These are the tales of discovery, perseverance, learning and the passing on of knowledge from one generation to the next.

Bongkot's Journey



- On 15 September, HRH Princess Maha Chakri Sirindhorn presided over the ceremony marking the start of production of natural gas at the Bongkot field.

- Production capacity was increased to 350 million cubic feet per day.



- The Royal Thai Government repurchased the Bongkot field concessions (Project "B") from Texas Pacific.

- Bongkot field's initial production capacity was 150 million cubic feet per day.

1988

1990

1993

1996

1997



- Horizontal well drilling technology was first used in Thailand at well BK-4-M1.

- Began using water injection technology returning produced mud water back into the well.

- PTTEP signed a joint venture agreement with Total, Statoil and British Gas, launching the exploration and development of the Bongkot gas field project, with Total as the operator; the project's name was changed from Project B to

"Bongkot natural gas field."



- On 1 July, PTTEP assumed operatorship from Total, marking a historical milestone for Thailand's petroleum exploration and production capability.

1998

- Start-up 3rd production line; increased production capacity to **550 million cubic feet per day** and 22,000 barrels of condensate per day.



- HM King Bhumibol Adulyadej graciously bestowed the name "Navamindra Petroleum Area" to the areas of the Bongkot and Arthit Projects.

2001

- Successfully drilled exploration well "Ton Sak - 6" to the depth of 2,770 meters and discovered more petroleum, which added 600,000 million cubic feet of natural gas to the Bongkot natural gas field's reserves.

2003

- PTTEP and partners discovered the Bongkot South natural gas field.



Commenced operations of the new 400,000-barrel condensate storage tanker "Pathumabaha," which was graciously named by HRH Princess Maha Chakri Sirindhorn.

2004

Bongkot's Journey

● Successfully drilled “BK-7-GR” well which is the longest well in Thailand to 5,200 meters and the first 90-degree horizontal drilling in Thailand.

2005

● Began construction of the central processing platform for the Bongkot South Project.

2008

● Connected the transmission lines of condensate from the Arthit field to the condensate tanker at Bongkot natural gas field.

● PTTEP and partners signed the sale agreement for the natural gas from the Bongkot South field with PTT Public Company Limited.

2009

● Bongkot field's total production of natural gas reached

3 trillion cubic feet.

2010





- Completed installation of additional living quarters and central processing platforms of the Bongkot South field.



- On 24 September, HRH Princess Maha Chakri Sirindhorn presided over the ceremony marking the start of the production of natural gas at the Bongkot South field.



- Bongkot field's total production of condensate reached **100 million barrels.**
- Natural gas produced from the Bongkot South field was delivered to PTT as committed.

- PTTEP acquired Shell's stake in the Bongkot field, increasing PTTEP's shares to 66.6667% and Total 33.3333%.

2011

2012

2013

2018



- Pathumabaha tanker had been in operation for 10 years without any accidents.

25th BONGKOT Anniversary

15 July marked the 25th anniversary of production operations at the Bongkot field.





The History of Thailand's Petroleum Exploration

In 1918, crude oil was discovered in Fang District, Chiang Mai Province. Lieutenant General Prince Kamphaengphet Akharayothin, commander of the Royal Railway Authority at the time, ordered drilling to test the oil discovered. Later in 1921, the Royal Thai Government contracted an American geologist to explore the Fang oil field in Chiang Mai Province and Kalasin Province. This is considered to be the birth of petroleum exploration in Thailand.

The first phase of petroleum exploration in Thailand was conducted by State agencies. However, Thailand possessed neither the necessary personnel nor technology. A huge investment was also needed, yet the enterprise suffered from a lack of continuity. The Royal Thai Government subsequently allowed international private companies with the right expertise to operate in Thailand, in accordance with the Minerals Act. During 1961 - 1962, international oil companies such as Union Oil of California (Unocal), Shell and Esso applied

for the rights to conduct petroleum exploration both onshore and in the Gulf of Thailand, which prompted the drafting of the Petroleum Act. The process took over 5 years to complete because petroleum exploration and production business in Thailand was in its infancy. In 1971, the Petroleum Act and the Petroleum Income Tax Act were enacted. Mr. Poj Sarasin, Minister of National Development (the Ministry of National Development was renamed as the Ministry of Industry and subsequently became the Ministry of Energy), and Mr. Samarn Burawas, Director-General of the Department of Mineral Resources, both played a key role in the enactment of these two pieces of legislation due to their vision and dedication. The two men acted with the national interest in mind and helped usher Thailand into the "golden age" of petroleum exploration and production, which led to extensive domestic petroleum exploration and production, including the discovery of the "Bongkot field".

First Step of the Bongkot Field

Before becoming the gigantic natural gas production platform that it is today, Bongkot has its many hidden tales deep beneath the seabed as **Mr. Kanok Intharawijitr, Executive Vice President, Geosciences and Exploration Group**, said.

This area used to be just a part of the vast deep blue sea. No one knew if there would be any petroleum down there or not. In 1967, the Department of Mineral Resources issued an announcement **soliciting the private sector to apply for the right for petroleum exploration and production over the continental shelf (the Gulf of Thailand) and in the Andaman Sea**. Early exploration was conducted in exploration blocks **B14, B15 and B16**. In 1968, Tenneco began conducting 2D seismic survey in exploration block B15 and drilled the first well in 1973.

Although natural gas was discovered, the amount was less than the forecast, leading to Tenneco relinquishing the concession block in 1975. In 1976, Texas Pacific and BP Petroleum took over operations and in 1977, conducted additional exploration activities using more advanced 3D seismic survey technique. An additional 27 exploration wells were drilled and natural gas was discovered in 18 of them. However, the negotiations on the natural gas purchase agreement in 1978 did not reach conclusion, which meant that when PTTEP repurchased the concessions back, there was some information on the potential but



PTTEP did not have enough experience to enable it to be the operator themselves. That is why major international oil companies were invited to enter into a joint venture.

“In 1990, we invited Total to be our partner and operator because of their experience in petroleum fields in Indonesia which shared some of the geological characteristics with the Bongkot field. We thought that they could help and it was indeed our turning point. After signing an agreement with Total, they began assessing petroleum potential by drilling an additional delineation well. It marked the beginning of transfer of knowledge on geology from Total to PTTEP.” This was one of the terms of the agreement and an even more significant one was that Total must transfer the operatorship to PTTEP in 1998.

“

The first generation of PTTEP employees who received training from Total were under tremendous pressure. The company placed high hopes on them, and it fell on them to prove to Total that the PTTEP team was able to meet the required standard. Otherwise, the transfer of operatorship would not be possible. Therefore, all of us were under a lot of pressure, but that pressure also came with pride.

– Mr. Kanok Intharawijitr –
Executive Vice President,
Geosciences and Exploration Group

”

There were three groups of Thai PTTEP employees who were seconded to Total: “Sub-surface Group” in charge of exploration and reserves estimation; “Operation Group” in charge of production; and “Support Group” in charge of all support functions such as human resources and finance.

Mr. Kanok said that discovering petroleum deep beneath the seabed is no easy task. It requires the collection and analysis of data from a “geological exploration,” such as aerial photographs and geological survey, and a “geophysical exploration,” namely magnetic survey, gravity survey and seismic survey. The data collected are then processed and used to plan drill sites, which ultimately will determine the presence of petroleum in the area or not.

“The first generation of PTTEP employees who received training from Total were under tremendous pressure. The company placed high hopes on them, and it fell on them to prove to Total that the PTTEP team was able to meet the required standard. Otherwise, the transfer of operatorship would not be possible. Therefore, all of us were under a lot of pressure, but that pressure also came with pride.”

Mr. Kanok said that in addition to training with Total, PTTEP also learned from other leading



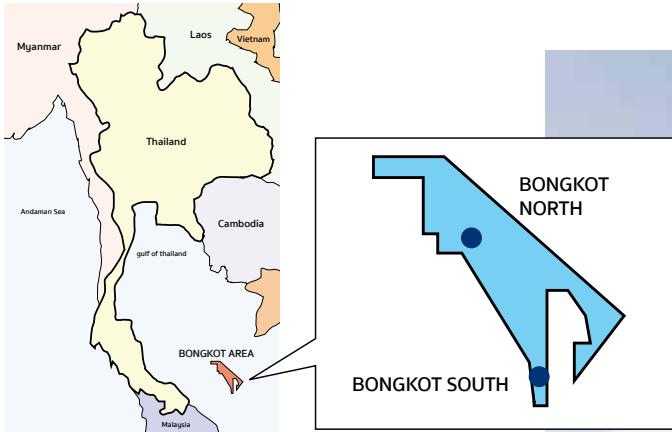
“ Thailand was the first and only developing country where operatorship was successfully completed without any problems.

Other developing countries will face an uphill task when their concession end because they do not have sufficient knowledge. Many have opted for another round of open bidding for an external operator, since they cannot do it themselves. Additionally, it is not worth making the further investment because previous operators have skimmed off the easy stuff. What remains is harder and more expensive to put into production. In comparison, we can do it ourselves and that is, for me, the pride of PTTEP.

— Mr. Rangsan Bhengbhun —
Acting Senior Vice President,
Geosciences and Technology Division

international oil companies that were PTTEP’s partners in other fields, such as Shell Thailand and Unocal. Our knowledge base was thus built from various sources. “Asides from the Bongkot field, since 2000 we have developed many petroleum fields ourselves – drilling, platform building and production. By sending our people to work with our international partners, we learned from working with the major companies such as Unocal, a partner in the Arthit field, and Shell Thailand, a partner in onshore fields, and applied the knowledge for our purpose. It was a hybrid of trans-national knowledge,” Mr. Kanok said candidly.

“At first, Total estimated that the Bongkot field’s proven reserves were at approximately 2 trillion cubic feet (TCF).



However, since production start-up, we have produced almost 6 trillion cubic feet and will likely reach almost 7 trillion cubic feet by the end of the concession period in 2023. The reason for this high production figure is that by building upon our knowledge base, we discovered more petroleum reserves. Doing so was not easy, since the petroleum reserves in the Bongkot field consist of small pockets spread out in different areas. Therefore, drilling needs to be in line with the curvature of the reserves, requiring advanced technology and more investment.”

Mr. Kanok said that if PTTEP had only been equipped with the knowledge learned from its partners without further development and “building upon it,” the transfer of operatorship of the Bongkot field from Total to PTTEP would not have been accomplished.

Similarly, Mr. Rangsan Bhengbhun, Acting Senior Vice President, Geosciences and Technology Division, spoke of when he received training from Total in France: “When I met my colleague from Total Indonesia and sat down for a chat. My Indonesian colleague was very impressed by our achievement. They too wanted the transfer of operatorship but were unable to do so. Thailand was the first and only developing country where operatorship was successfully completed without any problems. Other developing countries will face an uphill task



when their concessions end because they do not have sufficient knowledge. Many have opted for another round of open bidding for an external operator, since they cannot do it themselves. Additionally, it is not worth making the further investment because previous operators have skimmed off the easy stuff. What remains is harder and more expensive to put into production. In comparison, we can do it ourselves and that is, for me, the pride of PTTEP.”



HRH Princess Maha Chakri Sirindhorn graciously presided over the ceremony marking production start-up of the Bongkot natural gas field on 15 September 1993.

Developing for Security

The Bongkot natural gas field began production in 1993. **HRH Princess Maha Chakri Sirindhorn graciously presided over the ceremony marking production start-up of the Bongkot natural gas field on 15 September 1993**, with 3 wellhead platforms, 1 central processing platform, 1 living quarters platform and 200,000-barrel condensate tanker. With more advanced technology and more gas discoveries, the number of production platforms has multiplied and risen continuously.

The operatorship transfer of the Bongkot field from Total in 1998 was a major challenge for PTTEP and it was a testament of Thais' capability to be an operator of gas field exploration and production. The first challenge

was that the operatorship transfer must not affect the delivery of natural gas, which was the nation's main source of energy for electricity generation.

Mr. Phongstorn Thavisin, Chief Executive Officer of PTTEP said, "the decision to repurchase the Bongkot field concessions back from Texas Pacific and to assign PTTEP, a State agency, to develop the Bongkot natural gas field as a joint venture, as well as setting the target of becoming the operator itself within 5 years, was due to the national strategy and foresight of the Royal Thai Government at the time. Deserving a particular mention was **the Minister, Mr. Sulee Mahasandana**, Chairperson of the Committee on Joint Venture Negotiations

and Policy Sales, who successfully led the negotiations.

“After we successfully repurchased the Texas Pacific concessions or the present Bongkot field, the next focus was to find partners who would accept the terms of transfer of operatorship to PTTEP within 5 years. Finally, on 16 March 1990, under the leadership of **Dr. Thongchat Hongladarom**, the first President, the joint venture agreement to develop the Bongkot project with Total, British Gas and Statoil, with PTTEP as the majority shareholder, was signed. With these firm foundations in place, **Mr. Viset Choopiban**, the second

President, and **Dr. Prajya Phinyawat**, the third President, continued the work by stressing the importance of the transfer of operatorship of the Bongkot project. We identified in advance who would hold the key positions at the time of the transfer of operatorship. I don't mean just executive positions, but also those in operations such as drilling, exploration, safety, field manager, as well as field technicians. An individual development plan would be drawn up for each person. He or she would then be assigned to the job accordingly. Among the key persons identified were: **Mr. Maroot Mrigadat**, General Manager; **Mr. Somkiet**





Operatorship transferred from Total to PTTEP, a milestone event in the history of Thailand's petroleum exploration and production.

Janmaha, in charge of exploration; Mr. Prisdapunt Pojanapreecha, in charge of safety; and myself as Field Manager; and around 20 other colleagues. We were assigned to different countries where Total operated their projects such as Aberdeen in Scotland, United Arab Emirates, Indonesia and France. It was the training that prepared us for the transfer of operatorship. We were proud that the transfer was a success and all key positions were filled as planned in July 1998, to the delight of everyone involved. It marked a historic event for Thailand's energy industry, which for the first time proved that Thais could explore, develop and produce petroleum ourselves."



In that same year, the Bongkot field began to develop the 3rd production line and on operational commencement increased production capacity to 550 million cubic feet per day, producing approximately 22,000 barrels of condensate per day. In 2003, a new 400,000-barrel condensate storage tanker, graciously named by HRH Princess Maha Chakri Sirindhorn as “Pathumabaha tanker” was put into operation.

The development of the Bongkot field was very challenging due to the limitation of available technologies and the unique geology in the Gulf of Thailand. Mr. Phongsthorn explained, “It was no easy task for PTTEP to take over all of the operations. Apart from learning from Total, we ourselves had to innovate. The early production capacity of the Bongkot field was just 150 million cubic feet per day. Now production output stands at 900 million cubic feet per day.

“For example, we came up with the special design of a well platform that is suitable for the Gulf of Thailand or the ‘Gulf of Thailand Model’. This model was the answer to the Gulf of Thailand’s complex geology and the dispersed small pockets of gas reservoirs. The well platform that we designed was smaller than the industry’s standard size. That enabled us to drill faster and at a lower cost while maintaining the efficiency and safety of gas production. We called these production wells ‘Slimhole Monobore Completion’ which since has become the standard technology used throughout the Gulf of Thailand.”

The discovery of the Bongkot South field in 2004 and its subsequent development and the first gas production in 2012 made the Bongkot field Thailand’s largest natural gas

field in terms of underground natural gas reserves. On 24 September of the same year, HRH Princess Maha Chakri Sirindhorn presided over the ceremony marking the start of the production of natural gas from the Bongkot South field. HRH turned the final valve kick-starting the gas flow into the system. That very valve has since become known as the “Princess Valve”, which serves as an encouragement for PTTEP personnel to continuously push ahead with their work in producing natural gas to ensure sustainable energy for all Thais.

Thus, the Bongkot natural gas field is a legendary tale of petroleum exploration and production of Thailand. It is also a model school for the passing on of knowledge in petroleum exploration and production for the Thai people, from one generation to the next.



“ We were proud that the transfer of operatorship was a success and all key positions were filled as planned in July 1998, to the delight of everyone involved. It marked a historic event for Thailand’s energy industry, which for the first time proved that Thais could explore, develop and produce petroleum ourselves.

– Mr. Phongsthorn Thavisin –
Chief Executive Officer of PTTEP

Chapter 2



The Wisdom:

Passing on the Knowledge to Search for Energy

by Thais and for Thais





Mr. Phongsthorn Thavisin, Chief Executive Officer of PTTEP, when he was the Bongkot Field Manager, the first Thai to hold this position

The Pioneers' Time

The Bongkot field, during its early years, had only 20 Thais in the team. Most of them were part of a new generation, fresh from university and full of energy and passion.

At the time when Total, the joint-venture partner from France, was still operating the Bongkot field, the Thai team from PTT Exploration and Production Public Company Limited (PTTEP) were sent to Total's sites across the globe including the UAE, Scotland, and Indonesia to learn more about the exploration and production of petroleum. They had to learn all facets of the work ranging from engineering techniques, infrastructure design, exploration, finance and accounting, and human resources. They were also required to immerse themselves in the experience of life on the platform. These experiences were intended to equip them to return and be able to manage and develop the Bongkot field.

Learning from our partners was a challenging experience given the differences in culture. Our pioneer team members would never forget such experience.

Mr. Phongsthorn Thavisin, Chief Executive Officer said, "Working in various countries with differences in terms of culture, tradition, language, climate and work systems put us constantly on our toes. Some places adopted the Western working style where we had to be independent, asking and searching for answers by ourselves. During such time, it was full of excitement, amazement, and enjoyment mixed with occasional stress. It was a truly valuable experience in my life.

"As for other colleagues who were assigned to work in various corners of the world, what we had in common was the goal to eventually take on the role of our Western colleagues to manage and operate the Bongkot field ourselves."

After his missions abroad, Mr. Phongsthorn came back to Thailand and worked at the Bongkot gas processing platform in the Gulf of Thailand. He started from the position of Deputy Production

Superintendent and was later promoted to Production Superintendent. “After some time, one day I received a piece of good news from my French Field Manager telling me to get ready to replace him as the new Field Manager. He told me that from now on, I was qualified for the job. At the time, I was overwhelmed with surprise, happiness and pride. Being a Field Manager meant that I had to take up the responsibility of gas production for the whole country including management of all work on the processing platform as well as the lives of more than 100 employees.

“the subtle meaning behind the talk that day was very important for me and PTTEP **because that was the proof that he accepted and trusted that Thais were competent enough to work as well as himself.** Eventually, our determination bore fruit. We took over the management of Bongkot field in 1998 as we had challenged ourselves to do. It can be said that **we were not only able to do it but we were good at it too.** From then on, PTTEP employees gradually took over crucial responsibilities in the Bongkot field from Total employees. Today, almost 100 percent of employees working in Bongkot field are Thai.”

Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group, who was a former Bongkot Field Manager during its early years talked about his time of learning the necessary skills in France. “At the time, French people would not speak a word of English to us. So I was quite frustrated. Yet the atmosphere at work was a bit better as some English was used. Apart from that, I had to use sign language to help when I went shopping or talked with someone. There was a time when I meant to buy some sugar but got salt instead,” **Mr. Vuthiphon** joked.

Mr. Vuthiphon said further that most operators in the pioneer era were 80 percent Westerners. They had a different approach to job training from Asians. Learners had to learn independently through observing and memorizing.

“Sometimes they would give us instructions without telling us what to do. There were good and bad points though. It was good that we could learn while we work by ourselves. Yet it took some time to master.”

Mr. Anuwat La-ongtep, Manager, Bongkot North Field alluded to his time when he was still an employee of Total. “Their culture differed quite a bit from us. At the time, the Westerners who were with us were old-school and very strict. They would train us to understand how to work in the middle of the sea, work safety, work standards, all of which would ensure the operations at the processing platform were in line with established Total procedures.”

“They were very serious. They would not allow any mistake. Going a bit slower was also not permitted. Think about strict parents or teachers. They were more than that. Very very strict,” **Mr. Kittitat Moolasart, Manager, Bongkot South Field** talked about the experience working with overseas partners, “Those who were softer would reproach and teach. For those who were more ‘tough’ would say something very strong before teaching. The way they criticized us, I am sure 90 percent of Thais would not be able to stand it. But this was really their way. In their mind, this was serious. The lives of many depended on this.”

Mr. Prateep Mahasawad, Manager, Bongkot North Field said, “In that era, whatever the chief said, there was no other choice. There was no question why we had to do it. There were also some problems with communication as English was supposed to be the lingua franca, but our partners were French. Both them and us did not speak English as our native tongue. So there were some issues.”

Mr. Prateep thought that working with Westerners needed some adaptation and learning. There was also a need to “win hearts and minds” to gain trust. “They had very high standards. We had to work really hard to prove that we could do it.”



The Bongkot School

Over the past 25 years, Bongkot natural gas field has served as an institution for Thailand's petroleum exploration and production. The School has produced many classes of “students”. Not only does Bongkot field comprise personnel from all ages committed to different roles and responsibilities, but it also includes a diverse range of machinery, a combination of technology and knowledge gained through the years. Hence, Bongkot is far from being simply an institution of learning. It is also the starting point of knowledge transfer too.

“This was my school before I moved to the Carigali-PTTEPI Operating Company (CPOC), a subsidiary of PTTEP,” **Mr. Anuwat La-ongtep, Manager, Bongkot North Field** talked about the past when he was starting his job training at the Bongkot field. “At the beginning, I was a technician responsible for maintenance here. After 15 years at Bongkot field, I was sent to CPOC, starting with the sole task of electricity maintenance. I was later assigned to cover a broad range of mechanical work including turbines, gas compressors, and power generators on the platform as well as all other maintenance work. I gained much confidence when I knew that the knowledge from Bongkot field had equipped me with the ability to work on a

number of things. Apart from that, what I learned from Bongkot was also the ability to look at the bigger picture, making job training for the new generations even more efficient,” **Mr. Anuwat** said.

Mr. Ponlasak Apiwattanalungarn, Vice President, Thai Offshore Production Operations Department, said that “I joined the Bongkot project in 1993. I learned a lot from my senior colleagues like Mr. Phongsthorn. He was among the pioneers, the main force. For me, the Bongkot field is more than a workplace but a school that has provided me, my fellow colleagues and the newcomers with experience and an opportunity to further our knowledge for the benefits of the company.”

The knowledge base of Bongkot field has been accumulated from experiences and operations. The general policy of the company in the previous era was for all employees to learn from real work experience. Everyone who has graduated from this school will thus be equipped with the abilities to do many kinds of work and perform many roles.

“We have to teach people to get first-hand experience at work. By doing it themselves, they will know what issues or problems certain equipment or machines have. This expertise will



stay with us. This is a good approach to learning for offshore technicians,” **Mr. Sahawit Vorasaph, Acting Senior Vice President, Well Engineering and Operations Division** explained the policy that has been in use since PTTEP assumed the role as operator of the Bongkot field.

Even though the platform foundations at Bongkot field are constructed from accurate and complex engineering designs and are a result of the state-of-the-art technology that has withstood the test of time, what is important and what makes the Bongkot field unique is the core of knowledge that has been built up. “Due to the fact that Bongkot field is the first gas field that the Company operates by itself, it has gone through a process of natural selection. Things that are not good or not providing results are eradicated, leaving only the core. What yields results remains. Yet we continue to keep on developing and furthering our knowledge,” **Mr. Kittitatt Moolasart, Manager, Bongkot South Field** said.

Despite being a model school for several classes of students, challenges remain for Bongkot. **Mr. Prateep Mahasawad, Manager,**

Bongkot North Field explained the challenges being faced by Bongkot “First is the lifespan of the platform. After some time, machines get old along with procedures and methods that also age over time. We need to find a way to continue the process. Added to this issue is the higher number of machines while the number of personnel who will maintain them is limited. Not enough beds in the platform living quarters, to put it simply. Thus we need to plan it carefully. The maintenance and logistics are also challenging due to the plan to build more platforms while these resources are limited. We need to adjust our working methods to be more efficient.”

However, Bongkot Field is a source of pride for all of us who have gone through different periods. **Mr. Ponlasak** said, “From the period when we had to learn from our Western counterparts to the day when we fully assumed the operations at Bongkot field, we had dedicated ourselves to work on enhancing the processing capabilities of the field. Eventually, we were successful at expanding the field, to Bongkot South that is. All of this is proof of the determination and skills of the Thais. I am proud to be part of Bongkot.”



“
More than an ordinary workplace, Bongkot is a school that has provided me and my fellow colleagues with experience and an opportunity to further our knowledge for the benefits of the company.

— **Mr. Ponlasak Apiwattanalunggarn** —
Vice President, Thai Offshore
Production Operations Department





The Charm of Bongkot

Mr. Dittapon Soothi-O-Soth, Acting Senior Vice President, Safety, Security, Health and Environment Division, another former manager of Bongkot Field talked of the time when he first moved to become the manager of Bongkot field. He had only 3 days to prepare. His life suddenly changed from working onshore to offshore. “I felt my life was changing fast. I was quite anxious. I told my family, quite directly, that I would have

to go because in a petroleum company like this, mobility is part of the requirement that we would have to be ready for, wherever they wanted us to go. My son was still small. He was about 4 years old. My daughter was 8 years old. My wife was concerned. Fortunately enough, I could use the phone on the platform. That helped a lot.”

Mr. Anuwat La-ongtep, Manager, Bongkot North Field was equally anxious when he learned



that he would have to work far from his family for the first time. According to **Mr. Anuwat**, “Bongkot field was the first offshore project I worked at. In the beginning, I admit that I was anxious and thought that work would be tough for me.”

Life on a drilling platform in the middle of the sea is usually painted as remote – a life full of loneliness surrounded by difficulties. The reality is quite different. Life on a platform is full of joy and

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It was an easy-going work atmosphere. We could just go straight into solving problems with the field manager or anyone as there was not much hierarchy, and the door was always open.

– Mr. Sahawit Vorasaph –

Acting Senior Vice President,
Well Engineering and Operations Division

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“

The warm atmosphere here washed away my initial feeling of uncertainty in adapting to life on the platform. We worked hard and played as hard. We lived as part of one big family here.

– Mr. Anuwat La-ongtep –
Manager, Bongkot North Field

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a friendly atmosphere. It was partly because of the limited area which forces everyone to see each other more often and provides opportunities to engage in many activities together. “When I was actually there, things were quite different from what I thought. Senior colleagues were really welcoming. We worked hard and played as hard. From the feeling of uncertainty regarding life on the platform, I began to feel as though we were part of one big family,” **Mr. Anuwat** explained.

“It was an easy-going work atmosphere. Whenever we had problems, we would just go straight to them. There was not much hierarchy. We could just go talk to the field manager or anybody else as the door was always open,” **Mr. Sahawit Vorasaph, Acting Senior Vice President, Well Engineering and Operations Division** talked of the working atmosphere at the Bongkot field.

After PTTEP assumed operations in Bongkot field in 1998, personnel in the key positions began to change to become more predominantly Thai. At this point, the atmosphere of closeness and friendliness began to grow, resulting in a unique working atmosphere. It has since developed into a core strength of the team. “In this period of history, we were very close. I was the Field Manager. When my juniors wanted something, they would just come and talk to me. If it was not beyond my capability, I would be more than happy to help,” **Mr. Prateep Mahasawad, Manager, Bongkot North Field** compared the changed atmosphere at the Bongkot platform.

Senior team members of PTTEP who have been through the Bongkot experience say with the same voice that the newcomers who will take on our responsibilities will not only learn the engineering techniques but they will also get to immerse themselves in the invaluable experience that cannot be gained from anywhere else. Further, it stands them in good stead for a successful future.

“First thing is with regards to the ‘work atmosphere’. We are like family. We do not discriminate among ourselves. As for work, we want everyone to ‘learn about each other’s tasks and responsibilities.’ We need to be constantly learning so we can be ready for when a work opportunity or a chance of promotion arises,” **Mr. Prateep** said.





The Spirit of Life on the Platform

Mr. Kittitat Moolasart, Manager, Bongkot South Field still remembers very clearly an emergency requiring a valve repair.

“We had only 3 hours,” Mr. Kittitat said that a big valve was about to break. Although the irregularity was found before any damage was done, the maintenance required would cause one processing line to be suspended, reducing the processing rate by half. For a natural gas field as important to Thailand’s electricity production as Bongkot, a prolonged suspension of service would cause wide and inestimable damage.

“We finished planning and arranged a meeting time. After lunch, we would meet at the site at 13.00 hrs. At 13.00 hrs sharp, we met 10 members of the construction team. They had banded the valve weighing almost one tonne, so it was ready to be lifted. 4 - 5 members of the mechanic team, 4 - 5 members of the measuring equipment team and 2 - 3 processing employees were also there, standing ready to stop the machine and blow down from the system,” Mr. Kittitat retold the picture of the scene he saw.

“When we counted down to zero, the stop button was pressed. Everyone rushed to their positions following the well-rehearsed sequence, just like an F1 car going in the pit. The whole process was completed within 2 and a half hours. A new valve was assembled and installed. Leakages



were checked. The start button was pressed and gas was reintroduced back into the system. Everything took only 3 hours. I was not expecting that such efficiency could be achieved in this emergency situation. I was so overwhelmed with the feeling of great surprise because I had never seen anything like this until my first-hand encounter at the Bongkot field," **Mr. Kittitat's** voice echoed the pride at the professionalism of the team where everyone knew what they had to do and executed their responsibilities with great competence and to the best of their abilities.

This was one incident that reflects the spirit of the Bongkot team as well as their determination to complete their work under situations of extreme pressure. Such unity would not have occurred without good planning. But more pertinently was the positive attitude that fostered the atmosphere of united commitment. **Mr. Kittitat** expressed it well when he said "everyone had the same common goal and determination. They were committed to the impossible and were serious about it. Despite the rain and the pressure of time, they would not inch away. This kind of incident was repeated many times afterwards. Sometimes it occurred in the middle of the night or very early in the morning. But each time it happened, the commitment, professionalism and unity were always the same. We just had to do it."



Mr. Anuwat La-ongtep, Manager, Bongkot North Field observed that “those working on the platform have a high sense of ownership. They give 100 percent to whatever they are tasked to do. Then teamwork comes in, resulting in successful outcome.”

Those on the shore may not fully realize how the spirit of the Bongkot Team has become the organization’s identity. “What we do on the platform has significant bearings on the country’s electricity production or petrochemical industry. Hence, when there is an emergency at Bongkot, all involved will promptly respond without delay, working together like a well drilled football team moving in unison towards that same single goal. The weather does not always permit but their brave spirits prevail. I always tell them to evaluate themselves first and be honest. If it is something beyond their capacity, just speak out. An hour delay may not be catastrophic. Sometimes, it is better than being an hour early but having made grave mistakes along the way,” Mr. Dittapon Soothi-O-Soth, Acting Senior Vice President, Safety, Security, Health and Environment Division talked about the relationship between senior and junior employees at work.

“Safety Consciousness” is an inheritance passed on from the pioneer era. It has become the heart of the work ethic that has been fostered through the generations. Every second in a natural gas field in the middle of the sea incurs risks that everyone has to take responsibility for. This attitude has been absorbed and unknowingly become a habit of those working at a platform. Mr. Sahawit Vorasaph, Acting Senior Vice President, Well Engineering and Operations Division stated that the senior colleagues always emphasize safety to their junior counterparts. This is because an accident can occur both from human error and defective equipment. “We have to ensure we work in the safest environment. If something happens, there is nowhere to go. The only way out from the platform is by boat. Given the dangerous environment we are in, we have to take the utmost care and regard safety as the first priority.”

“I always tell my juniors that in our round of operations, I hope for no injury, successful work, and a safe trip home. This has always been my guiding mindset,” Mr. Dittapon noted.



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— Mr. Dittapon Soothi-O-Soth —
Acting Senior Vice President,
Safety, Security, Health and Environment Division





From Learners to Teachers

Teaching and learning occur all the time at Bongkot. Exchanges of knowledge between employees of different generations are part of the learning process that never stops. “I have seen differences in the generations usually with regards to computer capability. Some older employees are not familiar with the use of a computer for the document system but younger generations are good at it,” **Mr. Thanaphong Attavavuthichai, Superintendent, Production** observed from his experience working with both generations.

The Bongkot field in the pioneer era had a different learning atmosphere compared to how it is today. At the time, there was no passing on the knowledge. Everyone had to learn from trial and error. “For me, things were much harder than today. We are now in a more comfortable environment. At the time, there were many Western mentors. Our personnel were really very strong both physically and mentally,” **Mr. Kittitat Moolasart, Manager, Bongkot South Field** said.

If the Bongkot field in the pioneer era was based on knowledge from Western partners, Bongkot field today is the centre of learning both in terms of operations and ideas from employees of different generations. **Mr. Kittitat** said, “I have seen how certain qualities of good leadership, including being decisive and adept at problem solving, drove my senior colleagues to high-level positions.”

Working at the platform both in the past and present does require a high level of self-sufficiency. **Mr. Kittitat** mentioned, “This small pool of personnel is all we have. There are many challenges, but our goal is to produce and export gas 24 hours a day. We have to ensure that everything works normally. At the same time, there is a lot of pressure in keeping everyone safe. Before we are accustomed to this work pattern, there has been a steep learning curve for all of us.”

Not only do juniors learn from seniors but the latter also learn from newcomers as well. “What I have learned from the new generation is their speed in terms of thinking and doing. I must say that I admire the spirit of the juniors. Since they joined the team, they have seen, experienced and taken in the so-called working culture from many of their senior colleagues. They have adapted themselves to us. But at the same time, they have added their spirit to the environment and ensured our working experience continues to be a harmonious blend,” **Mr. Anuwat La-ongtep, Manager, Bongkot North Field** said.

For **Mr. Prateep Mahasawad, Manager, Bongkot North Field**, he also recognizes that the approach to look after the new generation of personnel



“ I have seen how certain qualities of good leadership, including being decisive and adept at problem solving, drove my senior colleagues to high-level positions.

– Mr. Kittitat Moolasart –
Manager, Bongkot South Field

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is different from that which catered for the previous generations. “If we want to ask someone from the new generation to do something, we need to say clearly what it is for. There is no need to instruct them in detail, step-by-step. Just tell them the end goal and they will find ways to achieve it. This method is better as they are more invested in it when they have greater ownership.”

Job rotation is normal. Junior members of the team have learned from their senior counterparts that job rotation represents an opportunity to always learn something new. **Mr. Dittapon Soothi-O-Soth, Acting Senior Vice President, Safety, Security, Health and Environment Division**

said, “Job transfer or rotation is always something positive. New challenges make us smarter and stronger. I want members of the new generation to have a perspective that, for an organization to be strong, the personnel need to be brave enough to continually take on the challenges.”

Many juniors in the pioneer era are proud to have seen their roles transformed from being learners to sharers of knowledge and skills to the new generation. What should be maintained is the culture and spirit of Bongkot, both in terms of having a shared responsibility, harmonious and positive attitude. **Mr. Kittitat** said, “If we can continue doing this with every batch of new employees





joining us, we will definitely continue to be happy and efficient at work just like how we are now.”

Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group stated that the Bongkot field has shaped our human resources. Today, many of the company’s projects comprise of 100 percent Thai personnel. “I am happy and proud in our people. From the first days that we, among the first batches, went through thick and thin together, many of our juniors at the time have now become field managers. In the Gulf of Thailand, 100 percent of personnel are Thai, be it Bongkot North, Bongkot South or Arthit projects. As their former superior, I am proud to see my juniors flourishing and being so successful in their work.”

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Executive Vice President, Production Asset Group

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Bongkot Is Not Only a Place To Work, but Also a Second Home

It is a tradition for newcomers to Bongkot to be sent to the Floating Storage Barge or the condensate tanker situated next to the processing platform.

Every morning, they have to wake up at 05.00 hrs and travel to work at the processing platform with the tanker at 05.30 hrs. They go back to their quarters at 18.30 hrs. This routine continues for just about more than a month but it is a time where important qualities of discipline and perseverance are fostered. Some name this routine “Rub Nong or Initiation.”

Mr. Thanaphong Attavavuthichai went through that period of initiation. After only 2 - 3 months, he got used to the routine of life and work at Bongkot which was made easier by the “family” atmosphere on the platform. Today, from a newcomer, **Mr. Thanaphong** has become a Production Superintendent.

“Each one of my seniors had a very high safety standard. They were very thorough with what they did which meant, at first, it was very difficult for me to get used to the environment and work here,” **Mr. Thanaphong** said.

Life on a platform is unique compared to other professions. Working hours are divided into “operational shifts”. Days off correspond to work days. For instance, if they work on a 21-day shift they will get 21 days off. Therefore, we spend half of our lives here on the platform and another half with our families. The platform becomes like our second home. “In a year, everyone spends at least 182 days here. Hence, 50 percent of the time is with our families and the other 50 percent with the people here. Our days off are not in sync with our friends. This means that we form very close bonds to each other on the platform, spending 24 hours together. Actually, the tight-knit relationship follows us ashore too. When we get days off, most likely we will just hang out with our colleagues from the platform,” **Mr. Kittitat Moolasart, Manager, Bongkot South Field** explained the uniqueness of life on the platform.

Being on the platform 24 hours has forced us to always be ready. **Ms. Kanokporn Sinthavarayan, Engineer, Process** who had been in the “Bongkot School” for two full years explained that even though the time she spent on the platform was not much, she could really sense the dedication of her seniors both in terms of their assistance given to the newcomers in adjusting to the life on the platform, and work routines. “Those who held superintendent positions worked from 07.00 - 19.00 hrs. Yet, they would still have to attend to emergency situations in the middle of the night. Some who were working on day shifts would be woken up at night too. We have to stand by 24/7,” **Ms. Kanokporn** said.







Life on the platform is unimaginable for those living ashore. Obviously, the vast body of sea water adds to the remoteness and solitude. But the actual atmosphere there is far from “lonely” as we tend to imagine. The fully equipped facilities and infrastructure including cafeteria, gyms, music studios, table tennis room, football pitches, cable TV, and the internet are there, expanding the tiny world of the processing platform. Yet prior to today’s convenience, the pioneers had to face a whole host of obstacles and hardships.

“At the time, the living quarters were not ready. The fresh water system was not installed. A supply ship would bring us fresh water which would be transferred to the tanks on board the platform. We spent 2 - 3 years doing this before the fresh water generator was installed. During the first few years, we had to constantly check the level of fresh water supply. When it was low,



the teams would warn us to only use water as necessary. Fresh water was not for floor cleaning,” Mr. Prateep Mahasawad, Manager, Bongkot North Field gave an example of a harsh life on the platform in the past.

Communication during that period posed another drawback for those spending time on the platform. Previously, we only had a few satellite phones. Everyone who wanted to contact their families had to queue up for them. “On the platform, we only had phones that operated using satellite signals, which were mostly for work. Employees were allowed to use the phones to contact their families too but not much. We were not allowed to talk for more than 15 minutes. And there were only 5 public phones. Thus, it would be impossible for all 160 - 170 employees on the platform to use. Therefore, a time limit was imposed,” Mr. Sahawit Vorasaph, Acting Senior Vice President, Well Engineering and Operations Division said.



“ Superintendents worked from 07.00 to 19.00 hrs. Yet, they would still have to attend to emergency situations in the middle of the night. Some who were working on day shifts would be woken up at night too. We have to stand by 24/7.

– Ms. Kanokporn Sinthavarayan –
Engineer, Process



Today, high-speed internet and new communication technology reach the platform. “Most of the employees there have families. You get to experience their gentleness and warmth. They spend time talking to their kids on FaceTime in the evenings,” Ms. Kanokporn said. “At work, they are so serious but they become different persons during the breaks. Some of them jokingly complain about their wives for not letting them spend as much money as they would like to. The closeness and bond mean you become extremely close and that results in some funny moments there,” she said with a smile.

Life on a platform in the middle of the sea is nevertheless a great challenge for young employees. They are often stricken by homesickness

and the yearning to be among their friends. **Mr. Anuwat Amaun, Technician, E&I** told of the first few years at work. “It was very tormenting. When I first arrived, I did not know who to talk to. I just looked out at the sea, watching fish swim here and there, trying to get used to the solitude. But my seniors would not leave me having been through these same moments. They would involve me in their conversations and activities. We played quite a few football matches. They helped a lot in lifting my spirit.”

With a much better equipped set of facilities and infrastructure compared to the past, the after-work activities of those on the platform are no different from things they do at home. Activities that they do together include music, sports, watching football matches, and playing computer games. “We are fortunate that the previous generation have already set things up for us. We are equipped with musical instruments and we hold celebrations on certain occasions. Following large shut down of operations, we engage in some forms of entertainment. Some like to sit down and talk in a tiny little garden that is not larger than a few square feet. One of our Western colleagues once grew some chilies there. This species of chilies is considered to be the hottest in the world. It was originally brought from Venezuela. Our Thai juniors helped looking after the trees. When the trees bore fruits, there would be queues to take the chilies to grow,” **Mr. Dittapon Soothi-O-Soth, Acting Senior Vice President, Safety, Security, Health and Environment Division** recalled his time at the platform.

“There was a time when T25 was a hit (a 25-minute cardio-based exercise). We would do that on the helipad. We also joined karaoke and music sessions. A music studio on the platform was popular too. I also sang with my seniors whenever they booked the studio,” **Ms. Kanokporn** said.

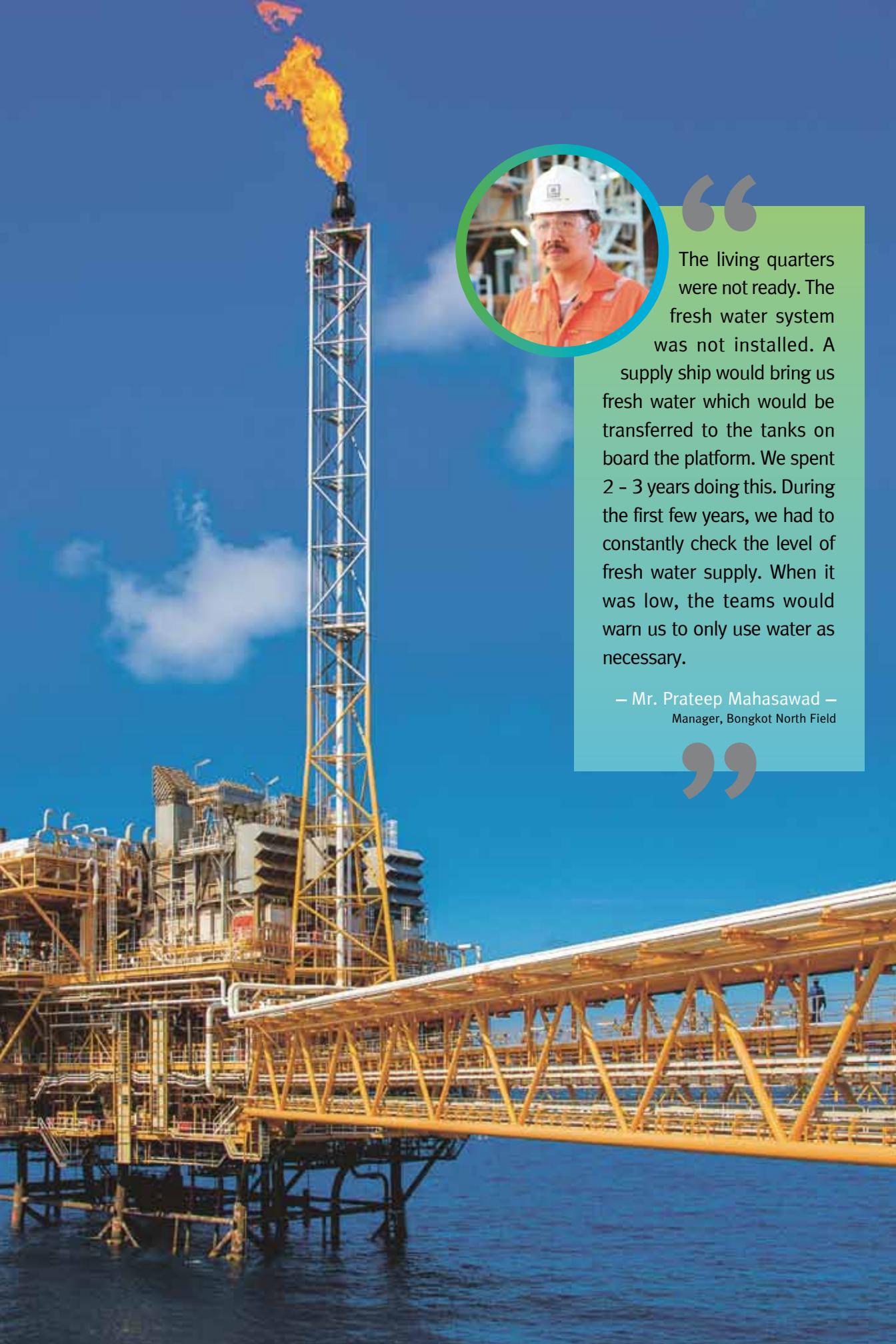
“Those who go on the platform can definitely adapt. In fact, those who go do not really want to come back. It has become a lifestyle that no one wants to change. A fun job and a good rest at home

from time to time might make them a bit homesick but that comes and goes,” **Mr. Sahawit** said.

However, it is inevitable that there are some family emergencies. Here, we have thought that through in terms of contingency management, planning and preparing of employees who will be ready to work when an emergency occurs. **Mr. Thanaphong Attavavuthichai, Superintendent, Production** explained, “Sometimes your kids get sick, your parents fall ill. We will have to manage and get somebody to work in their positions when they are away. We totally understand those who have to leave the platform in an emergency. Everyone loves their family. So I try to support them the best I can.”

There grows an attachment to life on the platform which becomes most prominent when it is time to say goodbye to the life on the platform. “During the last week, we all had the same feeling. It was a feeling of melancholy. Together, we had been through thick and thin,” **Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group** looked back at his time on the platform.

“Everyone had their last week before moving out. During that week, things seemed rather gloomy. It was like a week for us to reflect on our memories from the first day of our arrival. Moments of fun, stress, work, and getting to know people would come to mind and we would realize that such moments will not be revisited. Knowing every corner of the platform, we would be solemn realizing that we would not be here again in the same role. Standing at the garden and looking out at the shimmering reflection of the gas flare was spectacular. For me, I like to take photos and I took my camera everywhere on the platform. It was sad to learn that I would not be able to visit these places again. I had many good memories with my juniors. We teased each other a lot. There was a lot of laughter. Well, good memories that would remain forever,” **Mr. Dittapon** said.



“ The living quarters were not ready. The fresh water system was not installed. A supply ship would bring us fresh water which would be transferred to the tanks on board the platform. We spent 2 - 3 years doing this. During the first few years, we had to constantly check the level of fresh water supply. When it was low, the teams would warn us to only use water as necessary.

— Mr. Prateep Mahasawad —
Manager, Bongkot North Field







“The first generation maintained a very high work standard as they were taught directly from our Western colleagues. They would be very strict. Members of the new generation are typically impatient but fast learners.

– Mr. Thanaphong Attavavuthichai –
Superintendent, Production

Passing on the Baton to the New Generation

While some types of machines and equipment on the Bongkot platform are now 25 years old, this platform is a “school” for employees from generation to generation. **Mr. Thanaphong Attavavuthichai, Superintendent, Production** explained that “I have learned that Bongkot has gone through several evolutions, from the use of pneumatic turbine system, and hydraulic system, through to the upgrade of programmable logic controller (PLC) into an electric system. Those who work at PTTEP thus have to come to the Bongkot School to witness such progress. We learn from the past to advance for the future.”

Over the past quarter of a century, generation after generation have come to Bongkot. Each of them is different in terms of background, personalities and age. “The first generation maintained a very high work standard as they were taught directly from our Western colleagues. They would be very strict,” **Mr. Thanaphong** compared the two generations, “Members of the new generation are typically impatient but fast learners.”

Mr. Thanaphong went on to say that he was amazed with both the qualities and the learning experience of his seniors during the pioneer era. “I was told that when Bongkot was launched, our Western colleagues were very strict. The style of teaching was very Western in the way that learning

was independent. That is quite different from today when direct teaching is used. I believe their habit of yearning for knowledge and enthusiasm for practical experience have helped many of my senior colleagues maintain their hard-earned skills. Working in the past was definitely more difficult than how it is today,” **Mr. Thanaphong** said.

Ms. Kanokporn Sinthavarayan, Engineer, Process said that her two years at Bongkot was a period of learning. “Before I went, I literally had no idea about the platform. Yet on the platform, there would be people on hand ready to teach, to provide knowledge, and to be mentors kind enough to pass on the information. In my view as an engineer, if I am to be assigned to design at another plant, I will know the correct forms and ways of doing things. It is important as a wrong design comes at a high cost.”

Apart from passing on knowledge, all senior members who have been through the “Bongkot School” also emphasize the determination to pass on the experience to all younger generations. **Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group** gave a message for those who will spend some time on the platform, “First, you need to be fit, in line with the requirements. Second, you need to have an EP SPIRIT, a set of core corporate values of PTTEP.

It is the way we work together to successfully explore and process petroleum. Third, as this is a tough job, you must not be discouraged, you must endure. Last, you need to be honest and direct. Wrong is wrong. Right is right.”

Mr. Dittapon Soothi-O-Soth, Acting Senior Vice President, Safety, Security, Health and Environment Division said that those who will grow to become future field managers of Bongkot not only need to have a high level of leadership but also be responsible for more than the Company’s missions. “The work does not stop at being responsible for Company’s duties. If you compare Bongkot to a school, those employees who come to work here are like students sent here by their parents. We need to look after their lives too. In terms of work, we need to pay attention not only to their daily performance,



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The first impression I had when I started working here was one of pride. I thought at that time, that was the proudest moment I could be of Bongkot but I am even more proud today. In the past, I thought about Bongkot simply as the generator and processor of gas. But now, I have realized that what we do is one of the main energy arteries of the nation.

— Mr. Anuwat Amaun —
Technician, E&I

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but also to their ability at managing their risks, applying highest standards of safety. Furthermore, we need to help them psychologically, helping them to be united and to have the same focus and goal.”

For all lives on the platform, apart from the safety mindset, maintenance of the united atmosphere is at the heart in which all our senior colleagues have continued to emphasize and pass on to the younger generations. “We want them to adapt their ways of life. We are here for 3 weeks and go home for 3 weeks. We are not

ordinary office workers. We see each other 24 hours,” **Mr. Anuwat** said.

“The first impression I had when I started working here was one of pride. I thought at that time, that was the proudest moment I could be of Bongkot but I am even more proud today. In the past, I thought about Bongkot simply as the generator and processor of gas. But now, I have realized that what we do is one of the main energy arteries of the nation,” **Mr. Anuwat** said with a sense of satisfaction.



Chapter 3



An aerial photograph of a forest with a large tree trunk in the foreground. The text is overlaid on the image.

The Sustainability:

Growth,

Future and Sustainability



Ecosystem under the Platform, Sustainable Environment

For more than two decades of operations, PTTEP has not only searched for energy sources to strengthen Thailand's security, but simultaneously strived towards ensuring the continuous care of the environment to ensure the sustainability of its business operations.

Since 2013, through various projects, PTTEP has reduced its cumulative greenhouse gas emission from production process by more than an equivalent of 1,000,000 tonnes of carbon dioxide. It continues to implement projects that help reduce greenhouse gas emission every year as well as other programmes such as adopting the Safety, Security, Health and Environment (SSHE) policy and the Green Practices Roadmap, to ensure that its environmental management is in line with international standards.

The Bongkot natural gas field is not only a model school that has produced generations of petroleum personnel, but also a model for sound environmental management. It also sets that same high bar for environmental management in every other current and future project, by adopting new technologies to ensure that its operations are as eco-friendly as possible, for example, the use of water injection which injects mud water from the production process back into the well at approximately 1,000 - 2,000 meter depth, instead of releasing it into the sea. This technique was continuously improved and since 2010 PTTEP has achieved a zero release of produced water into the environment. It reaffirms that PTTEP operations are eco-friendly and do not negatively impact the ecosystem.



Mr. Ponlasak Apiwattanalungarn, Vice President, Thai Offshore Production Operations Department said, “PTTEP has a very high operational standard, especially at the Bongkot platform. This is the reason why the underwater ecosystem at the platform and its surrounding area is pristine.”

A healthy ecosystem under the platform is a reflection of the sustainable co-existence between a petroleum project and nature’s diversity. For example, the water at the Bongkot project plays host to special visitors like “whale sharks” all year round. The presence of whale sharks is due to the abundant presence of planktons and small sea creatures which are highly sensitive to pollution and chemicals. Their presence is an indicator of the rich biodiversity beneath the platform.

Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group recounted: “There are plenty of fish in the platform area. We frequently encounter dolphins and whale sharks of varying sizes from large to small.”

Moreover, a study project on biodiversity revealed that below the production platforms are healthy habitats for marine life such as fusilier, striped sea bass, trevally, Indo-Pacific sergeant and jelly fish.

Our business operations not only co-exist with nature, but also serve to protect marine resources and replenish the abundant richness of the environment, for a sustainable future.



Entering the International Arena

On the vast expanse of sea, far away from home and loved ones, PTTEP personnel tirelessly search for energy sources for Thailand.

From the early years of learning and acquiring knowledge from our western partners, Thais have matured and become operators in our own right. The Bongkot natural gas field has become an institute of petroleum exploration and production and is always ready to pass on the knowledge on energy exploration from one generation to the next. "The design of the Bongkot field is a model used for the development of the Arthit field in the Gulf of Thailand, the Zawtika field

in Myanmar and other PTTEP-operated projects. It was a major achievement. When there is a staff shortage at a new project, we would send people from the Bongkot field to fill in the needs. At the same time, we would send new staff to fill in those vacant positions at Bongkot. Therefore, the Bongkot field is a school or an institute for PTTEP staff to learn and accumulate experience, and to prepare them for the quest for new energy sources," **Mr. Vuthiphon Thuampoomngam, Executive Vice President, Production Asset Group,** remarked.



5 March 2014 was the first day that natural gas from the Zawtika field in the Gulf of Martaban, Myanmar, entered PTT's gas pipeline system. Within two days, the rate increased to 240 million cubic feet per day as committed. This was yet another key achievement of PTTEP.

Mr. Phongstorn Thavisin, Chief Executive Officer, explained, "The Zawtika natural gas field is a project which we can speak with full confidence that it was explored, discovered, developed and produced 100 percent by PTTEP. While a few foreign nationals are involved in some stages of the operations, but all the supervisors and workers

are Thai. Therefore, we can proudly say that we have the capability to develop."

The petroleum discovered in the 11,746 sq. km. Zawtika natural gas field are primarily natural gas and condensate. It is the largest overseas offshore natural gas production project operated by PTTEP. It is a proof of the knowledge and wisdom of petroleum exploration and production gathered by Thais over the past two decades, which is a direct result of the "Bongkot field."

"Zawtika is like the first phase of the Bongkot field, with a similar production control system which is not so complicated. The people who are stationed there do not have to start from zero. If you have previously worked at Bongkot, then you can hit the ground running," **Mr. Sahawit Vorasaph, Acting Senior Vice President, Well Engineering and Operations Division** explained.

Natural gas from the Zawtika field is transported to the western region of Thailand and used for electricity generation for Thailand. It serves as a guarantee for Thailand's energy security. Moreover, it is a proof that from now on Thais are capable of petroleum exploration and production anywhere in the world, and are able to pass on this knowledge to a new generation of petroleum pioneers. This is energy sustainability through friendship.

"What we are even more proud of is that we can now pass on the knowledge of petroleum exploration and production to the Myanmar people, which has enabled them to perform the operations themselves," **Mr. Phongstorn** explained.

It can be said that today's success is truly the fruit of perseverance, accumulation of experience and the determined pioneer spirit of the Bongkot people.



**This is 25 years of determination,
25 years of pride,**

25 years of history in
the Gulf of Thailand,

that forged tales and memories into the spirit of the people of Bongkot. From the beginning of learning from our foreign partners, to the day that Thais can stand on their own two feet; from the beginning as pioneers with a determination to develop themselves and overcome challenges, to when we have grown and branched out; from the beginnings of being an energy source that ensured national security, to an institute of knowledge about petroleum exploration and production. This institute has nurtured the development of a diverse specific set of knowledge and produced high quality petroleum exploration and production personnel for Thailand's long term sustainable growth.

Regardless of the obstacles, be they unrelenting waves, unforgiving heat, unbridled winds, or the remoteness of being so far away from families and loved ones, we have never wavered in our commitment to fight and overcome the challenges with persistent determination to find energy sources that will bring a better life for everyone in the nation.

Today we pledge that we will carry on with one great mission to constantly develop, accumulate and pass on petroleum exploration and production knowledge to produce the personnel to develop Thailand's petroleum fields to secure the energy security for the country.

**This is 25 years of learning and training,
25 years of growing up and passing on,**

**25 years of Bongkot,
the pride nestled in the Gulf of Thailand.**



Scan here to watch the MADE IN BONGKOT MV



Bongkot field is certified with the international environmental management standard **ISO 14001** and the occupational health and safety management system standard **OHSAS 18001**.

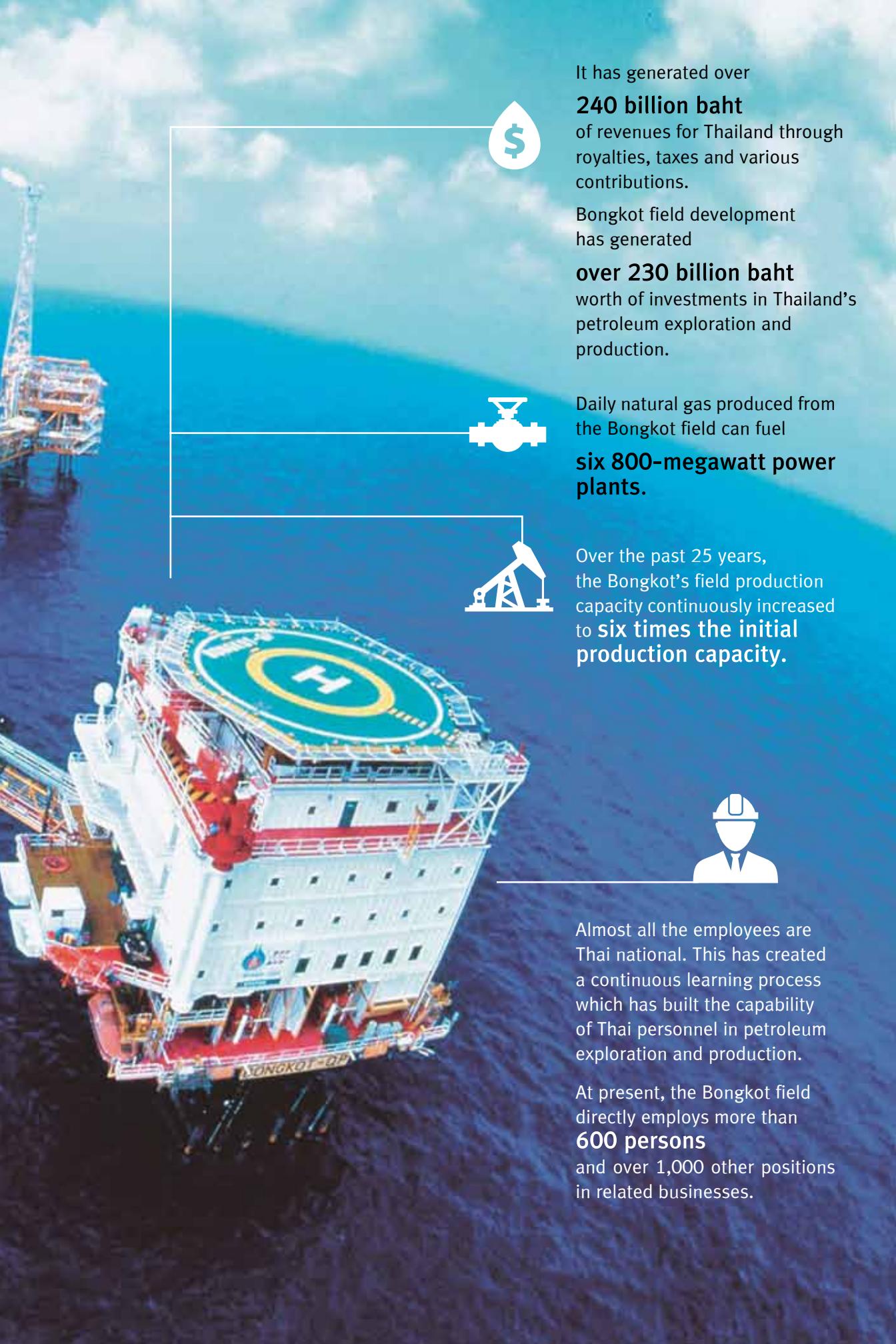


Bongkot natural gas field accounts for 20 percent of the national gas consumption demand with the production capacity of 900 million cubic feet per day or equivalent to approximately 30 percent of the domestic natural gas production.



Bongkot natural gas field

Location	Gulf of Thailand, approximately 200 kms off the coast of Songkhla Province
Project area	3,824 km ²
Partners	PTT Exploration and Production Public Company Limited 66.6667% and Total 33.3333%
Operator	PTT Exploration and Production Public Company Limited
Types of petroleum	Natural gas, condensate and crude oil
Production start-up	15 July 1993



It has generated over **240 billion baht** of revenues for Thailand through royalties, taxes and various contributions.

Bongkot field development has generated **over 230 billion baht** worth of investments in Thailand's petroleum exploration and production.



Daily natural gas produced from the Bongkot field can fuel **six 800-megawatt power plants.**



Over the past 25 years, the Bongkot's field production capacity continuously increased to **six times the initial production capacity.**



Almost all the employees are Thai national. This has created a continuous learning process which has built the capability of Thai personnel in petroleum exploration and production.

At present, the Bongkot field directly employs more than **600 persons** and over 1,000 other positions in related businesses.

**PTT Exploration and Production
Public Company Limited**

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