



SUSTAINABILITY REPORT 2020

CARE & CONNECT



Member of
**Dow Jones
Sustainability Indices**

WE SUPPORT

Powered by the S&P Global CSA



IRPC **cares** for
the environment and wants to
see the nature and human-beings
co-exist in harmony, therefore,
we choose to operate in the most
sustainable manner

Also, we truly
understand
the needs of our customers,
we, therefore, give utmost attention
to our innovation design in
order to drive the society
towards stability

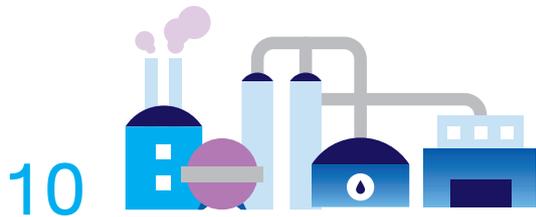
we
Connect
with people and communities,
provide educational and career
options, as well as give supports
to all sectors, when facing
current pandemic situation

these are examples of our cares
to the environment and people,
our understanding of
customers' needs and readiness
to approach the society and
communities. it is in our firm
belief that when we

care, we will always
connect

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Message from the President and Chief Executive Officer GRI102-14, GRI102-10

IRPC once again showcased its sustainability management approach in 2020 by being a member of the 2020 Dow Jones Sustainability Indices (DJSI) for 7 years in a row, and was ranked Gold Class in the 2021 Sustainability Yearbook under the category of Oil and Gas Refining and Marketing Sector by S&P Global. IRPC was also awarded an honorary plaque as being one of the listed companies in the Thailand Sustainability Investment (THSI) 2020 in the resources category. IRPC was the only large organization awarded the Model Organization for Human Rights Award 2020 for the 2nd consecutive year reflecting on our successful sustainable

business operations based on human rights principles. IRPC also faced many business challenges from the Covid-19 pandemic, which globally affected the economy and society. Specifically, IRPC continues to face price fluctuations of crude oil and petrochemical products and decreased consumer demand from national lockdown measures in different countries. Despite the evident impact from such challenges on our business strategies and operations, IRPC continues to operate its businesses sustainably, throughout the supply chain, aligning with the national strategy and the United Nations Sustainable Development Goals.

IRPC is committed to operating its business with sustainable development in mind by creating high-value products. IRPC also promotes and understands the importance of circular economy principles and applies technology, innovation, and digital systems into operations throughout our supply chain. To keep up with the rapid global market changes, IRPC continues to improve products and services to meet consumer demands while ensuring that public health standards are met and balancing business, social, and environmental factors.

IRPC continually invests in innovations to increase the organization's competitiveness in markets and achieve innovative excellence. In 2020, the IRPC Innovation Center (IIC) was established





as a research development center specializing in developing innovation and researching high-value products. To meet consumers' ever-changing demands, IRPC collaborated with the PTT Group to develop Smart Materials, such as Melt Blown fabric and Nitrile Butadiene Latex (NBL). As the first organization to develop such materials in Thailand, IRPC plans for the materials to be used in medical supplies, which will reduce imports of medical supplies from abroad. This initiative is a first step towards creating stability for the future of Thailand's public health system and increase the accessibility of products for good hygiene.

IRPC creates social value by collaborating with Navamindradhiraj University to build the first medical supply examination room in Thailand and Southeast Asia, expected to be completed in the 2nd Quarter of 2021. This initiative will significantly contribute to Thailand's public health system by allowing domestic manufacturers to produce medical supplies at global standards, reduce dependence on supplies from abroad, as well as being able to control the product's quality, production quantity, and safety of the public and health care professionals throughout the pandemic.

With our commitment to developing innovation and technology, IRPC has been awarded the Honor Award for Outstanding Innovation Organization

(large organization) from the National Innovation Agency (public organization) at the "National Innovation Day 2020" event. The award is given to outstanding organizations with an integrated digital system and who have applied innovation and technology in every process of their business operations. IRPC was also awarded the First Runner up to the Social and Environment Award from the work of "Innovative Plastics for Disabled People," a collaborative research project with the Prostheses Foundation of H.R.H. the Princess Mother. The research focused on developing polypropylene plastics that have properties suitable for making prostheses. By applying technology to develop products that are accessible for everyday use, this project contributed significantly to improve the quality of life for disabled people.

IRPC recognizes the importance of combating climate change by starting various organizational initiatives, like the Floating Solar Power project, internal carbon pricing, and carbon-neutral project. IRPC is committed to develop products and organize initiatives that reduce greenhouse gas emissions to combat climate change. Moreover, IRPC also applies the circular economy principle to our business operations by collaborating with partners to reuse the industrial plastic waste in our production process. These initiatives set IRPC apart from other organizations

to be a model organization, and such initiatives align with the government's policy to become a society with zero plastic waste. As part of the circular economy approach, IRPC has developed various eco-friendly petrochemical products, such as bio-based and recycled products, to reduce environmental impacts and use natural resources efficiently.

During challenging situations in 2020, IRPC builds upon its commitment to be an organization that creates social value and reduces environmental impacts while adhering to human rights and corporate governance principles. All of which will contribute to our successful business and help us become a model organization in our society.

On behalf of IRPC, I would like to express my thanks to every employee and stakeholder who has trusted and supported our organization. With the support of stakeholders and our dedicated cooperation, I am confident that IRPC will continue to move forward as an organization committed to sustainable growth and achieve the targets of the Sustainable Development Goals (SDGs).



Mr. Chawalit Tippawanich
President and Chief Executive Officer
IRPC Public Company Limited

About IRPC



CORE VALUES



INDIVIDUAL OWNERSHIP

Having an entrepreneurial spirit or mindset



SYNERGY

Working together to reach common goals

VISION

Leading Integrated
Petrochemical Complex
in Asia

MISSION

Strive for operational excellence
Aspire towards high performance organization
Be responsible for community, society and environment
Create value-added products
Foster innovation and new business



PERFORMANCE EXCELLENCE

Setting challenging targets, working hard to achieve a better result through continuous development and improvement



INTEGRITY AND ETHICS

Believing in working with honesty with transparent management and good governance



INNOVATION

Increasing capabilities and skills to create innovation based on knowledge about products, services, operations, and processes



TRUST AND RESPECT

Building trust and confidence among customers, employees, suppliers, and stakeholders



RESPONSIBILITY FOR SOCIETY

Growing with a sense of responsibility to society and the environment, committed to responding to our stakeholders' needs

IRPC Business GRI 102-1, GRI 102-2, GRI 102-4, GRI 102-6

IRPC Public Company Limited operates the first integrated Petrochemical Complex in South East Asia with head quarter located in Rayong province. Its petroleum business has diverse range of products including Propylene and Naphtha, which are either used as feedstock for petrochemical business or sold. IRPC's business operation focuses primarily on the production and development of petrochemical products as well as the value creation from expertises in services i.e plants and equipment maintenance, system installation, IT training, testing and analysis, engineering, and logistics

Petroleum Business

IRPC's Refinery has the refining capacity ranked third in the country, with wide range of products i.e LPG, Naphtha, Gasoline, Diesel, Fuel Oil. IRPC also has Lube based oil plant and the highest capacity in Asphalt production

Production capacity and process chart information. Please read more in details in Annual Report page 63-70

STRATEGIC GOALS



5% pa Revenue Growth with 10% pa EBITDA Growth

Achieving 5% annual revenue growth and 10% annual EBITDA growth



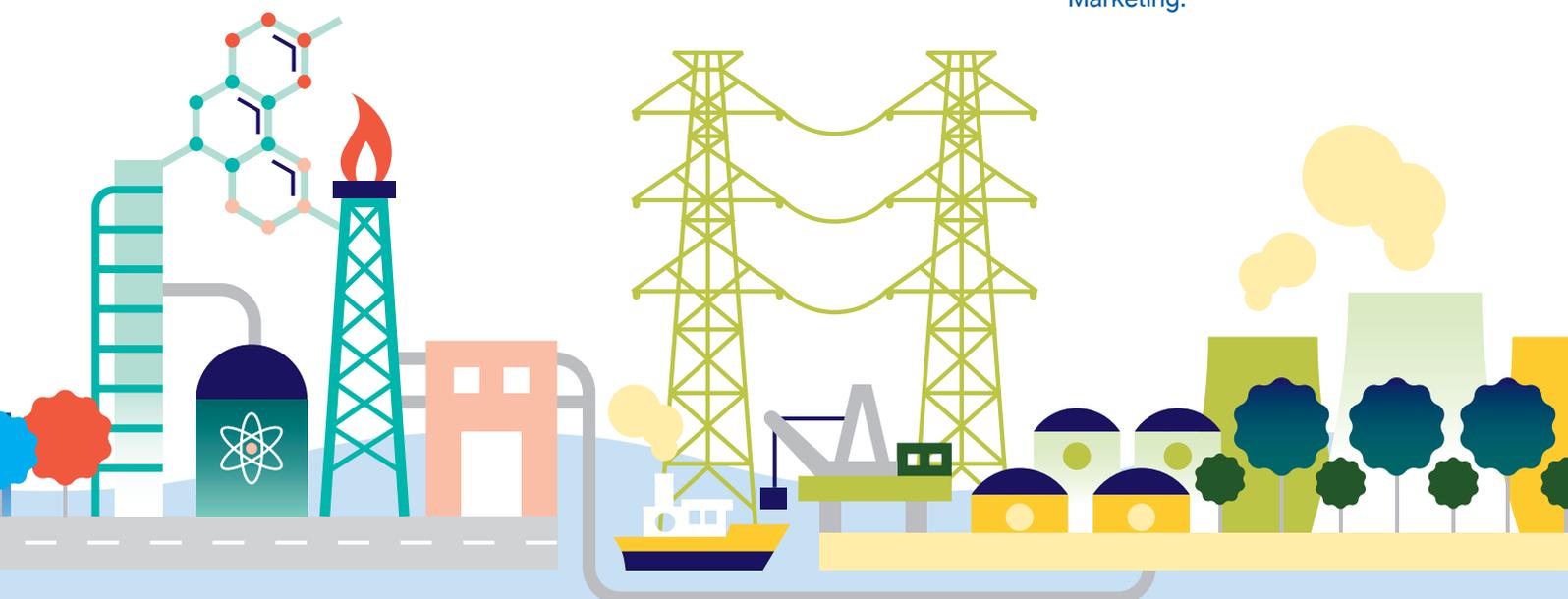
1st Quartile ROIC in Petroleum & Petrochemical Industry

Becoming a “top-quartile” petrochemical company in terms of a Return On Invested Capital (ROIC).



Member of DJSI Emerging Markets Universe

Maintaining a member status of the Dow Jones Sustainability Indices (DJSI) in Emerging Markets category of Oil and Gas Refining and Marketing.



Petrochemical Business

IRPC is a producer of upstream petrochemical products like Olefin and Aromatics, which are used as raw materials for downstream products i.e Polyolefin (HDPE,PP) Styrenics (ABS, SAN ,EPS, PS). the products are sold to plastic convertors both domestic and overseas under brand “POLIMAXX”

Other Business

Utility Business

IRPC is fully equipped to provide customers with services in basic utilities and industrial works, i.e electrical, steam, wind, water, and wastewater treatment systems.

Port and Tank Business

IRPC operates deep sea port and storage tanks to serve demands in logistics for both domestic and overseas

Asset Management Business

IRPC manages totaling of 12,000 rais of land, which is divided into 3 main areas including 1) Industrial zone project, 2) WHA industrial Estate Rayong, and 3) a large landmass with high development potential in JANA district, Songkla province.

Corporate Governance



Corruption Incidents

0 case



No Gift Policy

6 consecutive years



Non-compliance

0 case



Recertificate for membership of CAC (Thailand's Private Sector Collective Action Coalition against Corruption)

Economic Growth



EBITDA

THB **4,692** Million



Incremental margin of new product

26% of product's selling price



Sales Revenue*

THB **174,463** Million



Revenue from High Value Added Petrochemical Products to Total Revenue from Petrochemical Products

58%

Key Sustainability Performances

Remark: * Sales revenue includes Petroleum sales (including excise tax), Petrochemical sales, Power and Utilities sales, sales of storage tank and port service, etc.

Connect to Stakeholder



Total Employee

5,452 persons

17% Female

83% Male



Customer Satisfaction

93%



Philanthropic Contributions

THB **75.97** Million



Community Satisfaction

97%



100% of new suppliers
that were screened using
ESG criteria



0 case
of Fatality

Care for environment



Energy saving

167,898
GJ



GHG Reduction

11,043 tCO₂ e

Care & Connect to all Stakeholders during Covid-19 Crisis



IRPC found 2020 to be a challenging year for its businesses during the Covid-19 pandemic, especially to keep business operations ongoing while providing support to society at the same time. As one of the many commitments that IRPC has emphasized throughout time, IRPC remains committed to conducting business while collaborating with other organizations to help society. Outstanding Covid-19 initiatives include the following:



Care for Employees

IRPC assigns a committee to protect and resolve issues related to the pandemic situation. To manage and prepare for infections efficiently, IRPC actively communicates with all employees and allows most employees to work from home. In particular, IRPC arranges technological communication tools and equipment to facilitate operations during the Covid-19 pandemic. IRPC closely monitors health situations and workplace well-being through the IRPC Daily Check-in system. IRPC also developed other applications to facilitate working conditions during Covid-19, such as the Daily Check-in Mobile application, which monitors in-out time of shifts or urgent work, and the Thermo Scan Mobile application, to record body temperatures of employees and contractors.



Care for Suppliers and Contractors

IRPC Employees

“Friends Helping Friends”

IRPC executives and employees donated 273,500 baht to buy goods and supplies for contractors affected by the economic downfall during the Covid-19 pandemic.





Collaborating with Customers to Build Medical Innovation for Society

IRPC Customer Product Innovation Collaboration for Health Care Professionals and Society

IRPC developed an initiative with PTT Group, suppliers, and customers to enhance medical supplies through using IRPC's products. This includes producing spun-bond fabric from plastic pellets (PP) and developing it into personal protective equipment (PPE). PPE was delivered to Navamindradhiraj University and other hospitals in their network. Furthermore, IRPC also developed a modular room to screen patients and produced and donated face shields to hospitals.

IRPC collaborated with King Mongkut's Institute of Technology Ladkrabang (KMUTL) and the Eastern Polymer Group to deliver a negative pressured swab test box to the Surgical Department at Priest Hospital. The donated swab test box is used for safely screening infected patients. At present, IRPC is planning to deliver swab test boxes to other hospitals in the country.

IRPC collaborated with the PTT Group to deliver different types of medical innovations to Rayong Hospital. This includes stretcher beds with UV-C disinfection, PPE, coverall suits, isolation gowns, and face shields.

IRPC produced rubbing alcohol to sanitize hands. The rubbing alcohol was donated to governmental offices and other organizations to combat the spread of Covid-19.

Together with Lawanvisut Thai Plastic Company, IRPC collectively delivered 3,000 isolation gowns made from plastic and donated sanitizing alcohol to Klang Hospital.

IRPC built a one-stop service center diagnosis building for Rayong Hospital. This initiative aims to reduce the risk of Covid-19 infections in health care professionals while on duty and give back to the general public that uses Rayong Hospital's services.



Care for Society and Communities

IRPC donated face masks, sanitizing alcohol, IRPC drinking water, N95 masks, and face shields to communities and government offices within IRPC's operational areas (including plant offices, Rayong oil depot, Phra Pradaeng oil depot, Mae Klong oil depot, Ayutthaya oil depot, and Chumphon oil depot). Moreover, IRPC also donated negative pressured stretchers and built a building specifically for screening respiratory diseases for healthcare professionals' safety.

As for contributions to society, IRPC's employees have donated blood to the Thai Red Cross Society. IRPC also delivered 40,000 meters of spun-bond fabric to Navamindradhiraj University for PPE production. The PPE and other medical supplies shall be donated to more than 200 hospitals all over the country.

Furthermore, IRPC collaborated with the Faculty of Medicine Vajira Hospital, Navamindradhiraj University, to develop a medical supply inspection room to enhance the nation's public health system.



For more information,
please visit <https://www.irpc.co.th/covid-19/>



ECONOMIC DIMENSION

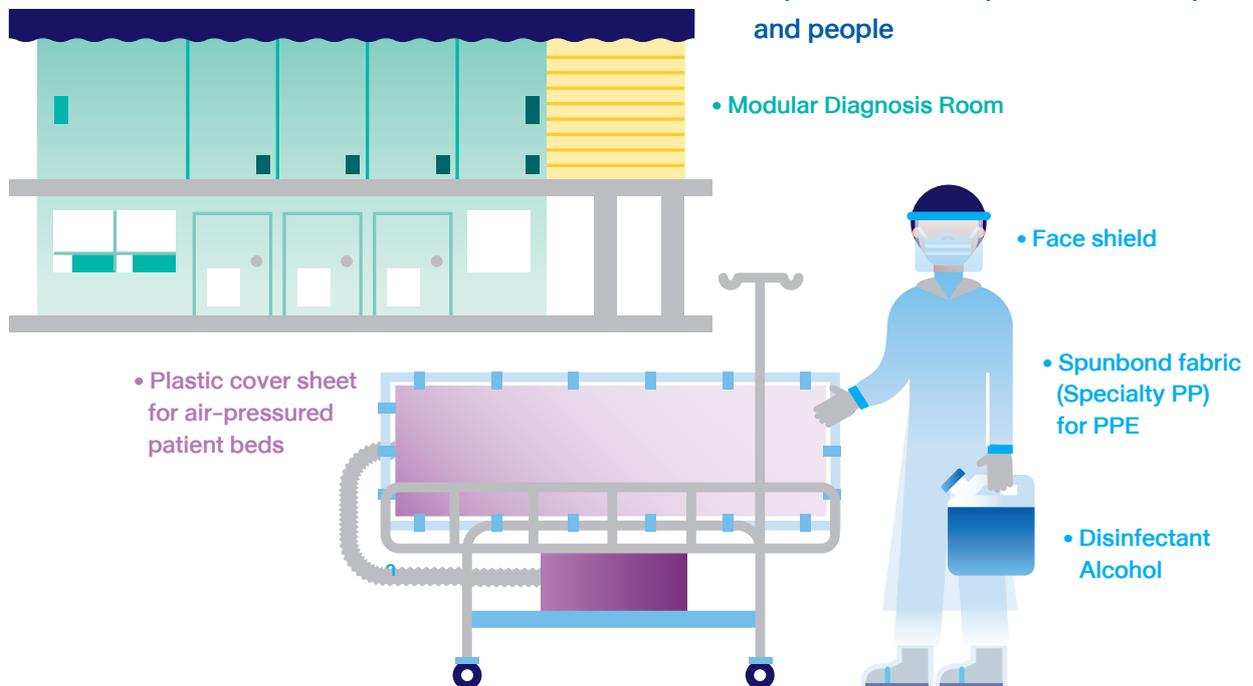
Focus on Survival, Prepare for Resilience

Innovation and Product Development

With the rapid growth of technology in our world today, IRPC recognizes the importance of product research and development and creating innovation to increase the organization's competitiveness. IRPC is committed to applying technology and artificial intelligence to improve business efficiencies and production speed. Apart from inventing products geared towards eco-friendly and social innovation, IRPC's newly invented products also contribute to creating new business opportunities, expanding business growth, and meeting consumer demands during the Covid-19 pandemic.

The battle is not won,
Medical personnel and equipment
to beat Covid-19
are ready

IRPC is proud to be part of Covid-19 fighting troop, together with our customers, suppliers, and medical institutes, to create and develop medical equipment innovation to reduce shortages and the need to import in order to protect medical personnel and people



Goals and Targets

As a "Customer Centric" organization, IRPC outlines its goals to meet customer demands and satisfaction. IRPC's target is to enhance the organization's research and innovative capabilities to be a "World-class Fast Follower" compared to other leading global companies by developing various initiatives. Initiatives include increasing the sales of new

products by 25% of all plastic products and increasing the incremental margin from new products by 25% of the product's selling price. IRPC also targets to manage the New S-Curve product group through an open innovation concept and use employee's knowledge of innovation to build upon future business growth.



Initiatives

With the outlined targets and a challenging situation in 2020, IRPC has developed different research initiatives and product development that meet consumer demands during the new normal situation and the continually evolving environment and society. IRPC's main initiatives in 2020 include medical supplies innovation, medical supply examination room, and other innovations for economic sustainability aligning with corporate targets.

Medical Supplies Innovation

In the consumer goods and medical supplies industry, IRPC expanded its plastic product market to support medical supplies, such as producing PP plastic pellets for eye shields and saline bottles. IRPC has researched and developed PP plastics without a carcinogenic phthalate substance, which can be useful in different product markets, such as packaging, medical supplies, and hygiene products. At present, the product is in the expansion phase and is ready to be sent out to the commercial market. Additionally, IRPC also developed PP plastics to produce N95 masks and personal protective equipment (PPE) made of Spunbond PP. Specifically, the Spunbond PP has specialized water-resistant properties to protect and reduce the risk of Covid-19 infections for health care professionals. IRPC donated a total of 5,000 PPE suits to Vajira Hospital in May 2020. Furthermore, IRPC is developing a business plan for the commercial production of Spunbond and Melt Blown fabric.

IRPC recognizes the importance of expanding its businesses to meet end-users needs by developing products in the B2C (Business to Customers) category. An example of a B2C business from the past year includes producing graphene masks made from electrically charged ink with properties to repel bacteria and dust. Moreover, the graphene masks have a comfortable design due to their proper design of heat circulation. The above product is an example of one of many IRPC products developed to care for consumer health and well-being in an environment with PM2.5 and Covid-19.

Furthermore, IRPC developed a modular room as a one-stop service to screen infected patients. The modular room has two separate areas: a positive room pressure for doctors and health care professionals and a negative room pressure for patients that designed by IRPC's engineers.



It was delivered to the Rayong Hospital, namely Rayong Ruamjaipathana Building, in August 2020 to screen respiratory diseases, prevent Covid-19 infections, and reduce the risk of infections to health care professionals.

Medical Supply Examination Room: A Collaborative Initiative with Faculty of Medicine Vajira Hospital, Navamindradhiraj University

The opportunity for IRPC to develop healthcare initiatives and medical supplies came through the memorandum of understanding (MOU) agreement with the Faculty of Medicine Vajira Hospital, Navamindradhiraj University. The collaborative initiative includes building a medical supply examination room for surgical masks, N95 masks, and personal protective equipment (PPE) suits. This agreement has enhanced national research and promoted in-country production of medical supplies to replace imports from abroad.

Furthermore, IRPC recognizes the importance of medical applications, which are mostly imported and expensive. IRPC uses this opportunity to designate a working team to use the organization's knowledge, technology, and research network to develop various medical applications that are all certified by the Center Certified Laboratory. This initiative is the first step towards creating stability for the future of Thailand's public health system.

Innovation of New Products

IRPC developed a type of plastic from thermoplastic vulcanization (TPV), which contains a mixture of natural rubber and is made into various products, such as shockproof flooring, wire insulation, or automobile parts. As a new product, TPV plastic also contributes to increasing the price of natural rubber. Moreover, IRPC developed UHMWPE plastic pellets that have a high ductility with a molecular weight of 7 million grams per mole (g/mol). This specialized plastic is highly resistant to corrosion, shockproof, and lightweight, making it highly suitable for battery parts. At present, the product is ready for commercialization.

In the food industry, IRPC researched food packaging developments for the new normal situation. This research resulted from the Covid-19 pandemic aftermath, where food delivery businesses were in high demand from many consumers. One product was developing PP plastics into stretchable plastic food wraps, which was highly successful and contains 45% of market shares.

For eco-friendly products developed under the circular economy approach, IRPC is currently in the early stages of commercializing recycled plastics. This innovation includes recycling low-quality plastics from post-industrial and recycled resin (PIR) and transforming them into new high-quality products for further use.

In the agriculture and biotechnology industry, IRPC has researched and developed zinc oxide for agricultural purposes. Specifically, through the brand Reinfoxx ZIO-1, zinc oxide is used as nutrition for plants. At present, the brand is in the process of registering and outlining a business plan for zinc oxide production and pricing.

New S-Curve Products

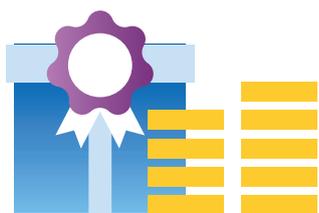
New S-Curve products are products researched and developed to create new business opportunities for IRPC's sustainable future. IRPC's research team uses a combination of megatrends and business growth assessments to create a platform of products. Due to the contrasted features of new S-Curve products with other existing commercialized products, the IRPC Innovation Center manages this group of products specifically through the De Novo Program to increase the chance of commercial success. The De Novo Program consists of 3 different platforms: Conductive Ink/ Film, Li-S Battery, and OLED lighting.



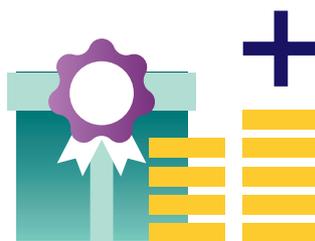
IRPC Innovation Center (IIC)

In order to increase the competitive nature of IRPC's business and move towards innovation excellence, IRPC invested more than 700 million baht in renovating the research development building and application laboratory and proceeded with building the new IRPC Innovation Center (IIC). The IRPC Innovation Center was built as a research center for the innovative development of cutting-edge technology and to compete with other world-leading organizations. The IIC opened for operation in March 2020 and facilitates employees, researchers, research equipment for developing new products, and customer and supplier business visits.

Performance



New product sale revenue
9% of
all petrochemical
products



Incremental margin of new product
26% of
product's selling price

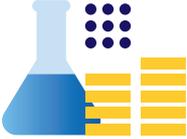
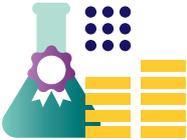


R&D personnel with a Ph.D.
13% of
all R&D personnel



R&D performance effectiveness
1.4
from additional profit of new product aged 3
years per R&D investment in each year

Performance Indicator

	2020 Target	2020 Performance
 <p>Total Revenue from Petrochemical Products (million THB)</p>	 43,677	 37,204
 <p>Revenue from High Value Added Petrochemical Products (million THB)</p>	 25,333	 21,433
 <p>Ratio of Revenue from High Value Added Petrochemical Products to Total Revenue from Petrochemical Products (%)</p>	 58	 58

National Innovation Awards 2020

Through IRPC's continuous work on innovation, IRPC has received two National Innovation Awards in 2020, which includes the following:

- **Distinction Prize for Innovative Organizations (Large Organization)**



is an award for organizations with outstanding innovation management and established an awareness of the importance of innovation management. This increases an organization's preparation for quick changes and also develops an innovative culture within the organization.

- **First runner-up Award in the Social and Environment category for “Innovative Plastic for People with Disabilities”**



collaborative research work with the Prostheses Foundation of H.R.H. the Princess Mother. For this work, IRPC developed PP plastics grade 3340H with transparent and flexible properties to present to the foundation to produce prosthetics for the disabled who will be in a better way of life.

Circular Economy

At the intersection of climate change and prevalent plastic waste issues, social and environmental responsibility becomes an increasingly important matter for conducting business at IRPC. IRPC is focused on developing initiatives that make the best use of natural resources and reduce all types of waste, including plastic waste, in the most sustainable way. IRPC establishes its business plan to align with the circular economy approach, where the use of resources is continual and waste is eliminated. Specifically, IRPC stresses the cycle of transforming unwanted products into valuable resources for businesses and society. IRPC's circular economy approach also complies with the government's policy on managing plastic waste from 2018-2030, which targets reusing all the plastic waste by 2027.

Goals and Targets

IRPC's circular economy strategy is a continuation of the 3Rs approach (Reduce, Reuse, and Recycle). IRPC aims to build its network of recycling plastic waste belonging to Post-Industrial Recycled (PIR) and Post-Consumer Recycled (PCR) products, which has the ultimate goal of increasing circular economy initiatives. This goal also opens up new business opportunities for producing recycle compound resins, such as PP recycled and PS recycled compounds.



REDUCE



REUSE



RECYCLE



Initiatives

Reduce

IRPC invented a variety of products that use a minimal level of valuable resources. This includes products belonging to the bio-based category, such as bio-based polystyrene, a polystyrene plastic product containing a mixture of natural flour.

IRPC also supports green or eco-friendly products through the IRPC brand, POLIMAXX. This includes Green ABS, an eco-friendly product that contains natural rubber, replacing synthetic rubber. This product can be used as a raw material to produce goods and children's toys.

For decoration and construction materials, IRPC invented the R-MAXX L-Cement, made from plastic and cement, giving it quick formation qualities. Other products include P301K, an HDPE type product developed to construct IRPC's floating solar power project. As a greenhouse gas reduction initiative, the floating solar power project is currently part of a fast growing industry.

Reuse

IRPC invents products that are durable and can be reused which extends the product's lifespan. In 2020, IRPC produced a wooden slat product, LGF-PP, which is resistant to impact and light. The product is durable for outdoor use and contains materials with anti-corrosion qualities, making it last longer.



Recycle

IRPC believes in using resources most efficiently by reducing waste as much as possible. This is done by revising the production process and using innovation to increase the value of waste into premium goods, following the Eco Solution model, which manages plastic waste throughout the supply chain. In 2020, IRPC established an initiative by developing a collector network to collect plastic waste from households, commercial businesses, and industrial activities. This collected waste, sorted by recycled purposes, is part of the process of Post-Consumer Recycled (PCR) and Post-Industry Recycled (PIR) products. Examples of initiatives include the following:

- IRPC and KFC signed an agreement to manage single-use plastics. Through this initiative, IRPC collaborates with the Modern Furniture Company to recycle and develop single-use plastic waste into food trays for KFC stores. Also, the initiative develops single-use plastic waste into tables and chairs, which are donated to charities and schools in need. Additionally, the recycling process involved sorting and cleaning plastics in a drop point system.

Thaiworldware Polyproducts, Srithepthai Group, also supported this initiative. As one of the top manufacturers of single-use and biodegradable plastic containers in Thailand, the organization is committed to environmental responsibility and plastic waste reduction.

- Under the brand POLIMAXX, IRPC collaborated with VAVA Pack Company to manufacture bags

made from recycled sacks used in the industry. The bag has a pretty and modern design with various styles and is sewn by locals in Sikhio District, Dan Khun Thot District, Nakhon Ratchasima. In addition to recreating value in used materials, this initiative also promotes local career development in rural communities. For more information on the product, please visit <https://polimaxx.irpc.co.th/>

- The Change for Share initiative was established to reuse plastic. Through this initiative, IRPC applied various digital applications to the circular economy approach to campaign and increase awareness on the value of used plastics for stakeholders. With the help of the Khor Corporation, a startup company, the initiative aims to collect used plastic and create benefits for stakeholders through two different approaches. First, through the digital application, donors to the initiative will see the number of funds raised and other donor benefits, such as redeeming collected points into organic goods. As well as receive information on the amount of carbon dioxide reduced from the donor's contribution. Secondly, IRPC collects used PP plastics from saline bottles and repurpose them into prosthetic legs. This initiative will help contribute to improving the quality of life for people with a disability. IRPC also collects used PP plastic from other types of products to be repurposed into school supplies for schools in need.

The pilot project of the Change for Share initiative was initiated from October 23rd to November 6th,



2020, and from November 27th to December 11th, 2020 at the Energy Complex Building C. While, the actual initiative will be implemented permanently at the Energy Complex Building C in March 2021.

Among those plastic waste, which has been used the recycling process, there were some waste materials used to produce artificial woods (upcycling) and in construction works

Through increasing its circular economy network, IRPC has collaborated with PTT OR in bringing upcycled plastics that are developed into an engineered wood to be used as interior decorations in

the Café Amazon Charoen Rat branch and IRPC Housing branch. This branch of Café Amazon is part of a pilot project to place materials that have undergone an upcycling process. IRPC is planning to expand this initiative in the future.

Furthermore, IRPC has collaborated with a wide range of companies to bring plastic produced with recycled materials for further commercial usage in different industries. Such industries include the electrical appliance, automotive, and food industries. An example of this initiative is the production of gift baskets with recycled raw materials.

In addition to the aforementioned plastic waste reduction initiatives, IRPC continues to transform plastic waste into oil through the chemical process of pyrolysis. From 460-560 tons of plastic waste per month, the pyrolysis process can produce up to 300,000-400,000 liters of oil each month. This pyrolysis oil is used in the organization's production process. Apart from reducing the consumption of unrenewable resources, this initiative has also benefited energy harnessing at a national level.



The pyrolysis oil from plastic waste reduced the amount of plastic waste around

460-560

tons per month.



SOCIAL DIMENSION

Connect to All Stakeholders, Leave No One Behind

Respect for Human Rights GRI103-1

Human rights are basic rights of every human being, recognized as an important issue for many international organizations. IRPC acknowledges the importance of human rights impacts from its business operations, especially from direct and indirect impacts throughout the value chain. With stricter requirements for human rights violations, IRPC is prepared to face challenges and expectations from stakeholders on human rights. Additionally, IRPC is ready to fulfill its goal as a model organization for human rights by maintaining respect for human rights throughout the business value chain. As a result, in 2020, IRPC has committed to implement various human rights programs.

Management Approach GRI103-2

IRPC outlined the human rights strategy and plan to receive no human rights complaints within its business operations and to promote collaboration between different departments on human rights initiatives. According to the UN Guiding Principles on Business and Human Rights (UNGPR), IRPC strengthened its strategy in 2020 to implement various human rights initiatives. Initiatives include updating the organization's policy to align with human rights; increasing human rights awareness for top management, employees, and suppliers; and establishing a network for human rights with the Global Compact Network Thailand (GCNT) by being part of the human rights and labor

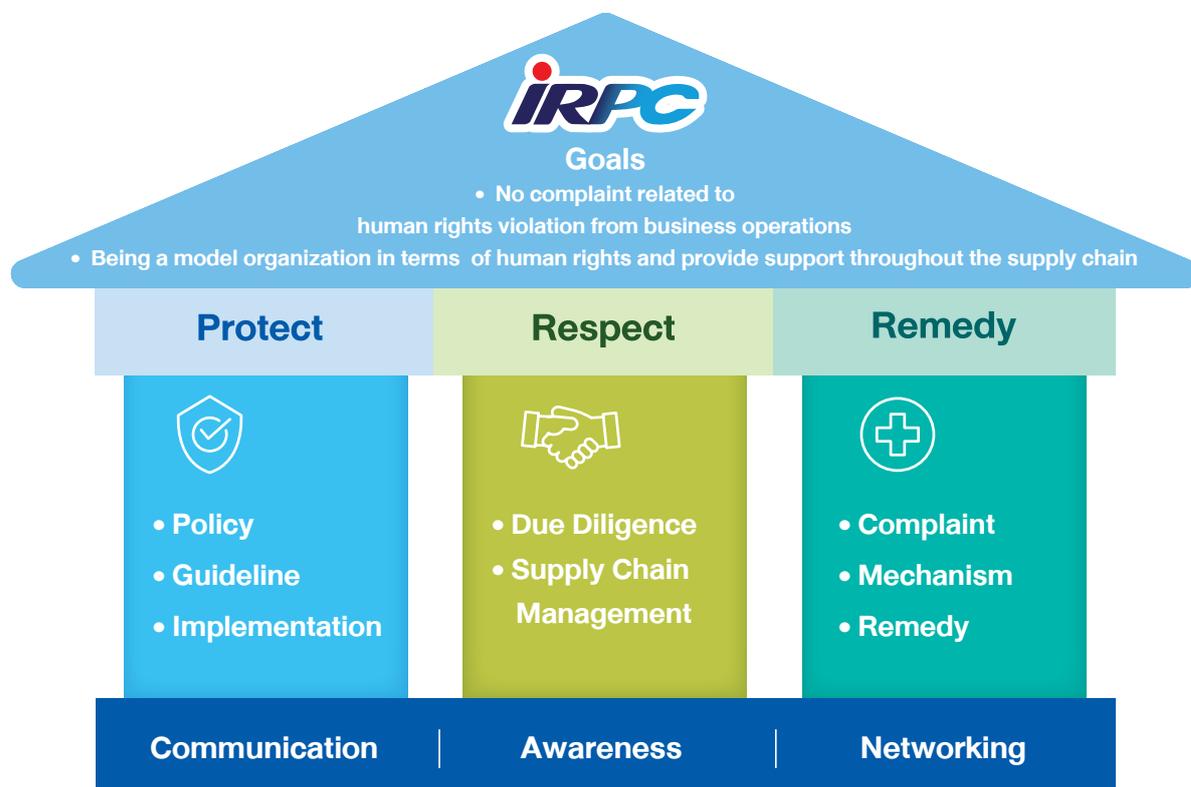
GCNT subcommittee by joining Human and Labor Rights Sub-Committee. Moreover, IRPC established a responsible person to manage the direction, policies, and human rights initiatives throughout the organization and increase the human rights network throughout the supply chain. IRPC also raises awareness on respecting human rights throughout our business operations with employees of all levels, including the corporate governance committee, board of directors, president, top management, and all other employees in the organization.

Roles and Responsibilities



Human Rights Management Framework

To meet the organization's target to receive no complaints of human rights violations and become a model organization for human rights, IRPC has a strategy that raises awareness of human rights throughout the value chain. IRPC adheres to three main principles in its human rights strategy: Protect, Respect, and Remedy. The three main principles are utilized for communication, raising awareness, and networking.



PROTECT

IRPC applies fundamental human rights protection principles to the management policies of IRPC and its subsidiaries. IRPC specifically communicates policies to all IRPC employees, suppliers, business partners, and joint ventures. IRPC also established a human rights management system and a human rights risk assessment guideline to prevent human rights violations. Moreover, IRPC assigns the roles and responsibility of human rights protection of all stakeholder groups to the Board of Directors, Management Committee, and other relevant departments.



For more information on Human Rights Policy, please visit <https://www.irpc.co.th/social-dimension/human-rights/>

In 2020, IRPC reviewed and made changes to relevant policies to ensure that they align with key human rights principles. Such policies include the Corporate Governance Policy, UNGC Global Citizenship Policy, and Personal Data Protection Policy.



RESPECT

IRPC shows its respect towards human rights by implementing human rights due diligence to manage human rights efficiently in the value chain.

Human Rights Due Diligence GRI103-3, GRI412-1

IRPC assesses its human rights risk, according to the Human Rights Risks and Impact Assessment Methodology, throughout its value chain. The value chain consists of businesses operated under IRPC and its subsidiaries, businesses that IRPC has and does not have authority over, and critical suppliers. The human rights risk assessment covers all operation sites, plants, and all five IRPC oil depots (Chumphon Oil Depot, Ayutthaya Oil Depot, Phra Pradaeng Oil Depot, Rayong Oil Depot, Mae Klong Oil Depot). Moreover, IRPC conducts a human rights risk assessment for new investment projects in 2020 through

opinion sharing stages and sessions with local communities, set up by consultants. Risk assessment results are used to evaluate, analyze, resolve, and compensate for human rights issues. In 2020, IRPC did not encounter any salient issues. However, IRPC still place an importance on continuing to control, manage, and monitoring towards occupational health and safety, local communities safety, supplier engagement and waste management aspects.

• Performance

100% of IRPC's Operations have been assessed for Human Rights risk

100% of newly invest projects have been assessed for Human Rights risk and gone through public hearing processes

100% of business, either IRPC has and has no operational control (includes business partner, IRPC holds more than 10% share) have been assessed for Human Rights risk

100% of Critical Feed Stock Suppliers have been assessed for Human Rights risk

In the overall risk assessment process, IRPC outlines the assessment framework, key issues of human rights risk, success indicators, and measures or actions taken. All of which are used to monitor and evaluate the effectiveness of IRPC's human rights initiatives under the framework.

Human Rights Risk Management in Employees GRI412-2

IRPC recognizes the importance of respecting all employees' human rights, establishing human rights awareness through different training methods, and developing fair welfare benefits through both welfare and health care. IRPC also helps promote healthy working relationships among employees, such as respecting each other's rights among supervisors and staff through the 180 degrees survey. Furthermore, IRPC is committed to supporting the growth of women employees, which is proven by the increased number of women in management positions each year.

In 2020, IRPC organized "Human Rights," a business and human rights training program for employees, suppliers, and customers. With a total of 252 participants, the event invited guest speakers who are experts on the topic.



252 participants
in Human Right
Training

Human Rights Risk Management in Supply Chain

IRPC ensures proper communication of its human rights policy to its suppliers and encourages IRPC's critical suppliers to adhere to strict human rights guidelines. IRPC also assesses suppliers' performance in accordance with the human rights principles under the sustainability procurement manual from the human rights and labor code of conduct. In 2020, IRPC outlined the criteria to inspect the qualifications and age of external contractors before working in IRPC's factory. Such measures are to prevent human rights violations, such as child labor. IRPC also implements training for its contractors to promote safe practices in the workplace, set up seminars with suppliers on environmental, social, and governance (ESG) topics, and allow for self-evaluation before an ESG onsite audit is conducted.



REMEDY

IRPC has a grievance mechanism and remedy measures for victims and complainants.

Grievance Mechanisms

IRPC has a channel to receive complaints, along with a process of managing complaints appropriately. IRPC has personnel responsible for managing grievance mechanisms and strictly adhering to notifying and providing different solutions for the complainant.



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For additional information on the number and process of managing complaints, please visit <https://www.ircp.co.th/sustainability-management/business-ethics-and-transparency/>

• Performance



0 case

In 2020, IRPC received no complaints on human rights violations.

Good Labor Practices

IRPC supports the rights of employees through the establishment of labor unions. This is clearly outlined in the employee relationship policy to develop common ground between union members and IRPC's top management. Over time, IRPC's top management has stressed the importance of listening to all labor-related issues through quarterly meetings with union representatives and outlining channels for employee feedback and input, such as conducting employee satisfaction surveys. Specifically, such engagements will allow IRPC to plan out its business direction, adapt the organization to current situations, and enable growth opportunities for all employees and welfare. At present, there are seven labor unions with 76% of IRPC employees belonging to a labor union. In 2020, IRPC received 13 recommendation cases from labor unions and all cases were under reconsideration and will be discussed altogether with the unions member.

Model Organization with Human Rights Awareness and Networking

Apart from the organization's target of achieving zero human rights violation cases, IRPC is also committed to be a model organization for human rights by integrating the human rights principles into the business supply chain. IRPC also communicates about the human rights principles to different stakeholder groups, such as suppliers, contractors, and subcontractors, to ensure that all operations comply with human rights. IRPC also inspects contractors' qualifications and age before beginning work in the factory to prevent child or forced labor.

Apart from ensuring that all of its business operations comply with the human rights principles, IRPC also established different initiatives that build upon the network of human rights activities. This includes being involved at a national and international level. In 2020, IRPC was involved with the following human rights awareness and networking initiatives.

GCNT Forum 2020: Thailand Business Leadership for SDGs

IRPC announced its support of the Sustainable Development Goals (SDGs) in the event "GCNT Forum 2020: Thailand Business Leadership for SDGs," which is a seminar of business leaders in Thailand under the main idea of Recover World, Recover Thailand Better, and empowering sustainability to revive the country's economy after Covid-19. As the 20th anniversary of the United Nations Global Compact (UNGC) and 75th anniversary of the UN, IRPC was involved in the



discussion of "Leadership for Sustainability under the New Normal towards the SDGs" due to the spread of Covid-19 causing a tremendous effect on business operations from changes in consumer behavior. This discussion promoted businesses to adhere to sustainability principles for business development in accordance with SDGs in 2030.

Collaboration with United Nations Development Programme (UNDP)

From IRPC's national reputation on good practices in supporting gender equality in the workplace, UNDP interviewed IRPC under the initiative "Promoting a fair business environment in ASEAN" (2018-2021.)



IRPC Shares Experience in "Business with Human Rights"

IRPC participated in the training program "Business with Human Rights" conducted by GCNT, Ministry of Justice, and UNDP. The program's objective was to increase knowledge and understanding of business and human rights for Thailand's business executives and increase the potential of applying human rights principles to practice. As a model organization of human rights (large organization) awarded by the Ministry of Justice two years in a row, IRPC's Sustainability Management Office was invited as a speaker to share the organization's work on human rights for the topic of Human Rights Strategy and Human Rights Embedment



Human Rights Awards 2020

IRPC was awarded the Model Organization for Human Rights award 2020 by the Minister of Justice for the second consecutive year and is the only large organization to receive the award for two years in a row. The event was organized by the Rights and Liberties Protection Department, Ministry of Justice. The model organization of human rights is awarded to government, public state enterprises, or businesses of all sizes, which adhere to the human rights principles as the basis for all operations. The award also considers efforts to respect human rights; prevent human rights violations of employees, customers, and consumers; and reduce the number of human rights violation complaints. In 2020, IRPC presented the organization's strategy for applying the human rights principles to IRPC's corporate culture for production, excellent service, creating value for all stakeholders as part of a good society, and sustainable development of human well-being.



Human Rights Awards 2020

"ไออาร์พีซีนำหลักสิทธิมนุษยชนผสมผสานเข้ากับวัฒนธรรมองค์กร และบูรณาการร่วมกับกระบวนการทำงานในการผลิตสินค้าและบริการ ที่มีคุณภาพ สร้างคุณค่าร่วมให้แก่ผู้มีส่วนได้เสีย เพื่อเป็นส่วนหนึ่งของสังคมที่ดี และการพัฒนา ความเป็นอยู่ของมนุษยชาติอย่างยั่งยืน"

นายบพดล ปิ่นสุภา
ประธานเจ้าหน้าที่บริหารและกรรมการผู้จัดการใหญ่
บริษัท ไออาร์พีซี จำกัด (มหาชน)

A graphic for the Human Rights Awards 2020. On the left, a man in a dark blue uniform and a white hard hat with the IRPC logo is smiling. The background is dark blue with white and red arrows pointing upwards and to the right. The text is in Thai, describing the award and the recipient, Mr. Bopadol Pinsook, CEO of IRPC.

Human Resource Management

IRPC strongly believes that the growth of an organization depends on the quality of employees. As an organization with over 5,000 employees, IRPC has a policy to develop and improve human resource management work aligned with technological applications and international standards. IRPC seeks to develop qualified employees and contribute to society as a whole. Specifically, IRPC stresses that employees are the main mechanism to move the organization forward into a high-performing organization that is competitive and adaptable to changes.

In the past year, IRPC faced many challenges regionally, nationally, and globally. Such challenges negatively affected the world's economic and financial system. As for the Covid-19 pandemic, IRPC expects more incoming challenges over the next five years. The Covid-19 pandemic is a turning point for the organization's future and the industry. In order to maintain our position as a leading organization in the industry, the organization needs to undergo changes to keep up with the current situation. Hence, IRPC designed and established the New Organization with Agile Human (NOAH) approach to ensure that long-term business operations are competitive in terms of cost. In the new lean and agile organizational structure, IRPC integrated different business and technological applications into our operations.

At present, many businesses are affected by the risk of an aging society. Specifically, highly skilled employees who are approaching retirement are being replaced by younger employees. Similar to other businesses, this risk also affects IRPC, especially in the upcoming 5-10 years, where more than 100 employees are expected to retire. As a result, IRPC may not be able to attract new talent in time to support IRPC's business growth leading to unexpected business outcomes. Therefore, in 2020, IRPC strengthened its human resource management by supporting the efficient and sustainable growth of employees and increased the organization's competitiveness within the industry both nationally and globally.

Goals and Targets

IRPC carries out employee engagement survey on an annual basis. the result is analyzed to improve for better result. In 2020, targets were set both employee participation rate of 93% and engagement score of 80%



Initiatives

In 2020, IRPC organized various initiatives to align with the “New Organization with Agile Human (NOAH)” management approach. NOAH consists of four tasks to increase the efficiency of managing various aspects of human resources, including competency development, improving the performance review system, increasing the efficiency of recruiting and attracting new talents, and personal development.

New Organization with Agile Human (NOAH) Tasks



Remark: For additional information on the management approach of NOAH four dimensions, please visit <https://www.irpc.co.th/en/social-dimension/human-resources-management/>

Task 1: The Most Cost-Efficiency Operating Model at Speed

IRPC stresses the importance of preparing employees in every generation for success. IRPC analyzed the current operating model, which consists of many employees aged 40 and above who will start retiring in 2025 and continue for the next four to five years. This signifies that the preparation of highly skilled employees in the next generation will be important to support IRPC’s business growth. Hence, IRPC established improvements

to the organizational structure to be more agile, driving future businesses. In 2020, IRPC developed a digital system to align with managing operations in a digital age, providing greater convenience in the organization’s management work and other related work at each employee level. Thus, creating a well-prepared system adaptable to various changes and increasing the organization’s overall level of competitiveness.

Digital Working Systems during Covid-19

IRPC assesses and prepares protection measures to reduce business risks on a continual basis. IRPC adapts to the Covid-19 pandemic by applying various digital systems to operate without limits. Whether it is a matter of location, time, or equipment, IRPC's employees can continue working both in normal situations or during the Covid-19 pandemic. Using online meetings and mobile applications to check the status of employees during Covid-19, IRPC was able to maintain its operational efficiency while adhering to strict guidelines to reduce the risk of infections. Importantly, during Covid-19, IRPC was able to continue its operations without any unreliability, unlike other businesses which experienced interruptions and resulted in shutdowns.

IRPC recognizes the importance of occupational health and safety of employees and established improvements to the working environment. To reduce the risk of infections in the workplace, IRPC implemented voluntary work from home measures and encouraged employees to work from home with their supervisor's approval. This reduced commuting times and helped maintain working efficiencies. As a result, employees are able to increase work-life balance while reducing the risk of infections from public transportation and achieve greater efficiencies in certain work functions, such as meetings and monitoring work performance.

iConnect

IRPC established iConnect or IRPC Human Resources (HR) Digital Platform, an application is used for human resource management. The platform is accessible for employees of all levels to perform various human resources work, such as recruitment, competency development, performance results, compensation management, benefits, and human resource news. The platform also functions as a communication channel between the human resource team and our

employees. It can be used to analyze key information for strategic development and to monitor the Covid-19 situation, resulting in an enhanced human resource management system that meets corporate targets. The platform is also highly applicable to a diverse range of employees, including newer employees, as it is accessible anytime, anywhere, and on any device on the cloud platform.



Task 2: Future Skill Development

IRPC believes that an organization's capabilities to grow and compete is dependent on employees' skill sets and tools. IRPC is committed to developing our employees' competency, which will significantly contribute to each employee's personal career growth and the organization's overall performance. Employee skill development is one of IRPC's main human resource management strategies.

IRPC established various training programs to prepare employees to transition into new functions. Specifically, the training programs cover a range of skills to ensure that new employees will receive the necessary skill sets that other experienced employees in that role have acquired. In addition, the training

program ensures that existing employees in their current role can build and strengthen their acquired skills. All IRPC employees are trained through the Accelerator Program, a program that up-skills and re-skills employees for new job functions. Moreover, the program assigns responsibilities based on the employee's role, allowing for a clear assessment of the outlined performance. All of which directly increases the employee's competency aligning with the respective business unit's targets.

The competency development plan for employees is implemented through the following training programs:

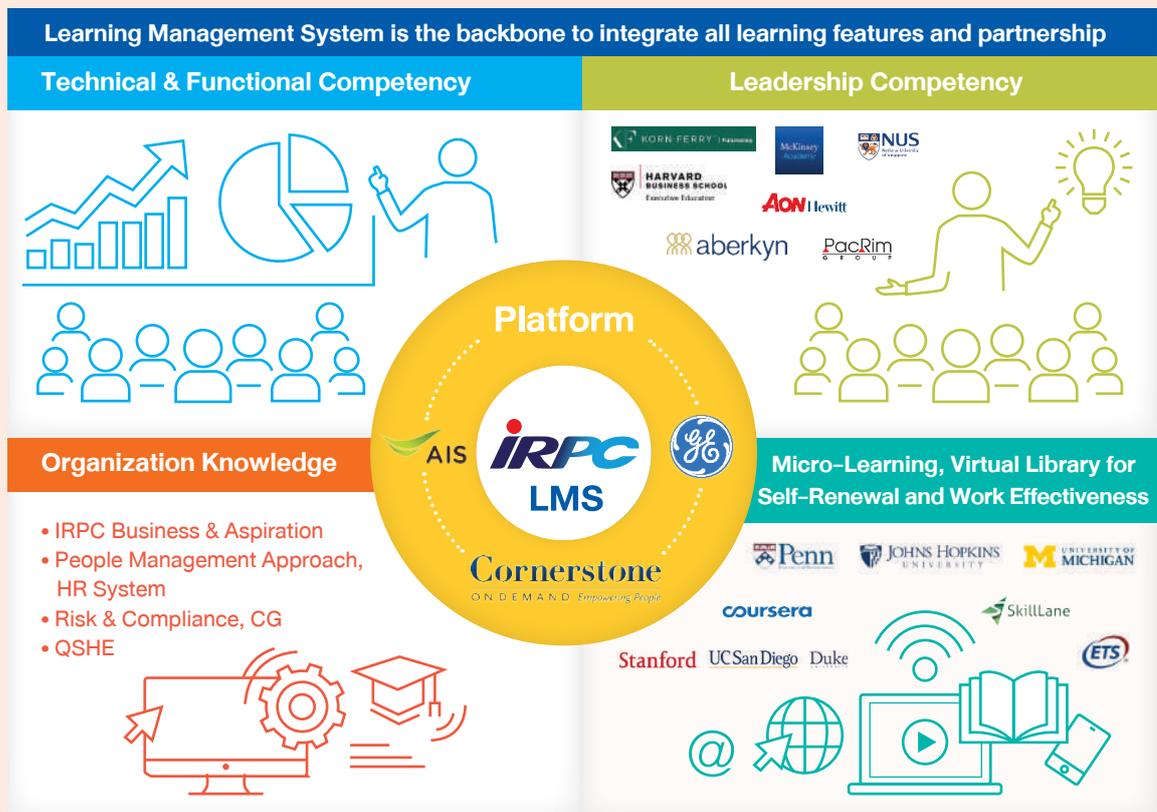
Training Program: Leadership Development Program (LDP)

IRPC designed this training program's curriculum using the 5D Model, 360 degree assessment, leadership competency assessment results, leadership potential assessment results, and historical performance review of managerial-level employees. The main objective of LDP is to educate executives and develop leadership skills. The LDP also drives change in the organization by achieving corporate targets through project-based learning, a hands-on learning approach that provides a clear understanding for executive learners. Project-based learning includes three different parts a seminar, group project, and group coaching.



Learning Management System : LMS

Since 2019, IRPC developed its Learning Management System (LMS), a management software for web or e-Learning. In 2020, IRPC made improvements to the LMS by increasing the accessibility of the SAAS software on personal computers and smartphones for management executives, employees, instructors, students, and system administrators. Moreover, the LMS can save course content both offline and online and record learning and teaching information (files, VDO, competency assessment, etc.) of all employees in one place. The recorded data is analyzed to efficiently monitor and evaluate the training.



IRPC divides the knowledge group into four groups that are relevant to IRPC's employees and business. This includes the following:

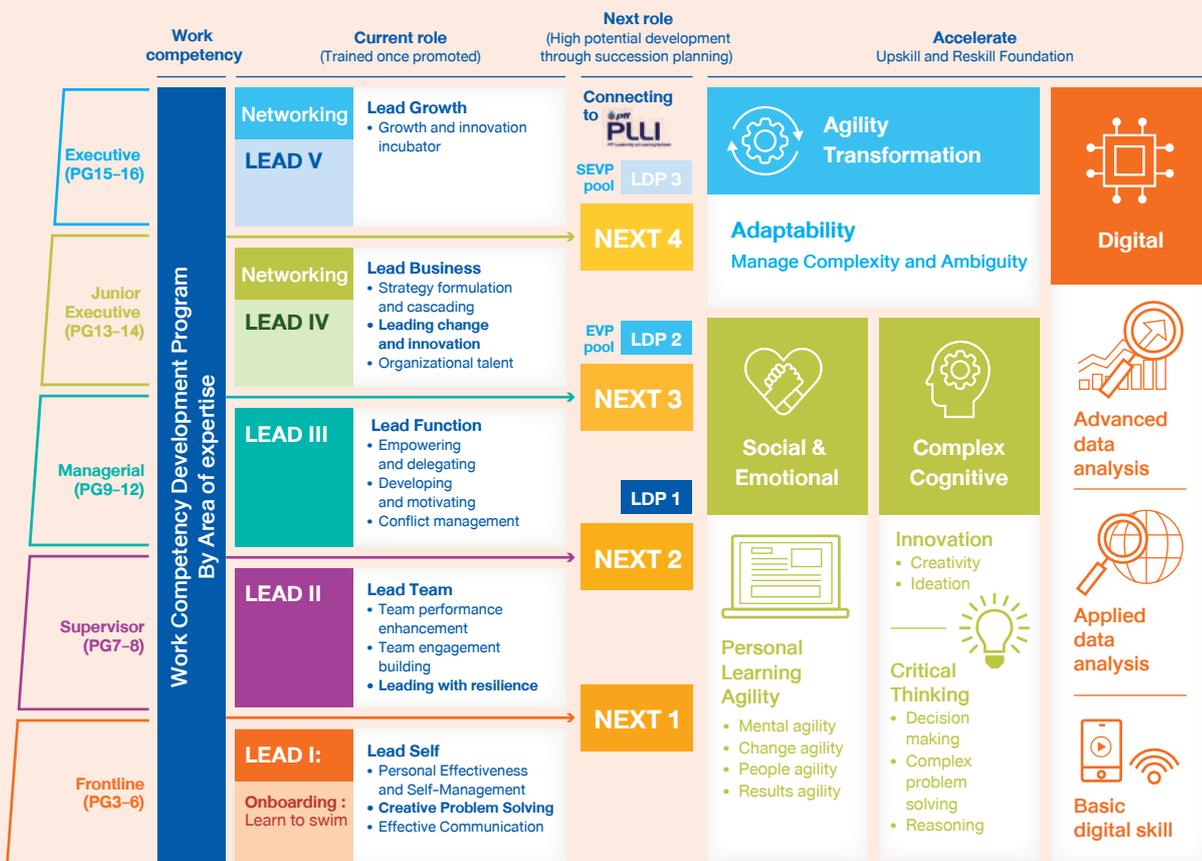
- **Technical & Functional Competency**

Work competency is a knowledge group organized based on the overall picture of function by prioritizing different work in the value chain. This knowledge group improves the knowledge and skills of employees based on each job function and responsibilities. As a mandatory knowledge group, it comprises various basic technical knowledge, including 1. Monitor & maintain a steady-state for all systems, 2. Startup, 3. Shutdown, and 4. Troubleshooting & Emergency.

• **Leadership Competency**

is a knowledge group for leadership development at all employee levels. In order to increase the organization's competitiveness, IRPC stresses the importance of leadership competency, which was designed to align with our business mission. This knowledge group was built to develop key skills that meet the demands of business operations and use as an approach for the learning mode called Training: Coaching: Experience (10: 20: 70), which encourages competency development and helps manage employees' performance. The picture below outlines the plan to develop leadership at each employee level.

Leadership Development



• **Organization Knowledge**

is a knowledge group for managing different aspects of the organization. The knowledge content consists of handbooks and guidelines from Risk and Compliance, and Corporate Governance (CG).

• **Self-renewal**

is a general knowledge group that allows employees to learn through a self-renewal or self-learning process. This knowledge group allows employees to choose their own courses and provides greater learning convenience in the comfort of employees' homes without having to commute or generate transportation costs. Courses are screened by leading national and global partner companies and include a variety of courses, such as the Leadership Program, Organization Knowledge, Quality, Safety Program, Work Competency, and HR Program.

Training Program: The Seven Habits of Effective People

IRPC planned an organization-wide training to provide useful habits applicable to employees' daily lives both inside and outside of work. The purpose of the training program is to develop positive attitudes and mindsets, both socially and emotionally, by emphasizing the seven habits that contribute to becoming an effective employee. Effective habits should be incorporated into the employee's personal and interpersonal behavior. By developing such effective habits, our employees will be able to increase their ability to control their personal lives, have strong commitments, prioritize based on importance, build stronger relationships, communicate productively, and establish a good work-life balance.



Training Program: Developing Advance Analytic Capability Program

With the use of digital systems in IRPC's operations, managing large volumes of data becomes an essential factor for the organization's management. IRPC established the digital transformation strategy to develop skills in data analytics for employees. Such advanced skills are not only valuable for self-development but also allow employees to improve the efficiency of their work by analyzing information to make quick and accurate decisions and increase the competitiveness of our business.



IT Strategies to enhance company's strengths

Security Operations Center



Digital Innovation & Transformation



Analytic Organization



Infrastructure Excellent



Empowering People

PEOPLE



PROCESS



TECHNOLOGY



Task 3: Performance Management and Rewarding

IRPC recognizes the importance of developing incentives for deserving employees and establishes a new performance evaluation system and a new corporate culture that emphasizes efficiency. IRPC also ensures that employees' competency development aligns with future business plans and establishes short- and long-term rewards suitable for different employee levels.

IRPC believes that a strong performance evaluation will significantly increase the performance of human resources at both a business unit and organizational level. Additionally, performance evaluations showcase the work and professionalism of supervisors and staff and the ability to retain qualified staff within the organization.

Succession Management

- Break Through Project

The Break Through Project is a project that takes into account the assessment results from the 360 degree Assessment, Leadership Competency Assessment, Leadership Potential Assessment, Key Psychometric (Dimension and Drive), and previous assessments of department executives that are ready to manage their own project. IRPC designates each qualified employee to a distinct project with an objective to support the employee's development of various key skills, such as management skills, problem-solving skills, approach to dealing with challenges, and other relevant skills. All of which can be used for succession preparation and to develop technical and people management skills. The performance of projects are further evaluated as criteria for employee promotion.

In 2020, a total of 30 employees participated in the Break Through Project. Outstanding projects in the Break Through Project in 2020 include the "Store Inventory Management 2020," a project which showcased the successful outcome of costs saving by THB 230 million, going beyond its target of THB 200 million.

Task 4: Talent Acquisition

IRPC established a strategy of recruiting employees that align with both the short- and long-term business plan, as well as the demand and supply of candidates within and outside the organization. To achieve planning of the recruiting process in advance, IRPC applies technology to ensure that the recruitment process is prompt and able to screen knowledgeable candidates most efficiently.

Performance

In 2020, 82% of employees participated in the employee engagement survey, and the results found the organization's employee engagement to be at 79%. When comparing the employee engagement results within the oil, gas, and consumable fuel industry in Thailand and overseas, IRPC was found to have an employee engagement score as high as the top quartile, thus showing the successful work done on employee engagement. However, in 2020 IRPC saw a decrease in employee engagement partly due to

the employees' concern for implementing a new human resources management approach and the impacts from Covid-19.

IRPC strongly believes that by implementing a strategy that focuses on competency development and rewarding, the organization's employee engagement score will increase as targeted in 2021.

Performance Indicator	2020 Target	2020 Performance	2021 Target	
 <p>Employee Engagement (%)</p>	 80	 79	 80	
 <p>Participating Employees in Engagement Survey (%)</p>	 93	 82		
 <p>Average Training of Employee (hour per employee per year)</p>	 40	 14		
	2017	2018	2019	2020
 <p>Return on Investment Human Resource Development (THB Million)</p>	 2,048	 1,477	 2,077	 1,644

Remark: Averaged training hours for employee reduced due to Covid-19

Occupational Health and Safety

Managing occupational health and safety is an important aspect of conducting a Petrochemical and Refinery business at IRPC. Concerning building confidence in IRPC’s business and gaining trust from stakeholders, including employees and surrounding communities, IRPC is committed to minimizing occupational health and safety risks. IRPC has established safety initiatives that control hazards in the production process and reduce incident rates. Additionally, IRPC’s initiatives continually promote the well-being and health of all employees, contractors, and surrounding communities.

Goals and Targets

IRPC realizes the importance of occupational health and safety management according to our Innovation and Operation Excellence (IOE) strategic framework. The IOE strategic framework is composed of four different pillars; Process Safety Management, SHE Excellence, Safety Culture, and Health Management. The strategic framework is designed to support IRPC’s vision to move forward together towards excellence by 2025.

Under the Goal Zero initiative, IRPC has a long-term target for 2025 to reach a Total Recordable Injury Rate (TRIR) of 0.30, zero incidents of spills and fire from the production process (PSE Tier 1), zero incidents of oil spills, and a Total Recordable Occupational Illness Rate (TROIR) of zero.

Occupational Health and Safety Aspect



Safety, Occupational Health & Process Safety Event Roadmap

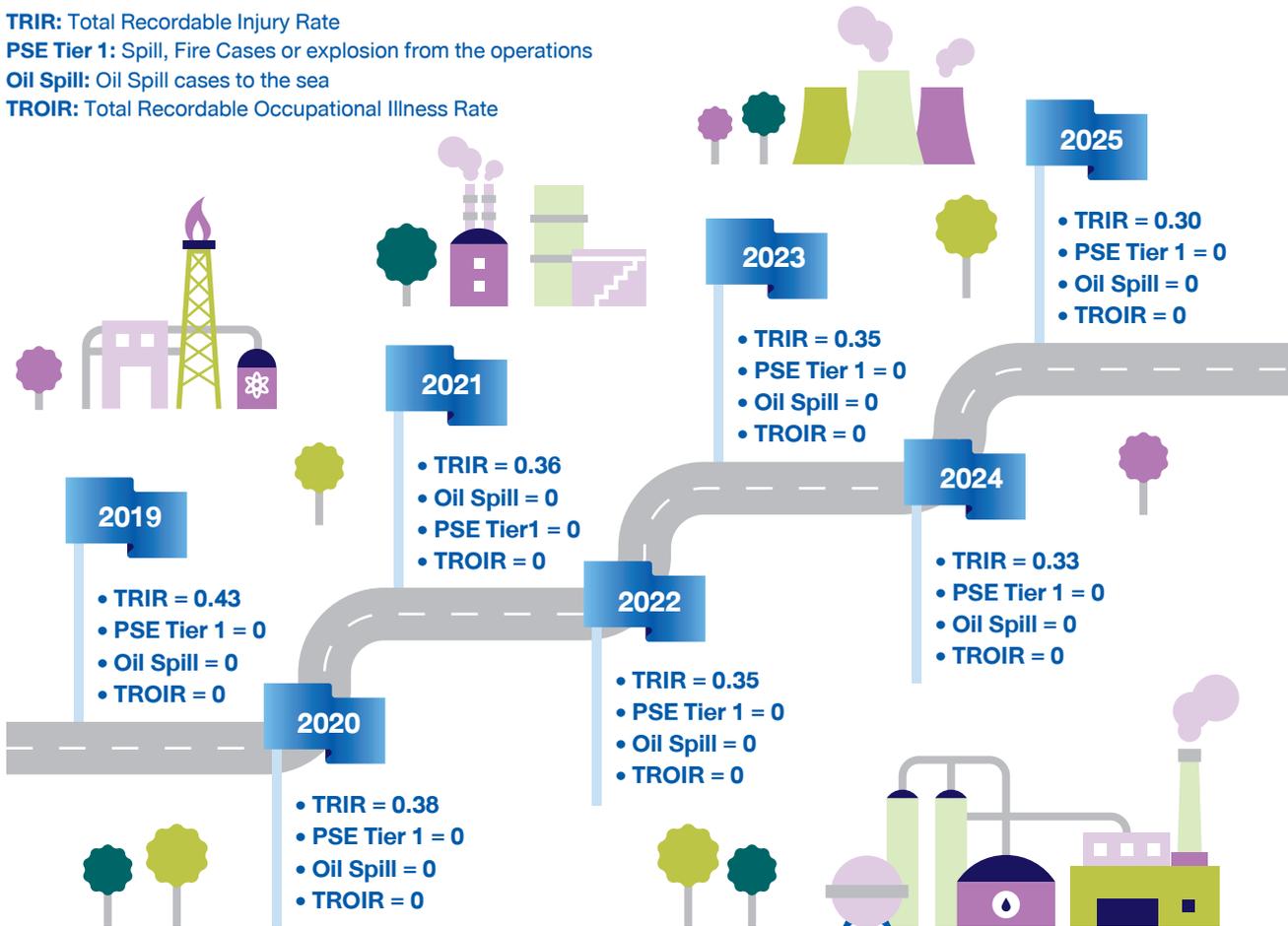
"Safety is Continuous Journey"

TRIR: Total Recordable Injury Rate

PSE Tier 1: Spill, Fire Cases or explosion from the operations

Oil Spill: Oil Spill cases to the sea

TROIR: Total Recordable Occupational Illness Rate



Initiatives Under the Strategic Framework

Pillar 1: Process Safety Management

IRPC developed a Process Safety Management Roadmap to be implemented between 2016–2025 with the primary goal of integrating the Process Safety Management and Operational Excellence Management System (OEMS) into the One System to manage occupational health and safety.

IRPC values building a safe environment in the production process by establishing plans and promoting zero unplanned shutdowns. IRPC

considers the efficiency of equipment, design, production, and the economy in assessing every case of an unplanned shutdown. In addition to the assessment, IRPC also applies digital technology to monitor and maintain production to further improve IRPC's production process. Furthermore, IRPC strives to have reliability production process. This is shown in the 2020 results of occupational health and safety, where IRPC has achieved production reliability at 98.8%.

One Day Safety at Work

The concept of One Day Safety at Work starts at the very beginning from before working to time spent in the workplace. This initiative is expected to help promote safe conduct by all of IRPC's employees to reach Goal Zero targets and increase the reliability of IRPC's business operations. One Day Safety at Work applies the safety approaches from "Stop and Think Before You Act" and "Process Safety Good Practices". In addition, this provides opportunities for IRPC's

top management to promote and monitor the organization's safety behavior through applying Behavior Safety Management (BSM) practices.

Please follow the following link to a video clip of One Day Safety at Work



Pillar 2: SHE Excellence

IRPC promotes safety awareness as part of our operations to ensure that workplace behavior complies with safety standards. IRPC developed the SHE Excellence Criteria Award to highlight clear communication of safety practices, safety risk management, emergency preparedness, and minimization of incident rates. The SHE Excellence Criteria, which applies to IRPC's internal departments, consists of five different levels; Diamond, Platinum, Gold, Silver, and Bronze.

In 2020, IRPC conducted the SHE Excellence assessment on a total of 87 departments. 7 departments received the Diamond award, 39 departments received the Platinum award, 33 departments received the Gold award, and 8 departments received the Silver award.



7
departments received
the Diamond award



39
departments received
the Platinum award



33
departments received
the Gold award



8
departments received
the Silver award

Pillar 3: Safety Culture

IRPC recognizes the importance of building a safety culture within the organization to achieve operational excellence. In addition to establishing occupational health and safety policies, IRPC strongly believes in putting words into action. Specifically, through encouraging role model behavior of executive management and all other employees to strengthen the safety culture within IRPC's workplace.



Zero Fatality
for Employee and
Contractor in 2020



IRPC utilizes a digital platform as a tool to monitor operations related to occupational health and safety. The digital platform is designed to increase efficiency and promote safety responsibilities within the organization. The digital platform also allows employees of different levels to communicate, especially between supervisors and staff. Specifically, the platform enables supervisors to monitor safety behavior and promptly give safety orders to working team members.

iCAREs

Under the concept of "Open Mind & Talk Together", the iCAREs initiative is used as a framework to conduct safety practices at IRPC. IRPC strives to positively change employee mindsets and attitudes towards receiving safety feedback in the workplace. The initiative is established through a 360 degrees record of working behavior between supervisors and employees and among employees themselves. Such behavior records demonstrate the standard working behavior, risky behavior, behavior that should be avoided, and behavior that should be supported. Additionally, lessons learned are reviewed for continuous safety development, emergency preparedness, and minimizing unplanned incidents among every employee at IRPC.

iCAREs Principles

All injuries can be prevented



On-the-job safety
and off-the-job
safety are very important



Safety is the first priority
and safety standards
will never be compromised



Everyone is role models
and accountable
for safety performance



Safety is everyone's business,
involvement is essential and
responsible for safety in the area



Goal Zero campaign

IRPC has continuously promoted zero accidents through the Goal Zero Accident initiative since 2016. As a result, the number of accident-free workdays has increased over time. This includes the Total Recordable Injury Rate (TRIR) for employees and contractors, which significantly decreased when compared to the period before the initiative was implemented. This clearly reduces the loss of employees, contractors, and any negative impacts to IRPC's business.

Behavior Safety Management (BSM)

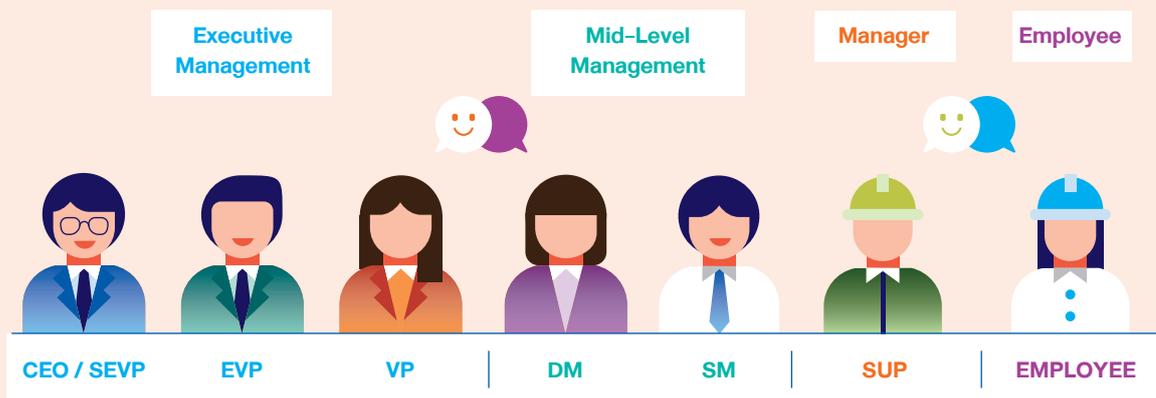
IRPC established the Behavior Safety Management (BSM) platform to manage employees' safety behavior in the workplace. The platform supports IRPC's strategy of operational excellence and safety culture targets. The BSM platform encourages employees to deliver a variety of safety practices through changes to working behavior, such as being observant and cautious and applying the three integrity principles to the production process (design integrity, operating integrity, maintenance integrity). The behavioral

information obtained from the platform will help to develop safety behavior of the organization's roadmap to 2023.

In 2020, IRPC gathered the information for the BSM platform and reported the results onto the Graph Dashboard to analyze and develop the future roadmap. Moreover, IRPC expanded its record of working behavior to external non-IRPC workers, summarized in the e-Contractor program.

BSM Leadership Role Model

Be Brave to Give Advice / Honest Complimentary / Open Mind / Listen & Give advice / Self-admiration



Behavior Safety Management (BSM): Safety Walk & Talk with Executive Initiative

The Safety Walk & Talk initiative has the role of representing IRPC's executive management's vision on stressing safety behavior across the organization. As part of this initiative, executive management inspects workplaces through site visits to exchange safety practices between management and other staff and promote safety in general working behavior and environment. This initiative allows employees to be open-minded with different safety inputs and can strengthen the working relationship between executives and staff.



Safety Awareness Training

On August 28, 2020, IRPC conducted training on safety awareness for fire fighting department. A total of 19 employees participated in this training session, where participants initiated an oath to reduce workplace incidents to comply with IRPC's Goal Zero campaign.



Assessing the Storage of Hazardous Material by Regulation

IRPC conducted training on "Assessing the Storage of Hazardous Material by Regulation" to relevant employees. The training session aimed to provide safe practices for storing hazardous material to comply with the regulations.



Pillar 4: Health Management

IRPC developed a roadmap to manage the health and well-being of all employees. IRPC set a target for employees to achieve a Health Performance Indicator Score of 3.75 and Body Mass Index (BMI) of at least 45% by 2025. To reach the organization's target, IRPC developed various health initiatives for its employees, such as a health risk assessment, industrial hygiene and control of workplace exposure, and health promotion campaigns.

IRPC strongly encourages all employees to work in good health, which is an integral part of building a strong business foundation. Therefore, in addition to various health initiatives, IRPC provides medical check-ups to all employees annually, including specific health check-ups according to risks exposed employee.

Digital Technology Applications in Occupational Health and Safety

IRPC utilizes digital technology to improve the organization's work on occupational health and safety. The technology includes a safety system and websites, such as the idMS program, e-Contractor program, e-Permit program, and other programs under the Behavior Safety Management (BSM). Such applications allow the organization to work productively by efficiently managing and analyzing information. In addition, all employees and contractors are given access to the data through internet and intranet connections.



idMS Program



e-Contractor



e-Permit



BSM

Covid-19 Prevention Measures

IRPC announced protection and prevention measures against Coronavirus or Covid-19, and established a committee to protect and resolve the pandemic situation within the organization. Specifically, this allows IRPC to efficiently manage the Covid-19 situation within the organization and promptly communicate with all employees regarding the pandemic. The Safety, Occupational Health, and Environment Management Department has developed screening measures for all employees, contractors, and external workers. The department also outlined restricted areas to contractors, social distancing protocols, alcohol sanitizing stations, disinfecting areas, and monitoring measures for external contractors and outsourced employees working on IRPC properties.

BCM Emergency Plan: Preparation for Covid-19 Infected Employee

In March 2020, IRPC rehearsed a BCM Covid-19 emergency plan to be prepared if an IRPC employee contacts Covid-19. IRPC conducted two rehearsals. The first rehearsal was in collaboration with the medical team of Rayong Hospital in the ECC Room and the second rehearsal was in the Auditorium of IRPC's 10-year building, Rayong Province.



The Covid-19 Pandemic Inspection and Protection Committee Welcome

In April 2020, IRPC and the Covid-19 Pandemic Inspection and Protection Committee (War Room Covid-19) welcomed the working members of the inspection and protection committee to review IRPC's Covid-19 preventive measures for the organization's workplaces that have more than 100 workers onsite. Results of inspection show that IRPC have provided appropriate support and control measures.



“Friend Helping Friend” Initiative for IRPC’s Contractors

In April 2020, IRPC developed an initiative to help contractors that were affected economically by Covid-19. IRPC employees presented contractors in need with “bags of goods and supplies” and opened up for monetary donations. This initiative helped 544 contractors.



Donation of Alcohol (75%) to Government Offices in Rayong Province

On April 10, 2020, IRPC donated alcohol (75%) and other supplies to help with the Covid-19 pandemic situation to the Rayong Government Offices.



Performance

Life-Saving Rules

To reduce workplace incidents, IRPC designed the working environment and behavior of all employees by putting up posters of Life-Saving Rules to remind and promote cautious behavior. Posters also include details and steps of proper working to achieve safety awareness and minimize the risk of reoccurring incidents. As a result of the posters, employees are exhibiting safe working behaviors regularly.

Total Recordable Injury Rate (TRIR) (Case per one million hours worked)

Performance Indicator	2020 Target	2020 Performance	2021 Target
 <p>All Workers (Including Employees, Outsourced, and Contractors)</p>	0.38	0.39	0.36
 <p>Employees</p>	0.38	0.36	0.36
 <p>Outsourced and Contractors</p>	0.38	0.43	0.36

Remark: In 2020, the number of employees receiving medical treatment from accidents increased, resulting in a higher TRIR than in 2019.



TRIR Statistic Trend benchmarking with International Association of Oil & Gas Procedure (IOGP)
IRPC's TRIR trend is declining continuously and gaining better than average rates in the industry. It is currently in the 1st Quartile level of IOGP.

Remark : ★ The result will be announced in mid of 2021



Occupational Health, Safety and Environment Awards

Tobacco-Free Workplace Excellence First Place Award

National Alliance for Tobacco-Free Thailand awarded IRPC with a “Tobacco-Free Workplace Excellence First Place Award” on February 26, 2020 for the smoke-free campaigns developed in collaboration with the Human Resource Department and Safety, Occupational Health and Environment Management Department at IRPC.



Announcement of the National Occupational Health and Safety Award 2020 by the Department of Labor Protection and Welfare

In 2020, IRPC was awarded seven national awards for an ideal Occupational Health, Safety, and Environment workplace. The IRPC workplaces that received an award are the following:

- IRPC Ayudhya Depot
- IRPC Chumphon Depot
- BTX Factory
- IRPC Oil Co., Ltd
- IRPC Phra Pradaeng Depot
- IRPC Polystyrene Factory
- IRPC Condensate Residue Plant

In 2020, IRPC received 25 awards for working members of the Safety, Occupational Health, and Environment Department, including safety functions and officers of all levels.



Social Well-Being

IRPC is aware of the impacts on community well-being caused by IRPC’s business, especially for communities surrounding the IRPC Industrial Zone, which includes some of IRPC’s important stakeholders. Building trust and reliability are essential factors in conducting, expanding, and growing a business together with the community. IRPC is committed to establishing a sustainable business responsible for impacts on society and communities and creating benefits for IRPC Industrial Zone communities. IRPC specifically focuses on strengthening relationships with communities, conducting activities that are beneficial for communities, resolving issues, meeting the needs of communities, actively communicating with communities for positive outcomes, and building credibility towards IRPC’s operations for all stakeholder groups.

With the commitment for businesses, communities, and societies to grow together, IRPC assesses the performance of the corporate social responsibility (CSR) projects according to the London Benchmarking Group (LGB) Framework. IRPC uses the Social Return on Investment (SROI) assessment to evaluate future CSR projects, ensuring that all IRPC’s initiatives are truly valuable to communities, societies, and our growing business.

Inputs What is contributed?	Outputs What happens?	Impacts What changes?
<p>How</p> <hr/> <p>Cash, Time, In-Kind, Management Costs</p> <p>Why</p> <hr/> <p>Charitable Gifts, Community Investment, Commercial Initiatives in the Community</p> <p>What</p> <hr/> <p>Issue Addressed (Education, Health, etc.)</p> <p>Where</p> <hr/> <p>Location</p>	<p>Community Outputs</p> <hr/> <p>Number of People Affected, Activities Held, etc.</p> <p>Business Outputs</p> <hr/> <p>Media Coverage, Awareness Among Customers and Employees, etc.</p> <p>Leverage</p> <hr/> <p>Additional Funds Raised</p>	<p>Community Impacts</p> <hr/> <p>Change in Beneficiaries, Organizations and/ or Society</p> <p>Business Impacts</p> <hr/> <p>Change in Business Performance</p>

Source: London Benchmarking Group Framework

Goals and Targets

From the framework of CSR projects, IRPC sets a target to evaluate the performance of each project. This includes a target for 100% Strategic and Communication Program Achievement and 92% of Community Satisfaction.

Initiatives

IRPC divides its CSR projects into three categories: 1) community projects, 2) educational projects, and 3) social development projects. All of IRPC's CSR projects begin by taking inventory of the community's issues and needs through public hearings

to develop initiatives that ensure the communities' needs are met and issues are resolved. In 2020, IRPC conducted CSR projects with outstanding performances as classified below.

Community Projects

IRPC conducted community projects with a commitment to enhance the communities' well-being through improved sanitation and quality of life.

Corporate Social Responsibility, Department of Industrial Works (CSR-DIW)

IRPC requires that each CSR project must be conducted under the standard of Corporate Social Responsibility, Department of Industrial Works (CSR-DIW). The standard's main purpose is to create good quality of life for individuals in the community from at least one activity in each project. In 2020, IRPC's CSR projects conducted 11 activities aligned with the Sustainable Development Goals (SDGs), specifically Goal 3 and 6.

Sustainable Development Goals (SDGs)	CSR Project	Activities	Number of Community Members Benefited
 <p>3 GOOD HEALTH AND WELL-BEING</p>	 <p>Health projects</p>	<ul style="list-style-type: none"> • Renovate park • Build a storage room for medical supplies • Renovate sports courtyard • Contribution to mosquito spray 	 <p>2,888 households (10,905 persons)</p>
	 <p>Renovating key public infrastructures that are beneficial in the community</p>	<ul style="list-style-type: none"> • Build a storage room for durable goods • Build a pavilion • Fixing the sound system 	 <p>5,009 household (19,638 persons)</p>
 <p>6 CLEAN WATER AND SANITATION</p>	 <p>Water use projects</p>	<ul style="list-style-type: none"> • Renovate tap water in three villages 	 <p>278 households (1,270 persons)</p>



Groundwater Bank Project

IRPC had the opportunity to educate communities surrounding the IRPC Industrial Zone on water resource management through the Groundwater Bank project. The project raised awareness on the importance of saturating the ground, including raising the groundwater level for agriculture, consumption, and use. In 2020, IRPC built a total of 20 groundwater wells as planned.

2020 Performance



20 wells

Total Areas Covered

- Ban Laeng Sub-district (5 wells)
- Taphong Sub-district (5 wells)
- Na Ta Khuan Sub-district (5 wells)
- Choeng Noen Sub-district (5 wells)



In the process of surveying areas



Educational Projects

Educational projects developed by IRPC aim to improve and support education in children, youth, elders, and the overall population. Specifically, such projects also support reducing education inequality, a significant issue faced by the community. Educational projects are established every year. Moreover, IRPC creates educational opportunities for youths in communities surrounding the Industrial Zone by awarding annual academic scholarships. In 2020, IRPC awarded 299 scholarships, marking the twelfth year of scholarships awarded to top students living in communities surrounding the IRPC Industrial Zone who lack financial support. Scholarship recipients were selected based on community leaders and educational institutes in five local communities.

IRPC Community Learning Center

IRPC established the Community Learning Center to be a learning center that supports and improves the environment, jobs, and economy in the community. The center is also a place to hold engagements to strengthen the relationships between community members, different communities, and between communities and IRPC.

Activities in the Community Learning Center are changed every month. In 2020, IRPC conducted the following activities and clubs in the center: cooking class, yoga club, science club, English club, mental arithmetic club, public speaking club, taekwondo club, and DIY activities (mask straps, pencil cap dolls, sorting trash). In 2020, the total number of participants and those who used the center's services on Saturdays and Sundays totaled 36,297 people.

2019 Performance

2020 Performance

2021 Target



15,675 activity participants



36,297 activity participants



40,000 activity participants



Mueang Rayong Elderly School

Since 2005, Thailand's elderly population has increased dramatically every year, bringing along other elderly problems, such as abandonment, mental health, health issues, and financial issues. IRPC considers the following impacts as a social challenge and started implementing CSR projects geared towards the elderly population. One of the projects includes the Mueang Rayong Elderly School, which aims at creating learning opportunities for elders in various subjects. This includes improving the quality of life among elders and increasing the knowledge of required life skills taught through various activities. As a result, many elderly participants

are able to have an enjoyable time reducing their likelihood of depression and, in turn, improves the elder's quality of life. In addition, elderly participants can apply the school's knowledge to develop career networks in the community.

In 2020, a total of 10 activity sessions were conducted in the Mueang Rayong Elderly School. The activities conducted include making fancy jelly, cellphone bags, hand sanitizer gel, face masks, leather bags, and mask straps; setting up community enterprise groups; encouraging elderly self-care, and other activities for the potential development of elders. With the Covid-19 situation, four activity sessions were canceled at the school during the pandemic period.

2019 Performance



93 elderly students

2020 Performance



93 elderly students

2021 Target



100 elderly students



Social Development Projects

IRPC continues its commitment to develop projects for society to enhance the quality of life for those living in the society. Social development projects also aim to resolve inequalities and create benefits for communities in a sustainable manner. In 2020, IRPC conducted social development projects by applying employees' knowledge to build upon the efficiencies and quality of innovations and products. Specifically, the innovations and products are applied as a social foundation to build a self-reliant society.

Covid-19 Care for Stakeholder Projects

The Covid-19 pandemic, which spread across the world in 2020, caused a tremendous impact on many people's lives in terms of economic aspects, quality of life, and health. IRPC is committed to creating a safe community with a low risk of infections. Therefore, IRPC developed different measures to support and care for stakeholders during the Covid-19 pandemic, with budget support and project implementation as follows:

- Construction of the Modular Diagnosis Room, which was delivered to Rayong Hospital
- Delivered Ruamjaipathana Building for screening respiratory diseases to Rayong Hospital



- Contributed face shields for health care professionals at Rayong Hospital
- Delivered “Medical Innovation” consisting of negative pressured patient beds and beds that can be disinfected by UV-C radiation
- Produced alcohol for Rayong Industrial Office and delivered to the governor of Rayong
- Contributed to cost of foods and drinks for Red Cross volunteer members in Rayong
- Contributed to cost of cleaning activities and disinfectants for the main pavilion in Rayong
- Contributed to the cost of producing cloth face masks for the Rayong Public Health Office



Modular Diagnosis Room

IRPC built a Modular Diagnosis Room and delivered it to the Rayong Hospital to contribute to medical supplies and equipment for health care professionals and protect health care professionals from the spread of the Covid-19 virus. Designed by IRPC employees and the faculty of medicine at the Rayong Hospital, the Modular Diagnosis Room serves to screen for Covid-19 in patients. After the Covid-19 pandemic, the hospital will use the room to check patients with respiratory diseases. The Modular Diagnosis Room was built with a negative pressure checkup room to protect health care professionals. The room has a total area of 80 square meters which consists of the following sections:

- Two parts as waiting area and bathroom
- One 2x5 m area to store medical records (positive pressure)
- One 3x5 m area as a dispensary room and cashier (positive pressure)
- Three 2x3 m areas for doctors (positive pressure)
- Three 2x2 m areas for patients (negative pressure)

IRPC Prostheses Project

Since 2011, IRPC has donated polypropylene plastic (PP) to the Prostheses Foundation of H.R.H. the Princess Mother to produce prosthetic legs and necessary equipment for people with a disability. As the 9th year of this project, IRPC hopes to improve the quality of life for disabled people and reduce inequalities within the society.

In 2019, IRPC and the Prostheses Foundation collaborated to research and develop a copolymer polypropylene plastic (PP Random 3340H) with transparent properties allowing health care professionals and prostheses technicians to see clearly and efficiently adjust the prosthetic leg socket. Moreover, disabled people both in and out of Thailand have received help from this project, including people from Malaysia, Myanmar, Cambodia, the Republic of Senegal, and Indonesia. In 2020, a total of 3,298 prosthetic legs (3,239 persons) were delivered and repaired through this project. Since 2011, a total of 29,013 prosthetic legs were delivered and restored through this project.

Furthermore, IRPC plans to expand this project, building upon the benefits of the current program. At the initial stage, IRPC is conducting research on reusing plastic pieces from prostheses to increase further benefits to society.

With the commitment of continuing the Prostheses Project from 2011 onwards, IRPC has contributed significantly to disabled people. In 2020, IRPC was awarded the First Runner Up 2020 Innovation Award by the National Innovation Agency (Public Organization) under the category of social and the environment (large organization) for the work of "Plastic Innovation for Disabled People".

Inputs	Outputs	Impacts
<p>How</p> <p>In-Kind Giving:</p> <ul style="list-style-type: none"> • Donation of Product 20 Tons per Year • Employees' Time • Cash Contribution • Equipment <p>Why</p> <p>Charitable Gifts and Product Development to Serve the Need of Users</p> <p>What</p> <p>To Improve Living Quality of Disabled People and Create Business Opportunities</p> <p>Where</p> <p>Thailand, ASEAN Countries, the Republic of Senegal</p>	<p>Community Outputs</p> <p>Number of Patients Reached: 3,239 persons</p> <p>Business Outputs</p> <ul style="list-style-type: none"> • Number of Employees Engaged: 20 Employees • New Products <p>Leverage</p> <p>Business Collaboration and Partnership</p>	<p>Community Impacts</p> <ul style="list-style-type: none"> • Reduce Inequality Gap • Increase Potential of Workforce • Increase Opportunity and Improve Living Quality for Disabled People <p>Business Impacts</p> <ul style="list-style-type: none"> • Business Reputation • Business Opportunity for New Product • Increase Employees' Skills

Number of Prosthetic Legs Delivered to Disabled Persons

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
									
1,066	2,454	3,337	3,066	2,411	2,231	3,325	3,959	3,866	3,298



Remark: Due to Covid-19 situation in 2020 resulting less patients compared to previous year

Lam Sai Yong Model

IRPC established the Lam Sai Yong Model in mid-2014 to provide knowledge and solutions for communities to be sustainably self-reliant during droughts. Specifically, the model transforms the pilot area from a dry arid area to an abundant area with water and food resources. The Lam Sai Yong Model's success, which began in Lam Sai Yong sub-district, Nang Rong district, Buriram province, has expanded to other provinces like Uttaradit, Sisaket, Udon Thani, and Ubon Ratchathani.

In 2020, IRPC set a goal for the Lam Sai Yong Model by developing water reservoirs in Ban Nong Yang, Lam Sai Yong sub-district, Nang Rong district, Buriram province. The low amount of rainfall in 2019 resulted in droughts and scarcity of water for agriculture and consumption. As the reserved water became insufficient to meet the demands for water use during the drought, IRPC established the following work:



- Dig wells in two areas to bring groundwater up for usage, consumption, and agriculture, and set up a solar-powered water pump at Nong Yang, Buriram.
- Duration of the model construction lasted between January-February 2020 and was completed on February 20, 2020 at Nong Yang, Buriram.
- Benefits from the model
 1. Capable of storing 1,620 m³ of reserved water per month during drought seasons.
 2. Communities receive greater benefits with water supplied to 352 households per 1,500 rai of agricultural land.
 3. Reduce the communities' electricity bill by using a solar energy system at an average of THB 4,000 per month.
 4. Communities realize the importance of drought preparation, sustainable water management, and water resources.
 5. Provide learning opportunities for communities to participate, share, and unite as one.

Inputs	Outputs	Impacts
<p>How</p> <ul style="list-style-type: none"> • Employees' Times • Cash Contribution • Equipment <p>Why</p> <p>Community Investment</p> <p>What</p> <p>To Improve Living Quality of People in Agriculture</p> <p>Where</p> <p>Buriram, Uttaradit, and Sisaket Provinces, Thailand</p>	<p>Community Outputs</p> <ul style="list-style-type: none"> • Number of People Reached • Access to Adequate Water Resource <p>Business Outputs</p> <ul style="list-style-type: none"> • Number of Employees Engaged <p>Leverage</p> <ul style="list-style-type: none"> • Collaboration with Public and Private Sector Agencies and NGOs 	<p>Community Impacts</p> <ul style="list-style-type: none"> • Improve Living Quality of the Agricultural Community • Improve Resiliency to Future Water Crises <p>Business Impacts</p> <ul style="list-style-type: none"> • Business Reputation • Increase Employee's Skills

Social Return on Investment Projects (SROI)

IRPC assesses the social return on investment (SROI) by calculating returns from CSR projects per funds invested. In 2020, IRPC used an SROI assessment on the following CSR projects for future social development: Agricultural Group Development project, Exercise Ground project, and Mobile Clinic project

Agricultural Group Development Project

From its support and development of organic agriculture in Na Ta Khuan, IRPC built a greenhouse for 465 seedling pots. With each pot selling at 30 baht, the project benefits the community by reducing financial support for professional training groups and generating income for local people resulting in an SROI of 143% (THB 1.43 per THB 1 invested).



Mobile Clinic Project

From investing in a Mobile Clinic, IRPC hopes that individuals in the community will become healthier with improved access to medical services. According to the project assessment, it was found that the clinic received a total of 968 patients, which included low income individuals in the community. In 2020, IRPC sets a target of running the Mobile Clinic project 12 times a year. However, the target was set back with Covid-19 resulting in a total of four times this year. This project has benefited the community by reducing medical bills resulting in an SROI of 82% (THB 0.82 per THB 1 invested). In 2021, IRPC has a goal of enhancing the SROI assessment by repairing medical equipment with the help of technical college students and using advanced technology to provide quicker and varied services in the Mobile Clinic.



Performance

In 2020, IRPC established more than 50 CSR projects. Each CSR project was initiated through the needs of communities and to resolve issues in the community.

IRPC gathers the communities' concerns and comments in public hearings before initiating each and every CSR project. Specifically, communities' concerns and comments are used to improve and develop the CSR projects' plan with a commitment to increase efficiencies and benefits toward communities. IRPC summarizes the feedback of communities received in 2020 as follows.

Concerns/ Comments	Suggestions for Improvement
Alignment with Community Needs	
Most CSR projects are aligned with community needs as projects are sent in by communities for consideration.	Consider supporting CSR projects that are important to communities, such as building senior homes, developing treadmills in public parks, and increasing the recruitment of locals to the organization.
Community Benefits	
Communities receive great benefits as CSR projects are aligned with community needs, especially in agricultural development.	Consider developing a large-scale CSR project in public places in order to engage the people of Rayong collectively with local community projects. Specifically, health and well-being projects, such as lead blood testing for communities surrounding IRPC Industrial Zone and road safety projects, such as emphasizing employees to wear helmets when driving motorcycles.
Comparing with Projects in Previous Years	
IRPC continues to support communities and state enterprises. However, with Covid-19, the community may see funds appropriately adjusted to the present situation.	Increasing academic scholarships and supporting career development of local individuals in the community, such as organizing lecturers or speakers to educate and promote career development in the community.

Inputs



Philanthropic Contributions

THB **75.97** Million



Time Volunteered

18,580 Hours



Management Overhead

THB **6.5** Million

Type of Philanthropic Activities



Charitable Donation

THB **2.35** Million



Community Investment

THB **19.73** Million



Commercial Initiatives

THB **53.89** Million

CSR Rayong Performance Summary



Academic scholarships for top students who lack financial support in communities surrounding IRPC Industrial Zone

299 academic scholarships



Number of people receiving health services from Pun Nam Jai Clinic and Mobile Clinic

4,019 persons



Number of households with water that meets sanitary standards

278 households



Stakeholders benefited from activities in IRPC Community Learning Center

36,297 persons



Number of employees volunteered with CSR projects

2,025 persons



Number of health development projects in the community through health funds

26 projects



Elderly who received better living qualities from the elderly school

10 times



Number of households which benefited from renovated public infrastructures in the community

5,009 households



Number of public areas developed for public benefit

More than **70** areas



Percentage of community satisfaction of CSR projects

78.2%



Number of factories which received the CSR-DIW standard

10 factories



Number of projects successful in receiving feedback

3 projects

Performance Indicator



Strategic and Communication Program Achievement (%)

2020 Target



100

2020 Performance



100

2021 Target



100

Performance Indicator



Community Satisfaction (%)

2020 Target



92

2020 Performance



97

2021 Target



93

Stakeholder Engagement GRI102-21, GRI102-42

IRPC establishes engagement for external and internal stakeholders annually to understand the stakeholder's perspectives, interests, expectations, and concerns for the economic, social, and environmental aspects. The responsible business unit will identify relevant stakeholder groups and outline IRPC's stakeholder engagement procedure.

Stakeholder Engagement Procedure



For IRPC Stakeholder Engagement Procedure, please visit [LINK] <https://www.irpc.co.th/wp-content/uploads/2019/06/Stakeholder-engagement-EN.pdf>

As an organization, IRPC is ready to move towards a sustainable future by valuing stakeholders' expectations of business operations. IRPC organizes a procedure to engage all relevant stakeholder groups. Moreover, IRPC occasionally meets with the public sector, shareholders, and stakeholder groups to decide on the direction of future business operations and discuss key economic, social, and

environmental issues. IRPC assigns a responsible business unit to establish stakeholder engagement, analyze information from the engagements, and report the information to the respective business unit. IRPC's Sustainable Management Office will further summarize the overall engagement results to be used as inputs to evaluate materiality issues and annual corporate strategy.

Results of Stakeholder Engagement GRI102-40, GRI102-43, GRI102-44

Stakeholders	Engagement Approach (Frequency)	Engagement Objectives	Identified Issues	Management Approach
Shareholders/ Investors 	<ul style="list-style-type: none"> Domestic and international roadshows (Quarterly) Analyst meeting (Quarterly) Conference call (Regularly) Thailand Focus 2020 by SET (Annually) Operational area visits (Annually) 	<ul style="list-style-type: none"> Opportunity for investors to ask or inquire related information from IRPC Provide knowledge and explanations on IRPC's operations (e.g., sustainable operations) 	<ul style="list-style-type: none"> Covid-19 support and resources for employees Sustainable operations (e.g., water management) Business operational improvements (e.g., cost management) International sustainability trends 	<ul style="list-style-type: none"> Explanation on Covid-19 support and resources for employees Answering sustainability-related questions from investors Operations to increase production capacity Developing a management plan for fixed costs
Employees 	<ul style="list-style-type: none"> Surveying employee's behavior (Annually) Employee engagement survey (Annually) Announcement on Covid-19 measures and news (Daily) 	<ul style="list-style-type: none"> Evaluate and facilitate IRPC DNA Evaluate human resource management performance Announcement on Covid-19 health and safety measures 	<ul style="list-style-type: none"> iSPIRIT and IRPC DNA Employee engagement Human resource management and development 	<ul style="list-style-type: none"> Development approach for IRPC DNA Human resource management excellence strategy Operational improvements to increase employee engagement
Customers/ Consumers 	<ul style="list-style-type: none"> Customer visits (Regularly) Customer seminars (Annually) Customer satisfaction survey (Annually) Customer relationship initiatives and activities, such as holiday gifts, sports activities, and thank you party/ events (Annually) Innovation and product exhibits, such as CHINAPLAS (Annually) IRPC CRM 4.0 Online communications (e.g., Webinar, Microsoft Team, online/ electronic news) 	<ul style="list-style-type: none"> Customer's concerns and feedback Follow up on advancement and expectations of product Develop a good relationship with customers Exchange and share knowledge Update customer's information 	<ul style="list-style-type: none"> Updated product information and IRPC's expectations Regulation details and market trends Product development plan Demands and expectations on products (e.g., Eco-friendly products) Marketing plan Customer's concerns during Covid-19 	<ul style="list-style-type: none"> Approach to share and exchange knowledge Notifying customer's demand, expectation, and concerns to relevant business units Approach to announcing products advancement Develop strategies that align with customer's demand (e.g., water consumption strategy, sales strategy)

Stakeholders	Engagement Approach (Frequency)	Engagement Objectives	Identified Issues	Management Approach
Suppliers 	<ul style="list-style-type: none"> • ESG awareness for ESG audit (Annually) • Suppliers satisfaction survey (Annually) • Evaluate supplier's performance (Annually) • Supplier meetings (Annually) • Anti-corruption activities relating to suppliers (Annually) 	<ul style="list-style-type: none"> • Provide objectives of ESG audit • Supplier's satisfaction on IRPC's procurement process 	<ul style="list-style-type: none"> • Raising supplier's awareness on ESG regulations • Engagement and satisfaction throughout the supply chain • Networking 	<ul style="list-style-type: none"> • Integrated supply chain management
Community, Society, and Environment 	<ul style="list-style-type: none"> • Engaging with communities before/ during/ after establishing CSR projects • Public hearing (EIA reports) • Whistleblowing channels 	<ul style="list-style-type: none"> • Discuss communities' demands and concerns • Provide relevant information on construction projects • Summarize communities' concerns on construction projects • Build trust and reliability in the organization and the construction project 	<ul style="list-style-type: none"> • Communities' demands and problems encountered • Concerns and feedback on construction projects 	<ul style="list-style-type: none"> • CSR strategies • EIA strategies





ENVIRONMENTAL DIMENSION

Care for the Environment,
Consumption with Responsible

Operational Eco-Efficiency

With consumer demand on the rise, industries are producing to keep up with the demands of consumers by using valuable resources in the production process. As a result, such resources can be depleted and the environment can be harmed through lack of awareness. IRPC recognizes the importance of managing resource use and reducing environmental impacts throughout our supply chain. Specifically, IRPC uses resources efficiently by reducing the use of scarce resources. IRPC is also committed to maintaining the highest quality of the environment to reduce harmful effects to the community and society by implementing environmental management and operational eco-efficiency measures, such as efficient energy consumption, air quality, wastewater, and waste to minimize impacts to the environment and society.

Goals and Targets

IRPC's energy management plan outlines a target of overall energy consumption in the organization. IRPC sets a target of not exceeding 69 million GJ of energy consumption in 2020 and a long-term target of not exceeding 66 million GJ of energy consumption by 2025. The plan also included targets for the Energy Intensity Index (EII), with the EII targets in 2020 at 89.7 % and in 2025 at 86.9% to obtain top quartile performance in the industry.

Initiatives

Energy Efficiency

IRPC implemented various energy conservation projects within the industrial zone to control and improve the production process by reducing energy loss and increasing energy efficiency. IRPC has over 30 energy conservation projects that reduce total energy consumption by 167,898 GJ, total expenses by THB 147.65 million, and greenhouse gas emissions by 11,043 tons of carbon dioxide equivalent. In 2020, IRPC established the following energy efficiency projects:

- **Cooling System for Condensate Return**

Cooling system in the purifying water process was improved and heat was exchanged in the boiler. The project reduces energy consumption by 14,834 GJ per year, reduce expenses by THB 12.60 million per year, and reduces greenhouse gas emissions by 2,049 tons of carbon dioxide equivalent.

- **Foul Mitigation**

Foul mitigation equipment was administered to decrease opportunity loss from shut down cleaning, while reducing the use of hydrogen for foul mitigation. The project reduces energy consumption by 14,645 GJ per year and reduces expenses by THB 9.47 million per year.

- **Energy Reduction in Butane Preload Unit**

The operational process of butane preload unit was improved by decreasing the temperature to reduce butane flowrate. The project reduces energy consumption by 7,445 GJ per year, reduces expenses THB 5.27 million per year, and reduces greenhouse gas emissions by 450 tons of carbon dioxide equivalent.

- **Energy Reduction in Condensate at Deaerator**

Modifying the demineralized water line to the boiler feed water prior to entering deaerator without passing through heat exchange at exchanger which uses a cooling water system. The project reduces energy consumption by 12,074 GJ per year, reduces expenses by THB 0.97 million per year, and reduces greenhouse gas emissions by 730 tons of carbon dioxide equivalent.

- **Reduction of Fuel Consumption by Increasing Boiler Efficiency**

The boiler efficiency was increased from 87% to 91% to reduce boiler operation to one boiler instead of two boilers resulting in a decrease in stack loss. The project reduces energy consumption by 11,125 GJ per year, reduces expenses by THB 39.38 million per year, and reduces greenhouse gas emissions by 641 tons of carbon dioxide equivalent.

Air Quality Management

IRPC recognizes the importance of managing air pollutants and odor from IRPC's production process and storing raw materials and products. Air quality management is highly significant to IRPC as it directly affects communities surrounding the industrial zone and is strictly monitored by laws and regulations. Hence, IRPC initiates production technology development that monitors air quality in real-time throughout IRPC's industrial zone.

Moreover, IRPC has a variety of air quality management projects implemented continuously within the organization. Projects include machinery improvement, replacement of burning fuel oil for fuel gas in the production process, increasing clean energy usage in the production process, and controlling burning processes. Such projects aim to reduce the following air pollutants: sulfur oxides (SO_x), nitrogen oxides (NO_x), and total suspended particles (TSP). IRPC also regularly monitors air quality at the emission vent to ensure that the emission rate is within the standard range and in compliance with the Pollution Control Department's regulations.

For projects that aim to reduce Volatile Organic Compounds (VOCs), IRPC ensures that its chemical tanks undergo improvements to reduce VOCs emissions. Moreover, IRPC has a VOCs inventory record to monitor the concentration of VOCs emissions from its sources. As for the level of VOCs in IRPC's industrial zone in Rayong, IRPC stresses the reduction of benzene and 1,3-butadiene concentrations. Since 2008, IRPC has implemented projects to reduce both benzene and 1,3-butadiene concentrations resulting in

lowered pollutant concentrations below the standard range in communities surrounding the industrial zone.

Regarding the main source of odor, IRPC implemented operational system improvements to the wastewater treatment system and product storage tanks within IRPC's industrial zone by developing a closed system to help control odor and VOCs. The closed system is also implemented during maintenance shutdowns to ensure full control of the operational process. IRPC also installed a VOCs camera to monitor VOCs concentrations as a control measure under the Green Turnaround concept to build trust and reduce impacts to communities surrounding the industrial zone.

In 2020, IRPC is in the planning process of constructing an enclosed ground flare. This project was well received by the committee of experts from the refinery environmental impact assessment (EIA) report. The construction project aims to reduce surrounding communities' concerns with odor, as well as mitigate issues relating to odor, smoke, noise, and light from the flare.

Odor and VOCs Control for Raw Material and Product Storage Tanks

Since 2018 IRPC initiated a project to control the odor of 18 raw materials and product storage tanks, which should be completed in 2027. The project includes installing a dome roof and fixing the high-efficiency roof seal. In 2020, IRPC changed the roof of three slop tanks to a dome roof, with a total budget of THB 60 million. The project aims to reduce odor issues that may impact surrounding communities and reduce VOCs from the slop tank by 90%.



Furthermore, IRPC implemented improvements to the raw material and product storage tanks of the BTX plant to reduce VOCs concentrations. Improvements were made to the tank's vent line that leads to the VRU system Unit 2 to reduce benzene concentrations. This project's contribution helped lower the benzene concentration level in communities surrounding IRPC's industrial zone below the regulated range.



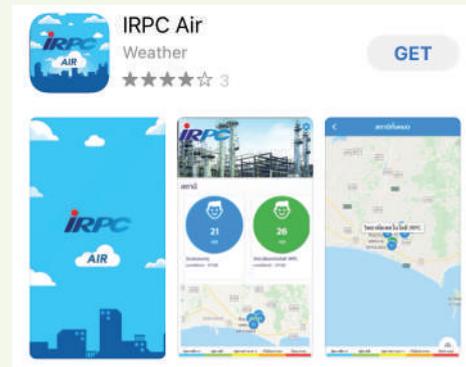
Improvement of Elevated Flare and Installation of Enclosed Ground Flare (EGF)

IRPC has implemented an improvement study project on the elevated flare by changing the pilot burner to facilitate burning gas after project expansion. The elevated flare will also be used in an emergency when the enclosed ground flare (EGF) cannot function. IRPC is currently designing an enclosed ground flare (EGF), which facilitates gas burning at 220 tons per hour. In the gas-burning process, the EGF works together with the elevated flare. The current operation is in the Tank Farm 2 of the industrial zone, which reduces infrared rays, noise, light, and smoke exposure and reduces the surrounding communities' concerns.

Environmental News Public Relations via Mobile Application

To address surrounding communities' concerns, IRPC is committed to disclosing the environmental situation of Rayong and air quality in IRPC's industrial zone. IRPC is currently developing an "IRPC Air" application for the general public, local offices, and governmental offices to download on iOS and Android devices for free. The application is used as a communication channel to announce information on the environment and air quality from 6 air quality monitoring stations in IRPC's industrial zone according to real-time updates. This allows the public to monitor and check IRPC's information and activities relating to the environment. Furthermore, the application allows users to provide feedback and complaints and share information on other

key areas of air quality concerns. Such feedback notifications go to an officer, which are then reported to the responsible function, and a response is sent back to the user.

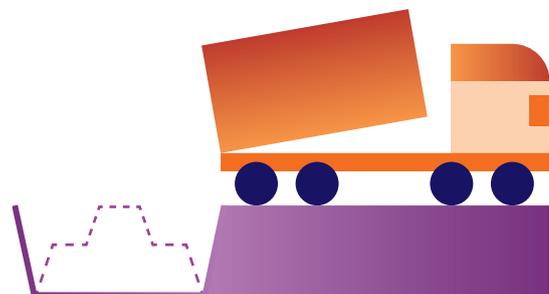


Wastewater and Waste Management

Wastewater resulting from IRPC's production process must undergo treatment. IRPC has a total of three central wastewater treatment systems to sufficiently accommodate wastewater from plants. IRPC controls the quality of wastewater before undergoing treatment by installing automatic analysis equipment, with a pH meter and a dissolved oxygen measurement device, to control and maintain the wastewater treatment system's efficiency. Before being released to the natural environment, IRPC ensures that all treated wastewater is at the standard quality to comply with relevant regulations. In addition, IRPC also installs COD Online Measurement Device, displaying the wastewater quality in real-time and inspecting the chemical concentrations of wastewater for 24 hours. The installation of devices ensures that officers can properly control wastewater treatment before releasing it to the natural environment.

As for managing hazardous and non-hazardous waste, IRPC understands the importance of using resources in the most efficient manner to reduce waste from the production and maintenance process. IRPC continuously applies the 7Rs Principles (Reduce, Reuse, Recycle, Repair, Refuse, Return, and Rethink) and the Green Turnaround concept to our integrated waste management. IRPC's integrated waste management requires collaboration from our employees to ensure that waste is being properly sorted and find new approaches to reusing waste. Importantly, IRPC has reached its goal of having zero waste to landfill for the second year in a row.

Furthermore, in 2020 IRPC analyzed the waste management database to develop a waste solution plan to reuse waste. From this plan, the organization has collaborated with waste disposal receivers that use heat recovery instead of incineration.



Zero Waste to Landfill

Complaint Management

IRPC established the Emergency Control Center (ECC) to receive complaints from community members 24 hours a day. When a complaint or report is received, the system administrator will send the complaint to the relevant department to undergo further investigation and report back to the senior management. The senior management then manages, analyzes, and monitors the cause of the complaint, as well as develops solutions to the cause. Throughout the process, IRPC ensures that the complaint is informed of the cause, status, and mitigation measures.

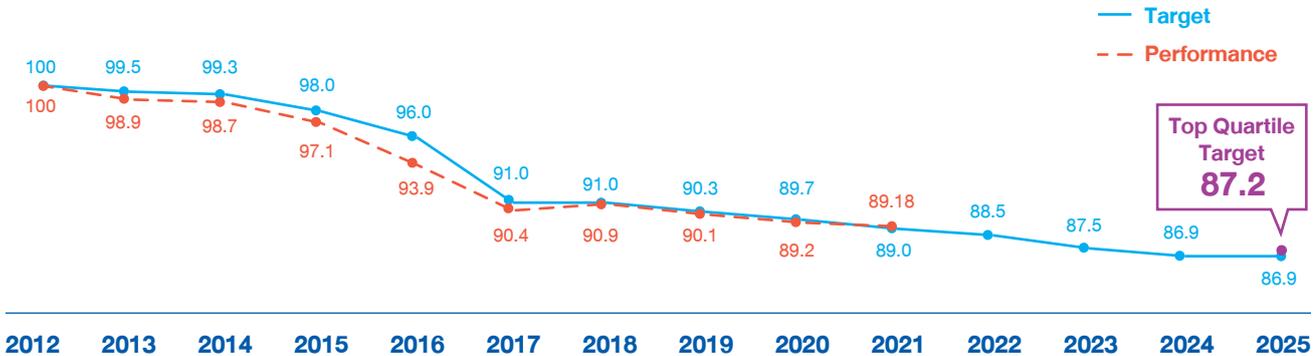
Apart from having a systematic and standardized complaint procedure, IRPC actively communicates with stakeholders on ongoing environmental operations through various channels, such as arranging seminars and community visits. Specifically, stakeholders are informed of new projects in the EIA process, projects undergoing construction, and work performed to control the environmental impacts of existing projects in the industrial zone. IRPC also established a communicate plan under the project "Open House" to make announcements in various community learning centers.

As a result of such communication initiatives, community complaints in 2020 were reduced by 65% from the previous year. IRPC also uses information from complaints as an input to improve operations and complaint management in the future.



Performance

Energy Intensity Index: (EII)



Remark: IRPC uses 2012 as a base year, and as of 2018, IRPC established target improvements to cover all information related to commercial production plants.

Performance Indicator



VOCs intensity
(ton per thousand tons of production)

2020
Target



0.185

2020
Performance



0.153

2021
Target



0.166

Performance Indicator



Hazardous Waste to Landfill Compared to Total Hazardous Waste (%)

2020 Target



2020 Performance



2021 Target



0

0

0



Waste to Landfill Compared to Total Waste (%)



0

0

0

Furthermore, IRPC requires that plants located within the industrial zone undergo various operational eco-efficiency initiatives. As a result of such initiatives, all IRPC's plants are accredited with Eco-Factory. In collaboration with the government and private sector in Rayong, IRPC has developed its industrial zone to be accredited as an Eco Industrial Zone Level 5 and accredited as the Eco Industrial Town Level 4 for two years in a row.



Climate Strategy

Climate change is an important issue that impacts every sector. Along with climate change comes the risk of different natural disasters, such as floods and water scarcity. Meanwhile, risks of change to trade and public regulations may create greater business opportunities to adapt to consumer behavioral shifts. IRPC is committed to being an organization that advocates for the environment, especially by aligning with national and international standards to control rising temperatures within 2 degrees Celsius and signing the Thailand greenhouse gas emission reduction agreement. IRPC outlines a target to reduce greenhouse gas emissions throughout our business operations and invest in various measures to lower emissions and promote renewable energy use.

Goals and Targets

IRPC's climate change management strategy has a long-term goal of reducing the organization's greenhouse gas emissions by 20% by 2030 compared to the 2012 base year.

Initiatives

Certification on Carbon Emission Management

IRPC is committed to play its part in reducing greenhouse gas emissions in Thailand and meet the international targets set forth by the Conference of Parties (COP) under the United Nations Framework Convention on Climate Change. IRPC has requested to be certified by the Carbon Footprint Organization (CFO) and the Carbon Reduction Label to reduce the organization's carbon emissions, lower resource management costs, and develop new business opportunities.

IRPC has been certified by the Carbon Footprint Organization (CFO) for the past 6 years in a row from the Thailand Greenhouse Gas Management Organization (public organization). Specifically, the number of certifications expanded to cover an additional four wastewater treatment and water filtration plants, including wastewater treatment plants 1, 2, 3, and the IP water filtration plant. In addition, IRPC was certified to renew the Carbon Reduction Label from the Thai Environmental Institute for the following POLIMAXX products:

- Polypropylene (PP) plastics pellets for PP Homo Polymer products (69,787 ton CO2 equivalent per year), PP Random Copolymer products (20,043 ton CO2 equivalent per year, and PP Block Copolymer products (14,171 ton CO2 equivalent per year)
- Expandable Polystyrene (EPS) plastic pellets for STD Type (Standard Type) products (3,430 ton CO2 equivalent per year) and SE Type (Extinguishing Type) products (3,430 ton CO2 equivalent per year)

- Polystyrene (PS) plastic pellets for High Impact Polystyrene (HIPS) products (3,932 ton CO2 equivalent per year) and General Purpose Polystyrene (GPPS) products (3,844 ton CO2 equivalent per year)

Floating Solar Power Project

IRPC established a 12.5 MW Floating Solar Power Project as an initial clean energy project to expand our businesses. With a budget of 550 million THB, the project was completed in 2020 to generate electricity for a polypropylene (PP) plant in the IRPC Industrial Zone. With a continuous 24 hours of operation, the project has an expected 25-30 year operational lifetime. The project is expected to decrease electricity consumption from coal power plants and natural gas, thus lowering greenhouse gas emissions by approximately 10,510 tons of CO2 equivalent per year, which is equivalent to planting enough trees to cover the entire Ko Samet Island. In addition, IRPC improved the landscape surrounding the plant by expanding it into an exercise area.

From the establishment of the Floating Solar Power Project, IRPC applied to take part in various development programs in 2020, such as the Validation program and the Thailand Voluntary Emission Reduction Program (T-VER) for the 2021 fiscal year. The T-VER program was developed by the Thailand Greenhouse Gas Management Organization (TGO) with an objective for organizations to reduce greenhouse gas emissions voluntarily and sell accredited and registered carbon credits in the country's voluntary carbon market.

Internal Carbon Pricing

In 2020, IRPC took part in a variety of knowledge programs about industrial carbon pricing and investing in greenhouse gas emission reduction campaigns organized by the TGO and World Bank. These programs discussed carbon pricing instruments, internal carbon pricing, and other financial tools for green financing. IRPC applied the internal carbon pricing principles to evaluate investment projects in 2020, which included the Floating Solar Power project, Ultra Clean Fuel project, and the ABS Expansion project.



Carbon Neutral

In 2020, IRPC was certified for the first year as an organization with a Carbon Neutral Event. The certification was successful due to the carbon footprint results from our annual IRPC shareholder meeting on July 3rd, 2020. The carbon footprint calculation accounted for various activities from the meeting that emitted greenhouse gas emissions (12 tons of CO₂ equivalent) and included carbon offsets, which resulted in zero emissions generated.



Climate Change Communication

IRPC organized various communication channels on climate change to stakeholders, providing knowledge and understanding of climate change impacts. With the aim of inducing cooperation from stakeholders to reduce carbon dioxide emissions, communication channels are divided into the following:

Employees

- IRPC Cubic Academy Season 6

IRPC Cubic Academy Season 6 consists of three different climate change courses. Under the main topic of “Global Climate Change,” the panel of speakers included Dr. Wijarn Simachaya, President of Thailand Environment Institute, and a veterinarian from the Department of National Parks, Wildlife, and Plant Conservation. The training course was conducted on July 16, 2020, from 1:30-4:30 pm in the Suan Son room and through the MST live event.

- SD Day 2020 “Dare to Change, then to Share”

IRPC organized the SD Day 2020 as a venue to present the Eternity Award: DJSI Recognition Certificate 2020 and celebrate the achievements of being a DJSI member



(DJSI 2020) in the Oil & Gas Refining and Marketing industry for the past 7 years in a row. IRPC also took this opportunity to announce its commitment to continue its sustainable operations. The award was presented by IRPC’s President, Mr. Noppadol Pinsupa, to relevant business units that successfully achieved corporate targets. During the “SD Talk #EverydayisSDday,” our guest speaker, an actress and eco-designer, Siraphun Wattanajinda, showcased her brand on environmentally-friendly products and social impacts.

- Sorting out Waste

IRPC continues to develop initiatives that align with the 7Rs principles and the circular economy approach. Apart from waste management in plants, IRPC continues to sort its general waste for employees to reduce the carbon dioxide emissions from the landfill. This further creates opportunities for the organization to establish CSR activities in local schools in the communities surrounding the industrial zone.

- Environmental (Envi) and Sustainable Development (SD) News

IRPC communicates its knowledge and understanding of climate change impacts and Sustainable Development Goals (SDGs) through Environmental (Envi) and Sustainable Development (SD) News. Envi and SD news are disclosed online every month.

- Plant Communication on Energy Reduction Performance

IRPC summarized its quarterly performance on energy reduction in each respective business unit in our plants to monitor the progress of reducing greenhouse gas emissions. For more information, please see the Operational Eco-Efficiency topic in this report.

Public and Private Organizations

IRPC contributes to reducing greenhouse gases with the following public and private organizations:

- Thailand Business Council for Sustainable Development (TBCSD)

IRPC is one of the working members on climate change in the TBCSD, which is responsible for developing plans, activities, and public relations aligned with the TBCSD's climate targets. IRPC was involved with activities like "No Waste Vibhavadi" and "Recycled Cans."

- Low Carbon and Sustainability Business Index (LCSI)

IRPC was involved in assessing and prioritizing low carbon and sustainable businesses organized by the Thailand Greenhouse Gas Management Organization (TGO.) The initiative established an opening seminar on November 26, 2020, which showcased a role model for other organizations, recognized the achievements of model organizations, and built a low carbon business sustainable network. All of which will contribute to improving the future of Thai business standards.

Customers and Suppliers

- IRPC Cubic Academy Season 6

IRPC recognizes the importance of customers and suppliers during times of climate change by inviting customers and suppliers to the three training courses on climate change in IRPC Cubic Academy Season 6.

- PRISM

IRPC collaborated with the PTT Group to develop the Petrochemical and Refining Integrated Synergy Management (PRISM) every year by cooperating with refineries in PTT Group's supply chain. Their goal is to reduce costs and lower the carbon footprint of logistics when managing and transporting a full load of crude oil.

- PTT Group Fuel Saving Program

IRPC collaborated with the PTT Group to develop a Fuel Saving Program in logistics which included data collection, analysis, and reporting on the fuel consumption of IRPC drivers.

Consumers

IRPC developed an initiative called "Change for Share" to include plastic containers and other recycled materials into the recycling process. This initiative aims to reduce carbon dioxide emitted from landfills and provides an opportunity for consumers to take part in combating climate change impacts.

IRPC established operation targets on climate change, especially through reducing greenhouse gas emissions, energy consumption, and carbon dioxide emissions. For additional details on the targets, please see the Operational Eco-Efficiency topic in this report.

Performance



Direct and Indirect GHG Emissions
(million ton of carbon dioxide equivalent)



4.149

3.967



Direct and Indirect GHG Emissions Intensity
(ton of carbon dioxide equivalent per ton of production)



0.355

0.334

Water Management

Water management is one of the most key priorities for doing business at IRPC and the well-being of communities surrounding the industrial zone. As a result of climate change, the number of ongoing droughts has been on the rise. Hence, IRPC has set up a comprehensive water management approach through the i-water strategy. The i-water strategy aims at increasing the potential to reserve raw water, increasing the efficiency of sustainable water use, and raising awareness among communities. IRPC also establishes key networks with the public sector and PTT Group Companies, including IRPC Clean Power to meet the overall water management goal.



Goals and Targets

IRPC ensures that all of its departments operate under the water management plans and activities. IRPC also regularly monitors and reports water management performance to the risk management community.

Initiatives

Enhancing Water Consumption and Raising Awareness among Employees

To efficiently manage water in the production process under the i-water strategy, IRPC implemented different programs to reduce water consumption at our plants. In addition to the water consumption reduction initiatives, IRPC implemented the following initiatives in 2020:

- Water Balance is managed using the i-utility software, a system that summarizes results from public utilities to monitor the water consumption efficiencies in the industrial zone. This is expected to be completed in 2021.
- IRPC reuses treated wastewater that passing qualified standards to water plants and gardens instead of using tap water. Choeng Noen Sub-district has used treated wastewater for the municipality garden work.

Stakeholder Engagement for Water-related Risk Management

Cooperating with Government Sector and Stakeholders in the Eastern Region

Cooperating with Government Sector and Stakeholders in the Eastern Region

- IRPC is a member of the Eastern Water War Room Management. The members include industrial operators and stakeholders of the Eastern Region Water Resource Management, such as the Irrigation Department, Provincial Waterworks Authority, Industrial Estate Authority of Thailand, and the Industrial Council of Thailand.
- IRPC is a working team member for the Key Man Water War Room, a sub-division of the Eastern Water War Room Management Center responsible for monitoring water volumes in large canals and basins.
- IRPC is a working team member of the development program in the Eastern Economic Corridor, which aims to monitor and drive governmental and other related initiatives for the Eastern region's long-term management. All of which are required to align with the governmental policies for economic development.

Collaborating within PTT Group and IRPC Group

- IRPC collaborated with the PTT Group by taking part in the PTT Group Water Management Team (PTTWT) to develop efficient strategies for the water management plan and increase water security for the production process.

- IRPC collaborated with IRPC Clean Power to raise awareness on reducing water consumption through different training programs. Together, both IRPC and IRPC Clean Power monitors the performance of water usage collectively. The performance results was found that IRPC Clean Power continuously reduced water consumption, which contributes positively to the overall water consumption within the industrial zone.

Knowledge Sharing and Water Supply to Communities

IRPC recognizes the importance of understanding water and drought-related issues in communities surrounding the IRPC industrial zone. IRPC has taken actions to prepare for water shortage situations, such as developing water reservoirs and reducing water consumption. Moreover, IRPC continues to implement water sharing initiatives by sharing water supplies to communities (Taphong Sub-district, Ban Laeng Sub-district, and Choeng Noen Sub-district) affected by the long drought seasons from 2019 to the present. Furthermore, IRPC had the opportunity to help surrounding communities affected by floods during rainy seasons by preparing dredging operations every year for both inside and outside areas of the industrial zone.



For inquiries or suggestions on water management, please contact IRPC's Industrial Zone Operation & Infrastructure Management Division
299, Moo 5, Sukhumvit Road,
Choengnern Sub-district, Mueang District, Rayong
Tel: 038-611333 EXT 2689, E-mail: thanawat.t@irpc.co.th

Performance



Amount of water withdrawn from natural water sources reduced by **27.6%**



ABOUT THIS REPORT

IRPC publishes a sustainability report annually to communicate issues that are material to corporate sustainability and of interest to its stakeholders, as well as report on compliance with the United Nations Global Compact (UNGC). This report has been prepared in accordance with the Sustainability Reporting Guideline with the Standard Core Option of the Global Reporting Initiative (GRI) and the Oil and Gas Sector Disclosure. From the most recent report published in 2019, IRPC continues reporting on economic, social, and environmental aspects of IRPC's business operations from January 1 to December 31, 2020 and the report has been verified with a limited level of assurance by KPMG Phoomchai Audit Ltd.

About this Report GRI102-45, GRI102-50, GRI102-51, GRI102-52, GRI102-54, GRI102-56

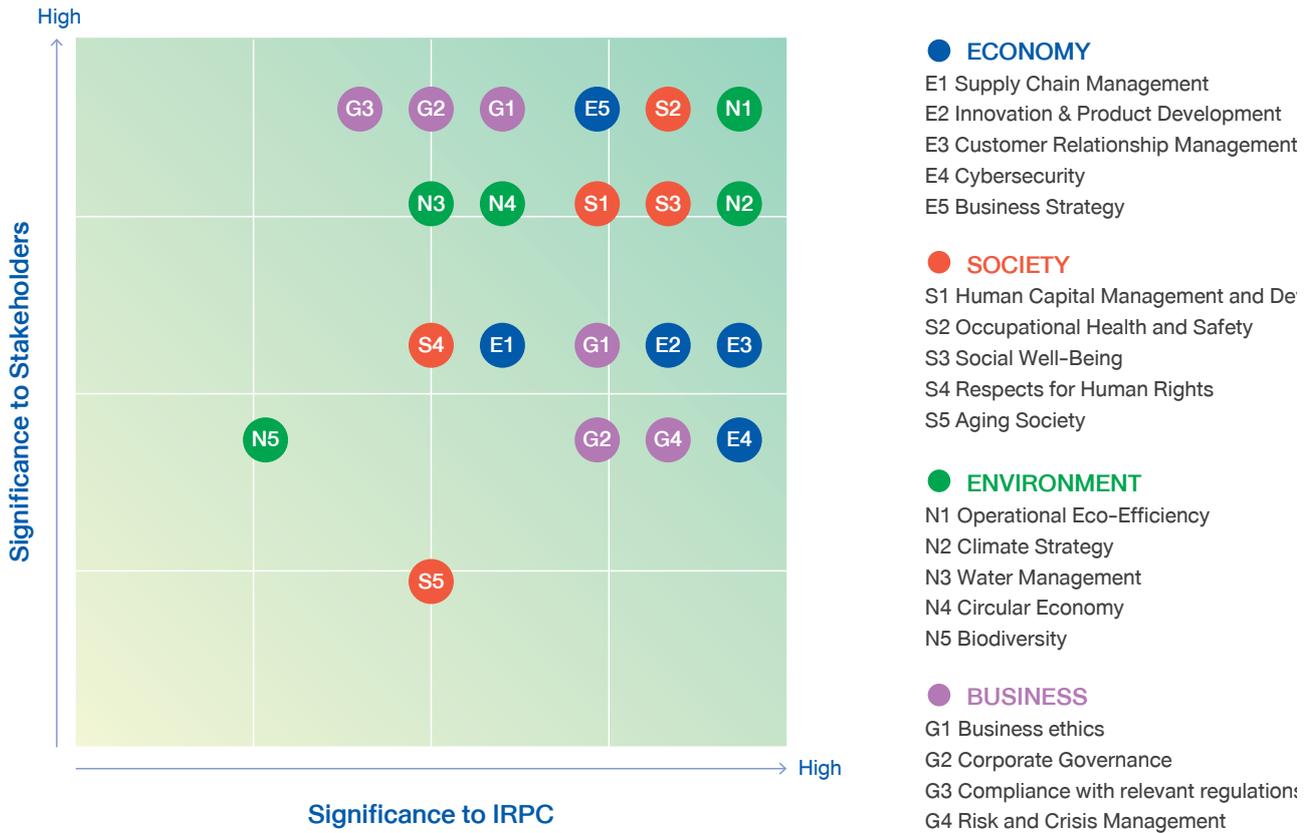
The information disclosed in this report covers businesses owned and operated by IRPC PLC., including its subsidiaries with more than 50% of the shares held, comprising 1) IRPC Oil Co., Ltd., 2) IRPC A&L Co., Ltd., 3) IRPC Technology Co., Ltd., and 4) iPolymer Co., Ltd. Furthermore, it also includes Rak Pa Sak Co., Ltd., another company in which IRPC's subsidiaries hold more than 50% of the shares. The report's scope is in accordance with the 2020 Annual Report which can be found in our annual report and on the website: www.irpc.co.th.

Materiality Assessment

IRPC identifies issues that are material to stakeholders and within the context of sustainability. The identified issues cover governmental regulations and megatrends of business operations, such as COVID-19, cybersecurity, climate change, water security, urbanization, and plastic waste management. Moreover, IRPC related issues from organizations, like World Business Council for Sustainable Development (WBCSD), United Nations (UN), United Nations Development Programme (UNDP), RepRisk, SustainAbility, World Economic Forum (WEF), Sustainable Development Goals (SDGs), National Science and Technology Development Agency (NSTDA), Dow Jones Sustainability Indices (DJSI), and Global Reporting Initiative (GRI) are taken into consideration together with corporate risk, sustainability management policy, business directions, and operations. Past materiality assessment results are used to prioritize new material issues that affect IRPC's sustainable business operations. Identified material issues, including climate change, circular economy, and social value creation, are used to address corporate sustainability strategies.



IRPC's 2020 Sustainability Materiality Assessment Matrix



For 2020, IRPC discloses material issues in our sustainability report and website (www.irpc.co.th).

Material Issues	GRI Aspects	Scope of Impact	Topic Location	
			Sustainability Report 2020	Website (www.irpc.co.th)
Innovation and Product Development 	<ul style="list-style-type: none"> • Non-GRI Topic 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Customers/Consumers 	<ul style="list-style-type: none"> • Innovation and Product Development 	https://www.irpc.co.th/economic-dimension/product-and-innovation/
Human and Organization Development 	<ul style="list-style-type: none"> • Employment • Training and Education 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Employees 	<ul style="list-style-type: none"> • Human Resource Management • Performance Summary 	https://www.irpc.co.th/social-dimension/human-resources-management/

Material Issues	GRI Aspects	Scope of Impact	Topic Location	
			Sustainability Report 2020	Website (www.irpc.co.th)
Occupational Health and Safety 	<ul style="list-style-type: none"> Occupational Health and Safety Asset Integrity and Process Safety 	<ul style="list-style-type: none"> IRPC and Subsidiaries Employees Communities, Society, and Environment 	<ul style="list-style-type: none"> Occupational Health and Safety Performance Summary 	https://www.irpc.co.th/social-dimension/occupation-health-and-safety/
Social Well-Being and Creating Shared Value 	<ul style="list-style-type: none"> Local Communities Indirect Economic Impacts 	<ul style="list-style-type: none"> IRPC and Subsidiaries Communities, Society, and Environment 	<ul style="list-style-type: none"> Social Well-Being 	https://www.irpc.co.th/social-dimension/social-responsibility/
Operational Eco-Efficiency 	<ul style="list-style-type: none"> Energy Emissions Waste and Effluents Environmental Compliance 	<ul style="list-style-type: none"> IRPC and Subsidiaries Customers/Consumers Suppliers Communities, Society, and Environment 	<ul style="list-style-type: none"> Operational Eco-Efficiency Performance Summary 	https://www.irpc.co.th/environmental-dimension/operational-eco-efficiency/
Climate Change and Water Management 	<ul style="list-style-type: none"> Water-Related Risk Emissions 	<ul style="list-style-type: none"> IRPC and Subsidiaries Customers/Consumers Suppliers Communities, Society, and Environment 	<ul style="list-style-type: none"> Climate Change and Water Management Performance Summary 	https://www.irpc.co.th/environmental-dimension/climate-strategy-and-water-management/
Circular Economy 	<ul style="list-style-type: none"> Non-GRI Topic 	<ul style="list-style-type: none"> IRPC and Subsidiaries Customers/Consumers Suppliers Communities, Society, and Environment 	<ul style="list-style-type: none"> Circular Economy 	https://www.irpc.co.th/economic-dimension/product-and-innovation/
Customer Relationship Management 	<ul style="list-style-type: none"> Customer Health and Safety Marketing and Labelling Customer Privacy 	<ul style="list-style-type: none"> IRPC and Subsidiaries Customers/Consumers 	<ul style="list-style-type: none"> Performance Summary 	https://www.irpc.co.th/economic-dimension/supply-chain-management/

Material Issues	GRI Aspects	Scope of Impact	Topic Location	
			Sustainability Report 2020	Website (www.irpc.co.th)
Cybersecurity 	<ul style="list-style-type: none"> • Non-GRI Topic 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Shareholder/ Investor • Employees • Customers/ Consumers • Suppliers 	-	https://www.irpc.co.th/economic-dimension/product-and-innovation/
Business Performance 	<ul style="list-style-type: none"> • Economic Performance 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Shareholder/ Investor • Employees • Customers/ Consumers • Suppliers 	IRPC Business	https://irpc.listedcompany.com/misc/PRESN/20210219-irpc-opday-4q2020.pdf
Risk & Crisis Management 	<ul style="list-style-type: none"> • Organizational Profile • Strategy • Governance 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Shareholder/ Investor • Employees • Customers/ Consumers • Suppliers • Communities, Society, and Environment 	-	https://www.irpc.co.th/corporate-governance/corporate-risk/
Governance, Business Ethics, and Compliance 	<ul style="list-style-type: none"> • Organizational Profile • Governance • Anti-Corruption • Public Policy 	<ul style="list-style-type: none"> • IRPC and Subsidiaries • Shareholder/ Investor • Employees • Customers/ Consumers • Suppliers 	-	https://www.irpc.co.th/sustainability-management/corporate-governance/

Contact Information GRI102-3, GRI102-53



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PERFORMANCE SUMMARY

IRPC's 2020 Performance Summary to
disclose our sustainability related performance
i.e economic, social, and environmental aspects



Economic

Financial Performance

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 201-1 (2016)	Sale Revenues ⁽¹⁾	THB Million	214,101	280,551	239,315	174,463
	Operating Costs	THB Million	192,946	264,637	236,569	174,491
	Operating Profit (Loss)	THB Million	15,220	10,197	(356)	(6,115)
	Employee Wages and Benefits	THB Million	9,074	9,270	10,171	9,088
	Payments to Providers of Capital	THB Million	6,762	9,920	3,768	3,943
	Payment to Governments ⁽²⁾	THB Million	15,520	21,850	21,568	20,727
	Dividend payments for the performance of the year	THB Million	4,694	7,959	1,837	1,837
GRI 201-4 (2016)	Tax Privileges from the Board of Investment, Thailand	THB Million	1,873	2,459	1,307	232
	Tax Compensation from Export	THB Million	130	79	106	78

Remarks: (1) Sales revenue includes petroleum sales (including excise tax), petrochemical sales, power and utilities sales, sales of storage tank and port service, etc.

(2) Taxes paid to government agencies and local officials such as corporate income taxes, local taxes, building taxes, and specific business taxes are paid directly to Thai government agencies and local officials as all IRPC operations are located only in Thailand.



Production

GRI Standard	Data	Unit	2017	2018	2019	2020
N/A	Annual Production	Ton	10,748,499	12,442,052	12,059,756	11,886,924

Remarks: IRPC decrease production rate in 2019 to optimize economic value according to the changing of market factors.



Supply Chain Management

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 308-1 (2016)	Percentage of new suppliers that were screened using environmental criteria	%	100	100	100	100
GRI 414-1 (2016)	Percentage of new suppliers that were screened using labour practices criteria	%	100	100	100	100
	Percentage of new suppliers that were screened using human right criteria	%	100	100	100	100
	Percentage of new suppliers that were screened using criteria impacts on society	%	100	100	100	100
GRI 204-1 (2016)	Spending on purchasing of products and services from suppliers and contractors in Rayong	THB Million	2,894	2,568	2,470	1,931
	Percentage of spending in Rayong comparing to the total general procurement budget	%	20.87	18.90	21.46	18.00



Customer Relationship Management

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 102-43 (2016) GRI 102-44 (2016)	Annual customer satisfaction survey results ⁽¹⁾	%	91	89	91	93
GRI 416-2 (2016)	Incidents of non-compliance concerning the health and safety impacts of products and services	Case	0	0	0	0
GRI 417-3 (2016)	Incidents of non-compliance concerning marketing communications	Case	0	0	0	0
GRI 418-1 (2016)	Number of substantiated complaints received concerning breaches of customer privacy	Case	0	0	0	0
	Total number of identified leaks, thefts, or losses of customer data	Case	0	0	0	0
GRI 419-1 (2016)	Non-compliance with laws and regulations in the social and economic area	Case	0	0	0	0

Remark: (1) Only Petroleum and Petrochemical business included



People

GRI Standard	Data	Unit	2017	2018	2019	2020	
GRI 102-8 (2016)	Employee ⁽¹⁾	Person	5,498	5,466	5,467	5,452	
	Male	Person	4,554	4,524	4,524	4,509	
	Female	Person	944	942	943	943	
	Total employees by area						
	Bangkok	Person	706	695	702	706	
	Male	Person	297	291	295	298	
	Female	Person	409	404	407	408	
	Rayong	Person	4,493	4,478	4,480	4,473	
	Male	Person	3,981	3,963	3,966	3,958	
	Female	Person	512	515	514	515	
	Other	Person	299	293	285	273	
	Male	Person	276	270	263	253	
	Female	Person	23	23	22	20	
GRI 405-1 (2016)	Female shares of total workforce	% of total workforce	17.17	17.23	17.25	17.30	

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 405-1 (2016)	Employees by level					
	Executive (Level 13-18)	Person	78	78	70	69
	Male	Person	60	57	53	53
	Female	Person	18	21	17	16
	Middle Management (Level 9-12)	Person	772	810	806	815
	Male	Person	599	619	623	622
	Female	Person	173	191	183	193
	Supervisory (Level 6-8)	Person	2,801	3,125	3,199	3,252
	Male	Person	2,292	2,531	2,622	2,672
	Female	Person	509	594	577	580
	Operation (Level 1-5)	Person	1,847	1,453	1,392	1,303
	Male	Person	1,606	1,317	1,226	1,155
	Female	Person	241	136	166	148
GRI 405-1 (2016)	Employees by age					
	Over 50 years old	Person	631	763	917	1,051
	Male	Person	506	615	734	843
	Female	Person	125	148	183	208
	30-50 years old	Person	4,199	4,086	3,968	3,822
	Male	Person	3,478	3,366	3,281	3,155
	Female	Person	721	720	687	667
	Below 30 years old	Person	668	617	582	566
	Male	Person	589	543	509	505
	Female	Person	79	74	73	61
GRI 401-1 (2016)	New employees					
	Total new employees	Person	32	63	97	96
		% of total employees	0.58	1.15	1.77	1.76
	Male	Person	9	41	73	79
		% of total employees	0.16	0.75	1.3	1.45
	Female	Person	23	22	24	17
		% of total employees	0.42	0.4	0.44	0.31
	New employees by area					
	Bangkok	Person	6	11	18	4
		% of total employees	0.11	0.2	0.33	0.07
	Male	Person	1	3	8	2
		% of total employees	0.02	0.05	0.15	0.04
	Female	Person	5	8	10	2
% of total employees		0.09	0.15	0.18	0.04	

GRI Standard	Data	Unit	2017	2018	2019	2020	
GRI 401-1 (2016)	Rayong	Person	24	52	79	92	
		% of total employees	0.44	0.95	1.45	1.69	
	Male	Person	7	38	65	77	
		% of total employees	0.13	0.7	1.19	1.41	
	Female	Person	17	14	14	15	
		% of total employees	0.31	0.26	0.26	0.28	
	Others	Person	2	0	0	0	
		% of total employees	0.04	0	0	0.00	
	Male	Person	1	0	0	0	
		% of total employees	0.02	0	0	0.00	
	Female	Person	1	0	0	0	
		% of total employees	0.02	0	0	0.00	
	New employees by age						
	Over 50 years old	Person	2	2	3	3	
		% of total employees	0.04	0.04	0.05	0.06	
	Male	Person	2	0	1	1	
		% of total employees	0.04	0	0.02	0.02	
	Female	Person	0	2	2	2	
		% of total employees	0	0.04	0.04	0.04	
	30-35 years old	Person	17	11	13	14	
		% of total employees	0.31	0.2	0.24	0.26	
	Male	Person	14	5	5	3	
		% of total employees	0.25	0.09	0.09	0.06	
	Female	Person	3	6	8	11	
		% of total employees	0.05	0.11	0.15	0.20	
	Below 30 years old	Person	147	50	81	8	
		% of total employees	2.67	0.91	1.48	0.16	
	Male	Person	130	36	67	4	
		% of total employees	2.36	0.66	1.23	0.08	
	Female	Person	17	14	14	4	
		% of total employees	0.31	0.26	0.26	0.07	
	Employee turnover						
	Total employee turnover	Person	61	55	71	126	
		% of total employees	1.11	1.01	1.3	2.31	
	Male	Person	48	44	52	100	
		% of total employees	0.87	0.8	0.95	1.83	
	Female	Person	13	11	19	26	
		% of total employees	0.24	0.2	0.35	0.48	

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 401-1 (2016)	Turnover employees by area					
	Bangkok	Person	6	10	17	16
		% of total employees	0.11	0.18	0.31	0.29
	Male	Person	2	4	8	6
		% of total employees	0.04	0.07	0.15	0.11
	Female	Person	4	6	9	10
		% of total employees	0.07	0.11	0.16	0.18
	Rayong	Person	53	40	50	99
		% of total employees	0.96	0.73	0.91	1.82
	Male	Person	45	35	41	85
		% of total employees	0.82	0.64	0.75	1.56
	Female	Person	8	5	9	14
		% of total employees	0.15	0.09	0.16	0.26
	Others	Person	2	5	4	11
		% of total employees	0.04	0.09	0.07	0.20
	Male	Person	1	5	3	9
		% of total employees	0.02	0.09	0.05	0.17
	Female	Person	1	0	1	2
		% of total employees	0.02	0	0.02	0.04
	Turnover employees by age					
	Over 50 years old	Person	5	11	20	83
		% of total employees	0.09	0.2	0.37	1.52
	Male	Person	5	9	13	68
		% of total employees	0.09	0.16	0.24	1.25
	Female	Person	0	2	7	15
		% of total employees	0	0.04	0.13	0.28
	30-50 years old	Person	22	32	33	31
		% of total employees	0.4	0.59	0.6	0.57
	Male	Person	16	26	23	21
		% of total employees	0.29	0.48	0.42	0.39
Female	Person	6	6	10	10	
	% of total employees	0.11	0.11	0.18	0.18	
Below 30 years old	Person	34	12	18	12	
	% of total employees	0.62	0.22	0.33	0.22	
Male	Person	27	9	16	11	
	% of total employees	0.49	0.16	0.29	0.20	
Female	Person	7	3	2	1	
	% of total employees	0.13	0.05	0.04	0.02	

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 401-3 (2016)	Parental leave					
	Employees entitled for parental leave	Person	5,498	5,466	5,467	5,452
	Male	Person	4,554	4,524	4,524	4,509
	Female	Person	944	942	943	943
	Number of employees taking parental leave	Person	114	131	118	107
	Male	Person	100	115	97	91
	Female	Person	14	16	21	16
	Number of employees return to work after parental leave	Person	114	131	118	107
	Male	Person	100	115	97	91
		% of employees taking parental leave	89	100	100	100
	Female	Person	14	16	21	16
		% of employees taking parental leave	82	100	100	100
	Employees entitled for parental leave who are still employed for the next 12 months	Person	126	110	135	119
		% of employees returning to work after parental leave	99	96	103	88
	Male	Person	112	98	121	102
		% of employees returning to work after parental leave	100	98	105	84
Female	Person	14	12	14	17	
	% of employees returning to work after parental leave	93	86	88	121	
GRI 102-41 (2016)	Total employees covered by collective bargaining	%	86	75	75	77
GRI 404-1 (2016)	Employees entitled to training and development	%	100	100	100	100
	Average hours of training per employee	Hour/ employee	41	46	41	14
	Average amount spent per employee on training and development	THB/ employee	10,167	27,281	18,507	5,960
	Percentage of open positions filled by internal candidates	%	100	100	100	100
	Training hours of male employees based in Bangkok	Hour	10,326	13,212	9,529	4,392
	Executive (Level 13-18)	Hour	771	1,100	185	42
	Middle Management (Level 9-12)	Hour	4,006	5,256	4,958	2,364
	Supervisory (Level 6-8)	Hour	5,030	6,350	3,858	1,783
	Operation (Level 1-5)	Hour	519	507	528	203
	Training hours of female employees based in Bangkok	Hour	15,776	17,560	15,861	4,791
	Executive (Level 13-18)	Hour	418	1,154	606	63
	Middle Management (Level 9-12)	Hour	5,059	6,450	6,689	2,436

GRI Standard	Data	Unit	2017	2018	2019	2020
	Supervisory (Level 6-8)	Hour	9,843	9,278	8,116	2,112
	Operation (Level 1-5)	Hour	457	678	450	180
	Training hours of male employees based in Rayong	Hour	150,027	194,056	168,853	61,465
	Executive (Level 13-18)	Hour	1,038	1,629	348	54
	Middle Management (Level 9-12)	Hour	25,374	24,141	22,174	15,795
	Supervisory (Level 6-8)	Hour	84,661	122,578	105,868	19,868
	Operation (Level 1-5)	Hour	38,956	45,708	40,463	25,748
	Training hours of female employees based in Rayong	Hour	36,192	15,590	17,535	5,266
	Executive (Level 13-18)	Hour	0	0	0	0
	Middle Management (Level 9-12)	Hour	2,733	2,647	2,275	1,547
	Supervisory (Level 6-8)	Hour	7,726	10,757	13,020	2,882
	Operation (Level 1-5)	Hour	3,092	2,186	2,240	837
	Training hours of male employees based in other areas	Hour	12,593	11,298	11,031	1,941
	Executive (Level 13-18)	Hour	0	0	0	0
	Middle Management (Level 9-12)	Hour	1,650	816	982	384
	Supervisory (Level 6-8)	Hour	7,610	7,548	6,719	972
	Operation (Level 1-5)	Hour	3,333	2,934	3,330	585
	Training hours of female employees based in other areas	Hour	877	813	754	30
	Executive (Level 13-18)	Hour	0	0	0	0
	Middle Management (Level 9-12)	Hour	65	0	0	0
	Supervisory (Level 6-8)	Hour	529	537	501	21
	Operation (Level 1-5)	Hour	284	276	253	9
GRI 201-1 (2016)	Human Capital Return on Investment (HCROI) (according to DJSI definition)	HCROI	3.33	2.72	1.27	1.00
GRI 404-3 (2016)	Performance Appraisal [Management by objectives]	% of total employees	100	100	100	100

Remarks: (1) IRPC does not employ any part-time employees.



Safety

Process Safety

GRI Standard	Data	Unit	2017	2018	2019	2020
N/A	Number of tier 1 process safety events	Case	1	0	3	2
	Number of tier 2 process safety events	Case	1	2	0	1

Occupational Health and Safety ⁽¹⁾

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 403-9 (2018)	Total number of hours worked	Million hours	30.20	20.35	19.88	18.06
	Employees	Million hours	11.50	11.25	11.20	11.14
	All workers	Million hours	18.70	9.10	8.68	6.92
	Total Recordable Injury Rate (TRIR) ⁽²⁾	Case/ Million hours	0.45	0.39	0.25	0.39
	Employees ⁽³⁾	Case/ Million hours	0.75	0.36	0.18	0.36
	All workers ⁽⁴⁾	Day/ Million hours	0.27	0.44	0.35	0.43
	Total Recordable Injuries Case (TRIC)	Person	14	8	5	7
	Employees	Person	9	4	2	4
	All workers	Person	5	4	3	3
	Lost Time Injuries Frequency Rate (LTIFR)	Case/ Million hours	0.19	0.25	0.20	0.17
	Employees	Case/ Million hours	0.17	0.27	0.18	0.09
	All workers	Case/ Million hours	0.21	0.22	0.23	0.29
GRI 403-10 (2018)	Total Recordable Occupational Illness Rate (TROIR) ⁽⁵⁾	Case/ Million hours	0	0	0	0
	Employees	Case/ Million hours	0	0	0	0
	All workers	Case/ Million hours	0	0	0	0
GRI 403-9 (2018)	Lost Day Rate (LDR) ⁽⁶⁾	Day/ Million hours	1.79	5.26	1.31	1.27
	Employees	Day/ Million hours	1.67	8.18	1.43	0.54
	All workers	Day/ Million hours	1.86	1.65	1.15	2.46
	Lost Workday Case (LWC)	Person	6	5	4	3
	Employees	Person	2	3	2	1
	All workers	Person	4	2	2	2
	Fatalities	Person	0	0	0	0
	Employees	Person	0	0	0	0
	All workers	Person	0	0	0	0
	Near Misses - Employee and all workers	Case	56	256	116	79
	Absentee rate ^{(7),(8)}					
	Male	%	0.696	0.679	0.838	1.950
	Female	%	0.217	0.201	0.253	0.421

Remarks: (1) Health and safety statistics are based on OSHA and measured per million working hours. Employees of IRPC Public Company Limited, including its subsidiaries with more than 50% of the shares held by IRPC. All workers exclude Employees.

(2) TRIR does not include first aid cases.

(3) Types of work-related injury for employees are fatalities, permanent total disabilities, lost workday case, restricted workday case, and medical treatment case.

(4) Types of work-related injury for workers are fatalities, permanent total disabilities, lost workday case, restricted workday case, and medical treatment case.

(5) TROIR is obtained from the results of annual employee health check-ups and diagnosed by occupational medicine doctor.

(6) LDR accounts injuries or sickness causing inability to work on the next working day.

(7) This represents absentee rates for only full-time employees.

(8) In 2019, Influenza A (H1N1) spread out. IRPC ordered the infected employees to be fully recovered before returning to work.



Environment

Materials Consumption

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 301-1 (2016)	Crude Oil	Ton	8,592,344	9,943,352	9,383,905	9,191,312
	Naphtha	Ton	700,113	961,415	1,026,692	946,987

Energy Consumption ⁽¹⁾

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 302-1 (2016)	Total energy consumption ^{(2), (3)}	GJ	52,080,051	59,020,452	58,719,745	57,519,116
	Total direct energy consumption	GJ	52,512,622	59,221,327	59,072,047	57,760,248
	Fuel Oil	GJ	1,994,818	2,429,764	2,349,064	2,445,972
	Natural Gas	GJ	19,326,121	21,783,924	21,908,700	22,821,990
	LPG	GJ	707,990	684,881	638,187	919,616
	Diesel	GJ	282,617	295,826	269,792	244,276
	Fuel Gas	GJ	17,469,024	20,214,853	19,547,018	18,599,283
	Coke	GJ	6,189,950	6,269,004	5,745,860	5,669,729
	H ₂	GJ	303,062	297,061	309,563	261,721
	H ₂ S	GJ	269	298	0	0
	Purge Gas	GJ	925,442	1,030,912	1,038,258	741,998
	Recycle monomer	GJ	28,360	30,361	30,929	32,892
	Coal	GJ	5,284,968	6,184,444	7,234,675	6,022,770
	Total indirect energy consumption	GJ	4,016,112	4,502,344	4,549,128	4,798,143
	Electricity purchased from PEA ⁽³⁾	GJ	472,087	301,578	308,166	220,933
	Electricity purchased from IRPC Clean Power	GJ	833,180	1,505,209	1,520,670	1,403,656
	Steam purchased by IRPC Clean Power	GJ	2,710,845	2,695,557	2,720,292	3,173,553
	Total electricity sold	GJ	1,963,211	2,242,431	2,365,088	2,336,467
Total steam sold	GJ	2,485,472	2,460,788	2,536,342	2,725,214	
Total renewable (wind, solar, biomass, hydroelectric, geothermal, etc.) purchased or generated	GJ	0	0	0	22,406	
GRI 302-3 (2016)	Energy intensity ⁽⁴⁾	GJ/ Ton of production	4.49	4.75	4.87	4.84
GRI 302-4 (2016)	Energy saved due to conservation and efficiency improvements	GJ	1,914,021	604,997	422,120	167,898

Remarks: (1) The calculation standards and methodologies are based on relevant laws and regulations.

(2) The energy consumption in 2020 ceased preventive maintenance of UHV as plan

(3) Electricity purchased from the Provincial Electricity Authority and the Metropolitan Electricity Authority (Bangkok office has been included since 2015).

(4) Energy consumption rate does not include energy consumed during the turnaround in 2017.

Flared and Vented Hydrocarbon ⁽¹⁾

GRI Standard	Data	Unit	2017	2018	2019	2020
G4-OG6 (GRI-G4)	Volume of flared hydrocarbon ^{(1), (4)}	Million M ³	70.01	57.44	62.67	38.89
	Volume of continuously flared hydrocarbon	Million M ³	59.67	55.37	52.8	33.24
	Volume flared hydrocarbon for oil & gas production in relation to volume produced	M ³ / Ton of production	6.51	4.61	5.20	3.27
	Volume of Vented hydrocarbon	Million M ³	3.78	4.54	3.83	3.97
	Production process ⁽²⁾	Million M ³	1.09	1.42	1.28	1.41
	Tank & Marketing & Terminal ⁽³⁾	Million M ³	2.69	3.12	2.55	2.56
	Volume Vented hydrocarbon for oil & gas production in relation to volume produced	M ³ / Ton of production	0.1	0.11	0.11	0.33
N/A	Methane Emission of flared hydrocarbon	Ton	90.83	74.52	81.30	50.45

Remarks: (1) The volume of vented hydrocarbon is calculated in accordance with IRPC's Hydrocarbon Management Manual, in reference to HM31:

Guide to HC Management in Petroleum Refinery Operation and HM32: Guide to Product HC Management at Petroleum Product Marketing and Distribution.

(2) The volume of hydrocarbon released from production process includes ABC data (HC calculated from the difference of feed to product as stored in SAP) and EPS data (calculated from feed to reactor in each 7.5% batch and products with 6.6% pentane I each month).

(3) The volume of hydrocarbon released from storage tanks and product and raw material handling is collected from VOC report. The unit is converted to cubic meter.

(4) The volume of vented hydrocarbon in 2019 was greater than in 2018 due to equipment improvements at DCC and improvements to the data collection process from the digital database program iMass.

(5) In 2020, the UHV plant transported gas which was originally vented to be used as energy in the production process resulting in reducing the volume of hydrocarbon released when compared to 2019.

Greenhouse Gas ⁽¹⁾

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 305-1 (2016)	Operational Control					
	Direct emissions of greenhouse gas (Scope 1) ^{(2), (3)}	Million tCO ₂ e	3.681	3.953	3.911	3.712
	CO ₂	Million tCO ₂ e	3.674	3.946	3.674	3.701
	CH ₄	Million tCO ₂ e	0.002	0.002	0.002	0.003
	N ₂ O	Million tCO ₂ e	0.003	0.004	0.003	0.004
	HFC	Million tCO ₂ e	0.002	0.000	0.002	0.004
	SF ₆	tCO ₂ e	38	863	38	520
	Biogenic CO ₂ Emissions	tCO ₂ e	184	192	379	399
GRI 305-2 (2016)	Indirect emissions of greenhouse gas (Scope 2) ⁽³⁾	Million tCO ₂ e	0.296	0.316	0.254	0.255
	Location Based ⁽⁴⁾	Million tCO ₂ e	0.049	0.029	0.031	0.025
	Market Based ⁽⁵⁾	Million tCO ₂ e	0.247	0.287	0.224	0.230
GRI 305-3 (2016)	Other indirect emissions of greenhouse gas (Scope 3) ⁽⁶⁾	Million tCO ₂ e	17.903	20.295	16.623	16.663

GRI Standard	Data	Unit	2017	2018	2019	2020
	Equity Basis					
GRI 305-1 (2016)	Direct emissions of greenhouse gas (Scope 1)	Million tCO ₂ e	3.905	4.403	4.365	4.111
GRI 305-2 (2016)	Indirect emissions of greenhouse gas (Scope 2) ⁽³⁾	Million tCO ₂ e	0.296	0.316	0.254	0.255
GRI 305-4 (2016)	GHG Emission Intensity ⁽⁷⁾	tCO ₂ e/ Ton of production	0.37	0.343	0.345	0.334

Remarks: (1) The GHG calculations are based to API 2009, IPCC 2006, ISO14064-1, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), while GWP is based to the IPCC Fourth Assessment Report (AR4-100 year) are the reports of the following subsidiaries: IRPC PCL, IRPC Oil Co., Ltd., IRPC Polyol Co.,Ltd., UBE Chemicals (Asia) Co., Ltd., and IRPC Clean Power Co., Ltd.

(2) This does not include GHG emission from process vents.

(3) UHV plant has commercially produced since June 2016 while UHV, UHMWPE, PPE and PPC plants since 2017.

(4) GHG emission from electricity purchased from the Provincial Electricity Authority is calculated in reference to PDP 2015 Conversion Factors Calculation.

(5) GHG emission from electricity and steam purchased from (local) private power plant is calculated in reference to Allocation of GHG Emission from Combined Heat and Power (CHP) Plant Guide to Calculation Worksheet V.10 (A WRI/ WBCSD GHG Protod. Initiative Calculation Tod).

(6) GHG emission from other sources are employee transportation, consumption of B5, E10, and E20, etc. The emission in 2017 was higher than in 2016 as a result of reporting expansion, such as maritime sales and transportation data, PTT tool loss data, etc.

(7) GHG emission intensity was calculated from Scope 1 and Scope 2.

Air Emissions⁽¹⁾

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 305-7 (2016)	Total NOx	Ton	1,418	1,759	1,592	1,495
	NOx Intensity	Ton/ Thousand Tons of production	0.132	0.141	0.132	0.126
	Total SOx ^{(2),(3)}	Ton	2,154	1,566	1,800	1,377
	SOx Intensity ⁽³⁾	Ton/ Thousand Tons of production	0.113	0.126	0.149	0.116
	Total Suspended Particulate (TSP)	Ton	238	270	338	259
	TSP Intensity	Ton/ Thousand Tons of production	0.022	0.022	0.028	0.022
	Total VOCs	Ton	2,015	2,107	1,897	1,822
	VOCs Intensity ⁽⁴⁾	Ton/ Thousand Tons of production	0.187	0.169	0.157	0.153

Remarks: (1) This comes from direct measurements or calculation based on relevant standards and regulations.

(2) The amount of sulfur's oxide is in the form of sulfur dioxide.

(3) SOx Intensity does not include the amount of sulfur's oxide during the turnaround in February 2017.

(4) In 2016, UHV plant has commercially produced and the oil depots outside Rayong changed the calculation of vented emission based on US.EPA 2015 as well as the calculation of raw material and product storage tanks.

(5) The SOx and TPS Emission in 2019 increased due to the CFBC Boiler (Power Plant) Operate after the renovation.

Water Consumption and Wastewater

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 303-3 (2018) a	Total water withdrawal ⁽¹⁾	Million M ³	37	42	40	40
	Fresh water (Water with total dissolved solids less than 1,000 Milligram/ liter)	Million M ³	25	29	28	27
	Surface water ⁽⁵⁾	Million M ³	25	29	28	27
	Ground water	Million M ³	0	0	0	0
	Third-party water	Million M ³	0	0	0	0
	Other water (Water with total dissolved solids more than 1,000 Milligram/ liter)	Million M ³	12	13	12	13
	Sea water	Million M ³	12	13	12	13
	Total third-party water withdrawal by withdrawal source	Million M ³	0	0	0	0
GRI 303-3 (2018) b	Water consumption in risk area	Million M ³	0	0	0	0
	Surface water	Million M ³	0	0	0	0
	Ground water	Million M ³	0	0	0	0
	Water quantity usage from other departments separate by water source	Million M ³	0	0	0	0
	Surface water	Million M ³	0	0	0	0
	Ground water	Million M ³	0	0	0	0
	Other water (Water with total dissolved solids more than 1,000 Milligram/ liter)	Million M ³	0	0	0	0
	Sea water	Million M ³	0	0	0	0
GRI 303-4 (2018)	Total volume of water discharge by type and destination ⁽²⁾	Million M ³	22	23	25	25
	Fresh water (Water with total dissolved solids less than 1,000 Milligram/ liter)	Million M ³	6	6	8	8
	Surface water	Million M ³	0	0	0	0
	Third-party water sent for use to other organizations	Million M ³	6	6	8	8
	Other water (Water with total dissolved solids more than 1,000 Milligram/ liter)	Million M ³	16	17	17	17
	Surface water	Million M ³	2	2	2	2
	Sea water	Million M ³	14	15	15	16
	Fresh water withdrawal intensity ⁽³⁾	M ³ /Ton of production	2.33	2.33	2.32	2.24
GRI 303-5 (2018)	Total water consumption	Million M ³	15	19	15	15
	Results of water volume in Reservoir at 1st January and 31st December of that year ⁽⁴⁾	Million M ³	3.11	3.18	1.45	0.64

Remarks: (1) Water usage from various sources, including the distribution to third parties.

(2) Volume of water discharged includes seawater used for sulfur scrubbing which is treated before being released to the sea. The volume of wastewater is measured from the sewage sent to wastewater treatment system (except seawater that the volume of process water is equal to that of wastewater according to process design) and the volume of water distributed to third parties (the communities surrounding IRPC Industrial Zone and other third-parties businesses within IRPC Industrial Zone).

(3) Freshwater usage intensity does not include process water for machinery testing of UHV plant, seawater, process water of customers, process water during the turnaround in February 2017.

(4) The difference of water volume in reservoirs in 2019 was less than in the previous year. The process water was reserved for drought. Therefore, the water was not taken from the reservoir.

(5) The surface water from natural sources is calculated from the receipts issued by Royal Irrigation Department (Khlung Yai River Basin) and rainwater in the reservoirs within IRPC Industrial Zone

(6) Fresh water withdrawal intensity = volume of freshwater / volume of production

(7) Total water consumption = total volume of water withdrawal - total volume of water discharged by type and destination

Solid Waste

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 306-2 (2016)	Total waste disposal ^{(1), (2), (3)}	Ton	54,691	55,598	51,275	41,752
	Waste from routine operations	Ton	54,222	55,129	51,009	41,616
	Non-hazardous waste	Ton	28,287	38,460	39,383	33,909
	Composition	Ton	1,540	0	0	0
	Export	Ton	0	0	0	0
	Incineration	Ton	276	65	1,937	2,654
	Landfill	Ton	2,665	97	0	0
	Wastewater Treatment	Ton	0	0	0	0
	Recovery	Ton	707	1,298	1,052	1,306
	Recycling	Ton	22,406	27,689	35,590	29,511
	Reuse	Ton	0	0	318	0
	On-site storage	Ton	693	0	486	437
	Land reclamation	Ton	0	9,312	0	0
	Hazardous waste	Ton	25,936	16,669	11,626	7,707
	Composition	Ton	0	0	0	0
	Export	Ton	522	1,054	266	64
	Incineration	Ton	17,038	12,620	3,392	1,876
	Landfill	Ton	269	57	0	0
	Wastewater Treatment	Ton	0	0	0	0
	Recovery	Ton	5,957	2,707	5,747	4,886
	Recycling	Ton	2,023	156	2,168	843
	Reuse	Ton	36	37	31	13
	On-site storage	Ton	90	38	21	26
	Land reclamation	Ton	0	0	0	0
	Waste from non-routine operations	Ton	469	469	266	135
	Non-hazardous waste	Ton	36	78	145	0
	Incineration	Ton	0	0	0	0
	Landfill	Ton	36	0	0	0
	Export	Ton	0	0	0	0
	Recovery	Ton	0	5	145	0
	Recycling	Ton	0	73	0	0

GRI Standard	Data	Unit	2017	2018	2019	2020	
	Hazardous waste	Ton	433	390	121	135	
	Incineration	Ton	0	201	0	0	
	Landfill	Ton	2	33	0	0	
	Export	Ton	0	0	121	0	
	Recovery	Ton	428	115	0	135	
	Recycling	Ton	3	41	0	0	
GRI 306-3 (2020)	Total waste generated	Ton	54,691	55,598	51,275	41,752	
	Hazardous waste generated	Ton	26,368	17,019	11,747	7,842	
	Non-Hazardous waste generated	Ton	28,323	38,579	39,529	33,909	
GRI 306-4 (2020)	Total waste diverted from disposal	Ton	31,560	32,121	45,051	36,694	
	Total Hazardous waste diverted from disposal	Ton	8,447	3,056	7,946	5,877	
	Total Non-hazardous waste diverted from disposal	Ton	23,113	29,065	37,105	30,818	
	Onsite						
	Hazardous waste diverted from disposal	Ton	0	0	0	0	
	Preparation for reuse	Ton	0	0	0	0	
	Recycling	Ton	0	0	0	0	
	Other recovery operations	Ton	0	0	0	0	
	Non-Hazardous waste diverted from disposal	Ton	0	0	0	0	
	Preparation for reuse	Ton	0	0	0	0	
	Recycling	Ton	0	0	0	0	
	Other recovery operations	Ton	0	0	0	0	
	Offsite						
	Hazardous Waste diverted from disposal	Ton	8,447	3,056	7,946	5,877	
	Preparation for reuse	Ton	36	37	31	13	
	Recycling	Ton	2,026	197	2,168	843	
	Other recovery operations	Ton	6,385	2,822	5,747	5,021	
	Non-Hazardous waste diverted from disposal	Ton	23,113	29,065	37,105	30,818	
	Preparation for reuse	Ton	0	0	318	0	
	Recycling	Ton	22,406	27,762	35,590	29,511	
Other recovery operations	Ton	707	1,303	1,197	1,306		

GRI Standard	Data	Unit	2017	2018	2019	2020	
GRI 306-5 (2020)	Total waste directed to disposal	Ton	21,591	14,165	6,223	5,057	
	Total Hazardous waste directed from disposal	Ton	17,921	14,003	3,800	1,966	
	Total Non-hazardous waste directed from disposal	Ton	3,670	162	2,423	3,092	
	Onsite						
	Hazardous waste directed to disposal	Ton	0	0	0	0	
	Incineration (with energy recovery)	Ton	0	0	0	0	
	Incineration (without energy recovery)	Ton	0	0	0	0	
	Landfilling	Ton	0	0	0	0	
	Other disposal operations	Ton	0	0	0	0	
	Non-hazardous waste directed to disposal	Ton	0	0	0	0	
	Incineration (with energy recovery)	Ton	0	0	0	0	
	Incineration (without energy recovery)	Ton	0	0	0	0	
	Landfilling	Ton	0	0	0	0	
	Other disposal operations	Ton	0	0	0	0	
	Offsite						
	Hazardous waste directed to disposal	Ton	17,921	14,003	3,800	1,966	
	Incineration (with energy recovery)	Ton	n/a	n/a	n/a	293	
	Incineration (without energy recovery)	Ton	17,038	12,821	3,392	1,583	
	Landfilling	Ton	271	90	0	0	
	Other disposal operations	Ton	612	1,092	408	90	
Non-hazardous waste directed to disposal	Ton	3,670	162	2,423	3,092		
Incineration (with energy recovery)	Ton	n/a	n/a	n/a	564		
Incineration (without energy recovery)	Ton	276	65	1,937	2,090		
Landfilling	Ton	2,701	97	0	0		
Other disposal operations	Ton	693	0	486	437		
GRI 306-4 (2016)	Hazardous waste transportation	Ton	26,275	17,019	11,747	7,842	
	Hazardous waste import to IRPC	Ton	0	0	0	5	
	Hazardous waste export from IRPC	Ton	26,275	17,019	11,747	7,842	
	Hazardous waste treated	Ton	0	24	42	5	
	Hazardous waste shipped internationally	Ton	522	1,054	266	64	

Remarks: (1) Waste management data from service providers certified by the Department of Industrial Works.

(2) UHV plant has commercially produced since June 2016.

(3) The waste disposal in 2017 was higher than in 2016 due to the turnover and the commercial production of UHMWPE, PPE, and PPC plants.

Oil and Chemical Spills

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 306-3 (2016)	Significant Oil & Chemical Spills	Case	0	0	0	0
		M ³	0	0	0	0

Environmental Protection Expenditures and Investment Fines

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 201-1 (2016)	Environmental protection expenditures and investments (e.g. operation related costs, etc.) ⁽¹⁾	THB Million	609	194	311	435
N/A	Benefit from environmental investment ⁽²⁾	THB Million	2,581	2,616	1,427	381
GRI 307-1 (2016)	Monetary value of significant fines	THB Million	0	0	0	0
	Number of non-monetary sanctions	Case	0	0	0	0
	Case brought through dispute resolution mechanisms	Case	0	0	0	0

Remarks: (1) Expenditures of environmental protection investment are calculated by summing the investment in energy saving project and Project Everest.

(2) Benefits from environmental investment, such as investment returns, tax incentives from the Board of Investment of Thailand (BOI).

Philanthropy

GRI Standard	Data	Unit	2017	2018	2019	2020
GRI 102-43 (2016)	Community satisfaction	%	92.29	88.50	91.40	97.45
GRI 307-1 (2016)	Number of violations of legal obligations/ regulations	Case	0	0	0	0
	Amount of fines/ penalties related to the above (more than \$10,000 USD)	Baht	0	0	0	0
	Environmental liability accrued at year end	Baht	0	0	0	0



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Independent limited assurance report

To the Directors of IRPC Public Company Limited (“IRPC”)

Conclusion

Based on the procedures performed, as described below, nothing has come to our attention that causes us to believe that the selected subject matters (“Subject Matters”) identified below and included in the Sustainability Report 2020 (the “Report”) for the year ended 31 December 2020, are not, in all material respects, prepared in compliance with the reporting criteria (the “Criteria”).

Our Responsibilities

We have been engaged by IRPC and are responsible for providing a limited assurance conclusion in respect of the Subject Matters for the year ended 31 December 2020 to be included in the Report as identified below.

Our assurance engagement is conducted in accordance with the International Standard on Assurance Engagements ISAE 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*, and ISAE 3410 *Assurance on Greenhouse Gas Statements*. These standards require the assurance team to possess the specific knowledge, skills and professional competencies needed to provide assurance on sustainability information, and that we plan and perform the engagement to obtain limited assurance on whether the Subject Matters are prepared, in all material respects, in compliance with the Criteria. We have complied with the independence and other ethical requirements of the International Ethics Standards Board for Accountants’ *International Code of Ethics for Professional Accountants (including International Independence Standards)* (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have not been engaged to provide an assurance conclusion on any other information disclosed within the Report.

Subject Matters

Subject Matters comprised of the following data expressed numerically or in descriptive text for the year ended 31 December 2020:

- GRI 302-1 Energy consumption within organization (2016 version)
- GRI 303-3 Water withdrawal (2018 version)
- GRI 303-4 Water discharge (2018 version)
- GRI 303-5 Water consumption (2018 version)
- GRI 305-1 Direct (Scope 1) GHG emissions (2016 version)
- GRI 305-2 Energy indirect (Scope 2) GHG emissions (2016 version)
- GRI 305-3 Other indirect (Scope 3) GHG emissions (2016 version)
- GRI 305-7 Nitrogen oxide (NO_x), sulfur oxides (SO_x), and other significant air emissions (2016 version)
- GRI 306-2 Waste by type and disposal method (2016 version)
- GRI 306-3 Significant spill (2016 version)
- GRI 403-9 Work-related injuries (2018 version)
- GRI 403-10 Work-related ill health (2018 version)
- OGSD - OG6 Volume of flared and vented hydrocarbon
- OGSD - OG13 Number of process safety events, by business activity



Criteria

The Subject Matters were assessed according to the following criteria:

- The Sustainability Reporting Standards of the Global Reporting Initiative (“GRI Standards”) with core option; and
- The Oil and Gas Sector Disclosures (“OGSD”);

Directors’ and management’s responsibilities

The directors and management of IRPC are responsible for the preparation and presentation of the Subject Matters, specifically ensuring that in all material respects the Subject Matters are prepared and presented in accordance with the Criteria. This responsibility also includes the internal controls relevant to the preparation of the Report that is free from material misstatement whether due to fraud or error.

Procedure performed

In forming our limited assurance conclusion over the Subject Matters, our procedures consisted of making enquiries and applying analytical and other evidence gathering procedures including:

- Interviews with senior management and relevant staff at corporate and operating sites;
- Inquiries about the design and implementation of the systems and methods used to collect and process the information reported, including the aggregation of source data into the Subject Matters;
- Inquiries about managements practices and procedures related to identifying stakeholders and their expectations, determining material sustainability matters and implementing sustainability policies and guidelines;
- Remote site visit to 2 sites; EBSM and ADU2 site, selected on the basis of risk analysis including the consideration of both quantitative and qualitative criteria;
- Agreeing the Subject Matters to relevant underlying sources on a sample basis to determine whether all the relevant information has been included in the Subject Matters and prepared in accordance with the Criteria.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion.

Inherent limitations

Due to the inherent limitations of any internal control structure it is possible that errors or irregularities in the information presented in the Report may occur and not be detected. Our engagement is not designed to detect all weaknesses in the internal controls over the preparation and presentation of the Report, as the engagement has not been performed continuously throughout the period and the procedures performed were undertaken on a test basis.

Restriction of use of our report

Our report should not be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than IRPC, for any purpose or in any other context. Any party other than IRPC who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk. To the fullest extent permitted by law, we accept or assume no responsibility and deny any liability to any party other than IRPC for our work, for this independent limited assurance report, or for the conclusions we have reached.

KPMG PHOONCHAI AUDIT LTD.

KPMG Phoomchai Audit Ltd.

Bangkok

3 March 2021

GRI Content Index

GRI Standard	Disclosure	Page Number (s) and/ or URL (s)	Omissions/ Remark	External Assurance	SDGs	UNGC
General Disclosures						
GRI 102: General Disclosures 2016	102-1 Name of the organization	Cover, 4, 80, Back Cover	-	-	-	-
	102-2 Activities, brands, products and services	4-5	Remark: IRPC did not sell any banned or disputed products in 2020	-	-	-
	102-3 Location of headquarters	80	-	-	-	-
	102-4 Location of operations	4-5	-	-	-	-
	102-5 Ownership and legal form	Website	https://investor.irpc.co.th/en	-	-	-
	102-6 Markets served	4-5	-	-	-	-
	102-7 Scale of the organization	This Page	Remark: Refer to IRPC Annual Report 2020, Financial Highlights, Page 59-70	-	-	-
	102-8 Information on employees and other workers	83-88	Remark: Majority of IRPC's workforce are employees and supervised workers. No significant variation in employment numbers and changes during the reporting year.	-	8	-
	102-9 Supply chain	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	2
	102-10 Significant changes to the organization and its supply chain	2-3	Remark: No significant changes (i.e. location, operation, share capital structure, supply chain, etc.) during the reporting year	-	-	2
	102-11 Precautionary Principle or approach	Website	https://www.irpc.co.th/en/corporate-governance/corporate-risk/	-	-	-
	102-12 External initiatives	This Page	Remark: Corporate Governance, Business Ethics and Compliance refer to IRPC Annual Report 2020, Page 178-238	-	-	-
	102-13 Membership or associations	Website	https://www.irpc.co.th/en/sustainability-management/business-ethics-and-transparency/	-	-	-
GRI 102: General Disclosures 2016 (Strategy)	102-14 Statement from senior decision-maker	2-3	-	-	-	19
	102-15 Key impacts, risks, and opportunities	Website	https://www.irpc.co.th/en/corporate-governance/corporate-risk/	-	-	19

GRI Standard	Disclosure	Page Number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 102: General Disclosures 2016 (Ethics and Integrity)	102-16 Values, principles, standards and norms of behavior	4	-	-	16	12-14
	102-17 Mechanisms for advice and concerns about ethics	This Page	Remark: Corporate Governance, Business Ethics, and Compliance refer to IRPC Annual Report 2020, Page 178-238	-	16	12-14
GRI 102: General Disclosures 2016 (Governance)	102-18 Governance structure	Website	https://www.irpc.co.th/en/sustainability-management/sustainability-management-structure/	-	-	1, 20
	102-19 Delegating authority	Website	https://www.irpc.co.th/en/sustainability-management/sustainability-management-structure/	-	-	1, 20
	102-20 Executive-level responsibility for economic, environmental, and social topics	Website	https://www.irpc.co.th/en/sustainability-management/sustainability-management-structure/	-	-	1, 20
	102-21 Consulting stakeholders on economic, environmental, and social topics	60 and Website	https://www.irpc.co.th/en/sustainability-management/stakeholder-engagement/	-	16	1, 20
	102-22 Composition of the highest governance body and its committees	This Page	Remark: Composition of the Board and Committees refers to Annual Report 2020, Page 186 (Management Structure Section)	-	16	1, 20
	102-23 Chair of the highest governance body	This Page	Remark: Roles of the Chairman refers to Annual Report 2020, Page 190. (Roles and Responsibilities of the Chairman Section)	-	-	1, 20
	102-24 Nominating and selecting the highest governance body	This Page	Remark: Nomination and Selection Process of the Board refers to Annual Report 2020, Page 196. (Committee and Top Management Recruitment and Appointment and Nomination Process Section)	-	16	1, 20
	102-25 Conflicts of interest	Website	https://www.irpc.co.th/en/sustainability-management/business-ethics-and-transparency/	-	16	1, 2, 20

GRI Standard	Disclosure	Page Number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 102: General Disclosures 2016 (Governance)	102-26 Role of highest governance body in setting purpose, values, and strategy	This Page	Remark: Sustainability Management refers to Annual Report 2020, Page 119	-	-	1, 20
	102-27 Collective knowledge of highest governance body	This Page	Remark: Board Development refers to Annual Report 2020, Page 180	-	4	1, 20
	102-28 Evaluating the highest governance body's performance	This Page	Remark: Committee Evaluation refers to Annual Report 2020, Page 226	-	-	1, 20
	102-29 Identifying and managing economic, environmental, and social impacts	This Page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2020, Page 198	-	16	1, 20
	102-30 Effectiveness of risk management processes	This Page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2020, Page 198	-	-	1, 20
	102-31 Review of economic, environmental, and social topics	This Page	Remark: Risk Management Committee and Risk Management refer to Annual Report 2020, Page 198	-	-	1, 20
	102-32 Highest governance body's role in sustainability reporting	77-78	-	-	-	1, 20
	102-33 Communicating critical concerns	Website	https://www.irpc.co.th/en/sustainability-management/corporate-governance/	-	-	1, 20
	102-34 Nature and total number of critical concerns	Website	https://www.irpc.co.th/en/sustainability-management/corporate-governance/	-	-	1, 20
	102-35 Remuneration policies	This Page	Remark: Board of Director nomination process refers to Annual Report 2020, Page 194, 206-207, http://www.irpc.co.th/en/pdf/bord/NominationCommittee-CharterRemunerationeng-rev.pdf	-	-	1, 20

GRI Standard	Disclosure	Page Number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 102: General Disclosures 2016 (Stakeholder Engagement)	102-40 List of stakeholder groups	61-62	-	-	-	-
	102-41 Collective bargaining agreements	24	-	-	-	21
	102-42 Identifying and selecting stakeholders	61	https://www.irpc.co.th/en/sustainability-management/stakeholder-engagement/	-	8	-
	102-43 Approach to stakeholder engagement	61-62	-	-	-	21
	102-44 Key topics and concerns raised	61-62	-	-	-	21
GRI 102: General Disclosures 2016 (Reporting Practice)	102-45 Entities included in the consolidated financial statements	77	-	-	-	-
	102-46 Defining report content and topic boundaries	78	-	-	-	-
	102-47 List of material topics	78	-	-	-	-
	102-48 Restatements of information	This Page	Remark: No restatement in 2020	-	-	-
	102-49 Changes in reporting	78	Remark: No significant changes in scope and boundary from previous reporting periods.	-	-	-
GRI 102: General Disclosures 2016 (Reporting Practice)	102-50 Reporting period	76	-	-	-	-
	102-51 Date of most recent report	76	-	-	-	-
	102-52 Reporting cycle	76	-	-	-	-
	102-53 Contact point for questions regarding the report	80	-	-	-	-
	102-54 Claims of reporting in accordance with the GRI Standards	76	-	-	-	-

GRI Standard	Disclosure	Page Number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 102: General Disclosures 2016 (Reporting Practice)	102-55 GRI content index	100-114	-	-	-	-
	102-56 External assurance	98-99	Remark: IRPC engages KPMG Phoomchai Audit Ltd. to provide limited independent assurance service to IRPC's 2020 Corporate Sustainability Report. IRPC has process to ensure transparent external assurance.	-	-	-
GRI 203: Indirect Economic Impacts 2016	203-2 Significant indirect economic impacts	Website	https://www.irpc.co.th/en/sustainability-management/irpc-sustainable-business-growth/	-	7, 9, 11	-
Materials Topics						
Sustainable Supply Chain						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
	103-2 The management approach and its components	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
	103-3 Evaluation of the management approach	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	82	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	12	2
GRI 205: Anti-corruption	205-1 Operations assessed for risks related to corruption	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
	205-2 Communication and training about anti-corruption policies and procedures	Website	https://www.irpc.co.th/en/sustainability-management/business-ethics-and-transparency/	-	-	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 205: Anti-corruption	205-3 Anti-corruption	This Page	Remark: IRPC did not experience any cases of corruption and bribery in 2020. IRPC is accredited as a member in private sector collective action Coalition Against Corruption (CAC) from Anti-Corruption Organization Thailand, in which IRPC is required to report any cases of corruption. https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
GRI 206: Anti-competitive Behavior	206-1 Anti-competitive behavior	This Page	Remark: IRPC did not experience any cases of anticompetitive behaviors in 2020. For reporting of anti-competitive practices, IRPC Provides; 1) Whistleblower System; 2) Submission of feedbacks to website and 3) Annual Reputation Survey. From these several channels IRPC did not experience any cases of anticompetitive behaviors in 2020 and IRPC is not involved in any ongoing anticompetitive cases. https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	82	-	-	-	2, 9-11
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	82	-	-	-	2, 9-11

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
Customer Relationship Management						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
	103-2 The management approach and its components	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
	103-3 Evaluation of the management approach	Website	https://www.irpc.co.th/en/economic-dimension/supply-chain-management/	-	-	-
GRI 416: Customer Health and Safety	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	83	-	-	16	-
GRI 417: Marketing and Labelling 2016	417-3 Incidents of non-compliance concerning marketing communications	83	-	-	16	-
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	83	-	-	16	-
GRI 419: Socioeconomic Compliance 2016	419-1 Non-compliance with laws and regulations in the social and economic area	83	-	-	16	-
Innovations for Sustainability						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	11-15	-	-	-	-
	103-2 The management approach and its components	11-15	https://www.irpc.co.th/en/economic-dimension/product-and-innovation/	-	-	-
	103-3 Evaluation of the management approach	11-15	https://www.irpc.co.th/en/economic-dimension/product-and-innovation/	-	-	-
IRPC's Own Indicator	Percentage of petrochemical revenue invested in research and development	14	-	-	-	-
	Percentage of sales of specialty products by petrochemical revenue	15	-	-	-	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
Human Resource Management						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Website	https://www.irpc.co.th/en/social-dimension/human-resources-management/	-	-	-
	103-2 The management approach and its components	Website	https://www.irpc.co.th/en/social-dimension/human-resources-management/	-	-	-
	103-3 Evaluation of the management approach	Website	https://www.irpc.co.th/en/social-dimension/human-resources-management/	-	-	-
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	81-88	-	-	8	6-8
	401-3 Parental leave	81-88	-	-	8	6-8
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	81-88	-	-	4, 8	6-8
	404-2 Programs for upgrading employee skills and transition assistance programs	36	-	-	8	6-8
	404-3 Percentage of employees receiving regular performance and career development reviews	36	-	-	5, 8	-
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Website	https://www.irpc.co.th/en/social-dimension/human-resources-management/	-	5	-
	405-2 Ratio of basic salary and remuneration of women to men	Website	https://www.irpc.co.th/en/social-dimension/human-resources-management/	-	5	-
Occupational Health and Safety						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	37-47	-	-	-	-
	103-2 The management approach and its components	37-47	-	-	-	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 103: Management Approach 2016	103-3 Evaluation of the management approach	37-47	-	-	-	-
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	37-47	-	✓	8	6-8
	403-2 Hazard identification, risk assessment, and incident investigation	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	3, 8	2, 6-8
	403-3 Occupational health services	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	8	6-8
	403-4 Worker participation, consultation, and communication on occupational health and safety	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	8	6-8
	403-5 Worker training on occupational health and safety	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	8	6-8
	403-6 Promotion of worker health	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	8	6-8
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Website	https://www.irpc.co.th/en/social-dimension/occupational-health-and-safety/	-	8	6-8
	403-9 Work-related injuries	88-89	-	✓		6-8
	403-10 Work-related ill health	88-89	-	✓	-	6-8
G4-Oil and Gas Sector Disclosure: Asset Integrity and Process Safety 2012	G4-OG13 Number of process safety events, by business activity	88	-	✓	3, 6, 8, 11	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
Social Well-Being						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	48-59	-	-	-	-
	103-2 The management approach and its components	48-59	-	-	-	-
	103-3 Evaluation of the management approach	48-59	-	-	-	-
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	58-59	-	-	-	-
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	58-59	-	-	-	-
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	This Page	Remark: 100% of operation has local community engagement program and formal grievance process. Environmental and social impact assessment are conducted at all eligible operations in line with local regulatory standards. https://www.irpc.co.th/en/social-dimension/social-responsibility/ https://www.irpc.co.th/en/environmental-dimension/environmentimpact-assessment-and-monitoring-result/	-	-	-
G4-Oil and Gas Sector Disclosure: Indirect Economic Impacts 2016	G4-EC7 Development and impact of infrastructure investments and services supported	-	-	-	-	-
G4-Oil and Gas Sector Disclosure: Local Communities 2012	G4-OG10 Number and description of significant disputes with local communities and indigenous people	-	-	-	-	-
	G4-OG11 Number of sites that have been decommissioned and site that are in the process of being decommissioned	This page	Remark: There is no site that have been decommissioned and in the process of being decommissioned.	-	-	-

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
Human Rights						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	20-26	-	-	-	-
	103-2 The management approach and its components	20-26	-	-	-	-
	103-3 Evaluation of the management approach	20-26	-	-	-	-
GRI 412: Human Rights Assessment 2016	412-1 Operations that have been subject to human rights reviews or impact assessments	20-26	-	-	-	-
	412-2 Employee training on human rights policies or procedures	20-26	-	-	-	-
Operational Eco-Efficiency						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Website	https://www.irpc.co.th/en/environmental-dimension/operational-eco-efficiency/	-	-	-
	103-2 The management approach and its components	64-69	https://www.irpc.co.th/en/environmental-dimension/operational-eco-efficiency/	-	-	-
	103-3 Evaluation of the management approach	64-69	https://www.irpc.co.th/en/environmental-dimension/operational-eco-efficiency/	-	-	-
GRI 301: Materials 2016	301-1 Materials used by weight or volume	90-97	-	*	7, 8, 12, 13	9-11
GRI 302: Energy 2016	302-1 Energy consumption within the organization	90-97	-	✓	7, 8, 12, 13	9-11
	302-3 Energy intensity	64, 90-97	-	-	7, 8, 12, 13	9-11
	302-4 Reduction of energy consumption	64, 90-97	-	-	7, 8, 12, 13	9-11

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 303: Water and Effluents 2018	303-3 Water withdrawal	90-97	-	✓	6	9-11
	303-4 Water discharge	90-97	-	✓	6	9-11
	303-5 Water consumption	90-97	-	✓	6	9-11
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	90-97	-	✓	3, 12, 13	9-11
	305-2 Energy indirect (Scope 2) GHG emissions	90-97	-	✓	3, 12, 13	9-11
	305-3 Other indirect (Scope 3) GHG emissions	90-97	-	✓	3, 12, 13	2, 9-11
	305-4 GHG emissions intensity	73, 90-97	-	-	13	9-11
	305-6 Emissions of ozone-depleting substances (ODS)	This Page	Omission: Information is not applicable to IRPC because the company is in the process of phasing out the usage of the Ozone-Depleting Substances (ODS).	-	3,12	9-11
	305-7 Nitrogen oxides (NOx), Sulphur oxides (SOx), and other significant air emissions	90-97	Remark: Standards, methodologies, source of emission factors, and assumptions used are identified relevant regulations.	✓	3,12	9-11

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 306: Effluents and Waste 2016	306-2 (2016) Waste by type and disposal method	90-97	For non-hazardous waste, IRPC sorted and disposed waste to local contractors and municipality in accordance with law. For hazardous waste transportation and disposal, IRPC sourced contractors who hold license as required by law	✓	3, 6, 12	9-11
	306-3 (2016) Significant spills	90-97	-	✓	3, 6, 12	9-11
	306-4 (2016) Transport of hazardous waste	90-97	-	-	3, 12	9-11
GRI 306: Waste 2020	306-1 (2020) Waste generation and significant waste-related impacts	90-97	-	-	-	-
	306-2 (2016) Management of significant waste-related impacts	90-97	-	-	-	-
	306-3 (2020) Waste generated	90-97	-	-	-	-
	306-4 (2020) Waste diverted from disposal	90-97	-	-	-	-
	306-5 (2020) Waste directed to disposal	90-97	-	-	-	-
GRI 307: Environmental Compliance	307-1 Non-compliance with environmental laws and regulations	97	-	-	3, 6, 7, 8, 12, 13	9-11

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
G4–Oil and Gas Sector Disclosure: Effluents and Waste 2012	G4–OG5 Volume and disposal of formation or produced water	This Page	Omission: Information is not applicable to IRPC.	-	3, 6, 8, 12	9-11
	G4–OG6 Volume of flared and vented hydrocarbon	90-97	Remark: IRPC only reports on vents from Acetylene Carbon Black (ACB) plant, Expandable Polystyrene (EPS) plant, and VOC Emission. The information for process vent and safety control vent that are unavailable due to the ongoing data collection process	✓	3, 7, 8, 12, 13	9-11
	G4–OG7 Amount of drilling waste (drill mud and cuttings) and strategies for treatment and disposal	This Page	Omission: Information is not applicable to IRPC.	-	3, 6, 12	-
Climate Strategy and Water Management						
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Website	https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	-	-
	103-2 The management approach and its components	Website	Remark: https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	-	-
	103-3 Evaluation of the management approach	Website	Remark: https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	-	-
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	74-75, 90-97	https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	6	9-11
	303-2 Management of water discharge-related impacts	67	https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	6	9-11
	303-3 Water withdrawal	74-75, 90-97	https://www.irpc.co.th/en/environmental-dimension/climate-strategy-and-water-management/	-	6	9-11

GRI Standard	Disclosure	Page number (s) and/or URL (s)	Omissions / Remark	External Assurance	SDGs	UNGC
GRI 303: Water and Effluents 2018	303-4 Water discharge	90-97	-	-	6	9-11
	303-5 Water consumption	90-97	-	-	6	9-11
GRI 305: Emissions 2016	305-5 Reduction of GHG emissions	64-65, 90-97	Remark: CO2, CH4, N2O, HFCs, PFCs, and SF6. NF3 are GHGs gas that are not related to IRPC's business. The calculation is based on 2012 base year. Identified GHG reduction is under IRPC's control; as a result, it is considered as GHG emission reduction in Scope 1.	-	13	9-11
G4-Oil and Gas Sector Disclosure: Energy 2012	G4-OG2 Total amount invested in renewable energy	71	-	-	7, 9, 17	-
	G4-OG3 Total amount of renewable energy generated by source	71, 90-97	-	-	7	-
Economic Performance						
GRI 201: Economic Performance 2016	201-4 Financial assistance received from government	84	-	-	-	-
Sustainability Performance						
GRI 415: Public Policy	415-1 Political contribution	This Page	Remark: IRPC did not contribute to any political activities/ campaigns in 2020. However, IRPC has joined trade association, business association and industry association, which shape policies and directions in oil and gas, and refinery sectors. https://www.irpc.co.th/en/sustainability-management/business-ethics-and-transparency/	-	-	-



SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF IRPC'S GOAL	2020 PERFORMANCE
 <p>Goal 3: Good health and well-being</p>	<p>3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.</p>	<p>Promoting community health around the IRPC industrial zone.</p>	<p>Social Well-Being Page 48-59</p>
 <p>Goal 4: Ensuring that everybody will have an equal opportunity to access to good quality education covering all fields of knowledge and promoting lifelong learning opportunity</p>	<p>4.3 Ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university</p>	<p>Launching Social Responsibility project focusing on education opportunities promotion and development for children, youths and the elderly every year</p>	<p>Social Well-Being Page 48-58</p>
	<p>4.4 Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship.</p>	<p>To educate technical skill of occupation to youths through IRPC Technological College, which has a strategy to improve education quality in accordance with international standard aiming to achieve an excellence in building vocational qualification in petrochemical and energy, including other fields that fulfill the needs of the country.</p>	<p>Annual Report Page 127-129</p>
	<p>4.7 Ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.</p>	<p>To organize sustainability trainings to embed sustainable awareness to our employees.</p>	<p>Corporate Governance, Business Ethics, and Compliance (Website) Human Rights Page 20-26</p>
 <p>Goal 5: Gender equality</p>	<p>5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic, and public life</p>	<p>To notify Diversity of Board of Directors policy and cascade to all employees in order to promote equality without discrimination in terms of age, gender, race, religion and belief, and no prohibit to employees who are member of unions and participated in unions activities.</p>	<p>Corporate Governance, Business Ethics, and Compliance (Website) Respect for Human Rights Page 20-26 Annual Report Page 178-238 and Website</p>
 <p>Goal 6: Clean water and sanitation</p>	<p>6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally</p>	<p>To notify the policy and target of KPI focusing the integration of energy, air quality, water quality, and waste management.</p>	<p>Operational Eco-Efficiency Page 63-69</p>

SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF IRPC'S GOAL	2020 PERFORMANCE
	6.4 Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	To integrate the management of water crisis risk, efficiency of water consumption, awareness building for water use to employees, cooperation with governments including knowledge sharing and potable water sharing to the communities	Climate Strategy and Water Management Page 74-75
	6.6 Protect and restore waterrelated ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes	To support and promote the agricultural communities who suffered from water shortage to handle the impacts of drought and enhance their quality of life to be fruitful communities where will be strong as the Thailand's agricultural producers.	Social Well-Being Page 48-59
 <p>Goal 7: Providing energy that is accessible, reliable, sustainable, and modern for everyone</p>	7.2 Increase substantially the share of renewable energy in the global energy mix	To study the renewable energy and plan to operate Floating Solar Power project with capacity of 12.5 MW for internal use.	Operational Eco-Efficiency Page 63-69 Floating Solar Power Project Page 71
	7.3 Double the global rate of improvement in energy efficiency	To set targets of the IRPC's Energy Intensity Index (EII) for energy consumption reducing and utilize energy efficiently.	Operational Eco-Efficiency Page 63-69
 <p>Goal 8: Decent work and economic growth</p>	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	To appoint long term 10-years master plan and cascade annual goal up to 2025. We also allocate 3% monetary from revenue of petrochemical sale to develop innovation research of new products.	Innovations for Sustainability Page 11-15
	8.4 Improve progressively global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead	To strive to drive the performance of Eco efficiency to control and minimize the impacts from the operation to the communities.	Operational Eco-Efficiency Page 63-69
	8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	To notify Sustainable Procurement policy covering labor and human rights and enhance the operation of Environment, Social and Governance (ESG) to our suppliers and partners.	Corporate Governance, Business Ethics, and Compliance (Website) Human Rights Page 20-26

SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF IRPC'S GOAL	2020 PERFORMANCE
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.	To formulate strategies for an organization with safety excellence and achieving the goal of being a zero accident organization.	Occupational Health and Safety Page 37-47
		To ensure process safety management and no incident in the operation essential the chemicals or flammable leakage from container or productions which impact to Loss of Primary Containment Tier 1.	Sustainable Supply Chain (Website)
		To implement human rights due diligence covering all operation areas and conduct thorough human right risk assessment to our main suppliers.	Human Rights Page 20-26
 <p>Goal 9: Industry, innovation, and infrastructure</p>	9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.	To improve to upgrade the efficiency of resources utilization and apply clean technology in production process.	Operational Eco-Efficiency Page 63-69
	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.	To allocate budgets for research and development(R&D) including R&D professional recruitment to expansion opportunity for new S-Curve development.	Innovations for Sustainability Page 11-15
 <p>Goal 10: Reducing inequality</p>	10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard.	To notify Diversity of Board of Directors policy and cascade to all employees in order to promote equality without discrimination in terms of age, gender, race, religion and belief, and no prohibit to employees who are member of unions and participated in unions activities.	Corporate Governance, Business Ethics, and Compliance (Website) Human Rights Page 20-26
 <p>Goal 11: Sustainable settlement and community</p>	11.6 Reduce the adverse per capital environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.	To apply clean energy in production process for impacts prevention toward the communities and environment.	Operational Eco-Efficiency Page 63-69

SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF SUSTAINABLE DEVELOPMENT GOALS	OBJECTIVES OF IRPC'S GOAL	2020 PERFORMANCE
 <p>Goal 12: Responsible consumption and production</p>	12.2 Achieve the sustainable management and efficient use of natural resources.	To apply clean energy in production process for impacts prevention toward the communities and environment.	Operational Eco-Efficiency Page 63-69 Circular Economy Page 16-18
	12.4 Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	To set up the target of greenhouse gas scope 1 and 2 emission, air emission, volatile organics compounds (VOCs) release, hydrocarbon vent from flares and significant spills including improvement the capital project management to achieve goal.	Operational Eco-Efficiency Page 63-69 Climate Strategy and Water Management Page 70-73
	12.5 Substantially reduce waste generation through prevention, reduction, recycling, and reuse	To apply 7Rs into production process.	Innovations for Sustainability Page 11-15 Circular Economy Page 16-18
	12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	To promote green procurement in IRPC and enhance the operation of Environmental, Social, and Governance to our suppliers and partners.	Sustainable Supply Chain (Website)
 <p>Goal 13: Climate action</p>	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	To reduce the greenhouse gas emission by 12.34% in 2020 compared as baseline 2012.	Climate Strategy and Water Management Page 70-73
	13.2 Integrate climate change measures into national policies, strategies, and planning.	To follow the Climate Change strategy	Climate Strategy and Water Management Page 70-73
	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.	To promote the awareness building to all employees through Energy Conservation project and Energy Conservation News on intranet.	Operational Eco-Efficiency Page 63-69 Climate Strategy and Water Management Page 70-73
 <p>Goal 14: Life below water</p>	14.1 Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.	To set up zero significant oil and chemical spill's target and manage to achieve.	Sustainable Supply Chain (Website)
 <p>Goal 16: Peace, justice, and strong institutions</p>	16.5 Substantially reduce corruption and bribery in all their forms.	To manage the operations transparently and fairly without corruption and bribery in all business activities and commit to be anti-corruption organization.	Corporate Governance, Business Ethics, and Compliance (Website)



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