



# SHARPEN CUS

TOWARDS EXCELLENCE AND  
SUSTAINABILITY



# 14 Highlighted Materialities in 2014

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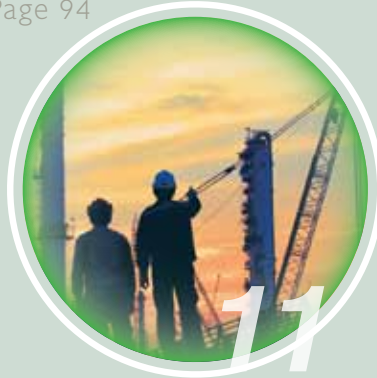
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## CEO Statement

In the past year, IRPC has encountered several challenges. IRPC was able to overcome these challenges by implementing risk management plan and business continuity plan in full form and using them as a guideline to readily prepare for crisis. For example, the political unrest during January and May, when IRPC exercised BCP and moved all critical processes to the disaster recovery site to minimize impact to the main operations, VGOHT explosion in June, in which IRPC has responded with efficiency. As a result, IRPC was able to reduce impact and quickly return the situation to normalcy. Follow the situation, IRPC communicated with stakeholders include government agencies, media, community, and shareholders to create understanding of the situation and commenced a reconstruction of the unit in a timely manner. Lastly, A rapid drop in crude oil price from 100 USD per barrel to 50 USD per barrel toward the end of last year, with price volatility risk management, IRPC was able to reduce impact from stock loss by 1,700 million Baht.

IRPC clearly defines its business direction through Delta project, which improves efficiency in IRPC's operations. The project emphasizes on 3 aspects critical to the business growth namely Operational Excellence, Commercial Excellence, and Human Resource Excellence. In 2015, IRPC will also focus on improving the procurement process to be more efficient.

**Operational Excellence:** IRPC focuses on improving overall production efficiency to reduce production costs, while continuing to produce the same or better quality products and services. Meanwhile, IRPC also places importance on safety and environmental and social impact prevention.

**Commercial Excellence:** IRPC has adjusted commercial strategy to reinforce strength and increase competitiveness

in the global market and further improve knowledge by promoting research and development of environmentally friendly products such as the 1<sup>st</sup> in Thailand natural color packaging, etc. Eventually, the research and development of environmentally friendly products will enhance business growth by creating added value and new stable market base to the organization.

Key supporting element for strong business growth is employees. Therefore, Human Resource Excellence is of important mission for IRPC to improve and increase efficiency in all aspects of human resource management in order to enhance employees' capability to drive IRPC toward achieving its vision. In 2014, IRPC has carried out various tasks include organizational restructuring to align with business strategy, leadership development, and cultural development in accordance with the organization's vision, etc.

IRPC believes that communities around the industrial area are home. Therefore, Happy Rayong strategy has been implemented to prevent direct and indirect impacts from the operation to communities and to build foundation for a better living quality by focusing on safety, health, and economic development, community development, and environmental preservation as well as creating shared value. IRPC has carried out several programs in the past year include Srang Klong Srang Kon program, which betters the quality of living of communities by providing sources for water supply and reserve for agricultural purposes without raising conflicts between IRPC and communities.

IRPC adheres to UNGC: Advanced Level, which covers human rights, labor rights, environment, and anti-corruption, to maintain the operation in line with the business Code of Conduct and ethics.





IRPC's commitment to sustainable development in the past year has been reflected in being included in the Dow Jones Sustainability Index (DJSI): Emerging Market for Oil and Gas producer. Moreover, IRPC was ranked in Bronze class and recognized as the Industry Mover due to the most improved assessment score.

With the commitment to operate with environmental conscious, to create shared value, to adhere to the corporate governance principles, and to be transparent organization. I am strongly believe that IRPC will thrust forward to achieve its vision of becoming Top Quartile Petrochemical Complex in Asia and create well-balanced added value to all stakeholders and eventually become forever sustainable and excellent organization.

**IRPC truly believes that responsible operations in all aspects will build strong economic foundation and enable IRPC to become a leading Integrated Petrochemical Complex in Asia by 2020.**

**Sukrit Surabotsopon**  
President

# OUR BUSINESS





IRPC's business growth and stakeholder confidence are a reflection of an efficient management and concern for society and the environment.

**Vision**

Leading Integrated Petrochemical Complex in Asia by 2020

**Mission**

Refinery and petrochemical business are core businesses. Port services with full facilities as well as asset management to support core business operations and fulfill external demands by being committed to be an environmentally friendly business





Sales Revenue

**281,598**  
Million Baht



Increase of production

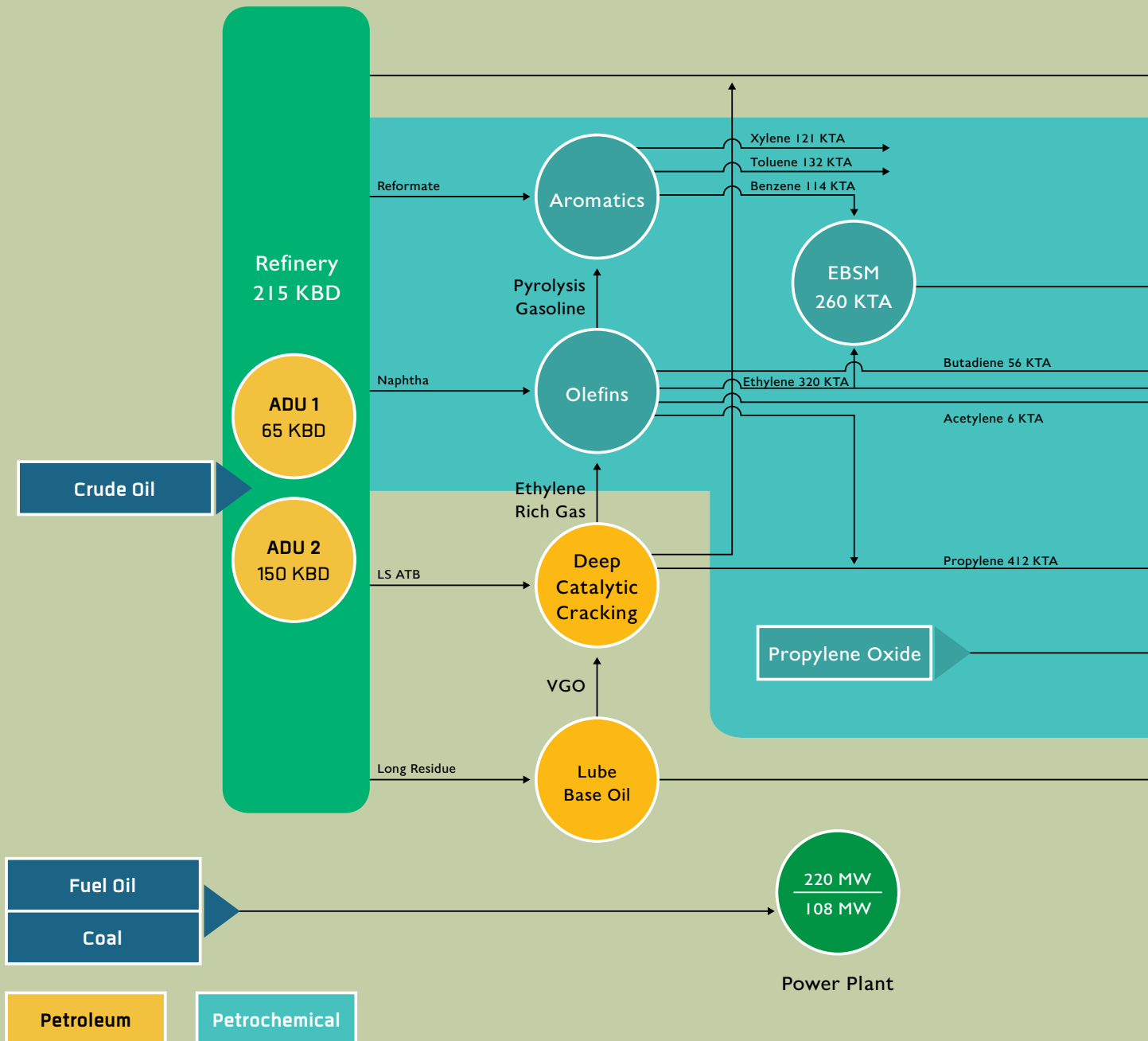
of specialty products of **35%**



Delta Project performance

**2,205** Million Baht

## Integrated Refinery and Petrochemical Complex Flow Chart







Refinery Capacity

Ranked **3<sup>th</sup>** in Refinery Capacity in Thailand



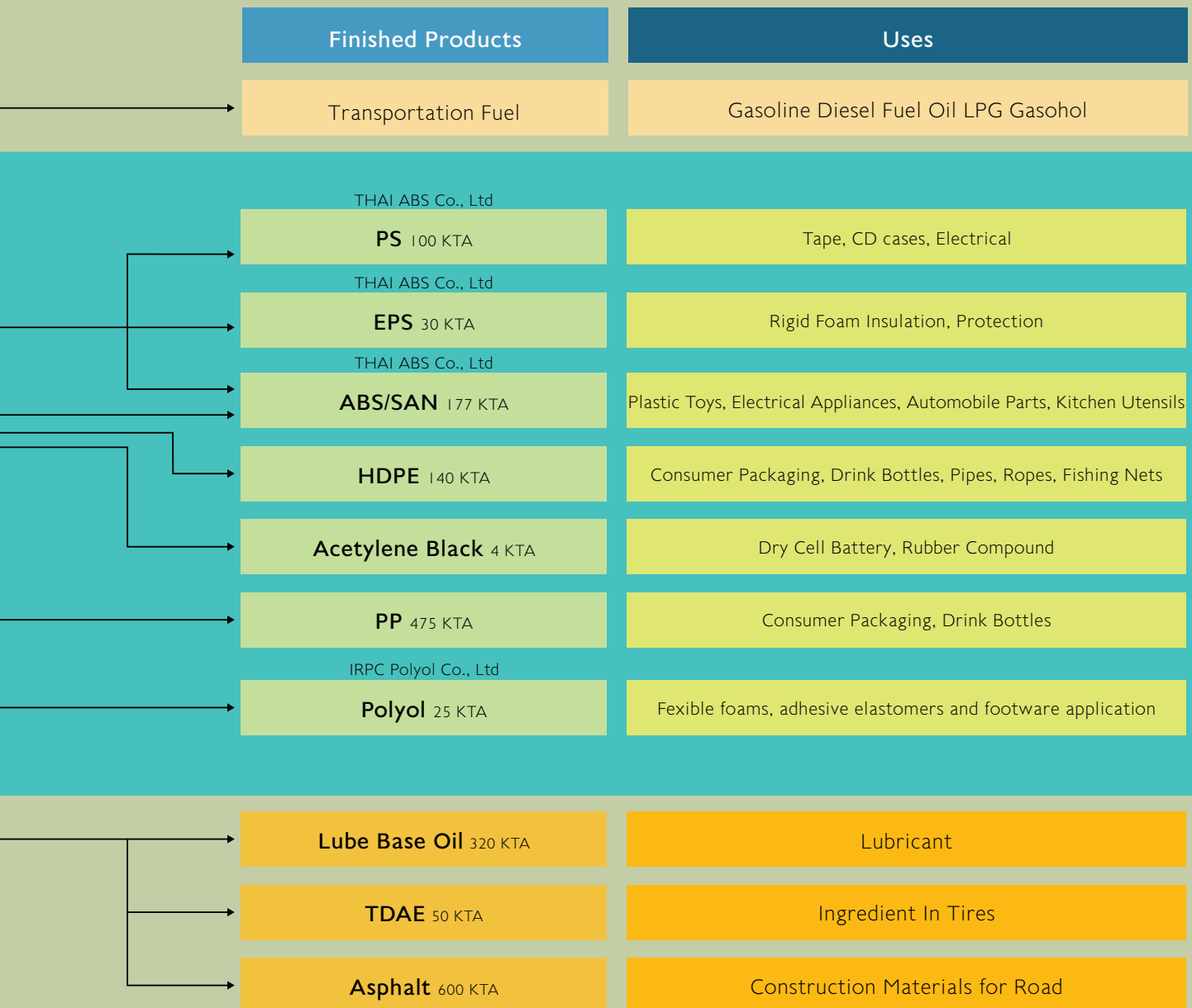
Total Employee

**5,267** persons



Social Contribution

**99** Million Baht





## IRPC's Businesses

IRPC Public Company Limited or "IRPC" has been operating in Thailand since 1978, transformed to a public company limited on the 10<sup>th</sup> of October 1994, and became listed in the stock market of Thailand on the 17<sup>th</sup> of March 1995. Currently, IRPC is the first integrated petrochemical company in Asia with its operational headquarter located in Rayong, which is an industrial area under IRPC's

management equipped with basic infrastructures, including deep sea port, tank farms, and power plants.

IRPC's operations comprise of four core businesses, including petroleum business, petrochemical business, port and tank business, and asset management business.



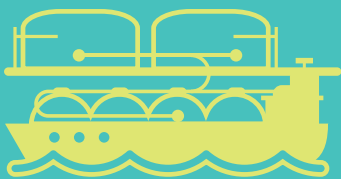
### Petroleum Business

IRPC's Refinery has a total capacity of 215,000 barrels per day, which is ranked 3<sup>rd</sup> in Thailand. In addition, IRPC's lube base production plant with a capacity of 320,000 tonnes per year highest capacity in the country and Asphalt production plant with the capacity of 600,000 tonnes per year.



### Petrochemical Business

Upstream petrochemical products include Olefins and Aromatic, with 828,000 and 367,000 tonnes in capacity per year respectively, are used as feeds for the intermediate products include Polyolefins, 615,000 tonnes per year, Styrenics, 307,000 tonnes per year, which are sold to the plastic manufacturers.



### Port and Tank Business

IRPC's port is located in the same area as the refinery in Rayong. IRPC's port includes 1) Liquid and Chemical Terminal offering petrochemical, petroleum products and gas shipping services and can accommodate vessels sized 1,000-250,000 tonnes, 15 million tonnes of goods and 2,000 vessels are coming through every year, 2) Bulk and Container Terminal offering bulk products shipping services and can accommodate vessel with a size of 800-150,000 tonnes. 1.4 million tonnes of goods are coming through the port each year.

IRPC offers more than 200 tanks providing 2.7 million tonnes in storage capacity, to store petroleum and petrochemical products. In addition, IRPC has five depots including Rayong, Prapadeang, Ayutthaya, Chumphon, and Mae-Klong depots.



### Asset Management Business

Asset management business unit manages and administers 16,000,000 square meters of IRPC's land in Rayong and other provinces under the brand "RECO". RECO objective and commitment is to develop these lands into an industrial estate and industrial zone that is environmentally friendly to support IRPC's businesses and those of PTT group as well as external industry operators.



**END**  
STRATEGIC  
OBJECTIVES

# Leading Integrated Petrochemical Complex In Asia by 2020

4

Capacity & Products  
Expansion

3

Product & Service  
Improvement

2

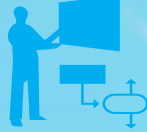
Asset Utilization  
Enhancement

1

Operational Efficiency  
Improvement

**WAY**  
INITIATIVES

Operational Excellence



Performance  
Planning & Monitoring

Commercial Excellence



Superb Products  
Portfolio Management

HR Excellence



Business Structure  
& Work Process

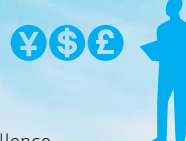
**MEAN**  
CRITICAL  
SUCCESS  
FACTORS

R & D Excellence



Technology  
Driven Growth

CAPEX Excellence



Excellence  
Capital Discipline



Leadership  
& Culture





## Business Strategy

In order to achieve the company vision, IRPC has an operational strategy focusing on the efficiency improvement project to reduce costs and increase production efficiency in order to achieve mutual benefits between IRPC and its stakeholders. IRPC has carried out as follows

### DELTA Project

The project is designed to increase efficiency of work processes and human capabilities as well as to identify ways to increase profit, maximize benefits to the organization, employees and stakeholders. The project of becoming excellent includes following aspects.

1. **Operational Excellence:** Improve, develop the production process and increase operational efficiency in effort to reduce costs.
2. **Commercial Excellence:** Adapt sales strategy and implement pricing tools.
3. **Procurement Excellence:** Improve procurement process in IRPC and PTT Group to focus on more efficient procurement processes.
4. **HR Excellence:** Improve and develop efficiency in HR management

### UHV Project

Upstream Project for Hygiene & Value Added Products (UHV) aims at the reconditioning of heavy oil from a low value to high value product and to be able to be used as feeds for petrochemical products. The project started in October 2014 and is expected to finish construction and begin commissioning in the 4<sup>th</sup> quarter of 2015.

### Polypropylene Expansion Project

Consists of two parts, 1) Polypropylene production line improvement project focus on investment in machinery and equipment, which will increase production capacity by 160,000 tonnes, resulting in an increase of a total capacity of 635,000 tonnes per year, 2) Polypropylene compound and special grade expansion project with a 140,000 tonnes production capacity, is using highly efficient single step compound production technology from Japan to cut down production steps and reduce production costs.

IRPC is committed to improving and developing production process and the quality of products to serve customers' needs, be environmentally friendly, and generate higher margins. For example, the development of special graded polypropylene with specific properties, such as consistent molecular weight, high fibre strength, UV resistant, ABS powder that consists of more than 60% of polybutadiene and has high impact resistant, anti-dripping for polymers with properties to prevent dripping when ablaze, be stored in room temperature, which reduces storage and logistic costs.



# SUSTAINABILITY MANAGEMENT

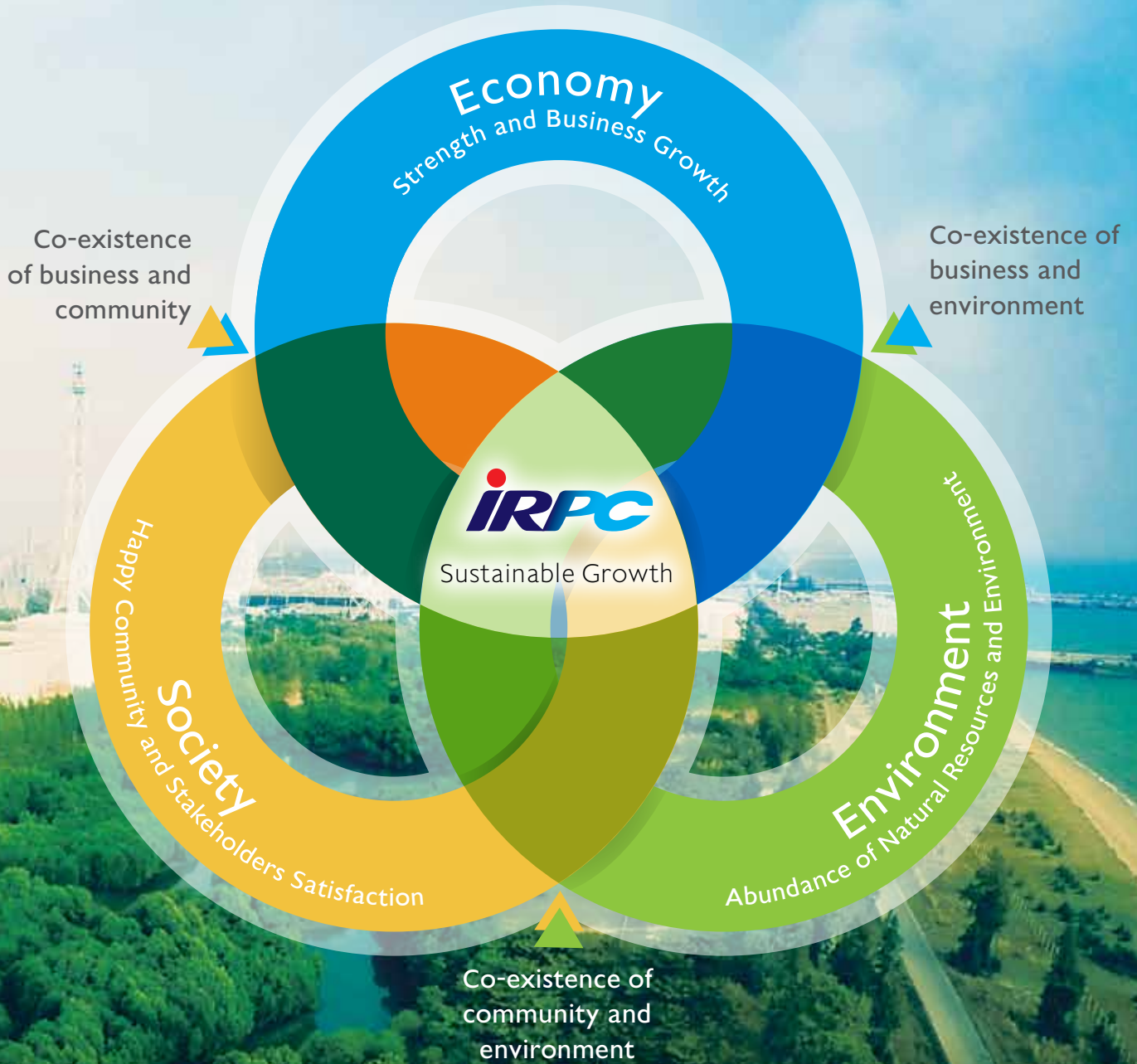
IRPC operates its business in a sustainable manner by developing business growth together with establishing good relationships with communities and preserving natural resources and the environment.

## Sustainability Management Approach

IRPC sustainable business philosophy aims to develop business growth, coupled with the preservation of natural resources and environments and to establish relationships and enhance living quality of the communities. In 2014, IRPC established a sustainability management office

to take responsibility for the company's sustainability management strategy that encompasses economic, social, and environmental aspects. IRPC's sustainability management policy has been prepared based on the environmental management policy, which was announced in 2009, to align with PTT Group sustainability management framework, sufficient economy framework, and other international standards. The policy drives each business





function to operate in line with the company's sustainability strategy to achieve the target of being "Excellence" according to the Operational Excellence Management System (OEMS). IRPC manages stakeholder engagement through stakeholder surveys; the stakeholder engagement process is integrated into the company's strategy. A sustainability information system has been developed to systematically store all related sustainability information, which is publicly

disclosed through the sustainability development report in line with GRI framework and Dow Jones Sustainability Indices (DJSI). IRPC communicates the sustainability policy and framework to embed sustainability and create a sustainable culture within the organization.

### Operational Excellence Management System: Sustainability Management Element



### PTT Group Sustainability Management Framework



IRPC has applied PTT Group Sustainability Management Framework to improve the operations in order to achieve targets and to share knowledge to employees in every level. Moreover, IRPC carries out self-assessment in accordance to the sustainability management framework every year. In 2014, IRPC has been assessed by the external party, in which the assessment results signified opportunities in improving the management process and in operating in line with the objective. Issues from the assessment were prioritized and used to lay out a corporate sustainability management plan, which is linked to the business plan. In order to achieve more concrete results, IRPC has set performance indicators and assign clear responsibilities to related functions as well as monitoring progress regularly to ensure improvement to meet its sustainability target

In 2014, IRPC participated in the Dow Jones Sustainability Index (DJSI) assessment for the 2nd year. As a result of the assessment, IRPC has been included as a member in the Emerging Market Index under Oil and Gas Industry, which is earlier than planned in 2020. Moreover, RobecoSAM has classified IRPC in Bronze class and also Industry Mover based on the most improved assessment score. IRPC has analyzed the assessment result and incorporated it into planning process to find opportunity to further improve the operations in the future.





IRPC has a sustainability policy and guideline that aligns with the PTT Group Sustainability Management Framework and the Operational Excellence Management System. The Sustainability Management element covers corporate governance, human rights, employees, environments, and stakeholders.

IRPC has set performance indicators including economic, social, and environmental aspects, through strategic planning processes. IRPC closely monitors the performance of both corporate and functional indicators on a regular basis through activities such as department meetings, line meetings, and management meetings. Results are reported to the board of directors. Additional assessment is conducted to ensure alignment with other regulations by internal function and external experts i.e. ISO standard, QSHE system and COSO OHSAS.

In 2014, corporate performance indicators for the economic aspect included EBITDA, Net Profit, and ROIC; social and environmental aspects included community satisfaction. Specific indicators for social and environmental aspects were set for line and department levels with related functions taking direct responsibility. In addition, there are indicators focusing on stakeholder satisfaction including customer satisfaction and employee engagement, internal controls, and organization growth through learning and research and development.

## KPI 2014

### FINANCIAL PERSPECTIVE

1. EBITDA
2. Net Profit
3. ROIC

### STAKEHOLDER PERSPECTIVE

4. Customer Satisfaction
5. Community Satisfaction
6. Employee Engagement

### INTERNAL PROCESS PERSPECTIVE

7. Margin Improvement
8. UHV Project Progression
9. Commercialization : Build & Sustain Land
  - 9.1 Land Sale
  - 9.1 Progression of Ban Khai Facilities
10. Total Recordable Injury Rate (TRIR)
11. OpEx
  - 11.1 Operational Availability
  - 11.2 Energy Intensity Index (EII)
12. Cash Cost (Selling + OPEX)

### LEARNING & GROWTH PERSPECTIVE

13. HR Excellence Program
14. IRPC Health Check: IHC
15. R&D Score

## About This Report



### Reporting Approach <sup>(G4-18)</sup>

This is the fourth IRPC's Sustainability Report which covers disclosure on policy, management approach, and performance of the company on economic, social, and environmental aspects from 1<sup>st</sup> January to 31<sup>st</sup> December 2014. This report was prepared in accordance with the fourth generation of sustainability reporting guideline by Global Reporting Initiative (GRI G4) at a core level with a focus on issues that are material to sustainability of the company and have direct and indirect impacts on stakeholders. In addition, IRPC also issues Communication on Progress (COP) report to disclose the progress of 21 principles in the United Nation Global Compact (UNGC) at the Advanced level on page 118-127 in this report.

### Quality Control and Credibility

This report has been reviewed for completeness of information by the Sustainability Management Office and confirmed by functional owners to ensure accuracy. Moreover, critical data on NO<sub>x</sub>, SO<sub>x</sub>, VOCs, GHG,

energy consumption, waste generation, Lost Time Injury Frequency, Occupational Illness Frequency Rate, were subject to third party verification in terms of data collection process, accuracy, and presentation of data in order to ensure that data is disclosed in the most accurate, transparent, and accountable manner. The assurance statement can be found on page 114-115.

### Scope of Reporting <sup>(G4-17, G4-18)</sup>

The boundary of this report covers ventured companies and subsidiaries under IRPC's four businesses; namely, petroleum, petrochemical, port and tank, and asset management business, where IRPC holds more than 50% shares. For more information regarding ventured companies, subsidiaries, and other business partners, please refer to IRPC Annual Report.





Company	Business Type	Relationship	Reporting Boundary
IRPC Public Company Limited	Petroleum, petrochemical, port and tank, and asset management business	-	■ ■
IRPC Oil	Petroleum	Subsidiary	■ ■
Thai ABS	Petrochemical	Subsidiary	■ ■
IRPC Polyol	Petrochemical	Subsidiary	■ ■

### Stakeholder Engagement <sup>(G4-24,G4-25, G4-26, G4-27)</sup>

Stakeholder expectations and interests are of importance to IRPC's sustainability management. They are also used as key points of reference in preparing this report and are integral to materiality assessment process. IRPC took all comments and suggestions from stakeholders into

considerations when conducting materiality assessment., IRPC's key stakeholders include shareholders/investors, customers/consumers, suppliers, lenders, employees, society, and the environment.

Stakeholder	Channel of Communication	Issues of Importance
Shareholders/Investors	<ul style="list-style-type: none"> <li>• Annual shareholder meeting</li> <li>• Road Show, Company Visit</li> <li>• Analyst Meeting</li> <li>• Joint activities with the Stock Exchange of Thailand to disclose information</li> <li>• Public Conference</li> <li>• Quarterly journal to shareholders</li> <li>• Plant Visits</li> </ul>	<ul style="list-style-type: none"> <li>• Good and continuous return on investment</li> <li>• Sufficient disclosure of information</li> <li>• Transparency in corporate governance</li> <li>• Legal issue and business impact</li> <li>• New market</li> </ul>
Customers/Consumers	<ul style="list-style-type: none"> <li>• Annual customer survey</li> <li>• Customer relation function</li> <li>• <a href="http://www.irpc.co.th/www.irpcmarket.com">www.irpc.co.th/www.irpcmarket.com</a></li> </ul>	<ul style="list-style-type: none"> <li>• High quality products which reflect customer needs</li> </ul>
Suppliers	<ul style="list-style-type: none"> <li>• Newsletter</li> <li>• Meeting</li> <li>• <a href="http://www.irpc.co.th/pdf/Procurement-Manual.pdf">http://www.irpc.co.th/pdf/Procurement-Manual.pdf</a></li> </ul>	<ul style="list-style-type: none"> <li>• Fair compensation</li> <li>• Transparent procurement process</li> <li>• Sustainable procurement guideline</li> <li>• Transparency in corporate governance</li> <li>• Compliance to agreed terms and conditions</li> <li>• Legal issue and business impact</li> <li>• Business interruption</li> </ul>
Competitors	<ul style="list-style-type: none"> <li>• Meeting with third party organization, such as the Federation of Thai Industries, Thai Plastic Industries Association, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Conducting business in a fair and competitive manner, Not discrediting competitors through false allegation</li> </ul>
Lender	<ul style="list-style-type: none"> <li>• Letters</li> <li>• Meeting</li> </ul>	<ul style="list-style-type: none"> <li>• Sufficient disclosure of information</li> <li>• Transparency in corporate governance</li> <li>• Legal issues and business impact</li> <li>• Complying with the agreed conditions</li> <li>• Advanced notification when being unable to comply with the obligations and cooperatively find solutions</li> </ul>
Employees	<ul style="list-style-type: none"> <li>• Employee journal "I-Oon"</li> <li>• E-newsletter</li> <li>• Executives-employees meeting</li> <li>• Employee committee</li> <li>• Labor union</li> </ul>	<ul style="list-style-type: none"> <li>• Communication of business direction and financial performance</li> <li>• Labor relations promotion</li> <li>• Appropriate compensation and benefits</li> <li>• Career path development</li> <li>• Attention to health and safety</li> </ul>
Society and environment	<ul style="list-style-type: none"> <li>• Community relation activities</li> <li>• Meetings on the study of Social and environmental impact</li> <li>• Open house</li> <li>• Communication through SMS</li> <li>• Communication through broadcasting tower</li> <li>• Communication through mobile broadcasting vehicle</li> <li>• Communication through local radio</li> <li>• Local media</li> <li>• Multilateral meeting (EIA Monitoring)</li> <li>• Sub-district/village meeting</li> </ul>	<ul style="list-style-type: none"> <li>• Attention to society, environment, and health of people in the surrounding communities</li> <li>• Local economic development</li> </ul>





## Materiality Assessment <sup>(G4-18)</sup>

IRPC conducted materiality assessment session based on GRI Reporting Principles for Defining Report Content, assessing issues that can critically affect IRPC on the financial, environmental, and social aspect and taking into account stakeholders' comments and suggestions.

The assessment process consists of 3 steps as followed:

### 1. Identifying relevant issues

- Identifying issues that are relevant to IRPC's operations and stakeholders by considering aspects from GRI and taking into account the corporate risk, business strategy and sustainability framework
- Defining impact boundary to IRPC and stakeholders, whether it is within or outside the organization
- Defining stakeholders for each materiality

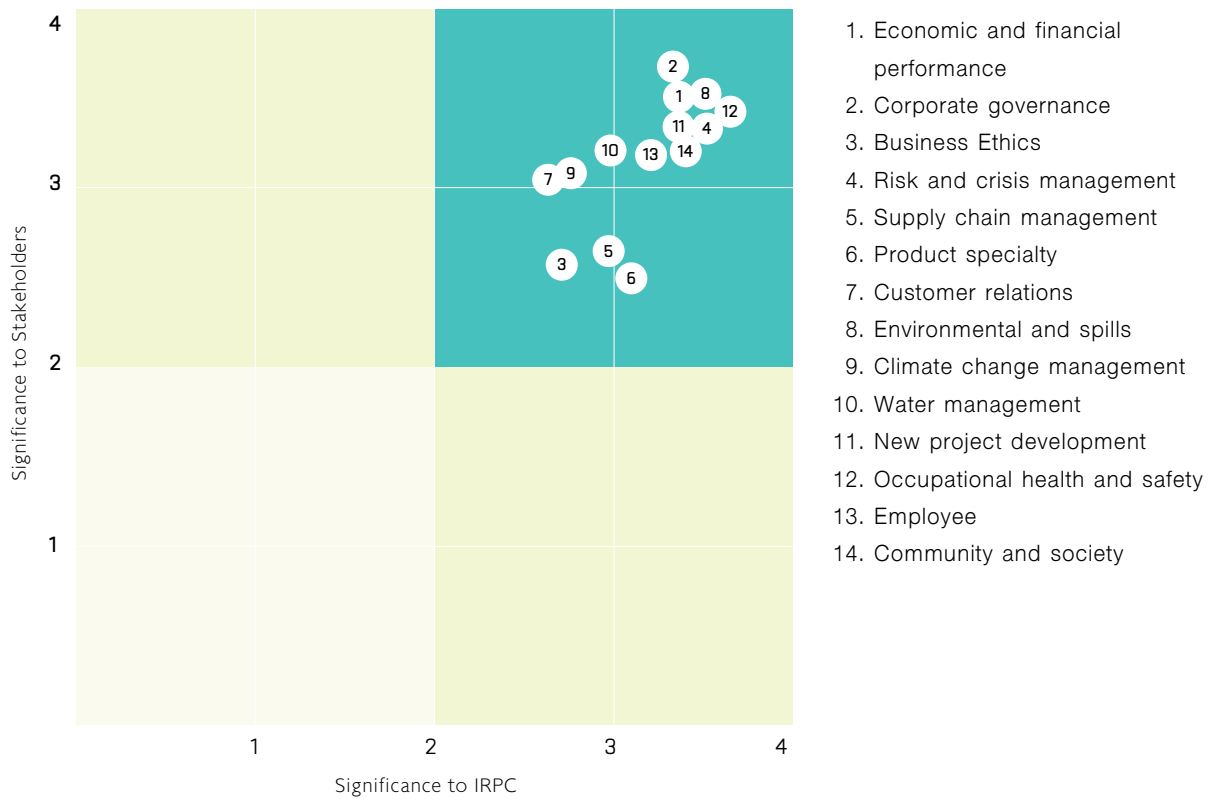
### 2. Prioritizing material issues

- Prioritizing impact based on the organization's risk assessment criteria
- Prioritizing stakeholders' interests in each material issue based on GRI criteria, DJSI score and international reporting trends as well as comments and suggestions from stakeholders that had been collected throughout the year.
- Prioritizing level of importance of each material issue by considering risk and opportunity and influence on stakeholders

### 3. Validating material issues

- Collecting and reviewing material issues from each function
- Reviewing and validating each material issue to ensure completeness, balance, and coverage

IRPC’s materiality Assessment Result (G4-19)



IRPC’s material issues and report boundary (G4-19, G4-20, G4-21)

Rank	Material Issues	GRI Aspects	Relevant Stakeholders	Report Boundary	Report Topic
1	Economic and financial performance	Economic Performance	Shareholders/ Investors	Operational control	<ul style="list-style-type: none"> <li>• Our Business</li> <li>• Risk Management</li> <li>• Climate Change Management and Adaptation</li> <li>• Performance Summary</li> </ul>
2	Corporate Governance	-	Shareholders/ Investors	Operational control, Contractors, Suppliers	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> </ul>
3	Business Ethics	Anti-corruption, Compliance	Suppliers, Customers, Employees	Operational control, Contractors, Suppliers, Consumers	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> </ul>
4	Risk and Crisis Management	-	Suppliers, Employees	Operational control, Contractors, Suppliers, Employees	<ul style="list-style-type: none"> <li>• Risk Management</li> <li>• Climate Change Management and Adaptation</li> </ul>

Rank	Material Issues	GRI Aspects	Relevant Stakeholders	Report Boundary	Report Topic
5	Supply Chain Management	Supplier Environmental Assessment, Supplier Assessment for Labor Practices, Supplier Human Rights Assessment, Supplier Assessment for Impacts on Society	Suppliers	Operational control, Suppliers, Consumers	<ul style="list-style-type: none"> <li>Supply Chain management</li> </ul>
6	Product specialty	Products and Services	Customers	Operational control, Consumers	<ul style="list-style-type: none"> <li>Products and Innovation</li> </ul>
7	Customer Relations	Product and Service Labelling	Customers	Operational control, Consumers	<ul style="list-style-type: none"> <li>Customer Relation Management</li> </ul>
8	Environmental Management and Spills	Energy, Emission, Water, Effluents and Waste	Society and Environment	Operational control, Contractors, Suppliers, Consumers	<ul style="list-style-type: none"> <li>Environmental Management</li> <li>Climate Change Management</li> <li>Water Management</li> <li>Waste Management</li> <li>Oil and Chemical Spill</li> <li>Performance Summary</li> </ul>
9	Climate Change Management	Economic Performance, Energy, Emission	Suppliers, Customers, Employees, Society and Environment	Operational control, Contractors, Suppliers, Consumers	<ul style="list-style-type: none"> <li>Climate Change Management and Adaptation</li> <li>Performance Summary</li> </ul>
10	Water Management	Water	Society and Environment	Operational control	<ul style="list-style-type: none"> <li>Environmental Management</li> <li>Water Management</li> <li>Performance Summary</li> </ul>
11	New Project Development	Environmental Compliance, Local Community	Society and Environment	Operational control	<ul style="list-style-type: none"> <li>New Project Development</li> </ul>
12	Occupational Health and Safety	Occupational Health and Safety	Suppliers, Employees	Operational control, Contractors	<ul style="list-style-type: none"> <li>Occupational Health and Safety Management</li> <li>Performance Summary</li> </ul>
13	Employees	Employment, Training and Education, Labor Practices, Grievance Mechanisms	Employees	Operational control, Contractors	<ul style="list-style-type: none"> <li>Our Employees</li> <li>Performance Summary</li> </ul>
14	Community and Society Development	Local Communities, Grievance Mechanisms for Impacts on Society	Society and Environment	Operational control	<ul style="list-style-type: none"> <li>New Project Development</li> <li>Community Relation and Development</li> <li>Performance Summary</li> </ul>

### Channel of Communication

This report can be downloaded at: <http://www.irpc.co.th/library.php?typeID=18>

For more information inquiries: Sustainability Management Office

IRPC Public Company Limited  
555/2 Energy Complex Building B, 7<sup>th</sup> Floor  
Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900, Thailand

Tel: 66 (0) 2649-7000, 66 (0) 2649-7777

Fax: 66 (0) 2649-7001





# ECONOMIC

## DIMENSION

IRPC is ready to move toward becoming a leading Integrated Petrochemical Complex in Asia by implementing strategy for excellent operations in all aspects and emphasizing on innovation to improve and develop better products and services to meet customers' needs and future trends in order to enhance strength and achieve sustainable business growth.



# CORPORATE GOVERNANCE AND BUSINESS ETHICS

IRPC operates on a foundation of good corporate governance and excellent management that aim to create maximum benefits for all stakeholders and to operate with business ethics, transparency, and be auditable.





## Management Approach

IRPC has in place, a policy that integrates environmental, social, and governance (ESG) aspects into business strategies to ensure sustainable operation.

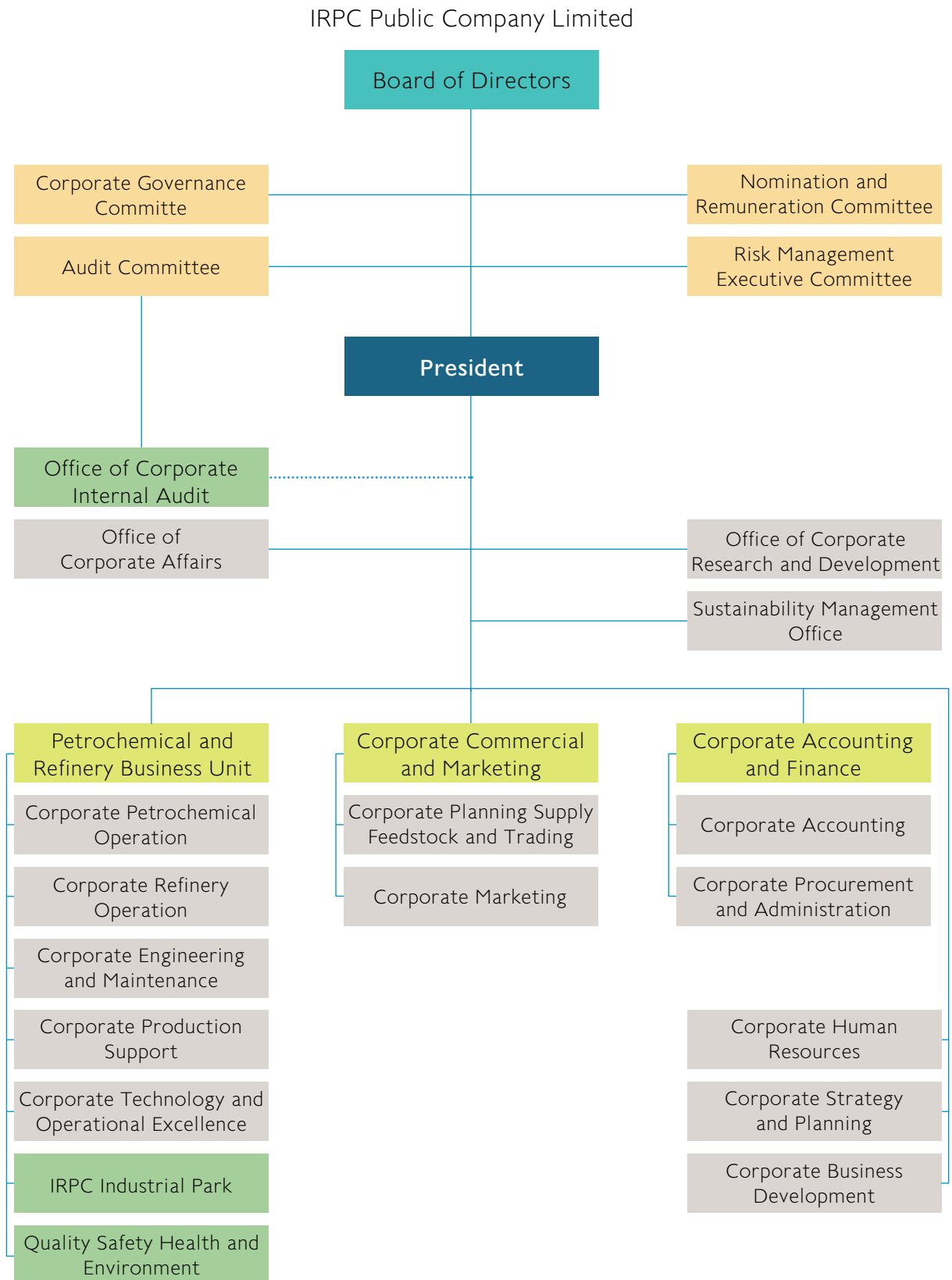
## Corporate Governance

IRPC has a corporate governance policy and corporate governance handbook for the board of directors, executives, employees, and subsidiaries to adhere to. The working guidelines cover qualification and nomination of the board,

independency of the board, roles and responsibilities of the board, nomination of the board for specific matters, board meetings, assessment of the board, remuneration of the boards and CEO, succession plan for all vital positions, ethics of the board, executives and employees, transparency of disclosed information, audit and internal control, risk management, anti-corruption, grievance and complaint, rights and equitability of shareholders, and responsibility to stakeholders.



## Organization Structure



## Communication Channels for Investors and shareholders to make enquiries or requests

Investor Relation	Tel :	0 2649 7380
	E-Mail:	ir@irpc.co.th
	Fax :	0 2649 7379
Company's Secretary	E-mail:	cg@irpc.co.th
	Website:	www.irpc.co.th

## Board's Composition

IRPC's board structure consists of the board committee and 4 sub-committees with explicit responsibilities to ensure board's efficiency to oversee the business operation in accordance with the shareholders' policy and the company's vision and mission as transparently as possible. As of the 31<sup>st</sup> of December 2014, the board of directors consisted of 15 members, seven of which were independent directors, meanwhile, one director was an executive, IRPC's CEO. The chairman of the board is neither executive nor the same person as the CEO. The nomination of the boards will take into consideration qualifications and experiences of each individual to promote diversification in the board composition in order to ensure that the board has a complete view and maximum efficiency when making decisions in accordance with corporate governance principals.

The board of directors appointed four sub-committees including the audit committee, nomination and remuneration committee, corporate governance committee, and risk management committee (appointed in 2014) to assist in setting directions, analyzing tasks, and giving suggestions to the board of directors.

## Board's Roles and Responsibilities

The board of directors is responsible for setting the strategy, vision, business directions, and managing risks through strategic thinking session (STS). In the STS directions and strategies for the business are set and endorsed upon the five year business plan, operation plan, and annual budget plan. Auditing processes are established to monitor and solve any issues in a timely manner by setting up meetings with legal throughout the year. Additional meetings can be called upon whenever necessary. The board of directors is responsible for distinctly setting up corporate indicators, targets, and performance measures beforehand as well as establishing a remuneration policy for the CEO and employees.

In addition, the board of directors shows responsibilities towards shareholders by caring for the fundamental rights of shareholders, treating all shareholders equally, and creating added value that is sustainable in order to maximize long term benefits for shareholders.

The board of directors is an example of working with integrity and ethics, transparency, auditability, and commitment for improvement by attending seminars, field studies, and idea exchanging sessions.



## Businesses' Code of Conduct

IRPC has prepared a Business Code of Conduct by stipulating best practices for all matters related to good corporate governance for directors, executives, and all employees including anti-corruption policy and resolution for conflict of interests. The context covers human rights and practices towards employees, society, environment, health and safety, anti-corruption, and legal compliance as well as practices towards all stakeholders. IRPC propagates

the Business Code of Conduct by including it into the new employee induction courses. All newly recruits must acknowledge and agree to comply with IRPC's Code of Conduct.

IRPC provides different channels for complaints, protection for complaints and witnesses. IRPC has a clearly defined, equitable, and transparent investigation process in place. All complaints and suggestions can be submitted via e-mail, website, P.O. Box 35 and telephone.

**IRPC provides channels for complaints and grievances. Both internal and external stakeholders can directly communicate with the chairman of the audit committee and corporate governance committee through the following channels**

<b>Tel:</b>	02 649-7000
<b>Website:</b>	<a href="http://www.irpc.co.th/cg_contact.php">http://www.irpc.co.th/cg_contact.php</a>
<b>E-mail:</b>	<a href="mailto:auditor@irpc.co.th">auditor@irpc.co.th</a>
<b>P.O. Box:</b>	P.O. Box 35, Sun tower Building, Bangkok 10950, Thailand (Officially Launched in 2014)
<b>For more information on Corporate Governance, please go to:</b>	<a href="http://www.irpc.co.th/cg_policy.php">http://www.irpc.co.th/cg_policy.php</a>
<b>For more information on Code of Conduct, please go to:</b>	<a href="http://www.irpc.co.th/imgadmins/download_file/Code_of_Conduct.pdf">http://www.irpc.co.th/imgadmins/download_file/Code_of_Conduct.pdf</a>
<b>For more details on the board of directors, please go to:</b>	<a href="http://www.irpc.co.th/about_board.php">http://www.irpc.co.th/about_board.php</a>



## Performance Targets

- Become certified as a registered alliance member of Thailand private practice for anti-corruption
- Receive 5 symbols of the National CG Committee from Corporate Governance Report (CGR) by The Thai Institute of Director (IOD)
- Ensure that all employees receive training for the Business Code of Conduct including anti-corruption and the promotion of human rights
- Assess Business Code of Conduct by the internal audit department
- Elevate corporate governance practice to the international standard according to the regulations of ASEAN CG Scorecard.

## Performance

### Board's Assessments

IRPC assesses the performance of the board of directors and sub-committees at least once a year as regulated by the IRPC's CG Manual. The assessments consist of 1) Committee Performance Assessment, 2) Self-Assessment, 3) Cross Performance Assessment, and 4) Sub-Committee Performance Assessment. (Assessment criteria and results can be found in 2014 Annual Report Page 301)

The 2014 assessment results can be summarized as followed:

IRPC was assessed in terms of corporate governance by the external assessor and graded "Excellence" for the 6<sup>th</sup> consecutive year (2009-2014). As a result, IRPC was presented with the 5 symbols of the National CG Committee.

IRPC received several international awards, which reflect excellence in corporate governance. Awards included Golden Peacock Award in 2012 and 2014 awarded by the Institute of Directors, India, and Corporate Governance Asia Recognition Awards 2014: class of Outstanding Companies on Corporate Governance, and Company Secretary Award by the Corporate Governance Asia, Hong Kong

### Businesses' Code of Conduct

IRPC provides training and communication for all employees regarding corporate governance and the Business Code of Conduct throughout the year via e-mail, company's intranet as well as articles in the quarterly staff magazine "I-Oon". In collaboration with the human resource department, anti-corruption and human rights training is organized for employees. In 2014, there was no incident violating the company's Code of Conduct. IRPC was certified as an alliance member of Collective Action Coalition Against Corruption (CAC) by the Anti-Corruption Organization of Thailand on the 4<sup>th</sup> April 2014.

Performance Indicators				
	2012	2013	2014	2014 Target
Business Functions received Internal Audit (%)	100	100	100	100
Employees received Anti-Corruption Training (Person)	-	-	400	300 - 320
ASEAN CG Scorecard <sup>(1)</sup> (Score)	-	-	≥90	≥90
Corporate Governance Report: CGR (Symbols)	5	5	5	5

#### Remark

<sup>(1)</sup> IOD started to implement ASEAN CG Scorecard's criteria in 2014

# RISK MANAGEMENT

IRPC has, in place, an excellent risk management process, implemented throughout the organization, to prevent and reduce any business impact as effectively as possible





## Management Approach

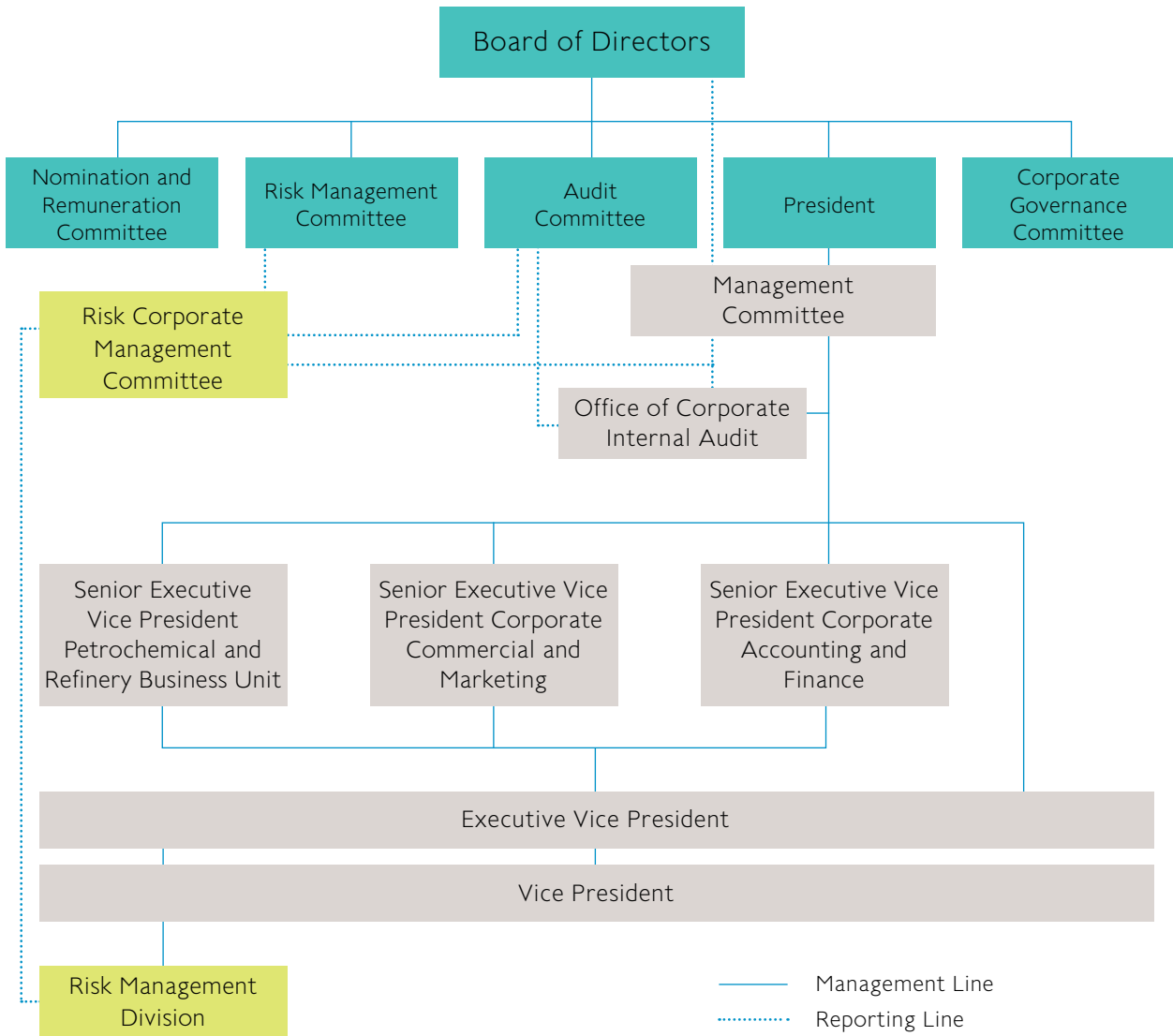
IRPC implemented the enterprise risk management using the frameworks of The Committee of Sponsoring Organizations of the Treadway Commission (COSO) and ISO 31000-Risk Management-Principles and Guideline and created a risk management policy for employees at all levels to adhere to and practice. IRPC's Corporate Risk Management Division is responsible for analyzing, monitoring, and reporting the results of risk management on a quarterly basis to the Enterprise Risk Management Committee, which is chaired by the CEO. The committee's responsibility is to regulate all operations and ensure alignment with the risk management policy. In addition, IRPC had prepared the "Enterprise Risk Management Manual" and disseminated to all functions for reference when managing their own function risk to ensure they achieve their objectives and to have an organization-wide standard.

IRPC manages risks that may have been caused by both internal and external factors covering economic, social, and environmental aspects. Several risk management tools have been implemented such as risk management matrix to prioritize risks and to assist management in their decision process for allocating resources to managing those risks, risk correlation for assessing risks, value at risk, and risk register to lay out a step-by-step plan for more efficient risk management, etc.

IRPC has implemented a Business Continuity Management System (BCMS) ISO 22301:2012 to prevent and reduce impacts caused by any business interruptions as well as to protect stakeholders' benefit, reputation, corporate image, and any value added activities.



## Enterprise Risk Management Structure



## Performance Targets

- Increase number of risk register from business functions from 15% in 2014 to more than 70% in 2016
- Develop an online system for risk management registration and information storage in 2015

## Performance

IRPC comprehensively manages economic, social, and environmental risks. In 2014, IRPC has achieved its risk management target by successfully managing to reduce impact of those critical risks as followed:

- **Economic Risk:** reduced impact from price volatility risk using hedging; reduced risk level for electrical failure risk by implementing a power management system.
- **Environmental Risk:** reduced risk level for oil spill risk by implementing more rigid oil transferring practice and regularly inspecting safety equipment as well as simulating oil spill response exercise with allies on an annual basis; reduced risk level for environmental management in terms of reducing VOCs emission.
- **Social Risk:** reduced risk level for community acceptance risk by establishing field coordinating center to directly receive complaints from the communities in order to response in a timely manner; IRPC also carried out several social initiatives.

To manage risks with low likelihood, yet should it happen would cause severe impact to the business including fires, protests and workplace under siege, and any natural disaster, etc. IRPC has implemented a Business Continuity Plan (BCP) consisting of an Emergency and Crisis Management Plan, Work Area Recovery Plan, Emergency and Crisis Communication Plan, Human Resource Plan, and Business Process Recovery Plan.

In 2014, two events were considered emergency and crisis cases, which significantly impacted the business, namely the political protest and IRPC's Bangkok office was under sieged, and the explosion and the Vacuum Gasoil Hydrotreating Unit. However, with BCP in place, IRPC managed to reduce impacts caused by those events in an effective manner.

## Events in 2014

### Political Protest and the besieging of IRPC's Bangkok office

In the political turmoil, between January and May 2014, protestors and demonstrators besieged the Energy Complex Building, IRPC's headquarter. As a result, all employees were unable to enter the building, and consequently, IRPC had to exercise the Business Continuity Plan by relocating to the Disaster Recovery site (DR site) to accommodate up to 300 employees or 50% of effected employees. This was sufficient to continue operating all critical business processes during the five months. Employees in support functions were allowed to work from home and could communicate with other working sites through the company Virtual Private Network (VPN), which helped ensure smooth communication and operation. Due to BCP, sales and services were achieved as planned and no significant interruption of the business was seen. All employees were allowed back in the premises in May 2014 after the protest terminated.

### Explosion at Vacuum Gasoil Hydrotreating Unit

On the 9<sup>th</sup> of June 2014, The Vacuum Gasoil Hydrotreating Unit (VGOHT) exploded. The unit was a partial process of the refinery unit to remove sulfur in gas oil before feed to the propylene production unit. During the incident, IRPC declared emergency and exercised the Business Continuity Plan (BCP) in a timely manner. IRPC was able to control the fires within one hour and later lifted the BCP. Following the incident, IRPC put efforts into communicating, elucidating affected stakeholders, including communities in the area, government agencies, shareholders, media, customers, and employees. As a result of implementing BCP, IRPC managed to reduce impact of machinery damage, recorded no fatality or severe injury, sales were thinly affected, and thanks to efficient communication, the communities understood the situation without being distressed. Currently, the VGOHT unit is being under reconstruction to return to normal operation.



# PRODUCT AND INNOVATION



IRPC encourages the development of environmentally friendly product and process and the increase of product efficiency in order to penetrate new markets and create customer confidence. In addition, IRPC has policy to develop new products from existing process and to support innovative process to reduce production costs.

## Management Approach

### Product Development

IRPC's 2015 product development strategy aims to improve competitiveness of new products. The four aspects of the operational guidelines include:

- Existing Product Margin Enhancement focusing on increasing product value by penetrating new market of higher-quality specialty product ; managing costs to increase competitive advantages; responding to customer's needs as well as expanding to new potential markets
- First-To-Market and Novelty Products Development focusing on developing new technologies or new products
- Build and Benefit from Intellectual Property
- Create Innovative Culture and Resource Development

### Innovation

IRPC has innovation management process to screen, manage, and utilize research that has potential to be commercially developed.

IRPC's innovation management process supports the development of products that differ from the existing products, for example, plastic for 3D printer. The management process also promotes research that has commercial benefits. IRPC's research and development office has been working closely with marketing, business development, and operation functions in order to increase research capability through the promotion of collaborations among research institutes, universities, and private companies both in Thailand and oversea. Moreover, IRPC has policy to develop products that are environmentally friendly.





## Performance Targets

- Increase sales ratio of specialty products and high margin products to total petrochemical products to 40-60 within 2018
- Increase incremental contribution margin to 10 USD per tonne per year
- Increase gross profit of new products to 250 million Baht per year
- Increase R&D score which measure the success of research and development to more than 295 in 2014

## Performance

### Product Development

In 2014, IRPC allocated 123 million Baht to research and development budget. There were 76 employees in research and development office with 160 product development research projects, 17 of which can be commercially developed. Among these projects, one process, known as the Composting Including Polyetrafluorethylene and Process for Preparation Thereof, has been patented in the United States on the 1<sup>st</sup> of April 2014. The patent number was US 8,686,066. The process is to develop Anti-Dripping, which is an additive for polymers with

property to prevent dripping of the polymers when afire. This allows the polymer to better diffuse and can be stored at room temperature. It also helps reduce storage and transportation costs and is suitable to be added into several types of polymers that need fire retardant property according to the UL-94 (V.0) standard.

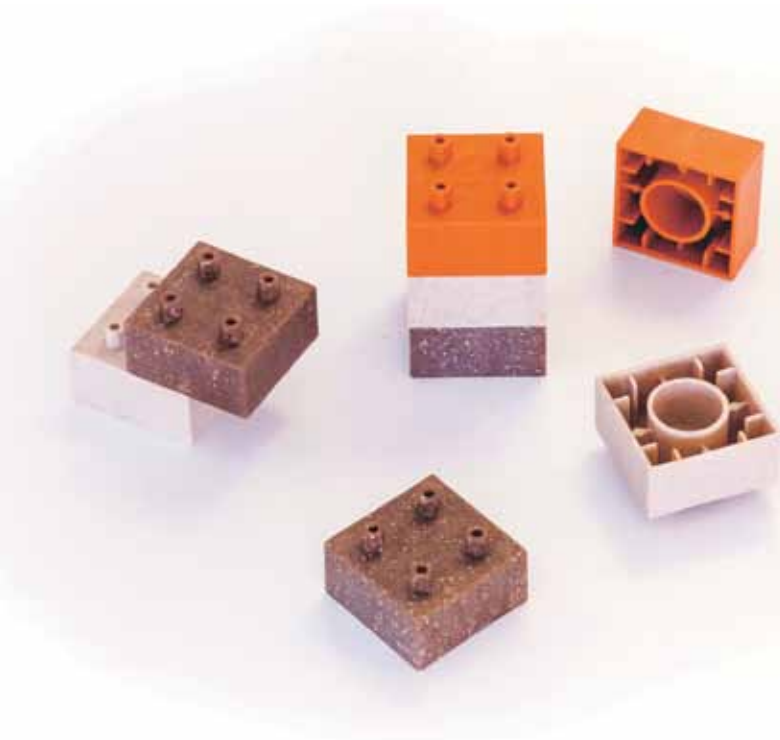
### Innovation

IRPC focuses on green product development such as low-carbon and organic products. This is supported by the promotion of research on hazardous chemical substitutes such as natural material and the development of specialty products to create commercial values.

### Natural Color Packaging

Natural color product is categorized as an environmentally friendly plastic. It is developed by mixing plastic with natural color extracts instead of synthetic colors. The method does not compromise physical property of the plastic and is under international quality control. There are three colors, which are green from spinach, red from shellac, tomatoes, or strawberries, and yellow from turmeric, bell peppers, or carrots. This product is an alternative to the growing number of health and safety conscious consumers in Thailand and abroad.





**Green Thermoplastic Vulcanizates**

Green Thermoplastic Vulcanizates (GTPVs) is derived from the processing of natural rubber and thermoplastic using dynamic vulcanization process to produce polymers with more suppleness and recyclable attributes. This product can respond to the needs of rubber material in several industries and promote the use of natural rubber instead of synthetic rubber. It also generates value to the nation's agricultural and industrial sectors.

**Natural Rubber Latex/Polyolefin Blend Film**

Thermoplastic Elastomer (TPE) is a rubber-plastic material whose property is improved by adding natural rubber instead of synthetic rubber. It can be molded using the same production process as that of normal thermoplastic. The modification improves elasticity property while still maintains other properties similar to those of the polyolefin plastic. TPE can be used to produce film with thermoplastic elastomer property.

Performance Indicators				
	2012	2013	2014	2014 Target
Sales of petrochemical products (Million Baht)	40,748	43,550	44,250	46,336
Sales of specialty products (Million Baht)	13,814	14,833	15,492	15,167-17,607
Sales ratio of specialty products to total petrochemical products (%)	33.9	34.1	35.0	35-38
R&D Score	301	372	365	295

# CUSTOMER RELATIONS MANAGEMENT

IRPC maintains and promotes relationships with its customers by being open to all suggestions to improve the quality of products and services to maximize customer satisfaction.

## Management Approach

IRPC places importance on customer satisfaction and strives to do its best to meet customer's needs. In 2014 IRPC conducted satisfaction surveys to find out about customer's needs, and to include the results into the development of new products and services. Moreover, the database system was developed to store detailed information of customers for IRPC to respond in a timely manner.

## Petroleum Business

To provide customers with high quality products and services in a convenient and efficient way IRPC has implemented an information technology system to facilitate buying and selling of products for domestic and overseas customers IRON (IRPC Oil on Net) software is used for online sales transactions, which includes e-Price Approval, e-Order, e-Delivery Order, e-Finance, and e-Document Tracking, via Mobile devices. IRIS (IRPC Relationship Information System) software is a dynamics CRM software that manages relationship with customers by taking customer database information and analysis that responds to address customers' needs, suggestions as well as complaints.

## Petrochemical Business

To ensure customer's needs of high quality products and services are met, the petrochemical business had developed "IDEAL" (IRPC Digital E-Commerce Account and Logistic System). IDEAL is a system that supports Business to Business (B2B) online transaction via Mobile devices, and "ICONS" (IRPC Customer Oriented Network System), which is a system that manages the customer information database and complaints, Every sales personnel has access to a clearly defined scope of customer care. The Pro-Export System (PES) manages outgoing electronic documents; the Fast and Accurate Real-time E-tracking system is linked with the website of port business and courier company to track status of the products shipped overseas. IRPC runs seminars to share knowledge and establish relationship between customers and employees about the products to target customers both domestic and overseas as well as all employees in petrochemical business.



## Port and Tank Business

Port and Tank business has developed “iPort” (Intelligence Port Service) to facilitate its port business’s customers and to provide an online service to customers wanting to make a wharf reservation at IRPC’s port to transfer goods. “iTank” (IRPC Intelligent Tank Service) provides services to customers requiring unloading and storing services at IRPC’s tank farm. These two systems serve all customers with convenience, promptness, efficiency, and accurate service. “iCrown” (IRPC Customer Relationship Oriented Wisdom Network) is a customer relationship management system to build good relation and maximize satisfaction of port and tank customers.

## Asset Management Business

Asset management business is a business unit that mainly handles and manages IRPC’s assets in the form of vacant land. CRM (Customer Relationship Management) system was implemented as a tool to store information including buying and selling of land in the industrial area. Currently, the system is being improved for better efficiency.





## Performance Target

- Customer Satisfaction score exceeds 88% in 2015

## Performance

In 2014, IRPC has conducted surveys to gather customer's suggestions and needs from all businesses, in which IRPC received an 89.15% of satisfaction score. The satisfaction score was derived from averaging scores from its core businesses, petroleum and petrochemical. IRPC also hosted several activities to establish good relationships with customers.

To better satisfy customers, IRPC's petrochemical business has taken on all suggestions to improve various aspects of the operations. This includes improvement of sales personnel's skills to have better knowledge and understanding of products by organizing trainings and visits to the production plants as well as providing them with additional customer business marketing information. For convenience and faster communication, a service line magnet with all necessary contact information was given to each and every customer.



As part of customer relationship management, the petrochemical business has hosted various activities, namely

- Seminar for newly launched products for overseas customers such as Turkey, India, Indonesia, and South Africa by collaborating with sales representatives from the respective countries.
- Customer visits to IRPC's Nano chemical plant, research center and product testing lab to showcase the company's capability.
- Presentation of product display boards in overseas product exhibition events, such as Chinaplas 2014 in Shanghai, China, Plast Eurasia 2014 in Istanbul, Turkey. This was seen as an opportunity to advertise the products and expand the customer bases.

Several customer relation activities were hosted by the petroleum, port and tank, and asset management businesses. Activities included visiting customers and their manufactories, sending e-news to customers, organizing IRPC's plant visit, and sport activities to strengthen the relationship with customers.





IRPC hosted “IRPC Business Forum 2014”, with the theme “Open the economic world adapted to the sustainable”, as a thank you to both petroleum and petrochemical customers. The event included keynote addresses from honorable experts to share new perspectives on Thailand’s macro and micro economic conditions, and to adopt guidelines in planning business directions in the future.

## Customer Complaint Management

IRPC has a customer complaint management system in place. The management system has several channels for customers to file complains. IRPC is committed respond within 24 hours to inquire for more detailed information. Functions relevant to each particular complain will be

contacted for root cause analysis, possible solution, and prevention plan. Customers are regularly informed of the progress. In 2014, IRPC recorded a total of 81 complaints from customers. There was no case of customer information leakage. Lessons learnt from the complaints will be applied for further improvement.

Performance Indicators				
Customer Satisfaction (%)	2012	2013	2014	2014 Target
Petroleum Business <sup>(1)</sup>	94.0	92.0	87.5	88.0
Petrochemical Business <sup>(1)</sup>	86.0	84.0	90.8	88.0
Port and Tank Business	81.0	86.6	87.6	88.0
Asset Management Business	-	-	77.0	80.0

### Remark

<sup>(1)</sup> 2014 Corporate KPI

# SUPPLY CHAIN MANAGEMENT

IRPC is committed to managing supply chain in ways that support quality of products and services and promote transparent and fair operations with consideration given to social and environmental impacts.



## Management Approach

IRPC emphasizes on supply chain management that covers environmental, social, and governance (ESG) aspects in order to ensure quality, quantity, and delivery of products and services. In 2014, IRPC has developed IRPC Sustainable Procurement Management Manual and IRPC Supplier Sustainable Code of Conduct, covering business ethics, human rights, environment, and health and safety aspects. Suppliers and employees are expected to comply with the Code of Conduct and other practices under related law and regulations.

### Supplier Selection

In order to select potential suppliers and develop long term partnership, IRPC uses an Approve Vendor List (AVL) to collect and store information of suppliers who pass

pre-qualification questionnaire. The questionnaire is a tool for supplier assessment in terms of production capacity, safety, health, and environment management approach, service readiness, and concordance to IRPC's Sustainable Supplier Code of Conduct.

### Supplier Risk Assessment

IRPC annually assesses risk of newly selected and critical suppliers taking into consideration environmental, social and governance (ESG) risk factors. The assessment is based on four criteria, which are spent analysis, ESG risk, supplier criticality, and mitigation measures. Moreover, IRPC has specific criteria when selecting hazardous chemicals suppliers.





## Supplier Sustainable Code of Conduct

IRPC is committed to fair operating practices and compliance with law as well as is dedicated to good corporate governance. The Supplier Sustainable Code of Conduct is the guideline for suppliers covering various issues such as business ethics, human rights, and safety, health and environment. It ensures the alignment with IRPC's practices which helps build good business partnership. At the same time, it ensures that the business operations do not cause harm to the environment and society.

## Supplier Management

Under the approved list, potential suppliers are categorized into Approved Contractor List (ACL) and Approved Vendor List (AVL). All suppliers must undergo environmental,

social, governance (ESG) risk assessment. Moreover, IRPC always assesses contractors' performance upon completion of all critical work. The contractors who do not pass the assessment must prepare Corrective Action Plan and submit to IRPC for approval prior to continuing the tasks. For vendors, the performance assessment is conducted once a year.

## Performance Targets

- Conduct risk assessment for all critical suppliers
- Number of accident per number of trips: 0.20 case per 1,000,000 KMs
- Meet on-time delivery target of 99.90%



### Spent Analysis

A comprehensive procurement spend analysis covering all suppliers with high spend value

### ESG Risk Assessment

Identify the organization's sustainability risk regarding environmental, social and governance aspects

### Supplier Criticality Assessment

Supplier classification based on risk level and impact to the operations, considering procurement spend, critical parts, Etc.

### Mitigation Measures

Prepare measures to prevent and mitigate impact that may occur from products and services provided by high risk suppliers



## Performance

### Risk and Performance Assessments

In 2014, 54 contractors and 228 vendors passed ESG risk and performance assessments. IRPC has additionally assessed 8 out of 12 critical suppliers, whereas the remaining 4 suppliers are companies under the PTT Group, which implement the same risk assessment criteria.

### Logistic Risk Management

With the commitment to achieving zero accident, increasing on-time delivery and maximizing customer satisfaction, IRPC organized a safe driving program for contractors, which covers vehicle health inspection and drug and alcohol tests for contracted drivers. In 2014, IRPC recorded

0.16 case of accident to 1,000,000 KMs, which was better than the target, and 99.75% of on time delivery from 99.90% target. In 2015, IRPC has set a communication plan with contractors in order to improve efficiency in the delivery.

### Local Procurement

In order to promote economic growth and generate income for communities in Rayong province, where IRPC's main operational area is located, local sourcing is a key factor which IRPC continues to support. Sourcing locally also helps reduce the production cost due to lower transportation cost.

Performance Indicators				
Local Procurement	2012	2013	2014	2014 Target
Procurement spend on purchased products and services from suppliers in Rayong (Million Baht)	2,539	1,594	2,096	1,600
Share of procurement spend in Rayong to total procurement spend (%)	19.86	16.22	15.84	16.33





# ENVIRONMENTAL

## DIMENSION

IRPC operates with care and responsibility having in place an environmental management system. IRPC focuses on improving and developing its production process and continues to monitor to minimize environmental impact to the communities







# ENVIRONMENTAL MANAGEMENT

IRPC is focused to continuously improving its environmental operation capability to achieve excellent process by implementing tools include ISO standard as well as the Operational Excellence Management System (OEMS) in order to become a sustainable business that realizes the importance of proper natural resource management and

promotes awareness to protect and maintain quality of the environment to all employees as well as to create balance between the industrial area, community, society, and the environment. IRPC has conducted environmental practice guideline as follows

## Pollution Prevention and Control Guideline

- Prevent pollution from its originated sources and control sources include water, air, waste caused by business activities using 3Rs (Reuse, Reduce, Recycle) strategy as well as continuously restore to create balance in the system

## Water Management Guideline

- Enhance efficiency in water management system by reutilizing water to achieve maximum benefit and create water conservation awareness

## Energy Conservation Guideline

- Promote engagement in the energy conservation, build awareness in the energy saving, and efficiently utilize resources to develop systematic and continuous energy conservation.



To mitigate environmental impact, IRPC continues to improve the production process and initiates several projects to drive the organization to achieve its environmental targets



### Social and Environmental Guideline

- Improve environmental management internally and externally with the communities to establish relationship between employees and the communities as well as to improve social quality by providing better living that is in line with the economic, social, and cultural development in the area, which leads to a sustainable co-existence.

IRPC has designated responsible functions and explicitly defined performance indicators for all aspects in order to achieve the environmental targets.



# WASTE MANAGEMENT

IRPC places emphases on the goal setting toward the waste management by reducing landfilled hazardous waste by 5% of total generated waste continuously starting from 2015 to 2020 by developing the production process efficiency and maximize resource utilization efficiency.

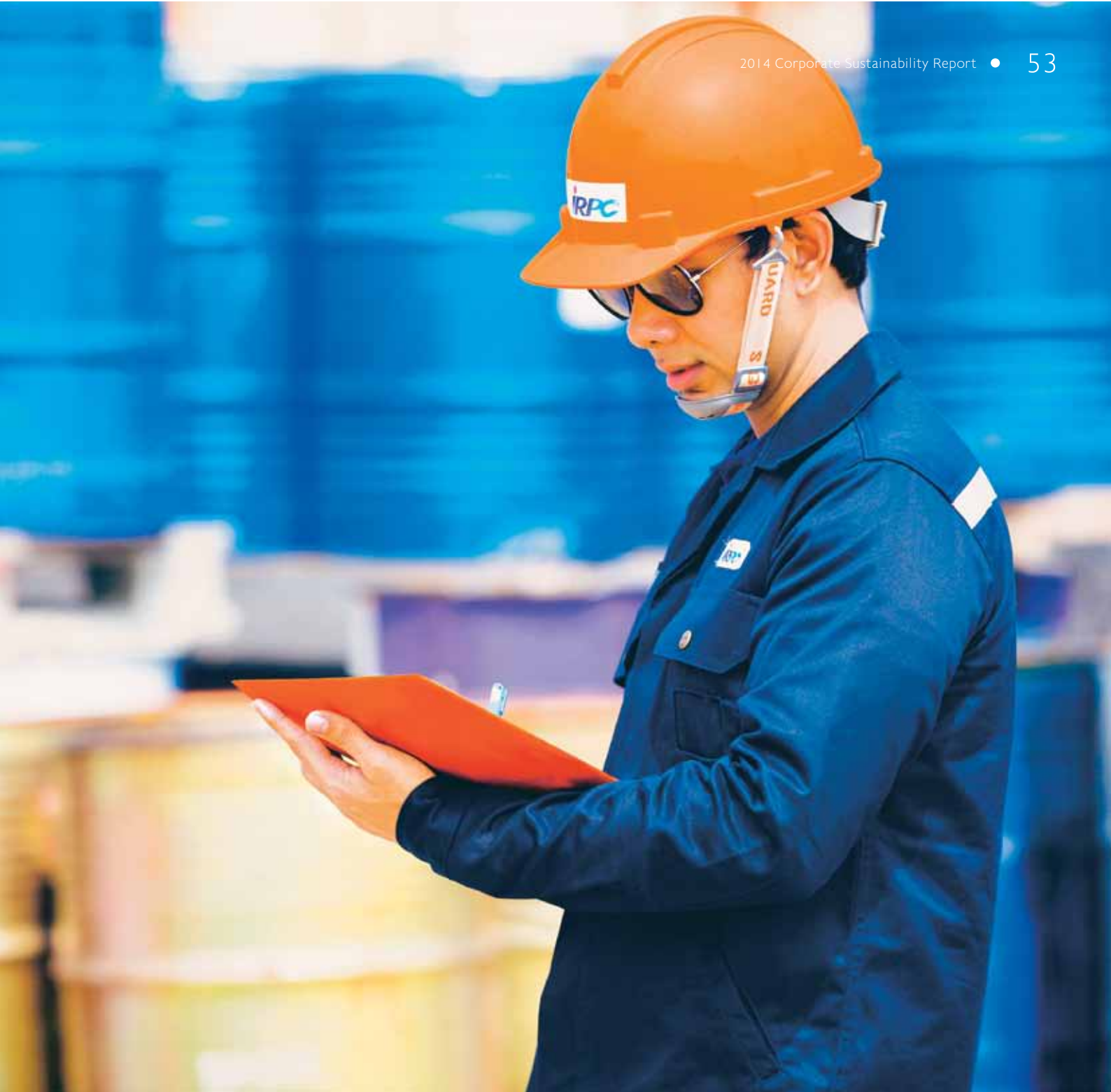
## Management Approach

### Solid Waste Management

IRPC continually improves and develops the production process by minimize the solid waste generation, reduce hazardous raw material utilization, and maximize resources utilization efficiency by adaptation of 3Rs (Reduce, Reuse, Recycle) method. The effective tools, for instance, waste flow analysis and appropriate waste management by its characteristics will contribute the effective management scheme, for example, high heating value waste can be utilized as alternative fuel, and waste transfer to recycling processor for appropriate utilization.







## Wastewater Management

IRPC's commitment for wastewater regulation compliance has been strictly carried out. The 2-stage wastewater treatment process divided into primary stage using physical-chemical method to separate suspended solid and organic substance and secondary stage using biological activated sludge system to boost the treatment efficiency in order to meet the regulatory standard. The analytical parameters, which are pH, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Suspended Solid (SS), Total Dissolved Solid (TDS), and Oil & Grease, will be routinely analyzed and monitor prior to discharging.

In order to assure that the wastewater treatment capacity can support our expansion Petroleum and Petrochemical businesses, IRPC develops and expands treatment capacity of 3 Central Waste Water Treatment Plants by replacement of Membrane Bio Reactor to maximize treatment efficiency as well as enhance treatment capacity.



### Performance Targets

- To improve sludge dewatering unit in order to reduce the amount of sludge generated from wastewater treatment system by the year 2015
- To recovery of treated effluent approximately 15,000-20,000 cubic meters per day by using reverse osmosis treatment technology to qualify to be high quality as same as portable water for using in cooling process by the year 2015-2017
- To reduce landfilled hazardous waste by 5% of total generated waste continuously starting from 2015 to 2020

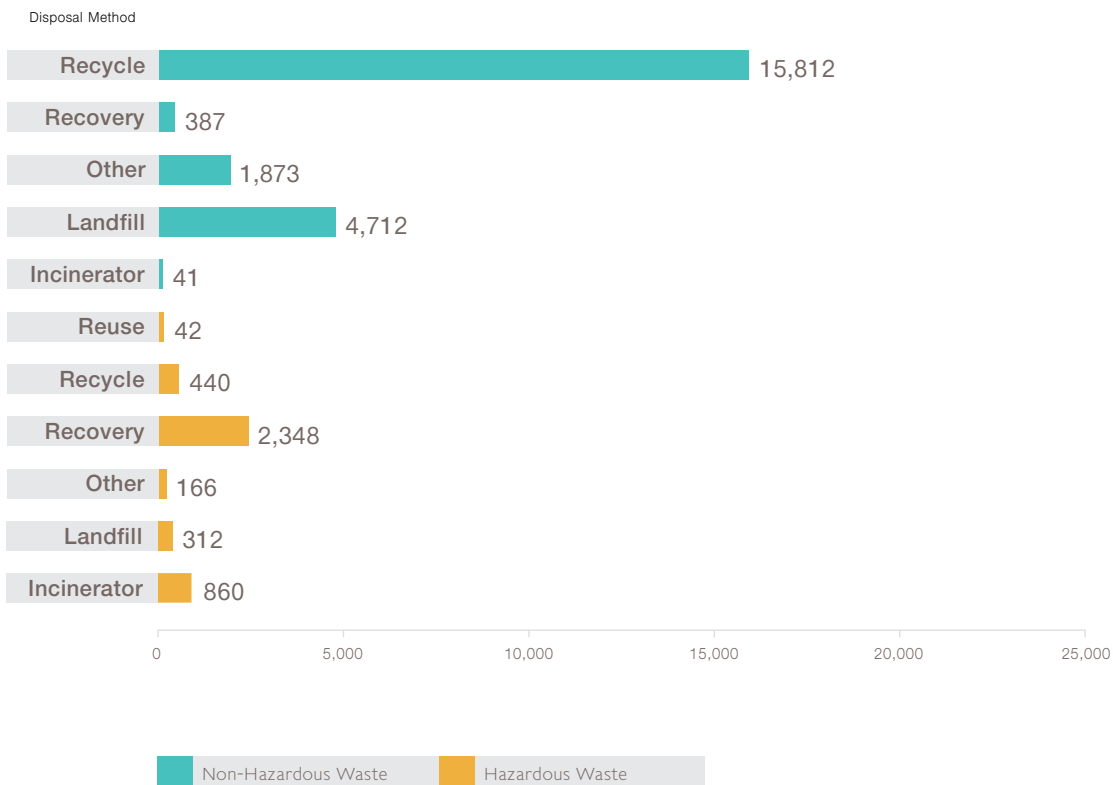
### Performance

By the year 2014, the waste generated totally was 26,543 tonnes. IRPC achievable reduced the landfilled

hazardous waste, which was only 312 tonnes, equivalent to about 1.2% of total generated waste. IRPC successfully strengthen our commitment by reducing landfilled waste significantly from 500 tonnes per year to less than 60 tonnes per year. Our research and development of catalyst replacement in High Density Polyethylene (HDPE) Plant process significantly decrease waste generation due to the new catalyst can react completely and less residue to neutralize process.

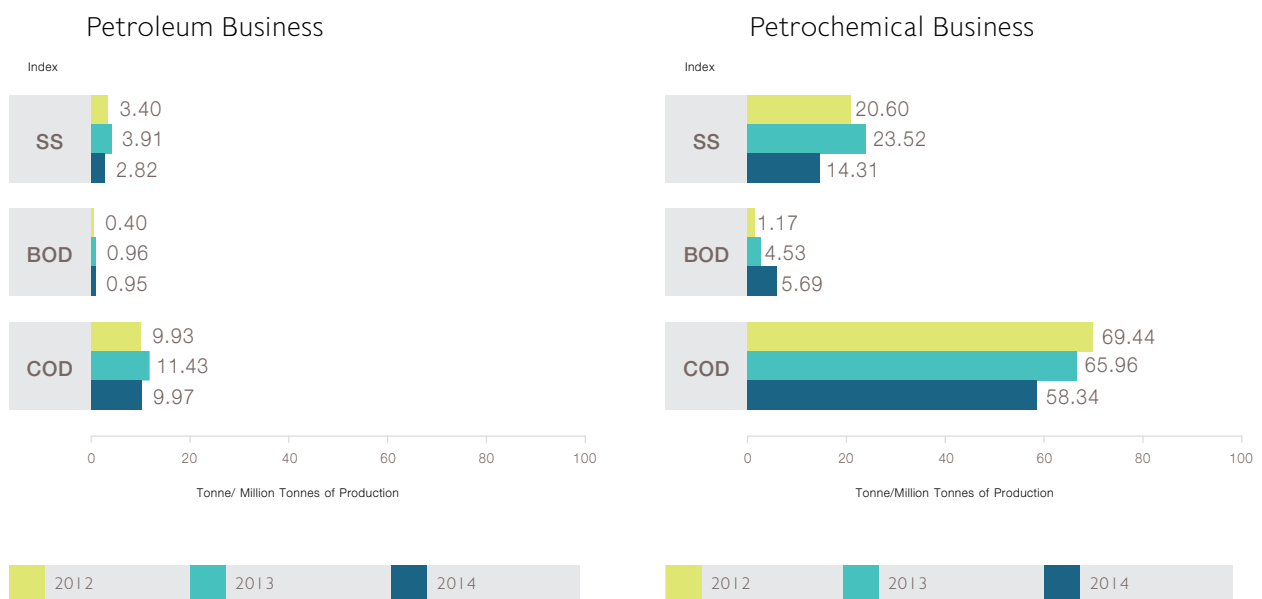
Furthermore, IRPC perform the improvement of waste screening process to be more effective and value added by selling them to the authorized waste recycling processor approximately 2,600 tonnes per year. We, as a consequence, economically earn 57 million Baht per year.

Type of Hazardous Waste and Non-hazardous waste by Disposal Methods in Year 2014



IRPC managed to control wastewater quality within legal limit and reduce the intensity of waste water release per million tonnes of productions compared to 2013

Wastewater Concentration during the Year 2012-2014



Performance Indicators				
	2012	2013	2014	2014 Target
Total generated waste (Tonne)	-	18,029	26,543	-
Landfilled non-hazardous waste (Tonne)	1,024	1,627	4,712 <sup>(1)</sup>	-
Landfilled hazardous waste (Tonne)	-	277	312	<5% of total generated waste
Wastewater volume (Cubic Meters)	2,213,554	2,505,198	2,512,309	-
Water discharge per tonnes of production (Cubic Meter per Tonne of Production)	0.22	0.24	0.25	Maintain

Remark

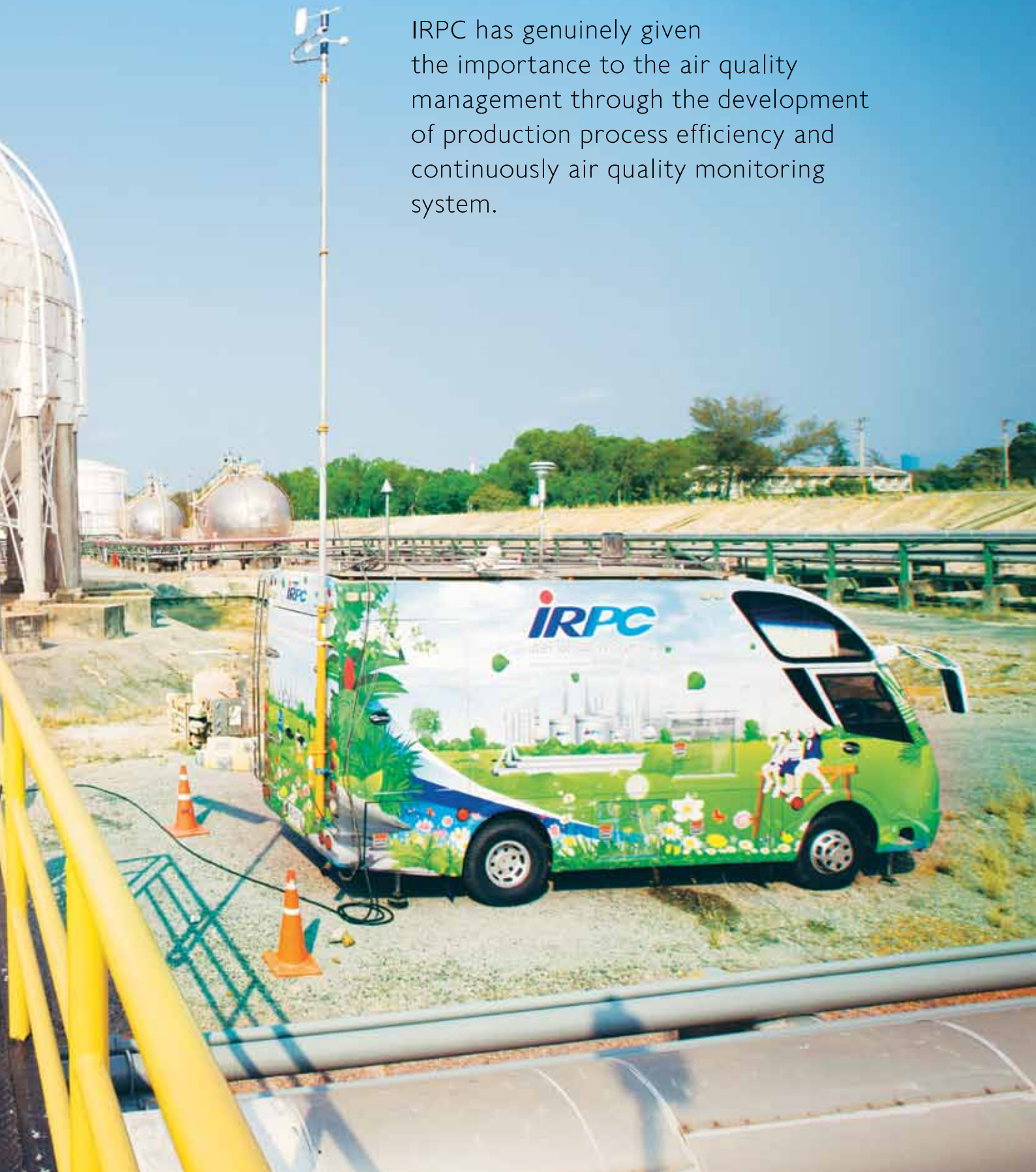
<sup>(1)</sup> The increasing due to changing of non-routine waste to be routine waste and including those of 92 tonnes from the VGOHT incident

# EMISSIONS MANAGEMENT





IRPC has genuinely given the importance to the air quality management through the development of production process efficiency and continuously air quality monitoring system.





## Management Approach

IRPC truly recognizes the environmental impact as a result of expansion project, the principle of air emission inventory (80/20 principle) drawn by National Environmental Board has been applied in place. The 80/20 principle stated that 100 emission unit reduced from the existing project could only replace by 80 emission unit from the expansion unit. As a consequence, the total emission including expansion project will not exceed the existing baseline. Moreover, the application of this principle conforms the Industrial Promotion Policy in Rayong Province released by Thailand Board of Investment (BOI) to support tax privileges. Previously, IRPC's projects granting tax privileges from BOI are PRP Project, EBSM Project and Green ABS Project, at the year-end of 2014, Hygiene and Value Added Products Project (UHV Project) and Combined Heat and Power Project (CHP2) are successfully granted.

Furthermore, IRPC has given the importance to the environmental impact concerns throughout the Industrial Zone by controlling emission source that could cause the health effect to the communities. IRPC has carried out the production process continuous improvement and development, for example, the development of sampling method in close system, the installation of treatment system such as the installation of wet scrubber system in chemical unloading system from port to tank farm and the installation of activated carbon adsorption in the Latex Tank Farm, and

the VOCs inventory management in order to assess and control the VOCs exposure that could cause the health effect to the communities as well as to the employee who work in the process area.

In addition of continuous improvement, IRPC provides the additional ambient air quality monitoring system in both stationary and mobile type with real-time report through display board in the community in the year of 2014. The Ophis EnviMan program has been developed for the ambient air quality assessment by stimulate the movement and dispersion of air emission from the real-time source in every kind of meteorological topography. The model result will notify to the plant source to control and improve prior to affect the community. Furthermore, AERMOD program is brought in place for the air quality impact assessment in the initiation of the expansion project to assure the community that IRPC's expansion project does not cause any impact on the ambient air quality.

## Performance Targets

- Maintaining the level of emission intensity (NOx, SOx)
- Maintaining the level of VOCs emission intensity





The intensity of Oxides of Nitrogen and Oxides of Sulfur during the Year of 2012 and 2014.

### Performance

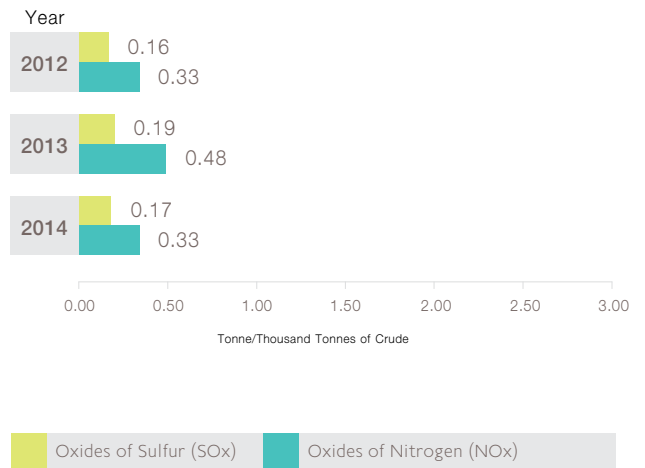
#### Oxides of Nitrogen (NOx)

The total Oxides of Nitrogen emission in 2014 was 2,700 tonnes divided into Petroleum business and Petrochemical business of 1,273 and 1,428 tonnes respectively, conversely in intensity of 0.33 tonnes per thousand tonnes of crude and 1.92 tonnes per thousand tonnes of naphtha respectively, and intent to maintain the emission intensity constantly. The total emission, compared with 2013, has dramatically decreased 35% mainly due to the installation of Dry Low NOx Burner to control and reduce NOx emission from the combined heat and power plant, also, the application of 80/20 principle for the expansion project.

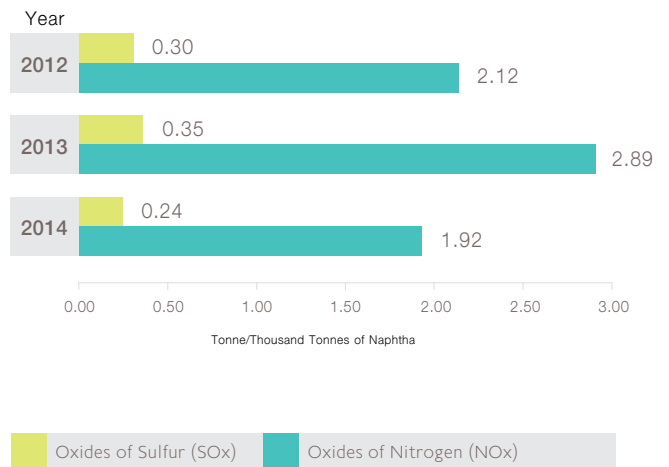
#### Oxides of Sulfur (SOx)

The total Oxide of Sulfur emission in 2014 was 1,430 tonnes divided into Petroleum business and Petrochemical business of 1,253 and 177 tonnes respectively, conversely in intensity of 0.17 tonnes per thousand tonnes of crude and 0.24 tonnes per thousand tonnes of naphtha respectively. The total emission, compared with 2013, has successfully decreased 14% mainly due to the application of 80/20 principle for the expansion project.

#### Petroleum Business



#### Petrochemical Business



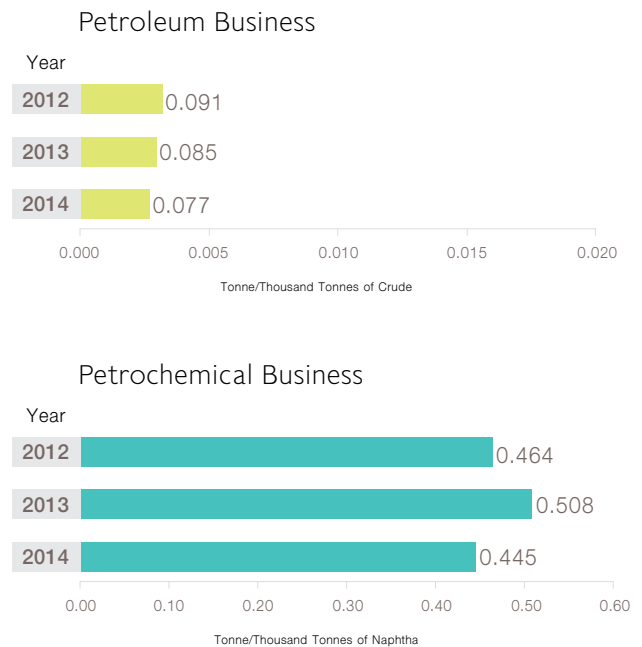




### Volatile Organic Compound (VOCs)

IRPC has prepared the VOCs inventory program indicates totally 969 tonnes of emission divided into Petroleum business and Petrochemical business of 637 tonnes and 332 tonnes respectively, conversely in intensity of 0.077 tonnes per thousand tonnes of crude and 0.45 tonnes per thousand tonnes of naphtha respectively. We keep on maintaining the VOCs intensity constantly and could reduce the emission intensity from Petroleum business and Petrochemical business 9% and 12% respectively compared with 2013. The decrease of VOCs intensity resulting from the VOCs leakage monitoring program and the installation from VOCs treatment system. In order to assure community's reliance, IRPC has installed fence line inspection system on the west side of Industrial Zone in vicinity area of Petroleum Tank Farm. The system will directly connected with Emergency Control Center (ECC) for real-time continuously monitor and simultaneously execution in case of odor complaints resulting from VOCs ventilation.

Rate of VOCs in Petrochemical Business and Petroleum Business during the Year of 2012 and 2014



**Remark** VOCs data in 2013 was developed due to the report completion

As a result of aforementioned activities, in the year 2014, IRPC has conducted annually community satisfaction survey focusing on government officers/community leaders in environmental management aspect which divided into 3 working dimensions as (1) environmental impact management (2) environmental friendly production process improvement (3) Complaints management. The achievement toward the environmental management aspect has shown that 80.51% of respondents are satisfied and the IRPC's corporation achieved 88.82% satisfaction accomplished the company's target of 83%.



Performance Indicators				
Oxide of Nitrogen (NOx)	2012	2013	2014	2014 Target
Released amount (Tonnes)	2,745	4,138	2,700	-
<b>Released concentration</b>				
Petroleum Business (Tonnes per Thousand Tonnes of Crude)	0.33	0.48	0.33	0.30
Petrochemical Business (Tonnes per Thousand Tonnes of Naphtha)	2.12	2.89	1.92	2.00
Oxide of Sulfur (SOx)				
Released amount (Tonnes)	1,357	1,667	1,430	-
<b>Released concentration</b>				
Petroleum Business (Tonnes per Thousand Tonnes of Crude)	0.16	0.19	0.17	0.20
Petrochemical Business (Tonnes per Thousand Tonnes of Naphtha)	0.30	0.35	0.24	0.30

# WATER MANAGEMENT

IRPC's industrial area is located in the water stressed area which requires a proactive water management to ensure that water usage in the operations is not impacting the communities and environment.







## Management Approach

IRPC is a member of the PTT Group Water Management Team (PTTWT), comprising of experts in utilities and water production from PTT Group's companies, to monitor and report water situation in the East as well as analyze and prepare water management plans. PTTWT is an active member of Water War Room Rayong, which includes representatives from both governmental and private sectors, to monitor and manage water situation in Rayong province through monthly meetings. IRPC's water management approach has three focus areas: proactive water management, internal water efficiency management and a water management for community. Details are as followed

### Proactive Water Management

To ensure smooth operations and zero conflict with communities, IRPC has conducted a water risk assessment addressing several factors including changes in water pricing structure, drought, and flooding. A risk and impact analysis is carried out through water risk scenario simulation in the case of water, less than 10, 30 and 50% respectively. Based on long term water risk studies IRPC has prepared five year water plan and identified risk mitigation measures to ensure adequate water management for future operations.

After severe flooding in many areas in the East of Thailand in 2013, IRPC has started to focus on flood prevention. In 2014, IRPC hosted two public hearing sessions with affected communities to identify solutions for flood prevention. Canal dredging operations were carried out in Nhong Krasao and Klong Ka areas.

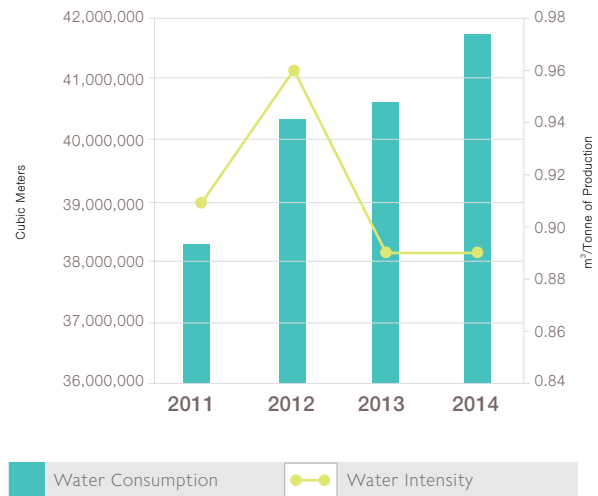


*Picture: Canal Dredging at Nhong Krasao and Klong Ka*





## Water Consumption and Water Intensity



### Remark

- <sup>(1)</sup> Total water usage include seawater
- <sup>(2)</sup> Water intensity for both petroleum and petrochemical business

## Internal Water Efficiency Management

IRPC has adopted the 3Rs (reduce, reuse, recycle) principle to improve and develop a better production process to use water in a more efficient manner and to reduce water usage. IRPC has set target to reduce water usage through 3Rs program by 10 % of its annual water usage plan

## Water management for Community

Water used in IRPC's industrial area comes from reservoirs in Klonyai watershed (include Dokklai, Nhong Pla Lhai and Klonyai reservoirs) with a capacity of 275 million cubic meters, is a main water source for consumption, agricultural and industrial sectors. IRPC withdraws 110,000 cubic meters of water per day. Daily withdrawal does not impact nearby communities' as the quota is approved by the Royal Irrigation Department.

IRPC owns five reservoirs with a total capacity of 5.21 million cubic meters to ensure that water withdrawal is not impacting the communities and to ensure sufficient water availability for operations during drought events. The reservoirs have rain catchment systems installed to prevent flooding in a rainy season. IRPC allots for unpurified water from these reservoirs for consumption and shares knowledge on water treatment with surrounding communities as part of the water supply improvement program.

## Performance Targets

- Reduce water usage through 3Rs program by 10% of water used in the production process
- Reduce water intensity by 5% by 2020 compared to base year 2013 (for petroleum and petrochemical business)

## Performance

In 2014 as part of the 3Rs program, IRPC managed and reduced portable water usage by 16%, higher than water reduction target in the production process. 3,115,275 cubic meters of water was saved.

Progress of 3Rs program includes: Water used in cooling system was reduced by increasing the water cycle from 5 to 7-8 cycles and consequently resulting in 52,560 cubic meters reduction of waste water; reuse water in heat exchanger and boilers by installing flash drum resulting in 982,215 cubic meters of water being reused; recycle 2,080,500 cubic meters of water using condensate polishing process, which inputs condensed water through a mineral removal process using resin and outputs demineralized water, which will then be used in the production process. CHP1 performed outstandingly in regards to water management by reducing water usage in the cooling system by swapping from open recirculation to



## 321 RPSD Water Strategy

### 3Rs

- Reduce
- Reuse
- Recycle



### 2Rs

- Reserve
- Responsibility

### 1P

- Public Participation



### SD

- Supply
- Demand

close loop system without affecting the production process. Flash drum was installed which reuses hot water in the heat exchanger process. In terms of boiler, RO rejected water was reused for back washing in Ultrafiltration system and used for Cool Down Boiler Water Blow Down instead of raw water to keep temperature under control.

In 2015, IRPC plans to implement the 321RPSD water strategy, which is a combination of 3Rs (reduce, reuse, recycle), sufficient water source development for IRPC and community or 2Rs (reserve, responsibility), in collaboration with the communities to develop and share water sources or 1P (public participation), and sufficient water allocation for the operation without raising conflicts with the communities or SD (supply and demand). This

strategy is expected to reduce 300,000 cubic meters of water used per year.

In 2014, IRPC has allotted 314,482 cubic meters water to the surrounding communities, namely Wat Plaukked community, Nhong Phaya community, Takard community, fishing community, and Nern Pudsa agricultural community. IRPC shared water treatment knowledge with the communities at Nhong Lalok sub-district as part of the water supply improve program which has 1,553 beneficiaries. As a result of the water management for community program, there has since been no water related complaint or conflict with the communities.



Picture: 12<sup>th</sup> Local public hearing session to resolve flooding in IRPC's industrial area, 12<sup>th</sup> March 2014



## Sakchai Jaruarayanunt

Senior Engineer,  
Operation Power Plant (OPW) Section  
IRPC Industrial Zone.

IRPC has an efficient water management system in line with ISO 14001 standard. IRPC is committed to minimize the release of waste water to the environment. The Company collects both qualitative and quantitative water data from each operation to compare with the set target and to use the data as a base measurement for water management. The 3Rs strategy is shared among employees within the operation in order to reduce water usage. In power plants, there are several 3Rs activities, i.e., reusing treated waste water to reduce particle from coal unloading process.

In addition, clean technology is applied to improve the production process, prepare water balance mapping, and test water quality suitable for each activity. We operate in compliance with law and regulations to reduce environment and social impacts as well as to promote sustainable development by sharing water from our reservoirs with the communities.

### Performance Indicators

	2012	2013	2014	2014 Target
Water used per tonne of production (Cubic Meter per Tonne of Production)				
Petroleum business	0.411	0.405	0.412	0.400
Petrochemical Business	4.106	4.320	3.340	3.411
Amount of water reduced by 3Rs (Reduce, Reuse, Recycle) (Cubic Meter)	2,600,000	2,664,500	3,115,275	2,682,312



# OIL AND CHEMICAL SPILL

IRPC aims for zero case of oil and chemical spills. IRPC has a spill prevention plan and measures in place to reduce impact to the environment and increase safety of the employees and communities.

## Management Approach

IRPC acknowledges the possible impact of oil and chemical spills to communities and the environment IRPC has implemented a management process that covers planning and risk assessment plan implementation, operation inspection as well as recommendation preparation. There are two approaches to improve operations, which are prevention and response. Details are as followed

## Oil and Chemical Spill Prevention Plan

As part of the oil and chemical spill prevention plan, IRPC trains all employees involved in oil and chemical unloading to be able to prevent and respond to an incident in a timely manner. IRPC has spill prevention measures in place for all operational areas and rehearses the prevention plan at least once a year. In terms of onshore operational area, relevant stakeholders including the communities, local government agencies, Rayong's Disaster Prevention and





Mitigation Office, and civil defense volunteers, participate in IRPC's onshore response plan rehearsal annually. The offshore response plan is rehearsed bi-annually for Tier I (not exceed 20 tonnes), Tier II (20-1,000 tonnes) under several codenames, such as "ROSE" (Rayong Oil Spill Exercise) with companies in Rayong regularly every year, "INEX" (IRPC Naval Exercise) with the 1st Thai Maritime Enforcement Coordinating Center once every two years, and "TOREX" (Thailand Oil Spill Response Exercise) with Oil Industry Environmental Safety Group Association (IESG),

Marine Department, the Royal Thai Navy, and relevant local agencies once every three years. In addition, IRPC organizes training for contractors providing tanker services in terms of safety and procedures as well as regularly assessment of their performances.

IRPC has additional practices in place to prevent and respond to oil and chemical spills including an onshore and warehouse spill prevention plan, evacuation plan, which rotates communities in the area to participate in the rehearsal annually, employee training, area inspections, process control, equipment inspections, spill knowledge sharing to the communities through the sea lover youth camps, and readiness assessment of the organization to respond to offshore spills caused by port's customers. IRPC takes comments and feedback from stakeholders into considerations to improve its operation and has a policy to compensate those affected by the company's operations in case of spill events.

In terms of an offshore transfer at IRPC's port, the Company abides by the operational and safety standards, i.e. Oil Companies International Marine Forum (OCIMF), International Safety Guide for Oil Tankers and Terminal (ISGOTT) and continuously controls efficiency of equipment and transfer system. Every ship and its operators have to undergo assessments according to PTT Group Ship Vetting, which is a collaboration of companies in the PTT Group to promote safety in shipping, product unloading, ship to ship transfer, and ship navigation in line with the Marine Safety and Environmental Criteria in order to reduce chances of accident during the operations. IRPC has implemented Vessel Traffic Management System (VTMS) to locate the ship position offshore to be able to



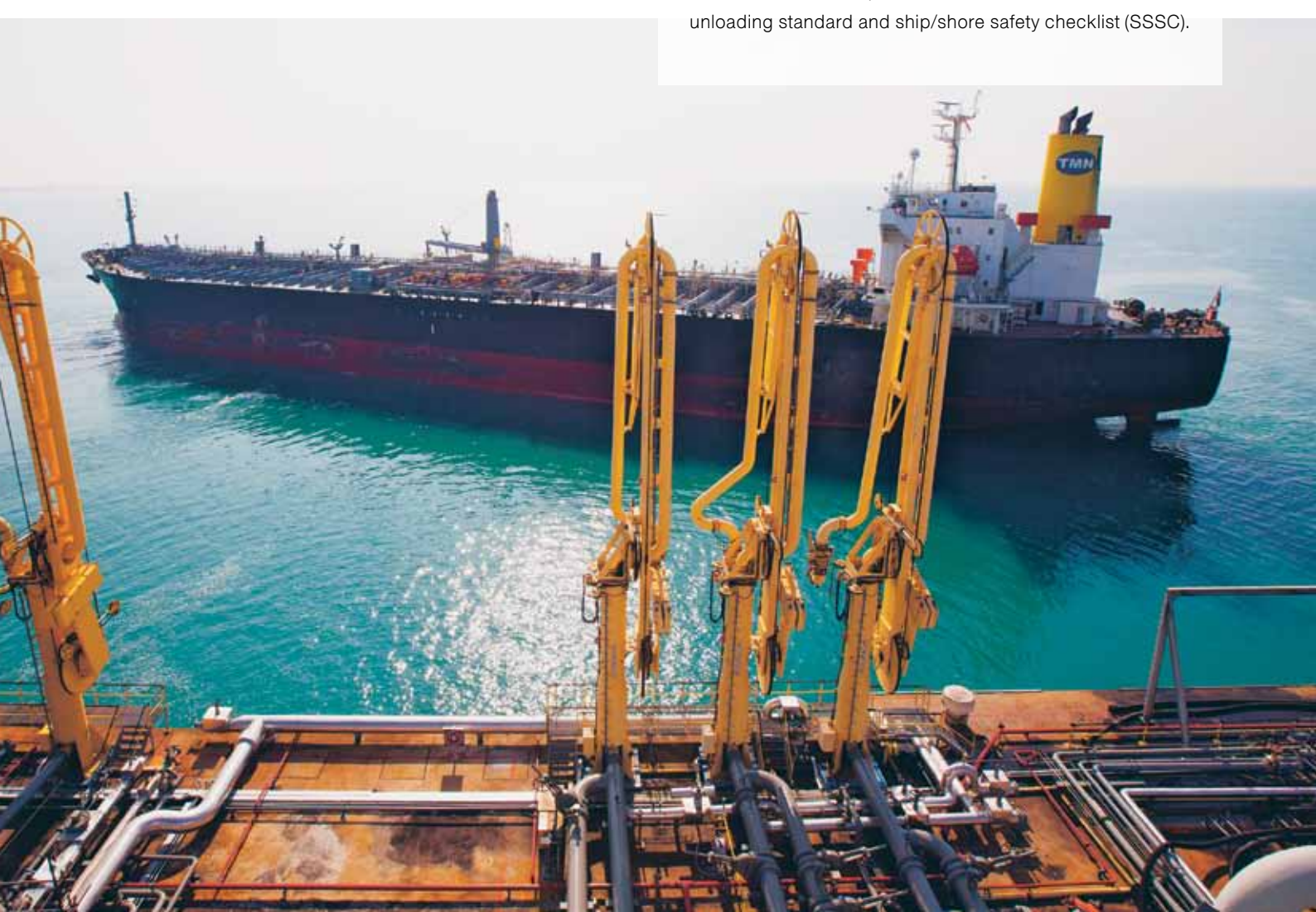
pinpoint the location in case of a spill incidence. IRPC carries out shipping operation self-assessment as well as being assessed annually by external parties, such as Oil Spill Response Limited (OSRL) and insurance companies, to ensure operation efficiency.







Due to the nature of oil and chemical unloading, operation always carries a certain risk of spillage. Therefore, IRPC carries out risk assessment for every unloading process that takes place considering factors such as wind speed, wave height, etc. Contractors and customers must operate in compliance with port regulations and operational recommendations. In addition, IRPC carries out the inspection of a ship's condition, its safety equipment, and a contractor's operation in line with oil and chemical unloading standard and ship/shore safety checklist (SSSC).







### Oil and Chemical Response plan

IRPC has an oil and chemical spill response plan based on severity in place. IRPC has joined the Oil Industry Environmental Safety Group Association (IESG), which is an alliance of five companies, namely IRPC, PTTGC, SPRC, SCG, and PTT Tank Terminal with the objective to provide immediate assistant in case of spill. IRPC also receives operational supports from Oil Spill Response Limited in removing oil slough with higher efficiency to minimize social and environmental impacts.

Nonetheless, prevention of oil and chemical spill to the environment remains the primary objective of IRPC's port business.



IRPC has an agreement with sub-district administrations in the industrial area and the Emergency Mutual Aid Group (EMAG) to provide assistant in in case of spill event. IRPC has all equipment necessary to handle spill cases such as fire trucks, chemical vacuum trucks, rescue vehicles, and different level of chemical protection suits.



In case of a spill, IRPC will analyze and assess impact to the communities and environment and put remedial and environmental restoration measures in place. In addition, medical mobile units will be dispatched to the communities to provide assistant.

## Performance Targets

- Zero case of oil and chemical spill throughout the year
- Employees involved in oil and chemical unloading undergo prevention and response training and attend prevention and oil and chemical slough removal rehearsal training.
- Every vessel owned by IRPC will be installed with up-to-standard oil slough removing technology and confining equipment such as sea boom, spray arm for applying dispersant and adequate reserve of dispersant for possible incidences.

## Performance

In 2014, there were two insignificant spill cases (spill amount less than 100 barrels or 15.9 cubic meters). First case, four cubic meters of slack wax spilled into the sea. The spill was caused by a decayed loading pipeline. The spill was managed and controlled within two hours and equipment inspection and repair were carried out to prevent reoccurrence. In addition, IRPC also inspected water quality to keep watch on any possible environmental impact. Second case was an onshore spill during TDAE (Treated Distillate Aromatic Extracted) transportation. Four cubic meters were spilled from the transporting truck. IRPC immediately halted the operation, removed and cleaned the area. The spill was caused by a truck in poor condition; IRPC has since reviewed the vehicle inspection checklist to ensure vehicles are in working order to avoid similar accidents.

The spill was caused by under-standard truck condition, in which IRPC has added more details into the vehicle inspection checklist to ensure that every transporting truck is in a good condition.

In 2014, 50 employees or 80% of employees involved in oil and chemical unloading and 40 contractors have undergone oil spill response refreshing training and rehearsed evacuation plans with the community from Na Ta Kwan sub district and Rayong. IRPC has exercised ROSE (Rayong Oil Spill Exercise) with five other companies, government agencies and the communities, in which IRPC has taken part in the tryout of Vessel Traffic Management System (VTMS) to track the movement of oil slough. The exercise was joined by IRPC's fleet and oil removal team.

Based on post-performance assessment, 128 contractors and suppliers failed the assessment in 2014. IRPC discontinued working with these contractors and suppliers until the corrective action plan has been implemented and completed according to PTT Ship Vetting.

IRPC stipulates that all vessels owned by IRPC must be installed with oil slough removing and confining equipment that aligns with the oil spill response standard. In 2014, IRPC enforced that tug boats from external parties must comply with IRPC standards. Additional equipment such as oil fast tank, oil boom and oil skimmer were purchased in order to prepare readiness to respond with efficient equipment in the case of spill.

Performance Indicators				
	2012	2013	2014	2014 Target
Significant Spill (>100 Barrels or 15.9 Cubic Meters)				
Amount of Oil and Chemical Spill (Cubic Meters)	0	0	0	0
Number of Oil and Chemical Spill Cases (Cases)	0	0	0	0
Spill (>1 Barrel or 0.159 Cubic Meters)				
Amount of Oil and Chemical Spill (Cubic Meters)	0	1	8.5	0
Number of Oil and Chemical Spill Cases (Cases)	0	1	3	0



# CLIMATE CHANGE MANAGEMENT AND ADAPTATION





IRPC continues to improve and develop the production process to increase energy efficiency and reduce GHG emission with the commitment to become top quartile energy efficiency organization in 2020.





## Management Approach

To set operational direction on a journey to become the organization with energy efficiency and at the same time, reduce GHG emission. IRPC adheres to the energy efficiency roadmap that designates clear operational practices and target in order for IRPC to achieve its long term energy efficiency target and reduce GHG emission

IRPC assesses climate change risk and impact in physical term, which includes variability of climate and level of severity, and commercial term includes the market growth for environmentally friendly products, consumers' awareness to green products, etc. IRPC has prepared preventive measures to ensure sustainable business operation

IRPC has initiated numbers of project to drive the organization towards target of being energy efficiency and reducing GHG emission. The operations are carried out through 3 approaches namely Green Process, Green Logistics, and Low Carbon and Energy Efficiency Products.





## Performance Targets

- Energy Intensity Index (EII) of 98.00% in 2015
- Reduce GHG emission by 1.5% in 2014 compared to base year of 2012
- Achieve top quartile energy efficiency within 2020

## Performance

### Green Process

IRPC has standardized energy management system for every plant in order to have common energy management throughout the organization. As a result of 4 energy conservation programs in 2014, IRPC was able to reduce 441,000 gigajoules of energy used in the production process, represented 450 million Baht in cost saving, GHG emission was reduced by 30,000 tonnes of CO<sub>2</sub> equivalent. IRPC benchmarks energy efficiency of every plant every 2 years. Currently, IRPC's Lube Base Oil plant is ranked in top quartile in energy efficiency.

In 2014, IRPC has improved the production processes to reduce GHG emission include cleaning heat exchanger in the 2<sup>nd</sup> refinery unit to remove grime and sludge. As a result, fuel usage was reduced, using less wash oil in the refinery tower resulted in fuel saving. In case of lube base production plant, steam used in burner and vacuuming device was reduced. IRPC has implemented Pro-steam Program (Energy Stimulation) in the utility optimization project to manage power and steam generation with maximum efficiency. The 1<sup>st</sup> utility unit, at the cooling water production plant has been installed new fan for better efficient cooling tower.

### Green Logistics

**Tanker Navigating Speed Control Program** is an ongoing program since year 2010, which limits the speed of 6 tankers from Rak Pa Sak Fleet transporting oil from Prapadeang depot to Ayutthaya depot in order to save fuel. In 2014, 5,200 liters of fuel was saved, equated to 16.17 tonnes of CO<sub>2</sub> equivalent. This also helps promote safety in transportation and reduce waving impact on the communities along the route

Furthermore, IRPC actively supports the government policy in using clean energy by changing to bio-diesel, which, in 2014, could reduce greenhouse gas emission by 115.78 tonnes of CO<sub>2</sub> equivalent. Fuel consumption has decreased by 9 liters/ voyage, which is much lower than target as in 2014, IRPC has changed the distribution channel which resulted in less voyages from Prapadeang depot to Ayutthaya depot and the overall fuel consumption of Rak Pa Sak fleet has consequently decreased by 155,108 liters compared to 2013

Tanker Navigating Speed Control Program				
	2012	2013	2014	2014 Target
Fuel saved (Liters/Voyage)	78	39	9	31
Expenses saved (Million Baht)	1.6	0.77	0.14 <sup>(1)</sup>	0.47

#### Remark

<sup>(1)</sup> Fuel expenses was calculated at 26 Baht per liter in 2014



#### **Wooden Pallets usage reduction program**

Is an ongoing program since year 2011. The pallets used in product transportation have been redesigned and as a result, in 2014, the usage has been reduced by 16.7% and 2,000,000 Baht in cost saving. Moreover, IRPC also repairs all damaged pallets, in which IRPC could save an additional 912,800 Baht from buying new pallets

#### **Logistics fuel consumption reduction program**

Is one of many programs IRPC collaborates with other companies in PTT group to encourage all contracted vehicles to reduce fuel consumption. This was done through 2014 Fuel Saving Award Program under Group Logistics Master plan (GLM), which is a part of Group Integrated Supply Chain Management and Optimization (GISMO) that aims to create synergy in the petroleum supply chain as well as to develop environmentally friendly production processes and reduce GHG emission that is of IRPC and PTT group's companies

#### **Low Carbon Product and Energy Efficiency Products**

Currently, IRPC's low carbon and energy efficiency products are being marketed, Details are as follows

##### **Bio-diesel: Bio Hydrogenated Diesel (BHD)**

Bio-diesel: Bio Hydrogenated Diesel (BHD) has Euro V quality and reduces more GHG emission than that of IRPC's trade partner. BHD will be qualitatively adjusted and sold in the market as a premium graded Bio-diesel. In 2014, 41 million liters of Bio-diesel were produced and sold generating 1,190 million Baht of income

##### **Expandable Polystyrene (EPS) for Construction**

IRPC has developed the energy saving product for construction, namely Expandable Polystyrene (EPS), which is a special heat insulation used in the construction of buildings that need temperature control. In 2014, sales of EPS for construction reached 416 million Baht, an increase of 5.57% compared to the previous year, 1.01% of total sales of plastic products.





	2012	2013	2014	2014 Target
Sales of EPS (Expandable Polystyrene) (Million Baht)	293	394	416	500

Performance Indicators				
	2012	2013	2014	2014 Target
Energy Intensity Index: EII	Baseline	98.89	98.37	98.50
Scope 1 and 2 GHG Emission (Million Tonnes of CO <sub>2</sub> Equivalent)	3.43	3.39	3.13	3.38
Scope1 GHG intensity for petroleum business (Tonne of CO <sub>2</sub> Equivalent to Tonne of Production)	0.10	0.10	0.08	0.10
Scope1 GHG intensity for petrochemical business (Tonne of CO <sub>2</sub> Equivalent to Tonne of Production)	0.59	0.54	0.48	0.58

**Remark:** IRPC's GHG reduction from company activities in 2014 not include non-routine activities during VGOHT repair and maintenance.

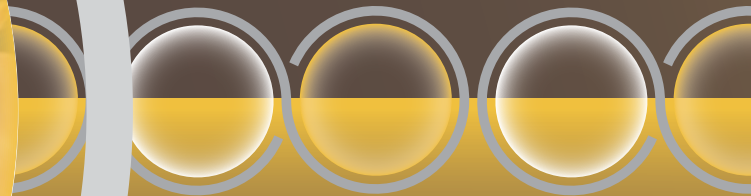




# SOCIETY

## DIMENSION

IRPC operates with responsibility and awareness to maximize employees' safety and places importance on the capability development of employees, which is considered critical resource to IRPC, to efficiently serve the business operations. IRPC is fully committed to being responsible for the communities to prevent impacts and developing the capability of the people in the communities.



# OUR EMPLOYEE





Employees are the driving force behind the success of the organization. IRPC is committed to developing employee's capability in order for the organization and its employees to sustainably grow together.





## Management Approach

IRPC operates in line with the 2013-2020 Human Resource Excellence Roadmap, which is an integral part in driving IRPC toward becoming a leader in petrochemical business in Asia by 2020. The roadmap includes those of employee capability development, employee engagement, and leadership skill enhancement.

IRPC underwent organizational restructuring to increase efficiency in the human resource management. Long term plan for 2014-2018 was prepared for the human resource management and to improve human resource management structure. Key factors for improving HR management have been identified. These include 1) developing an efficient and effective HR management, 2) defining employee roles and responsibilities 3) defining HR management framework in accordance with the corporate strategy, and 4) Enhancing capability to improve competitiveness of the organization.

## Performance Targets

- An average of 30 hours of training per employee in 2015
- 85% of Employee satisfaction in 2015
- 65% of IRPC health check in 2015

## Performance

### Employee Capability Development

In 2014, IRPC revised career path for four groups of employees; namely employees in general, talent pool, top management (succession plan for successors), and special track, to match their roles and responsibilities in order to support the organization's growth strategy and to use as a performance evaluation standard for all employees.

At present, IRPC conducts technical competency assessment covering 94.93% of employees. It is expected to be extended to cover all employees in 2015. In addition, IRPC is also planning to prepare a technical Competency Expansion for all functions in 2015 through Individual Development Plan (IDP) in order to develop appropriate competencies according to individual functional requirement.

In terms of leadership skill enhancement, two top management employees were sent to attend the Harvard Business Program, which was the collaboration among PTT group's affiliated companies and the Middle Management Leadership Development Program (MLDP), in which 72 employees from middle management attended. The MLDP is the program focusing on Action Learning Project (ALP), an approach to solving real problems that involves taking real action and reflecting upon the result. The middle management would have the opportunity to initiate a project with the focus on cost-saving or income generation. The result of the program could be demonstrated through, for example, the reduction of steam used in product storage in the lube base plant and the change of mode of transporting Alpha-Methylstyrene from truck to ship, which generated 109 million Baht in return.





## Jaturong Worawitsurawatthana

Vice President of Petrochemical Business  
Participant of Harvard Business Program

### Harvard Business Program

Fortunately, I was offered an opportunity to attend the PTT Harvard Business Leadership Development Program, which aims to enhance various aspects of leadership capability

include formulating business strategies by taking into considerations strengths, weaknesses, opportunity, and limitations, and select the best and the most suitable to the organization as well as being able to manipulate other players in the market to play by our rules using Game Theory. Key success factors to being a good leader are to be able to work in a team, survive in an ever changing situation, never stop learning, always look at a bigger picture, and commit to innovate. More importantly, couple of things to be aware of are purchasing power of the customers, products' value for money, and sometimes, national security also needs to be considered. These will help the organization to grow in a sustainable way.

*The PTT-Harvard Business Leadership Development Program has opened up new perspectives in business operations and I will definitely apply knowledge into practice in the most efficient way possible, which I am certain that it will drive IRPC's growth*



## Kamtorn Sarunyakop

Section Manager, ABS  
Participant of MLDP program

I am proud and truly glad that IRPC's top management always recognizes the importance of employee development amid the weak performance. As I was offered an opportunity to attend the 5th MLDP, it was indeed beneficial to me. The training ranged from situation analysis to

evaluate our weaknesses and strengths and those of the competitors to lay out competitive strategy, "Know people, know work, know lives" course at the young Buddhist Association of Thailand to develop employee's mind which is useful for both work and personal life.

Moreover, according to Action Learning Project that offers an opportunity for employees from different functions with different knowledge and experiences to share ideas on new projects that may have potentials to create value and contribute to cost-saving.

As a result of participating in MLDP program, I am able to apply what I have learnt to create benefits to the organization, for example, applying strategic management course to set appropriate competitive strategy for ABS product, which is in highly competitive market. Also, the Creative Thinking and Innovation course, which is applicable to the current



### I-ChEPs Project

Fifteen operational employees received training on both the theoretical and practical knowledge with regards to chemical engineering, necessary skills, and analytical thinking process in order to increase efficiency in the production process under I-ChEPs Project.



## Performance Evaluation

IRPC has performance evaluation system, which is based on individual performance (70%) and behaviors (30%). Employees and their supervisors must mutually agree upon using these criteria to ensure equitability and transparency. Every employee will be evaluated once a year.

## Employee Retention

IRPC has an international HR management process. This includes performance evaluation system, competency management, career path management, and channel for the CEO to communicate with the employees regarding the organization's direction and target on a quarterly basis.

Other than paying remuneration that is comparable to other companies in the same industry, IRPC also offers other benefits, such as scholarship to employees and their children, medical expenses for employees and their family, annual health check, fitness center, etc.

IRPC conducts an employee satisfaction survey every year. In 2014, the survey showed that 79.14% of employees were satisfied, which is more than that of 2013. In the past year, IRPC has faced with several challenges including market fluctuation. Nevertheless, IRPC has implemented human resource management tools to improve the system and leadership. As a result a decrease in employee satisfaction score and the organization health index were not met its target. However, IRPC is committed to continually increasing the score to achieve target. The survey result and comments were analyzed in order to improve employee engagement.

## Labor Rights

IRPC has integrated human rights principles into the practice guideline. It now includes requirements on non-discrimination, ban on child /forced labor, safety of lives and properties, desired behavior toward others, fair employment, safe workplace, labor's right to union, and enhancement of employees' quality of life. This is to ensure that human rights are efficiently respected and protected. IRPC also incorporated employees and stakeholder rights in the company's code of conduct and conformed to Advanced Level assessment criteria of the UNGC.

IRPC provides opportunities for employees to share comments and concerns through eight labor unions, whose responsibility is to seek and protect the benefits regarding employment conditions and to establish good rapport between the employer and employees. At present, 4,562 employees or 86.33% of all employees have joined the labor unions.

Employees can file complaint through channels provided including through their supervisors, labor unions, employee committee, and PO Box 35. In 2014, four complaints were filed. IRPC carried out investigation and managed to resolve, ensuring transparency and equitability.

Performance Indicators				
	2012	2013	2014	2014 Target
Averaged Training Hour per Employee (Hour per Year)	39.41	35.06	30.46	28.60
Employee Satisfaction (%)	85.51	78.98	79.14	85
Organization Health Index: OHI	73	52.6	41.5	65



# OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

IRPC recognizes the importance of occupational health and safety of all employees, contractors and the communities. IRPC is committed to continuously improving its operations in order to achieve zero accident targets.



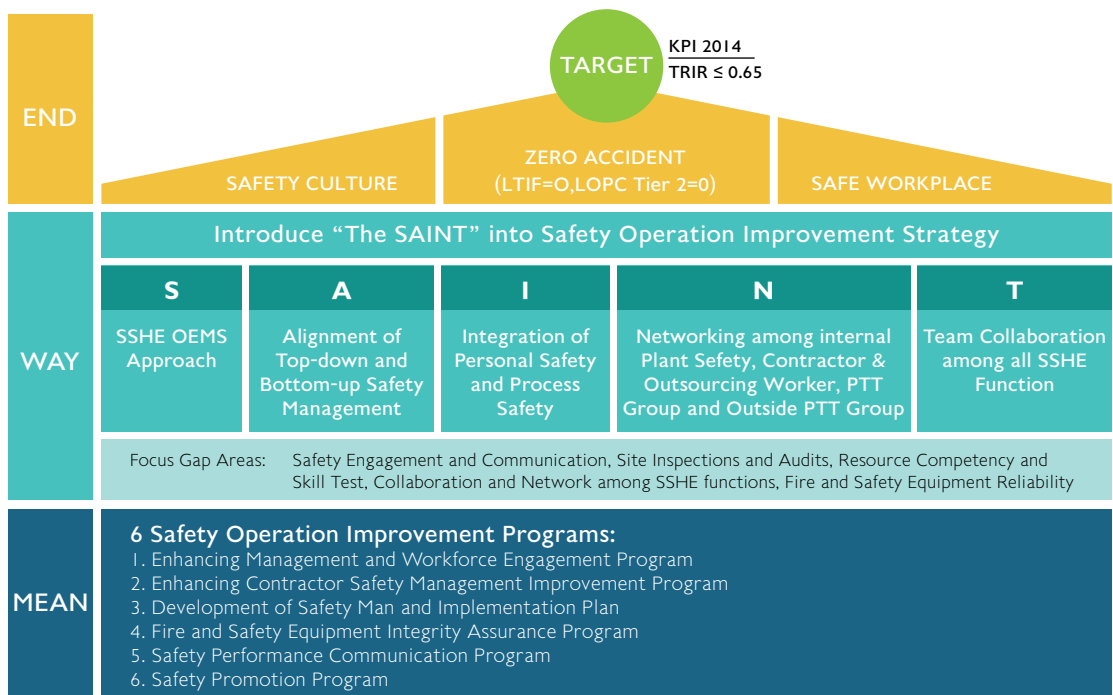


## Management Approach

IRPC's safety strategy, the SAINT, is personal and process safety procedures that embed the Security, Safety, Health, and Environment Management System (SSHE MS) and the Operational Excellence Management System (OEMS) together to monitor and control the overall operations. In order to further the strategy, IRPC has developed the Safety Operation Improvement Programs, which consist of six programs, namely

- Enhancing Management and Workforce Engagement Program
- Enhancing Contractor Safety Management Improvement Program
- Development of Safety Man and Implementation Plan
- Fire and Safety Equipment Integrity Assurance Program
- Safety Performance Communication Program
- Safety Promotion Program consisting of Behavior based Safety program (BBS) and Safe Driving program

### IRPC SAFETY OPERATION IMPROVEMENT IMPLEMENTATION PLANS



## Performance Targets

- Conduct Process Safety Management (PSM) training for every plants by 2016
- 0.60 case/million hours of Total Recordable Injury Rate (TRIR) by 2015

## Performance

### Process Safety

By 2014, IRPC began to implement Process Safety Management (PSM). Its objective is to ensure safety in the production process and all operations as well as to prevent any incident that may endanger the stakeholder from happening; such incidents include oil and chemical spill, explosion, etc. IRPC aims to extend the boundary of PSM to cover all IRPC's plants in the industrial area in 2018. In 2014, IRPC provided PSM training for the employees in the lube base plant and planned to complete training for all functions by 2016.

In 2014, IRPC conducted PSM Self-assessment through questionnaire and employee interview with an aim to gather information regarding production process safety in order to improve and develop a more efficient occupational health and safety management.

IRPC organized five sessions of PSM Awareness Training with 318 employees participated. Training material covered such topics as the benefit of PSM and PSM approach for each element. Also, two PSM Leadership Workshop seminars were organized for the executives and employees to create understanding in PSM and its' working scopes as well as to build leadership awareness to promote production process safety. The seminars were joined by a total 62 attendees.

In addition, IRPC is planning to form a PSM Workforce Team, PSM Auditor Team, set up PSM performance indicator for each element, and develop a more efficient Operating Window for Lube Base plant in 2015







## Explosion and fire incident at the Vacuum Gas Oil Hydro Treating Unit (VGOHT)

In the 9<sup>th</sup> of June 2014, the Vacuum Gas Oil Hydro Treating Unit (VGOHT), a treating unit for combined gas oil to remove sulfur and nitrogen located in IRPC's industrial area, exploded. After thorough investigation, it was found that the cause of the explosion was from the leakage of hydrocarbon vapor, which is highly flammable, from the gas pipeline. IRPC soon declared emergency and immediately isolated the unit from other connecting units to prevent any possible chain reactions. Eventually, IRPC managed to control the fire and later turned back to its normal operations in the same day. There was no injury or fatality resulting from the incident.

After the incident, IRPC had proactively communicated with the communities and other stakeholders by informing about the incident through SMS, broadcasting vehicle, press conference, briefing document to local government agencies, participation in the administrative council, briefing session with Non-profit Organization, and the company's internal media to create understanding of the situation. Moreover, IRPC, in effort to prevent any health impact, provided medical units for the communities and hosted several activities for stakeholders in order to restore morale, as well as willingly paid all compensation to those affected by the incident.

To prevent any environmental impact resulting from the incident, IRPC closely monitored the air quality at 5 stations located around the area and sent out additional mobile units to ensure that the air quality is within a legal limit. Also, the water used in firefighting was treated before being released to the environment.

To ensure safety in the production process, IRPC instituted a reconstruction team with responsibilities to improve health and safety aspect of the operations as followed

- Provide Personal Protective Equipment (PPE) for maintenance function
- Jointly inspect all safety equipment together with a team from VGOHT and maintenance function. For example, Smoke Detector, Self-Contained Breathing Apparatus (SCBA), Fire Alarm Push Button, and Automatic Fire Extinguishing System, etc.
- Carry out health check for those at risk, such as the employees assisted in fire fighting and the first group of employees to attend area cleaning.
- Organize a safety campaign by installing a safety PR board in the area
- Regulate safety measures, such as build barricade around the scene to prohibit entering, arrange meetings for all relevant entities to ensure compliance.
- Inspect safety in the area by assigning VGOHT's health and safety committee to carry out safety inspection periodically.
- Assess safety during maintenance phase and before restart by Du Pont (Thailand)

Furthermore, IRPC builds confidence in the safety system by re-assessing risk in the operations, revising maintenance plan, and improving chemical inventory system for all 13 plants in the area.



## Personal Safety

IRPC continues to analyze, assess, monitor, and improve personal safety in operations on a regular basis through these following safety programs

- **Behavior based Safety (BBS):** Creating employees' awareness of those risky behaviors in the operations to prevent any possible human errors. In 2014, IRPC organized 12 training sessions on BBS Human Error with 454 employees attended, five sessions on BBS Basic with 346 employees attended, and three BBS Corner sessions to encourage employee engagement, with 1,174 attendees. Lastly, the BBS Award given to the employees with an outstanding safety behavior.
- **Hearing Conservation Program:** Monitoring exposure to loud noises within the operational area. In 2014, 1,414 employees received trainings and hearing ability evaluation.
- **Organic Solvent Monitoring Program:** Educating employees of the danger of organic solvent as well as inspecting, measuring, and conducting exposure

control plan. In 2014, 230 employees participated in the training and received chemical diagnosis.

- **Lung related Disease Monitoring and Control Program** Ensuring that the employees are fully aware of the chemical hazard and other pollutants in the operations that may pose lung impacts and protection measures. In 2014, 58 employees received trainings and 67 employees received a pulmonary evaluation.
- **Ergonomics Program** Educating employees of proper working postures. In 2014, there were 1,377 employees joined the program.

IRPC has, in place, policy and guidelines for HIV, Tuberculosis, and any chronic diseases. Necessary trainings were provided to share knowledge and raise risk awareness of the disease. IRPC indiscriminately offers help to those infected.

Furthermore, IRPC communicates safety procedures to all contractors prior to the commence to raise safety awareness in the operations and that of the communities, in 2014, 28,826 contractors received trainings.





Performance Indicators				
Personal Safety	2012	2013	2014	2014 Target
Total Recordable Injury Rate: TRIR (Cases/Million hours)				
Total Workforce <sup>(1)</sup>	0.96	0.72	0.95	0.65 <sup>(3)</sup>
Contractor	1.04	1.06	0.23	
Fatality (Person)				
Total Workforce <sup>(1)</sup>	0	0	0	0
Contractor	0	0	0	0
Process Safety				
Process Safety Event <sup>(2)</sup> (Cases)	-	-	9	0

**Remark**

<sup>(1)</sup> Total Workforce refers to Employees and Supervised Workers

<sup>(2)</sup> The definition of Process Safety Event is as in API RP 754 IRPC began to collect process safety event in 2014

<sup>(3)</sup> Target is set up and calculation based on accumulated total workforce and contractors

# NEW PROJECT DEVELOPMENT



## Management Approach

IRPC studies, analyses, prevents, and corrects impacts that could be caused by the development of new projects to ensure that all IRPC's business activities have systematic impact reduction processes and measures for both the communities and environment in place. IRPC strictly complies with all legal regulations and hosts public hearing sessions from all stakeholders in the area in an effort to obtain the social license to operate and the trust of the communities.



IRPC carries out studies, analysis and impact assessment in communities and the environment. We are open to all opinions and concerns from the communities in order to gain understanding and to plan for efficient prevention and corrective measures.





## Environmental Health Impact Assessment

IRPC follows the Environmental Health Impact Assessment guidelines regulated by the Ministry of Natural Resources and Environment and other related regulations when developing new projects. IRPC assigns an external agency, registered with the Office of Natural Resources and Environmental Policy and Planning (ONEP), to conduct the Environmental Impact Assessment (EIA), the Environmental Health Impact Assessment (EHIA) and stakeholder engagement analysis. Collected information assists with the preparation of environmental impact prevention and correction measures. Results are presented to the Committee of Experts in the Environmental Impact Assessment, which consists of experts with diverse expertise to deliberate and approve the report.

IRPC austere follows the environmental impact prevention and correction measures and the environmental quality monitoring measures. IRPC has, in place an operation verification process. The Performance report and the environmental quality monitoring results are submitted to all relevant government agencies every 6 months during the project duration.

IRPC also formed a project capability, community and society development multilateral Committee, Industrial

zone, IRPC, Rayong, which comprises representatives from the communities, local government agencies around the area, and central government. The Committee monitors and evaluates the effectiveness of the environmental impact prevention and mitigation measures and to also provide suggestions and improvement guidelines according to the good governance in order to create balance between economic, social, and environmental aspects around the area.

## Public Consultation

Stakeholders in the Industrial area are given highest priority to be involved as IRPC values their opinions and concerns. IRPC incorporates the feedback into decision making processes when conducting the impact prevention and correction measures. IRPC proactively engages with the government sector and the communities before the start of the project to hear public opinions and concerns about the project development by holding the multilateral committee meeting. IRPC plans to organize at least 2 public participation sessions for each and every project that is being developed. The outcomes are used as input for the impact assessment and the monitoring measures.



## Community Complaint

IRPC provides different channels for communication between communities and the company to receive suggestions, concerns and complains. Channels include the complaint center or direct notification of IRPC's CSR employees. In case that a complaint is made, QSHE and CSR teams will further investigate and report back to the operational unit to control the situation and to limit and exercise the corrective measures in a timely manner including response to the complainant.

### Performance Target

- 83% in Stakeholder Satisfaction score

### Performance

In 2014, IRPC has prepared the 2<sup>nd</sup> Environmental Impact Assessment (EIA) for the Polypropylene Expansion project, which is being investigated by the Committee of Experts

in Environmental Impact Assessment and expected to get an approval by the 1<sup>st</sup> quarter of 2015. The Environmental Health Impact Assessment (EHIA) for the IRPC's industrial zone extension project has been approved by the Committee and is, currently, under considerations by the department of Industrial Works to grant approval for the project development.

IRPC carries out a satisfaction survey annually for communities and local government agencies in the area. IRPC uses the survey results to improve and develop better operations to meet the communities' needs. In August 2014, the survey was carried out with a sample size of 1,200 employees. The survey focused mainly on the overall environmental and social management. IRPC received a satisfaction score of 88.82%, which was higher than 83% target.

Performance Indicator				
	2012	2013	2014	2014 Target
Stakeholder Satisfaction (%)	81.75	92.98	88.82	83.00





# COMMUNITY RELATIONS AND DEVELOPMENT

IRPC aims to establish good relationship with surrounding industrial area communities and to improve the quality of living as well as conserving the environment to achieve shared sustainable growth between the organization, community and environment.





## Management Approach

IRPC continues to develop and establish relationships with the communities according to our CSR strategy, codename "Happy Rayong". Our CSR strategy covers 5 aspects: 1) Safety, Health, and Wealth development, 2) Community development, 3) Proactive communication, 4) Environmental conservation, and 5) Implementation of environmentally friendly production processes. IRPC analyzes the needs of the communities and is open to all suggestions from stakeholders. To develop projects that meet the communities' and stakeholders' needs, stakeholder feedback is gathered by hosting public participation events and conducting community satisfaction surveys.

IRPC engages with stakeholders by collaborating with the multilateral committee, comprising of representatives from government sectors, local communities, IRPC, and experts, to develop new projects and activities that could help improve the living quality of the communities to become self-reliance and coexist with IRPC with good rapport.

## Performance Target

- Community Satisfaction score : 88% in 2015



Clients (Persons/Year)

Pun Nam Jai Clinic	<b>5,622</b>
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Mobile Clinics	<b>641</b>
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<b>Total</b>	<b>6,263</b>
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## Performance

### Safety, Health, and Wealth Development

IRPC actively communicates with stakeholders in case of emergency responds in order to maintain the safety of everyone involved. In 2014, IRPC carried out six evacuation drills and exercised one provincial disaster prevention and mitigation plan with more than 600 local participants. Those activities are carried out on an annual basis.

In 2014 IRPC allocated 12 million Baht in budget to build a new outpatient ward for Rayong hospital, Tapong Branch, in collaboration with Tapong sub-district administration and Rayong hospital to promote a healthy living for the communities and to provide improved services and accommodation for patients. The newly built ward is expected to annually accommodate up to 100,000 patients from seven areas (Baan Lang, Tapong, Na ta kwan, Pae,

Samnak Thong, Cherg Nern Municipal, and Muang Rayong Municipal), in the industrial area. The new building will be completed in 2015. IRPC continued to operate Pan Nam Jai clinic and mobile clinics to provide services to communities in the area. In 2014, 6,263 patients received services.

In addition, IRPC strengthened the foundation of the local economy by supporting several programs that focus on job creation and stable income such as mushroom cultivation program at Takard district, Rope receiving program, Multi-proposed clothes at Baan Nhong chok, and OTOP center at IRPC's learning center. These programs generated over 236 million Baht of income to the communities.

Since 2011 IRPC collaborates with the Prostheses Foundation of H.R.H The Princess Mother to donate plastic pallets to the foundation to manufacture prostheses for people with disabilities to improve life quality and to have jobs to support themselves and their families.



Job Creation (Persons)

Rope receiving program	<b>24</b>
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Multipurposed Clothes at Baan Nhong Chok	<b>7</b>
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OTOP Center	<b>30</b>
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Other Program	<b>459</b>
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<b>Total</b>	<b>520</b>
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Community Income (Baht)

Rope receiving program	<b>3,180,000</b>
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Multipurposed Clothes at Baan Nhong Chok	<b>500,000</b>
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OTOP Center	<b>292,216</b>
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Other Program	<b>232,068,511</b>
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<b>Total</b>	<b>236,040,727</b>
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## “Srang Klong Srang Kon”

project has been initiated based on the success of IRPC's water management program. IRPC in collaboration with The Education and Public Welfare Foundation (EPWF) dredged 5 reservoirs covering 28,800 square meters to solve the shortage of low cost water sources for consumption and agriculture at Baan Nhongyang, Lumsaiyong sub-district,

Nangrong district, Buriram province. Each reservoir is now 4 meters deeper with an increase in total capacity from 41,000 m<sup>3</sup> to 91,000 m<sup>3</sup> and is able to reserve enough water for all 440 households throughout the year. As a result of the project, the living quality in the communities has been substantially improved with better water supply and water reservation for agriculture and reduction of drought risk.

The foundation has been carrying out R&D for prostheses improvement using several types of IRPC's plastic pallets. In 2014, IRPC began to use BANBAX plastic, which has anti-bacterial property, as a raw material to manufacture prostheses. Furthermore, IRPC donated 25 tonnes of plastic pallets to the foundation to go on the mobile unit twice with 60 volunteered employees. Research is being carried out for artificial knee joints using Ultra High Molecular Weight (UHMW) Grade U511. IRPC is the first producer in Thailand and the sole producer in the South East Asia. This type of plastic has corrosion, friction, and high impact resistant properties and is widely accepted to be used in manufacturing of artificial knee joints, hips, or other joint replacements.

## Community Development

IRPC supports and promotes the development of public facilities through health programs, living quality development programs, environmental programs. 6.3 million Baht is the allocated budget for the total of 19 programs. Programs include community broadcasting tower, community health park, construction of community hall, renovation of patient observatory room at Baan Don Health promotional hospital, development of community sport yard, and land development at Klong Krasao.



IRPC has promoted youth education through “1 help 9” program, in collaboration with the Office for National Education Standards and Quality Assessment (ONESQA). ONESQA is considered an educational innovation by developing new educational content that is in line with Thailand’s core value and culture to help and support others. The program’s objectives are:

1. To focus on improving institutions’ education quality and standard
2. To develop an educational quality assurance by helping 9 institutions to improve accordingly to the quality cycle
3. To offer support to institutions to improve performance

IRPC and the participating institutions have jointly developed several activities with a focus on four important aspects including academic, ethic promotion, health and safety, and institutions’ roles and responsibility in the context of social and environmental development.

### Proactive Communication

Following the explosion incident in the IRPC’s industrial area, caused by the malfunctioning of equipment in the production process, IRPC managed to operate in line with the emergency control plan by immediately dispatching CSR team to follow up and monitor the impact as well as dispatching mobile medical units to provide services to affected communities. IRPC closely monitored environmental and social impacts. IRPC communicated with the communities by means of SMS, public hearing sessions, mobile broadcasting vehicles, conference event, Meet the CEO activity, meeting with the sub-district administration council and other related parties, and report center, to elucidate on any information regarding the

incident covering both internal and external stakeholders. IRPC continued to take good care of the stakeholders and monitor the environmental quality in order to provide correct and transparent information to all stakeholders

IRPC, carried out a “public rights to know program” to provide training on flare and chemicals in daily life to five communities including Baanlang, Na Ta Kwan, Tapong, Chergnern Municipal, and Muang Rayong Municipal. Program increased awareness an understanding of the issue; it was organized 5 times with 846 participants.

Open House program is carried out several times a year to give communities, media, government agencies, an opportunity to visit IRPC’s plants and to create better understanding and positive attitude towards IRPC’s business. In 2014, there were 15 visits with 630 participants.

### Environmental Conservation

IRPC has intended to transform 840,000 square meters of land around the industrial area into “Green Area”, which acts as a defensive line between IRPC and the communities protecting any environmental impacts. In 2014, IRPC continued to carry on the afforestation project around the industrial area for 24,000 square meters more, equaling 16,000 trees. Currently, 504,000 square meters of land were successfully afforested.

### Environmentally Friendly Production Process

IRPC develops and continuously improves production process efficiency in order to reduce natural resource usage and impact to the environment. More details can be found in the Climate Change chapter





Afforestation project around the industrial area

(Rai)

Forestation Area **315**

(Tonne of CO<sub>2</sub> Equivalent)

GHG Absorption **2,500**

Employee Contribution

In 2014, IRPC carried out volunteer activities including,

Volunteer community development activities: Eight activities were carried out including landscape reconditioning program at Takraothong School, Na Ta Kwan School, garbage collecting at Seangchan Beach, etc. 480 participants from communities and 275 IRPC's employees, represented a total of 1,700 volunteered hours

Volunteer troop for happiness: Joined a mobile unit with the prostheses foundation during 23<sup>th</sup>-27<sup>th</sup> of March 2014 with 30 employees volunteering a total of 1,200 hours

Volunteer troop for happiness: collaborated with IRPC Technology to conduct a safety and health check for two schools in Burirum Province, which is included in 1 help 9 program, during the 29<sup>th</sup> of November-2<sup>nd</sup> of December 2014 with 90 teachers and students and 15 of IRPC's employees volunteering 128 hours

Volunteer troop for happiness: collaborated with the "Four U For You" club to provide educational assistant to three schools in the 1 help 9 program during 6<sup>th</sup>-7<sup>th</sup>, 13<sup>th</sup>-14<sup>th</sup>, and 20<sup>th</sup>-21<sup>st</sup> of December 2014 with five employees volunteering 40 hours.

Performance Indicators				
	2012	2013	2014	2014 Target
Community Satisfaction (%)	81.75	92.98	88.82	83.00
Social Contribution <sup>(1)</sup> (Baht)	124,109,082	101,090,000	99,416,046	108,962,524
Employee Volunteer (Hours)	-	-	4,244	3,600

Remark:

<sup>(1)</sup> Social Contribution includes community investment, charitable donation, and commercial initiative

## Performance Summary

### ECONOMIC

Financial Performance						
GRI	Data	Unit	2011	2012	2013	2014
G4-EC1	Sale Revenues	Million Baht	246,888	292,430	292,593	281,589
	Operating Costs	Million Baht	235,491	289,770	287,695	287,930
	Employee Wages and Benefits	Million Baht	5,885	5,914	6,749	6,764
	Payments to Providers of Capital	Million Baht	3,666	816	1,632	2,041
	Payment to Governments	Million Baht	9,785	8,189	9,241	7,706
G4-EC4	Tax Privileges from the Board of Investment, Thailand	Million Baht	212	144	384	1,169
	Tax Compensation from Export	Million Baht	189	209	203	186

Production						
GRI	Data	Unit	2011	2012	2013	2014
	Annual Production	Tonne	8,983,402	9,992,059	10,421,615	9,965,199

Supply Chain Management						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	%	100	100	100	100
G4-LA14	Percentage of new suppliers that were screened using labour practices criteria	%	100	100	100	100
G4-HR10	Percentage of new suppliers that were screened using human right criteria	%	100	100	100	100
G4-SO9	Percentage of new suppliers that were screened using criteria impacts on society	%	100	100	100	100
G4-EC9	Spending on purchasing of products and services from suppliers and contractors in Rayong	Million Baht	2,396	2,539	1,594	2,096
	Percentage of spending in Rayong comparing to the total budget	%	16.49	19.86	16.22	15.84

Customer Relationship Management						
GRI	Data	Unit	2011	2012	2013	2014
G4-PR5	Annual customer satisfaction survey results	Satisfaction rate	91	90	88	89
G4-PR8	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

Remark: Annual customer satisfaction survey results has been revised according the actual survey score.



People							
GRI	Data	Unit	2011	2012	2013	2014	
G4-10	<b>Total Workforce<sup>(1)</sup></b>	<b>Person</b>	<b>6,476</b>	<b>6,661</b>	<b>6,685</b>	<b>6,528</b>	
	• Male	Person	5,430	5,552	5,593	5,495	
	• Female	Person	1,046	1,109	1,092	1,033	
	<i>Employee by area</i>						
	• Bangkok	Person	756	771	756	727	
	• Male	Person	324	333	324	308	
	• Female	Person	432	438	432	419	
	• Rayong	Person	4,110	4,156	4,199	4,225	
	• Male	Person	3,705	3,753	3,792	3,821	
	• Female	Person	405	403	407	404	
	• Others	Person	320	321	318	315	
	• Male	Person	295	296	293	291	
	• Female	Person	25	25	25	24	
	<i>Employee by level</i>						
	• Executive (Level 13-18)	Person	79	84	81	72	
	• Male	Person	64	67	64	59	
	• Female	Person	15	17	17	13	
	• Middle Management (Level 9-12)	Person	314	338	346	705	
	• Male	Person	254	275	282	563	
	• Female	Person	60	63	64	142	
	• Supervisory (Level 6-8)	Person	845	951	933	2,281	
	• Male	Person	680	759	745	1,837	
	• Female	Person	165	192	188	444	
	• Employee (Level 1-5)	Person	3,958	3,875	3,913	2,209	
	• Male	Person	3,336	3,281	3,318	1,961	
	• Female	Person	622	594	595	248	
	<i>Total Workforce by employment type</i>						
	• Total full-time employee	Person	5,186	5,248	5,273	5,267	
	• Male	Person	4,324	4,382	4,409	4,420	
	• Female	Person	862	866	864	847	
	• Supervised Workers	Person	1,290	1,413	1,412	1,261	
	• Male	Person	1,106	1,170	1,184	1,075	
	• Female	Person	184	243	228	186	
<i>Total Workforce by area</i>							
• Bangkok	Person	806	839	817	774		
• Male	Person	354	369	354	329		
• Female	Person	452	470	463	445		
• Rayong	Person	5,316	5,397	5,430	5,337		
• Male	Person	4,749	4,790	4,837	4,747		
• Female	Person	567	607	593	590		
• Others	Person	354	425	438	437		
• Male	Person	327	393	402	402		
• Female	Person	27	32	36	35		
G4-LA12	<b>Employee by age</b>						
	• Over 50 years old	Person	217	271	329	390	
	• Male	Person	117	219	270	319	
	• Female	Person	100	52	59	71	

GRI	Data	Unit	2011	2012	2013	2014	
G4-LA12	• 30-50 years old	Person	4,478	4,516	4,477	4,396	
	• Male	Person	3,753	3,784	3,745	3,672	
	• Female	Person	725	732	732	724	
	• Below 30 years old	Person	491	461	467	481	
	• Male	Person	395	379	394	429	
	• Female	Person	96	82	73	52	
G4-LA1	<b>Total new employee</b>	Person	160	110	100	95	
		% of total employees	3.09	2.10	1.90	1.80	
	• Male	Person	111	98	88	92	
		% of total employees	2.14	1.87	1.67	1.75	
	• Female	Person	49	12	12	3	
		% of total employees	0.94	0.23	0.23	0.06	
	<i>New employee by area</i>						
	• Bangkok	Person	48	25	11	0	
		% of total employees	0.93	0.48	0.21	0.00	
	• Male	Person	15	16	4	0	
		% of total employees	0.29	0.30	0.08	0.00	
	• Female	Person	33	9	7	0	
		% of total employees	0.64	0.17	0.13	0.00	
	• Rayong	Person	112	85	89	95	
		% of total employees	2.16	1.62	1.69	1.80	
	• Male	Person	96	82	84	92	
		% of total employees	1.85	1.56	1.59	1.75	
	• Female	Person	16	3	5	3	
		% of total employees	0.31	0.06	0.09	0.06	
	• Others	Person	0	0	0	0	
		% of total employees	0.00	0.00	0.00	0.00	
	• Male	Person	0	0	0	0	
		% of total employees	0.00	0.00	0.00	0.00	
	• Female	Person	0	0	0	0	
		% of total employees	0.00	0.00	0.00	0.00	
	<i>New employee by age</i>						
	• Over 50 years old	Person	4	5	2	0	
		Male	0.08	0.10	0.04	0.00	
	• Male	Person	2	5	2	0	
		% of total employees	0.04	0.10	0.04	0.00	
	• Female	Person	2	0	0	0	
		% of total employees	0.04	0.00	0.00	0.00	



GRI	Data	Unit	2011	2012	2013	2014	
G4-LA 1	• 30-50 years old	Person	23	15	4	1	
		% of total employees	0.44	0.29	0.08	0.02	
	• Male	Person	10	9	1	0	
		% of total employees	0.19	0.17	0.02	0.00	
	• Female	Person	13	6	3	1	
		% of total employees	0.25	0.11	0.06	0.02	
	• Below 30 years old	Person	133	90	94	94	
		% of total employees	2.56	1.71	1.78	1.78	
	• Male	Person	99	84	85	92	
		% of total employees	1.91	1.60	1.61	1.75	
	• Female	Person	34	6	9	2	
		% of total employees	0.66	0.11	0.17	0.04	
	<b>Total turnover</b>	Person	53	47	70	83	
		% of total employees	1.02	0.90	1.33	1.58	
	• Male	Person	45	38	57	66	
		% of total employees	0.87	0.72	1.08	1.25	
	• Female	Person	8	9	13	17	
		% of total employees	0.15	0.17	0.25	0.32	
	<i>Turnover by area</i>						
	• Bangkok	Person	13	14	20	21	
		% of total employees	0.25	0.27	0.38	0.40	
	• Male	Person	8	8	9	11	
		% of total employees	0.15	0.15	0.17	0.21	
	• Female	Person	5	6	11	10	
		% of total employees	0.10	0.11	0.21	0.19	
	• Rayong	Person	37	33	49	59	
		% of total employees	0.71	0.63	0.93	1.12	
	• Male	Person	34	30	47	53	
		% of total employees	0.66	0.57	0.89	1.01	
	• Female	Person	3	3	2	6	
		% of total employees	0.06	0.06	0.04	0.11	
	• Others	Person	3	0	1	3	
% of total employees		0.06	0.00	0.02	0.06		
• Male	Person	3	0	1	2		
	% of total employees	0.06	0.00	0.02	0.04		
• Female	Person	0	0	0	1		
	% of total employees	0.00	0.00	0.00	0.02		

GRI	Data	Unit	2011	2012	2013	2014	
G4-LA1	<i>Turnover by age</i>						
	• Over 50 years old	Person	7	7	10	13	
		% of total employees	0.13	0.13	0.19	0.25	
	• Male	Person	7	5	9	11	
		% of total employees	0.13	0.10	0.17	0.21	
	• Female	Person	0	2	1	2	
		% of total employees	0.00	0.04	0.02	0.04	
	• 30-50 years old	Person	34	24	41	48	
		% of total employees	0.66	0.46	0.78	0.91	
	• Male	Person	28	19	32	36	
		% of total employees	0.54	0.36	0.61	0.68	
	• Female	Person	6	5	9	12	
		% of total employees	0.12	0.10	0.17	0.23	
	• Below 30 years old	Person	12	16	19	22	
		% of total employees	0.23	0.30	0.36	0.42	
	• Male	Person	10	14	16	19	
% of total employees		0.19	0.27	0.30	0.36		
• Female	Person	2	2	3	3		
	% of total employees	0.04	0.04	0.06	0.06		
G4-LA3 <sup>(2)</sup>	Employee Entitled for Parental Leave		Person	862	5,248	5,273	5,267
	• Male	Person	N/A	4,382	4,409	4,420	
		Person	862	866	864	847	
	Number of Employee Taken Parental Leave		Person	21	26	88	167
	• Male	Person	N/A	1	74	152	
		Person	21	25	14	15	
	Number of Employee Return to Work After Parental Leave		Person	21	26	88	167
	• Male	Person	N/A	1	74	152	
		% of Employee Return to Work After Parental Leave	N/A	100	100	100	
	• Female	Person	21	25	14	15	
		% of Employee Return to Work After Parental Leave	100	100	100	100	
	Employee Entitled for Parental Leave Who Still Employed for the Next 12 Months		Person	21	26	88	167
	• Male	Person	N/A	1	74	152	
		% of Employee Return to Work After Parental Leave	N/A	100	100	100	
	• Female	Person	21	25	14	15	
		% of Employee Return to Work After Parental Leave	100	100	100	100	
G4-11	Total Employees Covered by Collective Bargaining	%	86	86	86	86	



GRI	Data	Unit	2011	2012	2013	2014
G4-LA9	Training Hours of <u>Male</u> Employees Based in <u>Bangkok</u>	Hours	8,017	10,274	5,925	4,509
	• Executive (Level 13-18)	Hours	1,085	1,831	976	321
	• Middle Management (Level 9-12)	Hours	3,342	3,144	2,046	1,562
	• Supervisory (Level 6-8)	Hours	2,600	4,312	2,376	2,157
	• Operation (Level 1-5)	Hours	991	988	528	470
	Training Hours of <u>Female</u> Employees Based in <u>Bangkok</u>	Hours	9,856	12,331	8,925	7,384
	• Executive (Level 13-18)	Hours	618	542	123	144
	• Middle Management (Level 9-12)	Hours	3,508	3,855	3,256	2,041
	• Supervisory (Level 6-8)	Hours	4,886	6,993	5,189	4,640
	• Operation (Level 1-5)	Hours	844	942	357	560
	Training Hours of <u>Male</u> Employees Based in <u>Rayong</u>	Hours	162,075	156,637	133,187	125,780
	• Executive (Level 13-18)	Hours	2,575	1,727	1,046	183
	• Middle Management (Level 9-12)	Hours	28,189	21,872	14,065	11,445
	• Supervisory (Level 6-8)	Hours	65,057	81,139	79,108	65,521
	• Operation (Level 1-5)	Hours	66,253	51,899	38,969	48,631
	Training Hours of <u>Female</u> Employees Based in <u>Rayong</u>	Hours	14,860	15,356	13,803	10,474
	• Executive (Level 13-18)	Hours	-	-	-	-
	• Middle Management (Level 9-12)	Hours	2,129	2,166	1,492	1,100
	• Supervisory (Level 6-8)	Hours	5,369	6,254	6,077	5,186
	• Operation (Level 1-5)	Hours	7,316	6,937	6,234	4,189
	Training Hours of <u>Male</u> Employees Based in <u>Other Areas</u>	Hours	8,708	11,532	12,136	12,427
	• Executive (Level 13-18)	Hours	-	-	-	-
	• Middle Management (Level 9-12)	Hours	1,007	917	714	637
	• Supervisory (Level 6-8)	Hours	3,763	5,414	7,398	550
	• Operation (Level 1-5)	Hours	3,938	5,202	4,024	11,241
	Training Hours of <u>Female</u> Employees Based in <u>Other Areas</u>	Hours	443	676	1,034	928
	• Executive (Level 13-18)	Hours	-	-	-	-
	• Middle Management (Level 9-12)	Hours	33	54	19	32
• Supervisory (Level 6-8)	Hours	163	262	429	342	
• Operation (Level 1-5)	Hours	247	360	586	555	
G4-LA6 <sup>(3)</sup>	Absentee Rate					
	• Male	%	0.49	0.47	0.53	0.56
	• Female	%	0.59	0.86	0.78	0.85
	Employee Satisfaction	% of total employees	90.76	85.51	78.98	79.14

Remark: <sup>(1)</sup> IRPC has calculated Total Workforce by including Supervised Worker since 2014.

<sup>(2)</sup> No data prior to 2012 due to allowance of male employees to take parental leave in 2012.

<sup>(3)</sup> Absentee Rate has been calculated from total employee only. IRPC plan to include Supervised Worker in year 2015.

## Safety

Oil and Chemical Spills						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN24	Significant Oil & Chemical Spills	Cases	0	0	0	0
		m <sup>3</sup>	0	0	0	0

Process Safety						
GRI	Data	Unit	2011	2012	2013	2014
G4-OG13	Number of Tier 1 Process Safety Events	Cases	11	10	9	3
	Number of Tier 2 Process Safety Events	Cases	17	17	19	6

Occupational Health and Safety						
GRI	Data	Unit	2011	2012	2013	2014
G4-LA6 <sup>(1)</sup>	Injuries Rate (IR)					
	• Total Workforce	Case/ Million hours worked	1.23	0.65	0.55	0.95
	• Contractor	Case/ Million hours worked	0.44	1.37	1.52	0.23
	Lost Time Injuries Frequency Rate (LTIFR)					
	• Total Workforce	Case/ Million hours worked	0.61	0.37	0.28	0.36
	• Contractor	Case/ Million hours worked	0.37	0.95	0.76	0.04
	Occupational Illness Frequency Rate (OIFR) <sup>(2)</sup>					
	• Total Workforce	Day/Million hours worked	0	0	0	0
	• Contractor	Day/Million hours worked	0	0	0	0
	Lost Day Rate (LDR)					
	• Total Workforce	Day/Million hours worked	N/A	5.66	2.02	12.47
	• Contractor	Day/Million hours worked	N/A	9.45	4.84	1.09
	Fatalities					
	• Total Workforce	Person	0	0	0	0
	• Contractor	Person	0	0	0	0

Remark: <sup>(1)</sup> Supervised Worker has included as contractor during 2011-2013  
IRPC has calculated Supervised Worker as Total Workforce since 2014.

<sup>(2)</sup> Occupational Illness Frequency Rate (OIFR) is the same indicator as Occupational Diseases Rate (ODR)



## ENVIRONMENTAL

Materials Consumption						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN1	Crude Oil	Tonne	7,590,783	8,443,110	8,638,824	8,233,754
	Naptha	Tonne	601,586	740,741	781,570	745,450

Energy Consumption						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN3	Total direct energy consumption	GJ	39,258,455	46,996,572	46,514,605	46,802,327
	Total direct energy consumption	MWh	10,905,126	13,054,603	12,920,724	13,000,646
	• Fuel Oil	GJ	5,235,582	4,799,448	3,260,643	3,232,745
	• Natural Gas	GJ	12,888,717	18,196,884	19,746,980	19,541,406
	• LPG	GJ	3,644,995	5,204,768	4,500,009	5,264,745
	• Diesel	GJ	880,468	694,938	544,483	306,776
	• Fuel Gas	GJ	9,204,041	10,545,398	11,751,676	11,283,953
	• Coke	GJ	2,032,396	2,302,937	2,344,800	2,196,671
	• H <sub>2</sub> S	GJ	1,263	167	135	110
	• Coal	GJ	5,354,008	5,228,391	4,365,879	4,951,037
	• Waste Monomer	GJ	882	0	0	0
	• Recycle monomer	GJ	16,131	23,641	0	24,884
	Total indirect energy consumption	GJ	665,755	14,688	6,617	18,636
	Total indirect energy consumption	MWh	184,932	4,080	1,838	5,177
	• Electricity purchased	MWh	184,932	4,080	1,838	5,177
	Total electricity sold	MWh	363,196	479,458	485,569	600,524
	Total electricity sold	GJ	1,307,506	1,726,049	1,748,048	2,161,886
	Total steam sold	Tonne	1,103,830	1,175,711	1,039,163	1,038,872
Total steam sold	GJ	3,400,702	3,622,154	3,201,474	3,221,016	
G4-EN5	Energy intensity	GJ/Tonne of Production	3.92	4.17	3.99	4.16
G4-EN6	Energy saved due to conservation and efficiency improvements	GJ	253,714	1,397,443	5,149,700	372,357
G4-EN30	Total diesel consumed by IRPC owned marine vessels	Litre	761,826	831,056	810,386	726,146

Flared and Vented Hydrocarbon						
GRI	Data	Unit	2011	2012	2013	2014
G4-OG6	Volume of flared hydrocarbon					
	Petroleum Business	Million M <sup>3</sup>	5.560	15.934	15.097	19.117
	Petrochemical Business	Million M <sup>3</sup>	15.995	6.839	16.157	19.549

Greenhouse Gas						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN15 G4-EN16	Operational Control					
	Direct emissions of greenhouse gas (Scope 1) <sup>(1)</sup>	Million tCO <sub>2</sub> e	2.756	3.424 <sup>(2)</sup>	3.393	3.121
	Indirect emissions of greenhouse gas (Scope 2) <sup>(4)</sup>	Million tCO <sub>2</sub> e	0.088	0.006	0.001	0.004
	Equity Basis <sup>(3)</sup>					
	Direct emissions of greenhouse gas (Scope 1) <sup>(1)</sup>	Million tCO <sub>2</sub> e	N/A	N/A	N/A	3.124
	Indirect emissions of greenhouse gas (Scope 2) <sup>(4)</sup>	Million tCO <sub>2</sub> e	0.088	0.006	0.001	0.004
G4-EN18	GHG Intensity	tCO <sub>2</sub> e/Tonne production	0.317	0.343	0.326	0.314

Remark: <sup>(1)</sup> Scope 1 GHG emission has been recalculated by excluding scope 2 GHG

<sup>(2)</sup> Scope 1 GHG emission in 2012 has been recalculated to be used as base year by adding emission from new projects (PRP, ABS, and EBSM)<sup>(3,4,22)</sup>

<sup>(3)</sup> GHG emission from IRPC, IRPC Oil, Thai ABS and IRPC Polyol which IRPC holds more than 50% equity and UCHA, which IRPC holds 25% equity

<sup>(4)</sup> Scope 2 GHG emission has been recalculated due to change in the referencing emission factors from TGO to PTT

Air Emissions						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN21	Total NOx	Tonne	2,776	2,745	4,138	2,700
	NOx Intensity <sup>(1)</sup>	Tonne/ Thousand Tonne of throughput	3.14	1.90	2.57	1.74
	Total SOx <sup>(2)</sup>	Tonne	2,067	1,357	1,666	1,430
	SOx Intensity <sup>(3)</sup>	Tonne/ Thousand Tonne of throughput	1.17	0.41	0.46	0.37
	Total VOCs	Tonne	N/A <sup>(4)</sup>	1,109	1,127	969
	Total Suspended Particulate (TSP)	Tonne	452	335	323	325

Remark: <sup>(1)</sup> NOx intensity include petroleum and petrochemical business only

<sup>(2)</sup> SOx reported in the Table is in the form of sulfur dioxide (SO<sub>2</sub>)

<sup>(3)</sup> SOx intensity include petroleum and petrochemical business only

<sup>(4)</sup> N/A is not available data

Water Consumption and Wastewater						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN8	Water withdrawn by source	m <sup>3</sup>	38,303,016	40,351,785	40,612,460	41,735,528
	• IRPC water utility plant	m <sup>3</sup>	20,783,016	22,831,785	23,092,460	24,215,528
	• Salt/brackish water	m <sup>3</sup>	17,520,000	17,520,000	17,520,000	17,520,000
	Fresh water withdrawal intensity <sup>(1)</sup>	m <sup>3</sup> /Tonne of production	0.98	0.96	0.89	0.89
G4-EN10	Total volume of recycled/reused water	m <sup>3</sup>	N/A	2,600,000	2,664,500	3,115,275
		% of total water withdrawal	N/A	6.44	6.56	7.46
G4-EN22	Total volume of water discharge	Million m <sup>3</sup>	2.12	2.21	2.51	2.51
	• Chemical oxygen demand (COD) in treated wastewater discharged	Tonne	176	188	211	179
	• Biochemical oxygen demand (BOD) in treated wastewater discharged	Tonne	11	5	16	17
	• Total suspended solid (TSS) in treated wastewater discharged	Tonne	49	60	74	47

Remark: <sup>(1)</sup> Fresh water withdrawal intensity include petroleum and petrochemical business only

Solid Waste						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN23	Total waste disposed	Tonne	-	-	21,238	26,994
	Non-hazardous waste	Tonne	-	-	15,643	22,489
	• Reuse	Tonne	-	-	0	0
	• Recycling	Tonne	-	-	13,974	15,812
	• Recovery	Tonne	-	-	0	144
	• Incineration	Tonne	-	-	42	41
	• Landfill	Tonne	-	-	1,627	4,712
	• Others	Tonne	-	-	0	1,873
	Hazardous waste	Tonne	-	-	2,386	4,054
	• Reuse	Tonne	-	-	0	42
	• Recycling	Tonne	-	-	147	440
	• Recovery	Tonne	-	-	787	2,234
	• Incineration	Tonne	-	-	1,175	860
	• Landfill	Tonne	-	-	277	312
	• Others	Tonne	-	-	0	166
	Waste from non-routine operation <sup>(1)</sup>	Tonne	-	-	3,209	451
	• Non-hazardous waste	Tonne	-	-	N/A	336
	• Hazardous waste	Tonne	-	-	N/A	115
	On-site storage	Tonne	-	-	N/A	416
	G4-EN25	Total hazardous waste transportation	Tonne	-	-	N/A
Total hazardous waste import to IRPC		Tonne	-	-	N/A	0
Total hazardous waste export from IRPC		Tonne	-	-	N/A	4,169
Total treated hazardous waste		Tonne	-	-	N/A	0
Total hazardous waste shipped internationally		Tonne	-	-	N/A	165

Remark: <sup>(1)</sup> Waste from non-routine operation i.e. construction waste. This includes hazardous waste and non-hazardous waste.

ENVIRONMENTAL PROTECTION EXPENDITURES AND INVESTMENT AND FINES						
GRI	Data	Unit	2011	2012	2013	2014
G4-EN31	Environmental protection expenditures and investments (e.g. operation related costs, etc.)	Million Baht	218	557	154	581
G4-EN29	Monetary value of significant fines	Million Baht	0	0	0	0
	Number of non-monetary sanctions	Case	0	0	0	0
	Cases brought through dispute resolution mechanisms	Case	0	0	0	0

Philanthropy						
GRI	Data	Unit	2011	2012	2013	2014
G4-EC1	Cash contribution	Baht	154,123,422	124,109,082	101,090,000	99,416,046





## LRQA Assurance Statement

### Relating to IRPC Public Company Limited's Corporate Sustainability Report for the calendar year 2014

This Assurance Statement has been prepared for IRPC Public Company Limited in accordance with our contract but is intended for the readers of this Report.

#### Terms of engagement

Lloyd's Register Quality Assurance Ltd. (LRQA) was commissioned by IRPC Public Company Limited (IRPC) to provide independent assurance on its '2014 Corporate Sustainability Report' ("the report") against the assurance criteria below to a limited level of assurance and at the materiality of the professional judgement of the verifier using "LRQA's verification approach. LRQA's verification approach is based on current best practise and uses the principles of AA1000AS (2008) - inclusivity, materiality, responsiveness and reliability of performance data and processes defined in ISAE3000.

Our assurance engagement covered IRPC's subsidiaries in Thailand under its operational control and where IRPC holds more than 50% of share capital, and specifically the following requirements:

- Confirming that the report is in accordance with:
  - GRI G4's reporting guidelines and core option
  - GRI G4's oil and gas sector disclosures
- Evaluating the reliability of data and information for only the selected specific standard disclosures listed below:
  - Environmental : energy consumption within the organization (G4-EN3), direct and indirect GHG emissions (G4-EN15-16), NO<sub>x</sub>, SO<sub>x</sub>, and other significant air emissions (VOC) (G4-EN21), total weight of waste by type and disposal method (G4-EN23), and
  - Social : type of injury and rates of injury, occupational diseases, lost days (G4-LA 6).

Our assurance engagement excluded the data and information of IRPC's subsidiaries where it has no operational control and all its operations and activities outside of Thailand. Our assurance engagement also excluded the data and information of its suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to IRPC. LRQA disclaims any liability or responsibility to others as explained in the end footnote. IRPC's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of IRPC.

#### LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that IRPC has not:

- Met the requirements above
- Disclosed accurate and reliable performance data and information
- Covered all the issues that are important to the stakeholders and readers of this report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

**Note:** The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites.

#### LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification approach. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing IRPC's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this by interviewing with IRPC staffs who conducted dialogues with these stakeholders, and reviewing associated records.
- Reviewing IRPC's process for identifying and determining material issues to confirm that the right issues were included in their report. We did this by benchmarking reports written by IRPC and its peers to ensure that sector specific issues were included for comparability.



- We also tested the filters used in determining material issues to evaluate whether IRPC makes informed business decisions that may create opportunities which contribute towards sustainable development.
- Auditing IRPC's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling process, and systems, including those for internal verification. We also spoke with key people in various departments responsible for compiling the data and drafting the report.
  - Visiting the coal fired power plant, substation, waste yard, and the tank farm in IRPC's industrial complex in Rayong to sample evidence for the selected specific standard disclosures to confirm its reliability.

### Observations

Further observations and findings, made during the assurance engagement, are:

- **Stakeholder inclusivity:**  
We are not aware of any key stakeholder groups that have been excluded from IRPC's stakeholder engagement process. IRPC maintains open dialogues with all of its stakeholders on regular basis to address their growing expectations.
- **Materiality:**  
We are not aware of any material issues concerning IRPC's sustainability performance that have been excluded from the report. We believe that future reports should disclose IRPC's strategy and management approach for biodiversity issues.
- **Responsiveness:**  
IRPC has established a measurement and monitoring processes for GHG and significant air emissions as a response to a growing expectation of its stakeholders. However, we believe that future reports should disclose more information about its GHG reduction programmes as well as performance of its VOC exposure control activities.
- **Reliability:**  
Data management systems are defined but the implementation of these systems varies among its subsidiaries and relevant departments. IRPC may consider establishing control activities such as internal verification to further improve the reliability of its data and information.

### LRQA's competence and independence

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

This verification is the only work undertaken by LRQA for IRPC and as such does not compromise our independence or impartiality.

Dated: 27 February 2015

Opart Charuratana  
LRQA Lead Verifier  
On behalf of Lloyd's Register Quality Assurance Ltd.  
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## Awards and Recognition

### International Awards:

MEMBER OF  
**Dow Jones**  
**Sustainability Indices**  
 In Collaboration with RobecoSAM

In 2014, IRPC became a **member of the Dow Jones Sustainability Indices: Emerging Market** in Oil and Gas Industry



**ROBECOSAM**  
**Sustainability Award**  
**Bronze Class 2015**

In the **RobecoSAM Yearbook 2015**, IRPC received ranking of **Bronze class**, with the assessment score being within 5-10% of the Oil and Gas industry leaders.



**ROBECOSAM**  
**Sustainability Award**  
**Industry Mover 2015**

IRPC was recognized as the **Industry Mover** with the most improved assessment score compared to the 2013 score



IRPC was awarded the **Golden Peacock Awards 2014** for Excellence in Corporate Governance by the Institute of Directors (IDO), India.



IRPC's role as a **UNGC** signatory in 2014

- IRPC aims to submit GC Advanced level report instead of GC Active level report
- IRPC participated in UNGC: Call to Action: Anti-Corruption and The Global Development Agenda to make a stand against all forms of corruption



## Regional Awards:

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**Corporate Governance Asia Recognition Awards 2014** IRPC was awarded Asia's Outstanding Company for Corporate Governance, Best Investor Relations Company, and Company Secretary by the Corporate Governance Asia Magazine, Hong Kong

IRPC received the Outstanding Entrepreneurship: **Asia Pacific Entrepreneurship Awards 2014 (APEA)** by Entrepreneur Asia.



IRPC was ranked top (90 point or above) in terms of corporate governance according to **ASEAN CG Scorecard 2013/2014**



**IRPC was ranked in the top 20 companies in Asia** by Channel NewsAsia in collaboration with CSR Asia and Sustainalytics in terms of sustainable development.

## National Awards:

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IRPC received **The Prime Minister's Industry Award 2014** by the Energy Ministry in terms of Energy Management



IRPC was awarded **CSR Recognition Award 2014: Most Improved CSR** by The Stock Exchange of Thailand. The CSR Award was given to 3 companies of the total 75 companies participating



IRPC received a **CSR recognition plaque from The Ministry of Social Development and Human Security.**



IRPC received ranking of level 4 (Certified) in **Anti-Corruption Progress Indicator Assessment** by The Office of The Securities and Exchange Commission and Thai Pat Institute



**IRPC achieved the EIA Monitoring Awards 2014** by The Ministry of Natural Resources and Environment. Outstanding awards were given to 3 projects:

- CHP Project
- Product Multi-Pipeline Project in collaboration with PTTAR
- Port Project



IRPC's CEO received the **“Epitome in Petrochemical and Chemicals Industries”** award in the **“Quality Persons of the Year 2014”** Award Ceremony by the Foundation of Science and Technology Council of Thailand.



IRPC was awarded Top Innovative Company in **The Thailand: Top Company Awards 2014** by Business+ Magazine in affiliation with ARiP Co. Ltd. together with the University of the Thai Chamber of Commerce.



IRPC received the Outstanding Award in the **Sustainability Report Award 2014** by the Thai listed Company Association: CSR Club with support from The Office of The Securities and Exchange Commission and Thaipat Institute.



IRPC received **“Excellence” in the corporate governance assessment 2014** for listed companies by the Thai Institute of Directors (IOD) for 6 consecutive years (2009-2014)



On 4<sup>th</sup> April 2014, IRPC was certified as an alliance signatory in the **Collective Action Coalition against Corruption (CAC)** by the Anti-Corruption Organization of Thailand. Certification states that IRPC has anti-corruption policy and prevention plans in place as regulated by CAC.





# MATERIALITY DISCLOSURES

MAR 2015

SERVICE

IRPC PUBLIC COMPANY LIMITED

## Global Reporting Initiative

IRPC Sustainability Report 2014 was prepared according to the GRI G4 Guidelines at in accordance core level and submitted for and completed the Materiality Disclosures Service.

## GRI Content Index

GENERAL STANDARD DISCLOSURES					
General Standard Disclosures	Page Number (or Link)	Omissions/ Remarks	External Assurance	UNGC Advanced Level	
Strategy and Analysis	G4-1	4-5	-	-	19
	G4-2	14-17	-	-	19
Organizational Profile	G4-3	10	-	-	-
	G4-4	10-11	-	-	-
	G4-5	<a href="http://www.irpc.co.th/en/contact.php">http://www.irpc.co.th/en/contact.php</a>	-	-	-
	G4-6	10	-	-	-
	G4-7	<a href="http://www.irpc.co.th/en/ir_home_en.php">http://www.irpc.co.th/en/ir_home_en.php</a>	-	-	-
	G4-8	10-11	-	-	-
	G4-9	8-9	-	-	-
	G4-10	105	-	-	-
	G4-11	87, 108	-	-	-
	G4-12	44-47	-	-	2
	G4-13	14, 120	IRPC revised the organizational structure in 2014.	-	2
	G4-14	33	-	-	-
	G4-15	33, 67	-	-	-
	G4-16	16, 31, 72	-	-	-
Identified Material Aspects and Boundaries	G4-17	18	-	Yes, 114-115	-
	G4-18	18, 21	-	Yes, 114-115	-
	G4-19	22	-	Yes, 114-115	-
	G4-20	22	-	Yes, 114-115	-
	G4-21	22	-	Yes, 114-115	-
	G4-22	112	Scope 1 GHG emissions calculation of base year has been recalculated.	Yes, 114-115	-
	G4-23	-	No significant change in scope and boundary from previous reporting periods.	Yes, 114-115	-

General Standard Disclosures		Page Number (or Link)	Omissions/ Remarks	External Assurance	UNGC Advanced Level
Stakeholder Engagement	G4-24	19	-	-	21
	G4-25	19	-	-	21
	G4-26	19	-	-	21
	G4-27	19	-	-	21
Report Profile	G4-28	18	-	-	-
	G4-29	<a href="http://www.irpc.co.th/en/library.php?typeID=18">http://www.irpc.co.th/en/library.php?typeID=18</a>	-	-	-
	G4-30	<a href="http://www.irpc.co.th/en/library.php?typeID=18">http://www.irpc.co.th/en/library.php?typeID=18</a>	-	-	-
	G4-31	23	-	-	-
	G4-32	18, 120-124	-	-	-
	G4-33	114-115	-	-	-
Governance	G4-34	28-29	-	-	1, 20
	G4-35	29	-	-	1, 20
	G4-36	14	-	-	1, 20
	G4-37	29	-	-	1, 20
	G4-38	29	-	-	1, 20
	G4-39	29	-	-	1, 20
	G4-40	29	-	-	1, 20
	G4-41	<a href="http://www.irpc.co.th/en/cg_policy_good.php">http://www.irpc.co.th/en/cg_policy_good.php</a> <a href="http://www.irpc.co.th/en/cg_control_manage.php">http://www.irpc.co.th/en/cg_control_manage.php</a>	-	-	1, 2, 20
	G4-42	29	-	-	1, 20
	G4-43	29	-	-	1, 20
	G4-44	17, 31	-	-	1, 20
	G4-45	14, 33	-	-	1, 20
	G4-46	14, 33	-	-	1, 20
	G4-47	16, 29	-	-	1, 20
	G4-48	18	-	-	1, 20
	G4-49	121	While the Board of Directors determines and revises business direction, and approves of strategies and projects that are related to sustainable development, the Sustainability Management Office has the duty to support and communicate these developments to representatives from various divisions including matters such as performance indicators, results monitoring, and any other issues related to business sustainability. In 2015, IRPC plans to establish a Sustainable Development Committee to enforce and enable solid performance towards corporate sustainability targets.	-	1, 20
	G4-50	121		-	1, 20
	G4-51	31, 87	-	-	1, 20
	G4-52	121	None.	-	1, 20
	G4-53	121	Rights of Shareholders, refer to <a href="http://www.irpc.co.th/en/ir_home_en.php">http://www.irpc.co.th/en/ir_home_en.php</a>	-	1, 20
G4-54	Not reported	Information is confidential.	-	1, 20	
G4-55	Not reported	Information is confidential.	-	1, 20	
Ethics and Integrity	G4-56	30, 87	-	-	12-14
	G4-57	30	-	-	12-14
	G4-58	30-31	-	-	12-14

SPECIFIC STANDARD DISCLOSURES					
Material Aspects	DMA and Indicators	Page Number (or Link)	Omissions/ Remarks	External Assurance	UNGC Advanced Level
<b>ECONOMICS</b>					
Economic Performance	G4-DMA	13	-	✓	15-18
	G4-EC1 <sup>OGSS</sup>	104, 113	-	-	-
	G4-EC2 <sup>OGSS</sup>	32-35	-	-	-
	G4-EC3	87	IRPC employees receive compensations and benefits that are above the minimum requirement by Thai labor laws.	-	-
	G4-EC4	104	-	-	-
<b>ENVIRONMENTAL</b>					
Energy	G4-DMA <sup>OGSS</sup>	76-78	-	✓	9-11, 15-18
	G4-EN3	111	-	✓	9-11
	G4-EN4	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	2, 9-11
	G4-EN5 <sup>OGSS</sup>	111	-	-	9-11
	G4-EN6	77-78, 111	-	-	9-11
	G4-EN7	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	9-11
	G4-OG2	Not material	IRPC's core business is petroleum and petrochemical businesses. Nevertheless, IRPC is aware of the importance of clean energy where the electrical power plants are combined heat and power plants (CHP) and IRPC promotes the use of natural gas.	-	-
	G4-OG3	Not material		-	-
Water	G4-DMA	64-66	-	✓	9-11, 15-18
	G4-EN8 <sup>OGSS</sup>	112	-	-	9-11
	G4-EN9 <sup>OGSS</sup>	65	-	-	9-11
	G4-EN10	67, 112	-	-	9-11
Emissions	G4-DMA	58-61, 76-78	-	✓	9-11, 15-18
	G4-EN15 <sup>OGSS</sup>	112	Scope 1 GHG emission in 2012 has been recalculated to be used as base year by adding emission from new projects (PRP, ABS, and EBSM). IRPC starts reporting Scope 1 GHG emissions based on equity share approach in 2014.	✓	9-11
	G4-EN16 <sup>OGSS</sup>	112	-	✓	9-11
	G4-EN17 <sup>OGSS</sup>	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	2, 9-11
	G4-EN18 <sup>OGSS</sup>	112	-	-	9-11
	G4-EN19 <sup>OGSS</sup>	77-78	-	-	9-11
	G4-EN20	Not material	IRPC is in the process of phasing out the usage of the ozone-depleting substances (ODS) by substituting ODS with non-ODS refrigerants.	-	9-11
	G4-EN21 <sup>OGSS</sup>	59-61, 112	-	✓	9-11



Material Aspects	DMA and Indicators	Page Number (or Link)	Omissions/ Remarks	External Assurance	UNGC Advanced Level
Effluents and Waste	G4-DMA <sup>ogss</sup>	54-55	-	✓	9-11, 15-18
	G4-EN22	112	-	-	9-11
	G4-EN23 <sup>ogss</sup>	113	-	✓	9-11
	G4-EN24 <sup>ogss</sup>	73, 110	-	-	9-11
	G4-EN25	113	-	-	9-11
	G4-EN26	Not material	IRPC has processes in place to prevent impacts on the environment. IRPC continuously improves the management approach and mitigation measures to control risks on biodiversity associated with our activities (e.g. ship-to-ship lightering and loading/unloading at IRPC Ports).	-	9-11
	G4-OG5	Not applicable	Not applicable to IRPC's business.	-	-
Products and Services	G4-OG6	111	-	-	-
	G4-OG7	Not applicable	Not applicable to IRPC's business.	-	-
	G4-DMA	37-39	-	✓	9-11, 15-18
	G4-EN27 <sup>ogss</sup>	38-39	-	-	9-11
Compliance	G4-EN28	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	9-11
	G4-OG8	Not material	IRPC's products are in compliance with environmental laws and regulations. For more details of petroleum based product, refer to <a href="http://irpcpetroleum.com/en/ProductRefined.aspx">http://irpcpetroleum.com/en/ProductRefined.aspx</a>	-	-
	G4-DMA	50-51	-	✓	9-11, 15-18
Overall	G4-EN29	113	IRPC has had no cases of non-compliance with law and regulations which resulted in fines or any monetary sanction.	-	9-11
	G4-DMA	52-77	-	-	9-11, 15-18
Supplier Environmental Assessment	G4-31	113	-	-	9-11
	G4-DMA	44-47	-	✓	2, 9-11, 15-18
	G4-EN32	104	-	-	2, 9-11
Occupational Health and Safety	G4-EN33	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	2, 9-11
	G4-DMA <sup>ogss</sup>	84-87	-	✓	6-8, 15-18
	G4-LA1	106-108	-	-	6-8
	G4-LA2	87	-	-	6-8
	G4-LA3	108	-	-	6-8
Training and Education	G4-DMA <sup>ogss</sup>	89-92	-	✓	6-8, 15-18
	G4-LA5	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	6-8
	G4-LA6 <sup>ogss</sup>	109-110	-	✓	2, 6-8
	G4-LA7	92	-	-	6-8
	G4-LA8	87	-	-	6-8
LABOR PRACTICES AND DECENT WORK	G4-DMA	84-87	-	✓	6-8, 15-18
	G4-LA9	109	-	-	6-8
	G4-LA10	87	-	-	6-8
	G4-LA11	87	-	-	6-8

Material Aspects	DMA and Indicators	Page Number (or Link)	Omissions/ Remarks	External Assurance	UNGC Advanced Level
Supplier Assessment for Labor Practices	G4-DMA	44-47	-	✓	2, 6-8, 15-18
	G4-LA14	104	-	-	2, 6-8
	G4-LA15	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	2, 6-8
Labor Practices Grievance Mechanisms	G4-DMA	87	-	✓	6-8, 15-18
	G4-LA16	87	-	-	6-8
<b>HUMAN RIGHTS</b>					
Supplier Human Rights Assessment	G4-DMA <sup>ogss</sup>	44-47	-	✓	2, 3-5, 15-18
	G4-HR10	104	-	-	2, 3-5
	G4-HR11	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	3-5
<b>SOCIETY</b>					
Local Communities	G4-DMA <sup>ogss</sup>	96-97	-	✓	15-18
	G4-SO1	96	-	-	-
	G4-SO2 <sup>ogss</sup>	91	-	-	-
	G4-OG10	Not applicable	Not applicable to IRPC's business.	-	-
	G4-OG11	124	None.	-	-
Anti-Corruption	G4-DMA <sup>ogss</sup>	30-31	-	✓	12-14, 15-18
	G4-SO3	31	-	-	12-14
	G4-SO4	30-31	-	-	12-14
	G4-SO5	31	-	-	12-14
Compliance	G4-DMA	30	-	✓	15-18
	G4-SO8 <sup>ogss</sup>	124	IRPC has had no cases of non-compliance with law and regulations which resulted in fines or any monetary sanction.	-	-
Supplier Assessment for Impacts on Society	G4-DMA	44-47	-	✓	2, 15-18
	G4-SO9	104	-	-	2
	G4-SO10	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	2
Grievance Mechanisms for Impacts on Society	G4-DMA	96-97	-	✓	15-18
	G4-SO11	124	In 2014, IRPC had 5 impact of society grievances filed through formal mechanism, 4 of which have been successfully resolved, 1 is expected to be resolved in 2015.	-	-
<b>PRODUCT RESPONSIBILITY</b>					
Product and Service Labeling	G4-DMA	40-43	-	✓	15-18
	G4-PR3	Not available	Information is currently unavailable. IRPC will improve the data collection process.	-	-
	G4-PR4	124	Both petrochemical and petroleum products have no non-compliance incidents resulting in fines, penalty, warning, and voluntary codes.	-	-
	G4-PR5	43, 104	-	-	-

# UNGC COMMUNICATION ON PROGRESS FOR ADVANCED LEVEL

(UPDATED 1<sup>st</sup> MARCH 2013)

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 1 : The COP describes mainstreaming into corporate functions and business units</p>	<p>IRPC's sustainability philosophy has been integrated in the company's business strategy by setting a policy and development plan to regularly improve management towards sustainability taking into considerations human rights, labor rights, environments, and anti-corruption. In order to achieve practical results a corporate governance policy was set up for IRPC's board of directors, executives, and all employees. IRPC and its' subsidiaries are striving to drive business growth along with social and environmental responsibility to achieve sustainable development.</p> <p>Being aware of the importance of sustainable development, IRPC identifies its' business principles through corporate planning, risk management, and materiality assessment as well as corporate governance, QSHE management, and corporate social responsibility to ensure that IRPC's including companies', which IRPC has an equity control, operations, monitoring, and reporting process, are in line with the sustainable development principles.</p> <p>IRPC has initiated several projects with regard to sustainable development in an effort to extend awareness and business ethics amongst customers and suppliers in the petrochemical industry and other related industries and to ensure wider acceptance and satisfaction amongst the Thai society and global communities.</p>	<ul style="list-style-type: none"> <li>• CEO Statement</li> <li>• Sustainability Management</li> <li>• Risk Management</li> <li>• Oil and Chemical Spill</li> <li>• Climate Change Management and Adaptation</li> <li>• Water Management</li> <li>• Our Employee</li> <li>• New Project Development</li> <li>• Occupational Health and Safety Management</li> <li>• Community Relation and Development</li> <li>• Corporate Governance and Business Ethics</li> </ul>



Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 2 : The COP describes value chain implementation</p>	<p>IRPC has prepared a sustainable supplier code of conduct for suppliers to apply in practice. Suppliers must be aware of business ethics that focus on all legal compliances, industrial standard accreditation, human and labor rights, and safety, health, and environments. Additionally, IRPC assesses risk of suppliers and contractors to ensure cooperation in social development as well as to resolve and reduce impacts to the business and environment.</p> <p>Policy, guideline and the importance of sustainability management and the campaign for action have been communicated to business partners, suppliers, shareholders, community, and young people through IRPC's website, newsletter, meetings, joint activities as well as through the media.</p> <p>IRPC's value chain is elaborated in our business chapter.</p>	<ul style="list-style-type: none"> <li>• Supply Chain Management</li> <li>• Sustainability Management</li> <li>• Our Business</li> </ul>
<p>Criterion 3 : The COP describes robust commitments, strategies or policies in the area of human rights</p>	<p>IRPC operates with respect and abidance to the principles of human rights according to Thailand's labor law and has joined The Universal Declaration of Human Right (UDHR) by the United Nation.</p> <p>IRPC respects human rights of all stakeholders throughout the value chain as stated in the CG handbook which incorporates governance policy, business ethics, and code of conduct.</p> <p>IRPC has applied human rights principles into the practice guideline i.e. avoiding discrimination and slavery, paying attention to safety of lives and assets, treating others with regard to human dignity, providing fair employment and safe workplace, respecting labor rights, and providing better living quality to all employees and appended into policy, strategy, and the organization's work process to ensure respect and protection to human rights in an efficient manner.</p>	<ul style="list-style-type: none"> <li>• Our Employee</li> <li>• Corporate Governance and Business Ethics</li> <li>• Community Relation and Development</li> <li>• Occupational Health and Safety Management</li> <li>• <a href="http://www.irpc.co.th">www.irpc.co.th</a></li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 4 : The COP describes effective management systems to integrate the human rights principles</p>	<p>IRPC implements the Security, Safety, Health, and Environment Operational Excellence Management System (SSHE OEMS) to ensure safety of employees' lives and assets as well as those of contractors'.</p> <p>In terms employee capability development, IRPC has a human resource management system using 360 degrees assessment to develop mid-management level and attitude assessment according to their responsibilities, growth direction of the business, and appropriate career path.</p> <p>IRPC has a grievance channel for employee to exercise their rights to express opinions and concerns. A fair grievance investigation process is conducted by the audit committee, which is a sub-committee of IRPC's board of directors, who recognize the importance of equitable and vigilant investigation.</p> <p>IRPC recognizes the importance of environmental and community risk management to reduce impacts and maximize safety to the communities using the "Happy Rayong" strategy</p> <p>In terms of customer relationship management, IRPC has systems to survey customer's needs and receive customer's complaints to improve product and service quality and to meet customers' needs</p>	<ul style="list-style-type: none"> <li>• Our Employee</li> <li>• Community Relation and Dvelopment</li> <li>• Occupational Health and Safety Management</li> <li>• Customer Relations Management</li> </ul>
<p>Criterion 5 : The COP describes effective monitoring and evaluation mechanisms of human rights integration</p>	<p>IRPC closely monitors human rights through suggestions and complaints by internal and external stakeholders, which has been set as one of the corporate performance indicators. Several channels of communication, such as e-mail, website, PO Box 35, and telephone, have been provided to stakeholders for submitting their comments and feedback. By visiting IRPC's website, stakeholders are able to directly communicate with chairman of audit and corporate governance committees.</p> <p>IRPC assesses human rights risk and its impacts through ISO 14001 standard. In 2014, IRPC pragmatically started to implement supplier screening criteria addressing human rights aspects as regulated by Thailand's labor law.</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> <li>• Our Employee</li> <li>• Supply Chain Management</li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 6 : The COP describes robust commitments, strategies or policies in the area of labor</p>	<p>IRPC fully respects labor law and promotes labor relation by strictly complying with the law and operating accordingly to the international labor principles, such as the International Labor Organization's Declaration on Fundamental Principles and Rights at Work. In addition, IRPC has clearly stipulated labor rights in the CG handbook, which includes corporate governance policy, business ethics, and the code of conduct.</p> <p>IRPC is committed to develop employee capabilities in order for employee and the organization to grow simultaneously by applying the Human Capital Excellence Roadmap 2013 - 2020.</p> <p>IRPC's sustainable supplier code of conduct has been prepared accordingly to the procurement policy and strategy to promote labor and human rights, health, safety, and environment, and business partners and suppliers. The sustainable supplier code of conduct provides a procurement practice guideline with a focus on business ethic awareness.</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> <li>• Our Employee</li> </ul>
<p>Criterion 7 : The COP describes effective management systems to integrate the labor principles</p>	<p>IRPC has a risk management policy in place for all employees to adhere to as well as business continuity plan to prevent losses in human resource, finance, and reputation.</p> <p>IRPC's employee performance appraisal system including rewards, remuneration, and penalty, is based on integrity, fairness, bias-free, and clarity. Employee capability assessment is fundamental to the remuneration consideration. Human resource department is responsible for all labor aspects and for setting a policy to ensure that executives take proper care for his/her subordinates and act on behalf of HR department to communicate with employees to create mutual understanding and ensure equal benefits.</p> <p>Newly recruited employees are informed of their labor rights during the orientation week. Labor rights training is provided to all employees to notify them of their rights and responsibility according to the company's and other related regulations. IRPC offers opportunities to all employees to exercise their rights by contacting commander in chief, labor union, labor committee, and PO Box 35.</p> <p>IRPC has prepared a sustainable supplier code of conduct and business ethics for employees and suppliers to adhere to and apply in practice. Content includes guideline of practice under laws and regulations, business ethics as well as anti-corruption measures, human rights, and health, safety and environment.</p>	<ul style="list-style-type: none"> <li>• Risk Management</li> <li>• Our Employee</li> <li>• Corporate Governance and Business Ethics</li> <li>• Supply Chain Management</li> </ul>



Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 8 : The COP describes effective monitoring and evaluation mechanisms of labor principles integration</p>	<p>IRPC has a monitoring system that covers all aspects including labor i.e. corporate performance indicators, deriving from internal and external stakeholders' suggestions, that are used to drive the organization from the top down.</p> <p>Additionally, IRPC conducts satisfaction surveys for employees and customers, questionnaires to collect suggestions and comments, representing two-way communication to gather comprehensive information. IRPC also provides internal channels to allow every employee to post their queries on the company's intranet and file a case of grievance</p>	<ul style="list-style-type: none"> <li>• Our Employee</li> <li>• Corporate Governance and Business Ethics</li> </ul>
<p>Criterion 9 : The COP describes robust commitments, strategies or policies in the area of environmental stewardship</p>	<p>IRPC has a policy that integrates environmental, social, and governance (ESG) into the business strategy to ensure sustainable operations. Specific responsibilities have been set for all levels of employees, from board of directors to operators.</p> <p>IRPC also has a QSHE policy, which is driven by the Operational Excellence Management System (OEMS)</p> <p>Details on QSHE policy and management can be found at <a href="http://www.irpc.co.th">www.irpc.co.th</a></p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> <li>• Environmental Management</li> </ul>
<p>Criterion 10 : The COP describes effective management systems to integrate the environmental principles</p>	<p>IRPC assesses environmental risk and impacts through corporate performance indicators, risk management framework, and materiality assessment.</p> <p>IRPC has a policy to promote the development of environmentally friendly products and processes and is fully aware of the impact throughout the product life cycle. IRPC sets targets to reduce Greenhouse Gas emission and increase energy efficiency as well as resource management.</p> <p>IRPC studies improvement of its existing production processes; the Company prevents and resolves any possible impact caused by the development of new projects in order to ensure that all business activities will not affect the communities and environments. IRPC is open to all suggestions and feedback from stakeholders in the industrial area to establish trust and build confidence with stakeholders.</p> <p>IRPC provides channels to communicate suggestions, comments, and concerns via e-mail, website, and telephone.</p> <p>IRPC sets a policy for sustainable operation, green process, green logistics, and eco-industrial zone (EIZ)</p>	<ul style="list-style-type: none"> <li>• Risk Management</li> <li>• Environmental Management</li> <li>• Product and Innovation</li> <li>• New Project Development</li> <li>• Emission Management</li> <li>• Climate Change Management and Adaptation</li> <li>• Water management</li> <li>• Waste Management</li> <li>• Oil and Chemical Spill</li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 11 : The COP describes effective monitoring and evaluation mechanisms for environmental stewardship</p>	<p>IRPC's environmental monitoring and assessment are conducted via QSHE management system. Monitoring and assessment results will be reported to the corporate governance committee and the chairman of board of directors on a quarterly basis and upon the event.</p> <p>IRPC implements business continuity management (BCM) by ISO 22301:2012 to alleviate impact from any business interruption as well as to prevent social and environmental impacts. Emergency and crisis management plan is implemented.</p> <p>IRPC has, in place, air and water quality monitoring system and up-to-standard and efficient waste management. For example Volatile Organic Compound (VOC) Emission Inventory, automatic air quality monitoring stations both fixed and mobile, and LCD boards displaying measurement results to illustrate that emission from IRPC's operations do not exceed those regulated by laws.</p>	<ul style="list-style-type: none"> <li>• Risk Management</li> <li>• Emission Management</li> </ul>
<p>Criterion 12 : The COP describes robust commitments, strategies or policies in the area of anti-corruption</p>	<p>IRPC is committed to having high operational efficiency, corporate governance and management excellence organization with regard to all stakeholders, good business ethics, transparency, and auditability. IRPC has an anti-corruption and conflict of interest policy. All measures, provide anonymity, different channels for complaints, are transparent and offer equitable investigation processes.</p> <p>IRPC has been certified as an alliance member of the Collective Action Coalition Against Corruption (CAC) by the Anti-Corruption Organization of Thailand on the 4th of April 2014. This is to certify that IRPC has a complete anti-corruption policy and guideline as CAC regulates. In addition, IRPC has joined Call to Action by UN Global Compact, in which IRPC's CEO being a signatory in the Call to Action: Anti-Corruption and the Global Development Agenda to UN Global Compact to declare intention to stakeholders and the society in general regarding IRPC's commitment to stand against corruption.</p> <p>IRPC's anti-corruption commitment is included in the corporate compliance policy.</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 13 : The COP describes effective management systems to integrate the anti-corruption principle</p>	<p>IRPC has a corporate governance manual, which designates director's qualification and nomination, director independency, roles and responsibilities, sub-committee appointment, board meeting, board assessment, board's and CEO's compensation, board's, executives, and employee's ethics, transparent disclosure, audit committee and auditors, risk management, rights and equitability of shareholder, roles toward stakeholders, whistle blowing policy, and succession plan. Moreover, IRPC has an anti-corruption and conflict of interest policy, measures, provide anonymity, different channels for complaints, are transparent and offer equitable investigation processes.</p> <p>In 2014, IRPC prepared a sustainable supplier code of conduct and business ethics for both employees and suppliers to adhere to and apply into practices. Content includes guideline of practice under laws and regulations, business ethics as well as anti-corruption measures, human rights, and health, safety and environment.</p> <p>IRPC has a policy that integrates environmental, social, and governance (ESG) into the business strategy to ensure sustainable operations. Specific responsibilities have been set for all levels of employees, from board of directors to operators. IRPC provides different channels to communicate suggestions, comments, and concerns via e-mail, website, and telephone.</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> <li>• Supply Chain Management</li> </ul>



Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 14 : The COP describes effective monitoring and evaluation mechanisms for the integration of anti-corruption</p>	<p>IRPC's board of directors and audit committee are responsible for monitoring transparency in the business operations in accordance with legal regulations.</p> <p>In terms of board's assessment, IRPC conducts internal assessments for board of director and sub-committees at least once a year as regulated by the corporate governance manual. The board is also assessed by external auditors from Corporate Governance Report (CGR) by the Thai Institute of Directors (IOD) and the Collective Action Coalition Against Corruption (CAC), which IRPC has recently joined. IRPC has received level 4 (certified) in the Anti-Corruption Progress Indicator assessment from the Securities and Exchange Commission in 15th October 2014.</p> <p>IRPC provides several channels of communication, such as e-mail, website, PO Box 35, and telephone, to stakeholders to submit their comments and feedback. On IRPC's website, stakeholders are able to directly communicate with chairman of audit and corporate governance committees</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> </ul>
<p>Criterion 15 : The COP describes core business contributions to UN goals and issues</p>	<p>IRPC aims to improve its corporate governance in all aspects in order to become a sustainable organization and to support UN goals and other international standards. IRPC, in collaboration with government agencies, NGOs, and private sector, is striving to improve the economy, quality of life and the environment with an aim to achieve more advanced sustainable development and wider acceptance in the society.</p> <p>Currently, IRPC operates in line with ISO standards and elevates its commitment to the UNGC Advanced Level. IRPC discloses sustainability management information in the sustainability development report in line with GRI framework as well as being included in the Dow Jones Sustainability Index (DJSI) 2014: Emerging Market, Oil &amp; Gas Industry</p>	<ul style="list-style-type: none"> <li>• CEO Statement</li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 16 : The COP describes strategic social investments and philanthropy</p>	<p>IRPC establishes relationships with the communities using its "Happy Rayong" strategy consisting of 5 aspects, which are Safety, Health, and Wealth development, Community development, Proactive communication, Environmental conservation, and Implementation of environmentally friendly production processes. Each project is being developed in line with the strategy in order to improve living quality in the communities by becoming self-reliant and coexist with IRPC with good rapport.</p> <p>Furthermore, IRPC has a CSR strategy for areas outside its industrial zone in order to help alleviate water shortage, lack of education, and disadvantages of disability in the communities. IRPC has provided volunteer hours, funding, and products in effort to resolve these issues.</p>	<ul style="list-style-type: none"> <li>• Community Relation and Development</li> </ul>
<p>Criterion 17 : The COP describes advocacy and public policy engagement</p>	<p>IRPC operates accordingly to its sustainability management principles taking into considerations economic, social, and environmental aspects. Furthermore, IRPC assesses climate change risk and impacts and prepares efficient prevention measures to ensure sustainable operations.</p> <p>IRPC focus is to become Top Quartile energy efficient organization by 2020 by improving its energy efficiency and reducing GHG emissions. IRPC follows 3 operational approaches namely green process, green logistics, and low carbon and energy efficiency product.</p>	<ul style="list-style-type: none"> <li>• Climate Change Management and Adaptation</li> </ul>
<p>Criterion 18 : The COP describes partnerships and collective action</p>	<p>IRPC establishes relationships with communities, promotes stakeholder engagement, and collaborates with government agencies including suppliers and business partners to form alliances to develop new projects that could improve living quality in the communities by becoming self-reliant and coexist with IRPC with good rapport.</p> <p>IRPC has appointed committees as well as assigned responsibilities to several functions i.e. corporate governance division, CSR department and the corporate strategic planning, and in collaboration with other PTT Group's companies, the Stock Exchange of Thailand, and other government agencies, such as Thailand Greenhouse Gas Organization (Public Organization) to create benefits to the public.</p>	<ul style="list-style-type: none"> <li>• Community Relation and Development</li> <li>• Oil and Chemical Spill</li> </ul>

Criteria for the Advanced Level	IRPC Implementation	Location in the IRPC's Sustainability Report 2014
<p>Criterion 19 : The COP describes CEO commitment and leadership</p>	<p>IRPC presents annually the CEO statement in the annual review and sustainability development report which illustrate its vision and commitment to develop business growth together with social and environment development in a sustainable manner.</p>	<ul style="list-style-type: none"> <li>• CEO Statement</li> </ul>
<p>Criterion 20 : The COP describes Board adoption and oversight</p>	<p>Details on Board's structure and corporate governance can be found in the Corporate Governance and Business Ethics chapter</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> </ul>
<p>Criterion 21 : The COP describes stakeholder engagement</p>	<p>IRPC's stakeholders include shareholders/investors, customers/ consumers, suppliers, competitors, debtors, employees, society and environments. Stakeholder engagement performance is reported in the corporate governance committee meeting on a quarterly basis.</p> <p>IRPC hosts several activities, seminars, trainings, public hearings with stakeholders in order to obtain its social license and trust. IRPC not only operates to increase value and efficiency for the business, and society; IRPC also analyses, prevents, and resolves any possible impacts caused by new project development.</p>	<ul style="list-style-type: none"> <li>• Corporate Governance and Business Ethics</li> <li>• New Project Development</li> </ul>



# Reader's Feedback

Your opinions are important input to improve IRPC's Sustainability Development Report  
Please make symbol x in  and provide any additional comments

## 1. What do you think about IRPC's 2014 Sustainability Development Report

Very Interesting     Interesting     Partially Interesting     Not Interesting

## 2. Please rate your satisfaction towards IRPC's 2014 Sustainability Development Report

Integrity	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Not at all
Reported Topics	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Not at all
Contents	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Not at all
Ease of Understanding	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Not at all
Design	<input type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	<input type="checkbox"/> Not at all

## 3. Please specify additional contents you would like to find in IRPC's Sustainability Management Report in the future, if any:

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## 4. Please provide additional suggestions and comments, if any:

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## 5. Please specify reader's perspective

<input type="checkbox"/> Business Partner	<input type="checkbox"/> Media	<input type="checkbox"/> Shareholder/Investor
<input type="checkbox"/> CSR officer	<input type="checkbox"/> Customer	<input type="checkbox"/> Government Agency
<input type="checkbox"/> Environment officer	<input type="checkbox"/> Research or Academic Intuition	
<input type="checkbox"/> Student	<input type="checkbox"/> Others, please specify .....	

**Please send the form to the following address**

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