

# Sustainability Report 2015

รายงานความยั่งยืน 2558







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คุณภาพแห่งความประณีต

**QUALITY OF DETAILS >>**

D - DYNAMICS E - ENVIRONMENT  
T - TEAMWORK A - ACHIEVEMENT  
I - INNOVATION L - LEADERSHIP S - SERVICE



# Award of Pride

Certificate of ESG100 Company  
From Thaipat Institute: ESG Rating



THAILAND SUSTAINABILITY INVESTMENT 2015  
From the Stock Exchange of Thailand



SET SUSTAINABILITY AWARDS 2015  
From the Stock Exchange of Thailand



5 S Model Award 2015 Certificate: 3 Areas  
From the Technology Promotion Association  
(Thailand-Japan)



Certificate for Passing Operating Facility Evaluation  
“Disease-Free, Hazard Free and Happiness in Mind and  
Body” from the Department of Disease Control



SET AWARDS 2015: Outstanding Investor Relations Awards  
From the Stock Exchange of Thailand  
and Money & Banking Magazine



SET AWARDS 2015: Best Investor Relations Awards  
From the Stock Exchange of Thailand  
and Money & Banking Magazine



Outstanding Corporate Governance Award of 2015  
From the Anti-Money Laundering Office





## Message from the Chief Executive Officer and the Managing Director

**Dear Shareholders,**

QTC's road to sustainability has not been paved with roses. Every step has been made by overcoming countless obstacles requiring excellent understanding, trust and cooperation from all stakeholders inside and outside the organization to solve problems and overcome those barriers together.

The first half of the year is naturally a low season for the electrical transformer business while the latter half of the year is our high season. This was also true in 2015. The first half of the year had low purchase orders due to stagnant transformer demand, domestic and foreign economic uncertainty in addition to high price competition. Thus, we made the decision to accept profitable jobs. "Opportunity in Crisis" is a key concept of our management. We use this opportunity to prepare and make improvements to reduce costs in the production process, management, team skill improvements and boost competitive capacity by using Total Quality Management (TQM). This enabled our performance in the second half of 2015 to achieve sales figures higher than 1,000 million baht with higher profit ratios from the previous year. All of this was possible with cooperation from all stakeholders.

Nevertheless, we are well aware that all actions have both positive and negative impacts on stakeholders such as economic, social and environmental impacts. We assessed risks, prioritized and worked responsibly in every aspect.

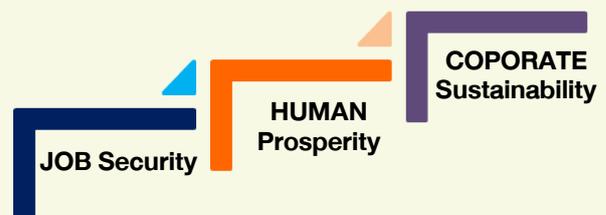
Another major social problem with potential impact on QTC's sustainable growth is our discovery that high competition, overall improvements, developments and meticulous production processes to minimize social and environmental impacts to produce high quality transformers meeting world standards and build satisfaction among customers has created pressure for our teams. In QTC's inner society, we have found that employee happiness is lower, while love and attachment to the organization is down. Therefore, we began to survey for organization happiness and modify happiness-building processes in the organization to build work life balance and raise happiness levels so organization members will have sustainable happiness.



In the terms of secure and sustainable growth amidst severe price competition caused by economic and investment uncertainty including free trade in the ASEAN market (AEC), we prepared to build value through responsible work covering every dimension and process according to the sustainability equation of  $Q + R = S$  (Quality + Responsibility = Sustainability) by using strategies such as:

- Develop people in every area to create talented people + good people.
- Enhance competitive capacity with quality and responsible goods and services.
- Build work life balance.
- Build reliability from stakeholders with comprehensive responsibility.

In closing, on behalf of the Board of Directors as well as every executive and employee, I would like to thank all shareholders, customers, business partners, communities and stakeholders who have always supported the company. The company promises to work according to our corporate vision with responsibility to the environment, society and good corporate governance. The company will be determined to continually devote itself to development for sustainability in every sector.



**QTC – Happy in Every Way**

**(Mr. Poonphiphat Tantanasin)**

Chief Executive Officer and Managing Director



## About QTC



“We serve you all details you need”





QTC Energy Public Co., Ltd. or "QTC" has main offices located at 2/2 Soi Krungthep Kritha 8(5), Krungthep Kritha Rd., Huamark, Bangkapi, Bangkok, and the company has a production factory located at 149, Moo. 2, Mabyangphon, Pluak Daeng, Rayong.

QTC is engaged in the business of manufacturing and distributing custom made transformers with an engineering team specializing in designing based on customer needs in addition to providing consultation regarding electrical systems. We also have a professional sales team with in-depth knowledge and understanding of products and an expert post-sale service team that is ready to solve problems 24 hours/day.

QTC is able to manufacture single phase and three phase 10 – 30,000 kVA distribution transformers with the lowest to highest power system of 72 kV at full capacity. The machines we have are approximately 1,000 MVA per year or 3,000 machines per year. We produce Wound Core transformers, Stacking Core transformers and Cast Resin transformers including the special power conserving Amorphous Distribution Transformer. We are able to produce according to every model and standards in the world.



Single Phase



Freely Breathing (Radiator)



Dry-Type Cast Resin



Amorphous



CSP Type



OLTC Transformer



Dry-Type Class F&H



Amorphous

QTC Energy Public Co., Ltd. distributes goods under its trademark with domestic and overseas distribution such as in Europe, Australia, Japan, Middle-East Asia, North America, South Africa and every ASEAN country.





## Vision

**QTC will be a manufacturer of world class standard products and services involving transformer equipment with corporate responsibility to society and the environment.**



## Missions

1. QTC is determined to meet the challenging needs of developing customers' electrical systems under international standards.
2. QTC is firmly committed to product development, manufacturing processes and service provision to minimize environmental and social impacts.
3. QTC builds business security and sustainability with consideration given to stakeholders in every field.



## Corporate Values to Sustainability Quality of Details

**D**

**Dynamics** : We are a dynamic corporation that builds a corporate culture to meet changes for sustainable progress.

**E**

**Environment** : We emphasize product design and development including production processes with reduced energy consumption and impacts on society and the environment.

**T**

**Teamwork** : We give importance to our human resources and aim to develop personnel at every level for team excellence.

**A**

**Achievement** : We manage our organization with quality and determination to achieve world class goals.

**I**

**Innovation** : We promote product research and development for high functional efficiency, reduced energy loss and return benefits to society and the environment.

**L**

**Leadership** : We are widely accepted as a manufacturer of high quality transformers domestically and abroad.

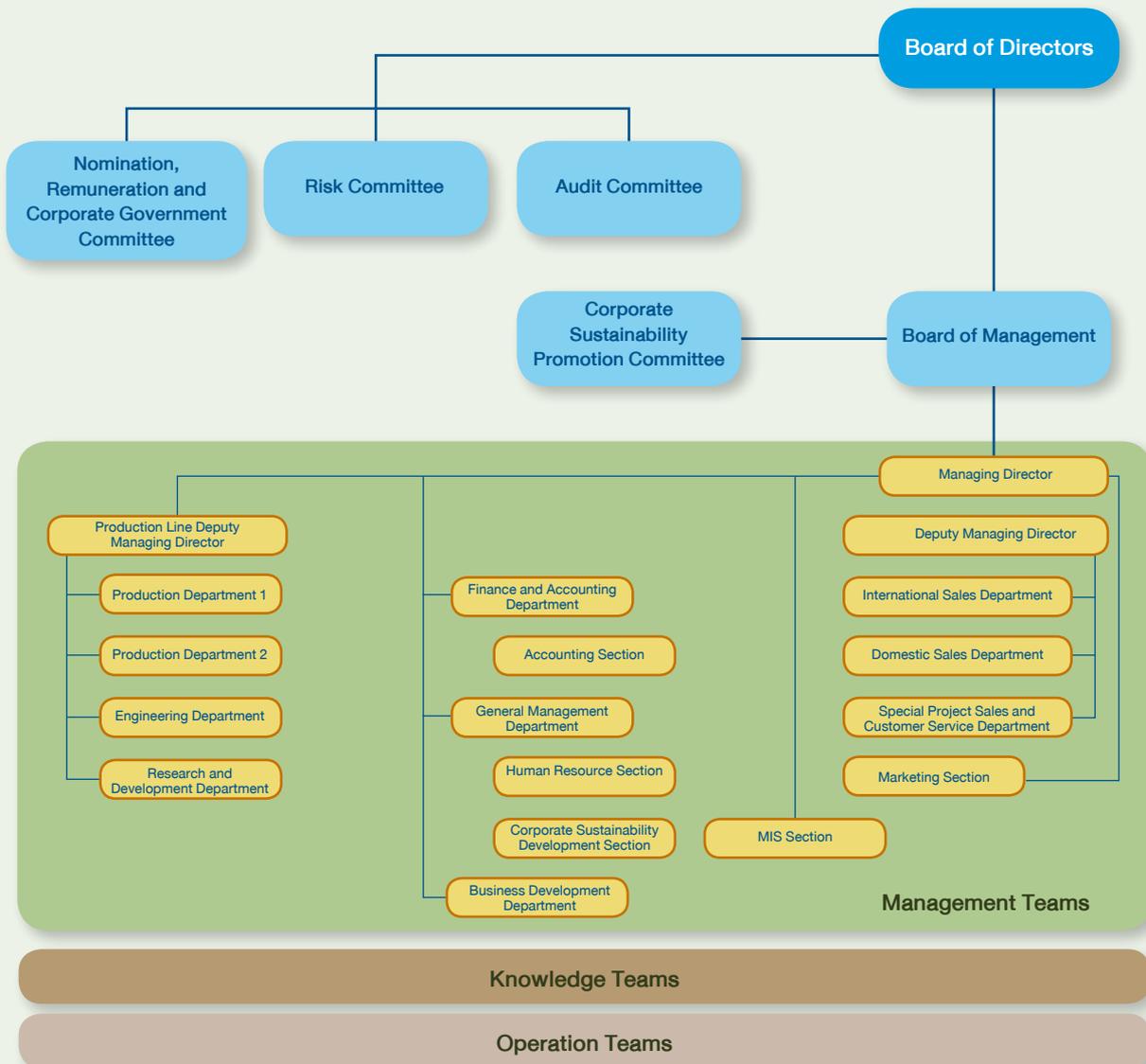
**S**

**Service** : Our expert engineering team provides consultation on electrical systems and professional services.





# Organization Chart



At the end of 2015,  
QTC had 225 employees

At the end of 2015,  
QTC had sales and service  
income amounting to  
1,229,196,348 million baht.

The company appointed the Board of Corporate Sustainability Promotion consisting of department executives from various fields authorized to monitor performance in line with policies and promote operations in compliance with sustainable management frameworks and the Q + R = S sustainability equation with the Sustainability Promotion Section as the primary driving unit.

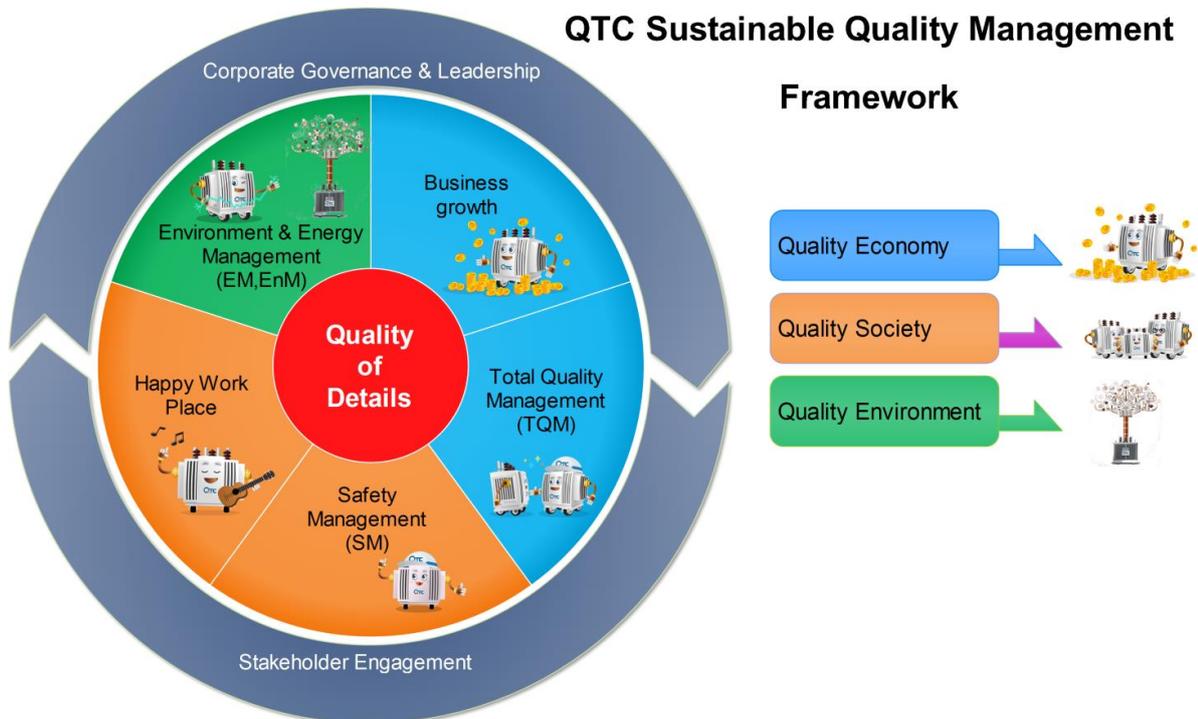
Progress is reported to the Board of Management and the Board of Directors on a quarterly basis or whenever there are significant changes.

Communication to every employee and stakeholder took place via e-mail, executive-employee activities, notice boards, wire broadcasting and the company's website.



## QTC and Sustainability

With a World Class vision and corporate values emphasizing Quality of Details under challenges from economic uncertainty and need for variety and energy conservation in transformer products, the company is well aware of our roles, duties and responsibilities to the environment, society and good corporate governance. The company has dedicated research and development resources to create innovation in processes to have the highest efficiency and quality products with risk management, employee capacity development and treatment of business partners, communities and other stakeholders on the basis of good management with morals, ethics and responsibility under the framework of quality management for sustainability and the  $Q + R = S$  sustainability equation.



$$\text{Q} + \text{R} = \text{S}$$

**Quality      Responsibility      Sustainability**



## Sustainable Development Policy

Quality of Details is an important foundation leading to the company's sustainability growth, meaning management with emphasis on quality building in three areas to have balance, namely, the economic, social and environmental areas.

QTC's model for sustainable development is work process, product and service quality development, including development and increasing value of organization personnel with corporate social and environmental responsibility in every step of work to reduce and control potential impacts in addition to building value with stakeholders. QTC specified the following operational guidelines:

1. Honest and fair business operations with adherence to compliance with the law and trade specifications to promote clarity and transparency in corporate management according to international principles including anti-corruption support to prevent illicit gains and abuse of authority to create maximum and fair benefits for stakeholders.
2. Focus on work process and service provision modifications and development in the entire supply chain based on total quality management principles (TQM) to create quality attitudes among organization personnel, build value for customers and generate long-term growth.
3. Promote efficient resource utilization including environmental impact reduction and control as a result from operations carried out by the company and trade partners in the supply chain.
4. Give care and importance to occupational safety and work environment for employees and trade partners to prevent loss of life and property including work-related injuries or illness.
5. Respect human rights by considering human dignity, freedom and equity along with adhering to fair personnel management and giving importance to labor capacity development and work happiness promotion, thereby leading to effective organization driving.
6. Promote innovations with corporate social responsibility to enhance efficiency and build value for the organization and stakeholders.
7. Create sustainability benefits for the community and society in addition to supporting and participating in public benefit activities along with promoting overall good social conscience among employees.

In working by this sustainable development policy, the company set indicators for monitoring and assessing the company's economic, social and environmental performance efficiency. This became important information for setting routes for continual and sustainable corporate development. The company is confident that the aforementioned policy will receive attention, responsibility and implementation in the organization by the company's executives at every level.



## Core Sustainable Development Strategies

With our World Class corporate vision and Quality of Details corporate culture with sustainable development policy, the company has laid out main business operation strategies through the risk management process and comprehensive stakeholder impact evaluation along with setting indicators capable of monitoring and evaluating economic, social and environmental performance efficiency in addition to relaying goals to practice to executives and employees with coverage.



### Develop “people” in every area to created talented “people + good people.”

The company has established core competency consistent with development guidelines and corporate vision for use in specifying basic characteristics required in every member of the organization in addition to clearly setting required capabilities for work positions to create guidelines in development employee work skills. Furthermore, the company prepares psychological and behavioral development courses in addition to enforcing rules, regulations and related laws to create employee talent in work and good people for society in order to create valued works and enable employees to live together happily

QTC's core competencies are as follows:

## CORE COMPETENCY





## Improve Competitive Capacity with “Quality” + “Responsibility” Goods and Services

The company sets business growth goals by building sustainable values for all stakeholders by continuously implementing Total Quality Management (TQM) in Phase 2 and covering every work process throughout the value chain to create process innovations and business advantages along with adding value for customers and reducing social and environmental impacts.



## Building Work Life Balance

The company is well aware that happiness at work and happiness in private lives for our employees will help create good living conditions and happiness in life, influencing and helping to push for success, security and progress for employees, the organization and society. Therefore, the company has created work mechanisms to create work life balance for organization personnel with the goal to create sustainable happiness and share happiness with society.





## Building Reliability from Stakeholders

The company treats stakeholders fairly with adherence to good corporate governance principles and the company gives importance to potential impacts from processes in addition to listening to opinions from stakeholders in the organization and outside the organization through conference stages, safety committees, welfare committees, community socialization stages, opinion boxes and recommendations, etc., in order to implement for shared benefits. Furthermore, the company discloses information on practices, business operations, environmental management, human resource development, etc., with transparency and accountability through annual reports, sustainability reports, socialization stages and websites, etc.



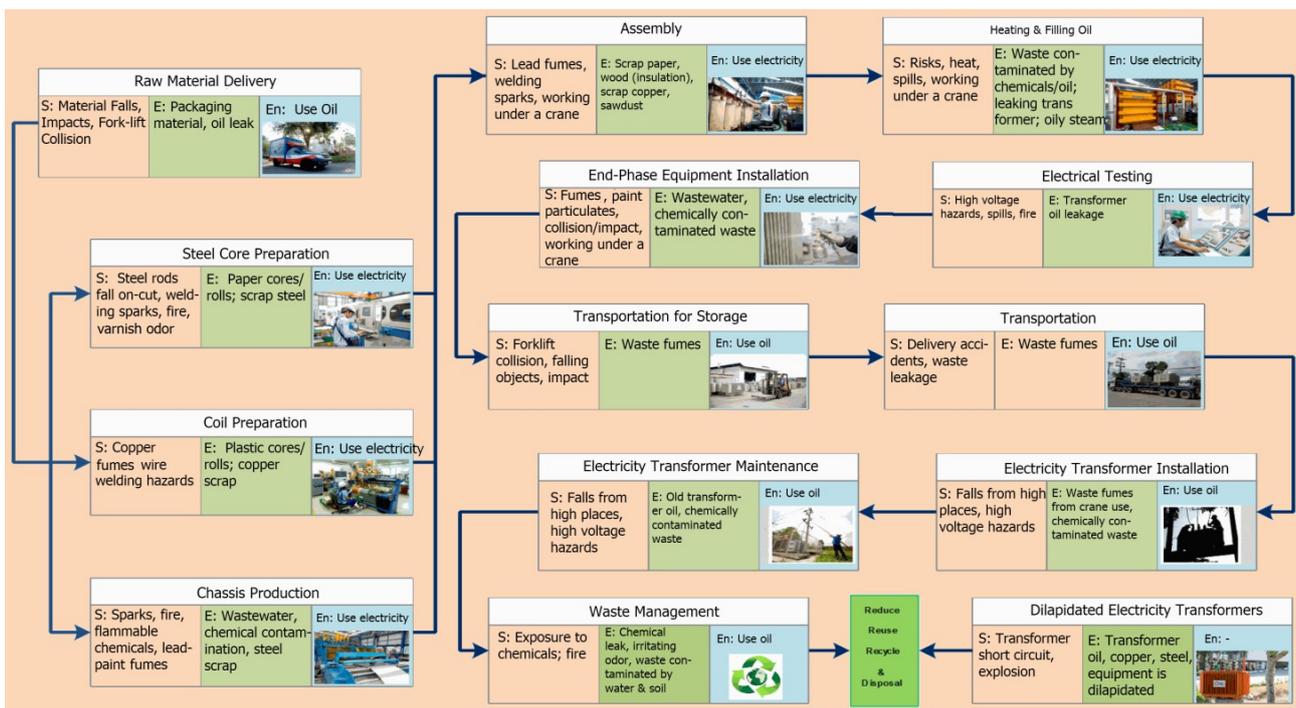


# Stakeholder Participation and Sustainability Issues

The company, represented by the Board of Corporate Sustainability Promotion specified requirement for impact analysis in processes throughout the value chain to indicate stakeholders and filter significant issues covering every aspect by passing the work hazard indication process, environmental impact evaluations, electricity and thermal energy consumption assessments. The company evaluates participation by employees at every level and reviewed once per year to prepare plans to reduce/control risks from impacts.

Furthermore, the company has hosted community socialization events for communities to meet QTC once a year to create channels of communication and build participation in communities along with accepting recommendations to indicate sustainability issues.

## Image Showing Impact Indication in the Production Process





## Image Showing Stakeholder Connections – Indications of Stakeholder and Impact Issues



Stakeholders					
<ul style="list-style-type: none"> <li>- Customers (public sector, private sector).</li> <li>- Sales representatives.</li> <li>- Trade competitors.</li> </ul>	<ul style="list-style-type: none"> <li>- Raw material producers.</li> <li>- Raw material distributors.</li> <li>- Raw material transporters.</li> <li>- Competitors.</li> </ul>	<ul style="list-style-type: none"> <li>- Employees and hired workers.</li> <li>- Customers and sales representatives.</li> <li>- Trade partners and contractors.</li> <li>- Shareholders and investors.</li> <li>- Financial institutions.</li> <li>- Communities and society.</li> <li>- Trade competitors</li> <li>- SEC and SET.</li> <li>- Government agencies.</li> </ul>	<ul style="list-style-type: none"> <li>- Employees.</li> <li>- Transport contractors.</li> <li>- Shareholders.</li> <li>- Banks.</li> <li>- Communities, society.</li> <li>- Government agencies.</li> <li>- Investors</li> </ul>	<ul style="list-style-type: none"> <li>- Customers.</li> <li>- Product users.</li> <li>- Communities and society.</li> </ul>	<ul style="list-style-type: none"> <li>- Communities and society.</li> <li>- Waste disposal contractors.</li> <li>- Product users.</li> <li>- Mass media.</li> <li>- Government agencies.</li> </ul>

Impact Issues					
Fair competition, corruption and responsibility to goods and services.	Human rights, fair treatment, corruption, trading partner development and the environment.	Human rights, labor treatment, health and safety, corruption, energy consumption, pollution, waste management, disclosure of information and good corporate governance.	Human rights, health and safety, labor treatment, corruption and fair treatment.	Functional safety and responsibility to goods and services.	Health and safety, pollution and disposal.



## Stakeholder Operations

No.	Stakeholder Group		Method/ Communication	Needs/ Expectations	Response	Outcome
1	Employees	Regular Employees and Temporary Employees	<ul style="list-style-type: none"> <li>- Monthly executive-employee activities.</li> <li>- Recommendation activities and KAIZEN.</li> <li>- Training to improve capacity limits according to annual plans and orientations.</li> <li>- Weekly safety and health promotion activities.</li> <li>- Listening to employee opinions and complaints.</li> <li>- Safety news.</li> <li>- Health promotion news.</li> <li>- HR Journal.</li> <li>- Employee happiness surveys.</li> <li>- Organization love and connection surveys.</li> </ul>	<ul style="list-style-type: none"> <li>- Commensurate raises in wages and salaries.</li> <li>- Appropriate welfare/benefit arrangements.</li> <li>- Work safety.</li> <li>- Health risk factor reduction (cigarettes, liquor and travel accidents).</li> <li>- Hospitable work environments.</li> <li>- Equity and opportunity for advancement.</li> <li>- Training plans to develop knowledge and capacity.</li> <li>- Good living conditions.</li> </ul>	<ul style="list-style-type: none"> <li>- Fair remuneration and income.</li> <li>- Respect for human rights and equitable treatment principles.</li> <li>- Safety management meeting OHSAS18001 standards.</li> <li>- Safety management meeting ISO14001 standards.</li> <li>- Provident Fund.</li> <li>- Health promotion operation facility projects.</li> <li>- Organization happiness projects to build sustainable happiness.</li> </ul>	<ul style="list-style-type: none"> <li>- Attachment to the organization.</li> <li>- Statistics on zero accidents preventing employees from working.</li> <li>- Resignation rate of 1.37 percent.</li> </ul>
2	Shareholders and Investors	Shareholders, Investors and Analysts	<ul style="list-style-type: none"> <li>- Annual shareholders' meetings.</li> <li>- Quarterly performance declarations.</li> <li>- Financial analyst meetings.</li> <li>- Registered company-investor activities.</li> <li>- Invitations for investors to visit and view the production process.</li> <li>- Answering questions by telephone, email and annual reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Profit</li> <li>- Good corporate governance.</li> <li>- Business security with continual growth.</li> <li>- Accurate, complete and up-to-date company information.</li> <li>- Risk management system.</li> <li>- Good audit and control systems.</li> </ul>	<ul style="list-style-type: none"> <li>- Transparent corporate governance with fairness and accountability.</li> <li>- Appropriate dividend payouts.</li> <li>- Transparent disclosure of information.</li> </ul>	<ul style="list-style-type: none"> <li>- Continual performance growth.</li> <li>- Thailand Sustainability Investment 2015 Sustainable shares in Thailand Sustainability Investment 2015.</li> <li>- SET AWARDS 2015 : Best Investor Relation Awards.</li> </ul>



No.	Stakeholder Group		Method/ Communication	Needs/ Expectations	Response	Outcome
3	Customers	Public sector Customers, Private Sector Customers, Foreign Customers and Sales Representatives	<ul style="list-style-type: none"> <li>- Meet with customers.</li> <li>- Host product exhibitions.</li> <li>- Survey customer satisfaction.</li> <li>- Provide technical education for customers.</li> <li>- Provide opportunities for customers to view the production process.</li> <li>- Perform activities with customers.</li> </ul>	<ul style="list-style-type: none"> <li>- Accurate technical information regarding goods and services.</li> <li>- Appropriate prices for goods and services.</li> <li>- Transparent price competition.</li> <li>- Acquisition of quality goods and services.</li> <li>- Compliance with fair agreements.</li> <li>- Energy conservation goods as an option.</li> <li>- Goods and services guarantee.</li> <li>- Customer information confidentiality.</li> </ul>	<ul style="list-style-type: none"> <li>- Transparent, fair and accountable good corporate governance</li> <li>- Anti-corruption policy and practice promotion.</li> <li>- Quality management with the ISO9001 system.</li> <li>- Corporate management with TQM standards to improve processes, goods and services.</li> <li>- Customer relations management with the CRM system</li> <li>- Customer confidentiality ethics.</li> <li>- Product certification with ISO17025 testing room standards.</li> <li>- Energy conservation product development by the R &amp; D Team.</li> <li>- Visits to the production process.</li> </ul>	<ul style="list-style-type: none"> <li>- Customer satisfaction score of 81.47 percent.</li> <li>- Sales figures exceeded the goal of 1,000 million baht.</li> </ul>
4	Business Allies	Deliverers and Contractors	<ul style="list-style-type: none"> <li>- Communication via various channels.</li> <li>- Accurate and clear communication data.</li> <li>- Production process and raw material quality inspections.</li> <li>- Recommendations for improvement.</li> </ul>	<ul style="list-style-type: none"> <li>- Accurate and quick data according to time conditions.</li> <li>- Compliance with fair agreements.</li> <li>- Fair and transparent price competitions.</li> <li>- Production process and raw material education and development.</li> </ul>	<ul style="list-style-type: none"> <li>- Compliance with purchasing policy.</li> <li>- Trading partner development by providing recommendations, knowledge and understanding in producing raw materials with higher quality than standards.</li> <li>- Anti-corruption policies and promotion of practices.</li> </ul>	<ul style="list-style-type: none"> <li>- Delivery of raw materials with 99.58 percent quality.</li> <li>- On time raw material delivery at 99.01 percent.</li> </ul>



No.	Stakeholder Group		Method/ Communication	Needs/ Expectations	Response	Outcome
5	Trade Competitors	Competitors	- Exchange news and information on products, raw material information sources including production instruments and machinery.	- Fair and transparent trade competitions.	Compliance with ethical principles for fair and transparent business operations.	Continued business operations under fair competition.
6	Waste Disposal Contractors	Waste Disposal Contractors	- Exchange learning related to specifications of the law and proper practice guidelines.	- Strict compliance with agreements. - Legal operations.	- Monitoring and inspecting disposal contractor operations.	- No emergencies. - No complaints from communities, society and the public sector.
7	Community and Society	- Communities surrounding the factory. - Society in general.	- Hosting activities with communities. - Participation in community and social development. - Annual QTC-community socialization activities.	- Mutual friendliness. - Support community activities. - No negative impacts on communities and society. - Work transparency. - Compliance with human rights and anti-corruption principles.	- Build trust and understanding. - Support public activities. - Build volunteer-mindedness among employees to participate in public activities. - Environmental management meeting ISO 14001 standards. - Energy management meeting ISO 50001 standards. - Human rights policies and promotion of practices. - Anti-corruption policies and promotion of practices.	- Social acceptance. - No complaints from communities and society - Continual support for communities. - Youth Occupation Building Project at Ban Saphan See.
8	Creditors	Financial Institutions	- Annual reports. - Quarterly performance declarations.	- Ability to comply with contract conditions and agreements. - Business operation transparency.	- Strict compliance with contract conditions and agreements. - Business visits.	- Financial institutions continue to allow loans.



No.	Stakeholder Group		Method/ Communication	Needs/ Expectations	Response	Outcome
9	Government Agencies	SEC, SET, Customs, Provincial Industry, Provincial Labour, Provincial Resources, Provincial Transport, Mabyangporn TAO, Chamber of Commerce and the Federation of Thai Industries	<ul style="list-style-type: none"> <li>- Report information prescribed by law.</li> <li>- Pay taxes according to the law.</li> <li>- Support government projects benefiting society in general.</li> </ul>	<ul style="list-style-type: none"> <li>- Ability to comply with related regulations and laws.</li> <li>- No impact on society and the environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Compliance with rules and regulations specified by the law in every way.</li> <li>- Transparent information disclosure.</li> </ul>	<ul style="list-style-type: none"> <li>- Permission to continue business operations.</li> <li>- SET Sustainability Award 2015.</li> <li>- Outstanding Corporate Governance Award 2015 (Central Region).</li> </ul>
10	Mass Media	Newspapers, Television, Radio, Magazines and Online Media	<ul style="list-style-type: none"> <li>- Meetings with mass media on various occasions.</li> </ul>	<ul style="list-style-type: none"> <li>- Accurate and fast news and information on business progress.</li> </ul>	<ul style="list-style-type: none"> <li>- Notify quarterly progress at least, summarize performance and business plans.</li> </ul>	<ul style="list-style-type: none"> <li>- Continual positive corporate news, information and image dissemination.</li> </ul>



# About This Report

## Report Source

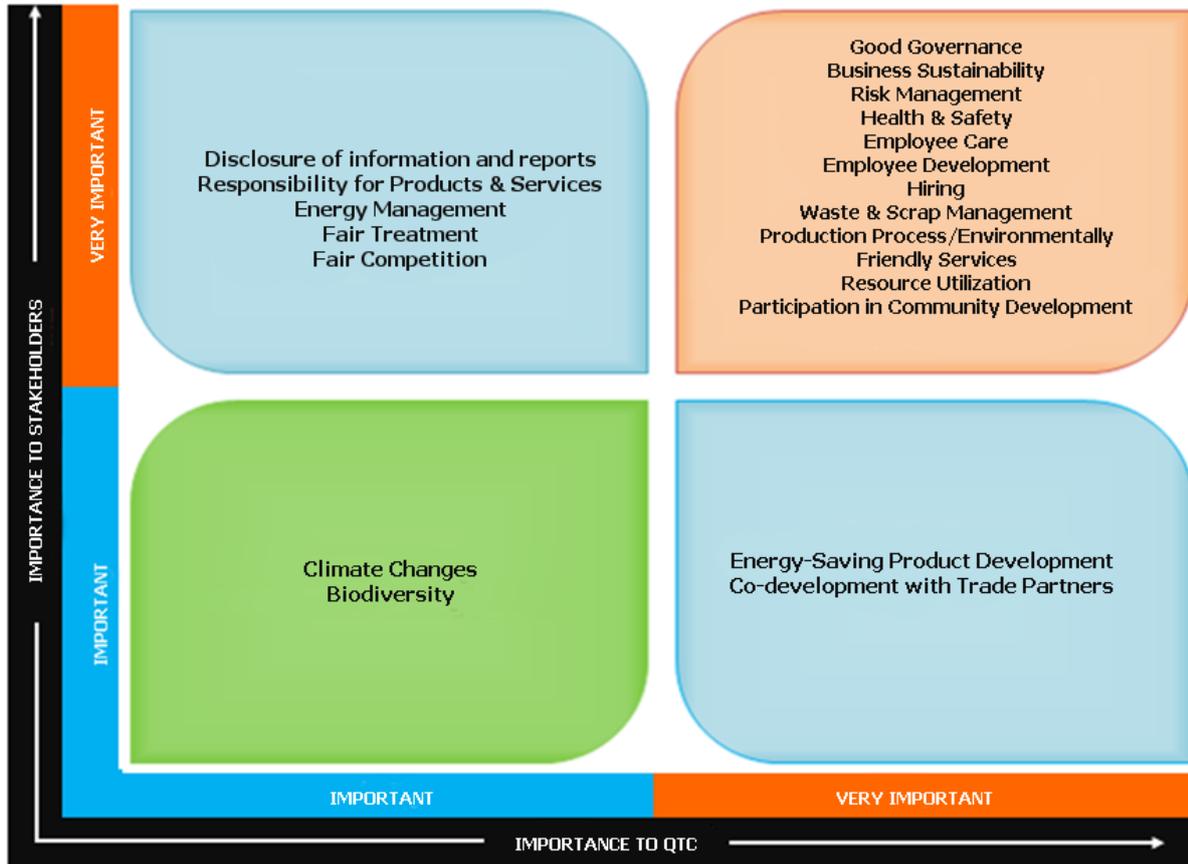
This report was prepared to display performance by QTC Energy Public Co., Ltd. regarding corporate sustainability management related to economic, social and environmental issues including good corporate governance. The company first prepared and disseminated the report in 2014. This report is the second report to display performance during the year from 1 January – 31 December 2015 by considering significant issues for sustainable business operations and ability to respond to stakeholder expectations. Report guidelines were referred for consistency based on the framework of the Global Reporting Initiatives Guideline Version 4.0 (GRI G4).

## Principles for Selecting Issues

- 1. Issue Identification:** Issue origins were considered beginning from the corporate sustainability management framework and data from stakeholders in the organization and outside the organization on issues given importance or expectations by each stakeholder group with potential economic, social, environmental and good corporate governance impact on corporate sustainability in order to identify significant issues for the organization and stakeholders by evaluating and assigning weight based on criteria set by the company.
  - **Inside the Organization:** The company holds meetings of the persons responsible, the Board of Corporate Sustainability Promotion, the Board of Risk Management, the Board of Welfare, the Board of Safety and the suggestion box.
  - **Outside the Organization:** The company holds shareholders' meetings, meets with customers, reads complaints, surveys customer satisfaction, organizes socialization stages, collects data on opinions, expectations and various recommendations by interviewing with questionnaires, formal and informal discussions.
- 2. Prioritization:** After identifying significant issues for the organization and stakeholders, the aforementioned issues were weighed for scores by giving consideration covering impacts on stakeholders in the organization and outside the organization. The company set scoring criteria meeting ISO 14001, ISO 18001, ISO 50001 and ISO 26000 standards while remaining consistent with organization contents without referring to indicators according to GRI G4 guidelines. Prioritization led to issue specification in the table.



## Materiality Matrix



The company presented significant issues according to the Materiality Matrix to the Board of Corporate Sustainability Promotion for approval before setting scope of the report in addition to requiring quarterly progress reports on relevant data to the Board of Management and the Board of Directors in order to monitor and ensure contents in this sustainability report will be disclosed truthfully and completely.



- 3. Scope of the Report:** This report presents data on QTC Energy Public Co., Ltd. sustainability performance from 1 January – 31 December 2015 with coverage of all of the company's activities.  
(This does not include QTC Panco Co., Ltd. in the People's Democratic Republic of Laos)
- 4. Sustainability Report Reliability:** This report and performance indicators were not certified by an expert outside agency. However, the report was certified by the Board of Corporate Sustainability Performance and the Board of Management on 2 February 2016. The company has no plans to send the report to outside agencies for certification.
- 5. For more information:** For questions or additional suggestions, please contact the Corporate Sustainability Promotion Section, QTC Energy PCL, e-mail: [sureporn.m@qtc-energy.com](mailto:sureporn.m@qtc-energy.com), Tel.: 038-891-411, Fax: 038-891-411.



## Important Sustainability Issues and Performance

Important Issues	Work Plans	Performance
<b>Quality Economy: Economy</b>		
<b>Good Corporate Governance</b>	Modify processes to be consistent with specifications of the law.	Outstanding Corporate Governance Award.
<b>Anti-Corruption</b>	Modify processes in the entire value chain to prevent corruption.	Application to the PACT Network.
<b>Risk Management</b>	Modify risk management processes to cover every dimension.	Goal achievement.
<b>Business Sustainability</b>	- Manage quality in the entire organization for sustainability with the TQM #2 system to improve competitive capacity.	Sales figures exceeding the goal of 1,000 million baht.
	- Develop trade partners by providing technical support in production.	Quality raw material delivery.
<b>Quality Society: Society</b>		
<b>Health and Safety</b>	- Safety, occupational health and work environment management with OHS 18001.	Zero accident statistics.
<b>Employee Development</b> <b>Hiring/Employment</b> <b>Employee Care</b>	- Emphasize employee development based on the organization's main capacity in addition to promoting good quality of life at work and outside work to create work life balance and sustainable happiness.	- Improved attachment to the organization survey outcomes compared to 2014. - Employee happiness survey outcomes at happy levels.
<b>Participation in Community Development</b> <b>Goods and Service Responsibility</b>	- Promote occupations for local communities and support public benefit. - Be responsible to customers, products and services by solving problems quickly and in a straightforward manner.	- Youth Occupational Seminar Project - Customer Satisfaction
<b>Quality Environment: Environment</b>		
<b>Environmentally-Friendly Goods and Service Production Processes</b>	Improved participatory production process via the KAIZEN and R & D instruments. Manage processes with environmental management standards (ISO14001) and energy management standards (ISO50001).	ISO 50001 certification.
<b>Waste and Scrap Material Management</b>		
<b>Resource Utilization</b>		



# Performance





# Economy and Good Corporate Governance



## Quality Economy



## Good Corporate Governance

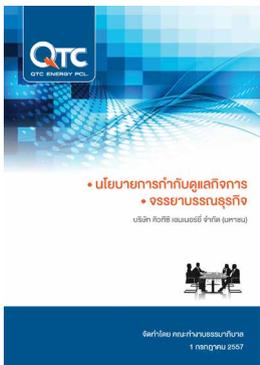
The company has always given importance to good corporate governance and the company has prepared a written good corporate governance policy as required practice for directors, executives and employees in business operations. Moreover, the Board of Directors appointed the Nomination, Remuneration and Corporate Government Committee to regulate good corporate governance in the organization in addition to making annual considerations to modify the good corporate governance policy to meet international standards. The committee is currently composed of three directors and held two meetings in 2015 to govern compliance with good corporate governance for registered companies and monitor performance according to good corporate governance improvement plans.

In communication, the company has prepared good corporate governance policy and business ethics handbooks for distribution to every employee and the company instructed every employee in addition to disseminating on the company's website.

Good Corporate Governance Policy: [http://qtc-th.listedcompany.com/cg\\_principle.html](http://qtc-th.listedcompany.com/cg_principle.html).

Business Ethics: [http://qtc-th.listedcompany.com/code\\_of\\_conduct.html](http://qtc-th.listedcompany.com/code_of_conduct.html).

Furthermore, the company received the SET Awards 2015: Best Investor Relations Awards, an indication of regular disclosure of transparent, accurate and quick information via every channel of communication to provide important data for investor decisions.



The Board of Directors requires at least one Board of Director performance evaluation per year. In 2015, performance evaluation in the form of individual self-evaluation was carried out with the mean score of 88.38 percent, meeting excellent criteria.



### Good Corporate Governance Evaluation Outcome by IOD (Full Score: 100 Points)



### Annual General Shareholders' Meeting Quality Evaluation Outcome (Full Score: 100 Points)





## Anti-Corruption

The company places importance on internal process modifications to create transparency in practice and accountability. In 2015, the company applied for membership in the Partnership against Corruption for Thailand (PACT Network) and the company implemented anti-corruption guidelines for business organizations in processes. Furthermore, the company began implementing the “no gifts policy” during festivals and any other occasions in addition to communicating with employees, trade partners and outside persons who contact to do business with the company in order to improve good corporate governance and anti-corruption levels.

Moreover, the company has modified its purchasing policy to communicate with trade partners and organization employees for compliance with the law and ethical standards. The company allowed trade partners to file complaints with the company if corrupt, illegal or unfair behaviors from employees' work were encountered. Every employee received training in the anti-corruption policy and the purchasing policy to have understanding. Copies were delivered to trade partners and disseminated on the company's website.

Anti-Corruption Policy: <http://www.qtc-energy.com/index.php/qtc56040>.

Purchasing Policy: <http://www.qtc-energy.com/index.php/purchasing-policy>.



If corruption or illegal behaviors or unfair behaviors were encountered in the work of employees belonging to QTC Energy Public Co., Ltd., complaints or clues regarding corruption can be made according to the following channels:

1. By Mail to **the Board of Audit**  
**QTC Energy Public Co., Ltd.**  
10240 2/2, Soi Krungthep Kritha 8(5), Krungthep Kritha Road, Huamark, Bangkok, Bangkok, 10240.
2. e-mail : [audit@qtc-energy.com](mailto:audit@qtc-energy.com) By E-mail: [audit@qtc-energy.com](mailto:audit@qtc-energy.com).



In 2015, the company was considered by the Ethics and Anti-Corruption Promotion Committee, Thai Chamber of Commerce, and anti-corruption offices belonging to the government enterprise sector and private businesses, the NACC and the University of the Thai Chamber of Commerce to receive the Outstanding Corporate Governance Award (Central Region) of 2015 as a confirmation of processes modified and developed by the company to be concurrent with international principles.

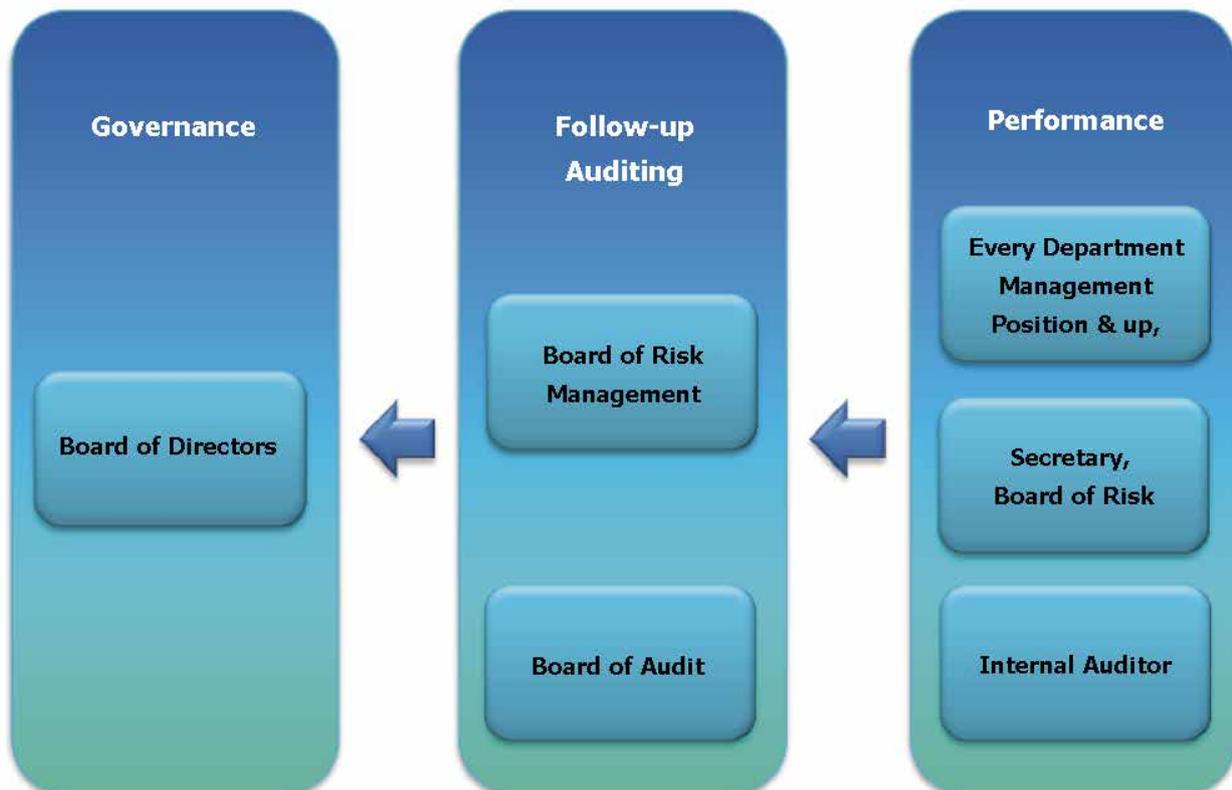




# Corporate Risk Management

To ensure operations in line with corporate vision to become a world class company under changing economic, social and environmental challenges at all times, the company has set risk management processes meeting international COSO standards and designated channels for systematic reports, monitoring and evaluations. In 2015, the company began risk evaluations to cover economic, social and environmental dimensions with quarterly reports to monitor and evaluate results with the following risk management structure:

## Corporate Risk Management Structure



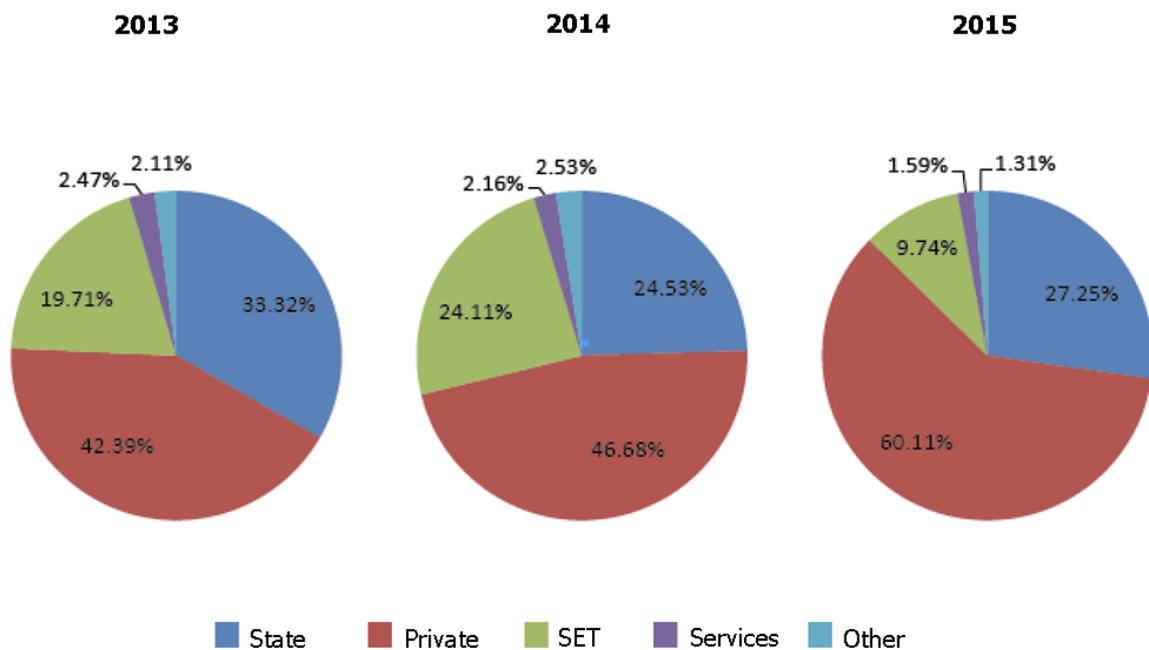


## 1. Significant Economic Risks

### 1.1 Dependence on Major Customers

The company earned income from biddings in government projects for the Provincial Electricity Authority, the Metropolitan Electricity Authority and the Electricity Generating Authority of Thailand at 25 – 30 percent of total income. This is a high ratio with potential impact on the company. Furthermore, this income depends on the company's ability to win biddings and on political situations including competitors' price competition strategies. In 2015, the global economy deteriorated with trade partners reducing purchase orders, resulting in decreasing export trends. The company has prepared for the aforementioned risk since 2014 with Total Quality Management in the organization (TQM) and the company was able to turn the crisis into an opportunity by implementing the strategy to expand domestic private customer bases and present product cost efficiency points to customers to create a difference, enabling the company to earn income exceeding the goal of 1,000 baht for the first time.

**Graph Comparing Sales Figure Data by Customer Group with Total Sales (Percent) over the Past Three Years**

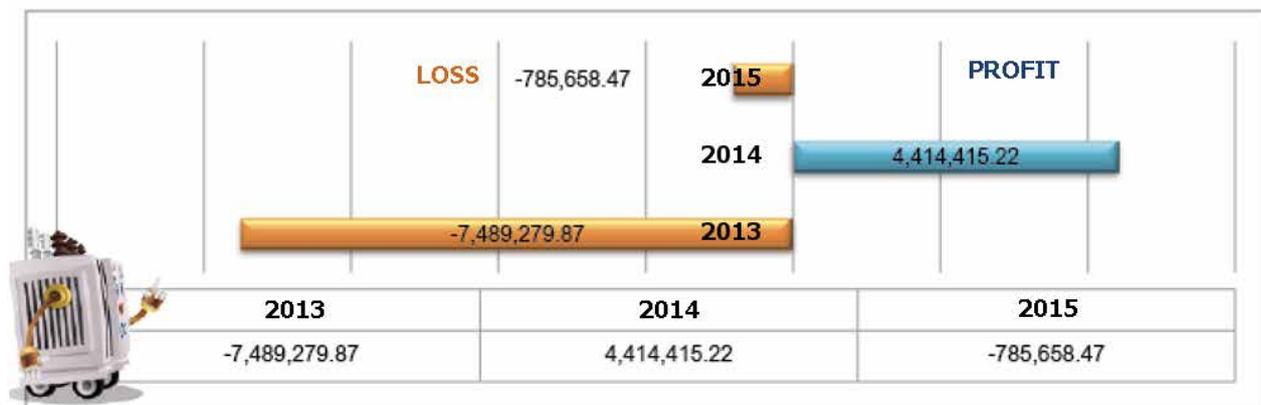




## 1.2 Currency Exchange Rate Risks

Because the primary raw materials used in transformer production such as silicon, copper sheets and transformer oil, etc., need to be imported with price fluctuations in line with the global economy, and because the company exports transformers overseas with lower ratios than imports to reduce currency exchange rate risks, the Board of Directors decided to make forward contracts. In 2015, the company had an exchange rate loss of 785,658.47 baht.

### Currency Exchange Rate Performance (THB) over the Past Three Years



## 2. Social Risks

The company is determined to operate its business with consideration given to impacts on surrounding communities and society. An important risk is **lack of social acceptance or social permission** with impacts on the company's business operations. Therefore, the company has scheduled environmental impact evaluations and evaluations of hazard risks from the company's activities in compliance with ISO140001 and OHSAS18001 standards. Furthermore, the company adheres to international principles and specifications of the law covering issues on human rights, labor, society, the environment, anti-corruption and the company uses the strategy to build reliability among stakeholders by providing transparent disclosure of information on comprehensive impact management. The company did not receive any complaints from stakeholders in 2015.

Moreover, the company hosted annual community-QTC socialization activities to create channels for listening to opinions, recommendations for improvement and creating channels of communication on performance in the area of various impacts during the year.



### 3. Environmental Risks

The company is well aware that environmental problems are a sensitive issue attracting social attention. If there are cases where the company has caused environmental impacts, significant damage will have been done to the company's image and business operations. An important risk in the business process is **hazardous waste management failure**. Hence, the company has implemented ISO14001 environmental management systems in the entire organization with procedures for managing each type of waste, selecting waste disposal contractors, monitoring waste disposal contractor performance and reporting performance to government agencies. In addition, the company prepared plans to prevent and stop incidents in cases where emergencies occurred. The company did not receive any environmental complaints from stakeholders in 2015.

Furthermore, the company is focused on regular production process development to reduce direct and indirect environmental impacts such as by modifying new machines to conserve energy, production process modifications to reduce energy consumption time or even using raw materials to create the least waste possible by having every person participate through KAIZEN achievement presentations and research and development.

### 4. Business Interruption Risks

The company is prepared to handle emergencies from various disasters with potential impacts on business operations. Fire is a significant hazard. The company has prepared fire prevention and suppression plans while also holding annual drills. In addition, the company purchased risk with an insurance policy covering every risk such as fires, floods, earthquakes, burglary and accidents from product transportation. In 2015, no incidents with impacts on the company's lives, property and production processes occurred.

Furthermore, the company has given importance to management of information connecting between the Bangkok office and the factory in Rayong by arranging for a system to regularly backup data and store data in a safe area. Furthermore, the company installed a DR-SITE system to prevent disruptions to the company's business operations. The system became fully functional in early 2016



# Business Sustainability

## Internal Process Development for Sustainability

In 2015, the company developed internal processes with the Total Quality Management (TQM) system in Phase 2 continuing from 2014 with emphasis on thinking skills, leadership skills and self-motivation to solve problems and prevent problems. The company used issues impacting the organization's goals in 2014 as a question to develop skills to be able to solve problems in the past and prevent recurrence in addition to achieving results according to corporate goals through the process of diagnosis by consultants and high-ranking executives. Continual team skill development and internal process development enabled the company to plan and design production, raw material imports and labor to be consistent with sales demands. Furthermore, the Sales Team was able to advance into the domestic private market and achieved sales figures exceeding the goal of 1,000 baht for the first time.



### TQM#2 Expenses

Item	Baht
1. Consultation Fees	651,960.00
2. Equipment and Educational Media Costs	102,146.00
3. Food and Beverage Costs	754,106.00
<b>Total</b>	<b>1,508,212.00</b>

### Evaluations and Future Work Plans

Based on Phase 2, teams were found to have more skills in analytical thinking and problem-solving on issues with clear development in process modifications. The company will continue to implement TQM in Phase 3 in 2016.



## Outstanding Quality Improvement Project

### Reduce Production Line Operation Time and Takt Time

During the first two quarters of 2015, the company's capacity to deliver goods on time was found to have deteriorated with impacts on the company's reliability. Therefore, the Supply Chain Team and the Production Department began analyzing the true roots of the problem according to TQM principles and found production in each station to have specified excessive standard time in the ERP system and delivery between work stations were found to be inconsistent, causing delays and impacts on production planning and decisions to accept jobs from customers.

The team solves problems at the roots by setting new standards for time and timing real working hours in addition to observing work behaviors by making work video logs at every work station and performing new process analysis to reduce unnecessary process and merge processes which require little time along with moving manpower from modified processes to bottleneck processes in addition to modifying data in the ERP system for use in main production planning and future production capacity estimates.

### Improvement Performance

Item	Pre-Modification	Post Modification
Work Stations (No.)	19	15
Machinery (No.)	32	32
Manpower (No.)	26	22
Takt Time (Minutes)	45	30

The aforementioned performance resulted in lower production time by 15 minutes, enhanced process efficiency by 50 percent and ability to deliver more goods by 92 percent.



### Team Feelings

"Lessons from modifications have made the company practice thinking and analyzing with principles and reason. Being open-minded and thinking outside the box has enabled us to solve problems at the cause, develop processes and build value for the work, employees and the organization. We are proud and we will continue development".





## Amorphous Transformer Research and Development

In the project “to experiment with amorphous transformer installation and utilization in the distribution system of the Metropolitan Electricity Authority” when the company signed a memorandum with the Metropolitan Electricity Authority and Hitachi Metals, Ltd. on 11 December 2014, the company delivered two amorphous transformers to the Metropolitan Electricity Authority for installation and real utilization in the distribution system (the company is unable to disclose installation sites and details in the memorandum).

In modifying amorphous transformer production processes to reduce production costs, the Research and Development Team redesigned production designs from results obtained from testing amorphous transformers at multiple sizes to solve errors in early amorphous transformer models. Furthermore, the team developed skills in amorphous transformer production which differs from normal transformer production until the team has more expertise with the ability to produce quickly and reduce production costs. Nevertheless, amorphous transformers remain unpopular due to high price competition in the market and users continue to not place importance on energy conservation. Thus, a push from the public sector is necessary.

Nevertheless, the company sent amorphous transformers to test for endurance against cross-currents at CESI, Italy, and has continued to develop amorphous transformers to push for greater acceptance for amorphous transformers to be used more frequently in Thailand in the future.





## Participation to Develop Important Trade Partners

In 2015, the company supported important trade partners by providing education on techniques and machinery for producing raw materials that are important components for transformer production in addition to providing education on production planning to be consistent with needs in order to enable trade partners to deliver key component raw materials according to schedule while also meeting the company's standards.

Furthermore, the company developed purchasing policy and sent the policy to trade partners to understand and comply with the policy, which covers international practice principles. In addition, the company disseminated the policy on the company's website.

Purchasing Policy: <http://www.qtc-energy.com/index.php/purchasing-policy>

## Performance in 2015

99.01 %	• Raw Material Delivery on Schedule
99.58%	• Quality Raw Material Delivered
774,088,760.92 Baht	• Purchasing Value





## Outstanding Features in 2015

### Business Success in 2015

<b>Net Sale</b>	•	<b>1,229,196,348</b>	<b>Baht</b>
<b>EBITDA</b>	•	<b>200,052,937.28</b>	<b>Baht</b>
<b>Net Profit</b>	•	<b>119,172,474</b>	<b>Baht</b>
<b>Earning per Share</b>	•	<b>0.60</b>	<b>Baht</b>
<b>Return to Assets Ratio</b>	•	<b>13.51</b>	<b>%</b>
<b>Shareholder Return to Equity</b>	•	<b>22.70</b>	<b>%</b>

### Table Comparing Economic Outcomes over the Past Three Years

Unit: Million THB

Transactions	2013	2014	2015
Sales and Service Income	803.95	760.50	1,229.20
Total EBITDA	134.57	114.95	200.05
Total Net Profit (Loss)	74.51	54.70	119.17





## Value Distribution to Stakeholders

### Shareholder Value Distribution

<b>Shareholder Dividends</b>	•	<b>64,000,000</b>	<b>Baht</b>
<b>Dividend per Share</b>	•	<b>0.32</b>	<b>Baht</b>

### Personel Investment

<b>Employee Remuneration: Salary Wages, Employee Development Fees &amp; Other</b>	•	<b>94,614,169.95</b>	<b>Baht</b>
<b>Executive Remuneration</b>	•	<b>18,252,563.05</b>	<b>Baht</b>

### Community-Social Investments

<b>Donation, Community Development Participation, Creation of Community Occupations</b>	•	<b>281,146.42</b>	<b>Baht</b>
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### Product Purchasing

<b>Business Trade Partners</b>	•	<b>774,088,760.92</b>	<b>Baht</b>
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### Other Economic Values

<b>Financial Costs</b>	•	<b>8,767,597</b>	<b>Baht</b>
<b>Taxes Paid to the Government</b>	•	<b>42,776,646.47</b>	<b>Baht</b>

**Table Showing Value Sharing to Stakeholders over the Past Three Years**

Unit: Million THB

Stakeholders	2013	2014	2015
Trade partners*	471.13	447.66	774.09
Employees**	87.00	89.14	112.87
Shareholders (Dividends) per Unit	0.21	0.18	0.32
Financial institutions (Interest Expense)	6.94	7.54	8.77
Community, Society and the Environment	0.37	0.34	0.28
Public sector (Taxes)	19.37	14.90	42.78

\* General goods purchasing value (domestic + foreign purchases).

\*\* Salaries, wages, welfare, the Provident Fund, social security and personnel development expenses, etc. (including executives and employees).



# Society



# Quality Society



## QTC is Happy in Every Way



### JOB Security



### HUMAN Prosperity



### COPORATE Sustainability



We want each and every one of our employees to enjoy **“sustainable happiness”** stemming from pride in being part of the **“QTC Family”** and we are ready to share our happiness with society

Mr. Siripong Boontam  
Member of the Board of Executives and  
Deputy Managing Director



# Employee Safety and Health

## Safety

The safety of every employee at every level and other associated stakeholders is given top priority. Therefore, the company has a systematic safety, occupational health and work environment management system meeting OHSAS18001 standards in addition to developing personnel capacity to work with safety and be able to foresee dangers, promoting employee participation in risk management at work, evaluations and reviews by the highest management to provide necessary resource support and continual improvements. **The company has a Zero Accident goal.**

### Safety, Occupational Health and Work Environment Management Framework



### Board of Operating Facility Safety (BOFS)

First Name – Last Name	Position
1. Mr. Siripong Boontam	Chairman of the Board
2. Mr. Kittipong Mahahing	Board Member
3. Mr. Panya Sangsa-nga	Board Member
5. Mr. Kerdpong Attajak	Board Member
4. Mr. Ong-aad Wanpake	Board Member
6. Mr. Issariyathep Kiaowijit	Board Member

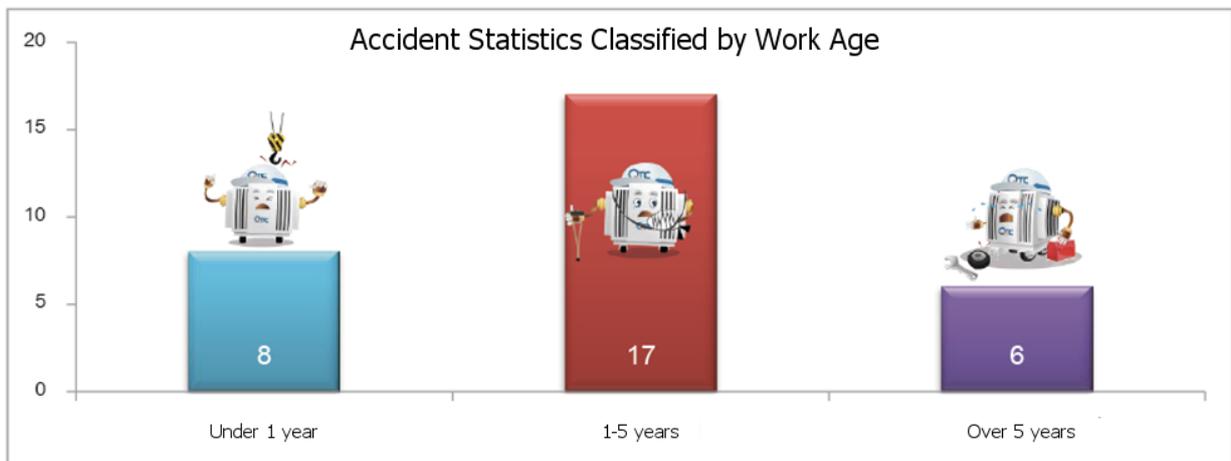
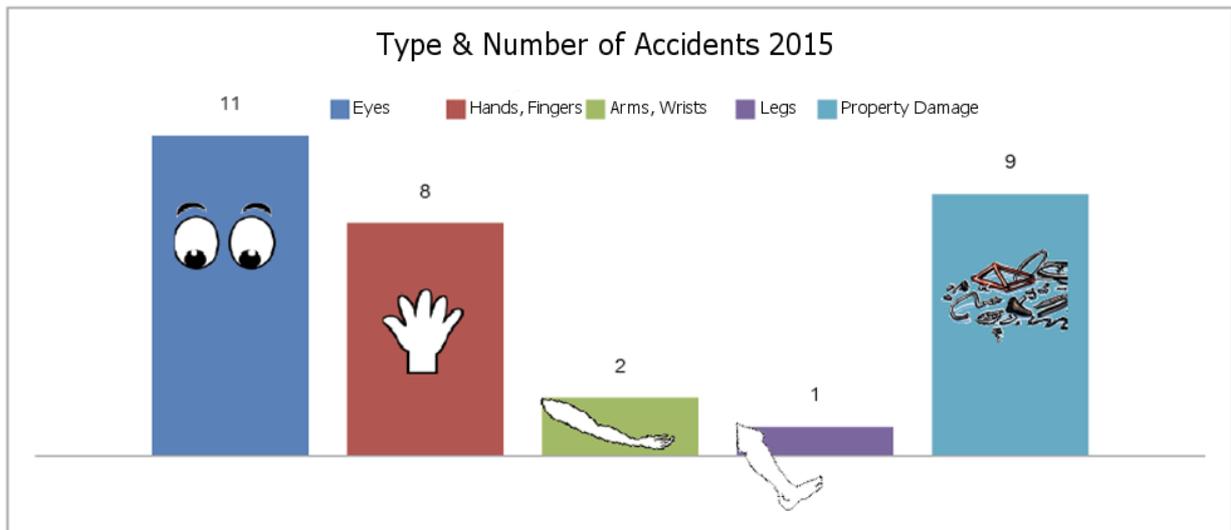


the company has had zero accidents for 874 days.

As of 31 December 2015

Table of Work Accident Statistics Comparison in the Past Three Years

Severity/Damage	No. of Times/Year		
	2013	2014	2015
Property Damage	8	6	10
Minor Injuries (No Stops)	8	7	21
Severe Injuries Causing Employees to Stop Working	1	0	0
No. of Accidents (Time)	17	13	31
Work-Related Illness (Causing Employees to Stop Working)	0	0	3
Total No. of Days Employees Stopped Working Due to Work Accidents (Days)	2	0	0





According to the table showing work accident statistics in 2015, work accidents were found to have higher trends. However, the accidents were minor accidents to the eyes, hands and fingers, arms and wrists or legs. Other accidents damaged the company's property. In addition, accidents were found to usually occur to employees with a work age of more than one year, knowledge and abilities who neglected to comply with work safety rules and did not wear personal protective equipment while working. Therefore, in late 2015, the company issued strict measures for employees at the supervisor level and up to issue warning slips to employees immediately upon encountering employees who neglect to comply with safety rules specified by the company. The aforementioned warning slips can be issued across work fields and if employees received warning slips for three times, employees will be impacted by end-of-year evaluations. The aforementioned measure has resulted in fewer accidents in late 2015. Furthermore, in 2016, the company prepared plans to create a safety culture by rallying for every member of the organization including associated stakeholders to work with safety through personal awareness.



### Safety Promotion Activities

#### Health Promotion and Safety Week



#### KYT Activities (Know about Hazards in Advance)



#### Safety and Health News





## Health

Good employee health is a significant factor enabling employees to work effectively. Therefore, the company has arranged for work areas to have hospitable and clean environments covering issues in the areas of lights, sounds, heat, chemicals and consumption along with following-up and making improvements continually.

Furthermore, the company arranged health promotion projects for employees in order for employees to have proper healthcare in the topics of eating, resting, exercising, excretion and narcotic substance avoidance. In 2015, the company received a certificate for passing the “Disease-Free, Safe and Happy Operation Facility” evaluation at the provincial level with good scores from the Department of Disease Control, Ministry of Public Health.



## White Factory Project :

The White Factory Project is a project to promote narcotic substance prevention and suppression.

The company gives continual importance to aggressive narcotic substance prevention and suppression from our awareness that threats from problems caused by narcotic substances will impact employees, colleagues, families, communities and the company. The company arranges random searches for narcotic substances without giving prior notice according to policy and strictly enforces rules and regulations.

ผลการตรวจหาสารเสพติดประจำปี 2558



ค่าใช้จ่ายในการดำเนินการ 28,368 บาท

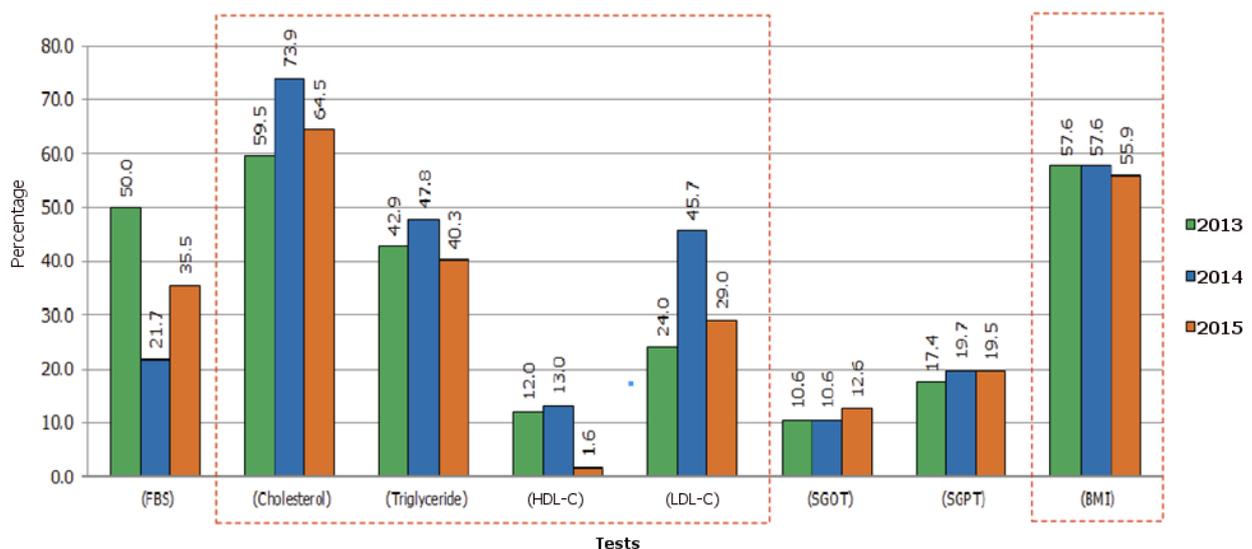


**Health Promotion Project:** The Health Promotion Project promotes beneficial use of free time by exercise.

## “Happy Body, Good Health, Happy Body and Mind”

Based on annual employee health examinations, employees have higher body mass index (BMI) than normal criteria, an indication that employees are overweight, causing high blood cholesterol, high blood pressure and high triglyceride, etc. These health problems significantly impact work, causing slow and inflexible movement, causing employees to be easily tired, employees have poor mental health, anxiety, stress and easily irritated, thereby potentially causing other complications. When employees are able to reduce these health problems, employees will have good health, work with flexibility, good mental health and be able to work more effectively. Therefore, the company promotes employees who are “disease-free, safe and happy in body and mind” by arranging for aerobic dance instructors and yoga instructors for female employees who are interested in healthcare after working hours on every Tuesday and Thursday along with renting a football field for male employees to exercise on every Wednesday and Friday. In addition, the company continually holds traditional QTC League Cup football competitions. According to performance, employees were found to have slight reductions in BMI every year.

**Graph Showing Employees’ General Health Examination Outcomes in Cases with Abnormalities Consistent with BMI in the Past Three Years**



PROJECT EXPENSES: 54,600 BAHT



### Rallies to Invite Employees to Participate in Activities



### Aerobic Dance and Yoga Instruction



### Traditional QTC League Cup 2015 Football Competitions





## Employee Healthcare with the Human Maintenance Program

The fact that employees work hard in production and process modifications to achieve goals and plans causes employees to experience stress, fatigue and Office Syndrome symptoms. Therefore, the company has organized the Human Maintenance Program to help organization members be happy. The program provided healthcare for employees by having a massage team from a Social Health Enterprise (SHE) provide massage services for every employee in the organization in the main Bangkok office and the Rayong factory.

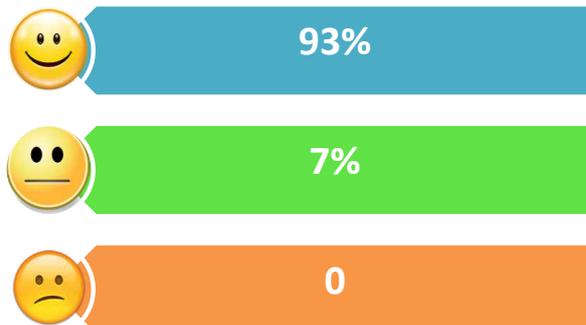
In addition, the company invited Dr. Poonchai Jitanantawittaya, the Medical Department Chairman of the Social Health Enterprise to provide education on healthcare and disease prevention.



Operational expenses amounted to 34,500 baht.

### Post-Service Survey Outcome

Happiness levels in 93 percent of 140 employees who received massages found employees to be happy and satisfied after the services while the remaining seven percent felt the same.





## Safety, Occupational Health and Work Environment Measurements

The company measures general and specific work environments and employee health based on risk factors to monitor and plan for improvement. Measurement frequency was in line with specifications of the law such as:

### Work Area Sound Measuring Outcome Comparison over the Past Three Years

Area Measured	Area	Measurement Results			Standard	Unit
		2013	2014	2015		
		20/3/13	2/4/14	28/5/15		
Core Steel	Factory 1	85	74.1	-	90	dB (A)
Unicoil Steel Cutting Machine	Factory 3	91	79.0	76.8	90	dB (A)
Tanking	Firing and Oil Filling	81	88.8	75.8	90	dB (A)
Wood Cutting Room	Assembly	81	77.4	77.3	90	dB (A)
Work Shop	Core Steel	83	77.3	79.9	90	dB (A)
Steel Pellet Shooting Area	Factory 4	-	85.9	84.7	90	dB (A)
Work Shop	Assembly	-	-	69.6	90	dB (A)
Coiling 1	Factory 1	-	-	70.6	90	dB (A)
Coiling 2	Factory 1	-	-	82.2	90	dB (A)
Coiling 4	Factory 2	-	-	75.3	90	dB (A)
Paper Cutting	Paper Cutting Room	-	-	74.4	90	dB (A)
Tank Welding	Factory 4	-	85.9	84.7	90	dB (A)

### Sound Disturbance to Areas outside the Factory in 24 Hours Compared over the Past Three Years

Parameters	Area	Measurement Results			Standards	Unit
		1/13	1/14	1/15		
		12-13/8/12	24-26/3/14	26-28/5/15		
General Sound Levels (Leq 24 hr)	Factory Garden	58.7	56.3	65.2	70	dB (A)
General Sound Levels (Lreex)	Factory Garden	51.9-80.8	51.6-78.3	36.5 – 91.4	115	dB (A)



### Chemical Work Environment Measurement Outcome Comparison over the Past Three Years

Parameters	Area	Measurement Results						Standard	Unit
		1/13	2/13	1/14	2/14	1/15	2/15		
		20/3/13	6/9/13	2/4/14	18/9/14	18/5/15	13/11/15		
Iron Fume	Core Steel Work Shop	0.26	0.006	0.001	0.24	0.017	-	10	mg/m3
Lead	Assembly Work Shop	0.01	0.001	0.001	0.01	0.015	-	0.2	mg/m3
Copper Fume	Assembly Work Shop	1.24	0.002	0.009	0.01	-	0.007	0.1	mg/m3
Copper Fume	Assembly	0.01	0.01	0.01	0.01	0.007	-	0.1	mg/m3
Copper Fume	Coiling 1	0.01	0.01	0.02	0.01	0.007	0.007	0.1	mg/m3
Copper Fume	Coiling 2	0.01	0.01	0.01	0.01	0.007	0.007	0.1	mg/m3
Copper Fume	Coiling 3	0.01	0.01	0.01	0.01	0.007	0.007	0.1	mg/m3
Copper Fume	Coiling 4	0.01	0.01	0.01	0.01	0.007	0.007	0.1	mg/m3
Toluene	Steel Lining	6.35	9.95	2.86	2.72	4.82	0.3	752	mg/m3
Toluene	Core Steel Work Shop	-	-	-	-	-	4.36	435	mg/m3
Toluene	Equipment Installation	0.57	0.83	0.01	1.88	0.25	0.25	752	mg/m3
Xylene	Equipment Installation	0.01	0.01	0.25	2.17	0.25	0.25	435	mg/m3
Xylene	Core Steel Work Shop	0.01	0.01	0.01	2.17	0.25	0.25	435	mg/m3
Xylene	Steel Lining	0.01	1.17	0.71	2.17	0.25	0.6	435	mg/m3
Acetone	Steel Lining	-	-	-	-	-	0.26	250	ppm
Acetone	Core Steel Work Shop	-	-	-	-	-	0.53	250	ppm
Total Dust	Core Steel Work Shop	-	0	-	ND	0.25	-	15	mg/m3
Total Dust	Assembly Work Shop	-	-	-	ND	0.25	-	15	mg/m3
Total Dust	Paper Cutting Room	-	-	-	ND	0.26	0.25	15	mg/m3
Total Dust	Wood Cutting Room	-	-	-	ND	9.13	0.25	15	mg/m3
Total Dust	Spray Booth	-	-	-	ND	1.36	0.25	15	mg/m3
Total Dust	Transformer Repair	-	-	-	ND	0.25	0.25	16	mg/m3
Total Dust	Front of Sand Shooting Room				ND	0.25	-	15	mg/m3
Total Dust	Tank Assembly Welding	-	-	-	ND	0.25	0.34	15	mg/m3
Respirable Dust	Sand Shooting Room	-	-	-	-	0.4	0.1	5	mg/m3
Respirable Dust	Sand Shooting Room	-	-	-	ND	2.31	2.31	5	mg/m3
Respirable Dust	Wood Cutting Room	-	-	-	-	-	0.1	5	mg/m3
Iron Oxide Fume	Factory 4	-	-	-	0.03	-	-	10	mg/m3
Xylene	Spray Booth	-	-	-	1.23	0.35	0.35	100	ppm
Toluene	Spray Booth	-	-	-	7.23	2.46	2.46	200	ppm
Iron Fume	Plasma Cutter, Factory 4	-	-	-	-	-	0.015	10	ppm
Iron Fume	Steel Pellet Shooting Room (Interior)	-	-	-	-	-	0.232	10	ppm
Iron Fume	Steel Pellet Shooting Room (Interior)	-	-	-	-	-	0.011	10	ppm
Iron Fume	Spray Booth, Factory 4	-	-	-	-	-	0.020	10	ppm



### Health Test Results Based on Work Risk Factors of 2015

Test	No. of Employees Tested (Employee)	Normal Results (Employee)	Abnormal Results (Employee)
Copper in Blood	29	24	5
Iron in Blood	27	25	2
Lead in Blood	8	8	0
Styrene in Urine	26	26	0
Toluene in Urine	26	26	0
Xylene in Urine	26	26	0
PFT	114	102	12
Audiogram	118	113	5
OCC	73	45	28
Grip Strength	113	87	26
Back Strength	113	67	46

For health examinations according to abnormal risk factors, we invited doctors specializing in internal medicine to ask about backgrounds and provide healthcare recommendations for employees with abnormal results.

- Five employees were found to have abnormal copper in the blood and were sent for retesting (employees had to fast after midnight). Based on the background enquiries and work environment measurements, doctors had the opinion that all five employees were taking a type of medication or food with copper components which were not driven out entirely by the body. Doctors provided healthcare recommendations.
- Two employees were found to have abnormal iron in the blood and were sent for re-testing (employees had to fast after midnight). Doctors rendered the opinion that this was caused by consumption of foods rich with iron. Doctors provided healthcare recommendations.
- For other abnormal test results, doctors recommended employees to exercise, rest eyesight and eat healthy foods from all five groups.





## Employment, Employee Development and Care

The company places importance on seeing that employees have good living conditions and happiness as good people along with developing skills, knowledge and capabilities to create talented and good employees according to the Q + R = S sustainability equation (Quality + Responsibility = Sustainability). In 2015, the company outlined its targets for developing every employee in the organization for sustainable happiness and pride as part of the QTC family to be ready to share happiness with society outside the company by implementing the key strategy of comprehensive development to create talented and good employees in addition to the strategy to create work life balance and build trust in one another. The company announced the happy workplace policy as a guideline for building corporate happiness to become strong and grow together with sustainability.

Happy Workplace Policy: <http://www.qtc-energy.com/index.php/happy-workplace-policy>.

### Employment

In 2015, the company modified the human resource policy to be concurrent with organization sustainability development guidelines by covering issues on employment, human rights and remuneration management, etc. The company made the announcement and built understanding with employees along with disseminating on the company's website.

Human Resource Policy: <http://qtc-energy.com/index.php/human-resource-policy>.

Human Rights Policy: <http://www.qtc-energy.com/index.php/qtc57041>.

### Board of Welfare

First Name – Last Name	Position	First Name – Last Name	Position
<b>Bangkok Office</b>		<b>Rayong Factory</b>	
1. Miss Jariya Jobjan	Chairman of the Board	1. Mr. Narong Titnam	Chairman of the Board
2. Miss Pakanat Tangtrakul	Board Member	2. Miss Nipaporn Sukcharoen	Board Member
3. Miss Kandaporn Kaewnamlert	Board Member	3. Mr. Nattapom Pansoongnern	Board Member
4. Miss Atchara Buakom	Board Member	4. Mr. Kriangkrai Siripai	Board Member
5. Mrs. Paweena Jaidee	Secretary	5. Mrs. Nongpueng Sooksri	Secretary
<b>Mrs. Wipa Ruangrit Represents the Employer.</b>			



### Employment Ratio Statistics over the Past Three Years

Item	2013		2014		2015	
	No. (Person)	Percent	No. (Person)	Percent	No. (Person)	Percent
<b>Classified by Gender</b>						
Male Employees	122	62.24	137	63.43	145	64.44
Female Employees	74	37.36	79	36.57	80	35.56
<b>Classified by Level</b>						
Management	12	6.12	12	5.56	12	5.33
Knowledge	116	59.18	118	54.63	121	53.78
Operation	68	34.69	86	39.81	92	40.89
<b>Classified by Age</b>						
Aged 18 – 35 Years	136	69.39	153	70.83	159	70.67
Aged 36 – 50 Years	52	26.53	55	25.46	57	25.33
Aged More Than 50 Years	8	4.08	8	3.70	9	4.00
<b>Classified by Area</b>						
Bangkok Main Office						
Male Employees	22	11.22	20	9.26	22	9.78
Female Employees	28	11.29	29	13.43	25	11.11
Rayong Factory						
Male Employees	100	51.02	117	54.17	123	54.67
Female Employees	46	23.47	50	23.15	55	24.44

### Number of Employees at Year End





### New Employee and Employee Who Lost Status Ratios in the Past Three Years

Item	2013		2014		2015	
	No. (Person)	Percent	No. (Person)	Percent	No. (Person)	Percent
<b>New Employees</b>						
Male Employees	46	71.88	64	77.10	47	77.04
Female Employees	18	28.22	19	22.90	14	22.96
<b>New Employees</b>						
Aged 18 – 35 Years	59	92.19	76	91.57	59	96.72
Aged 36 – 50 Years	5	7.81	7	8.43	2	3.28
Aged More Than 50 Years	0	0	0	0	0	0
<b>Employees Who Lost Status by Gender</b>						
Male Employees	44	80.00	39	72.22	28	75.67
Female Employees	11	20.00	15	27.78	9	24.33
<b>Employees Who Lost Status by Age</b>						
Aged 18 – 35 Years	50	90.91	48	88.89	31	83.78
Aged 36 – 50 Years	4	7.27	6	11.11	6	16.22
Aged More Than 50 Years	1	1.82	0	0.00	0	0.0



First Employment Rate	Operation Level	9,000 Baht + Experience	+ Benefits
	Knowledge Level	15,000 Baht + Experience	+ Benefits
	Management Level	By Experience	+ Benefits

Benefits: Travel expenses, living expenses, diligence pay, etc.

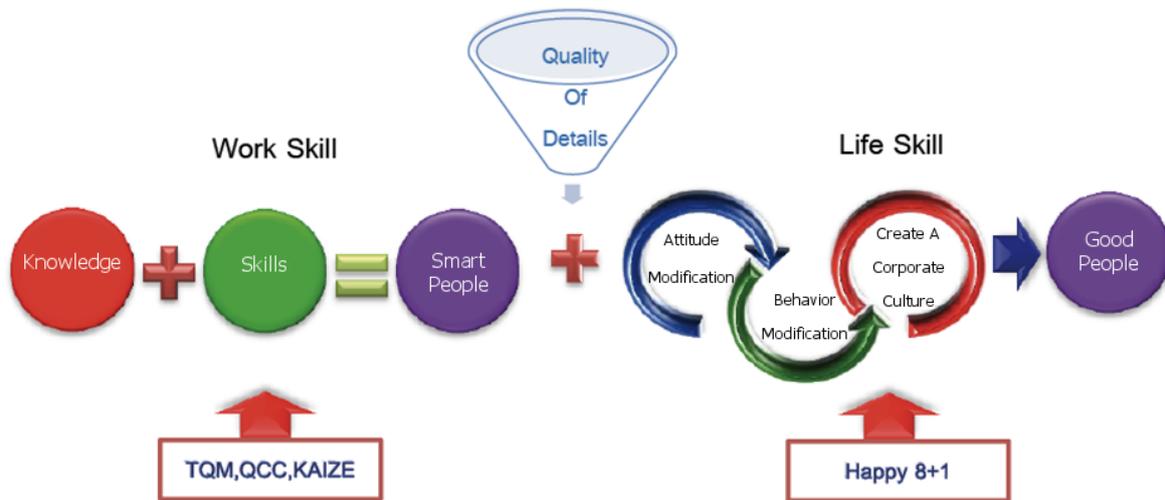


## Employee Development and Care

The company is aware that human resources are the most valuable resources and a vital factor in leading the organization to success. Therefore, the company is determined to develop employee capacity in addition to promoting employee social responsibility and the environment along with building comprehensive sustainable happiness for employees to be Disease-Free, Hazard Free and Happy in Mind and Body” by properly applying management principles in various areas to corporate culture in order to build work life balance with important goals consisting of:

1. Personnel development based on primary abilities and job position abilities to reduce GAP by 50 percent/year.
2. Personnel development by occupational field by at least 50%/year.
3. Employee happiness index > 80%.
4. Corporate happiness index > 75%
5. Employee attachment to the corporation > 80 percent.

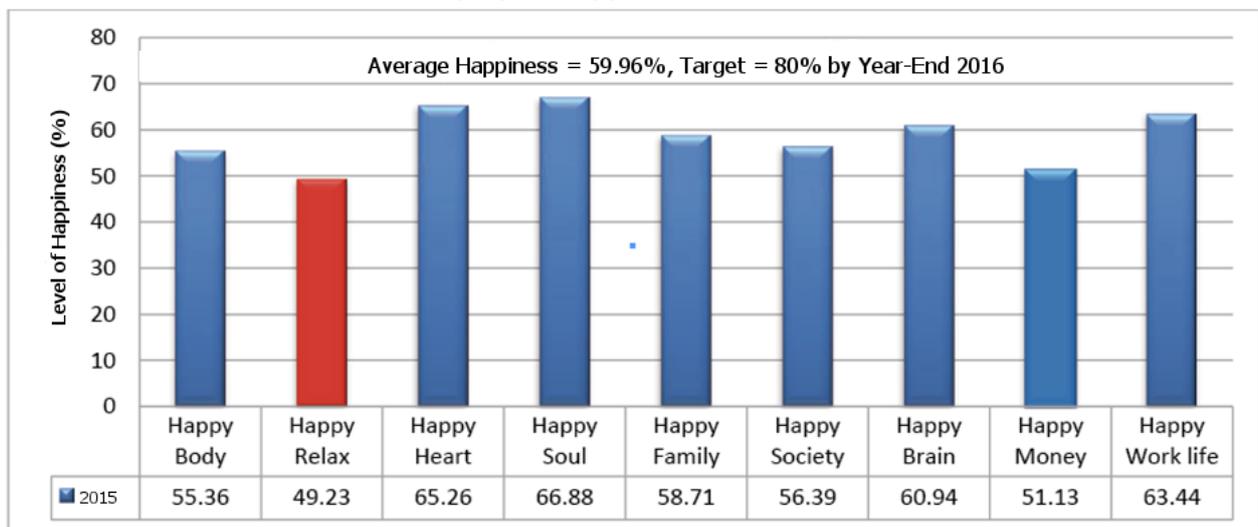
### Personnel Development Model





In 2015, the company participated in the Happy Corporation Project with Share Foundation and began measuring employee happiness with the Happinometer along with measuring corporate happiness with the Happy Workplace Index before beginning the project to obtain statistical data for penetrating problem issues and for use as comparison data to improve happiness for organization members and improve the organization according to MapHR. Performance in 2015 was as follows:

### Employee Happiness Index 2015



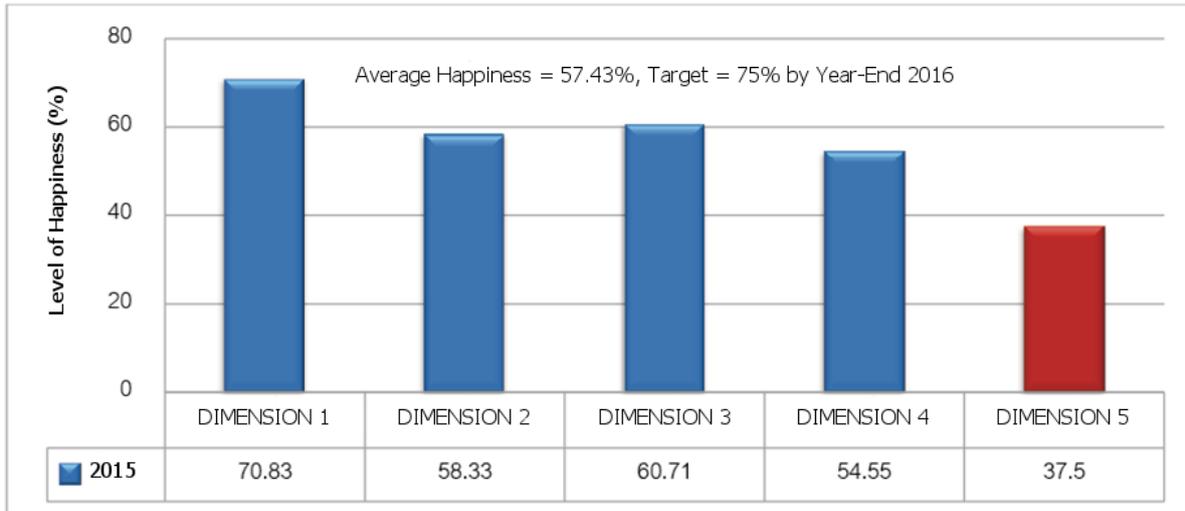
When the project began in August 2015, the mean happiness index for corporate members was 59.96 percent or a happy level (211 employees out of 219 employees or 99 percent). Major issues requiring urgent improvement are composed of the Happy Relax topic. Most of the company's employees were found to have stress from work, no skills in relaxing from stress while working, focused excessively on success and forgot to look for happiness with colleagues and create a good work atmosphere. This mostly occurred to Manage- and Knowledge-level employees. The outcome of this measurement provided key data for preparing many projects to resolve certain issues.

*Comment: The company hosts numerous recreational activities to relax and create happiness for employees. However, this happiness is temporary and soon vanishes after the activities are over. Employees are unable to manage personal stress while working. The company was never aware of this before....this issue requires an urgent remedy.*





### Corporate Happiness Index 2015



#### Definitions for Individual Dimensions

- Dimension 1 – Happy Management (M: Management)
- Dimension 2 – Happy Work Atmosphere (A: Atmosphere)
- Dimension 3 – Happy Happiness Process (P: Process)
- Dimension 4 – Happy Health (H: Health)
- Dimension 5 – Happy Results (R: Results)



The company began assessing corporate happiness in September 2015 with a mean score of 57.43 percent, reflecting progressive corporate happiness. The important issue is Dimension 5. Labor productivity and overall organization productivity is not at sufficiently good levels. This concurred with the employee happiness index, which provided key data in planning process modifications in every dimension according to MapHR guidelines. In 2016, the company has a goal to raise corporate happiness levels to become “the most enviable organization” with a mean score of 75 percent.

*Comment: In the scoring process, the company experimented with two groups by having a group of executive employees and a group of employee representatives evaluate. This reflected and showed that internal communications regarding organization management is not reaching lower level employees sufficiently. Score differences were significant....This topic requires further improvement in the future.*





## Work Skills Development

### Welder Skills Development Course

The company provided theoretical and practical training to provide knowledge and understanding in GMAW welding processes and the GTAW welding process including advanced welding processes with the ability to work correctly, safety, reduce production workloads and reduce problems of unqualified work.



### Technical Training AX2012 Course

This course was aimed at enabling employees to work in the AX Version 2012 system according to version upgrade plans in addition to learning techniques required to use the program with maximum efficiency.





## Life Skills Development

The company promotes corporate happiness by creating a model team of twenty “happiness-makers” to practice skills in being “happy corporation workers” with consultants from Share Foundation to enable the team to create happy corporate workers on their own. The company has a goal for every employee in the organization to become a “happiness-maker” to raise the happiness levels of every member of the corporation and lead to sustainable happiness”.

“Happiness-makers” need to be persons who can create happiness for themselves in every occasion in life and at work with the ability to share that opportunity for people around them to be happy, too. Necessary skills include the following:

1. Capacity to analyze self and others in order to have the characteristics of the Four Symbols, through knowledge and ability to work together happily.
2. Ability to solve and prevent problems and conflicts.
3. Ability to use activities to create an atmosphere at work and in the people around them.
4. Good listeners with the ability to accurately summarize issues.
5. Good speakers capable of encouraging the people around them.
6. Good attitudes with the ability to think positively and recognize opportunity in a crisis.

Skills training will use the knowledge taken from activities by team brainstorming, practicing to think outside the box, practicing leadership and teamwork. In 2015, the company carried out skills training for eight days at the Rayong factory.





### Result Extension and Happiness Sharing To Organization Members by “Happiness Makers”

The happiness maker team began extending results from learned knowledge into practice with various projects responding to low employee happiness index and created rules for living together happily in order for every corporate member to practice and create habits.



**The Happy Work Life and QTC Pride Project:** This project promoted personally positive work atmospheres with the creation of good attitudes toward work and colleagues, creation of people analyzing skills with characteristics of the Four Symbols and listening to colleagues.

Attitude Modification Activities for All Employees



QTC Happy Running Activities





**The Happy Body, Good Life, Happy Body and Happy Mind Project:** This project modified the health promotion project to be more aggressive with coverage of exercise, healthy food choices, rest and sleep including quitting smoking and alcohol consumption. Some of the project's performance is presented in the Employee Health Promotion topic.

**The Happy Money, Good Life, Debt-Free and Poverty Project:** This project was aimed at releasing employees from debt burdens by using financial institutions in addition to providing education on savings and spending skills development for employees. Employees who participate in the project are required to comply with project rules, reveal financial information according to the truth and train themselves to be responsible, know how to spend, save and think before spending in order to avoid recurrent debt. This project will show results in 2016.



### Course Training

#### Proper Work Attitude and Values: Cognitive, Mental and Physical Development

By Col. Dr. Pongsak Tangkana





## Activities Promoting Morals and Ethics

### Thai Songkran Tradition of Pouring Water to Request Blessings from Elders 2015



### Food Offerings to Monks, Hearing of Dharma Sermons on QTC's 19th Anniversary and New Year 2016



### Photo Context "I Love Mom the Most Because Mom Is the Dearest" and "I Love Dad Because Dad is the Dearest"





### Employee Quality Promotion

#### QTC 10-Year Award



#### Employee of the Year Award 2015



### Recreational Activity 2015

#### Annual Vacation@SANTORINE, Cha-am



#### Happy New Year

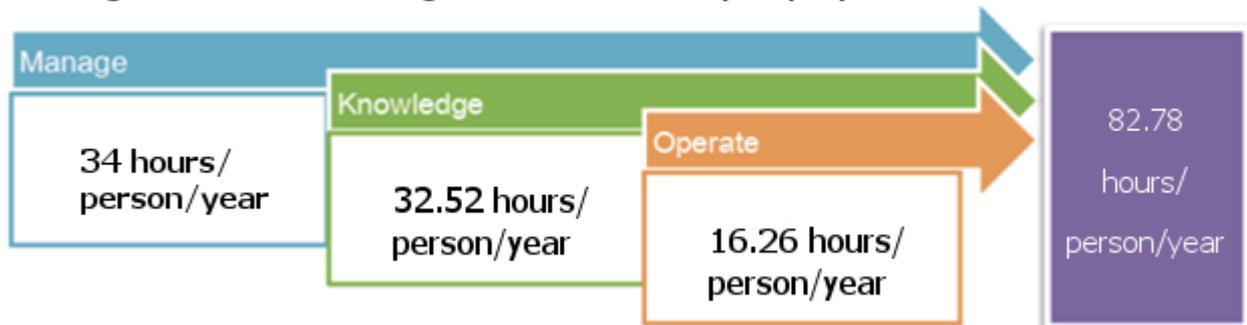




## Training Performance 2015

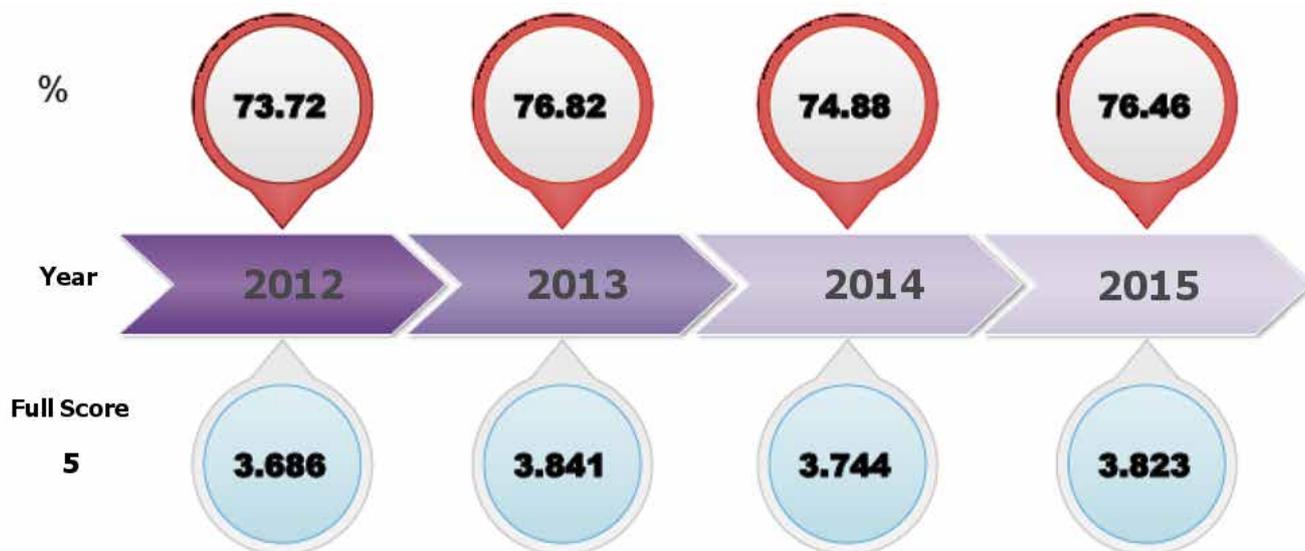
Guideline	Method	Performance	Expense (Baht)
On-the-Job Training	Set standards for necessary knowledge and skills for each job position. Supervisors are responsible for training and teaching jobs to employees in the aforementioned positions to be able to work according to desired knowledge and skill levels by monitoring closely and regularly in order to develop personnel with capacity to work. Employees are required to receive training to reduce the gap by at least 50 percent per year.	In 2015, 190 employees were assessed for work capacity. Of 108 employees with gaps, 76 employees closed the gap by 70.37 percent (117 training courses).	5,000
In-House Training	Core Competency Course. Managerial Competency Course. Functional Competency Course. Other Special Courses.	45 Courses 842 Employees (Repeated)/211 Employees (Not Repeated). Mean Training Hour: 48.52 Hr./Employee/Year	755,560
Public Training	Send employees to train in courses organized by outside institutes	111 Courses 166 Employees (Repeated)/84 Employees (Not Repeated). Mean Training Hour: 34.26 Hr./Employee/Year	676,7303
<b>Total Employee Development Expenses</b>			<b>1,437,263</b>

### Average Number of Training Hours Classified by Employee Level 2015





### Employee engagement





## Employee Attachment to the Organization

The company gives importance to participation in community development by setting the budget at 1.5 percent of net profits for use in operations. In order to ensure liquidity and concurrence with the company's economic conditions, projects or activities will be approved through annual business reports and transparency audits by internal auditors.

Project activities were hosted with consideration given to the needs, recommendations, opinions or requests from community members. Main annual activities consist of QTC-community socialization activities by opening the QTC home doors to allow community leaders, schools, temples, hospitals and the general population, etc., to jointly discuss and create communication channels with communities regarding the company's operations during the year to build trust in one another and accept the company's status in society.

### QTC-Community Mixer in 2015

The social mixer in 2015 had over 120 community leaders, local school teachers, medical facility staff and community members who participated in the event. The company openly presented the company's performance regarding environmental and safety management in addition to answering questions posed by participants.





In addition, the 2015 social mixer was more special due to the fact that the company provided free massage services for participants with massage 12 beds and a massage team from a Social Health Enterprise. Dr. Poonchai Jitananwittaya, the Chairman of Community Health Enterprises, came to lecture the public on knowledge about healthcare and prevention of aches caused by work. The company intends to provide income support for social health enterprises, which are a business for society, and help extend results for community members to have more knowledge.



The social mixer created a new project for participation in community development with the major project being occupational seminars for high school students at Ban Saphan See to spend free time with benefit because most of the students were children of migrant workers working at industrial factories in Pluak Dang. The adolescent children had problems from being in the risk group without returning home after school, parents who worked in factories without time for family and care for children sufficiently, causing a gap between groups, making youths susceptible to substance abuse or poor choices in life.



**Social Mixer Expense: 62,066 Baht.**

**Special "Massage" Activity Expenses: 33,000 baht.**



The fact that community leaders and school directors received massage services impressed community leaders and school directors. Seeing this as a guideline for creating occupations for students at Ban Saphan See, therefore, QTC and Social Health Enterprises are requested to help support the creation of occupation for these children.

### The Project to Create Honest Tangible Massage Livelihoods for Saphan See Youths

This project was a result of the first socialization activity on 7 September 2015. The company created honest massage livelihoods for volunteer students and provided instructions on massage postures that are the copyright of Dr. Poonchai Jitanantawittaya. Social Health Enterprise instructors were used and the facilities were provided by Ban Saphan See School. QTC supported various expenses and controlled student conduct and discipline with schoolteachers. Instruction began in October 2015 with 19 students who participated in the project with approval from parents. Cooperation and determination by every party including encouragement by Tambon adults and the unofficial visit by Khun Nipa Suwansutjarit on 4 November 2015 gave the children spirit to practice hard. The students also had many opportunities to demonstrate their abilities such as by providing massage services at the Ministry of Interior's Ladies Association on 20 November 2015, at the Wan Damrong Rachanuphab Day event on 1 December 2015 at the Ministry of Interior, the Bike for Dad event on 11 December 2015 at Rajamangala University of Technology Phra Nakhon and free massage services on Loi Krathong Day for relatives in the community. The project's performance in 2015 did not have income because the project is unable to officially open to provide services. Every work was performed to provide free services and allow students to practice skills. However, the students received trip money from adults as encouragement in their work.

Project description to parents and the first testing of the students' spirits.





Meeting of parents and students who participated in the project.



President of the Rayong Red Cross Chapter Ms. Nipa Suwansutjarit and civil servants unofficially visited and encouraged students on 4 November 2015.



A lecture recommending the project and students' massage service provision at the Ministry of Interior Ladies Association meeting on 20 November 2015 at Miracle Grand Hotel.



Massage skills demonstration by students on Wan Damrong Rachanuphab Day on 1 December 2015 at the Ministry of Interior.





Massage services provided for bikers by students at the Bike for Dad event on 11 December 2015  
 At the Royal Support Station, Faculty of Business Administration, Rajamangala University of Technology Phra  
 Nakhon



Free massage services on Loi  
 Krathong Day for relatives in  
 the community on 25 November  
 2015.



According to plans in 2016, the company will provide a small business administration course for students and layout foundations for transparent income management to allow students to gain work skills and see the value of money. The project began in early 2016 and was ready to provide services. QTC will issue support coupons to stimulate service utilization by distributing to stakeholders at the balance of 150,000 baht.

**Project Expenses As of 31 December 2015 = 20,350 baht.**



## Power System Modification at Ban Mab Toei School

The company donated 100 kVA transformers to Ban Mab Toei School in 2012 and inspected the transformers according to schedule on 17 January 2015, but the school was found to have problems related to power systems in the school building with power outages whenever energy is used simultaneously in multiple buildings. Therefore, the company sent its engineering team to inspect and found the breaker set was in appropriate for the amount of energy used and electrodes were switched, causing leakages which are dangerous for teachers and children. The company offered recommendations and changed equipment for the school at the school's expense. QTC's engineer team performed the installation. This activity was a use of the company's special abilities in community participation.



## Mini-Concert to Aid Earthquake Victims @ Nepal



The company hosted the Mini-Concert to Aid Earthquake Victims @ Nepal. The Music Lovers Club collected 43,326 baht in donations from employees and executives and delivered aid via Mr. Somsak Suwansutjarit, Governor of Rayong, at the Rayong Damrong Dhama Center on 7 May 2015.





### QTC “Rak Dek” Volunteers 2015

In 2015, the company participated with professors and students from King Mongkut’s University of Technology North Bangkok to organize a science camp on National Children’s day using scientific instruments given by QTC to the University’s Sansara Camp with a display for kids to see and experiment. This created excitement among many students, parents and children in the Mabyangphon community who participated in the event on Saturday, 10 January 2015, at Ban Mab Toei School with the total expense of 29,081.22 baht.



### Results of Participation in Community Development





# Product & Service Responsibility

The company gives importance to its determination to meet customer needs in order to resolve problems stemming from the company's products. The company established the Customer Care and Service Center Department with a unit providing 24-hour services for customers. Furthermore, the company has arranged channels for accepting customer complaints via the Sales Team and the Service Team, which have the duty to meet and speak with customers directly. Complaints are managed by the Organization Quality System Management Committee. Furthermore, the company has arranged for annual customer satisfaction surveys to continually modify and develop issues in the interests of customers.

## Customer Warranty Service

Target: Ability to provide transformer services with a warranty period of > 90%/year.

Year	2013	2014	2015
Performance (%)	98%	94%	90.37%

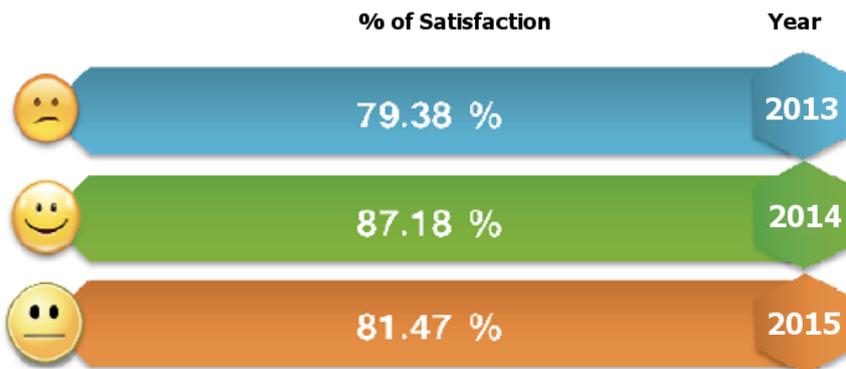
## Customer Complaint Management

Target: Ability to Manage 100% of Customer Complaints

Year	2013	2014	2015
No. of Complaints	19	17	35
Performance (%)	100	100	100

## Customer Satisfaction Survey Results

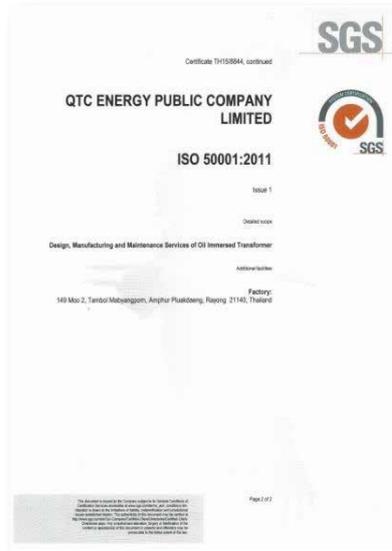
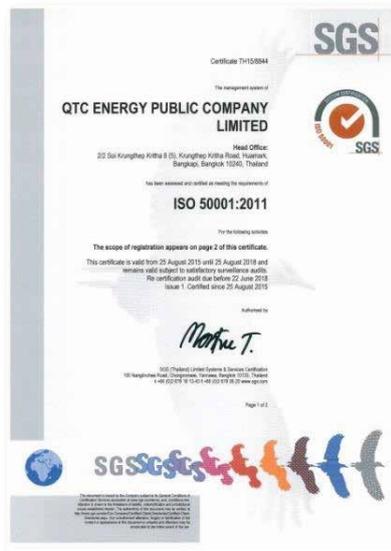
Target: 70% of the Customer Satisfaction Survey Results Need to Meet Over 80% of the Requirements







The company gives importance to direct or indirect environmental impacts caused by the company's business operations. Thus, the company's environmental management has met ISO14001 standards since 2003 and the company began to implement ISO50001 energy management standards in 2014. In 2015, the company received ISO50001 standard certification from SGS covering both the Bangkok office and the Rayong factory.





## Environmentally-Friendly Goods and Service Production Processes

### Hot Air Reduced Energy Consumption from Hot Air Vacuum Modifications

The hot air vacuum is a machine used in the production process to vacuum-dry the inner components of transformers with high energy consumption. The energy team used a Themoscan and found loss of thermal energy from the hot air vacuum because the cabinet connection points have invisible micro fractures and gaps under the closed door. Therefore, the company assigned the Maintenance Team to make modification plans by installed more heat insulation at locations detected by the Themoscan and install fire-resistant bricks to insulate heat under the closed door. Modifications experimented by collecting real power use while vacuuming the inner components from a 500 kVA transformer were found to be able to reduce power consumption by 16 kWh/round or a power cost conservation by approximately 64 baht/vacuuming round (hypothesized power cost at four baht/unit).

Furthermore, the Maintenance Team in cooperation with the Vacuum and Oil Filling Station improved the work plan further with KAIZEN by installing a Timer Relay to time when the heater works. Formerly, the hot air vacuum requires a person to turn it on after work and turn off when the morning production cycle arrives, which was a total of 15 hours per vacuuming cycle, causing waste of energy. After installing a Timer Relay, vacuum time dropped to only nine hours per cycle.

Indicator	Pre-Modification	Post Modification
Vacuum Time (Hrs.)	15	9
Power Used (kW)	24	24
Energy Used (kWh)	360	216
Power Cost (Baht)*	1440	864
<b>Efficiency: Reduced Hot Air Vacuum Energy Consumption by 40 Percent.</b>		

The company visibly gives importance to every detail in the process to reduce energy consumption along with enhancing the production process while also reducing production costs.



*"We are proud to be a part of the team, to have the opportunity to think and create value for the organization, our colleagues, ourselves and the environment."*



### Oil and Air Mass Separator

Problems were encountered with the vacuum machine's oil filtering function for large transformers in that transformer oil particles flowed down the vacuum pipe and entered the vacuum machine when filling transformer oil and vacuuming. Transformer oil particles will be mixed with the vacuum machine oil, causing the vacuum machine to lose air suction efficiency with oil heat along the pipe and on the ground, thereby requiring the vacuum oil to be changed and the floor cleaned every time in addition to costing the company in terms of expenses and time for changing oil and cleaning the floor.

Due to the aforementioned problem, Mr. Kosin Moontep, a Production Department maintenance staff member, made modifications (Kaizen) by modifying a disused transformer conservator tank into a tank for separating oil and air before entering the vacuum, causing transformer oil particles, which are heavier than air, to fall to the tank bottom. The air was sucked into the vacuum machine and worked at full efficiency. This modification helped to reduce expenses in changing the vacuum machine oil and helped to extend time for changing vacuum oil and cleaning floors.

#### Effects of Modifications on One Oil Filtering Cycle

Indicator	Pre-Modification	Post Modification
Vacuum Oil Required to be Changed (Liters)	10.00	-
Vacuum Oil Changing Expenses (THB)	4,500.00	-
Changing and Cleaning Time (Hours)	1.00	-
Oil-Contaminated Materials (Kilograms)	2.5	-

*"I am proud with this modification because it saves the company expenses and reduces environmental impacts. Most importantly, this modification reduces the time it takes me to clean the floor".*





## Pollution Control

### Wastewater Quality

QTC's production factory is located in an area without natural and waterworks public water sources, thereby forcing the company to use surface water in the transformer production process only. The company does not use water in production procedures and uses water only to cool the vacuum machine in addition to cooling temperatures from welding. The water system stores and reuses water throughout the entire year.

### Comparison of Factory Wastewater Quality Test Results at the Final Point over the Past Three Years

Measured Parameters	Results					Standard	Unit
	1/56	2/56	1/57	1/58	2/58		
	19/2/56	16/9/56	24/3/57	17/7/58	23/11/58		
BOD <sub>5</sub>	8.3	4.8	2.7	11	5	40	mg/l
Oil and Grease	0	0	0	2.2	2.2	20	mg/l
PH	8	6.3	5.8	6.97	7.36	5.5-9.0	-
Sulfides	0.53	0.6	0.2	1.4	1	3	mg/l as H <sub>2</sub> S
Suspended Solids	38	11	15	65	26	50	mg/l
Temperature	33	29	30	31	30	N/R	°C
Total Dissolved Solids	42	64	66	620	608	500	mg/l
Total Kjeldahl Nitrogen	<5	<5	<5	29.8	34.8	40	mg/l as H <sub>2</sub> S

### Comparison of Cafeteria Wastewater Quality Test Results At the Final Point in the Past Three Years

Measured Parameters	Results								Standard	Unit
	1/56	2/56	3/56	4/56	1/57	2/57	1/58	2/58		
	19/2	16/9	3/12	14/1	24/3	10/9	9/3	23/11		
BOD <sub>5</sub>	266	155	92.5	84	233	153	134	253	≤ 20	mg/l
Oil and Grease	22.2	16	6	4	10.4	10	4.2	21.9	≤ 5	mg/l
PH	7.8	6	5.98	6.54	5.3	6.2	7.06	6.63	5.5-9.0	-
Sulfides	0.53	2.17	0	0.84	1.05	1.73	1.21	2.2	≤ 1	mg/l as H <sub>2</sub> S
Suspended Solids	76	128	6	77.5	94	61	55	232	≤ 50	mg/l
Temperature	28	28	26	25.4	30	30	27.8	40	≤ 40	°C
Total Dissolved Solids	409	306	346	124	451	712	123	398	≤ 3000	mg/l
Total Kjeldahl Nitrogen	30	15	16	11	17	18	13	16.5	≤ 100	mg/l as H <sub>2</sub> S

Due to failure by cafeteria waste water test results to meet standards, the company stores wastewater and sends wastewater for disposal by a licensed contractor twice in 2015 with wastewater disposal expenses at 2,140 baht.



## Pollution Control

### Air Quality

QTC's transformer production process involves transformer vacuuming by using vacuum machines and hot air vacuum machines with systems installed to ventilate heat, which may have transformer oil particles mixed in the air. Furthermore, even though the company uses high-safety cutting machines in preparing insulation wood and has a particle dust disposal system that meets standards to dispose of particles before venting air outside, particle dust may be mixed in the air as well. Therefore, the company requires the quality of air vented from all six smokestacks to be measured twice a year to ensure no environmental impacts from our production processes.

### Comparison of Smokestack Air Quality Test Results over the Past Three Years

Parameter	Area	Measurement Results						Standard	Unit
		1/13	2/13	1/14	2/14	1/15	2/15		
		21-3	16-9	24-3	19-9	26-5	23-11		
Particulate	Saw mill sawdust ventilation stack	1.3	1.2	1.9	0.5	2.15	10.4	400	Mg/m3
Particulate	tank vent pipe				5.6	0.7	1.66	400	Mg/m3
Particulate	Spray booth ventilation stack				2.1	1.2	8.42	400	Mg/m3
Particulate	Shed 4 plasma cutter ventilation stack						87.6	400	Mg/m3
Oil mist	Vacuum ventilation stack	3.22	10.05	3.68	0.3	0.031	0.617	-	-
Oil mist	Hot air vacuum ventilation stack (repaired transformers)	1.62	2.85	0.48	0.42	0.03	0.447	-	-
Toluene	Tank ventilation stack				-	-	-	-	-
Toluene	Spray booth ventilation stack	0.5	0.5	0.5	-	-	-	-	-
Xylene	Tank ventilation stack				3.31	0.25	0.25	200	ppm
Xylene	Spray Booth ventilation stack	0.5	0.5	0.5	0.5	0.25	0.25	200	ppm
Volatile Organic Compounds	Spray Booth ventilation stack				17.5	5.35	40.2	-	ppm
Volatile Organic Compounds	Tank ventilation stack				27.85	29.4	1.05	-	ppm



## Resource Usage

### Energy

The company uses non-renewable energy in production processes, service provision and office work composed of the following two parts:

1. Electricity from the Metropolitan Electricity Authority for office work at the main offices in Bangkok and from the Provincial Electricity Authority for production at the factory in Rayong.
2. Fuels such as diesel and benzene for transportation and office cars.

In 2015, the company used more electricity than 2014 by 291,568 kWh and more fuel than 2014 by 253.17 liters due to higher sales and production capacity.

**Table Comparing Energy Consumption over the Past Two Years**

Item	2014	2015
<b>Electricity</b>		
Metropolitan Electricity Authority (kWh)	140,000.00	141,000.00
Provincial Electricity Authority (kWh)	1,255,120.00	1,545,688.00
<b>Fuel</b>		
Diesel + Benzene (Liters)	140,161.04	140,414.21





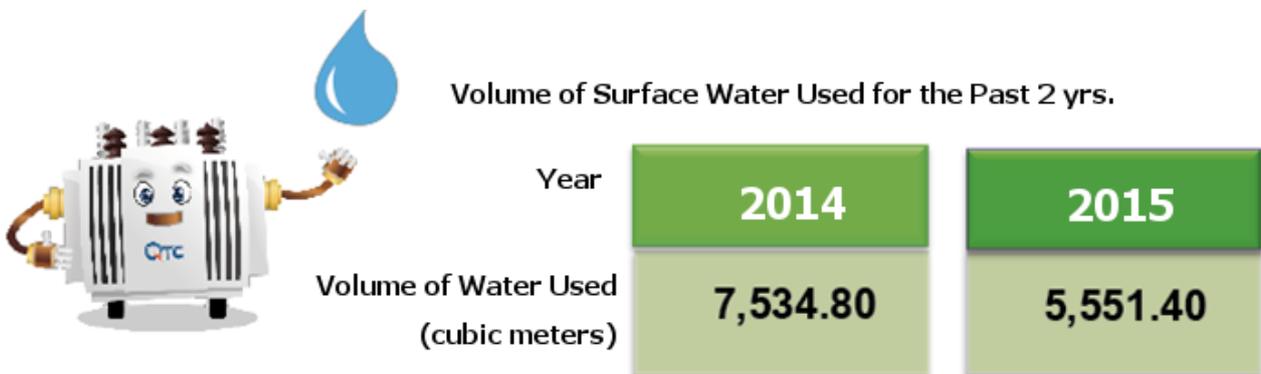
## Water

QTC factors located in places without public water natural resources or utilities can only pump surface water for use in consumption. Water is not used during the production phase in manufacturing transformers. Water is only used for cooling in the circulation of the hot air vacuum. Water is also used to reduce temperature in welding parts by trapping water in a reclaimed water system where water can be used year-round. The problem encountered is that groundwater levels are insufficient and we are unable to pump enough water up for use. Consequently, water is supplied by outsourcing, which means using water pumped from a canal or reservoir to be used for washing. Thus, the observation of “Where has all the water gone?” has been made.

In early 2014, the Maintenance Team conducted a study called “Where Has All the Water Gone?” In this study, a meter was installed to measure the water volume pumped up from the surface and another meter was installed at the destination where the most water was used for the purpose of measuring the volume of water used. Based on the findings, the volume of water pumped was higher than the volume of water actually used. This shows that water is wasted in the pipes before it exits the end meter.

The main pipe system is buried under the concrete of the factory, which makes it difficult to inspect. Therefore, the team had to study and place new water pipes for the factory at certain spots and connect those pipes to the original system in order to solve the problem and make inspection an easy matter. These activities took a rather long period of time and were completed in late 2014.

The results of this improvement have enabled the company to view the waste involved in using energy to pump water and store in tanks as well as the unused surface water wasted. These findings are the reason for the improvement in water usage behavior modification of employees in the organization. Thus, water usage was reduced by 1,983.40 cubic meters in comparison to 2014.





## Waste and Scrap Material Management

The company gives importance to the management of waste and scrap materials occurring as a result of employee usage and contracted construction or equipment installation work. It also occurs as a result of the company's production process. Hence, the company has methods for clearly sorting or classifying the aforementioned with a shed for sorting waste that meets standards based on safety principles. The company also has procedures aimed at preparing for emergency conditions for managing waste in particular. In addition, we also select only waste disposal companies licensed by the Department of Industrial Works. We also constantly monitor and audit their work on a regular basis.

In 2015, the company had 86.21 tons more in waste and scrap materials than in 2014 due to increased production, but the company was also able to more efficiently reduce the amount of hazardous waste because the company had 2.41 tons less hazardous waste and scrap materials than in 2014.

**Graph Showing Retrospective Comparison of Waste Volume for the Past 3 Years**

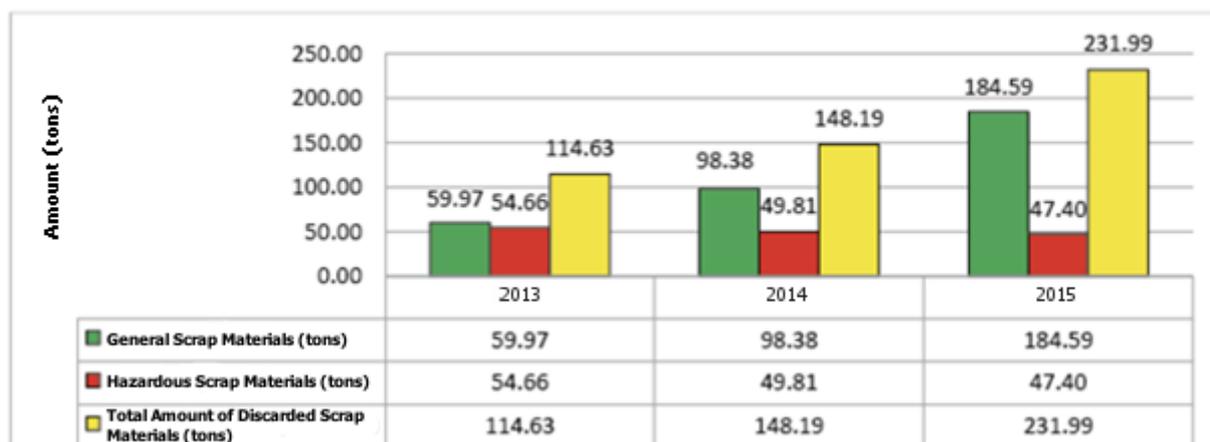


Table showing a comparison of waste management expenses and income from scrap sales for the past 3 years

Item	2013	2014	2015
Waste & Scrap Management Expenses	245,067.99	243,338.87	327,137.52
Income from Scrap Sales	2,453,520.99	3,575,992.85	7,772,967.12



## Environmental Protection and Recovery

Due to the tree planting project at the factory as a means of protecting and recovering the environment surrounding the factory in 2013, the trees planted by the employees continue to grow as expected in let with set goals and the natural water confine dug amidst the planted trees continues to hold a large volume of water. The employees continue to use the water to raise fish and aquatic plants for food. The company continues to allocate budgetary funds for the care, irrigation, fertilization and grass-cutting to ensure that the trees grow tall until they can be used for the benefit of employees and people in the community.



## QTC Happy in Every Way...Yay!





GENERAL STANDARD DISCLOSURES			
Standard Disclosure	Disclosure Requirements	Page	Note
<b>STRATEGY AND ANALYSIS</b>			
G4-1	Provide a statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability.	3-4	
G4-2	Provide a description of key impacts, risks, and opportunities.	15-16,31-36	
<b>ORGANIZATIONAL PROFILE</b>			
G4-3	Report the name of the organization.	9	
G4-4	Report the primary brands, products, and services.	6	
G4-5	Report the location of the organization's headquarters.	6	
G4-6	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	6	
G4-7	Report the nature of ownership and legal form.		AR5,AR40
G4-8	Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	6	AR23-24
G4-9	Report the scale of the organization.	9	AR41,AR54-55
G4-10	a. Report the total number of employees by employment contract and gender. b. Report the total number of permanent employees by employment type and gender. c. Report the total workforce by employees and supervised workers and by gender. d. Report the total workforce by region and gender. e. Report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than employees or supervised workers, including employees and supervised employees of contractors. f. Report any significant variations in employment numbers (such as seasonal variations in employment in the tourism or agricultural industries).	54-55	AR54-55
G4-11	Report the percentage of total employees covered by collective bargaining agreements.	-	-
G4-12	Describe the organization's supply chain.	15-16	-
G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	-	AR5
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization.	31-36	AR47
G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses.	-	-
G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations.	29	-
<b>IDENTIFIED MATERIAL ASPECTS AND BOUNDARIES</b>			
G4-17	a. List all entities included in the organization's consolidated financial statements or equivalent documents. b. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	6,21-23	-
G4-18	a. Explain the process for defining the report content and the Aspect Boundaries. b. Explain how the organization has implemented the Reporting Principles for Defining Report Content.	21-23	-
G4-19	List all the material Aspects identified in the process for defining report content.	21-23	-
G4-20	For each material Aspect, report the Aspect Boundary within the organization.	23	-
G4-21	For each material Aspect, report the Aspect Boundary outside the organization.	23	-
G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	-	-
G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	21,23	-
<b>STAKEHOLDER ENGAGEMENT</b>			
G4-24	Provide a list of stakeholder groups engaged by the organization.	17-20	-
G4-25	Report the basis for identification and selection of stakeholders with whom to engage.	15	-
G4-26	Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	17-20	-
G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns.	17-20	-



Standard Disclosure	Disclosure Requirements	Page	Note
<b>REPORT PROFILE</b>			
G4-28	Reporting period (such as fiscal or calendar year) for information provided.	23	-
G4-29	Date of most recent previous report (if any).	21	-
G4-30	Reporting cycle (such as annual, biennial).	21	-
G4-31	Provide the contact point for questions regarding the report or its contents.	23	-
G4-32	a. Report the 'in accordance' option the organization has chosen. b. Report the GRI Content Index for the chosen option. c. Report the reference to the External Assurance Report, if the report has been externally assured. GRI recommends the use of external assurance but it is not a requirement to be 'in accordance' with the Guidelines.	21	-
G4-33	a. Report the organization's policy and current practice with regard to seeking external assurance for the report. b. If not included in the assurance report accompanying the sustainability report, report the scope and basis of any external assurance provided. c. Report the relationship between the organization and the assurance providers. d. Report whether the highest governance body or senior executives are involved in seeking assurance for the organization's sustainability report.	21	-
<b>GOVERNANCE</b>			
G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	9	AR41-48
G4-35	Report the process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees.	9	AR41-48
G4-36	Report whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental and social topics, and whether post holders report directly to the highest governance body.	9	AR41-48
G4-37	Report processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics. If consultation is delegated, describe to whom and any feedback processes to the highest governance body.	9,15,67	-
G4-38	Report the composition of the highest governance body and its committees.	9	AR41-48
G4-39	Report whether the Chair of the highest governance body is also an executive officer (and, if so, his or her function within the organization's management and the reasons for this arrangement).	-	AR61-62
G4-40	Report the nomination and selection processes for the highest governance body and its committees, and the criteria used for nominating and selecting highest governance body members.	-	AR45
G4-41	Report processes for the highest governance body to ensure conflicts of interest are avoided and managed. Report whether conflicts of interest are disclosed to stakeholders.	-	AR11-14
G4-42	Report the highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental and social impacts.	-	AR4-10,21-23
G4-43	Report the measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics.	-	AR12-14
G4-44	a. Report the processes for evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics. Report whether such evaluation is independent or not, and its frequency. Report whether such evaluation is a self-assessment. b. Report actions taken in response to evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics, including, as a minimum, changes in membership and organizational practice.	27	AR49
G4-45	a. Report the highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities. Include the highest governance body's role in the implementation of due diligence processes. b. Report whether stakeholder consultation is used to support the highest governance body's identification and management of economic, environmental and social impacts, risks, and opportunities.	31-34	AR38-39
G4-46	Report the highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics.	31	AR46-47
G4-47	Report the frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities.	31	-
G4-48	Report the highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material Aspects are covered.	9,15	-
G4-49	Report the process for communicating critical concerns to the highest governance body.	9	-
G4-50	Report the nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them.	9	-



Standard Disclosure	Disclosure Requirements	Page	Note
G4-51	a. Report the remuneration policies for the highest governance body and senior executives. b. Report how performance criteria in the remuneration policy relate to the highest governance body's and senior executives' economic, environmental and social objectives.	-	AR53,54,56
G4-52	Report the process for determining remuneration. Report whether remuneration consultants are involved in determining remuneration and whether they are independent of management. Report any other relationships which the remuneration consultants have with the organization.	-	AR45-47
G4-53	Report how stakeholders' views are sought and taken into account regarding remuneration, including the results of votes on remuneration policies and proposals, if applicable.	-	AR71
G4-54	Report the ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest-paid individual) in the same country.	39-40	AR53-55
G4-55	Report the ratio of percentage increase in annual total compensation for the organization's highest-paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highest-paid individual) in the same country.	40	AR53-55
<b>ETHICS AND INTEGRITY</b>			
G4-56	Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.	27-30	AR57-64
G4-57	Report the internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines.	29	AR57-64
G4-58	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines.	29	AR60
<b>SPECIFIC STANDARD DISCLOSURES</b>			
Standard Disclosure	Standard Disclosure Title	Page	Note
<b>CATEGORY: ECONOMIC</b>			
<b>ASPECT: ECONOMIC PERFORMANCE</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EC1	Direct economic value generated and distributed	39	AR73-136
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	32-34	AR88
G4-EC3	Coverage of the organization's defined benefit plan obligations	-	AR111
G4-EC4	Financial assistance received from government	-	-
<b>ASPECT: MARKET PRESENCE</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	55	-
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation	54-55	-
<b>ASPECT: INDIRECT ECONOMIC IMPACTS</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EC7	Development and impact of infrastructure investments and services supported	-	-
G4-EC8	Significant indirect economic impacts, including the extent of impacts	-	-
<b>ASPECT: PROCUREMENT PRACTICES</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	-	AR29
<b>CATEGORY: ENVIRONMENTAL</b>			
<b>ASPECT: MATERIALS</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN1	Materials used by weight or volume	-	AR28-30
G4-EN2	Percentage of materials used that are recycled input materials	-	-
<b>ASPECT: ENERGY</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN3	Energy consumption within the organization	81	-
G4-EN4	Energy consumption outside of the organization	81	-
G4-EN5	Energy intensity	81	-



Standard Disclosure	Disclosure Requirements	Page	Note
G4-EN6	Reduction of energy consumption	77-78	-
G4-EN7	Reductions in energy requirements of products and services	77-78	-
<b>ASPECT: WATER</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN8	Total water withdrawal by source	82	-
G4-EN9	Water sources significantly affected by withdrawal of water	-	-
G4-EN10	Percentage and total volume of water recycled and reused	-	-
<b>ASPECT: BIODIVERSITY</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	-	-
G4-EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	-	-
G4-EN13	Habitats protected or restored	84	-
G4-EN14	Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	-	-
<b>ASPECT: EMISSIONS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	-	-
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	-	-
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)	-	-
G4-EN18	Greenhouse gas (GHG) emissions intensity	-	-
G4-EN19	Reduction of greenhouse gas (GHG) emissions	-	-
G4-EN20	Emissions of ozone-depleting substances (ODS)	-	-
G4-EN21	NOX, SOX, and other significant air emissions	-	-
<b>ASPECT: EFFLUENTS AND WASTE</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-EN22	Total water discharge by quality and destination	-	-
G4-EN23	Total weight of waste by type and disposal method	83	-
G4-EN24	Total number and volume of significant spills	83	-
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	83	-
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharges of water and runoff	-	-
<b>ASPECT: PRODUCTS AND SERVICES</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	-	-
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	-	-
<b>ASPECT: COMPLIANCE</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	-	-
<b>ASPECT: TRANSPORT</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	15	-
<b>ASPECT: OVERALL</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-EN31	Total environmental protection expenditures and investments by type	79,83	-
<b>ASPECT: SUPPLIER ENVIRONMENTAL ASSESSMENT</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	-	-
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken	-	-



Standard Disclosure	Disclosure Requirements	Page	Note
<b>ASPECT: ENVIRONMENTAL GRIEVANCE MECHANISMS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms	-	-
<b>CATEGORY: SOCIAL</b>			
<b>SUB-CATEGORY: LABOR PRACTICES AND DECENT WORK</b>			
<b>ASPECT: EMPLOYMENT</b>			
G4-DMA	Generic Disclosures on Management Approach	-	
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	54-55	-
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	55	AR55
G4-LA3	Return to work and retention rates after parental leave, by gender	55	-
<b>ASPECT: LABOR/MANAGEMENT RELATIONS</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	53	-
<b>ASPECT: OCCUPATIONAL HEALTH AND SAFETY</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	43	-
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	44	-
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	52	-
G4-LA8	Health and safety topics covered in formal agreements with trade unions	43-52	-
<b>ASPECT: TRAINING AND EDUCATION</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-LA9	Average hours of training per year per employee by gender, and by employee category	65	-
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	56-64	-
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	65	-
<b>ASPECT: DIVERSITY AND EQUAL OPPORTUNITY</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	54-55	-
<b>ASPECT: EQUAL REMUNERATION FOR WOMEN AND MEN</b>			
G4-DMA	Generic Disclosures on Management Approach		
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation		-
<b>ASPECT: SUPPLIER ASSESSMENT FOR LABOR PRACTICES</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	-	-
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	-	-
<b>ASPECT: LABOR PRACTICES GRIEVANCE MECHANISMS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	-	-
<b>SUB-CATEGORY: HUMAN RIGHTS</b>			
<b>ASPECT: INVESTMENT</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	-	-
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	65	-



Standard Disclosure	Disclosure Requirements	Page	Note
<b>ASPECT: NON-DISCRIMINATION</b>			
G4-DMA	Generic Disclosures on Management Approach	-	
G4-HR3	Total number of incidents of discrimination and corrective actions taken	-	-
<b>ASPECT: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING</b>			
G4-DMA	Generic Disclosures on Management Approach	-	
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	-	-
<b>ASPECT: CHILD LABOR</b>			
G4-DMA	Generic Disclosures on Management Approach	-	
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	-	-
<b>ASPECT: FORCED OR COMPULSORY LABOR</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	-	-
<b>ASPECT: SECURITY PRACTICES</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	-	-
<b>ASPECT: INDIGENOUS RIGHTS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken	-	-
<b>ASPECT: ASSESSMENT</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	-	-
<b>ASPECT: SUPPLIER HUMAN RIGHTS ASSESSMENT</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR10	Percentage of new suppliers that were screened using human rights criteria	-	-
G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken	16,18	-
<b>ASPECT: HUMAN RIGHTS GRIEVANCE MECHANISMS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	-	-
<b>SUB-CATEGORY: SOCIETY</b>			
<b>ASPECT: LOCAL COMMUNITIES</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	67-73	-
G4-SO2	Operations with significant actual and potential negative impacts on local communities	-	-
<b>ASPECT: ANTI-CORRUPTION</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	16	-
G4-SO4	Communication and training on anti-corruption policies and procedures	29	-
G4-SO5	Confirmed incidents of corruption and actions taken	-	-
<b>ASPECT: PUBLIC POLICY</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO6	Total value of political contributions by country and recipient/beneficiary	-	-
<b>ASPECT: ANTI-COMPETITIVE BEHAVIOR</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-



Standard Disclosure	Disclosure Requirements	Page	Note
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	-	-
<b>ASPECT: COMPLIANCE</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	-	-
<b>ASPECT: SUPPLIER ASSESSMENT FOR IMPACTS ON SOCIETY</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society	-	-
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken	-	-
<b>ASPECT: GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	-	-
<b>SUB-CATEGORY: PRODUCT RESPONSIBILITY</b>			
<b>ASPECT: CUSTOMER HEALTH AND SAFETY</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	37	-
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	-	-
<b>ASPECT: PRODUCT AND SERVICE LABELING</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	-	AR18-20
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	-	-
G4-PR5	Results of surveys measuring customer satisfaction	74	-
<b>ASPECT: MARKETING COMMUNICATIONS</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-PR6	Sale of banned or disputed products	-	-
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	-	-
<b>ASPECT: CUSTOMER PRIVACY</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	74	-
<b>ASPECT: COMPLIANCE</b>			
G4-DMA	Generic Disclosures on Management Approach	-	-
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	-	-

