CHINA STEEL

2011

CSC Corporate Social Responsibility Report

2011

CSC Corporate Social Responsibility Report

CONTENT

MESSAGE FROM TOP MANAGEMENT 04

CSC Status Quo and CSR Report

1.1 **Operational strategies** 06
1.2 **Fundamentals of CSR** 06
1.2.1 Co-prosperity with society 06
1.2.2 Information disclosure and continuous improvement 06
1.3 **Stakeholders and communication** 06
1.4 **Identifying the Materiality** 09
1.5 **About the CSR report** 10
1.5.1 Editing and approval 10
1.5.2 Framework of the report 11
1.5.3 Review and Verification of the report 11
1.5.4 Use of the CSR report 11
1.6 **CSC profile** 12
1.6.1 Basic information 12
1.6.2 Changes in the organizational structure 13
1.6.3 Business scale 13
1.6.4 Major products 13
1.6.5 Major by-products 14
1.6.6 Raw materials and energies 14
1.6.7 External communication and cooperation 16

Management Structure

2.1 **Management** 17
2.1.1 Board of Directors 17
2.1.2 Supervisors 17
2.1.3 Profession committees 18
2.1.4 Internal Auditor Office 19
2.1.5 Administrative system 19
2.1.6 Senior Management 20
2.2 **Employment management** 20
2.2.1 Human rights management 20
2.2.2 Participation in public affairs 20
2.2.3 Prevention of malpractice 21
2.2.4 Socializing guidelines 21
2.2.5 Labor safety and health 21
2.2.6 Human resources development 22
2.3 **Performance management** 23
2.3.1 Operational performance management 23
2.3.2 Operation policy 23
2.4 **Corporate governance** 24
2.4.1 Basic concept 24
2.4.2 Decent operation 24
2.4.3 Employee participation 25
2.4.4 Information disclosure 25
2.4.5 Risk control 26
2.4.6 Response to major economic impacts 29
2.5 **Energy and environment management** 30
2.5.1 Policies and concepts 30
2.5.2 Organizational structure 30
2.6 **Engagement in social harmony** 32
2.6.1 Concepts and scope 32
2.6.2 CSC Group Education Foundation 32
2.6.3 Social participation 33

Performance indicators

3.1 **Corporate governance** 34
- 3.1.1 Sales volume and revenue 34
- 3.1.2 Productivity and performance indicators 34
- 3.1.3 Distribution of earnings 35
- 3.1.4 Raw Materials and Energies 36
- 3.1.5 Capital sources and subsidies 37
- 3.1.6 Support of localized supply 37
- 3.1.7 Non-local operating indicators 38
- 3.1.8 Upgrading of the steel-using industries 38
- 3.1.9 Customer privacy and satisfaction 40
- 3.1.10 AEO (Authorized Economic Operator) certification 40
- 3.1.11 Supplier audit 41

3.2 **Energy and environment management** 41
- 3.2.1 Climate changes and opportunities 41
- 3.2.2 Green products 42
- 3.2.3 Green processes 45
- 3.2.4 Green partnership 56
- 3.2.5 Green growth 58
- 3.2.6 Carbon credit management 58
- 3.2.7 Environmental accounting 59
- 3.2.8 Participation in International R&D 60
- 3.2.9 Regulation compliance 60

3.3 **Devoted to social harmony** 61
- 3.3.1 Labor Safety and Health 61
- 3.3.2 Human right management 65
- 3.3.3 Human resource development 69
- 3.3.4 Labor union 72
- 3.3.5 Social responsibility expenditures 74
- 3.3.6 Homeland of LOHAS 75
- 3.3.7 Welfare measures 77
- 3.3.8 Social participation 78
- 3.3.9 Regulation issues 85

Future Goals and Directions

4.1 **Corporate governance** 86

4.2 **Energy and environmental management** 86

4.3 **Engagement in social harmony** 88

Appendix

Appendix I: Global Reporting Initiative (GRI) Indicator Comparison List 89

Appendix II: Awards 98

Appendix III: Assurance 100

Appendix IV: Sustainable Development Charter of the World Steel Industry 103

MESSAGE FROM TOP MANAGEMENT

Since 2011, China Steel Corporation (CSC) has abided by the Sustainability Reporting Guidelines of GRI in compiling the Corporate Social Responsibility (CSR) Report, and has clearly disclosed the achievements of Corporate Governance, Environmental Protection & Energy Saving and Social Concern. This year, we refer to the Trends and Best Practice in Online/CSR/Sustainability Reporting of the EU and suggestions of professional organizations in Taiwan to compile the CSR report and publish it in both printed copy and internet editions. The hard copy edition focuses on the issues that many people are concerned about, and which have a greater impact on the corporation. The internet edition contains broader issues with detailed information so that readers may look into the details, if needed, and interact with CSC.

The global steel industry suffered a series of great impacts in 2011, including: the earthquake in Japan; a substantial drop in steel prices; the lowered credit rating of the USA; high prices of iron ore, metallurgical coal, coke and other raw materials; a glut of steel capacity in mainland China; and the European debt crisis, leading to turbulence in the international financial market and fiscal restraint in many EU countries. This adverseness resulted in low public investment and private consumption as well as a slowdown in the global economic growth and reduced steel demand. This year, the double-rise in fuel and electricity prices has further impacted Taiwan's steel industry. To overcome these domestic and global difficulties, we not only need to improve our competitiveness by lowering costs and expanding the differentiation of products, but also make greater effort in regard to energy saving, environmental protection and industrial safety, in the hope of achieving sustainable development, while placing social responsibility on a solid foundation.

We set up the "Office of Energy and Environmental Affairs" and the "CSC Group Committee for Energy and Environment Promotion" in March and April, 2011, respectively, and had initial achievements in regard to the low-carbon economy, low-carbon city and green industry. The implementation and sequential efforts related to new business, including development of low-carbon energy, promotion of energy saving and emission reduction, enhancement of risk management and planning of new energy and environmental business, and compliance with energy and environment regulations, have been appropriately disclosed in this report.

"We aspire to be a trustworthy steel company of global distinction that pursues growth, environmental protection, energy saving and value-innovation" signifies CSC's vision. The "CSC Group, based in Taiwan, will center our developments in Asia. Our business domain covers steel and other materials, engineering and services, and will include mines and resources in the future. Energy saving and environmental protection are our important duties." In March 2012, we explicitly established our corporate social responsibility policy based on the spirit of the Sustainable Development Charter of the World Steel Industry; our goals are as follows:

1. **Strengthen competitiveness and create profits for shareholders to ensure corporate sustainability;**
2. **Meet the requirements of customers and enhance service advantages to create a situation for co-prosperity;**

3. **Take care of employees' well-being and create a premium environment to facilitate the development of employees;**
4. **Optimize the supply chain system and improve the communication system to share sustainable practice;**
5. **Join professional organizations and provide a strong foundation for incorporating techniques to upgrade domestic industries;**
6. **Support governmental policies and engage in engineering construction to improve overall effectiveness;**
7. **Be devoted to social harmony and assist in the promotion of public welfare to benefit local communities;**
8. **Enhance industrial safety and eliminate occupational hazards;**
9. **Embrace environmental protection to enhance pollution-reduction performance;**
10. **Persist in saving energy and reducing carbon, and make use of renewable energy to create a low-carbon society**

With the endeavors of our employees, we have won praise for our achievements in corporate governance, environmental protection, energy saving and social harmony. In the future, we will adhere to the conviction of multi-win scenarios and assume corporate social responsibilities to all stakeholders to create a three-win future in regard to energy saving, environmental protection and economic development.

Chairman of Board:
Jo-Chi Tsou

President:
Jyh-Yuh Sung

1 CSC Status Quo and CSR Report

1.1 Operational strategies

The “CSC Group, based in Taiwan, will center our developments in Asia. Our domain of business covers steel and other materials, engineering and various services and, in the future, mines and resources. We deem that energy saving and environmental protection are our important duties." In addition to expanding mainland China, Southeast Asia and India, we entered the metal material businesses of special stainless steel, Ti-Ni alloy and mold and tool steel, and increased the self-sufficiency ratio of raw materials to seize new business opportunities. We also enhanced our professional engineering and service capability to create strong dynamics for our growth. To deal with the challenges in the future, CSC maps out the following seven operational development strategies:

(1) Enhance self-sufficiency in raw materials through strategic investment and partnerships;

(2) Develop advanced technologies and green processes. Promote high-value applications in steel and other products to upgrade the value of the supply chain;

(3) Enhance energy saving and environmental protection, promote sustainable development and develop green business;

(4) Strengthen sales channels, improve customer services, root co-development platform and enhance partnerships;

(5) Expand the supply of steel products; integrate and develop engineering and technical service businesses to increase CSC Group value;

(6) Refine the corporate culture, reinforce human resources training and development, and solidify plans for manpower succession;

(7) Continuously and systematically reduce costs through scientific approaches, and promote industry safety.

1.2 Fundamentals of CSR

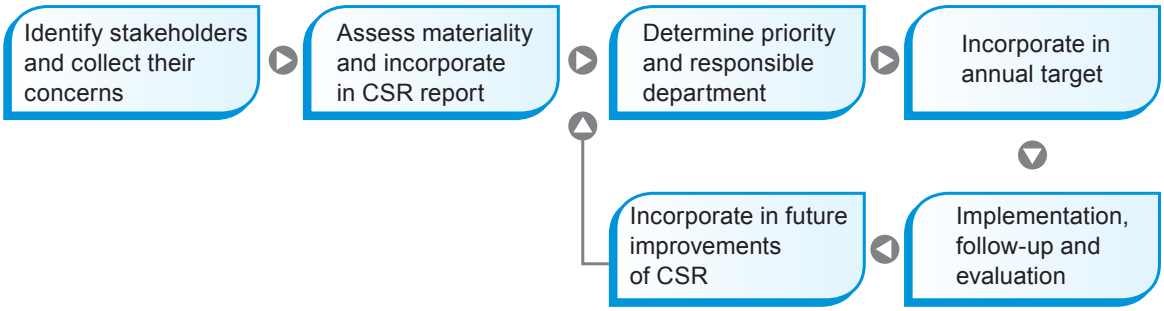
1.2.1 Co-prosperity with society

Decent operation and fair competition, shareholder’s benefits and trust, green supply chain, environmental conservation, labor training and care, social participation and social well-being are CSC’s basic principles of corporate social responsibility. Bearing these in mind, CSC is dedicated to corporate governance, energy and environmental management and engagement in social harmony, and realizes them in our daily operation to achieve the goal of “take from society, return to society”.

1.2.2 Information disclosure and continuous improvement

In addition to providing information on corporate governance, energy and environmental management and engagement in social harmony in our operation report and website, CSC has issued CSR reports annually in recent years to further disclose information concerning our corporate social responsibility.

CSC is providing a comprehensive CSR area on our CSC’s website this year. It is not only convenient for the stakeholders to access and make enquiries, but also enhances the transparency, timeliness, completeness and interactivity. The readers’ feedback is used as a reference for continuous improvement and to increase the satisfaction of stakeholders. CSC has adopted a continuously improving process, as shown in the figure below:



1.3 Stakeholders and communication

CSC's core working group for CSR has identified eight major stakeholders with reference to the experiences of related departments at CSC and the steel peers: communities and local groups, central and local governments, shareholders and the Financial Supervisory Commission, opinion leaders and professional groups, employees and contractors, customers and traders, suppliers, and peers in the steel industry. In addition to communicating with stakeholders via the website, operation reports, annual reports and CSR reports, we investigated the issues that the stakeholders were concerned about through many other approaches and responded appropriately.

Stakeholder	Communication paths	
Communities and local groups	Public Affairs Department, Labor Union, CSC Group Education Foundation and CSC social clubs meet and negotiate with communities, local groups, legislators and opinion leaders.	
Central and local governments	Conferences, forums, public hearings, training courses, informal visits for different policies and laws	
Shareholders and Financial Supervisory Commission (FSC)	Individual shareholders	1. A shareholders' meeting is convened in the 2nd quarter every year. Issues are resolved individually. Investors may participate in the voting process of each proposal 2. The annual and operation reports are issued every year for the investors to enquire online or as requested by mail 3. The surplus must be announced on the Market Observation Post System and CSC website every month 4. Shareholders can communicate with us using a toll-free hot line or e-mail 5. The content of the CSC website is comprehensive for shareholders to understand the operation of the Company.
	Corporate shareholders	1. Visit and receive domestic and foreign shareholders irregularly to communicate face to face 2. Participate in the investment expositions of domestic and foreign securities firms 3. Send the result of the surplus calculation and price adjustment by mail every month 4. Participate in workshops of domestic and foreign investment institutions
	FSC	1. Participate in the symposiums, workshops and various evaluations organized by the competent authorities 2. Organize investor-related activities in cooperation with the competent authorities
Employees and contractors	Employees	Collective agreement with the Labor Union (revised every three years), Labor/Management Committee meetings (monthly), departmental regular communication meetings (every 2 to 3 months), Labor Union representative as a Member of Board, communication meetings between top management and council members of the Labor Union (every six months), Chairman's mailbox, communication meetings between top managements and employees (every week), Labor Welfare Committee, Stock-holding Trustees Committee meetings (every six months), Labor Safety and Health Committee meetings (every two months), Human Resources Development Committee meetings (every year), Pension Fund Supervisory Committee meetings (every three months) and Rewards and Punishments Review Committee meetings (irregularly)
	Contractors	Contract Lease and Safety Job meetings, Co-operation Organization, Contractors' ESH meetings (monthly) and Outsourcing Management meeting (every year)

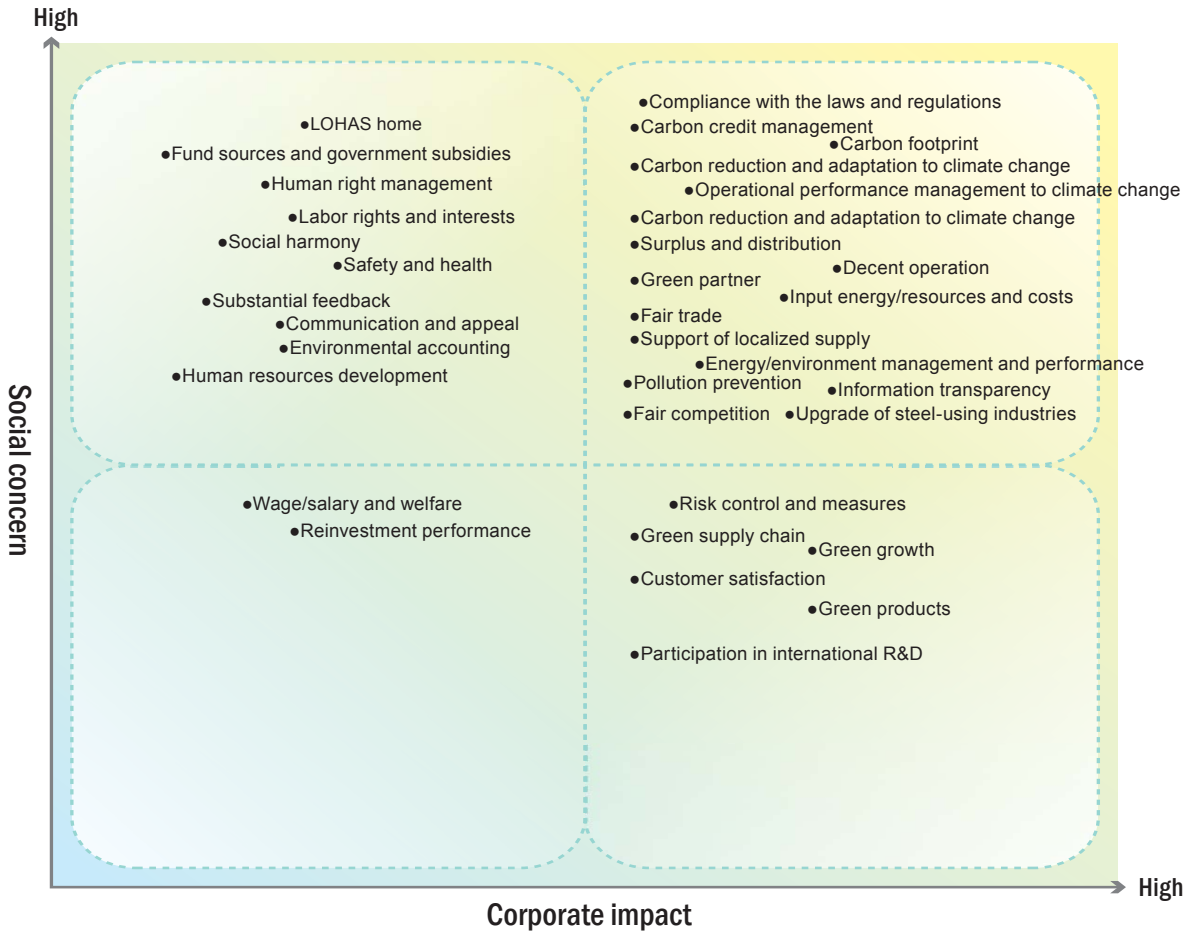
Stakeholder	Communication paths
Opinion leaders and professional groups	Participate in forums, workshops and meetings held by professional associations, institutes, industrial associations, federation of industries, Taiwan Steel & Iron Industries Association, World Steel Association, South East Asia Iron and Steel Institute, Formosa Association of Resources Recycling, Taiwan Association of Soil and Groundwater Environmental Protection, Association of Industry for Environmental Protection, Taiwan Institute for Sustainable Energy, Business Council for Sustainable Development Taiwan and Industrial Sustainability Forum
Customers and traders	1. Organize production-sales meetings every quarter 2. Collect feedback from customers through exposition (irregular), customer satisfaction survey (every year), R&D alliances, professional training, market investigation, irregular visits and customer interviews 3. Provide overall service for customers through computerization and introduction of the supply chain system 4. Integrate CSCs' marketing resources to expand the range of services for customers 5. Enhance technical services and implement technical marketing to immediately respond to the requests of customers and provide customized services 6. Assist customers with improvement of the process and solve the problems of materials and processing techniques 7. Organize technical workshops and top management workshops to improve the capability of the iron and steel industry to understand the trends and respond appropriately 8. Visit important customers and gain insights into the requirements of customers to improve the quality of the products 9. Carry out market demand investigations and quality function deployment for new products, and implement material consumption and quality needs of individual industries
Suppliers	Mutual visits, partnerships to promote localized supplies, forums, professional workshops and provision of safety design specifications
Peers in the steel industry	Participate in the meetings held by Taiwan Steel & Iron Industries Association, World Steel Association and South East Asia Iron and Steel Institute, bilateral or multi-lateral communication with other iron and steel companies, official visits and meetings

The following issues, of most concern to the stakeholders, are summarized below:

Stakeholder	Major concerns
Communities and local groups	Safety and health, pollution prevention, compliance with the laws and regulations, substantial feedback, risk control and measures, and social participation
Central and local governments	Green supply chain, compliance with the laws and regulations, safety and health, pollution prevention, carbon reduction and adaptation to climate change, substantial feedback, carbon credit management, LOHAS home and social harmony
Shareholders and Financial Supervisory Commission	Decent operation, fair trade, compliance with the laws and regulations, surplus allocation, information transparency, performance management, risk control and measures, and social harmony
Opinion leaders and professional groups	Safety and health, pollution prevention, compliance with the laws and regulations, labor rights and interests, human rights management, personnel training, performance management, carbon reduction and adaptation to climate change, green supply chain and environmental accounting.
Employees and contractors	Safety and health, labor rights and interests, wage/salary and welfare, performance management, surplus allocation , communication and appeals, personnel training, decent operation, compliance with the laws and regulations, reinvestment performance, risk control and measures, and social harmony
Customers and traders	Compliance with the laws and regulations, green products, carbon footprint, labor rights and interests, human rights management, risk control and measures, surplus allocation, social harmony and environmental accounting.
Suppliers	Fair trade, decent operation, labor rights and interests, green growth, surplus allocation and social harmony
Peers in the steel industry	Fair competition, green growth, energy management and performance, carbon reduction and adaptation to climate change, compliance with the laws and regulations, safety and health, surplus allocation and social harmony

1.4 Identifying the Materiality

After carrying out the deployment for the above major concerns of stakeholders, CSC's CSR core working group summarized them into several important issues and identified the core materiality in regard to "social concern" and "corporate impact", as shown in the figure below. The issues in the upper right corner are the core issues with high "social concern" and high "corporate impact".



The analysis of materiality and the way to disclose such information in our CSR report are described below.

(1) The responsible department identifies stakeholders in the daily business and classifies them into "stakeholder with social concern" and " stakeholder with corporate relation".

(2) Significant issues that the stakeholders in both categories are concerned about are identified after communication.

(3) The extent to which the stakeholders in both categories place importance on each issue is shown below.

(4) The issues that obtain more than 4 points (incl.) in the aspect of "a stakeholder with social concern" are the issues with "high social concern"; the issues that obtain more than 4 points (incl.) in the aspect of "a stakeholder with corporate relation" are the issues with "high corporate impact".

(5) The issues that obtain more than 4 points (incl.) in both aspects of "a stakeholder with social concern" and "a stakeholder with corporate relation" will be disclosed briefly in the hard copy of the CSR report, and more extensive details will be disclosed in the special CSR area on our website, which users may access via links or hyperlinks. The issues that obtain more than 4 points (incl.) in the category of "a stakeholder with social concern" or "a stakeholder with corporate relation" will be disclosed appropriately in the special CSR area on our website.

●: Highly important (2 points). ●: Important (1 point)

Significant issue \ Stakeholder	Stakeholder with social concern				Stakeholder with corporate relation			
	Communities and local groups	Central and local governments	Shareholders and Financial Supervisory Commission	Opinion leaders and professional groups	Employees and contractors	Customers and trader	Suppliers	Peers in the steel industry
Product sale and revenue		●	●	●	●	●		●
Productivity and performance indicator		●	●	●	●	●	●	●
Surplus allocation		●	●	●	●	●		●
Input energy/resources and costs		●	●	●	●	●	●	●
Fund resources and government subsidies		●	●	●	●	●		●
Support of localized supply	●	●	●	●	●	●	●	●
Non-local operation indicator		●	●	●		●	●	●
Upgrade of steel-using industries		●	●	●		●	●	●
Customer satisfaction			●	●	●	●	●	●
AEO certification		●	●	●	●	●	●	●
Green products			●	●	●	●	●	●
Green process	●	●	●	●	●	●	●	●
Green partners		●	●	●		●		●
Green growth		●	●	●	●	●	●	●
Carbon credit management	●	●	●	●	●	●	●	●
Environmental accounting		●	●	●	●	●		●
Participation in international R&D			●	●	●		●	●
Compliance with the laws and regulations	●	●	●	●	●	●	●	●
Safety and health		●	●	●	●		●	●
Human right management	●	●	●	●	●	●	●	●
Human resources development		●	●	●	●			
Labor union		●	●	●	●			●
Social responsibility expenses	●	●	●	●	●	●		
Welfare measures	●	●	●	●	●			
Social participation	●	●	●	●	●	●		

1.5 About the CSR report

1.5.1 Editing and approval

We compiled and edited the CSR report through the following organizations and procedures.

(1) Core working group: Composed of the chief secretary of the Labor Union and the representatives from the closely related departments, including: the Human Resources Dept., Public Affairs Dept., Marketing Administration Dept., Finance Dept., General Secretariat Dept., Industrial Safety and Hygiene Dept., Environmental Protection Dept., Utility Dept. and New Materials R&D Dept. The core working group is organized and integrated by the Office of Energy and Environmental Affairs (OEEA) which is responsible for the information collection, coordination, editing and modifications.

(2) **Consulting group:** During the compiling and editing process, OEEA should invite other departments concerned as consulting members to provide information on specific topics and enhance internal consensus on major issues. With this process, the contents of this report will be comprehensive and representative.

(3) **Management review and approval:** After the initial draft had been compiled and edited by OEEA, it was sent to the core working group for checking and modification. The modified draft was then sent to the Division Vice Presidents for review and forwarded to the Executive Vice President, President and Chairman of the Board for approval.

1.5.2 Framework of the report

(1) **Guidelines and principles:** The framework of the report is formulated by combining the G3.1 Guidelines, Mining and Metals Sector Supplement (MMSS) of Global Reporting Initiative (GRI), and the guiding document prepared by the Taiwan Institute for Sustainable Energy (TAISE) for CSR Report Competitions, with reference to OECD (Organization of Economic Cooperation and Development) documents, Earth Charter, UN Global Compact Principles, ISO 26000 Guidelines and the issues that the global steel industry considers important to disclose.The link of this report with the GRI G3.1 is listed in Appendix I.

(2) **Boundary and indicators:** This CSR report covers the operation of CSC headquarters in Taiwan and its offices in foreign countries in the year 2011 (January 01, 2011 to December 31, 2011), excluding the operational performance of the subsidiary companies. The financial statement is figured in NTD. The ESH performance is presented based on the globally-used general indicators. Footnotes are used for the quantitative indicators that have special meanings.

(3) **Data sources and management**: The information in this report was provided by the various divisions of CSC. They were integrated and compiled by the OEEA, followed by the procedures referred to Section 1.5.1. The financial and accounting data cited in this report have been verified by a professional accounting firm. The ESH management system is audited internally on a regular basis and subject to external audit every year according to ISO 14001 and OHSAS 18001. The GHG inventory data of 2006 ~ 2011 have been verified externally.

1.5.3 Review and verification of the report

(1) **Internal review and approval:** The information provided by each department and disclosed in this report has been reviewed and approved by the relevant managers, and further confirmed by the core working group and consulting groups during the editing process. After being confirmed, the initial draft was reviewed by the general manager of the department and the Vice President, Executive Vice President, President and finally approved by the Chairman of the Board. All data, minutes, reviews and verifications have been documented.

(2) **External verification:**This report was assured to by BSI (British Standards Institution) based on GRI G3.1 A+ Guidelines and AA1000AS standards. BSI's assurance is shown in Appendix III.

1.5.4 Use of the CSR report

(1) **Self-comparison:** The practices and performance of the corporate governance, energy and environment management and engagement in social harmony in the report are presented using concise texts, figures, tables and indicators to show the highlights of CSC and its development tendencies in recent years. These data are used for comparison with the past and future to check the trends and changes.

(2) **Comparison with peers:** All performance indicators in the report may be used for comparison with other steel companies. They can also be used for comparison with international benchmark values to understand the development of CSC. Footnotes are provided in cases wherea misunderstanding might occur as a result of the difference from the peers in the process, boundary, scope or definition.

1.6 CSC profile

1.6.1 Basic information

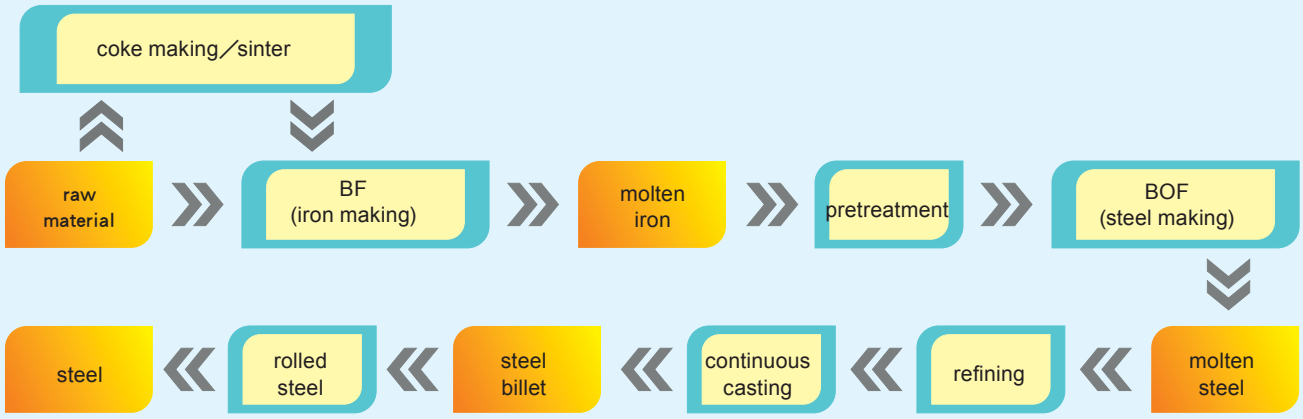
CSC is located in Linhai Industrial Park, Kaohsiung City. It covers an area of 560 hectares and is the first integrated steel mill in Taiwan. CSC was established in December 1971 as one of the ten major infrastructure projects at that time.

CSC won the “National Quality Award” from the Executive Yuan (Cabinet) in 1991, and was honored with the “Distinguished Innovation Accomplishment Award” by the Ministry of Economic Affairs in 2009, signifying that CSC’s innovation accomplishments have long been acknowledged by the domestic industries, government organizations, academia and research establishments.

CSC has the courage to innovate, as well as the strong capability to put the innovations into practice. The Company’s vision is: “We aspire to be a trustworthy steel company of global distinction that pursues growth, environmental protection, energy saving and value-innovation”. CSC actively puts into practice its corporate values of teamwork, entrepreneurial approach, down-to-earth nature and pursuit of innovation. With the application of the latest technology and the most modern management concepts, it sinks deep roots for its core business in steel, and integrates the related downstream industries to foster the healthy development of Taiwan’s steel industry.

CSC moves toward diversification and makes investments in the steel-related business. CSC had 48 subsidiaries by the end of 2011, including the three new businesses: China Steel Precision Materials Corporation, Formosa Ha Tinh Steel Corporation (FHS) and Brazil Nacional Minerios S.A., set out in 2011. These three companies are specialized in the areas of specialty steel, overseas mill and upstream iron mines, respectively, explicitly demonstrating the strategy of CSC aimed at high value-added products, overseas market deployment and securing coal and iron sources. CSC is developing into a globalized industrial group with the steel business at its core, extending to industrial materials, trade, transportation, engineering, finance, services, land development and state-of-the-art technology.

CSC integrated steel production workflow



1.6.2 Changes in the organizational structure

CSC made some changes in the organizational structure in 2011.

(1) The Office of Energy and Environmental Affairs(OEEA) was established in March 2011 to enhance the planning and implementation capability of the CSC Group in regard to energy and environmental affairs, by more professional and effective division and integration of the work.

(2) The CSC Group Committee for Energy and Environmental Promotion was established in April 2011 with the Chairman of CSC acting as the chairman of the Committee. It has four subcommittees: green materials and low-carbon energy; saving energy, emission reduction and risk management; environmental regulations and new affairs; and new green business. OEEA assists in the implementation of related tasks.

(3) The Retirees Service Department was established in March 2011 to give more care and service to retirees, enhance the sense of belonging among CSC families and maintain a healthy and happy life for retirees.

(4) A task force was established in March 2011 for the foundation of the office in India. It will take on the responsibility to expand overseas production, the focus in the India market.

1.6.3 Business scale

The annual capacity of crude steel is currently over 10 million tons. The major products are hot-rolled, cold-rolled, coated, plate, wire rod and bar steel. About 70% of the products are supplied to the domestic market, and 30% for export. CSC currently has a market share of 50% in Taiwan for steel products and is the largest iron and steel company in Taiwan. Major export destinations are mainland China, Japan and Southeast Asian countries.

1.6.4 Major products

Steel plate: Steel plates are mainly used in construction structures, shipbuilding, bridge beams, oil country tubular goods (OCTGs), machine structures, pressure vessels and in climate/corrosion-resistant steel plates. The process control capability is good, and thickness and flatness are well above international specifications and standards.

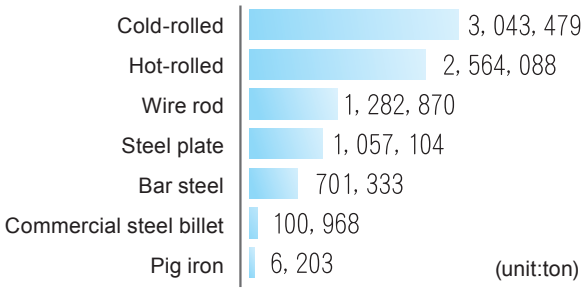
Steel bar and wire rod: Steel bars wire rods are mainly used in general structures, machine structures, cold forging, hot forging, hard drawn steel wire and welding electrodes.

Hot-Rolled Coil and Sheet: Hot-rolled coils and sheets possess good strength, excellent resiliency, are easily processed, have good weldability, and are easily combined with other metals. They are widely used in automobile chassis, bridge beams, construction, road guardrails, steel pipes, pressure vessels and landscaping.

Cold-rolled steel: Cold-rolled coils can be used in products requiring attractive exteriors, such as automobile stamping parts and home electronics products; parts requiring high-level forming, such as automobile and scooter components; a variety of PSE and structural reinforcement parts; and products requiring surface coating treatment, such as painting, electroplating and application of adhesive surfaces.

Coated Steel Product: The coated steel series includes: color coils used in roofing, home electronics, kitchen utensils, transport industry and interior decorating; electrical steel coils used to fabricate cores for motors, transformers, voltage stabilizers, relays and electricity meters; electro-galvanized coils used in thermal painting and adhesive films; and hot-dip galvanized coils used in computer cases, automobile stamping parts and home electronics parts.

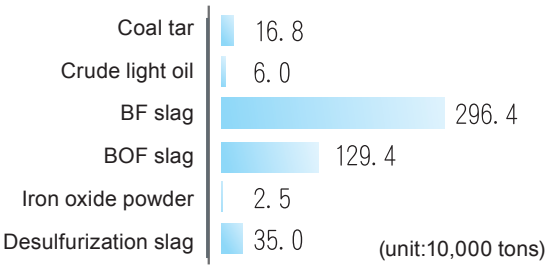
CSC produced 10,243,750 tons of billets and 8,756,045 tons of finished products in 2011. The output is classified by product in the right figure.



1.6.5 Major by-products

The process by-products of CSC include coal tar, crude light oil, blast furnace slag, basic oxygen furnace slag, iron oxide powder and desulfurization slag. The output of the major by-products in 2011 is described in the right figure.

Except for the granulated BF slag sold to domestic and foreign customers, the by-products are recycled and processed by CSC's subsidiary companies to supply chemical, construction, civil, electrical and consumer industries for various applications.



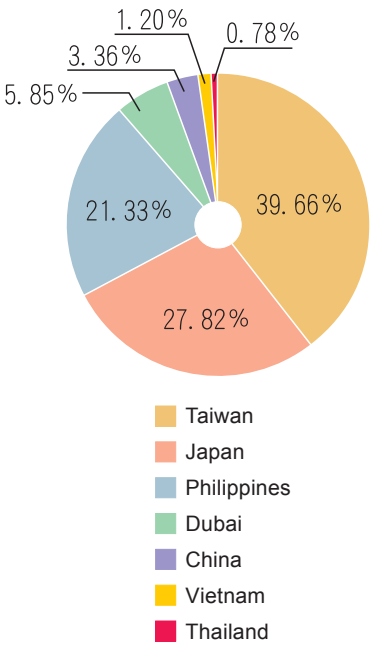
Coal tar | Crude light oil | BF slag | BOF slag | Iron oxide powder | Desulfurization slag

1.6.6 Raw materials and energies

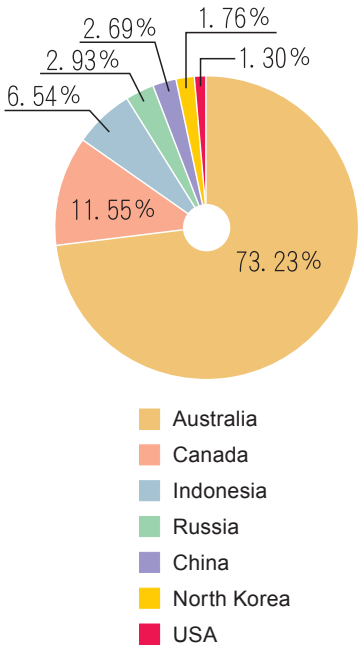
The iron ore and coal that CSC needs for production are 100% imported. The flux materials for its metallurgical operations had been 100% supplied by domestic sources in the past; however, since the termination of the nearby Longevity limestone mine to foster the local ecological development in the Kaohsiung area, part of the needed limestone has been supplied by overseas sources. Currently, 39.7% of our needs for marble, dolomite and serpentine come from the Hualien area, and 60.3% comes from overseas sources.

CSC consumed 3,568 thousand tons of flux materials (wet basis), 8,491 thousand tons of coking coal (wet basis) and 16,914 thousand tons of iron ore (wet basis) in 2011. The sources of the flux materials, coking coal and iron ore are described below:

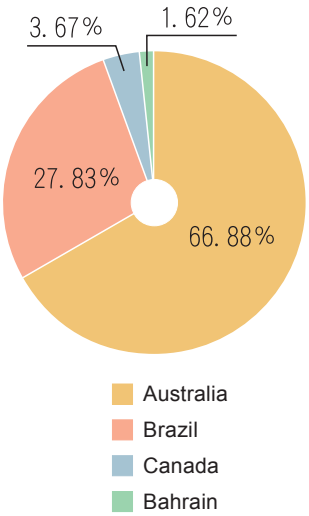
Sources of flux materials



Sources of coking coal



Sources of iron ore



The coking coal that CSC uses produces fuel gas in the metallurgical process. Part of the fuel gas is used for heating during the process, and part is supplied to the cogeneration unit for the production of steam and electric power. The cogeneration unit also uses coal, fuel and natural gas to produce steam and electric power, and the rest of the required power is attained by purchased electricity. The energy that CSC consumed direct, indirect and the self-produced secondary energy that CSC generated in 2011 are shown below:

Direct energy	
Coal	240,026.5 GJ
Natural gas	2,413.3 GJ
Diesel oil	128.1 GJ
Gasoline	5.2 GJ
Low sulfur oil	325.1 GJ

Indirect energy	
Purchased electricity	22146.3 GJ

Note: 1GJ=10^9 Joule

Self-produced secondary energy		
Steam of medium pressure	3.66	million tons
COG	2.07	billion M^3
BFG	14.96	billion M^3
LDG	1.01	billion M^3
Cold blast air	9.86	billion M^3
Oxygen	1.07	billion M^3
Nitrogen	1.11	billion M^3
Argon	20.1	million M^3

1.6.7 External communication and cooperation

(1) Domestic professional associations and institutes

The products and by-products of CSC are mainly sold to other domestic industries. Participation in related associations and institutes is a good way to enhance mutual communication and cooperation. CSC is a member of the Business Council for Sustainable Development (BCSD) and Taiwan Corporate Sustainability Forum (TCSF), and cooperates with other member companies to promote the sustainability of the enterprises in Taiwan.

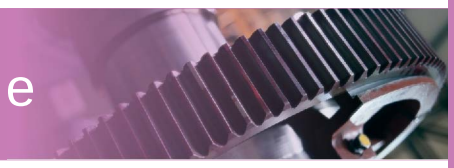
(2) Steel associations and institutes

◆**World Steel Association (worldsteel):** CSC has been a core member of worldsteel. In addition to attending its sustainability reporting work group, providing data, making proposals and participating in promotion activities, CSC has also joined its committees of technology, safety and health, and environmental policy as well as other work groups for the collection of CO_2 emission data and life cycle assessment. CSC is able to obtain the latest information and closely follow the global tendencies through this interaction and cooperation.

◆**South East Asia Iron and Steel Institute (SEAISI):** CSC is a key supporting member of this institute. To help the peers in South East Asia on a mutually beneficial basis is a long-term commitment of CSC; The activities include: serving as the chairman of its ESH committee, assisting in the development of the techniques and implementation of ESH affairs, supporting the arrangement of steel technique workshops and ESH workshops, visiting plants and sharing in the production of national reports every year. In addition to maintaining good interactive and cooperative relationships with other members, CSC obtains information on the development and policies of regional industries and techniques, which provides a good basis for business development and strategic cooperation in the future.

◆**OECD Steel Committee:** The Steel Committee of the OECD is an excellent international platform for the exchange of information and the provision of advice. CSC has participated in the meetings of the steel committee on a regular basis, under the instruction of Taiwan Ministry of Economic Affairs; it is not only a channel to obtain new and important information on the steel industry and environmental protection, but also an opportunity for Taiwan to increase its visibility and participation in international activities.

2 Management Structure



2.1 Management

2.1.1 Board of Directors

The Board of Directors is comprised of 9 to 15 directors. The members of the Board must be elected for a term of three years and are eligible for reelection according to the “Rules Governing the Election of Directors and Supervisors of China Steel Corporation”. The members of the board must have the following competencies:

(1) Judgment of the business operation
(2) Accounting and financial analysis
(3) Operation and management of the business
(4) Crisis control and management
(5) Industrial knowledge
(6) International market outlook
(7) Leadership skills
(8) Decision making

Currently, CSC’s Board of Directors consists of 11 directors, including three independent directors, and all are males at the age above 50. They are specialized in the fields of business administration, finance, engineering, environmental protection, etc. Current directors are listed below.

Title	Name
Chairman of the Board	**Jo-Chi Tsou** (Representative of the Ministry of Economic Affairs)
Director	**Tyzz-Jiun Duh** (Representative of the Ministry of Economic Affairs)
Director	**Liang-Tung Fan** (Representative of the Ministry of Economic Affairs)
Director	**Jyh-Yuh Sung** (Representative of Ever Wealthy International Corporation)
Director	**Kin-Tsau Lee** (Representative of Gau Ruei Investment Corporation)
Director	**Jih-Gang Liu** (Representative of Joint Focus Investment Corporation)
Director	**Cheng-I Weng** (Representative of Hung Kao Investment Corporation)
Director	**Chao-Chin Wei** (Representative of CSC Labor Union)

Title	Name／Educational background
Independent Director	**Shen-Yi Lee** ・Ph.D. in Law, Chinese ・Managing Partner Emeritus, Chien Yeh Law Offices Culture University
Independent Director	**Juu-En Chang** ・Ph.D. in Civil Engineering, Tohoku ・Professor, Department of Environmental Engineering, National Cheng Kung University
Independent Director	**Ting-Peng Liang** ・Ph.D. in information management, University of Pennsylvania, USA ・National Chair Professor and Director of the Electronic Commerce Research Center, National SunYat-Sen University

2.1.2 Supervisors

CSC has three supervisors. In addition to attending the meetings of the Board of Directors, the supervisors regularly convene the financial statement communication meetings with the internal chief auditor and certified public accountant to discuss and communicate with each other regarding all affairs related to the financial statement. The bi-annual financial report and annual financial statement, surplus allocation proposal and operation report, which are issued after each fiscal year after having been certified by a public accountant, will be submitted to the supervisors for review. A review report must be made and issued accordingly.

The supervisors must have the following competence according to the "Rules Governing the Election of Directors and Supervisors of China Steel Corporation",

(1) Trustworthy and practical
(2) Good judgment
(3) Professional knowledge
(4) Extensive experience
(5) Understands financial statements

Ju-Hsuan Wang is the only female among the supervisors and comprises 33.3% of all the supervision members. The supervisors are more than 50 years old on average and are specialized in the fields of engineering, finance, legal affairs and labor rights.

Title	Name
Supervisor	**Ju-Hsuan Wang** (Representative of the Bureau of Labor Insurance)
Supervisor	**I-Lin Cheng**
Supervisor	**Andrew Deng**

2.1.3 Profession committees

CSC has set up the Corporate Governance Committee and Compensation Committee.

(1) Corporate Governance Committee

To improve the efficiency of corporate governance, CSC issued the "Organizational Rules of Corporate Governance Committee" in June 2007 and established the Corporate Governance Committee accordingly. The Committee comprises three directors, including one independent director acting as the convener and chairman of the meeting. Major tasks of the Committee are described below.

◆Review and assess the corporate governance organization and system for their soundness and make suggestions to the Board of Directors.
◆Draw up the revisions of the rules of meeting procedures for the Board of Directors and submit them to the Board meeting for approval.
◆Draw up or revise the drafts of the organizational rules for each subcommittee of the Board of Directors and submit them to the Board of Directors for approval.

(2) Compensation Committee

In order to evaluate the operation and management performance of the top manager, and rationalize the compensation system of directors, supervisors and top managerment to protect the rights and interests of investors, the Board of Directors of CSC approved the "Organizational Regulations for the Compensation Committee of China Steel Corporation" in August 2011 and abolished the "Organizational Rules of the Compensation Committee" issued in June 2007, based on Article 14-6, Section 1 of the Securities and Exchange Act and the "Regulations Governing the Appointment and Exercise of Powers by the Remuneration Committee of a Company Whose Stock is Listed on the Stock Exchange or Traded Over the Counter", as announced by the Financial Supervisory Commission on March 18, 2011. The three independent directors are invited to act as members of the Compensation Committee. The first meeting of the Compensation Committee was convened in October 2011 with suggestions resolved and submitted to the Board of Directors for approval.

2.1.4 Internal Auditor Office

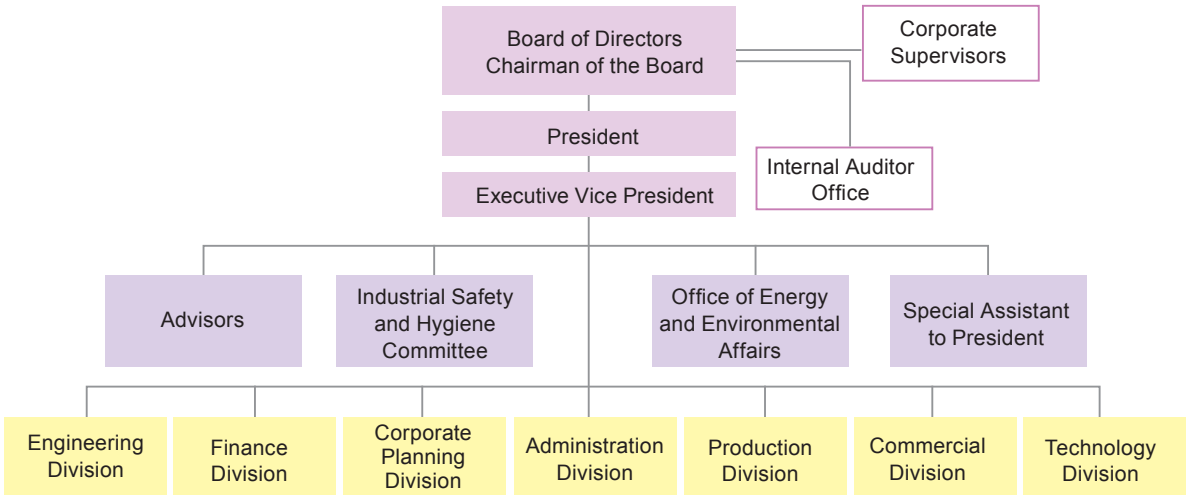
The Internal Auditor (IA) Office is under the direct supervision of the Board of Directors. Its task is to audit operations and make improvement suggestions to ensure the achievement of the goals of “operating effectiveness and efficiency”, “reliability of financial reports" and “compliance with the laws and regulations“. The major audit tasks in 2011 included the following items:

(1) Test and assess the control procedures of high-risk operations in the eight operational cycles (procurement and payment, sale and collection of payments, investment, financing, production, fixed assets, salary/wage, R&D) for completeness and degree of risk
(2) Cross-check the functions in the design of the system
(3) Conduct audits according to the regulations of the Financial Supervisory Commission, Executive Yuan, including: asset management, budget management, derivatives, related party transactions, supervision over and management of subsidiaries, operation of the Board of Directors’ meeting, information and communications security check and prevention of internal transactions. The audit results are submitted to the supervisors and independent directors for review.
(4) Conduct assessment and field check of CSC's subsidiaries for their internal control systems.
(5) Handle complaints and ad hoc assignments

2.1.5 Administrative system

According to the “Articles of Incorporation of China Steel Corporation”, the Chairman of the Board of Directors presides over the meetings of shareholders and Board of Directors. The President and Executive Vice President assist the Chairman in handling related matters. The President takes full responsibility for carrying out the business of the Company according to the resolution of the Board of Directors and has the right to sign documents in the name of the Company. The Executive Vice President and Vice President assist the President with all related matters and have the right to sign documents in the name of the Company under the written authorization of the President or according to the regulations that the President has approved.

CSC established seven divisions based on the requirements for the development and management of the Company, and each division is led by a vice president. The “Industrial Safety and Hygiene Committee” and “Office of Energy and Environmental Affairs” are permanent organizations of the Company that comprehensively plan the activities regarding industrial safety and hygiene, energy and the environment. CSC may set up advisors, special assistants of the President, task-oriented committees and task forces, if needed.
The structure of our administrative system is shown in the figure below:



2.1.6 Senior management

The senior managers higher than the vice-manager (incl.) and their inauguration dates are listed below:

Title	Name	Inauguration date
Chairman of the Board	Jo-Chi Tsou	2010.06.23
President	Jyh-Yuh Sung	2012.02.01
Executive Vice President	Kin-Tsau Lee	2012.03.01
Vice President-Administration	Hsiung Li	2011.03.01
Vice President-Commercial	Jih-Gang Liu	2011.03.01

Title	Name	Inauguration date
Vice President-Finance	Chung-I Lin	2011.10.01
Vice President-Corporate Planning	Mao-Pin Wang	2012.03.01
Vice President Technology	Shin-Chin Wang	2012.01.01
Vice President-Engineering	Wen-Du Hsu	2012.02.01
Vice President-Production	Tsung-Ren Zjeng	2012.02.01

2.2 Employment management

2.2.1 Human rights management

CSC strictly complies with the national and international codes on labor and human rights. We treat and respect all employees equally, such as in regard to the following:

◆**Safe working conditions:** Comply with governmental labor-related laws and regulations.

◆**Equal employment opportunities:** Provide employment opportunities fairly for all applicants according to the Employment Services Act.

◆**Fair appeal:** Employees are entitled to an appeal if their rights have been infringed upon, or when they are treated inappropriately and the complaint cannot be handled reasonably.

◆**Rewards and punishments:** The "Employee Award and Punishment Committee" was established to assess major rewards and punishments for the employees.

◆**Prevention of sexual harassment:** The "Complaint Committee against Sexual Harassment" was established to provide employees with a workplace free from sexual harassment.

2.2.2 Participation in public affairs

It is a tradition of CSC's employees not to be involved in politics. CSC has never provided contributions to political parties. In public affairs, CSC considers the giving of advice through industrial associations as a social responsibility to ensure full communication and coordination with government and society, while assisting the government in making decisions that the public can trust and depend on. To do this, CSC acts carefully in regard to the following principles:

(1) For the greater good: Not only to consider Company benefits, but also those of stakeholders, as well as the social responsibility of CSC

(2) Appropriate statements: Statements are made with empathy in a customer-oriented manner and obtain wide acceptance through an open, fair and democratic procedure

(3) Consistency with global trends: Investigate and understand the thoughts and experiences of advanced countries and make adjustment appropriately according to the specific conditions of our country

(4) Sound professional basis: Give advice based on domestic and international professional information; to be more deeply involved in public affairs; and increase the credibility of statements

(5) Pursuit of fairness and reasonableness: Adhere to fair competition principles to realize social and substantive justice

2.2.3 Prevention of malpractice

Since its establishment, CSC has deemed requesting, agreeing to accept or accepting bribes or other improper benefits, or accepting entertainment from suppliers or stakeholders as serious misconduct. In addition to continuing this good tradition through passing-on the corporate culture, CSC prevents such misconduct by organizational regulations, control mechanisms and employee training; this includes:

(1) Employee morality: CSC established a “Code of Conduct for the General Manager” and “Code of Ethics for CSC Group Employees” so that employees can understand the moral requirements of the Company. The duties that an employee must carry out and the work method are specified in the general work rules, operation standards and technical guidelines. Detailed rules and descriptions are available for every job.

(2) Risk assessment: The internal auditors of CSC carry out risk assessments for each operational cycle and operation, including compliance with the related laws and regulations according to the “Regulations Governing Establishment of Internal Control Systems by Public Companies”, and develop the annual audit plan based on the results of the risk assessment.

(3) Self-inspection: According to the "Departmental implementation provisions on management review", the general managers must prepare self-inspection reports. The inspection items include staff’s personal integrity. The self-inspection report is then reviewed by the Internal Audit Office (IA) and President, in order to understand whether each department has achieved the purpose of the self-inspection mechanism in a timely manner. Then, the IA can adjust the design and implementation of the internal control system in response to environmental changes and requirements.

(4) Employee training: The training program for new employees includes: morality, regulations of the Company, and discipline. The Corporate Culture Committee meeting is held regularly to review the spirit, corporate culture and values of CSC, as well as the cases that adversely affect the transmission of CSC’s corporate culture. The concepts and practice of the corporate culture are advocated through CSC’s Semimonthly Journal and website for the training of all employees.

(5) Complaint mailbox: The complaint hotline and mailbox were set up to widely collect information on misconduct. An investigation of the misconduct complaint will be carried out, and the misconduct will be handled in coordination with the responsible department.

(6) Countermeasures against misconduct: The personnel management system requires an employee guilty of malpractice to be removed. All cases of misconduct are sent to the “Employee Award and Punishment Committee” and dealt with according to the results of the review.

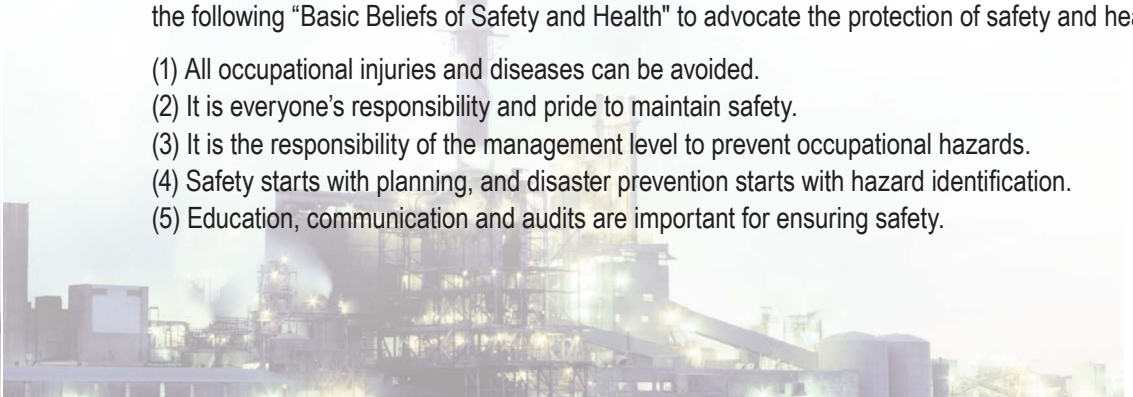
2.2.4 Socializing guidelines

To implement a premium corporate culture and maintain the image of the company, CSC establishes regulations and requests that employees not accept gifts or benefits offered by any stakeholders related to their duties, or to participate in any banquets and social activities arranged by such stakeholders (except for special cases approved by the general manager). In the case of subordinating relationships, reasonable interaction is taken into account in the regulations.

2.2.5 Labor safety and health

CSC’s belief in labor safety and health: “Employees are the most valuable asset of the Company, and ensuring the safety and health of employees is CSC’s most important basic responsibility.” CSC established and announces the following “Basic Beliefs of Safety and Health" to advocate the protection of safety and health:

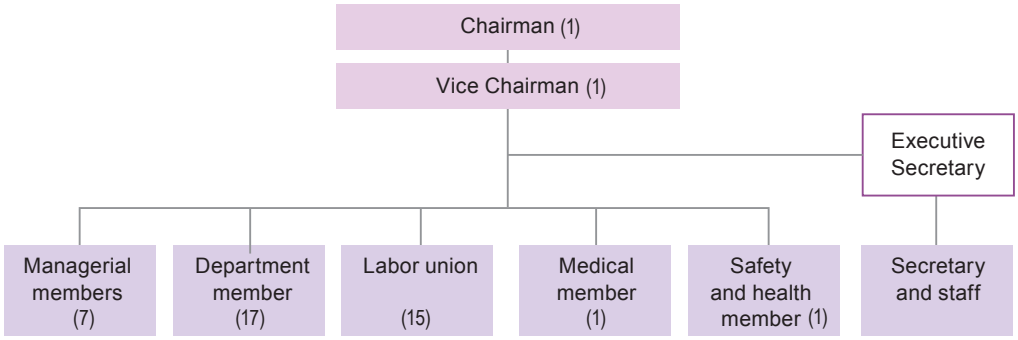
(1) All occupational injuries and diseases can be avoided.
(2) It is everyone’s responsibility and pride to maintain safety.
(3) It is the responsibility of the management level to prevent occupational hazards.
(4) Safety starts with planning, and disaster prevention starts with hazard identification.
(5) Education, communication and audits are important for ensuring safety.



(6) Working safety is the basic requirement for employees and contractors.
(7) Contractors are our partners to ensure working safely.
(8) Unsafe behaviors and workplaces must be corrected and improved immediately.
(9) Implement industrial safety measures and achieve the goal of zero accidents by determination, attentiveness and care.
(10) No performance makes sense without safety.

Labor safety and health management system

CSC obtained the TOSHMS (Taiwan Occupational Safety and Health Management System) certification in 2008 required by the Council of Labor Affairs. We practice comprehensive safety and health management and create a premium workplace with PDCA loop. To ensure effective discussion and resolution of problems, CSC set up the Occupational Safety and Health Committee with the President acting as the chairman and the Executive Vice President acting as the vice chairman; 15 representatives of the labor union are appointed as members of the Committee (constituting more than 1/3 of the total members). The Committee meeting is convened once every two months. The implementation performance of the safety and health is reported in the annual report and is open to the shareholders for review. The structure of committee is shown as follows:



2.2.6 Human resources development

Based on CSC's development strategies, investment projects and the resignation/retirement status of employees, the departments regularly review the requirements for human resources and make short-term and long-term human resources utilization plans. New employees are hired adequately and on a timely basis for positions which become available when the current responsible employees will retire. A mentoring system is used to ensure that key know-how is passed on to new employees.

The Manpower Development Section under the Human Resources Department is responsible for developing the system and regulations for the development of human resources, as well as preparing and executing the budget and training program. It is also responsible for planning and promoting the development of management capability, organizational vitality management, knowledge management and e-Learning programs. An annual training program is arranged and implemented every year to train talents for the Company and to pass key know-how to them. Further training programs are established to select outstanding employees and have them participate in the training program in Taiwan and foreign countries to cultivate the talents needed for the operation of the Company.

CSC established the Human Resources Development Committee to meet the requirements of business operation and human resources development, as well as to improve the overall operating effectiveness and efficiency. The Committee is responsible for review, promotion and evaluation of the following affairs.

(1) Strategies and objectives of human resources management
(2) Organizational development and human resources utilization plans
(3) Human resources development strategies and talent training plans
(4) Important systems of human resources management

2.3 Performance management

2.3.1 Operational performance management

The operational performance of CSC is improved continuously by each unit in a Plan-Do-Check-Act (PDCA) loop. The major points of the loop are described below.

Set the annual operation policy of CSC based on CSC's operating philosophy, operating plan, quality policy, the performance of the previous year and perspective of the next year.

Plan

Each Division deliberates the consistency of direction in adhering to CSC's Annual Operation Policy, and ascertains the completeness in accepting the deployed objectives. Then the divisions shall establish their own Division Operation Policy.

Do

The division and department make an evaluation report for the implementation of each operation policy on a quarterly basis and submit it to the Total Quality Management Committee of the quarter for discussion.

Check

The departments make Evaluation Reports on Implementation of the Operation Policy at the end of the year and, after it has been approved, submit it to the Department of Industrial Engineering for follow-up actions.

Act

2.3.2 Operation policy

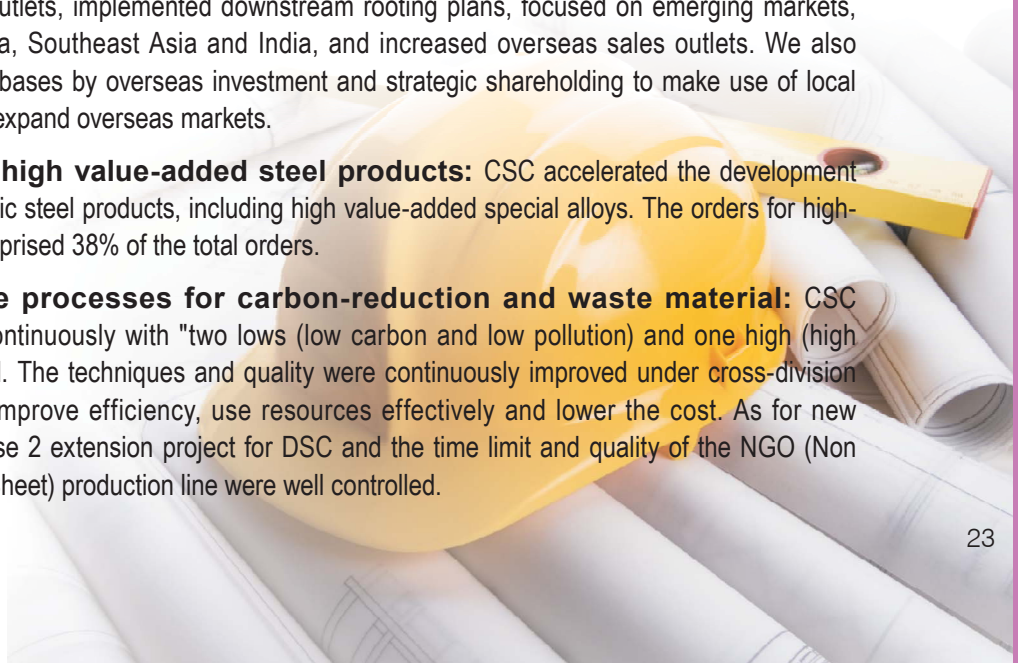
The 2011 operation policy of CSC is described below.

(1) **Proactive development of upstream raw materials:** CSC completed the investment procedure in November 2011 to acquire 1% of the shares of Nacional Minerios S.A. in Brazil. This brings additional materials sourced for CSC, ensures the long-term stable supply of iron ore, enhances international partnerships and gives CSC more opportunities to invest in raw materials.

(2) **Development of new prospects for downstream outlets:** CSC continuously deployed domestic and overseas outlets, implemented downstream rooting plans, focused on emerging markets, including: mainland China, Southeast Asia and India, and increased overseas sales outlets. We also increased the production bases by overseas investment and strategic shareholding to make use of local growth opportunities and expand overseas markets.

(3) **Innovative R&D for high value-added steel products:** CSC accelerated the development of high quality and strategic steel products, including high value-added special alloys. The orders for high-quality steel products comprised 38% of the total orders.

(4) **Improvement of the processes for carbon-reduction and waste material:** CSC pursued green growth continuously with "two lows (low carbon and low pollution) and one high (high added value)" as the goal. The techniques and quality were continuously improved under cross-division cooperation in order to improve efficiency, use resources effectively and lower the cost. As for new production lines, the Phase 2 extension project for DSC and the time limit and quality of the NGO (Non Gain-Oriented Electrical Sheet) production line were well controlled.



Major strategies:

(1) Enhance outlet deployment to establish steady sales channels
(2) Develop upstream material sources to increase the self-sufficiency ratio
(3) Control the Phase 2 extension project of DSC and the time limit and quality of the NGO production line
(4) Arrange order portfolios flexibly to improve the flexibility of production and the sales systems
(5) Accelerate the development of high-quality and strategic steel products to increase their value
(6) Encourage R&D and participate in the special alloy and steel markets
(7) Practice 6-σ to improve the techniques and quality, increase efficiency and lower the cost
(8) Continuously implement energy saving and reducing carbon, use the resources more effectively and take on the responsibility for environmental protection
(9) Moderate capital expenditure, control risks and improve financial efficiency
(10) Practice safety management, eliminate occupational accidents, and ensure the safety of the personnel and equipment
(11) Enhance talent management, promote premium corporate culture, improve leadership skills and pass on techniques

2.4 Corporate governance

2.4.1 Basic concept

Good corporate governance is a major concern of excellent global enterprises. We persist in maintaining the transparency and openness of our operating information according to global standards for measuring the accountability and fairness of an enterprise. The basic concepts of CSC in corporate government are described below:

(1) Commit to corporate governance subject to the highest standards
(2) Persist in legal and transparent operations
(3) Impose more responsibilities on management and improve the operational performance, while taking care of the rights and interests of the stakeholders
(4) Benefit local communities and assist in their social and economic development

2.4.2 Decent operation

(1) Abstain due to conflict of interests

According to the "Standards of Ethical Conduct for Directors and Supervisors of the China Steel Corporation", a director must abstain from any motion at the meeting of the Board of Directors where there is a conflict of interest, and abstention is required in voting on any director-related regulation. A director who has to abstain for the above mentioned reasons is not allowed to participate in the discussion, vote at the meeting, or exercise voting rights on behalf of other directors. We have strictly abided by this rule all along.

(2) Fair trade

Since the production volume of crude steel in Taiwan is less than the demand of market, a considerable number of semi-finished and finished steel products are imported every year from overseas sources. Since the import tariff rate was reduced to zero in 2004, the market competition has become fiercer; the opportunity for cartels to form and for monopolization no longer exists. CSC and its affiliates do not fix the price for their steel products of the same type, but rather act in compliance with the Taiwan Fair Trade Act. CSC's transfer pricing policy offers the same price to CSC's affiliates as to external customers. CSC treats its subsidiaries and trading partners fairly and equally in terms of commission and service charge.

In November 2011, CSC made three applications for investigation of the cases involved in anti-dumping duties. The companies involved included BaoSteel Corp. (mainland China), JFE (Japan), Nippon Steel Corp. (Japan), POSCO (Korea) and India Steel Corporation. The products involved included: low-grade non-grain oriented electrical steel made in Japan, carbon cold-rolled steel flat products made in mainland China and Korea, and carbon steel plates made in Korea and India. Taiwan Ministry of Economic Affairs rejected these issues of anti-dumping duties on the 25th of May, 2012.

2.4.3 Employee participation

CSC highly appreciates the opinion of employees not only to enhance the internal consensus, but also to collect good ideas. Employees may offer their opinions on the following occasions.

(1) The representative of the Labor Union, as a board member, participates in the meetings of CSC's Board of Directors and corporate governance.
(2) The Chairman of the Board of Directors and the President hold weekly communication meetings with employees to collect opinions from the representatives of the departments.
(3) The Labor and Management Committee holds a meeting every month; the Welfare Board and the Occupational Safety and Health Committee hold a meeting every two months.
(4) The Pension Fund Supervisory Committee holds a meeting every four months.
(5) Departments hold an internal communication meeting every two or three months (as decided by each department).
(6) The Human Resources Development Committee and CSC Labor Union hold meetings regularly.
(7) A mailbox of the Chairman is set up on the CSC internal website for employees to provide their opinions, and responses always be given immediately.
(8) The meeting between the top management and the councilmen of CSC's Labor Union is held every six months.

2.4.4 Information disclosure

Full disclosure of information is an indispensable element for CSC to carry out corporate governance. To ensure transparency of the information, we disclose it to all stakeholders on our website and through the shareholder service hotline, spokesman and designated press contact window.

Company website

About CSC

CSC profile, news center, web service
Corporate citizen: Community care, public service, web pages for saving energy and environmental protection, labor safety and health, and corporate social responsibility
Research and development: R&D results and R&D alliance

Investor relations

Shareholder service: Including stock information, financial information, shareholders' meeting data, shareholders' Q&A
Corporate governance: Including important internal regulations and rules such as: articles of association, financial rules, rules of meeting procedures for the Board of Directors, code of ethics; disclosing the information on the directors of the Board, important resolutions of the Board meeting, organization and operation of internal audits, and selection of independent directors
Investment: Including the information on the original and other businesses of the CSC Group

Customer service

Customer service, production and e-commerce

Shareholders' equity

Shareholder service hotline and e-mail box

CSC has established the toll-free shareholder service hotline and e-mail box. The hotline is made public on our annual report and website, so that investors can contact the Company directly. The designated personnel are responsible for responding to the questions of the shareholders.

Real-time announcement of important information

CSC has established a name list for delivery of important messages via the network. The information, including: monthly revenue, production and sales data, and results of seasonal price adjustment, is delivered to the industry analyzer and investor by e-mail at the first opportunity to ensure transparency and openness of the information.

Interaction with investors

CSC has designated personnel to receive the investors who visit the Company, take the responsibility for the visit and for troubleshooting. The management also actively attends the investors' discussion meetings and the investor conference presentations.

Business operation

Established spokesman system and media contact section

- New messages and information from divisions or departments
- Press release after the meetings of the Board of Directors
- Press release after steel price adjustment
- News announced by the subsidiaries or affiliates of the CSC Group
- News of unexpected incidents

CSC has established the Online Information Disclosure System according to the instructions announced by the Securities and Futures Bureau of the Financial Supervisory Commission. CSC uploads such information as monthly revenues and shareholder's meeting periodically and Company information and messages on the issuance of debenture stocks and other important information aperiodically.

We have also performed well in the "Information Disclosure Evaluation" carried out by the Securities & Futures Institute for many years and obtained the rating of A++ in the "Information Disclosure Evaluation of Public and OTC companies" in 2012.

CSC has received the certificate of the "CG 6004 Advanced Corporate Governance System Evaluation Certification" from the Taiwan Corporation Governance Association and continuously obtained the rating of A+ in the "Information Disclosure Evaluation of Public and OTC companies" carried out by the Securities & Futures Institute for four years (the 5th, 6th, 7th and 8th evaluations in 2007, 2008, 2009 and 2010, respectively). We are one of the companies that are listed as "more transparent and voluntary disclosure of information" in that evaluation.

2.4.5 Risk control

About 40% of the global steel production was traded in the international market and, thus, brought about fierce competition in the steel industry. To reduce the operation risks, CSC adopted the following measures:

! Finance risk

(1) Check the balance after collection, payment and fund procurement of NTD and foreign currencies and adjust the positions of strong and weak foreign currencies based on the requirements to increase the efficient use of the funds
(2) Determine a strict acceptable limit for the interest rate risk of the floating rate liabilities
(3) Use the security mechanism of e-commerce and digital signature to simplify the payment procedure and ensure normal pick-up of goods for customers
(4) Computerize the financial operation to increase the satisfaction of customers with our service quality

Raw material source risk

(1) Carefully assess material sources and select suppliers.
(2) Maintain safety stocks appropriately
(3) Diversify raw material sources and enter into long-term agreements with multiple suppliers in different countries
(4) Fulfill the agreements honestly and faithfully to maintain mutual trust and strengthen our relationships with suppliers
(5) Develop new sources to improve our competitiveness
(6) Select good raw materials as the target of investment and make the investment if it is feasible to control raw material sources on a long-term basis

Transportation risk

(1) Ensure a continuous supply of raw materials as the core of the transportation control. The stock of raw materials is reviewed regularly at the internal meeting to make the best plan for transportation.
(2) The buyer assumes the risk of sea transportation and is responsible for arranging insurance. The carrier for land transportation of steel products must submit an affidavit and an irrevocable bank guarantee with a fixed guarantee amount to ensure that the steel products will be completely transported to the destination on time and with the quantity as specified.

Market risk

(1) Use the resources of the CSC Group effectively to ensure integration, coordination and mutual support
(2) Improve the flexibility of the production and broaden the range of the products to be supplied
(3) Actively seek investment opportunities
(4) Control the outlets
(5) Participate in major infrastructure projects of the government and invest in high technologies

Utility risk

(1) Carry out inspections and change all the old COG pipes to maintain steady and reliable supplies of water, electricity and oil
(2) Carry out regular exercises for utilities and practice exercises regarding complex disasters in cooperation with TaiPower to prepare for unexpected accidents
(3) Develop ammonia removal technology for biochemical wastewater in cooperation with the R&D department in order to ensure that the quality of the effluent meets the given standard
(4) Participate in major projects of the Kaohsiung City Government on recycling of municipal wastewater and effluent from industrial zones

Mechanical equipment maintenance risk

(1) Select experienced subcontractors for high-risk maintenance work
(2) Carry out scaffolding skill evaluation tests; only persons who pass the test can participate in the construction
(3) Report high-risk construction items every day and request external safety inspection personnel to enhance the inspection of individual high-risk construction areas
(4) Submit the “Safety and Health Management Plan” according to TOSHMS/OHSAS 18001 before construction commences. A meeting of the joint operation organization must be held for commencement of the construction.
(5) The construction coordinator must enhance the construction risk notification in the zero-accident activity every day.

Electric control equipment maintenance risk

(1) The TS-16949 Standard Maintenance Procedure was established to prevent abnormalities of the electric control system from affecting production. The Procedure covers the following items: software and hardware maintenance, data access, redundancy mechanism, backup management, network protection, UPS, door control system, disaster prevention and response actions. Strict monitoring measures and regular exercises have been taken accordingly.
(2) The ISO-9001 Standard System Development Procedure was established with the concept of “safety originates in design” to ensure consideration of the maintenance risk at the design stage. Internal and external audits are held regularly to maintain the effectiveness of the system.
(3) Establish the “Information Safety Management Regulations of Production Division” with reference to ISO-17799, promote the information safety awareness and check each production unit on an irregular basis to ensure implementation of the information safety

Production risk

Make plans and simulate response measures for different sales and production situations based on the order forecast of the Commercial Division, so as to be able to make adjustments flexibly at any time

Information system risk

(1) Establish standard operation procedures and carry out training and education activities
(2) Take strict monitoring actions and carry out regular exercises in regard to the development and maintenance of application systems, access to data, redundancy mechanisms, network protection, and automatic fire extinguishing system for all machine rooms, UPS systems, door controls and video systems

SHE risk

(1) Enhance the labor safety culture. Conduct hazard identification and risk assessment for all processes and constructions. The risks are classified into low, medium, high and severe risks. The high or severe risk work must be reported for control purposes, and suitable actions must be taken to lower the risk.
(2) Carry out regular emergency response exercises and training every year to avoid the occurrence of serious accidents and protect the safety of the personnel
(3) Take proactive actions for saving energy and reducing carbon, and pay close attention to the environmental and energy taxes. Assist the taxation process to ensure fairness, reasonability and justice.
(4) Be devoted to the reduction of air pollutants and wastewater discharge; increase water saving and wastewater recycling

Engineering management risk

(1) Establish the Capital Expense Management & Information System and Construction Management System; practice strict control of labor safety, quality, schedules and budgets.
(2) Conduct credit investigation of registered qualified suppliers on a regular basis.
(3) Bulk construction materials are purchased and supplied by CSC collectively.
(4) Compile the “Construction Management & Operation System Manual for Extension Projects” as a basis for the engineers of domestic and overseas extension projects to carry out outsourcing of the construction.

Incident reporting and risk control

(1) The “SHE Emergency Response Management Regulations” have been established. The unit where an incident occurs will report to the responsible supervisor by phone, if needed.
(2) The “Emergency Reporting System” has been established. When an incident occurs, the safety control center will report to the responsible supervisor by a short message, if needed.
(3) The “Emergency Command System” Responsible supervisors will receive a short message and a report when an incident occurs, so that they can immediately take action.
(4) The unit concerned will give a report according to the abovementioned procedure when a major incident occurs to any affiliate of the CSC Group or its customers or suppliers. The Emergency Command System will give assistance through the “emergency response organization” to reduce the loss.

IFRS adaptation plan and its implementation status

(1) CSC is the company to which the Financial Supervisory Commission applies IFRS at the first stage, and it will compile the financial statement according to the principles of IFRS starting from 2013.
(2) A cross-division IFRS team was established in November 2009 to prepare for the implementation of IFRS. In the adaptation plan, which has been submitted to the Board of Directors, IFRS is implemented in three stages: planning and diagnosis, development of countermeasures, and implementation and evaluation. Currently, the preparation focuses on the effect of identified deviations and discussions among the related internal divisions/departments. The countermeasures regarding the sale, financing, system, control system and regulations are also carried out at this stage. The implementation status and follow-up actions are listed in the schedule list of the cross-division IFRS team.
(3) The meetings of the cross-division IFRS team are held once every three months, and the progress of the implementation is reported to the Board of Directors.

2.4.6 Response to major economic impacts

Since re-bounding at the end of 2010, the international steel market demand has run in correction mode until 2011, although it has grown insignificantly; worldsteel estimated in October 2011 that the global apparent steel use in 2012 would grow by 6.5% compared to 2011. Taiwan Steel & Iron Industries Association announced in February 2012 that the apparent steel use in Taiwan would grow by 1.7% in comparison with 2010.

The global economic growth rate in 2012 was estimated by the IMF (International Monetary Fund) to be 3.3%; worldsteel estimated a 5.4% growth rate of the apparent global steel use and a 2.0% growth rate in the apparent steel use in Taiwan. According to the estimates of the Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taiwan would have an economic growth rate of 3.85% in 2012. Although there are many uncertainties in the European debt crisis, the EU, the IMF and the European Central Bank have made full efforts to avoid the crisis from spreading, and the losses are expected to be kept under control. The economy and employment in the USA have been improving continuously. The prolonged tax abatement measures, which have been approved by Congress, are helpful to stimulate the economic growth. Mainland China has adjusted the required reserve ratio downward again to create a looser monetary environment. These factors indicate a positive development of the global economy and an upturn for the international steel and iron industries. Thanks to the increasing downstream demand and moderate steel production of leading global manufacturers, improvement in the supply-demand relationship is expected and will be helpful for the operation of steel manufacturers.

CSC may face the following impacts in the future:

- ◆The global economy is affected by the inflation control policies of mainland China and India, as well as the European debt crisis and deficit reduction measures of industrial countries. The growth of the steel demand slows as a result. Furthermore, the capacity of the global steel industry becomes excessive, and the supply of the steel is greater than the demand due to expanding capacity. The global steel industry faces a period of meager profits.
- ◆Global trade protectionism grows continuously. Europe, America and mainland China take anti-dumping and defense measures against importing steel products. This negatively impacts the steel and iron companies in Taiwan in attempting to develop export markets.
- ◆The accelerated development of global logistics leads to a migration of the downstream manufacturers to foreign countries and, thus, shrinks the space for growth in steel demand in the domestic market.
- ◆The manufacturers in mainland China have made investments in new equipment and introduced new technologies to expand their steel capacity. In these circumstances, the imported steel products have been replaced and constrained gradually, and mainland China has become a net export country instead of the net import country she was. The global steel trade is under great pressure.
- ◆The steel capacity in mainland China is excessive, and the quality is unstable. Since the Taiwan market will be gradually open to mainland China according to the ECFA (Economic Cooperation Framework Agreement), imported steel from mainland China will have a great impact on the operation of local manufacturers.
- ◆After the conclusion of an FTA between Korea and the EU, and an FTA between Korea and the USA, Taiwan would be marginalized if it does not participate in any regional economic cooperation organization. This is adverse to Taiwan's development and competition in the global market.

To respond to the abovementioned impacts, we have accused the manufacturers of cold-rolled steel products in mainland China, electrical steel products in Japan and cold-rolled steel plates in Korea. We have also set up production bases and coil centers in the regional economic cooperation system, developed emerging markets with high growth potential such as India, focused on the development and supply of high-end steel materials for automobiles, household appliances, electric motors, and so on, and assisted the government with the promotion of the FTA.

2.5 Energy and environment management

2.5.1 Policies and concepts

Since environmental management is closely linked to safety and health management, CSC has combined the environmental management system with the safety and health system into one system. The SHE policy of CSC is described below.

(1) Care of lives: Respect lives; implement environmental protection and SH management to prevent injuries and illness and contribute to the health of employees.

(2) Risk management: Carry out risk assessment and environmental consideration; enhance overall risk control and pollution prevention to eliminate potential risks.

(3) Training and communication: Teach employees the concept of environmental protection, safety and health; establish a trustful culture to encourage communication among employees, contractors and the community for more harmonious relationships.

(4) Compliance with regulations: Identify and implement regulatory requirements to enhance preventive and corrective functions, and take on corporate social responsibilities earnestly.

(5) Continuous improvement: Make efforts for energy saving, carbon reduction and zero accidents; improve SHE performance and contribute to the sustainability of business operation.

CSC's concept and vision in energy and environmental issues are:

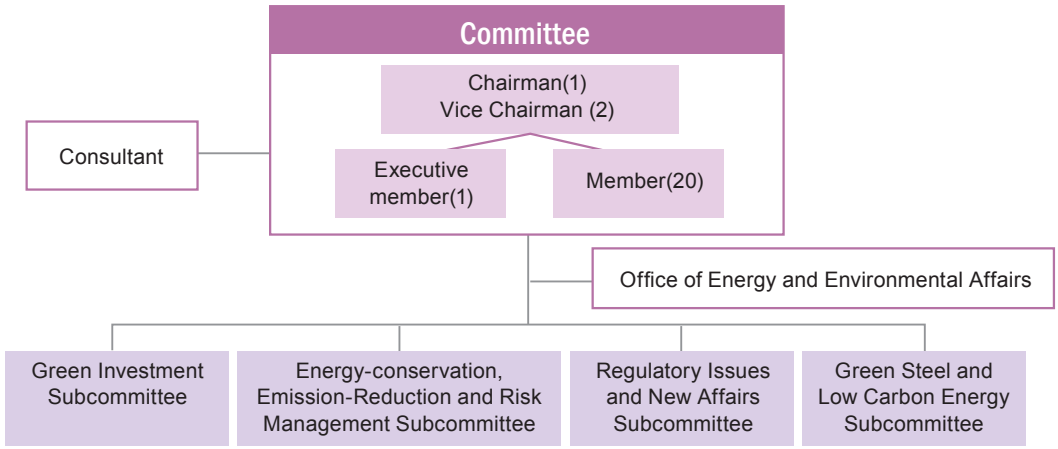
(1) Improve KPIs (Key Performance Indexes) to approach the top level and be an international and environment-friendly enterprise.
(2) Make use of internal and external resources for maximum effectiveness.
(3) Speed up the application of BATs (Best Available Technologies) and renewable energy to achieve the goals of low carbon, low pollution and high value.
(4) Develop energy-saving products and new green businesses in coordination with the development of the low-carbon green economy in Taiwan.

2.5.2 Organizational structure

To take responsibility for environmental protection, energy saving and carbon reduction, CSC set up the Environmental Protection Department and Utilities Department to handle specific issues with the support of the technologies from the R&D Division. The cross-department "Energy Saving Committee" and "Safety, Health and Environment Management Committee" and the "CSC Group Committee for Energy and Environment Promotion" were also set up to enhance communication and improve the overall effectiveness.

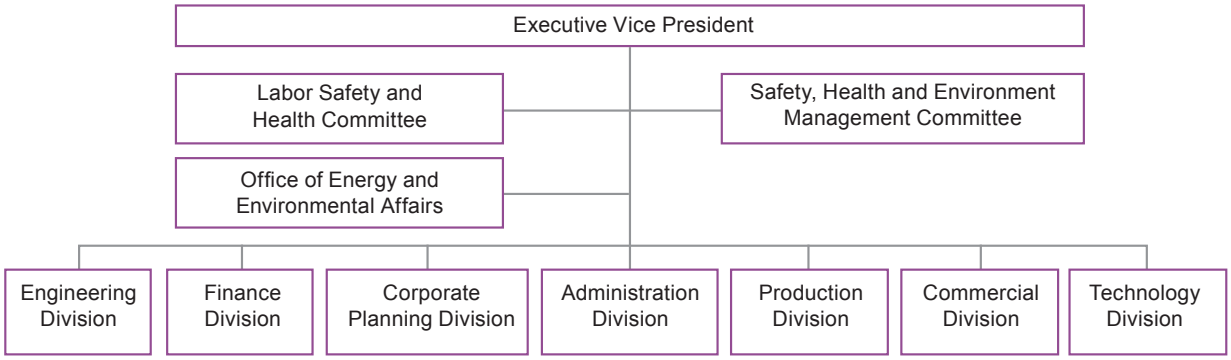
(1) CSC Group Committee for Energy and Environment Promotion

CSC set up the Office of Energy and Environmental Affairs in March 2011 to enhance the planning and implementation capability of the CSC Group in regard to energy and environmental affairs. The CSC Group Committee for Energy and Environment Promotion was established in April of the same year, with the Chairman of CSC acting as the chairman of the Committee. The Office of Energy and Environmental Affairs assists the Committee with the implementation of its related tasks.



(2) SHE management system

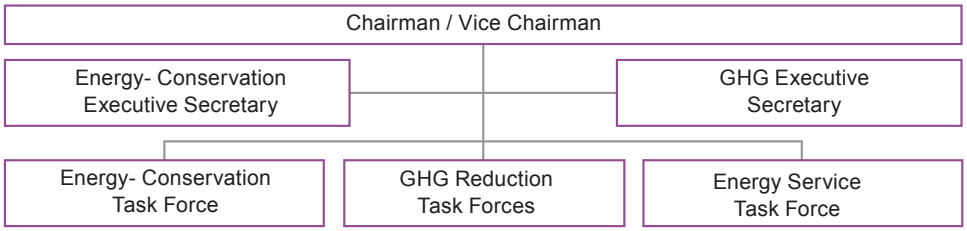
CSC was granted ISO 14001 certificate in 1997. This system was then integrated with OHSAS 18001 occupational safety system to form the Management system" in 2005. The "Safety, Health and Environment Management Committee" was set up with the Executive Vice President acting as the chairman of the Committee. The function of the Committee is to make decisions on all SHE-related affairs.



CSC introduced the ISO 50001 energy management system in February 2011 to improve the performance of energy saving and carbon reduction. CSC integrated the energy management system with the achievement of SHE management system and obtained the certificate on December 19, 2011, after having undertaken two external audits. CSC would like to achieve the goals of energy saving, carbon reduction and continuous improvement via the control mechanism of the energy management system and the endeavors of the Energy Conservation Committee.

(3) Energy-Conservation Committee

To lower the energy cost effectively, CSC set up the "Energy-Conservation Committee" in 1978 with the Vice President of Production Division acting as the chairman of the Committee. It has three task forces responsible for implementation of the energy conservation and carbon reducing affairs within the factory.



2.6 Engagement in social harmony

2.6.1 Concepts and scope:

(1) Proactive and responsible: Not only is CSC obligated to the safety and health of employees and contractors, but it is also responsible for their salary/wages, welfare, equal rights and job training.

(2) Local needs first: Bearing the concept and attitude of harmony and prosperity together with local communities in mind, CSC takes the responsibility of local environment quality and safety very seriously. We pay business income tax and environmental charges in Kaohsiung City and provide assistance to local development in many aspects.

(3) Multiple approaches and inputs: CSC places great importance on the rights and interests of the shareholders, employees, contractors and the public. In addition to operating the business legally and maintaining fair competition as one of our commitments, we fulfill our obligation to give the government our advice on public policies and international affairs.

(4) Shouldering responsibility willingly: With the awareness of doing good, CSC takes on many responsibilities in public welfare, culture, art and education areas through its business units, CSC Labor Union, CSC social clubs and CSC Group Education Foundation.

2.6.2 CSC Group Education Foundation

CSC set up the "CSC Group Education Foundation" in 2007 in order to engage in relevant social participation activities by a broader, deeper and more diversified approach. The Foundation has 9 directors, among which 3 are outside directors. The Chairman of CSC concurrently serves as the foundation's chairman, and the Vice President of the Administration Division serves as the general secretary. There are additionally one executive secretary and one accountant. Most of the needed professional and general affairs are supported by CSC's related departments. The Foundation's aims are to promote education and personnel training in steel-related fields, to support ecological conservation, to promote a spirit of culture and humanism, to pursue sustainable development and to contribute to education.

2.6.3 Social participation

CSC practices social participation through different channels and windows, including internal responsible units, CSC Group Education Foundation, CSC Labor Union and CSC social clubs. The regular activities are described below:

Type of task	Responsible unit	Tasks
Advice on energy and environment policies	Office of Energy and Environmental Affairs	- Rationalization of central and local regulations, including energy saving and carbon reduction, soil and groundwater, energy tax, Air Pollution Control Act, Waste Disposal Act - Advice regarding low-carbon economy, carbon credit policy, development of industries in South Taiwan - Taking on the carbon reduction responsibility for fair competition with global competitors
Development of human rights and resources	Human Resources Department	- Negotiating for reasonable work environment policies - Sharing knowledge
Safety and Hygiene	Industrial Safety and Hygiene Department	-Prevention of occupational accidents and epidemic diseases. -Participation in national/international communication and sharing activities.
National and local public affairs	Public Affairs Department	- Good-neighbor activities, social support and assistance, and participation in emergency assistance - Good interaction with legislators, administrative agencies, media and opinion leaders
Social education and culture	CSC Group Education Foundation	- Promotion of education activities regarding steel production and application techniques - Act as a sponsor for science and technology, social education and other cultural activities
Labor policy	CSC Labor Union	- National labor interests and welfare policies - Communication, cooperation and interaction with groups of the same nature
Social care , art, and culture activities	CSC, Labor Union, CSC social clubs	- Emergency assistance and re-construction after disasters - Take care of minorities (Philanthropy Club) - Concern about the ecological environment (Bird Watching Club) - Participate in the dragon boat contest for the Dragon Boat Festival every year - The performances of the chorus and National Music Club; exhibition of art works (Photography Club, Fine Arts Club)

3 Performance indicators

3.1 Corporate governance

3.1.1 Sales volume and revenue

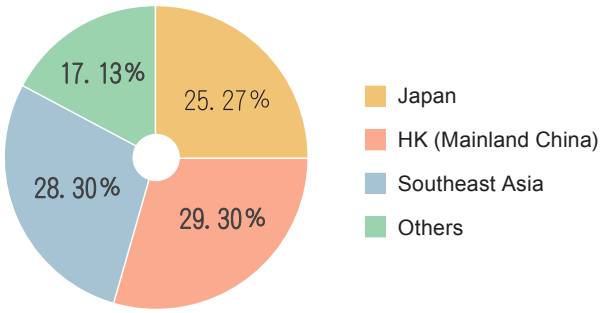
The total sales volume of CSC's steel products amounted to 9.166 million tons in 2011, of which 6.375 million tons of the products were supplied to the domestic market and 2.791 million tons of the products were supplied to overseas markets. Except for a few products for which the market share grew by a limited extent, the market for the rest of the products was almost saturated. Both the cold-rolled and coated products accounted for 33.1% of the total sales volume in 2011, followed by 29.5% of the hot-rolled steel products.

Sales Distribution In 2011

(unit: ton)

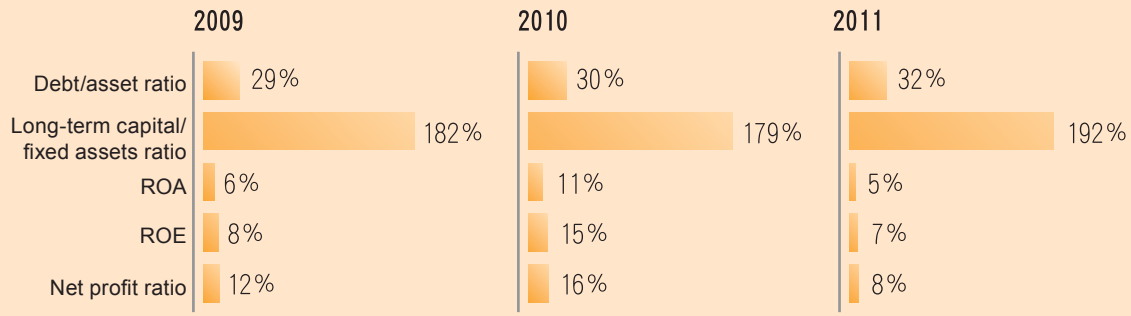
	Hot-rolled	Cold-rolled/ coated	Steel plate	Bar steel	Wire rod	Semi-product	Total	Ratio
Domestic	1,555,852	1,683,784	1,091,688	702,006	1,313,540	27,758	6,374,628	69.5%
Export	1,148,666	1,347,874	50,880	68,921	175,081	80	2,791,502	30.5%
Total	2,704,518	3,031,658	1,142,568	770,927	1,488,621	27,838	9,166,130	100.0%
Ratio	29.5%	33.1%	12.5%	8.4%	16.2%	0.3%	100.0%	

Export Area In 2011

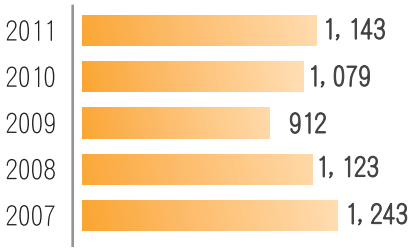


3.1.2 Productivity and performance indicators

The steel industry is capital-intensive; thus, the financial structure and profitability are the key performance indicators specific to the industry. CSC will continuously endeavor to maintain excellent long-term profitability and sound financial structure as the goals.



Average productivity/employee
(tons/man-year)



We continuously dedicate ourselves to the improvement of production efficiency. In 2011, the production volume of crude steel reached 1,143 tons per employee, and 1.82 hours were used to produce one ton of crude steel. This was very competitive in the global steel makers.

3.1.3 Distribution of Earnings

Operating results

Year	Operating revenues (NTD billion)	Pre-tax Earnings (NTD billion)	Pre-tax EPS (NTD)
2011	240.4	20.29	1.42
2010	239.2	44.10	3.32
2009	165.4	20.16	1.58
2008	256.4	30.26	2.55

CSC's earnings available for distribution in 2011 was NTD 17.66 billion and was distributed in accordance with Articles of Incorporation. Besides the legal reserve, compensation for directors and supervisors and bonuses for employees, it was suggested to distribute NTD 1.4 per preferred share (stock NTD 0.15, cash NTD 1.25) and NTD 1.16 per common share (stock NTD 0.15, cash NTD 1.01). The dividend distribution (common share) and return on investment over the past five years are listed below:

Year	EPS after tax	Cash dividend	Stock dividend	Dividend Payout Ratio
2011	1.36	1.01	0.15	85.3%
2010	2.83	1.99	0.50	88.0%
2009	1.54	1.01	0.33	87.0%
2008	2.03	1.3	0.43	85.2%
2007	4.49	3.5	0.30	84.6%

Year	P/E ratio	P/D ratio	Cash dividend yield (%)
2011	23.51	31.66	3.16
2010	11.27	16.03	6.24
2009	17.97	27.40	3.65
2008	19.57	30.55	3.27
2007	9.05	11.60	8.61

Notes: P/E ratio = Average closing price per share in the current year/EPS
P/D ratio = Average closing price per share in the current year/cash dividend per share
Cash dividend yield = Cash dividend per share/average closing price per share in the current year

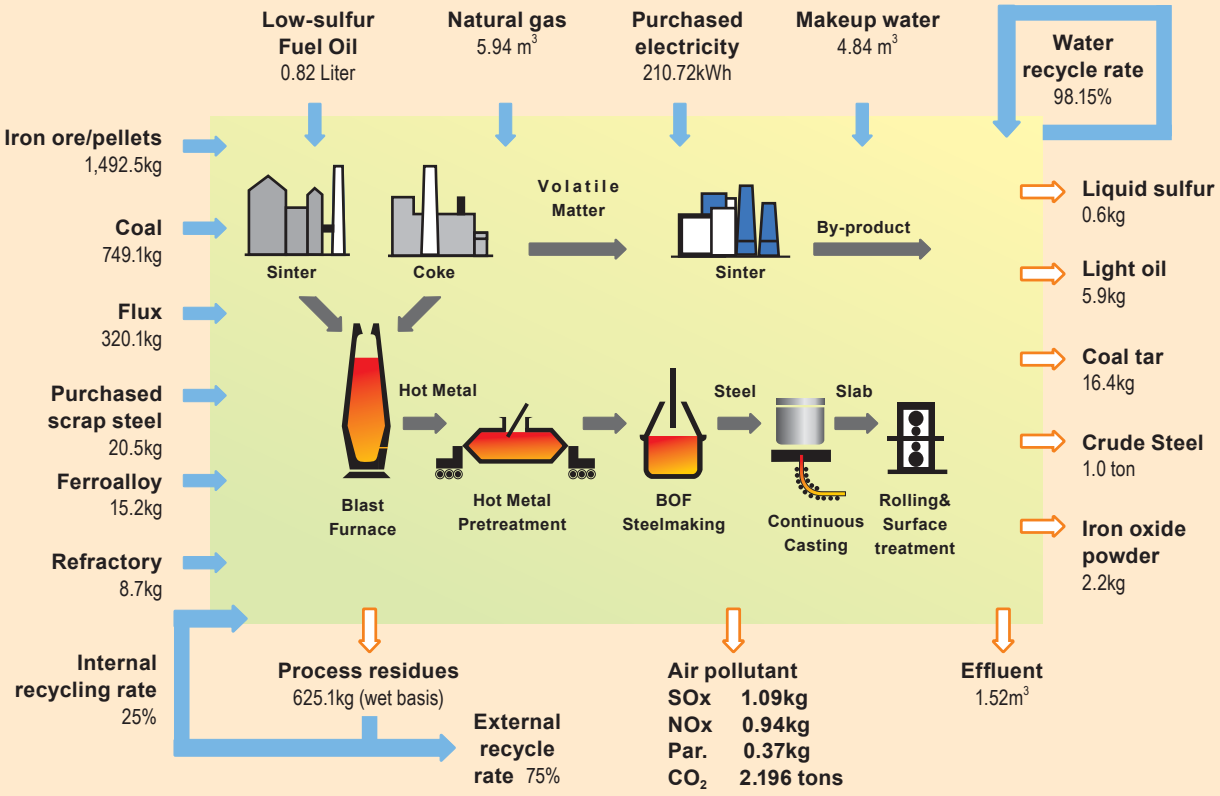
According to CSC's Articles of Incorporation, earnings of a fiscal year are distributed in the following order after payment of all taxes, deficits offset and appropriation of legal reserves:

(1) Dividends for preferred stocks at 14% of the par value.
(2) The Company may set aside special reserves or retain earnings when necessary.
(3) Appropriation of 0.15% from the remaining earnings as compensation for directors and supervisors; appropriation of 8% as bonuses for employees.
(4) If distributable earnings remain after the distributions mentioned above, bonuses at 14% of the par value for common stockholders shall be distributed.
(5) If distributable earnings still remain after (4), additional bonuses shall be distributed proportionally to the percentage of shares held by stockholders of preferred and common shares

The compensation for CSC's directors, supervisors, President and Vice President is determined according to the Articles of Incorporation. The traveling expenses for directors and supervisors are referred to the payment level of peers. The compensation for directors and supervisors in 2011 totaled NTD 26.24 million, while the compensation for directors, supervisors and management totaled NTD 121.37 million. The total amount of the compensation for CSC's directors, supervisors and executive management (President and Vice President) is correlated to the performance of corporate governance (EPS after tax) and is not associated with external risks.

3.1.4 Raw Materials and Energies

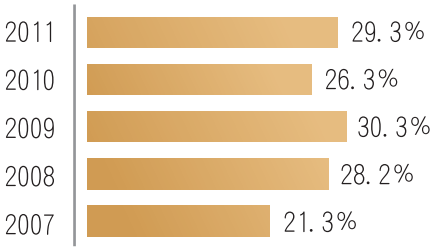
The raw materials and energies input for production of unit crude steel in 2011 are described in the following figure.



In 2011, the energy cost accounted for 29.3% of the total manufacturing cost of CSC, for an increase of 3% compared to 2010, due to the rising energy price.

The self-produced power of CSC accounted for 56.5% of the total power consumption in 2011, for an increase of 0.5% compared to 2010 due to increased self-produced fuel gas.

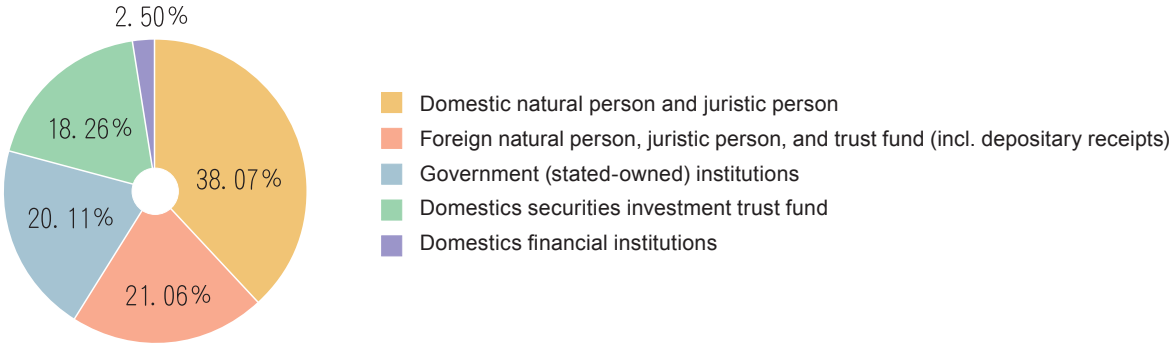
Energy cost to manufacturing cost (%)



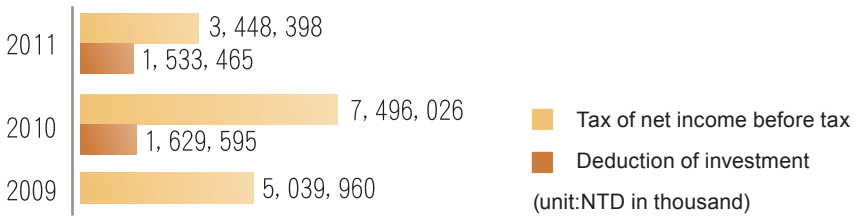
Self- produced power (%)

3.1.5 Capital sources and subsidies

Shareholder structure



The “Statute for Industrial Innovation” was approved by the Legislative Yuan in April 2010. As Article 10 of the statute specifies, a company may claim reduction of its current business income tax within 15% of the R&D expenses, and no more than 30% of the business income tax to be paid; CSC has claimed reduction of its business income taxes against the R&D expenses according to the “Statute for Industrial Innovation” and has not accepted any subsidy from the government. The deduction of investments that CSC obtained over the past three years is shown in the figure below:



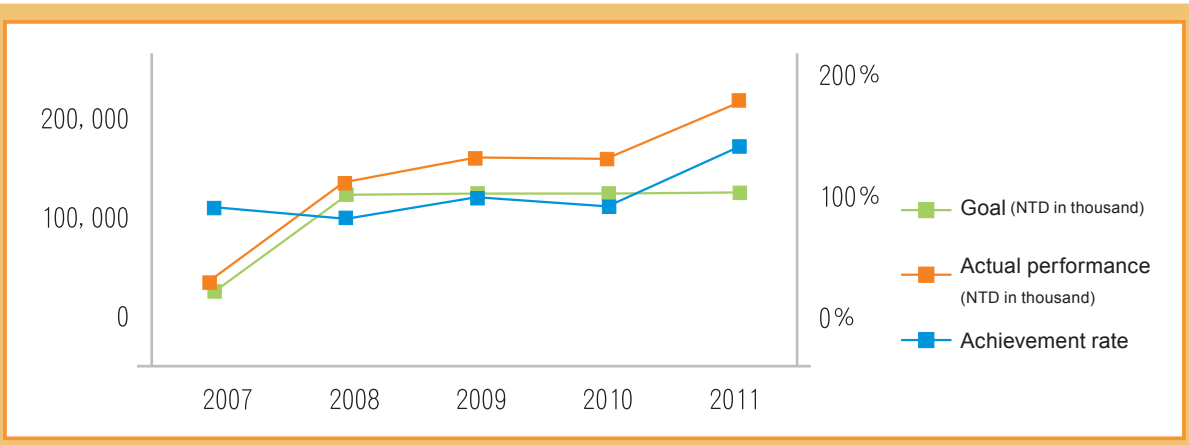
3.1.6 Support of localized supply

CSC requests suppliers to supply as much of their materials made in Taiwan as possible for our investment projects, including high value-added downstream production lines, environmental protection facilities, energy-saving equipment and replacement of old machines with new ones. In addition to the reduction of the cost, this is also very helpful for the development of local manufacturers. CSC not only requested its suppliers to increase the

local portions for the hardware equipment, refractories, parts and accessories for maintenance of the facilities, but also engaged in many localization activities, such as:

(1) Refratory: With the joint effort of CSC and local refractory manufacturers, the percentage of locally-manufactured refractories that CSC used in 2011 was increased to 65.60% (in monetary value) and 82.85% (by weight), and was effective in lowering operation cost. The items that were not manufactured locally were mainly hi-tech products, including: advanced lining materials for blast furnace, magnesia carbon brick for basic oxygen furnaces, sliding gates and casting nozzles for continuous casting. Among the refractories that CSC uses currently, only about 8% involves magnesia chrome materials (Cr3+) for RH refining furnaces.

(2) Spare parts and equipment: In order to raise the technical proficiency and manufacturing capability of local manufacturers, lessen the dependency on overseas suppliers, secure on-time delivery, improve on service quality, lower cost, and assist in forwarding development and advances in local manufacturing industry, CSC has been committed to procure locally-manufactured spare parts, mechanical/electrical equipment and systems for many years. The projects completed in 2011 were classified into 9 categories: spare parts and components, heat exchangers, gear reducers, pneumatic/hydraulic cylinders, pumps, impellers, rollers, wear-resistant parts and electric parts. A total of 161 work orders were carried out in 2011, and the monetary value totaled NTD 237.344 million. The electric parts were further classified into 5 categories. They were <150KW VVVF converters, UPSs, <2500KW motors, electric control valves, and software designed by local developers. Through localization, in 2011, CSC cut NTD 118 million in the cost of these items, from NTD 216 million to NTD 98 million, and the total development benefit reached 221% on average.



3.1.7 Non-local operating indicators

The headquarters of CSC are located in Linhai Industrial Park, Siaogang District, Kaohsiung City. Most of the production, operation, sales and management facilities are set up in the headquarters. We set up a flux materials transit yard to transport the flux materials from East Taiwan to CSC. To adapt ourselves to the internalization tendency and provide service more quickly, we have established offices in Taipei and Osaka in Japan. Our business office in India was established in March 2011. CSC has no other operating bases outside of Kaohsiung City any more.

3.1.8 Upgrading of the steel-using industries

Upgrading of the steel-using industries is a value-adding process for the downstream products and a competitiveness-strengthening process for the entire steel industry. CSC has taken the following actions to utilize thedevelopment of new techniques, cooperative innovation, investment strategies, establishment of outlets and brand building.

(1) Established the Industry Upgrading Committee to integrate the resources of CSC, downstream manufacturers and academic institutions
(2) Cooperate with the Metal Industries Research & Development Center to determine the priority of the upgrades by steel consumption, value of product, technical level and perspectives of the industry
(3) Identify the problems and opportunities of the industries by the analysis of individual industries. The Core Technology Research Alliance (CTRA) was established for substantial research and development.

32 manufacturers and 4 academic institutions were invited to participate in the upgrading project in 2011, with NTD 643.4 million collected and 7 CTRAs operating for the research and development, so far. These projects will produce a benefit of NTD 17.61 billion annually.

The Phase II CTRAs and estimated benefits are described in the table below.

Industry	Alliance or roject name	Manufacturer member	R&D funds	Estimated annual benefit
Screw & nut	R&D alliance for fasteners of automobiles	Chun Zu, Fong Prean, Jinn Her, Chong Cheng, Ho Fung／MIRDC	70.46 million	0.5 billion
Motor	Development of highvalue-added technologiesfor the motor industry	Chun Yuan, Chilo, Len Mung, RECHI, Hanbell, Nuvoton, Cheng Day, TECO／MIRDC, NCKU	201 million	4.0 billion
Auto structure parts	R&D alliance for advanced high strength steel and forming technology for automobiles	CMC Motor, Kian-Shen, Wuu Shaing, Welcut, Jui Li／MIRDC, NTU	63.79 million	780 million
	R&D alliance for tube hydro-forming technology for automobile parts	Chyan Feng, Tainan Chin Chang, LCM／MIRDC, NTU, SJU	120 million	330 million
Auto panel and inner parts	R&D alliance for advanced molding technology for automobile panels	William, Gordon, TYG, Jui Li, JYH SHYANG, GOBO／MIRDC, NTU	93.04 million	6.0 billion
Wire	CTRA for wafer-cutting electroplated diamond wire saws	YCMC (leading), CSC, Mach Xtreme, Ferinox, Diamond Innovation	92.68 million	1.0 billion
Steel plate	Preliminary R&D plan for high precision stamp-formed needle roller bearings made of locally-made low-alloy steel plate	NRB (leading), CSC／MIRDC	2.427 million	5.0 billion
Total	32 companies, 4 academies&research organization		643.4 million	17.61 billion

3.1.9 Customer privacy and satisfaction

(1) Protection of customer privacy

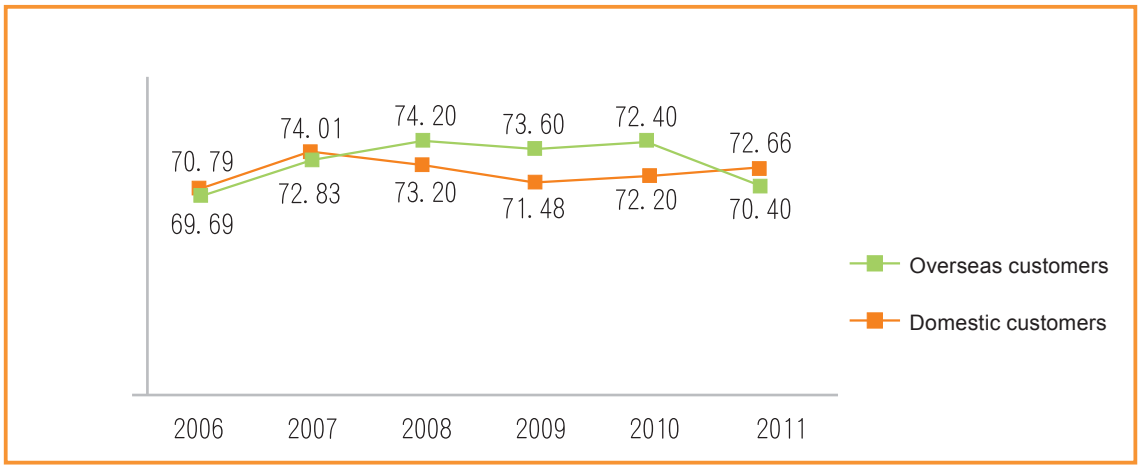
CSC is dedicated to providing the best products and services for customers and protecting customer information and privacy. Consequently, there were no complaints about infringement of customer privacy or the loss of customer information in 2011.

CSC undertakes the following actions to protect the privacy and information of customers.

- All computers are installed with anti-virus software to avoid the spread of viruses through e-commerce transactions.
- All enquiries of e-commerce data require an account and password. No other customers, suppliers, carriers or other third parties have the opportunity to access the data.
- The e-commerce digital certificates, if any, must be updated or an application for extension of the effective date must be made for further use when the certificate expires.

(2) Customer satisfaction

CSC considers customers as an extension of our production lines and authorizes an academic institution to make customer satisfaction surveys annually. The survey in 2011 contained 9 major topics: quantity and accounting, product, price, product R&D, quality and complaints, customer service, communication, delivery time, transportation and e-commerce. The satisfaction of domestic customers was 72.66 points, and the satisfaction of overseas customers was 70.4 points, having increased by 0.46 points and decreased by 2 points, respectively, in comparison with 2010. The results of the survey were sent to the related departments for review of the issues which customers were concerned about. The result of the review will be used as a reference for the development of the operating guidelines in the future.



3.1.10 AEO (Authorized Economic Operator) certification

As defined in the WCO (World Customs Organization) SAFE Framework of Standards to Secure and Facilitate Global Trade, the AEO is “a party involved in the international movement of goods in whatever function that has been approved by or on behalf of a national Customs Administration as complying with WCO or equivalent supply chain security standards.” To be synchronous with global standards, the Ministry of Finance established the “Regulations Governing the Certification and Management of the Authorized Economic Operators” and promotes AEO certification. The companies that pass the certification may enjoy preferential measures of the fewest document reviews and least random inspection ratios, as well as the replacement of the guarantee for taxes and administrative charges with a deposition. It can also improve the goodwill and image of the Company and enhance the efficiency of the international supply chain.

CSC adopted AEO certification procedures on September 26, 2011, and applied for AEO certification to the Kaohsiung Customs Office in December, 2011. The AEO certification team of the Kaohsiung Customs Office came to CSC on January 10, 2012 to carry out AEO certification and a field review of the self-assessment based on 14 criteria. All AEO certification assessments were completed on January 12, 2012 and the AEO certificate was issued to CSC on March 26, 2012.

3.1.11 Supplier audit

(1) Conduct environmental guidance and auditing for the downstream BOF slag contractor (CHC Resources Corporation) and desulfurization slag recycling contractor
(2) Request CSC Group affiliates to apply for ISO-50001 certification
(3) Request CSC Group affiliates to compile the CSR report
(4) Plan to conduct the human rights survey for raw materials suppliers in the future

3.2 Energy and environment management

3.2.1 Climate changes and opportunities

Extreme climate change has occurred in recent years and seriously affected the daily life of people and the operation of the Company. Under the circumstances, saving energy, reducing carbon and lessening the effects of climate change have become the most important issues in many industries. CSC employs the following strategies to reduce the risks brought about by the climate change and to strengthen the competitiveness for the future:

(1) Adjustment of the organizational functions: The independent Office of Energy and Environmental Affairs and the CSC Group Committee for Energy and Environment Promotion chaired by CSC's Chairmen were established to rapidly and effectively deal with the related issues within the CSC Group.

(2) Water supply safety: Make plans for sea water desalination, recycling of household wastewater, improvement of water pipes to ensure a stable water supply in the rainy and dry seasons, and adding a secondary water source.

(3) Collection of rainwater: CSC has installed rooftop rainwater collection systems, which collected 290 thousand tons of rainwater in 2011.

(4) Minimization of raw material loss and pollution: CSC is planning to set up closed bins for anthracite coal and windbreaks for raw material piles to minimize the loss and pollution brought about by rain wash. A pool for storm run-off and a treatment system have been set up to improve the quality of the effluent.

(5) Stabilization of raw material sources: The capability of disaster-resistance in wharf, flux transportation and raw material piles were improved. The flux materials were transported from Hualien by rail to ensure the stability of the transportation.

(6) Prevention of floods: Floods may bring about failure and downtime of the equipment. Although we have done quite well against flooding, we have prepared ourselves for more serious torrential and heavy rains.

(7) Regulatory compliance: CSC constantly pays close attention to the development of international conventions and regulations on climate change. We communicate with central and local governments intensively and assist the governments in the development of policies and regulations geared to international standards. We are also committed to fulfilling our energy saving and carbon reduction obligations and to

helping the steel-using industries to prepare themselves for further climate change.

(8) Carbon Management: Carbon credit allocation and trading are an ongoing global trend. It is better to be engaged in the management of carbon credits as early as possible to obtain a vantage point for the higher competitiveness of CSC.

Global warming and extreme climate change have become common threats for human beings in recent years. The definite goals of the countries around the world are specified in international conventions such as the Kyoto Protocol and Copenhagen Accord. CSC and Kaohsiung City, located on a subtropical island, are subject to high risk ofimpact . Under the circumstances, CSC will certainly make more contributions to cooling the Earth. We are committed to taking the following actions in the future for this purpose.

(1) Make short, medium and long-term GHG reduction roadmaps; improve the GHG reduction performance by introducing the Best Available Technologies (BATs), developing and applying new energies and expanding the integration scope of local energy and resources to make the GHG emission intensity of steel products (CO_2/per ton of crude steel) reach the benchmark of the world's leading steel companies.
(2) Develop energy saving and carbon reducing steel products and conduct life cycle assessment to expand their external carbon reduction performance.
(3) Be engaged in new green businesses and cooperate with domestic and foreign partners in carbon reduction, carbon capturing and storage and the operation of carbon credits. We will integrate these activities with the operation of the Company.
(4) Promote low-carbon life and low-carbon consumption inside the Company and develop low carbon society through consumers' activities.

In addition to pursuing different participation opportunities, we will cooperate or give assistance based on the ideas of other institutions or companies. We encourage CSC's social clubs and retired CSC members to participate in environmental protection and carbon reducing activities to increase the participation intensity of CSC.

3.2.2 Green products

(1) Hazard-Free products

CSC does not add any hazardous substances in processing steel products, and all products meet the requirements of national and international standards. The SDS and the chemical composition certificate of hazardous substances are available upon request. CSC also observes the development of RoHS on restriction requirements regarding cadmium (less than 100ppm), mercury, lead, hexavalent chromium, PBB and PBDE (all less than 1000ppm).

(2) Green steel products

Developing and manufacturing high value-added products for customers are the goals that CSC continuously strives to reach. With this in mind, CSC has developed many high value-added and eco-friendly green products for automobiles, electromechanical products, bridges and ships. This not only reduces the weight of the products and improves the energy efficiency but also prolongs the service life and reduces the load on the environment. The solar energy and wind power generation industries also have strong demands for green steel products, to save energy and reduce carbon. The external carbon reduction potential of green steel products is described in the table below.

Green product	Potential of carbon reduction in life cycle (CO_2e (ton)/steel (ton))	Life cycle (year)	Potential ofcarbon reduction /steel (ton)year (CO_2e (ton)/steel (ton)year)
High strength steel	3.1	10	0.31
Electrical steel (low energy consumption)	300	20	15
Process-saving steel	0.3	1	0.30
Corrosion-resisting steel	3.92	300	0.013

(3) Green supply chain

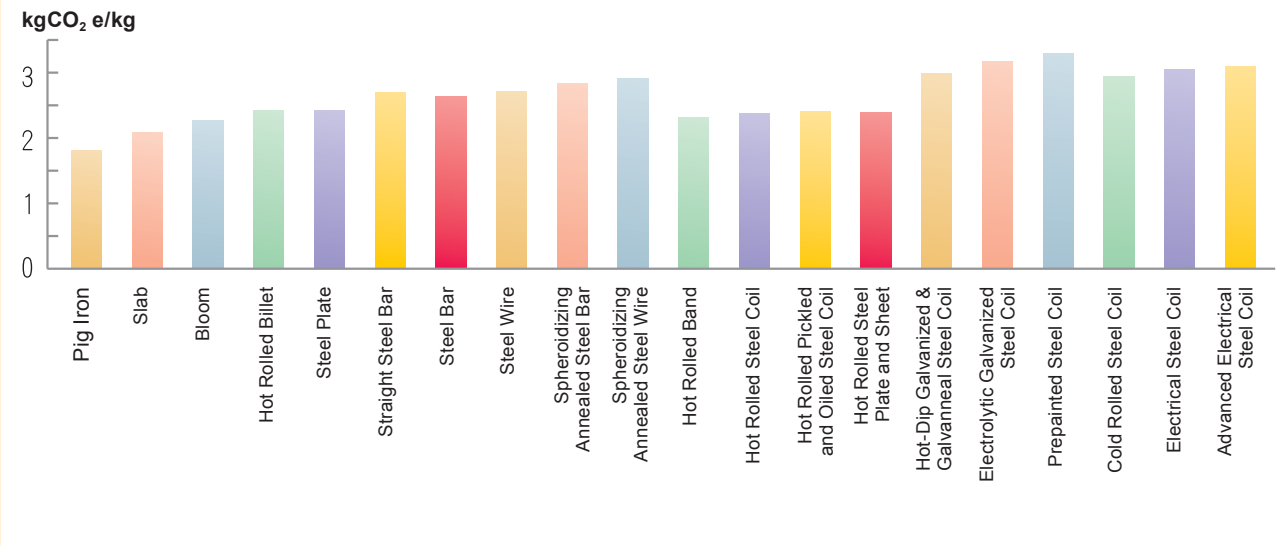
CSC is the upstream supplier of the steel-using industries and is dedicated to the development and supply of more green steel products and by-products to help in establishing the green supply chain. CSC has received more orders for brand new, high-class products; the percentage increased from 15.88% in 2006 to 38.65% in 2011. The applications of CSC's green products in the green supply chain are described below:

- ◆Anti-fingerprint, Cr-free galvanized steel sheets: Used for electrical appliances, office machines and other advanced products
- ◆Sulfur type free-cutting steel: A substitution for lead-type free-cutting steel, used to make axis parts for advanced office equipment
- ◆High strength hot-dipped galvanized dual phase steel: Used to strengthen auto body structure and reduce the weight of automobiles
- ◆Fire-resistant (refractory) steel: Used for steel buildings to significantly lower the cost of the refractory materials and construction; less steel and energy consumption thanks to thinner steel plates
- ◆High strength construction steel: Used to reduce more than 25% of energy consumption and more than 40% of CO_2 emissions, as well as to improve the safety of the building
- ◆High strength steel for ships: Used to reduce the weight of ships while meeting the safety and energy saving specifications
- ◆High grade electrical steel: Used to reduce the weight of a motor, lower the cost of materials and improve the efficiency of a motor, mainly for electric vehicles and compressors. According to the study, about 1 billion KWH of power can be saved annually by improving the 1% motor efficiency to bring about a reduction of 630,000 tons of carbon emissions. CSC is able to provide high grade electrical steel with an iron loss of merely 2.1 W/kg, a good benefit for electrical machinery products.
- ◆Granulated blast furnace slag (GBFS): After drying and milling, GBFS is widely used in the concrete industry to replace cement. In addition to saving 1,200 kg of raw material for every ton of GBFS, 96 kg of coal and 40 KW/h of electric power, it can significantly reduce the air pollution in the cement production process and prolong the service life of the concrete building. CO_2 emissions can be reduced by 722 kg using one ton of GBFS powder. CSC produces more than 2.50 million tons of GBFS annually, and more than 1.80 million tons of carbon emissions are reduced every year.

(4) Carbon footprint and life cycle assessment

The carbon footprint of consumables has become a concern in recent years, and low-carbon tendencies drive the upstream suppliers to supply low-carbon products. In addition to establishing a low carbon footprint in the formation of steel products, CSC uses the life cycle concept to assess the external carbon reduction profits of steel products in the field of consumables and downstream machining processes, including electrical steel for motors, high-strength steel for automobiles, weathering steel for construction and downstream process-reduction steel. The carbon footprints have passed the DNV external audit for 20 types of CSC's steel products, making the carbon footprint information of CSC more credible and meeting the requirements of downstream customers for CSC's carbon footprint information. An analysis of the carbon footprint of steel products shows that the carbon footprint increases when more machining processes are used. The carbon footprints are 2.3~3.3 kg CO_2e/kg for each unit of steel products.

Carbon footprint of steel products



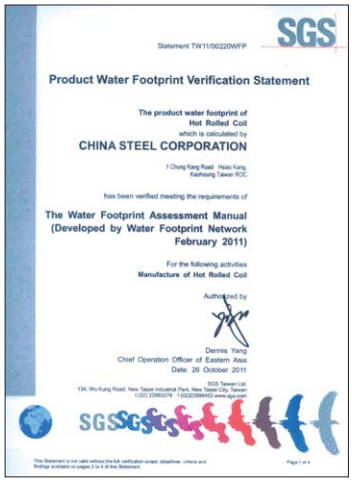
(5) Carbon disclosure

CSC has carried out GHG inventory and reduction, and disclosed GHG management information over time. CSC hopes that the self-management with regard to carbon disclosure is advantageous to the management mechanism of the affiliates and linking the industries, weather policies and financial institutions.

The inventory result was published on the GHG registration platform and disclosed in this report. CSC also fills in the CDP (Carbon Disclosure Project) questionnaire, makes the GHG emission public and writes the report on the investment risks and opportunities in terms of climate change.

(6) Water footprint verification

To improve the corporate image, assume social responsibility, control water resources shortage risk and act in line with the policy of the government, CSC appointed the Utility Department and Rolling Mill Department to prepare and strive for water footprint verification, and was selected as the demonstrative manufacturer under guidance in May 2011. The organizer, Capital Engineering Corp, designated Industrial Sustainable Development center, NCKU, to hold an initial meeting in May 17, 2011 and to assist with the establishment of the water consumption data for the steel coil process, major raw materials (coal, iron and limestone) and upstream processes (iron, steel making and billet) of the 1st hot rolling plant. They also assisted with the preparation of the water footprint assessment report. Later, SGS conducted the data certification and on-site inspection in September 2011 and announced in the wrap-up session that CSC had passed the water footprint verification. CSC obtained the “Water Footprint Certificate for Steel Coils of the 1st Hot Rolling Plant in CSC”. This is the first disclosure of water footprint information in the steel industry in Taiwan.


SGS

Product Water Footprint Verification Statement

The product water footprint of Hot Rolled Coil which is calculated by

CHINA STEEL CORPORATION

has been verified meeting the requirements of

The Water Footprint Assessment Manual (Developed by Water Footprint Network February 2011)

For the following activities

Manufacture of Hot Rolled Coil

Authorized by

Dennis Yang

Chief Operation Officer of Eastern Asia

Date: 26 October 2011

CSC water footprint summary for hot rolled steel coils

Unit (M^3/ton)	Green water	Blue water	Gray water	Total	Percentage
(Raw) material phase	0.00E+00	1.95E+01	1.16E-07	1.95E+01	72.23%
Mfg. phase	0.00E+00	4.44E+00	3.05E+00	7.49E+00	27.77%
Total water footprint				2.70E+01	100%

3.2.3 Green processes

(1) Commitment to environmental impact reduction

The environmental impact of new investment projects in the steel industry is a very sensitive issue. It has become the norm to incorporate commitments to environmental impact reduction in the EIA (Environmental Impact Assessment) process. To control the impact, CSC has established a comprehensive environmental impact assessment system for investment projects to make a complete assessment of the investment project in cooperation with the investment department, R&D Department, Utility Department and Environmental Department. The coverage of the assessment was 100%. The reduction measures were planned based on the assessment results to realize our commitment to environmental impact reduction and improve the overall environmental performance.

(2) Energy saving and carbon reduction

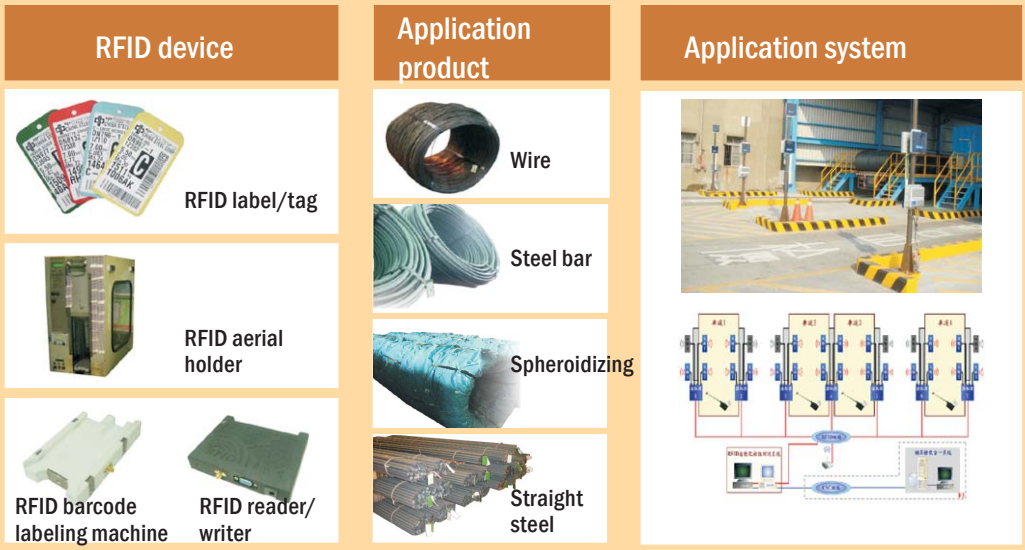
The energy saving and carbon reduction measures of CSC were made with reference to the international best available techniques (BATs). We carried out a total of 180 energy saving projects in 2011 and saved 506,106 Gcal (2,118,965 GJ, about 56,000 KLOE), reducing 220 thousand tons of CO_2 emission. The major projects included: efficiency improvement of #1 BF top pressure turbine, reduction of the #1 BF fuel rate by 5 kg per ton of iron, change to 2/2 operation for the boosters at the outlet of LDG holder, and the replacement to higher efficiency rotor for TB-1 blower in the power plant.

(Note: 1 calorie = 4.1868 joules)

Some other energy-saving measures CSC took in 2011:

- ◆Low energy lighting: The lighting circuit and control was continuously improved, and a high efficiency lighting system was used to save about 3,350 MWh of energy and reduce about 2,050 tons of CO_2 emissions. A plan was set in 2011 to use LED lamps in all offices step by step to ensure the best energy saving and carbon reduction.
- ◆Green transportation: With the support of the Ministry of Transportation and Communication, CSC changed the transportation of limestone from roadway to railway. This measure not only improved highway transportation for others, but also improved energy efficiency and reduced the dust and CO_2 emissions.
- ◆Use of returning trucks: CSC has made use of returning trucks to transport the materials purchased from DSC and thus reduced 14,400 tons of CO_2 emissions every year.
- ◆Development of the RFID system (as shown in the figure below): CSC built the RFID system for 7 wire rod lines. We are the first steel company in the world that has successfully built the RFID system.

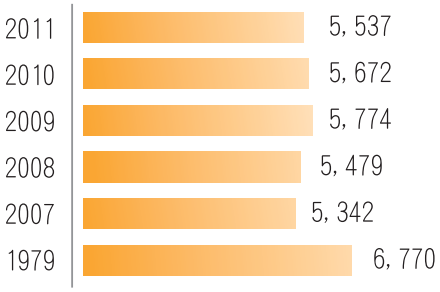
The RFID system has created an accumulated benefit of NTD 372 million, saved 24,000 liters of fuel and reduced 1,800 tons of CO_2 emissions every year. CSC has published 25 studies on innovative RFID techniques in the IEEE journal, developed 32 new RFID patent techniques and applied for more than 60 patents. Among them, 10 domestic and international patents have been acquired, including the “I327961 Manufacturing Method for Metal Radio Frequency Identification Tags and Products Thereof” patent which won the golden prize of the 2011 National Invention Award.



(3) Energy Intensity

Although the land area is limited, CSC has managed to adopt many BATs for energy saving and carbon reduction since its foundation. The performance of energy intensity has been close to the top level among the global steel mills. In 2011, the energy intensity was 5,537 Mcal/TCS (23,182 MJ), which was less than 2010 by 135 Mcal/TCS. This is attributable to more efficient usage of the capacity, improvement of TRT (Blast Furnace Top Pressure Recovery Turbine), increased recycling rate for LDG and a lower BF fuel rate. The status of the energy intensity in the last five years is shown in the table below (compared with 1979, the very beginning of the production).

Energy Intensity (Mcal/TCS)



(4) GHG inventory and reduction

◆GHG inventory

With reference to the guidelines published by IPCC (Inter-governmental Panel on Climate Change), worldsteel and WBCSD (World Business Council for Sustainable Development), CSC developed a professional GHG inventory system. Its accuracy, reliability and verifiability are ensured by crosschecking with the cost accounting items. We also established the “GHG Management Regulations” according to ISO standards.

◆GHG emission trend

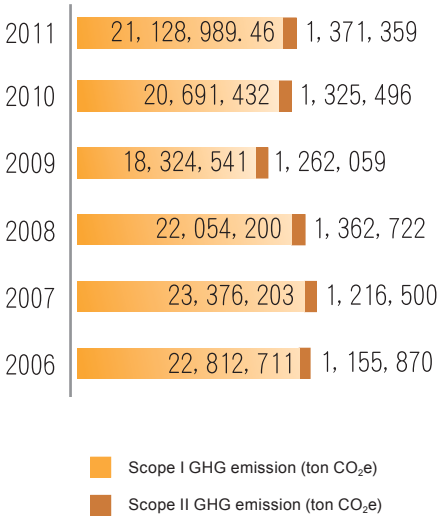
CSC conducts GHG inventory and internal verification every year and registers the data on the GHG registration platform of the government. The first external verification was conducted by SGS in 2006, and the GHG external verifications during the period between 2006 and 2011 were completed accordingly. According to the internal inventory of CSC, the total GHG emission and intensity (i.e., the GHG emission of a unit product) in 2011 were 22.50 Mton CO_2e and 2.196 ton CO_2e/TCS, respectively. The total GHG emission of the CSC Scope I was 21.13 Mton CO_2e, and the Scope II emission was 1.37 Mton CO_2e.

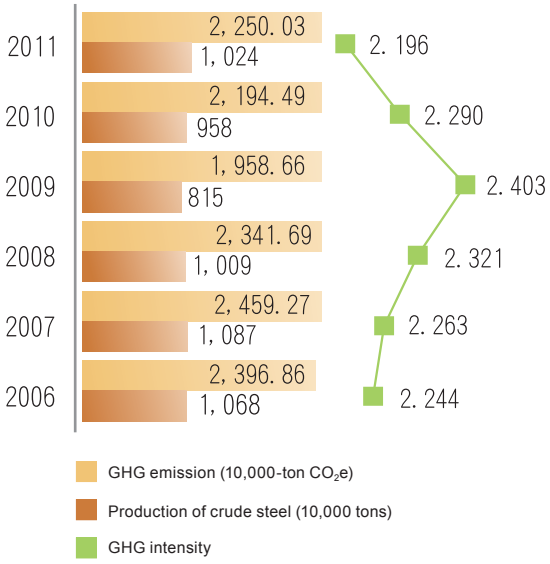
The emission intensity dropped in the last two years due to lower BF fuel rate and higher LDG recycling. The moderate recovery of the economy in the first half of 2011 brought about slightly increased steel billet production, higher energy efficiency and a higher capacity utilization rate. These were beneficial for lowering the emission intensity.

According to the categorization in the IPCC 2006 GHG inventory guidelines, the process made the greatest contribution (about 96.79%) and the energy consumption made a contribution of about 3.15% (dissipation plus other emissions lower than 0.06%) to the Scope I GHG emission. Purchased electricity was the only source of

the contribution to the Scope II emission. The purchased electricity increased significantly due to higher power consumption for downstream rolling and coating processes, increased energy for sale and increased environment-protecting facilities, resulting in increased secondary emission from 4.8% (2006) to 6.05% (2011).

GHG emission





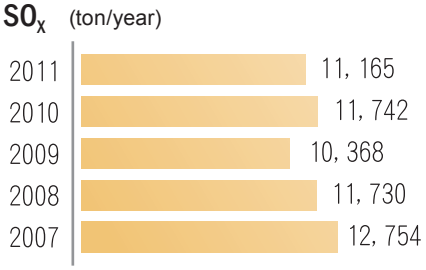
(5) Air pollution control

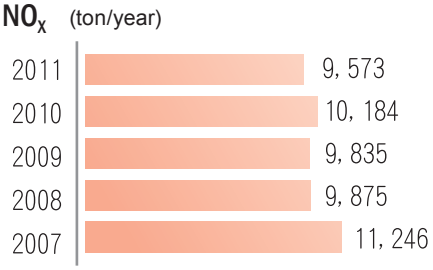
◆Environmental monitoring and measuring

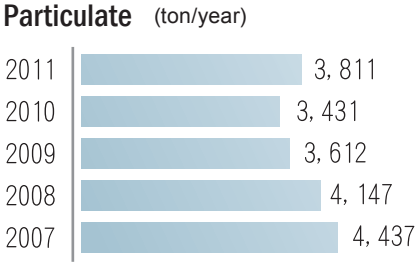
CSC established the Environmental Surveillance Center in 1995. In addition to continuous monitoring and regular measuring of internal pollution sources, the center continuously monitored the air quality around the factory using five air quality monitoring systems on the border, and displayed the data on two monitor boards. By 2011, 29 out of the 306 stacks of the factory were equipped with the continuous monitoring system to monitor the concentration and total emission of NOx, SOx and particulates. The monitoring systems of 25 stocks were linked to Environmental Protection Bureau, Kaohsiung City Government, and subject to the supervision of the government.

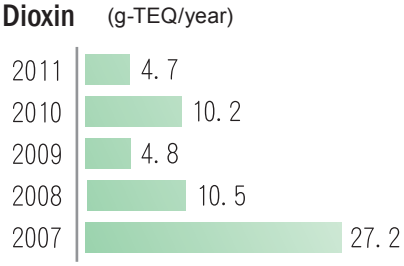
◆Emission reduction trend

The total NOx and SOx emissions were lower than 2010 because the economy in the second half of 2011 declined and, thus, production was reduced.









◆Emission intensity

There were 0.37 kg of particulate, 1.09 kg of SOx and 0.94 kg of NOx emitted for producing 1 ton of crude steel in 2011. The performance of emission intensity of the particulate and NOx reached the top level of the international emission standard, while improvement will be made in the emission intensity of SOx.

◆Measures:

a. Reduction of conventional emissions

Particulates: The sinter plant continuously improves the efficiency of the electrostatic precipitator. The dust arrestor for material piles is expected to be completed in December 2012 to reduce dissipation of particulates out of the material pile. The desulfurization equipment of the sinter plant also contributes to the reduction of particulate emissions. With these investment projects, the emission of particulates is expected to be reduced by 724.2 tons/year in 2018.

SOx: Thanks to the desulfurization equipment in the sinter plant and power plants, the SOx emission is expected to be reduced by 5,039.6 tons/year in 2018.

NOx: Thanks to the NOx reduction systemsfor the boilers of the power plant and #2 sinter plant, the NOx emission is expected to be reduced by 1,369.5 tons/year in 2018.

b. Reduction of dioxin: The industrial waste incinerator of CSC is equipment with an actived carbon injection system to ensure that the dioxin emission is lower than the required 0.1ng-TEQ/Nm^3. The sinter plant installed SCR (Selective Catalyst Reactor) for both NOx and dioxin reduction and improved its electrostatic precipitator to ensure that dioxin emissions meet the criteria of being lower than the required 1.0 ng-TEQ/Nm^3. To meet the 2010 local standard of Kaohsiung City that requires an average value of less than 0.5ng-TEQ/Nm^3, CSC has set up a rotary hearth furnace to treat parts of residual materials causing dioxin for the sinter plant.

c. Reduction of abnormal emission: Abnormal emission brought about by failure of the equipment or human errors is also an issue that CSC cares about. In addition to the monthly meetings reviewing the violation notices and the defects identified from the internal audit and sharing experience of improvements, CSC also actively promotes hardware equipment improvement, self-management and environmental observation. Punishment is imposed for human errors. These measures are helpful in reducing abnormal emissions and violation notices.

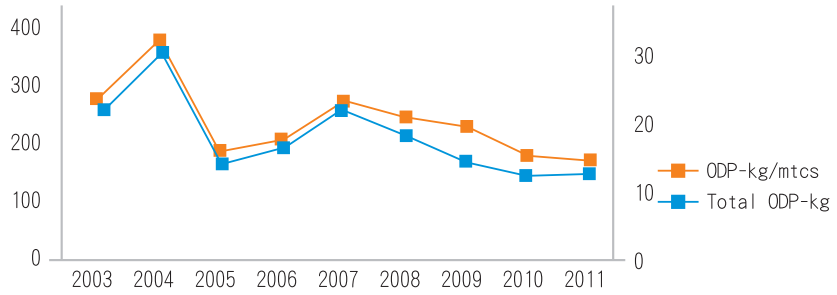
d. Reduction of odor: An investigation into the source and chemical composition of odors from processes was conducted in 2011, and we found that the threshold value of the odor in the Coal Chemicals Unit I, biochemical wastewater treatment plant and IWI waste storage pit exceeded the upper limit (50). After improvement, the threshold values of the odor sources in the Coal Chemicals Unit I and IWI waste storage pit were reduced to 17 and 49, respectively. The removal of odor in the biochemical wastewater treatment plant will be achieved by covering the aeration tank and deodorizing it with active carbon. The improvement is underway and is expected to be completed in December 2012.

e. Reduction of $PM_{2.5}$: To effectively reduce the concentration of $PM_{2.5}$, the Environmental Protection Administration has established the tightened emission standard for sinter plants of the steel industry. Based on the tightened sintering standard and coal-fired boiler reduction regulations, CSC set up the $PM_{2.5}$ precursor (SOx, NOx, VOCs) improvement plan as shown in the following table.

Pollutant		Reduction potential	Schedule
Native $PM_{2.5}$	Anti-Dust net for ore piles	-1,592 kg/day	To be completed in December 2012
	$PM_{2.5}$ measuring for stack of main processes	--	Completed
	Set-up de-SOx equipment in sinter plant for de-particulate	-243 kg/day	To be completed in December 2017
	R&D on the stack PM2.5 reduction for main processes	--	Under planning

Pollutant			Reduction potential	Schedule
$PM_{2.5}$ precursor	SOx	Install de-SOx equipment in sinter plant	-11,459 kg/day	To be completed in December 2017
		Install de-SOx equipment in Coal-fired boiler	-869 kg/day	To be completed in December 2015
	NOx	Install de-NOx equipment in the sinter plant	-2,707 kg/day	To be completed in December 2017
		Install de-NOx equipment in coal-fired boiler	-1,045 kg/day	To be completed in December 2013
	VOCs	Commissioning NSYSU to implement the "Research of VOCs Investigation and Reduction Measures"	--	To be completed in May 2012

f. Control of Ozone Depleting substances: The measures that CSC takes include: integration of air-conditioning systems, enhancement of equipment maintenance, development of high-efficiency units, use and recycling of zero ODP (ozone depletion potential) eco-friendly refrigerants. The use of ozone-depleting substances dropped from 2003 to 2011, as shown in the figure below:



(6) By-product reutilization performance

◆By-product Output

CSC generated 6.402 Million tons (wet basis) of solid by-product in 2011, including BF slag, BOF slag, De-s Slag, dust, sludge, mill scale, spent refractory, civil residues, limestone cake and others as shown in the following table:

Types	Description	Annual output (10,000 tons)	Percentage (%)
BF slag	Residue of BF after smelting raw materials	296.4	46.3
BOF slag	Residue of BOF after refining steels	129.4	20.2
De-S Slag	Residue of hot metal desullfurizated process	35.0	5.5
Dust	Particulates collected from de-dusting systems (including fly ashes)	33.6	5.2
Sludge	Solid cakes or mud from wastewater treatment after thickening and dehydrating	38.2	6.0
Mill scale	Rust from steel products or semi-products	34.3	5.4
Spent refractory	Used refractory from high temperature facilities	7.1	1.1
Civil residues	Residue from construction like soils or waste concretes, etc.	45.9	7.2

Types	Description	Annual output (10,000 tons)	Percentage (%)
Limestone cake	Filter cakes from limestone washing and dehydrating processes	4.4	0.7
Others	Iron scrap, fly ash, rubber, waste oil, waste packaging materials, waste cold-rolling oil, waster oil drum, zinc dross, zinc sludge, BOF iron sand, tar sludge, trash, miscellaneous metal, mixed metal scrap, electric cable, etc	15.9	2.5
	Total	640.2	100

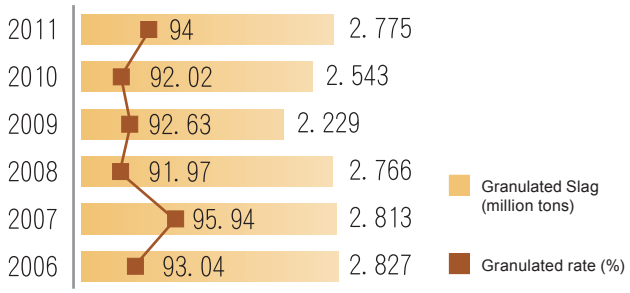
◆Recycling

After endeavoring for many years and working closely with academic institutes and other industries, CSC shows excellent performance in the reduction and recycling of residues. We reached the milestone of "zero solidification and landfill" in July 2001. The process residues being recycled for internal processes in 2011 included 341,600 tons of BOF slag, 329,300 tons of dust, 261,700 tons of sludge and 343,000 tons of mill scale, etc. The internal recycling accounted for 25% of the total output and 5.89% of total raw material consumption, while the external recycling accounted for 75.0% of the total output. The details are as follows:

Types	Internal recycling(%)	External recycling(%)	Application	Solidification or landfill
BF slag	4.8	95.2	Granulated BF slag for powder production, air-cooled ones used as aggregates.	0.0
BOF slag	26.4	73.6	After entrapped metal recovery, part of this was used as raw material in the sinter plant, flux, slag pot base materials, and others for materials of land amendment, temporary roads, asphalt concrete, concrete agent	0.0
De-S Slag	0.0	100.0	After metal recovery, the residues were used as materials for land amendment, temporary roads, soil improvement and low strength concrete.	0.0
Dust	98.0	2.0	The majority is recycled for iron making. Fly ash was mixed with sludge as cement making materials; zinc oxide powder generated from the Rotary Hearth Furnace (RHF) was sold to Zinc refineries in Japan.	0.0
Sludge	68.5	31.5	High Zn sludge made from Electrolytic Galvanizing Line (EGL) was sold to Zinc refineries in Japan. A large part of other sludge was internally recycled for iron making. Then, the rest was sold to cement plants.	0.0
Mill scale	100.0	0.0	Recycled for iron making	0.0
Spent refractory	86.3	13.7	After recovering entrapped metal, part of the spent refractory was recycled as steel making flux and a protective base layer for slag pots. The remainder was recycled by suppliers for refractory making.	0.0
Civil residues	0.0	100.0	Backfill materials in the South-Star project area	0.0
Limestone cake	0.0	100.0	Admixture of construction material	0.0
Others	72.9	27.1	Mostly recycled within CSC; others were either recycled by suppliers or sold or recycled by certified companies	0.0
Total	25.0	75.0		0.0

◆Granulated BF slag replacing cement:

Granulated BF slag is the largest process residue in the steel industry that helps in energy saving and carbon reduction. After drying and grinding, granulated BF slag powder is used to replace cement and therefore conserves the natural resources and energy required for the production of cement. Moreover, it can reduce GHG emission and extend the lifetime of the building. Since CSC started producing granulated BF slag powder 20 years ago, the increased demand in the domestic market has resulted in imports of more than 2 million tons of BF slag powder annually.



◆Recycle packing materials

The packing materials generated from equipment suppliers include: straps, pallets and bulk bags. Straps are recycled as metal scraps, and pallets are sold as low-end materials. Usable bulk bags are reused while the unusable ones are sent to the incinerator with fly ash and bottom ash recycled at sinter plants. The only packing materials for steel goods out of CSC are scraps and anti-rust paper. Scraps are recycled or sold as scrapped steel after clients unpack them. Usable anti-rust paper is reused but those damaged are recycled as waste paper.

◆Adding values to sludge and dust:

CSC launched the Rotary Hearth Furnace (RHF) process in 2008. It increased the recycling volume of dust and sludge while decreasing the emission of dioxin in sinter plants sludge and dust by converting them into high value-added Direct Reduction Iron (DRI) for BF and ZnO powder(Zn>50%), which are sold to zinc refineries in Japan.

RHF

ZnO powder

◆Reuse of BOF slag:

a. **Main application:** Part of BOF slag was recycled internally for iron making. Externally, it was mainly used as backfill materials in the South-Star project, Kaohsiung, for sea land reclamation. Some were reused as aggregates of asphalt concrete or engineering materials for land preparation.

b. **Self and internal audit:** CHC Resources Corporation (CHRC) is fully responsible for processing and recycling CSC's BOF slag. In addition to following the ISO-9001 standard, CHCRC has set up a self-control and continuous improvement mechanism based on a PDCA scheme to ensure the quality of the BOF slag to be recycled as construction materials. CSC audits the self-control system of CHCRC on an irregular basis to help it achieve continuous improvement.

c. **Difficulties in recycling:** Taiwan's Soil Pollution Control standard has not followed the International trend to control the low-toxic Cr3+ and high-toxic Cr6+ separately (current national standard is total chromium < 250ppm), causing the BOF slag which only contains a moderate level of Cr3+ to be regarded as soil pollutant, and resulting in difficulties for recycling. Another problem of the BOF slag is its high content of free-CaO and free-MgO. It should be specially treated prior to application to avoid expansion that may bring about engineering problems to roads or buildings.

d. Ecological influence

After the free-CaO and free-MgO in the BOF slag dissolve in water, the pH value turns to 12.0~12.4, at which rate the growth of plants will be inhibited; therefore, it can be applied to areas where weeds need to be inhibited, e.g., parking lots. Once the BOF slag contacts water, free-CaO and free-MgO will gradually dissolve and make the water slightly alkaline, lessening the problem of water acidification. Moreover, minerals such as iron contained in the BOF slag are helpful for the reproduction of beneficial algae and the biodiversity of creatures, making BOF slag a good material of marine carbon sequestration. Countries like Korea and Japan have actively conducted on-site research. After stopping the dumping of slag into nearby sea areas, CSC entrusted professional marine research teams to monitor the nearby environment and ecology; the result showed that those areas became more colorful, with more diversified marine life.

Clarification of South-Star project

News media in November 2011 reported that CSC's BOF slag made a blue inland sea in South-Star project area in Dalinpu, Kaohsiung City. CSC cooperated with EPA of Kaohsiung City to provide BOF slag for land reclamation from the sea. Since BOF slag contains ionized CaO and MgO, it tends to react with water to form $Ca(OH)_2$ and $Mg(OH)_2$. When contacting CO_2 in the air, they will become white $CaCO_3$ or $MgCO_3$ sediment in the reaction. After the sediments are deposited on the seabed or in seawater, the seawater appears to be blue in the sun. The same principle also applies to the sapphire-blue lake in Jiuzhaigou Valley, mainland China. Afterwards, the authorities sampled some water in the backfill areas. The result showed it meets the environmental protection standard.

(7) Control of toxic chemicals

Taiwan's EPA developed a list of 299 toxic chemicals. Only 2 out of 15 toxic chemicals that CSC used in 2011 reached the "Threshold Regulatable Quantities". Light oil (more than 76% benzene content) is a residue of the coke process. It is produced at 60,000 tons/year and sold through pipelines to China Steel Chemical Cooperation (CSCC). The light oil is refined there into high-quality benzene, toluene and xylene for sale. Chromium trioxide is purchased for coating on the surface of steel sheets. The annual amount is listed in the table below. Other toxic chemicals are used for R&D in small quantities. They are lower than the Threshold Regulatable Quantities.

Code	Toxic Chemicals	Utilization	Quantity
052-01	benzene	Manufacture and sale	~60,000 tons/ year
055-01	Chromium(VI) trioxide	Purchased for steel sheets coating	~680 tons/year

Before using the toxic chemicals, we have obtained the license, registration documents and grant documents from the government and reported records concerning the handling of toxic chemical substances and their release quantities to the EPA. For substances reaching the "Threshold Regulatable Quantities", the toxic disaster prevention and relief exercises have been performed internally every year to prevent accidents or leakage. We also joined the disaster response team and other courses or activities in Kaohsiung City to strengthen our response ability to toxic disasters.

(8) Soil and groundwater pollution control

To control the quality of soil and groundwater and prevent pollution, CSC dug 16 wells around the factory for regular monitoring and sampling. The statistic distribution over the years has fallen to the normal range and helped us to monitor the actual quality of groundwater. During land transactions, stringent surveys on underground environmental conditions are conducted to ensure that no disputes concerning pollution issues occur. Moreover, we tightened internal regulation of wastewater treatment to decrease abnormal discharges. Also, we entrust professional academic institutes to monitor groundwater, and cooperate with neighboring industries to maintain the quality of the nearby water.

(9) Disposal of hazardous wastes

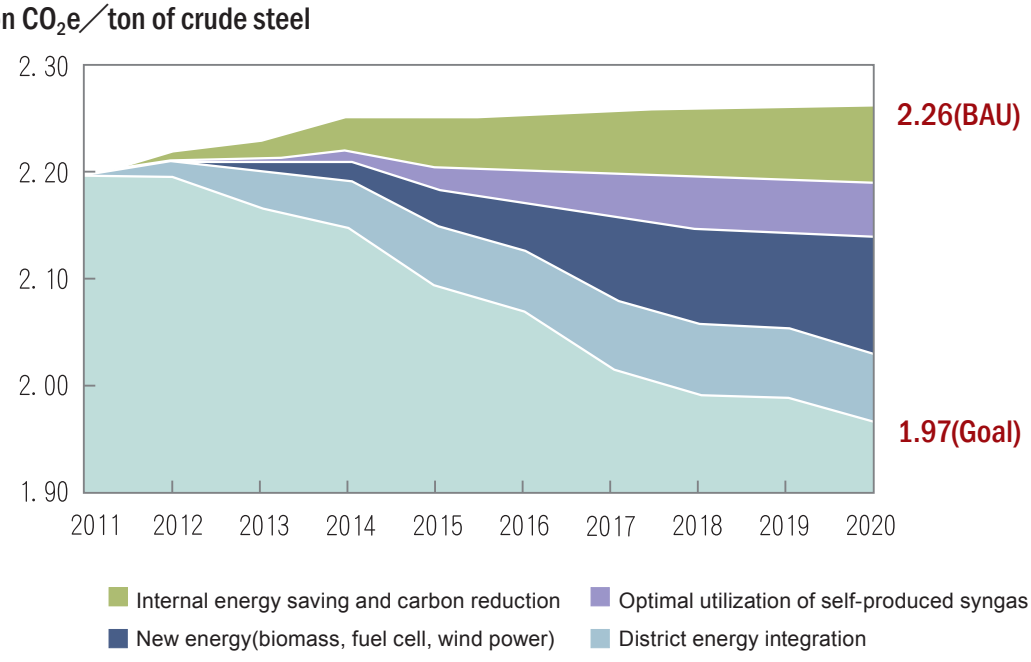
Except for lead slag from the rolling process, most chemical wastes of CSC come from laboratories, and the quantity is very sparse. The lead slag is sold to recycling vendors, while other waste chemicals are disposed by certified vendors in Taiwan. The disposed wastes and their quantities from 2007 to 2011 are listed as follows:

Year	Vendor	Item	Weight (ton)
2007	RSEA engineering cooperation	Chloric solvent	0.357
2008	RSEA engineering cooperation	Chloric solvent	0.360
	RSEA engineering cooperation	Chloric solvent	0.490
2009	Super Max Engineering Enterprise Co., Ltd	Chloric solvent	1.106

Year	Vendor	Item	Weight (ton)
2010	Super Max Engineering Enterprise Co., Ltd	Chloric solventt	0.859
2011	Super Max Engineering Enterprise Co., Ltd	Chloric solvent	0.950
	Thye Ming Industrial Co., Ltd	Lead slag	13.07

(10) GHG reduction target and roadmap:

GHG intensity is a key index for measuring the performance of GHG management. CSC advocates the sector-wide approach, whereby all steel companies take the international benchmark as their common target. To clearly illustrate the GHG emission tendency and the potential of reduction, CSC draws its baseline of GHG emission according to BAU. Herewith, CSC sets up the target (<1.97 ton CO_2e/ ton of crude steel) to be achieved by 2020 with the energy-saving and carbon-reduction measures being taken. If there is any discrepancy between the emission intensity and our responsibility, we plan to buy carbon credits to make up for it. Our major measures include: internal energy saving and carbon reduction, optimal utilization of self-produced fuel gas, application of low-carbon energy and district energy integration. The chart below is the carbon reduction roadmap of CSC:



The medium-term and long-term carbon reduction working plan:

Strategies		Medium-term plan	Long-term plan
Internal energy saving and carbon reduction		• Enhance waste heat recovery • Speed up retrofit of energy equipment • Implement BATs • Implement 2015 energy saving project	• Continuously enhance waste heat recovery and retrofit of old energy equipment • Continuously implement BATs • Continuously implement 2020 energy saving project
Optimization of self-produced fuel gas		• Planning and cooperating with on optimal utilization of self-produced fuel gas • Setup of a 100gpy(gallon per year) demo plant • Evaluating the project of converting LDG to Ethanol	Building the plant of converting LDG to Ethanol
New energy	Bioenergy	• Establish manufacturing technology of bio-coal to be used in coal fire boilers • Evaluating the feasibility of biomass combustion cogeneration system • Evaluating the feasibility of biomass gasification system • Establish technology for manufacturing and application of bio-oil	• Replace anthracite with bio-coal • Install biomass combustion cogeneration system • Install biomass gasification system • Replace fossil oil and NG with bio-oil
	Fuel cell	• Setup of a kW pilot plant. • Establish the technologies of operation and maintenance • Evaluating the feasibility of 150MW fuel cell plant.	• Install a 150MW fuel cell plant • Bioenergy to replace fossil fuel.
	Wind power	Offshore wind power planning and feasibility study	Install a 200MW unit
District energy integration		Increase in new customers and new cooperative items	Increase in new customers and new cooperative items

(11) Water conservation and pollution prevention

◆Water conservation measures

An integral steel-making process utilizes a huge quantity of raw water for cooling, de-rusting, lubricating, dust- removing and environmental protection. CSC's raw water is from Fongshan Reservoir in Kaohsiung City, which has 3.4 million tons of effective storage capacity, and provides 300,000 tons per day of industrial water. CSC's raw water consumption in 2011 averaged 144,000 tons per day, accounting for almost 1/2 of the industrial water supply of the Reservoir. We have carried out water management and recycling for many years, with a recycling rate up to 98.2%. Even though the crude steel production in 2011 increased by 6.9% in comparison with 2010, the total water consumption only rose by 1.4%, and the raw water consumption per ton of crude steel decreased from 5.09 tons to 4.84 tons. The tendency in the last five years is shown as follows:

	2007	2008	2009	2010	2011
Raw water consumption (10,000 tons)	6,134	5,919	5,082	5,200	5,269
Water recycling rate	97.7%	97.6%	97.9%	97.9%	98.2%
Water circulation (10,000 tons)	255,414	243,038	234,417	237,632	280,190
Unit water consumption (m^3/TCS)	5.45	5.45	5.90	5.09	4.84

Note: The power generators in our power plants cannot be cooled by seawater or river water, which caused about 1m^3/tcs.

◆Water saving cases

Water conservation projects completed in the past two years include:

a. **Fresh water softening:** Lack of water resource in southern Taiwan is a threat to industries, while the high hardness level of city water resulted in scaling in pipelines and cooling equipment, deterioration of heat exchange efficiency and shortened equipment life. Therefore besides wastewater reclamation, CSC installed two sets of raw water softening processors with a total capacity of 8,000 ton/hr to soften raw water by adding lime milk and causing calcium ions to form calcium carbonate precipitate which can be removed. After softening, the concentration ratio of cooling water systems and the efficiency of pure-water making systems can be improved; the estimated water saving is 7,500 ton/day.

b. **Rooftop rainwater collection:** Rainwater collection facilities are set up widely on the roofs of the plant, with a total collection area of 160,000 m^2. The rainwater collected in 2011 amounted to 290,000 tons: 795 tons per day on average, thereby lessening the demand for city water.

c. **Industrial wastewater purification:**
Industrial effluent flows through ultra-filtration (UF) and a reverse osmosis (RO) membrane to remove most of the suspended solids and ions. Then the water is treated in the ion exchange system to make the quality comply with the standard of demineralized water for the high pressure boilers in the power plants. The design capacity of the purification plant is 13,500 m^3/day of RO water, 9,000 m^3/day of which is further purified for demineralized water for boilers. The project decreases the effluent volume and raw water consumption. The plant operates normally, and we plan to increase the demineralized water output for 4,500 m^3/day.

d. **Recycled RO reject water:** Approximately 4,800~5,400m^3 daily are recycled to the slag water quenching systems at blast furnaces.

◆Water source development

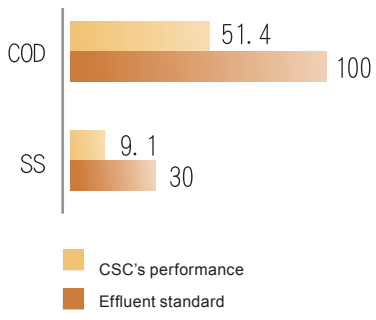
We are evaluating building a tertiary treatment facility in the Fongshan Creek Sewage Treatment Plant. The treated water is vital to CSC, and its production is expected to be 45,000 tons per day for the supply of the cooling towers make-up water. The project is scheduled to be completed in Dec. 2014.

We also plan to build a desalination plant in the South-star project area to produce demineralized water, which will be pumped to CSC, CPC (Chinese Petroleum Corporation) and other nearby users. The water production is expected to be 50,000 tons per day for boilers or processors. The project is currently under feasibility assessment.

◆Water Pollution Prevention:

CSC has set up wastewater treatment facilities with 79,600 m^3/day of capacity. Processed wastewater was treated to meet the effluent standard and discharged through a 60-meter-wide water channel to the sea. To treat runoff wastewater from the coal or iron ore zones, we have built a treatment plant (36,000 tons per day) with collecting basins which can store 40,000 tons of runoff wastewater. The storm runoff was further treated in order to meet the effluent standard and discharged, effectively lessening the runoff wastewater pollution.

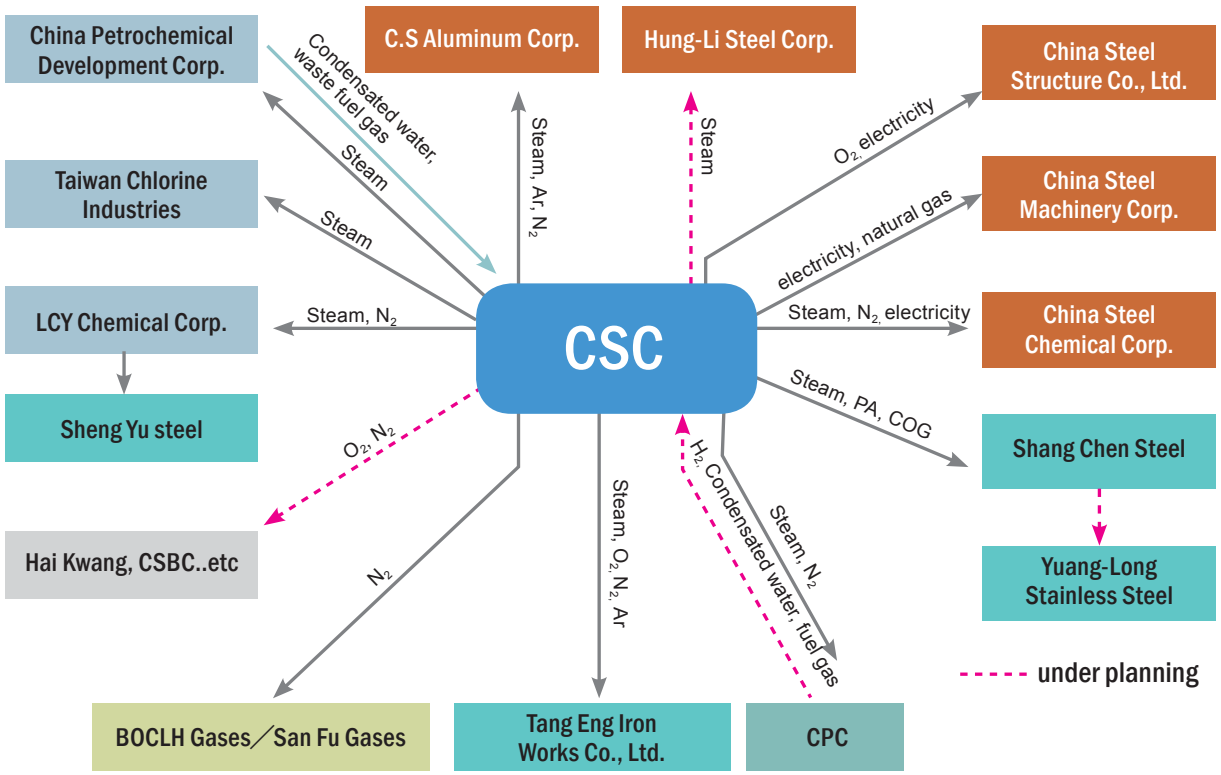
The annual discharge volume in 2011 was 15.61 million m^3. COD for the effluent was 51.4mg/L, and suspended solids (S.S) were 9.1mg/L. The content of heavy metals was very low, far better than the effluent standard, and even better than that upstream of the water body, the 60-meter-wide water channel.



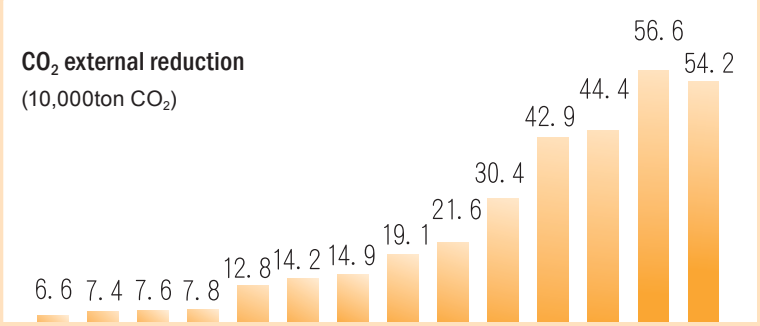
3.2.4 Green partnership

(1) District energy integration

District energy integration is a mode to elevate the overall energy efficiency by sharing energy among different industries. CSC supplies steam, oxygen and nitrogen generated from the production process to nearby petrochemical, chemical and downstream industries in Linhai Industrial Park, so that customers can shut down low-efficiency but high-emission facilities without the need to invest in new facilities. This not only meets the requirements for energy saving and carbon reduction, but also lowers the cost substantially and creates mutual benefits.



CSC's energy for sale includes steam and oxygen, nitrogen and argon made by oxygen plants. Due to the rising price of steam in 2011, sales of energy rose from NTD 2.853 billion in 2010 to NTD 3.049 billion, an increase of 7%. Steam selling in 2011 saved 182,000 kiloliters of oil equivalent while reducing the emissions by 542,000 tons. External reduction of CO_2 emissions due to the sale of steam over the years is shown in the chart below:



(2) Energy saving service

CSC Group established the Energy Service Team in 2007 upon the request of the Bureau of Energy. Through vertical integration and horizontal coordination, the team provides service for customers and upgrades the Company's performance in energy saving. In 2011, the CSC Energy Service Team, together with the Industrial Technology Research Institute, conducted an energy audit and offered services in the Chia-Hsing plant of Hai Kwang Enterprise Corporation. We also joined in the discussion on the feasibility of Alternative Maritime Power (AMP) and provided energy saving services to Hong Li Steel Corp. and Chih Lien Industrial Co., Ltd., making a total of 39 proposals. The potential of energy saving is estimated to be NTD 5.19 million per year, equal to a reduction of 5,448 tons of CO_2 emission, a reduction of 16.2 tons of SOx and a reduction of 16.0 tons of NOx.

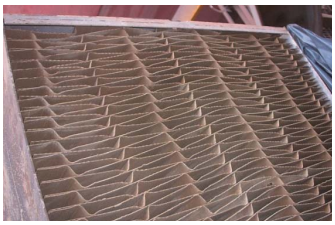
(3) Construction of eco-industrial Ssystem

The construction of an eco-Industrial System is indispensable for environmental protection and sustainable development; the "Zero Waste" driven by government is one part, and an eco-industrial system is another critical part. Both receive fruitful results. However, there is still space for improvement in terms of New Energy-from-Waste and a proper connection of social and industrial recycling systems.

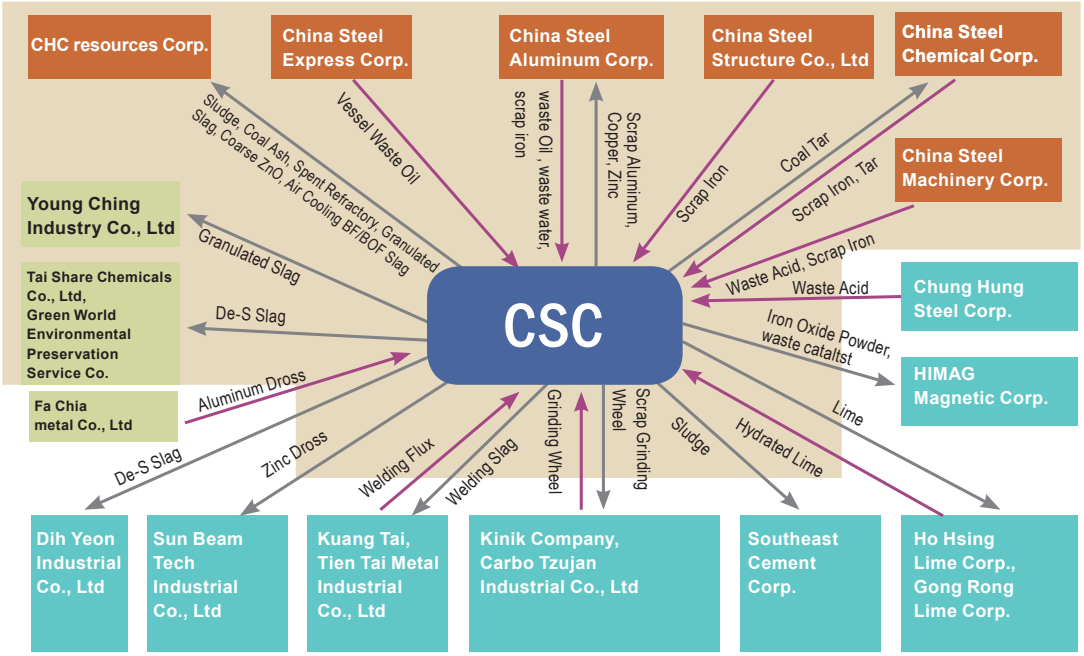
Based on the previously established external recycling network, we cooperate with EPA and IDB (Industrial Development Bureau) to expand the eco-industrial network inside and outside Linhai Industrial Park in Kaohsiung. Waste generated from industries in the eco-industrial network can be recycled effectively. The eco-industrial network, with CSC as the center, is comprised of 22 companies that build a recycling network of BF, BOF, sludge, waste oil, zinc sludge, wastes acid and spent refractories.

New example in 2011:

Waste de-NOx catalyst: The catalyst is used in the de-NOx systems of sinter plants to diminish the concentration of NOx and dioxin in the flue gas. Catalysts had been abandoned but we successfully developed technology to recycle the catalyst and transfer it to our subsidiary, HIMAG Magnetic Corp., which recycles waste catalysts of CSC to reach the goals of cost reduction and reuse of resources.



The current regulatory and social conditions in Taiwan have many obstacles across the linkage path among waste sources. Emulating advanced countries saves a lot of effort and shortens the time needed for transition. We participate in governmental projects and action plans to build a better eco-industrial system based on our successful experience in district energy integration and eco-industrial linkage.



3.2.5 Green growth

The low carbon economy is a global trend and serves to drive the development of green industries and green growth, which will be a key battlefield in the international competition. Along with continuously providing related information and advice to the government, we engage in promising low carbon businesses based on our experience accumulated in the past in order to minimize our CO_2 emission and build up renewable energy technologies in a practical manner. The development of biomass currently has entered the pilot plant phase. As for establishing a photovoltaic system, the photovoltaic system of 507.64 kWp was installed in CSC. The total generation in 2011 was 323,155 kWh, reducing 197,771 kg of CO_2 emission.

In regard to the optimal utilization of self-produced fuel gas, we are discussing cooperation programs on the utilization of the CO in BOF gas, to produce high-value chemicals and cellulosic ethanol through a biological method, with domestic and International vendors.

To improve cost-effectiveness and competitiveness, we strategically cooperate with domestic and foreign enterprises in the green industry under the conditions of mutual benefits, and choose the best ones to invest in, gradually expanding the foundation of green growth. The targets of cooperation that we are pursuing include: domestic electrical and electronic industries, international steel mills, new energy industries and local governments.

3.2.6 Carbon credit management

The huge global efforts in mitigating climate change have made carbon emissions a restraint for business operation. Besides seriously implementing energy saving and GHG reduction measures on a voluntary basis, we diligently participate in activities that help to obtain or manage carbon credits in compliance with the government. The key areas of progress are delineated below:

(1) Early action program: CSC's past performance in GHG reduction was mostly contained in the program. The 2010 project was verified by a third party in December 2011, the 2011 project in March 2012 and the 2000~2009 project in May of the same year. In the future, we can obtain carbon credits by applying to the EPA for the early action program and using them in the carbon offset for the commitment in the environmental impact assessment.

(2) Offset program: During the period from the present day to the day before the implementation of Cap-and-Trade, CSC's performance in carbon reduction is more suitable for application via the offset program. Therefore, we plan to obtain carbon credits from district energy integration projects together with our partners by applying offset projects to EPA.

(3) Future development: When the government devises other carbon credit schemes, we will provide positive advice based on international data to help the government establish cost-effective carbon credit schemes and platforms.

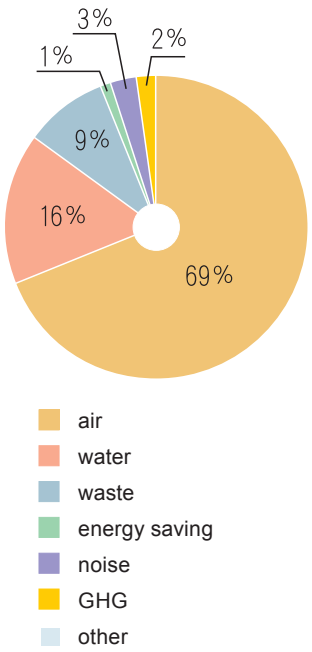
COP17 meeting

3.2.7 Environmental accounting

(1) Energy and Environmental investment

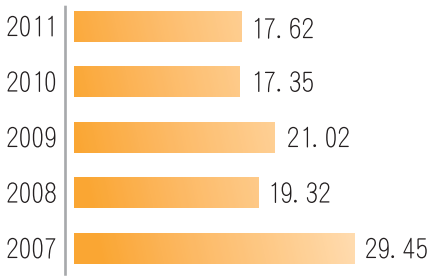
CSC's accumulated investments in various environmental facilities amounted to NTD 46.4 billion by the end of 2011.

Energy and Environmental Expense



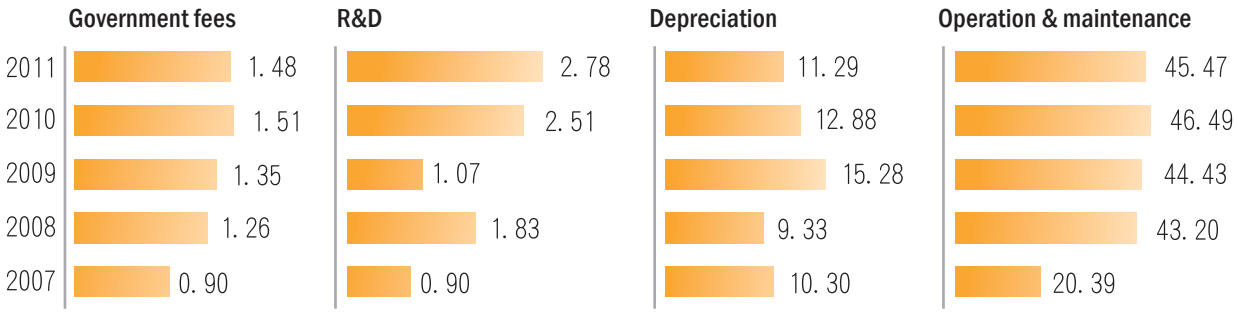
The investment in energy and environment

Unit: NTD 100 million



The investment in energy and environment in categories

Unit: NTD 100 million



(2) Environmental accounting system

We consider environment accounting as an information system aiming to deliver information related to corporate energy and environmentally friendly activities to stakeholders for their judgment and policy-making.

The environmental accounting system was built based on the principle of not affecting the operation of the existing accounting system, inputting according to the source, lessening the input load and improving the system to make data collection more precise, automatic and easy.

Our environmental accounting system follows the guidelines of EPA's environmental accounting, combined with CSC's traditional accounting system, and is classified based on each cost center of CSC. We hope that in the future, the environmental cost percentage of each cost center can be calculated and combined into SHE-related cost. The Environmental accounting system is scheduled to be officially launched on January 1, 2013.

3.2.8 Participation in international R&D

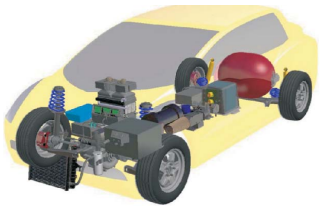
Participation in International R&D is a good way to enhance exchanges with our global partners and prepare for new trends. At present, the international R&D projects that CSC has signed up for are mostly focused on energy saving and CO_2 reduction. They are promoted by worldsteel, and include:

(1) CO_2 Breakthrough Program: This program, sponsored by the league of global steel companies, is devoted to reducing CO_2 emissions by 30~70% in the iron-making processes. To develop combustion technology for CO_2 capture, CSC conducted research work in 2011 and achieved the performance described below:

a. FGR (Flue Gas Recirculation) experiment: The FGR experiment has been completed. With the equipment unchanged and within the load range of the burner, the actual oxygen concentration at the burner's outlet was 34%, and the concentration of CO_2 rose from 14.7% to 61.1%. Since the combustion intensity rose with an increase of oxygen concentration and the combustion temperature decreased with operation of the FGR, we were seeking the best ratio of FGR and oxygen enrichment for future application.

b. CO_2 capture: We have built a CO_2 capture pilot factory to capture 100 kg of CO_2 per day in #3 BF. The capture rate was 95% or higher, and energy consumption reached 5.6GJ/ton-CO_2. We were seeking methods to decrease energy consumption for CO_2 capture.

(2) FSV, Future Steel Vehicle: The FSV project is the newest large-scale research project sponsored by the international steel industry. It focuses on the body structure of electric vehicles from 2015 to 2020. The difficulties that the automobile industry faces, such as high fuel efficiency, low GHG emission, high safety performance and lower maintenance costs, can be overcome with upgraded steel products. We worked with 16 members of World Auto Steel (WAS) and published the results of the three-year research program for electric vehicles that are designed for GHG reduction within their life cycle on May 18, 2011. We have incessantly exchanged FSV technology with other WAS members during the research and introduced the research results to Taiwan. The program is a medium for CSC to seek opportunities to connect with FSV-related industries.



(3) Biological CO_2 fixation: Biological CO_2 fixation and recycling are not only a method to fix CO_2 released by fossil fuels but also a long-term solution to diminish dependency on fossil fuel. In 2011, CSC developed Spirulina cultivation technology and set up a cultivating system of carbon fixation beside the hot stove stack of #3BF to treat 9 tons of algae-rich water. We will continue to improve algae growing technology and seek the best way of automatic cultivation and harvesting of algae.

3.2.9 Regulation compliance

Since we are in a resource and energy intensive industry and all of the production facilities are concentrated in the Siaogang district, Kaohsiung, the local authorities frequently and stringently target us for checks. Aside from introducing various environmentally friendly facilities and enhancing the operation and maintenance in recent years, we have held pollution review and prevention meetings every month and implemented a self-control mechanism to reduce human errors and solve problems. Hence, the number of violation notices has significantly decreased as described below:

	2007	2008	2009	2010	2011
Item	Air pollution, water pollution	Air pollution	Air pollution	Air pollution	Air pollution, water pollution
Issued by	Kaohsiung EPB	Kaohsiung EPB	Kaohsiung EPB	Kaohsiung EPB	Kaohsiung EPB
Number/penalty	20/NTD 2.42 million	14/NTD 1.91 million	9/NTD 1.1 million	7/NTD 0.7 million	4/NTD 0.52million

NOTE:EPB=Environmental Protection Bureau

3.3 Devoted to social harmony

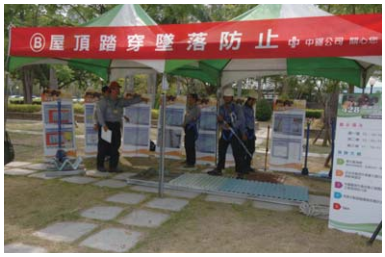
3.3.1 Labor Safety and Health

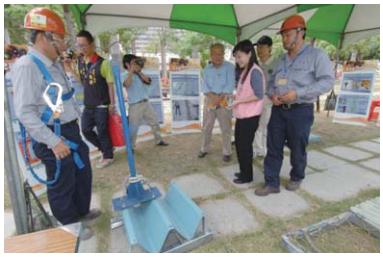
(1) Management of change

Accidents occur when there are significant changes in personnel and working conditions; therefore, it is crucial to establish a Management Systems of Change to ensure that every change goes through the hazard identification and risk assessment. Appropriate measures are implemented according to the result of the assessment to ensure the safety of all manufacturing processes, activities and services.

(2)Education and training

Human error is the root of most occupational accidents. Thus, determining how to train employees and contractors to develop working habits to reduce human errors is a key goal in our safety and health training. CSC arranges many important exercises every year to enhance the response ability of employees to emergencies. Our computer system updates the latest SH (Safety and Health) training information for reference, making the control and checking of SH training more efficient.



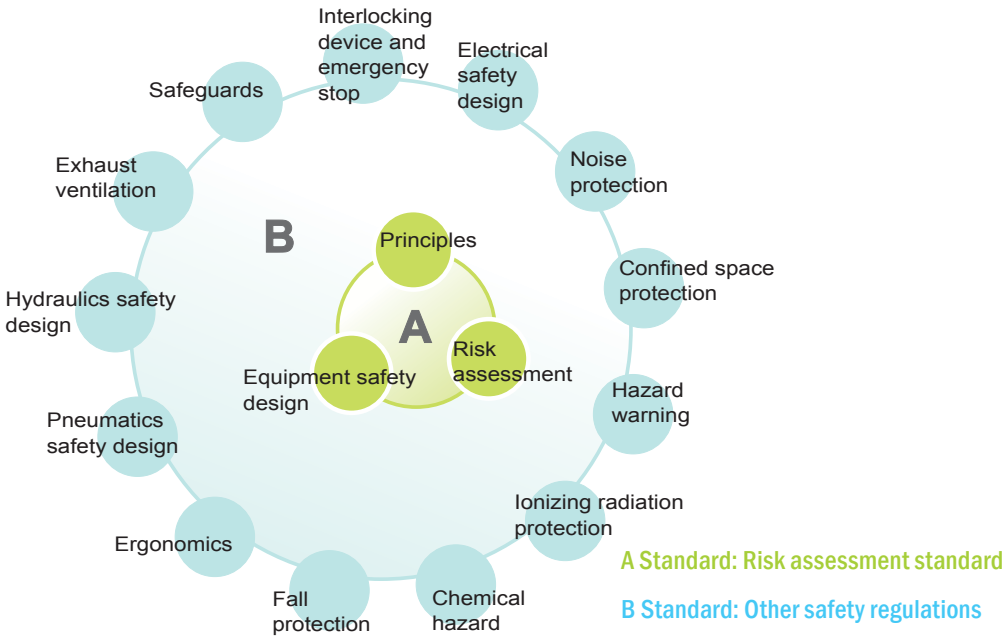


The available courses of workplace safety and the number of trainees in 2011 are described below:

- ◆**On-job training of SH regulations:** 11 courses, 26 classes, 1,127 trainees.
- ◆**On-job training of radiation operation:** 5 classes, 394 trainees.
- ◆**Retraining courses for contractors:** 55 classes, 3,151 trainees.
- ◆**Education and training of SHE management:** 3 classes, 85 trainees
- ◆**Motion sensing training of safety:** 352 classes for employees and contractors, 3,077 trainees. It effectively enhances the safety awareness of the operators.

(3)Inherent safety

The safety condition at the workplace is a fundamental factor to ensure operator safety. To realize and enhance the goal of inherent safety, CSC has established the safety guidelines based on ISO safety standards (for machinery), International Electro-technical Commission (IEC), Europe Norm (EN), Chinese National Standards (CNS) and other relevant national and international regulations combined with our practical experience. With the hazard identification and risk assessment as the indexes, the guidelines take basic safety design principles, relevant safety conditions and devices into consideration, and are used as a basis for CSC to discuss safety issues with the equipment suppliers.



(4) Safety culture

A safety culture is a multi-dimensioned concept that needs to be analyzed and understood from different points of view. Safety culture in CSC is classified into three dimensions: policy, management and personal aspects, as described below:

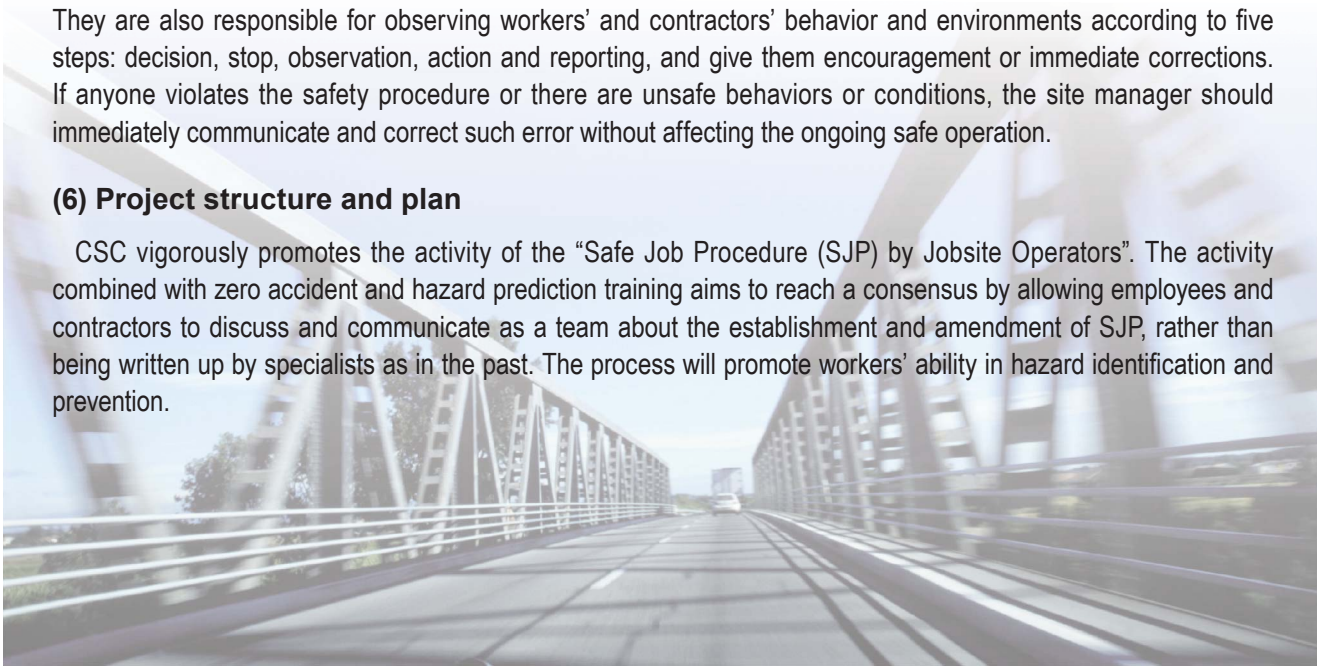
- ◆**Policy:** Safety policy statement, organization management, resource supply.
- ◆**Management:** Construct CSC's institutional framework based on responsibility attribution, safety control, licenses and training, rewards and punishment, audit, improvement and response and safety care program.
- ◆**Personal:** To improve personal safety culture by changing workers' safety concepts, providing education and training, enhancing personal participation, safety and health care and bilateral communication.

(5) Safety observation and inspection

Safety observation and inspection is an important part of the safety culture. Site managers are required to make frequent inspection tours to identify and correct unsafe behavior and rectify unsafe workplaces and equipment. They are also responsible for observing workers' and contractors' behavior and environments according to five steps: decision, stop, observation, action and reporting, and give them encouragement or immediate corrections. If anyone violates the safety procedure or there are unsafe behaviors or conditions, the site manager should immediately communicate and correct such error without affecting the ongoing safe operation.

(6) Project structure and plan

CSC vigorously promotes the activity of the "Safe Job Procedure (SJP) by Jobsite Operators". The activity combined with zero accident and hazard prediction training aims to reach a consensus by allowing employees and contractors to discuss and communicate as a team about the establishment and amendment of SJP, rather than being written up by specialists as in the past. The process will promote workers' ability in hazard identification and prevention.



(7) Partnership with contractors

Contractors' performance on CSC's work and their safety are an important part of business management, whereas disaster prevention is of the highest priority and is the most crucial issue due to the nature of their work. We improve not only the safety of facilities by way of inherent safety, but also the interaction with contractors and the working conditions by establishing partnerships. In addition, contractors' professional skills are improved through technical training, such as:

◆**Improve working conditions:** High employee turnover and aging are common problems for contractors. We, as a partner, made proposals to address the problem of high employee turnover and working conditions, such as increasing the SH management expenses and the contract price to improve working conditions, lower the turnover and decrease the possibility of work-related accidents. These measures will help us to establish long-term partnerships with the contractors.

◆**Enhance training:** Including general and special operation training

General training: All contractor employees, including new and re-employed, are required to undertake general training to make them fully understand the safety and health regulations at the worksite. The contractor's employees should undertake three-hour retraining courses certified by the Department of Labor Safety and Health every three years. CSC will organize additional safety and health training if needed and the contractors should assign their workers to participate in the training.

Special operation training: The contractor's employees engaged in special operation are required to undertake proper SH training and obtain licenses. Those who operate dangerous machines or equipment as designated by the central government are required to pass the training course and skill tests approved by the central government.

(8) Disaster prevention plan

CSC practically implements the regulations of TOSHMS by setting workplace safety goals and plans and achieving these goals to create a zero-fatalities workplace via a PDCA (Plan, Do, Check and Act) loop.

2011 safety and health goals

(1) Employee lost time injury frequency rate (L.T.I.F.R.): 0.30

(2) Employee traffic accident: below 9

(3) Contractor lost time injuryfrequency rate (L.T.I.F.R.): 0.59

(4) Zero Fatalities

(9) Safety care

In order to raise the awareness and ability of safety and health among the employees and take care of their working and traffic safety, CSC encourages all employees and contractors to motivate themselves to communicate and help each other with goodwill and equality. Good habits can protect everyone at all times and further upgrade the general safety culture.

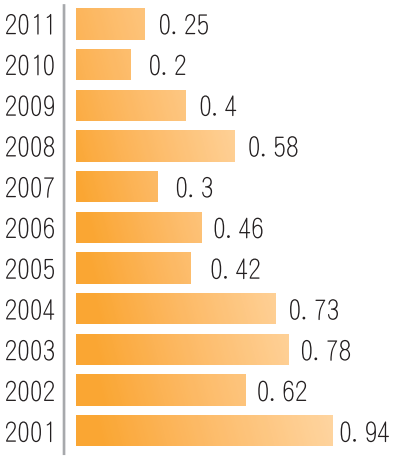
(10) Lost time injury

The occupational accidents in CSC, 2011, were calculated as below:

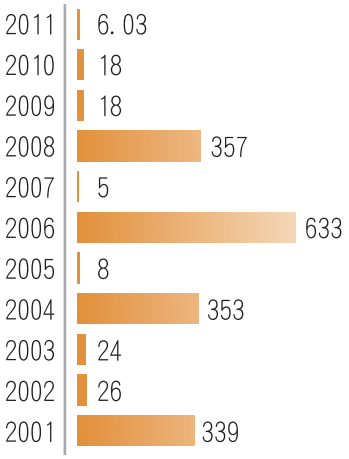
Minor injury: 20, lost time injury: 5, L.T.I.F.R.: 0.25, minor traffic accidents: 11, catastrophic traffic injury: 17, no deaths. No female workers were injured occupationally in 2011.

To minimize traffic accidents, CSC has continued to provide traffic safety courses to enhance employees' knowledge of traffic safety, and also conducted exercises on accidents, risk prediction and operational risks to avoid occurrence of accidents.

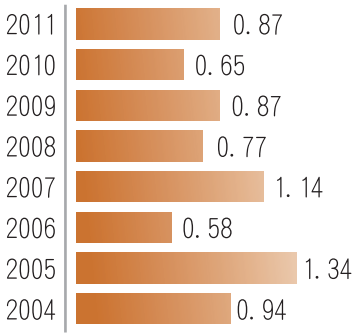
Employee lost time injury frequency rate (L.T.I.F.R.)



Employee Lost Time Injury Severity Rate(L.T.I.S.R.)



Contractor lost time injury frequency rate(L.T.I.F.R.)



(11) Near miss

Whenever a near miss occurs, the related department must file an event report and publish a memorandum to notify other departments on CSC websites, where the miss is broadcast as part of educational training. 1,324 near misses were reported in 2011. These reports were reviewed and used as a reference to find the solution of the potential hazards at the workplace to prevent recurrence.

(12) Physical examination and care

CSC has set up a clinic with professional medical care staff to perform diagnoses and provide early treatment as the first defense for human health. In addition to the internal professional medical team, CSC also cooperates with regional hospitals in Kaohsiung. The specialists provide weekly services in CSC.

Employees: Due to the increase of older workers in CSC, it is an important responsibility for us to emphasize health checks on everyone and provide suggestions. 7,828 employees undertook physical examination and 3,275 employees undertook special checks in 2011.

Contractors: CSC's contractors have the same preferential treatment of medical service and medicine as CSC employees.

Health care: The clinic in CSC reminds workers of key factors for health improvement based on employees' yearly physical examinations. We also invite professionals to study the data on employees' physical examinations and workplace conditions in order to identify potential dangers and offer education and training programs. Furthermore, the health management center carries out related plans to facilitate workers' health, such as:

a. **Health lectures:** We provide quarterly health lectures to promote the importance of chronic disease prevention and invite medical professionals to give lectures.

b. **Physical fitness programs:** We started the program based on the results of the 2010 employee physical examination. A program called “100% Healthy, Kick fat off” focusing on health improvement and achievement emerged at the end of 2011. The data showed that the participants lost 511Kg and the waist size was reduced by 681.5 cm in total. The achievement was so excellent that we ranked 5th in the weight-losing contest held by the Department of Health, Kaohsiung City, and we were awarded with the best company performance in the “100% Healthy, Put Taiwan in motion” activity held by the Bureau of Health Promotion.

c. **Special health care:** The cases with abnormal health conditions will be tracked, and both male and female employees can participate in the special health care program.

The activities mentioned above are good for employee health. They can reduce sick leave, work accidents and health insurance expenses while increasing productivity and the quality of the working environment.

(13) Health management plan

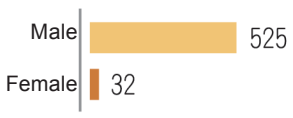
For employees and contractors: These people are the main service recipients of the CSC clinic. The service provided in 2011 includes annual health checks, health checkup management, health information columns, healthy meals, spiritual reconstruction, health lectures, female employee health projects and a project called “Measuring Blood Pressure for Treats.”

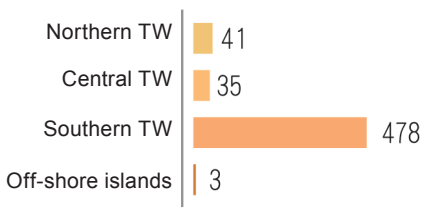
For the community: The CSC Group Education Foundation held lectures on spiritual development and offered education and training, and risk control courses related to severe and contagious diseases. These programs were open to CSC colleagues, their family members and the communities.

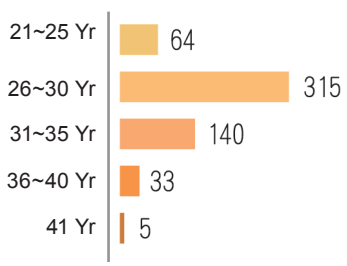
3.3.2 Human right management

(1) Employment

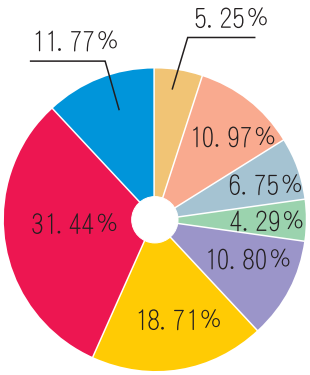
CSC absolutely abides by the Labor Standard Act and never hires child laborers. Based on the human right to have equal employment opportunity, CSC recruits employees on the basis of their expertise and experience, rather than race, ideology, religion, political stand, household registration place, birthplace, gender, sexual orientation, marital status, appearance, disability or former union membership. The recruitment in 2011 has neither violated human rights nor discriminated against anyone; 557 new employees were recruited in 2011, and the details are listed below:





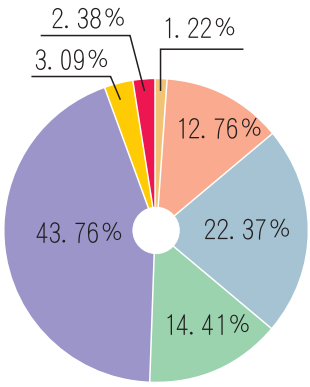


Staff age range



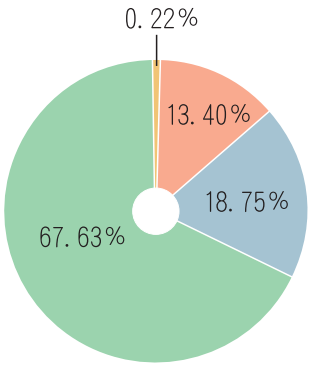
20~29 Yr	498
30~34 Yr	1040
35~39 Yr	640
40~44 Yr	407
45~49 Yr	1024
50~54 Yr	1773
55~59 Yr	2980
60 Yr or above	1116

Staff backgrounds



Doctor	116
Master	1209
Bachelor	2120
Junior college	1366
Senior high	4148
Junior high	293
Elementary	226

Staff position



Manager
Managerment
Professional
Base-level

At the end of 2011, CSC had 9,478 employees, including 9,260 males (97.7%) and 218 females (2.3%), and all of them were native to Taiwan. The average age was 49.2 years old, and the average employee tenure was 23.8 years. 9,346 (98.98% of total employees) employees are union members. There are no females in any management positions in CSC. All of the top managers are male (100%).

Up to the end of 2011, we had hired 137 physically or mentally disabled people, about 1.44% of CSC's total employees, exceeding the mandatory 1% of the "Physically and Mentally Disabled Citizens Protection Act." One of CSC's female employees applied for parental leave in 2010 (from July 19, 2010, to October 18, 2010) and returned to work. The retention rate was 100%. No workers applied for parental leave in 2011.

CSC has set up a Committee for Sexual Harassment Grievance to protect employees and applicants in sexual-harassment cases. We provide employees with many communication channels to deal with sexual harassment matters. If any employee's legal rights are damaged in CSC, he or she can appeal through the administrative system. If the result is not convincing, he or she can submit his/her appeal to "Kaohsiung Mailbox 47-77." The CSC's general manager will serve as the arbiter and assign a person as the coordinator to make an investigation and report to the arbiter for judgment. There were no appeals to report the infringement of human rights in 2011.

(2) Contractors' rights

The workers sent by the contractors to CSC must have insurance mandated by the government, wear uniforms, and put on safety equipment designated by CSC. Furthermore, the workers also need to comply with CSC's Safety and Health Rules for Contractors, Environmental Regulation for Contractors, Work Permit Regulations, Construction Work Safety and Health Rules. A penalty will be imposed for any violation, and the fine will be donated to the fund for supervision, correction and improvement of contractors' safety and health.

(3) Salary management

CSC's payment system is based on the system of job responsibility. The payment standard is based on market values, the corporate financial situation and the organization structure. There is no difference between genders in terms of salary. Both female and male employees in the same position and at the same grade level get the same salary. The salary structure is made of:

◆**Base salary:** This includes the basic salary, meal allowance and the specific environment allowance

◆**Year-end bonus:** The employees who stay on-the-job until the end of the year receive the base salary of December as the year-end bonus. Those who have not stayed on-the-job for at least 1 year due to retirement, death, layoff, job transfer, new entries or reinstatement, their year-end bonuses are calculated based on their actual working days.

◆**Operating profit bonus:** We provide the bonus based on "The Regulation of Operating Profit Bonus" to encourage the staff to improve working methods, increase productivity, lower costs, and raise revenues to obtain profits.

◆**Salary for the new-entry:** The salary of new-entry is compensated according to the supply-and-demand in the labor market and the salary range in the market. The principle is to give an offer better than basic wages regulated by Labor Standard Law. In addition, the following factors are also taken into consideration, the position, academic background, experience in related jobs, the supply and demand in the labor market and the payment of current staff at the same position with similar seniority.

(4) Position change and turnover

All position changes and turnover in CSC follow the relevant regulations. Formal employees can choose to retire at 65 years old as mandated by the Labor Standard Law or voluntarily retire before the legal mandatory age. The related regulations are shown below:

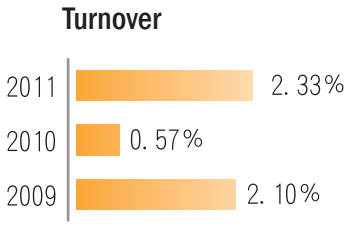
◆**Position change:** Before the position changes, the employee are notified a few weeks before. After the employee agrees, the notice will be announced later. If the employee has difficulties in performing his/her duty after receiving the notice, he or she is allowed to file an annulment of the labor contract or file an appeal within 24 days after the notice of change becomes effective. If the appeal is dismissed, the employee can file the annulment within 7 days after the dismissal. About the aforesaid situations, if the employee fails to file the annulment within the due date, it will be regarded as acceptance of the position change.

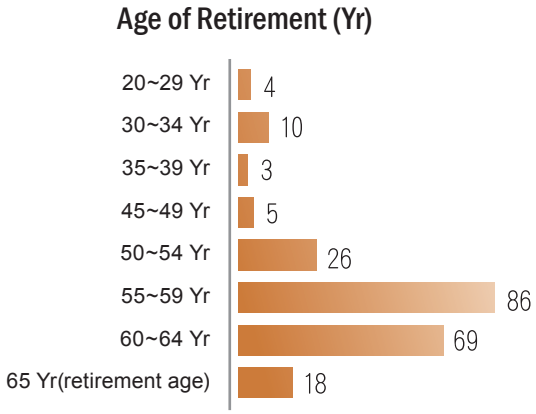
◆**Early retirement of preferential treatment:**

CSC established "The Guidelines of the Special Project for Early Retirement" in September 2010 to show consideration for employees who are seriously ill or severely wounded and encourage them to retire earlier in order to promote industrial safety, give opportunities to new recruits, moderately adjust the structure of the manpower and age, and spur the activity in the organization. The acceptance period of the application was from September to December in 2010. After receiving approval, they retired on February 1, 2011; 168 employees applied for retirement. We give a lump-sum settlement according to the pension standards plus the additional preferential treatment. The regulation of "Retirement, Consolation, Compensation of Occupational Disaster and Layoff" was amended in December 2011. The amendment adds terms to allow the employees who are severely wounded to take full pay sick leave, and the employees who leave without pay, are under treatment, or have moderate disabilities due to occupational disasters, who are qualified to apply for early retirement at the appropriate time. The systematized data are kept for records.

◆**Releases:** The resigned CSC's employees totaled 221 people in 2011 (excluding 4 employees who passed the advanced level examination), including 2 female workers. The average turnover rate in the past three years was 1.67%.

In 2011, 203 employees left the office before the legal retirement age, including 11 deaths, 162 early retirements, 8 voluntary retirements, 17 voluntary resignations, 3 layoffs and 2 dismissals.





(5) Abnormalities control

◆**Employee assistance program:** Caring for employees' mental status is part of CSC's safety and health program. If employees or contractors look absent-minded, behave in a dull or inactive way or show signs of drunkenness, the manager or supervisor is obliged to take care and handle the matter to suspend them from work or help them to receive proper medical treatment in accordance with the corporate regulations.

◆**Overtime work control:** Concerning employees' health, if the managers ask workers to work overtime, the total working time cannot total over 12 hours a day or 46 hours a month, except for special needs, like emergent repair service which has the manager's approval, but the worker should have full rest afterwards.

(6) Major investment and human rights of suppliers

There were 9 major investments in 2011. All of CSC's operation activities and investment agreements followed the local rules without incorporating human rights terms; all agreements with suppliers, contractors and other commercial partners comply with local human rights rules without specifically incorporating human right terms. For the suppliers at higher human rights risks, CSC plans to conduct human rights surveys in the future. No application against human rights was filed in 2011.

Human rights assessment on foreign investment project, 2011

Foreign investment project	Human rights risk assessment
Setup of production lines for electrical steel coils in India	Extremely high
The investment in MCS's coal-mining rights in Australia	Low

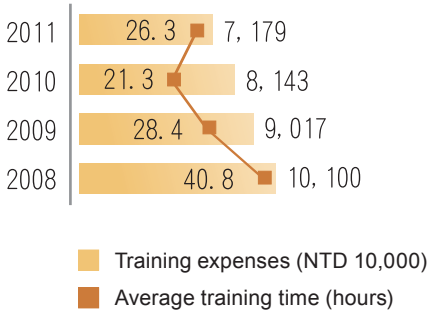
Source: www.maplecroft.com

Human rights assessment on suppliers, 2011

Supply countries	Human rights risk assessment	Supply countries	Human rights risk assessment
Japan	Moderate	Canada	Low
Philippines	Extremely high	Indonesia	High
Dubai	High	Russia	Extremely high
P.R.C.	Extremely high	North Korea	Extremely high
Vietnam	High	US	Moderate
Thailand	High	Brazil	High
Australia	Low	Bahrain	High

3.3.3 Human resource development

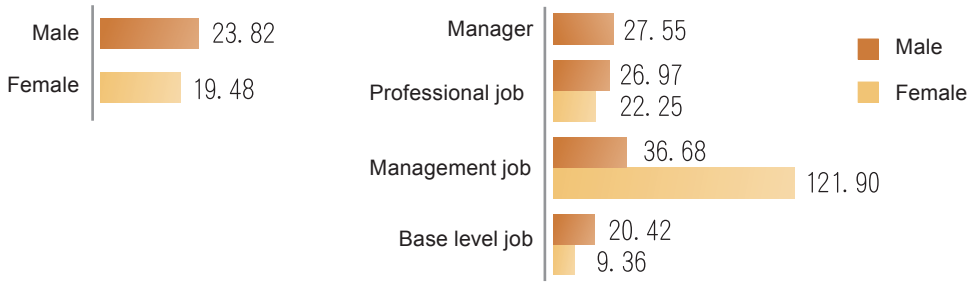
(1) Employee training



Professional training: After recruiting, we start training and educating every new employee in self-interest, workplace safety, the Labor Safety and Health Act and the Labor Standard Act. In the progress of their development, we continue researching corporate and personal needs and examining the business situation and required proficiency to plan training systems and regulations. By training courses, e-learning and a mentor program, the required training is carried out one by one in order to upgrade every individual's knowledge and expertise needed in career development. At year-end appraisal, every employee will be evaluated for job performance and current position duty. The average hours of training course and e-learning in 2011 were 25.5 and 0.8 hours per employee, respectively. The total training expenses were NTD 71,785,448.

The average training hours in 2011 were higher than that in 2010 because there were more new employees who had joined CSC in 2011, and we took more time to arrange position training. The average training hours divided by gender and by job level are shown below:

Average training hours per person by gender



Advanced training: In order to build up solid ability in production, R&D, technology, management and language, as well as to satisfy the needs of a diversified and international operation strategy, we sent 69 employees abroad to take professional courses at academic institutes or enterprises in 2011. We also selected potential employees to study in domestic colleges or study abroad, including 10 in domestic colleges and 8 to study abroad.

(2) Contractor training

Contractors' SH and professional performance are closely related to the quality of training they received. We arrange training courses and examination tests based on the SH or professional skills that contractors need. The training hours for contractors in 2011 totaled 41,144 hours, as shown below:

Item	Training course	person	hours	Total hours
Safety training	New employee training	6,709	6	40,254
Techniques training	1. Electric welding	0	0	0
	2. Bearing	0	0	0
	3. Construction frame	69	3	207
	4. Roof work	227	1	227
Techniques exam	1. Electric welding	96	1	96
	2. Pincer	113	1	113
	3. Quenching	52	1	52
	4. Construction frame	65	3	195

(3) Security training

CSC's security is entrusted to China Steel Security Corporation (CSSC), a subsidiary of CSC; 281 CSSC employees are currently guarding CSC, and all of them have received training in regard to security, the Labor Safety and Health Act, the Labor Standard Act and human rights.

(4) The 6-σ

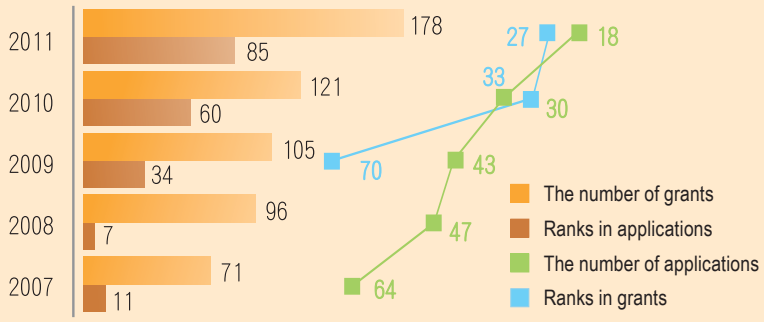
In order to upgrade the quality of products and services and reduce waste, we firmly believe in making the right decisions based on analyzing facts and data and transforming the original thinking to create new areas of interest for the entire corporation. Therefore, we take "Application of 6-σ, Advancing Skills and Quality, Increasing Efficiency and Lowering cost" as part of our action plan, and are especially active in promoting the 6-σ program. The implementation steps are described below:

a. Statistical program: We arranged statistic programs to lecture engineers in order to plant the statistical seeds in every department.
b. Articles and reports: Many articles related to the 6-σ program were published in internal publications (CSC Biweekly and Techniques & Training).
c. Promoting group: We put together a group to promote the program in a systematic way and to enhance the efficiency of promotion.
d. Project and strategy: 6-σ was listed as an operational policy
e. Achievement in 2011: 142 trainees acquired green belts and 112 acquired black belts. The accumulated registered cases were 205 in total. A 6-σ presentation was held in October 2011, and is expected to generate NTD 0.3 billion in financial benefits.

(5) Patents

CSC sets up a Patent Application and Promotion Committee to encourage patent applications that are beneficial for integral arrangement and enhancing competitiveness. The chairman, VP of the technical division and several review experts are appointed as committee members and executive secretaries after having been approved by

the chairman. To reward the departments for good performance in this matter, we set up a rewarding mechanism, and assess the performance regarding the application for patents on a yearly basis. Honor is accorded at the R&D awarding ceremony. The complete encouragement system helps the number of patent applications to grow rapidly to protect CSC's intellectual property rights. There were 178 patent applications in 2011, and 85 certificates were received. CSC ranked 18th in patent applications and 27th in issuing certificates for the top 100 Patent Applications. These achievements show that our efforts in promoting and protecting intellectual property rights have gotten some fruitful results. In addition, we honorably received the 2011 National Invention and Creation Award from the Ministry of Economic Affairs. The numbers of the patent applications and grants in the last 5 years are shown in the figure below:



(6) Encourage self-development

We adopted CDA (Creative Development Activities) and ESS (Employee Suggestion System) many years ago to encourage basic level colleagues to actively work together to solve working problems and expand their potential. Creative Development Activities have received such awards as golden medals of national competitions for years. The performance in 2011 is described below:

- ◆**CDA:** 573 circles were formed this year with 6,109 participants, accounting for 90% of specialist-level personnel of the unit that promoted the activity. 670 themes were completed and the annual benefits accumulated to NTD 100 million.
- ◆**ESS:** 21,818 suggestions were received and 21,402 (98.1%) of them were adopted, creating more than NTD 120 million in tangible benefits.

(7) Knowledge management

To prepare for a lot of employees who are going to retire, CSC actively established a knowledge management system that identifies corporate core abilities, in order to systematically proceed with inventory, storage, transmission and innovation of talents and documents. CSC established the Knowledge Management Committee in 2006. The tasks include:

- ◆**Knowledge map and pass-down:** They focus on the expertise and experiences needed in practical work.
- ◆**Knowledge community:** CSC encourages the formation of knowledge communities in a variety of fields. Community discussion can energize the activity of the organization, and we also enhance the culture of sharing knowledge.

- ◆**Successor training and mentor system:** This system is designed to maintain the corporate core competitiveness, formulate a sharing culture and arouse individual passion to learn and energize the organization. Therefore, we honorably won the "human resources innovation award" and the corporate e-learning award.

There were 71 knowledge communities in 2011, and members exchanged knowledge and learned from each other. Knowledge communities facilitate the integration of people and make the organization more harmonious. 5,370 knowledge documents and 132 e-Learning programs were completed in 2011, with working experience passed down to new entries.

3.3.4 Labor union

A healthy labor union of an organization can express ideas and suggestions on behalf of its members to strive for a decent working environment, rights and development. Also, the labor union is helpful in balancing the corporate operation and expanding the scope of social engagement. The operation of the CSC Labor Union can be summarized as follows:

(1) Members and goals

The CSC Labor Union was established on December 30, 1980 and comprises all employees below the top-level manager of the department. Its purpose is to help the corporation with the development of the business, facilitate the industrial cooperation, protect the rights and interests of the members, improve the life of the members, enhance the knowledge of the members and assist the government to promote the policies from the perspective of the laborers.

CSC Labor Union hiking


Trip for excellent labors

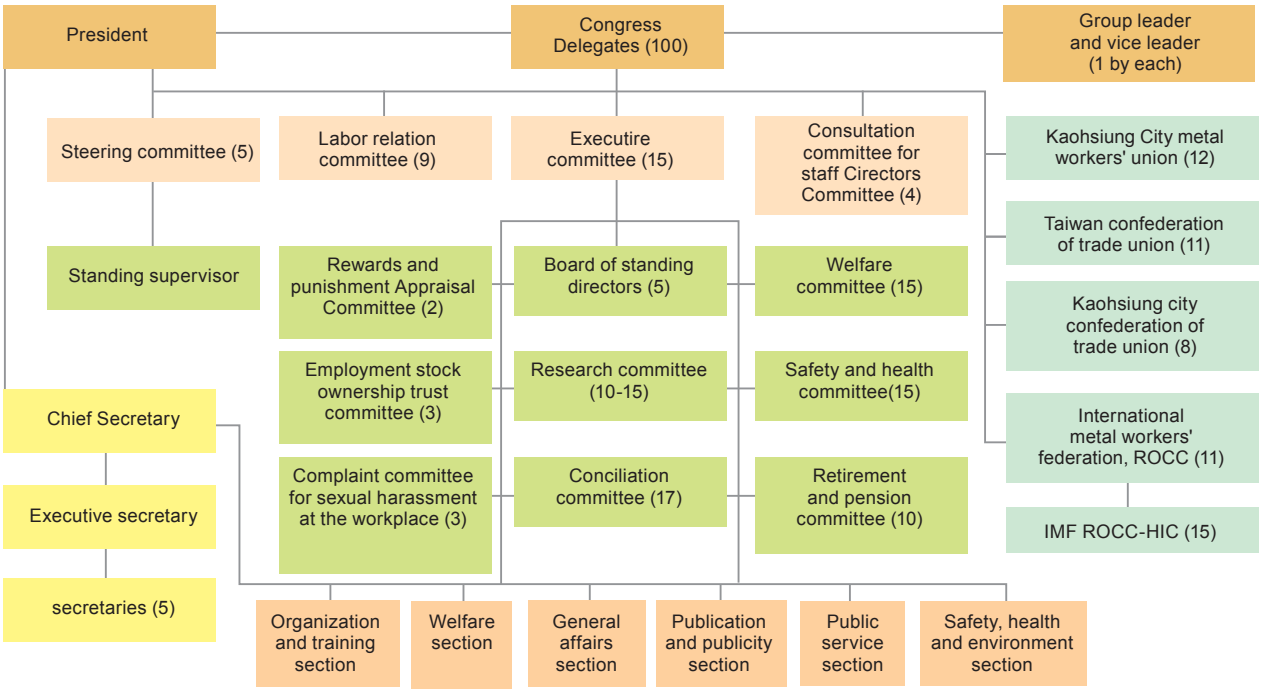

Matchmaking activity


Youth growth camp

(2) The framework and structure

The congress is the highest organization in the labor union. The 100 delegates were elected by 9,300 members from different divisions. The board of Directors is the supreme organization during the congressional adjournment. The 15 seats on the Board of Directors are elected by delegates. The steering board is set to supervise the Board of Directors. There are 5 seats on the steering board and they are also elected by delegates. There is one president who represents the union and deals with daily work. The president of the labor union is directly elected by all members and leads the secretariat with 6 different functional groups to deal with the daily work of the union.

Congress of CSC Labor Union



(3) Collective agreement

We highly value employer-employee relationships. In order to maintain the fluency of mutual communication, fair regulation and decent working conditions, for the first time, CSC signed a collective agreement with the labor union on February 14, 1997 as a guideline to develop harmonious employer-employee relationships. Accordingly, CSC has reached a milestone in harmonious relationships and labor affairs. Because the contents in the agreement are comprehensive and many articles and ideas are foresighted, other labor unions have taken the agreement as a model to write their collective agreements.

(4) Participation in corporate governance

Apart from the periodic labor relations committee meetings, a labor director has been appointed to the CSC Board since May 31, 2001. It was the first time that the president of CSC labor union was elected as a member of the Board of Directors, with the right to join the operation committee and participate in the corporate governance. In addition, there are several seats provided to representatives of the labor union in both the Human Resource Committee and the Rewards and Punishment Committee.

(5) Defending laborers' rights

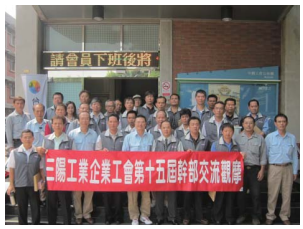
The CSC Labor Union has made every endeavor to protect the rights of its members in a reasonable and peaceful way, such as the Labor Relation Committee, communication meetings with the top-level management and collective negotiations. The CSC Labor Union fights for the employees' rights through labor negotiations while taking actions of protest or litigation in only a few special cases. The CSC Labor Union protested against optional leave instead of overtime pay in 2011.

(6) External exchanges and social welfare

The labor union has not only defended members' rights and improved its service, but also made contribution to society with great efforts in recent years. We often communicate and cooperate with domestic and foreign labor unions, to realize a harmonious employer-employee relationship for the benefit of employees and to protect their rights. We aid the community by sweeping and cleaning the streets and parks.

Shaanxi Province general labor union


Turkish general labor union



SYM labor union


National Chung Cheng University

3.3.5 Social responsibility expenditures

CSC's major CSR expenses and donations in recent years include:

◆**Relief donation for typhoon Mindfully in Taiwan:** NTD 20 million and reconstruction cost of over NTD 60 million for building the Dongsi Bridge in Liouguei.

◆**Relief donation for the earthquake in Sichuan China:** NTD 100 million in the name of the CSC Group.

◆**Emergency assistance funds for typhoon Morakot in Taiwan:** NTD 20 million and NTD 500 million for reconstruction works after the disaster (including building the Sinfa Bridge in Kaohsiung).


Sinfa Bridge in Kaohsiung



Appreciation party for earthquake/tsunami help for Japan

Annual convention of Chinese Institute of Engineers


Academic-industrial cooperation with Kao Yuan University and National Formosa University

◆**Disaster relief funds for the earthquake/tsunami in Japan on March 11, 2011:** NTD 30 million from the CSC Group and employees

◆**For institutes and associations:** CSC participates in activities of institutes and associations in Taiwan and abroad. We also budget for sponsoring seminars or workshops every year held by institutes and academic associations to improve the competitiveness of CSC and create external communication channels for the corporation and employees.

◆**CSC Group Education Foundation:** We donated NTD 8.011 million to the CSC Group Education Foundation to implement cultural and educational work for education and the cultivation of talents in steel-related fields.

◆**Public Affairs Department:** Budgets were planned for local public services, emergency assistance and natural disaster relief funds.

3.3.6 Homeland of LOHAS

(1) Reduce environmental impact

◆**Ecology restoration:** CSC is located in the non-urban area of the Linhai Industrial Park, Kaohsiung City, not in national parks, wild life protection areas, important habitats for wild life, national wetland, or conservation areas listed in the Conservation Plan of Preserving Nature Environment of Taiwan Coastal Area or in areas at altitudes of 1500m or above. Before developing the area, we conducted an environmental impact assessment. CSC honors our own commitments, voluntarily safeguards the nearby rivers and assists the environmental protection agencies to find abnormal emissions and orders them to stop. Furthermore, we assist in sampling the river water, enhance the water resource awareness and clean beaches to engage in ecology restoration activities in different ways.

◆**Energy saving and mitigation:** We uphold the idea of continual improvement and meet top international standards to reduce environmental impacts via management by objectives and operation of the environmental management system. For instance, the reduction of particulate, NOx and SOx, recycling, river protection and dioxin control have shown good performance.

◆**Green procurement:** To comply with the government policy of green procurement, we started with green products and office paper at the initial stage and expanded to green construction materials like bulbs, lamps, batteries and thermoses. CSC won the EPA's "Outstanding Business Award of Green Procurement, 2010" and EPB, Kaohsiung City, "Outstanding Business Award of Green Procurement, 2010". The green procurement expenses in 2011 reached NTD 12 million. Since beginning to promote green procurement, we have received the honor of "Outstanding Business Award of Green Procurement" from EPA every year, fully showing that we have done a good job to fulfill our corporate social responsibility and show our determination to promote green procurement and green consumption.

Other environmental-friendly actions and performance in 2011 included:

◆**Changes in transportation of Hualien stones:** CSC transported stones from Hualien via the railway system instead of the roadway system so that both dust emission and the carbon footprint of raw materials were largely reduced. It is expected to reduce 4,600 tons of carbon emissions.

◆**Low carbon truck transportation:** CSC promoted the use of larger trucks and returning trucks to increase internal loading and efficiency, along with eliminating old trucks. The returning trucks carrying slabs and billets purchased from DSC can reduce 14,400 tons of CO_2 emission annually.

◆**Shuttle bus for KMRT:** CSC funded the shuttle buses for the No. 2 red line of KMRT and for the route from Siaogang station to Linhai and Linyuan Industrial Parks, in accordance with the Kaohsiung city government's subscription project. The goal was to facilitate the convenience of public transportation and to encourage more workers in the industrial zone and nearby residents to use the KMRT, to realize energy saving and carbon reduction for a low carbon city.

◆**RFID (Radio Frequency Identification):** Since CSC launched the RFID system for the production of steel bars and wires, about 6,000 liters of oil consumption saved annually.

(2) Ecological city

Ecological city is a global trend and also a key policy of central and local governments. To promote the concept of an ecological city, the work in progress or in discussion includes:

- ◆Donate 8,500 bicycles, making it easier for citizens to take the KMRT in order to increase the PLF (passenger load factor)
- ◆Participate in the task of converting waste into energy and its application on manufacturing processes in order to help Kaohsiung City save energy, reduce carbon and minimize pollutant emissions
- ◆Enhance the purification and reuse of industrial effluent and sewage wastewater
- ◆Promote the usage of smart grids in industrial zones
- ◆Expand the green procurement of the CSC Group and the green consumption of employees to support the development of green products in Kaohsiung
- ◆Improve and promote the carbon footprint calculation in daily life. Customers are able to obtain background knowledge of carbon reduction and concrete numbers or rules to follow. The program is expected to start from CSC energy and environmental departments to other departments and CSC employees.


(3) Go green and vegetation

We introduced professional skills to achieve comprehensive or multi-layer greenery. Trees, bushes and turf are used to enrich the ecology and forest appearance. The current size of the green area in CSC is about 45.2 hectares, with a green space ratio of 8.59%. The size is equal to double the size of Taipei's Da-An Forest Park. More than 20,000 trees and 1.34 million bushes, 284 species in total, have been planted. In addition, we use potted plants, green roofs and green walls to expand the green spaces in different layers, and to make it more beautiful. We have entrusted National Ping-Yung University of Science and Technology to assess the benefits of our green work on CO_2 reduction. The total leaf area in CSC is 450,000 square meters, comprised of bushes and woody lianas. These plants are estimated to absorb 1,872 tons of CO_2 and can reduce 3,314 tons of CO_2 per year, contributing to GHG reduction and global warming resistance.

(4) Better ecology and biodiversity

Although CSC is not situated in ecological reserve areas or near such areas, our efforts over years on green work have created an environment of biodiversity. The research of CSC's bird watching club shows that there are 2 species of mammals, 5 species of amphibians, 32 species of insects and 75 species of birds. The ecology in the Siaogang area has been greatly improved.



Love the Earth activity-tree planting

Tree planting activity in Liu Gui

3.3.7 Welfare measures

In order to provide decent working conditions and satisfy employees' needs, 26 representatives of the Labor Union and the Management jointly form the CSC Welfare Committee, and set up the Employee Benefits Section to deal with welfare matters, including: internal recreational activities, credit loans, four-festival bonuses, cash gifts for birthdays, weddings and childbirth, scholarships for children of CSC employees, emergency aid and subsidies, member activities, year-end lottery, dinner party allowance, member welfare subsidy and discount stores.

Member activity

Model worker award ceremony

Labor Day party

Group wedding

40th Anniversary of CSC

(1) Facilities and clubs

The CSC welfare cooperative store provides employees with several facilities, including: a shopping mall, an employee restaurant, Ming Bang western restaurant, a singles dormitory, a gym, shuttle bus service (22 lines), self-service laundry center and a small library. We have always encouraged the development of clubs, offering a way to relax the body and soul and an opportunity to show our care. By the end of 2011, there were 41 active clubs; each one has its own features. Employees and their family can partake in leisure or public welfare activities beside the working time to relieve stress and enrich their lives. In 2011, CSC held 391 club activities with 15,000 participants. The summary is as follows:

◆**CSC charity club:** In 2000, the club was registered at the Social Affairs Bureau of Kaohsiung City Government in the name of Kaohsiung City's Charity Club. The club helps people with empathy and repays society by joining in community emergency relief, regular sponsorship, life care, orphanage care, community friendly activities, community service and disaster relief efforts. The club members and their families make monthly donations depending on personal situations. The club members also visit remote mountain areas to care for indigenous people or children from poor families and motivate entire families to perform community service.

Round island tour

One Bike One activity

- ◆**Bicycle club:** The club champions the benefits of riding bicycles instead of motorcycles to make individual contributions to CO_2 reduction.
- ◆**Bird watching club:** To strengthen the concept of ecological protection, the club holds bird watching activities periodically, irregularly invites professionals to illustrate ecological ideas and records the bird species discovered in CSC.
- ◆**Chorus:** Singing and reading are the main activities. The club also interchanges or cooperates with outside groups to provide performances.

There are still many other clubs, like the stone appreciating club, horticulture club, photography club, Chinese music club, Tai Chi club, etc. We also hold exhibitions, lectures or performances irregularly to provide leisure activities for the employees and community.

Moreover, some CSC employees even actively become volunteers by joining other outside clubs, like Tzu-chi and Taiwan Fund for Children and Families, showing that we are willing to give back to society.

(2) Contractors' benefits

Contractors working in CSC can also enjoy the same benefits the community does and part of the facilities that CSC employees use. The shopping mall, the employee restaurant, the Ming Bang restaurant, the gym and the small library that are offered by the CSC welfare cooperative store are also available for contractors.

3.3.8 Social participation

(1) Contribution to society and being a good neighbor

CSC puts great effort into maintaining industrial safety and a clean environment around the plant area in order to provide a better living environment for local residents; the Company also pays the yearly business tax and air pollution fee of about NTD 3 billion to Kaohsiung City Government. Based on good-neighboring policy, CSC is regularly in charge of the following matters.

- ◆Additional grades will be given to local residents according to the "Reward guidelines of Siaogang young residents taking part in CSC's new employee selection".
- ◆Budgets planned for new facilities and educational activities of public schools in the community.
- ◆Scholarships for excellent students and student aid funds are provided for the students from low-income families in the community.
- ◆Irregular invitations to vulnerable groups to participate in activities held by the Company in the hope of attracting more individuals and groups to give their love and care to them
- ◆Promotion of filial devotion and ethics as well as praising the related performance of students in the community.

Promotion of filial devotion, ethics and tree planting activities in Kaohsiung Metropolitan Park

◆Providing aid funds to low-income families on holidays, such as Chinese New Year, Dragon Boat Festival and Moon Festival as well as emergency relief funds for people in poverty

◆Participating in local folklore activities or public services such as sports or honoring the aged.

◆Movies are arranged and leisure facilities are provided every Saturday for the residents of the community. Neighbors are invited to join in the activities or festivals.

◆Helping local public services; Publishing Plant Introduction brochure in Siaogang District; inviting institutions, schools, citizen representatives, supervisors of local district, local residents and press to visit CSC to obtain a better understanding of the production process and achievements in environmental protection.

◆CSC Employees Welfare Committee has established a kindergarten in Siaogang Dormitory in order to assist employees' and local residents' children.

◆CSC always takes care of vulnerable children and aboriginal tribes.

◆Holding summer camps for elementary school students in Siaogang District so that they can enjoy proper leisure activities; holding outdoor learning of Steel Journey in order to help them to understand the continuous operation of the only integrated steel mill in Taiwan.

◆Emergency assistance: CSC gives assistance with the recovery from disasters in addition to donating goods and materials. In Sept. 2010 when Typhoon Fanapi caused disasters in southern Taiwan, destroyed many roads and bridges in the Liugui Mountain Area of Kaohsiung City, CSC spent NTD 500 million to construct the Sinfa Bridge and donated funds to the Road Bureau after Typhoon Fanapi. The groundbreaking ceremony was held in Jan. 2010 and completed in June 2011. It is hoped that the bridge will provide safe transportation and bring economic prosperity to the mountain area.

Summer camp for students


Steel journey


Sinfa bridge in Liugui

(2) Assistance for private groups

CSC joins national and international academic associations and research institutions. We act as a sponsor for the workshops, seminars and other activities of different private groups, institutions and associations to develop more communication channels for the Company and employees, including:

◆Giving assistance in the steel-related technique workshops and the technique upgrades of downstream manufacturers.

◆Cooperating with the Material Engineering Departments of NTU, NCKU and NSYSU to give courses on steel-making processes and to provide CSC scholarships. CSC also supports NCKU to set up the "CSC Metal Laboratory" to cultivate talents for the steel industry.

(3) Service for CSC retiree

The CSC Retirees Service Department was launched on January 25, 2011 to serve CSC retirees, with the concept of "planning, communication, respect and enthusiasm". The Department is implementing a mutual LOHAS service strategy based on the five major premises: "the elderly are also healthy", "the elderly also have savings" and "the elderly also have mates", "the elderly also have friends" and "the elderly also have fun." "Take care of the aged the same as family members" is the vision of CSC in the fulfillment of its corporate social responsibility, in the hope of giving more care to the CSC retirees. The following activities were implemented in 2011.

◆Two LOHAS workshops for retirees and two retirement farewell parties were held; reunion banquets for the CSC senior retirees were held in Taipei and Kaohsiung together with CSC's 40th anniversary.

◆An artistic bicycle trip along the coast was held for CSC retirees to clean up the Kaohsiung Chijin Beach.

◆CSC retirees and their families were invited to participate in the parent-children activities on Labor Day, the CSC group wedding ceremony beside the Kaohsiung Chengcing Lake, baseball games for public welfare, CSC employee trips, CSC 40th anniversary celebrations, citizens' lectures and health lectures.

◆Remit payments for CSC retirees on three Chinese folk festivals.

◆Active Communities were established for CSC retirees, such as care community, volunteer community, learning community, LOHAS community and sports community. Volunteers were selected to plan and organize learning, LOHAS and care activities. The sports community had table tennis and golf teams and arranged friendship tournaments.

◆The CSC retirees of the volunteer community assisted CSC with the activities of the "Steel Excursion for the 6-grade pupils of elementary schools in Siaogang District", Kaohsiung. They also participated in the training of the first phase for the mobile environmental education service.

◆The "CSC Evergreen Community" was registered on the CSC knowledge community website and linked to the CSC retirement evergreen website, so that CSC retirees could access the evergreen network community from external websites.

◆The CSC retirees stock saving trust committee was established. The employees who were approaching retirement age were invited along with the CSC retirees to participate in the presentation; 35 persons applied for membership before 2011.

◆The CSC retirement evergreen website was updated to announce new messages (incl. medical, social clubs, welfare, entertainment, CSC biweekly and many activities). An interaction function was added so that CSC retirees can increase or exchange personal information or apply to join the evergreen community online. Daily CSC news clippings are announced synchronously with the CSC portal.

◆The retirees' talent pool was set up. It provides information on retirees' talent professional competence for the support of overseas engineering services and the provision of technique and management advice for CSC.

◆CSC entered into an agreement with Chang Gung Health and Culture Village to provide special health service.

(4) CSC Group Education Foundation

The main achievements of the CSC Group education foundation in 2011 are described as below:

◆2011 CSC camp

The fourth year of the CSC camp set "steel and life" as the 2011 topic. The goal of the camp is to highlight the importance and application of steel in daily life. The 2011 CSC camp of "steel and life" was launched in the winter vacation from Jan. 24 to Jan. 28; 60 college students from different departments and schools experienced the activities of the Rookies' Diary, the most popular drama show. The steel industry and the beauty and warmth in Kaohsiung gave students meaningful winter vacations.

Reflection: Lin Jia Rong, from Department of Foreign Language, NCYU

The reason why I wanted to join the camp was that the camp offered an opportunity to have a thorough understanding of CSC. It was surprising and amazing to see the hot slabs go through the many processes of rough milling, finish milling and cool-down. The automatic operation system made slabs into hot roll coils. Despite the heat and noise in the operation, my passion is still alive. It was really worthwhile to make the visit.

◆CSC scholarship:

Reflection:
Wu Zhao Xian, from the Department of Materials and Optoelectronics Science, NSYSU

Winning the scholarship signified success for me and gave me confidence. However, what is more important is the knowledge of steel that I have learned during the entire evaluation process and the valuable experiences of interviewing, which is definitely beneficial to my future occupational or academic career.

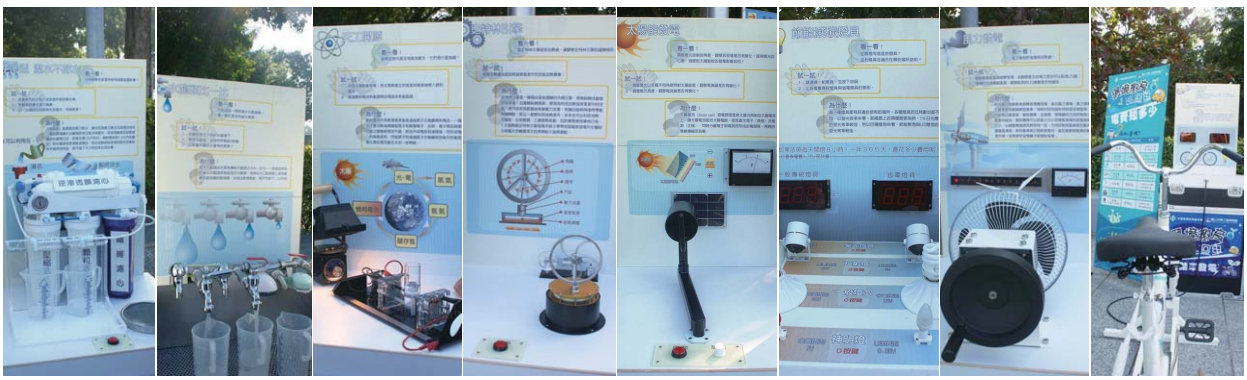
Reflection:
Lin Kun Han, from the Department of Materials Science and Engineering, NTU

It is a great honor to win the CSC scholarship. At the interview day, everyone did a great job, so I was kind of nervous. Fortunately, after stepping onto the platform, I gradually calmed down. The interviewers were very kind and friendly. They gave me approval in a Q&A session and talked to me about my future plans, so I had a good feeling about CSC. If I have the chance to join the CSC family, I must get along with colleagues well in a harmonious working environment.

◆Environmental education car

The CSC Group and the National Science and Technology Museum (NSTM) jointly support the "Environmental Education Car" program to fulfill CSR, promote environmental education and serve disadvantaged students in remote areas. CSC funds the car and operational expenses, while NSTM designs and prepares portable teaching tools depending on the needs during the circuits. The environmental education car program has been planned since March 2011 and makes remote schools a priority for the initial stage.

The portable teaching tools that the environmental education car can carry include: solar power, Stirling engine, wind power tools, energy saving lamp, fuel cells, bicycle generator, RO facility and water saving faucets, 8 item types in total. These teaching tools are instructive, interactive and operative. We hope that children can personally touch and use these creative environmental protection tools. We also design mission games and lucky draw activities to make environmental education more diverse and vivid. In the circuit, the CSC Group Education Foundation donated sets of illustrated books on environmental education to elevate children's environmental awareness and science literacy.



◆Ecological education camp

The CSC Group Education Foundation holds an ecological summer camp; its aim is to draw kids out of classrooms and arouse their interest through observing the natural ecology. There were as many as 1,000 participants for the 5 years of the activity. In addition, the foundation in conjunction with Kaohsiung Charity Group saved some seats for the Care Taiwan Association, for the Kaohsiung City Wu-Jia Social Welfare Center and for children from disadvantaged families to participate in the ecological education summer camp for free. We helped disadvantaged children to spend the long summer vacation learning while playing as a way to fulfill our social responsibility.

Children gained more knowledge of plants through activities, igniting their curiosity. Even urban children enjoyed the embrace of nature and understood that Mother Nature is the best mentor. The true meaning of experimental education was reached through on-the-spot contacts and observation.

In the summer of 2011, the Wei Wu Ying Forest Park was filled with children's laughter and "wows". Both CSC Group Education Foundation and these Kaohsiung children had fruitful and unforgettable summer vacations.

◆We collaborated with Kaohsiung Rapid Transit Corp. to host a series of activities, such as: the "KMRT Youth Ambassador," "Your Happy Memory with KMRT", "KMRT Basketball Carnival" and "2011 KMRT Autumn Art Season."

The CSC Group Education Foundation has sponsored KMRT to host art-related performances and activities in recent years, hoping to encourage Kaohsiung citizens to take the KMRT for energy saving and carbon reduction and to help the young generation cultivate a habit of taking KMRT.

KMRT Youth Ambassador

The CSC Group Education Foundation sponsored the Kaohsiung Rapid Transit Corp. to kick off the "KMRT Youth Ambassador" program. Young and passionate people were wanted. KMRT Youth Ambassadors should provide information service at Formosa Boulevard Station, Kaohsiung Main Station, Zuoying Station and other popular stations on Friday, Saturday and Sunday in order to give passengers a good memory of Kaohsiung.

KMRT Basketball Carnival

The CSC Group Education Foundation, together with the Kaohsiung Rapid Transit Corp., Union Bank of Taiwan and Chunghwa Telecom, hosted the "KMRT Basketball Carnival" at the outdoor basketball court in Sanmin Household & Commercial High School, next to Exit 5 of Kaohsiung Arena Station (R14) on April 23, 2011. We also invited basketball stars from the champion team on SBL, Taiwan Beer, to have a grand slam show and interact with the people.

Take KMRT to the music concert

The CSC Group Education Foundation assisted the Kaohsiung Rapid Transit Corp. to hold the "Love & Life" concert outside the main stadium of Kaohsiung Arena on December 10, 2011, inviting such singles as Claire Kuo, the voice of pure love. What's more, we cooperated with other CSC clubs to invite Kaohsiung citizens to the carnival.

KMRT Autumn Art Season

The CSC Group Education Foundation assisted the Kaohsiung Rapid Transit Corp. to hold the "KMRT Autumn Art Season", inviting JPG2 (Ju Percussion Group) to have a lively performance at Dadong park, next to Dadong station (O13), on October 29, 2011. Nearly 2,000 people flooded into the park. An audience member from Pingtung said, "My family and I often participate in art activities. We used to drive, but this time the grand outdoor music concert was held near a KMRT station. It is more convenient to take the KMRT. We did not get stuck in traffic and had no need to find parking. It saved time and was safe."

◆The CSC Group Education Foundation has held various kinds of lectures since 2008, including CSC lectures for citizens and spiritual and campus lectures. A variety of lectures enhances citizens' concepts of culture, art and drama, while citizens can elevate themselves spiritually and beautify their lives to create a better future.

Jiang Xun


Zhang Quo Li


Hong Lan


Tom Wang


Xi Mu Rong

Lectures for citizens

Date	Speaker	Occupation	Topic	Location
2011.08.13	Zhang Quo Li	Author	Trips and Life are as Magical	Sanmin Household & Commercial High School
2011.09.10	Tom Wang	Author	Five Tips to be Happy	Siaogang senior High School
2011.10.08	Hong Lan	Professor at National Yang Ming University	The Brain and Creativity	Siaogang senior High School
2011.11.12	Xi Mu Rong	Author	The Beauty of Meng Gu	Siaogang senior Hhigh School
2011.12.10	Jiang Xun	Aesthetician	Rise of the Physical Body-from Jataka in Dun Huang Fresco	The main stadium of Kaohsiung Arena

Humanity And Social Science Lectures In Senior High Schools Of Kaohsiung Area.

Date	Speaker	Topic	Location
2011.03.24	Cheng-chi Wang	The Black-faced Spoonbill	Sin Jhuang Senior High School
2011.05.11	Judy Yang (Shu-Chun Yang)	Happiness Starts from Tribulations	Siaogang senior High School
2011.11.09	Eric Wu (Ruo-quan Wu)	How to Elevate Your Writing Ability	Rueisiang senior High School
2011.11.11	Janet	Life and Tours	Tsuoying Senior High School
2011.12.23	Li Wei Wen	Green Life	Feng-Hsin Senior High School

Janet

Judy Yang
(Shu-Chun Yang)

Eric Wu
(Ruo-quan Wu)

Wu Juan Yu

Spiritual lecture

Spiritual lectures

Date	Speaker	Topic	Location
2011.09.30	Wu Juan Yu	Live Your Life: Talk to Yourself Easily	E.C.C. International Conference Center
2011.10.14	Wu Cheng Bo	Master in Life: My Kid is a Master in 3Q	E.C.C. International Conference Center
2011.11.11	Wang Rui Qi	Beyond Mars and Venus-Good Men vs. Good Women	E.C.C. International Conference Center
2011.12.2	Lin Shi Li	Learn to Have a Positive Mindset: Positive Learning Creates Happiness	E.C.C. International Conference Center

◆CSC sponsored the CSC chorus to hold the “Autumn Piano” music concert.

◆CSC worked with the Department of Applied Chinese of Wenzao Ursuline College of Languages to hold the “Love River Literature and Art Camp.”

◆CSC funded the rendition of the Tainan City Philharmonic Chorus of Visual Impairment.

◆CSC sponsored Wang Nong to hold the “Cross Strait Exchanges” art exhibition.

◆CSC sponsored the Art Center of National Sun Yat-sen University for the “2011 NSYSU Sunshine Art Season-Art Feast in Spring.”

◆CSC sponsored the Kaohsiung Public Library to purchase the “Internet online book-lending service in response to the merger of Kaohsiung City and County.”

◆CSC worked with the CSC Charity Club to hold “Let’s Go to see Cirque du Soleil show and Flora Expo.”

◆CSC worked with World Vision to hold “I AM CHANGED because of you.”

◆CSC sponsored the Formosa Ensemble Orchestra to hold “Music Tells the Taiwan History.”

◆CSC sponsored the Southern Taiwan Joint Service Center, Executive Yuan to hold “R.O.C. Centennial: –2011 Southern Leader Education Academy.”

◆CSC sponsored and assisted in holding the Steel Technology Seminar.

◆CSC opened Steel Manufacturing Theory courses at NTU, NCKU and NSYSU.

◆CSC funded the Department of Materials Science and Engineering, NCKU for building the CSC metal laboratory.

◆CSC subscribed to the maintenance expenses of pathways in Yushan National Park.

◆CSC sponsored the ouside broadcasting of "Lang Lang'sRecital" and the "Black and White" piano concert.

◆CSC funded a computer classroom at Wenzao Ursuline College of Languages.

"Autumn Piano" muisc concert

The outside broadcasting of "Lang Lang's Recital".

CSC funded a computer classroom of Wenzao Ursuline College of Languages.

3.3.9 Regulation issues

(1) Regulation identification

According to the OHSAS 18001 and ISO 14001 management systems, organizations must promise to obey SHE-related laws and identify related regulations and other requests. CSC transfers the officially published safety, health and environmental protection regulations to the competent authorities for identification through the Internet to make sure they are followed and that early responses are properly provided. We identified 48 SHE regulations in 2011.

(2) Regulatory compliance

CSC had no violation records except for accidents and fines caused by human error. There was a NTD 60,000 fine in 2011 due to the violation of the safety and health regulations. The violation records on safety and health regulations in the past 5 years are shown as follows:

	2007	2008	2009	2010	2011
Issued by	K.LSIO	K.LSIO	K.LSIO	K.LSIO	K.LSIO
Piece/penalty	1/ NTD 60,000	3/ NTD 180,000	2/ NTD 120,000	2/ NTD 180,000	1/ NTD 60,000

NOTE: K.LSIO (Labor Standards Inspection Office, Kaohsiung)

4 Future Goals and Directions

4.1 Corporate governance

Future goals and directions		Current achievements	Work to do
2010 business policy	Support Dragon Steel with great effort	CSC supported Dragon Steel to finish the first phase in the second term of expansion construction prior to April, 2010 and smoothly start operating.	Support the second phase in the second term of expansion construction of Dragon Steel with all efforts
	Integrate the group's production and selling	In 2010, we finished unifying the ordering and selling systems with Dragon Steel via the brokerage method.	Continue to integrate the group's production and selling
	Actively save energy and reduce waste	The 2010 actual cost decreased by NTD 4.822 billion.	Continue to actively save energy and reduce waste and costs
	Accelerate R&D and innovation	The 2010 orders on high-grade products were 3.805 million tons.	Continue to accelerate R&D and innovation
Increase the 2015 revenue of CSC Group by 42% compared with 2010		In the second half of 2011, the economy slowed down. CSC 2011 revenues were NTD 240.4 billion, an increase of 5% compared with 2010. The revenues of subsidiaries decreased by 34%.	Continue to increase CSC Group's revenues
Enhance customer service and the strategic cooperation with top International steel mills		In 2011, the domestic customer satisfaction was 72.66 points while foreign customer satisfaction was 70.4 points. Compared with 2010, they showed an increase of 0.46 point and a decrease of 2 points, respectively.	Continue to raise customer satisfaction
Vigorously participate in activities of World Steel Association to maintain good partnership and ensure fair competition		Continue to comply with the activities of World Steel Association	Continue to comply with the activities of World Steel Association

4.2 Energy and environmental management

Future goals and directions	Current achievements	Work to do
Continue to develop high grade, high strength steel products in order to reduce carbon footprints of downstream industries and steel products	The 2011 orders on high grade, high strength steel products were 38.65%. Electrical Steel and hot roll coil passed carbon footprint verification.	Continue to develop high grade, high strength steel products
Continue to introduce advanced pollution prevention and energy saving facilities to reduce air pollutant and CO_2 emission intensity released during producing steel products per ton and set the International standard as the goal	The 2011 CO_2 emission intensity was 2.196 ton/tcs, a decrease of 4.1% compared with 2010.	Continue to introduce advanced pollution prevention and energy saving facilities
Energy consumption of 2012 is ≤5800Mcal/tcs. The goal of SOx emission intensity is to reduce this figure by 10%.	The 2011 energy consumption per ton of crude steel was 5,537 Mcal, a decrease of 135 Mcal compared with 2010. The emission intensity of SOx was 1.09kg/tcs, a decrease of 10.7% compared with 2010.	Continue to decrease energy consumption per ton of crude steel

Future goals and directions	Current achievements	Work to do
In the next 5 years, dust proof net at stockpiles and de-S facility at No. 4 sinter are expected to be built while de-SOx and de-NOx facilities for No. 6-8 boilers will be upgraded. Particulate emission is expected to be reduced to 1,651kg/day, SOx 5,590kg/day and NOx 1,045kg/day.	In 2011, the particulates emission per ton of crude steel increased by 1,041 kg/ day compared with 2010. The emission of SOx decreased by 1,581 kg /day and NOx of 1,674 kg/day compared with 2010.	Establish dust-proof net at stockpiles and de-S facility at the sinter to reduce the emission of traditional air pollutants
Develop and apply low carbon and zero carbon energy, including biomass, solar power and fuel cell; support the government's policy in the research and development of carbon capture and sequestration	CSC has established 507.64 kWp photovoltaic system, generating 323,155 kWh and reducing 197,771 kg CO_2 in 2011. CSC set up a cultivating system of carbon fixation which can treat 9 tons of algae-rich water beside the #3BF chimney of hot-blast stove, and also developed technology for cultivating Spirulina.	Continue to develop such low carbon (zero carbon) energy as biomass, solar power and fuel cell
Enhance water conservation and improve the reliability of water resource: targeting 5.0 ton/TCS raw water consumption (including cooling water for power plants) and reducing raw water consumption by recycling purified industrial and sewage wastewater	The 2011 raw water consumption per crude steel was lowered from 5.09 tons to 4.84 tons.	Plan to build the third-class recycling factory in Fongshan River Wastewater Treatment Plant and a desalinization plant at South-star project area to make demineralized water
Continue to reduce pollutants in the effluent to lessen the burden on nearby water bodies	The 2011 COD for the effluent was 51.4mg/ L and the suspended solid (S.S) was 9.1mg/ L. The content of heavy metal was in trace amounts, far below the effluent standard.	Continue to reduce pollutants in the effluent
Improve the quality of BOF slag and promote the revision of control standard for Cr3+ and Cr6+ to allow reasonable reuse of BOF slag	Working with Taiwan Steel and Iron Industries Association, CSC requests EPA to loosen the regulations on Cr3+ on non-farm land according to health risk assessment as other advanced countries did, and regulate Cr3+ and Cr6+ with separate standards of Chromium	BOF slag transformation station is expected to be completed and tested by June, 2012. It is expected to decrease the expansion and alkalinity of BOF slag.
Assist factories in Linhai Industrial Zone and CSC Group companies in enhancing environmental protection and energy saving performance to lessen the burden of the entire supply chain	CSC as a core created the industrial ecology network connecting 22 enterprises to build the resource chain. Industries exchange energy through the district energy integration to increase the overall energy efficiency.	Continue to elevate environmental protection and energy saving performance in the Linhai Industrial Zone and CSC Group companies

4.3 Engagement in social harmony

Future goals and directions	Current achievements	Work to do
With good performance on workplace safety and environmental protection, we need to engage in community service, create a better living environment and comply with and assist Kaohsiung City in building a low carbon city to improve CSC's image.	Complied with Kaohsiung City and joined the Low Carbon City Evaluation and donated 8,500 bicycles to Kaohsiung Rapid Transit Corp.	Continue to improve the performance of workplace safety and CSC's image.
Continue to treat employees and contractors well and maintain good interaction and collaboration	In 2011, a dispute arose due to optional leave instead of overtime pay.	Continue to treat employees and contractors well
Help central and local governments to set energy, environmental protection and adaptation policies, regulations and mechanisms to make them suitable for Taiwan and connect to the international society.	Via the academic association, strive for the rationalization of central and local regulations, including: energy saving and carbon reduction, groundwater, energy tax, Air Pollution Prevention And Control Law and Waste Disposal Act and offer suggestions on the low carbon economy, carbon credit policy and development of Southern industries.	Continue to help central and local governments to set good policies, regulations and mechanisms
Vigorously participate in activities of domestic and international associations or labor unions, fortify professional resource and elevate credibility in the negotiations with the government	Participate in BCSD, TCSF and other sustainable development activities and fill a questionnaire of carbon disclosure on CDP	Fill out DJSI questionnaire and vigorously participate in activities of domestic and International associations
Care for vulnerable groups and indigenous tribes in their life and culture, and continue to support the mobile library	Cooperate with NSTM to establish the program of "CSC Environmental Education Car" for promoting environmental education to remote elementary schools	Purchasing a second "CSC Environmental Education Car" and continuing the circuit library activity
Continue to support art and literature groups, and art activities of vulnerable groups to enrich the culture atmosphere in the Kaohsiung area	Continue to support art and literature activities.	Continue to support art and literature activities
Continue to engage in public welfare activities, including emergency relief and disaster reconstruction	Make donations to Japan for the 311 tsunami and fund the Directorate General of Highways to build the Sinfa Bridge	Continue to engage in public welfare activities
Continue to hold CSC camp, steel tours and offer CSC scholarships in order to enrich students' steel production knowledge	Make donations to the CSC Group Education Foundation, continue to hold CSC camp, steel trips and provide CSC scholarships	Continue to enrich students' steel production knowledge

Appendix I: Global Reporting Initiative (GRI) Indicator Comparison List

	GRI Indicators	Status	Related CSC CSR Report Section	page	Explanatory Notes
1	**Strategy and Analysis**				
1.1	Statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy.	◎	message from top management	4	
1.2	Description of key impacts, risks, and opportunities.	◎	2.4.6	29	
2	**Organizational Profile**				
2.1	Name of the organization.	◎	1.6.1	12	
2.2	Primary brands, products, and/or services.	◎	1.6.4	13	
2.3	Operational structure of the organization	◎	2.1.5	19	
2.4	Location of organization's headquarters.	◎	1.6.1	12	
2.5	Number of countries where the organization	◎	1.6.1	12	
2.6	Nature of ownership and legal form.	◎	1.6.1	12	
2.7	Markets served	◎	3.1.1	34	
2.8	Scale of the reporting organization	◎	1.6.3	13	
2.9	Significant changes during the reporting period	◎	1.6.2	13	
2.10	Awards received in the reporting period	◎	Appendix II	94	
3	**Report Parameters**				
3.1	Reporting period	◎	1.5.2	11	
3.2	Date of most recent previous report	◎	message from top management	4	
3.3	Reporting cycle	◎	message from top management	4	annual
3.4	Contact point for questions regarding the report or its contents.	◎	Bottom:Contact Information		
3.5	Process for defining report content	◎	1.2.2	6	
3.6	Boundary of the report	◎	1.5.2	11	
3.7	State any specific limitations on the scope or boundary of the report	◎	1.5.2	11	
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations.	◎	1.5.2	11	

	GRI Indicators	Status	Related CSC CSR Report Section	page	Explanatory Notes
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report.	◎	1.5.2	11	
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement	◎	message from top management, 1.5.2	4, 11	
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	◎	message from top management	4	
3.12	Table identifying the location of the Standard Disclosures in the report.	◎	Appendix I	89	
3.13	Policy and current practice with regard to seeking external assurance for the report.	◎	1.5.3	11	
4	**Governance, Commitments, and Engagement Governance**				
4.1	Governance structure of the organization.	◎	2.1	17	
4.2	Indicate whether the Chair of the highest governance body is also an executive officer	◎	2.1.5	19	
4.3	For organizations that have a unitary board structure, state the number and gender of members of the highest governance body that are independent and/or non-executive members.	◎	2.1.1	17	
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	◎	1.3, 2.4.3	6, 25	
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives, and the organization's performance.	◎	2.1.5	19	
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided.	◎	2.4.2	24	
4.7	Process for determining the composition, qualifications, and expertise of the members of the highest governance body and its committees.	◎	2.1	17	
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	◎	message from top management	4	
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	◎	message from top management	4	
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	◎	2.1.3	18	
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	◎	2.4.5	26	
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	◎	3.2.8	60	

GRI Indicators		Status	Related CSC CSR Report Section	page	Explanatory Notes
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations	◎	1.6.7	16	
4.14	List of stakeholder groups engaged by the organization.	◎	1.3	6	
4.15	Basis for identification and selection of stakeholders with whom to engage.	◎	1.3	6	
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	◎	1.3	6	
4.17	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.	◎	1.4	9	
Economic Performance Indicators					
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	◎	3.1.3	35	
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	◎	3.2.1	41	
EC3	Coverage of the organization's defined benefit plan obligations.	◎	3.3.7	75	
EC4	Significant financial assistance received from government.	◎	3.1.5	37	
EC5	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	◎	3.3.2(3)	67	
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	◎	3.1.6	37	
EC7	Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation.	◎	3.3.2(1)	65	
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, inkind, or pro bono engagement.	◎	3.3.6	75	
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.	◎	2.4.6	29	
Environmental Performance Indicators					
EN1	Materials used by weight or volume.	◎	1.6.6	15	
EN2	Percentage of materials used that are recycled input materials.	◎	3.2.3(6)	49	
EN3	Direct energy consumption by primary energy source.	◎	1.6.6	14	
EN4	Indirect energy consumption by primary source.	◎	1.6.6	14	

	Environmental Performance Indicators				
EN5	Energy saved due to conservation and efficiency improvements.	◎	3.2.3(2)(3)	45, 46	
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.	◎	3.2.3(2)	45	
EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	◎	3.2.3	45	
EN8	Total water withdrawal by source.	◎	3.2.3(11)	54	
EN9	Water sources significantly affected by withdrawal of water.	◎	3.2.3(11)	54	
EN10	Percentage and total volume of water recycled and reused.	◎	3.2.3(11)	54	
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	◎	3.3.6	75	Not located in protected areas and areas of high biodiversity value outside protected areas
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	◎	3.3.6	75	Not located in protected areas and areas of high biodiversity value outside protected areas
EN13	Habitats protected or restored.	◎	3.3.6	75	Not located in protected areas and areas of high biodiversity value outside protected areas
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	◎	3.3.6(1)	75	Not located in protected areas and areas of high biodiversity value outside protected areas
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	◎	3.3.6(1)	75	Not located in protected areas and areas of high biodiversity value outside protected areas
EN16	Total direct and indirect greenhouse gas emissions by weight.	◎	3.2.3(4)	46	
EN17	Other relevant indirect greenhouse gas emissions by weight.	◎	3.2.3(4)	46	
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	◎	3.2.3(4)	46	
EN19	Emissions of ozone-depleting substances by weight.	◎	3.2.3(5)	47	
EN20	NOx, SOx, and other significant air emissions by type and weight.	◎	3.2.3(5)	47	
EN21	Total water discharge by quality and destination.	◎	3.2.3(11)	54	

	Environmental Performance Indicators				
EN22	Total weight of waste by type and disposal method.	◎	3.2.3(6)(9)	49, 53	
EN23	Total number and volume of significant spills.	◎	3.2.3(7)	52	No significant spill
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention, and percentage of transported waste shipped internationally.	◎	3.2.3(7)	52	
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	◎	3.2.3(6)	49	
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	◎	3.2.3(5)	47	
EN27	Percentage of products sold and their packaging materials that are reclaimed by category.	◎	3.2.3(6)	49	
EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.	◎	3.2.9	60	
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.	◎	3.2.3(2)	45	
EN30	Total environmental protection expenditures and investments by type.	◎	3.2.7	59	
	Labor Practices and Decent Work Performance Indicators				
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	◎	3.3.2(1)	65	
LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.	◎	3.3.2	65	
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation.	◎	3.3.7	77	
LA4	Percentage of employees covered by collective bargaining agreements.	◎	3.3.2(1)	65	
LA5	Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements.	◎	3.3.2(4)	67	
LA6	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.	◎	2.2.5	21	
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender.	◎	3.3.1(10)	64	
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	◎	3.3.1(12)(13)	64, 65	

Labor Practices and Decent Work Performance Indicators					
LA9	Health and safety topics covered in formal agreements with trade unions.	◎	3.3.4	72	
LA10	Average hours of training per year per employee by gender and by employee category.	◎	3.3.3	69	
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	◎	3.3.3	69	
LA12	Percentage of employees receiving regular performance and career development reviews, by gender.	◎	3.3.3	69	
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	◎	3.3.2(1)	65	
LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	◎	3.3.2(3)	67	
LA15	Return to work and retention rates after parental leave, by gender.	◎	3.3.2(1)	65	
Human Rights Performance Indicators					
HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.	◎	3.3.2(6)	68	Percentage is zero
HR2	Percentage of significant suppliers, contractors, and other business partners that have undergone human rights screening, and actions taken.	◎	3.3.2(6)	68	
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	◎	3.3.3	69	
HR4	Total number of incidents of discrimination and corrective actions taken.	◎	3.3.2(1)	65	No incidents of discrimination
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.	◎	3.3.4	72	
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.	◎	3.3.2(1)	65	No child labor
HR7	Operations and significant 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.	◎	3.3.2(6)	68	

Human Rights Performance Indicators					
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.	◎	3.3.3(3)	70	
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.	◎	3.3.2(1)	65	No violations involving rights of indigenous people or actions taken
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.	◎	3.3.2(1)	65	No violations involving rights of indigenous people or actions taken
HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.	◎	3.3.2(1)	65	No violations of human rights
Society Performance Indicators					
SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	◎	3.2.3(1)	45	
SO2	Percentage and total number of business units analyzed for risks related to corruption.	◎	2.2.3	21	
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures.	◎	2.2.3	21	
SO4	Actions taken in response to incidents of corruption.	◎	2.2.3	21	
SO5	Public policy positions and participation in public policy development and lobbying.	◎	2.2.2	20	
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.	◎	2.2.2	20	
SO7	Total number of legal actions for anticompetitive behavior, anti-trust, and monopoly practices and their outcomes.	◎	2.4.2(2)	24	
SO8	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations.	◎	3.3.9(2)	85	
SO9	Operations with significant potential or actual negative impacts on local communities.	◎	3.2.3	45	
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	◎	3.2.3	45	

Product Responsibility Performance Indicators					
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	◎	3.2.2	42	
PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.	◎		42	No non-compliance with regulations
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	◎	3.2.2	42	
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.	◎		42	No non-compliance with regulations
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	◎	3.1.9(2)	40	
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	◎	3.2.2	42	
PR7	Total number of incidents of compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.	◎			No non-compliance with laws, standards, and voluntary codes
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	◎	3.1.9(1)	40	No non-compliance with regulations
PR9	Monetary value of significant fines for non-compliance with law and regulations concening the provision and use of products and services.	◎			No complaints regarding breaches of customer privacy and losses of customer data

Mining and Metals Sector Supplement					
MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated.	◎	3.3.6(1)	75	Not located in protected areas and areas of high biodiversity value outside protected areas
MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place.	◎	3.3.6(1)	75	Not located in protected areas and areas of high biodiversity value outside protected areas
MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks.	×			
MM4	Number of strikes and lock-outs exceeding one week's duration, by country.	◎			Zero times
MM5	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities.	×			
MM6	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples.	◎			Zero times
MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes.	×			
MM8	Number (and percentage) or company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks.	×			Zero ASM
MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process.	◎			No resettlement took place
MM10	Number and percentage of operations with closure plans.	◎			No closure plan
MM11	Programs and progress relating to materials stewardship.	◎	1.1, 1.6.6	6, 14	

Appendix II: Awards

Corporate governance

2011

1 First prize in the metal industry in benchmarking corporate eputation survey of CommonWealth Magazine in 2011
2 "Silver prize of the Mfg. Group" and "Excellence Prize of the Climate Change Response Group" granted by 3 Taiwan Institute for Sustainable Energy (TAISE) for CSC 2010 Corporate Social Responsible Report
4 Certificate of acknowledgement granted by the Disaster Recovery Committee, Executive Yuan, for CSC's donation of the Sinfa Bridge
5 Third prize of the dragon boat contest, Kaohsiung City 14th Excellent Photoelectric Product Award, National Science Council
6 Fourth prize in the "Happy Enterprise" survey of 1111 Employment Agency
7 Gold medal of the Yearly Contribution and National Invention Award, Intellectual Property Office
8 CSR Excellent Disclosure Award of Public Companies, Taiwan Securities Exchange

2010

1 First prize of metal industry in benchmarking corporate reputation survey of CommonWealth Magazine in 2010
2 Ninth prize of "Top Ten Excellent Exporters/Importers in 2009"

2009

1 CommonWealth Magazine's "2009 Corporate Citizen Award"
2 "Industrial Innovation Achievement Award for Excellence in Science and Technology", presented at the 17th session by the Ministry of Economic Affairs
3 VW Group's Best Supplier Award
4 "Certification of Taiwan Corporate Governance Association (TCGA), 3 years in a row, Assessment of the Listed Companies' Governance, the fourth session
5 17th session Industrial Technology Advancement Award for Excellence
6 Fourth prize of "Top Ten Excellent Exporters/Importers in 2008"

2008

1 "Annual World's Best Supplier Award in 2007" of the American General Motors
2 "Listed Companies Governance Assessment Work at the Third Session" rated A+ by Taiwan Corporate Governance Association (TCGA)
3 "Listed Companies Disclose Information Evaluation in 2007" was named Information Disclosure Evaluation A+ rating at the sixth session, and listed in the "Voluntary Exposition Information Transparent"
4 "Gold Trade Award of Blue-Chip Companies of Top Ten Excellent Exporters/Importers in 2007" of the Ministry of Economic Affairs, ranked sixth prize of blue-chip companies
5 First prize in metal industry of "Taiwan's Most Admired Company in 2008" of CommonWealth Magazine

ESH and energy

2011

1 "Outstanding Award" of Performance Group A in the "Excellent EnergySaving Praise Activity", Ministry of Economic Affairs
2 Praised as the "Excellent Green Procurement Units", Environmental Protection Administration
3 Praised as the "Excellent Private Group and Green Procurement Unit in 2010" by Environmental Protection Bureau of Kaohsiung City Government
4 Excellence prize of the "Enterprise EnergySaving Performance Ranking Award" granted by Environmental Protection Bureau of Kaohsiung City Government
5 Praised by the Labor Affairs Bureau of Kaohsiung City Government as the unit of excellent health performance
6 Praised by the Ministry of Transportation and Communications for the flux material railway transportation project in Hualien
7 BSI (British Standard Institute) Green Environmental Contribution Award
8 Praised by the Industrial Development Bureau, MOEA, an excellent voluntary GHG reduction company

2010

1 Designated by Ministry of Economic Affairs as "The Only Expert Enterprise on Water Saving"
2 President Ma inspects CSC Energy Dispatch Center and highly praises CSC for its district energy integration achievement
3 Bureau of Energy, "Award of Business Representatives for Energy Conservation Services Group", by Ministry of Economic Affairs
4 Bureau of Energy, Ministry of Economic Affairs, selects the power plant of CSC as especially superior clean power plant in 2010
5 Ministry of Economic Affairs "Benchmarking Enterprise with Integrating Resources"in 2010
6 "Award of Outstanding unit on Water-Saving of Industrial Group, 2010" by Ministry of Economic Affairs
7 The Premium Award of competition of "National Workplace Safety and Health Week" by Council of Labor Affairs

2009

1 CSC's Rolling Mill Department, "Award of Outstanding Unit on Water-Saving of Industrial Group and Individuals Who Care of Water", by Ministry of Economic Affairs
2 During the World Games held in Kaohsiung, CSC suspends some processes to improve local air quality
3 Excellent Construction Site: The Development Projects of CSC's 3rd Cold-Rolling Mill
4 Kaohsiung City issued the Award of "Blue Chip Jobsite of Fire Management"
5 EPA issued "Outstanding Business Award of Green Procurement, 2008"

Appendix III: Assurance

INDEPENDENT ASSURANCE OPINION STATEMENT

2011 China Steel Corporation Social Responsibility Report

The British Standards Institution is independent to China Steel Corporation (hereafter referred to as CSC in this statement) and has no financial interest in the operation of CSC other than for the assessment and assurance of this report.

This independent assurance opinion statement has been prepared for CSC only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope, below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by CSC. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to CSC only.

Scope

The scope of engagement agreed upon with CSC includes the followings:

1. The assurance covers the whole report and focuses on systems and activities during the 2011 calendar year on the CSC headquarter and overseas office.
2. The evaluation of the nature and extent of the CSC's adherence to all three AA1000 AccountAbility Principles in this report as conducted in accordance with type 1 of AA1000AS (2008) assurance engagement and therefore, the information/data disclosed in the report is not verified through the verification process.

This statement was prepared in English and translated into Chinese for reference only.

Opinion Statement

We conclude that the 2011 CSC Corporate Social Responsibility Report Review provides a fair view of the CSC CSR programmes and performances during 2011. We believe that the 2011 economic, social and environment performance indicators are fairly represented. The CSR performance indicators disclosed in the report demonstrate CSC's efforts recognized by its stakeholders.

Our work was carried out by a team of CSR report assurors in accordance with the AA1000 Assurance Standard (2008). We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that CSC's description of their approach to AA1000 Assurance Standard and their self-declaration of compliance with the GRI guidelines were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- a top level review of issues raised by external parties that could be relevant to CSC's policies to provide a check on the appropriateness of statements made in the report.
- discussion with managers and staffs on CSC's approach to stakeholder engagement. However, we had no direct contact with external stakeholders.
- 10 interviews with staffs involved in sustainability management, report preparation and provision of report information were carried out.
- review of key organizational developments.
- review of the findings of internal audits.

— review of supporting evidence for claims made in the reports.
— an assessment of the company's reporting and management processes concerning this reporting against the principles of Inclusivity, materiality and responsiveness as described in the AA1000 AccountAbility Principles Standard (2008).

Conclusions

A detailed review against the AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness and the GRI G3.1 guidelines is set out below:

Inclusivity

This report has reflected a fact that CSC is seeking the engagement of its stakeholders continuously. The participation of stakeholders has been initiated in developing and achieving an accountable and strategic response to sustainability. The reporting systems are being developed to deliver the required information. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the CSC's inclusivity issues, however, the future report should be further enhanced by the following areas:

— Encouraging update sustainable development trend about Steel sector continuously and integrated with corporate core strategy to ensure sustainable development performance.
— Improving supply chain management by means of human right assessment for supplier in high risk region.

Materiality

CSC publishes sustainability information that enables its stakeholders to make informed judgments about the company's management and performance. In our professional opinion the report covers the CSC's material issues, however, the future report should be further enhanced by the following areas:

— Working in concert with materiality issues and sustainable performance to good decision-making.
— Publishing a written guideline for the methodology to identify and prioritize CSC's material issues to enable all departments to follow continuously.

Responsiveness

CSC has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for CSC is developed and provides the opportunity to further enhance CSC's responsiveness to stakeholder concerns. Issues that stakeholder concern about have been responded timely. In our professional opinion the report covers the CSC's responsiveness issues, however, the future report should be further enhanced by the following areas:

— Encouraging direct stakeholders' participation, meanwhile, continuing to develop and update the responsive strategy for stakeholders.
— Encouraging to work towards a type 2 of AA1000AS (2008) engagement with a view to providing the reliability of sustainability performance information that stakeholder concerns.

GRI-reporting

CSC provided us with their self declaration of compliance within GRI G3.1 Guidelines and the classification to align with application level A+. Based on our review, we confirm that social responsibility and sustainable development indicators with reference to the GRI Index are reported, partially reported or omitted. In our professional opinion the self declaration covers the CSC's social responsibility and sustainability issues, however, the future report will be improved by the following areas:

— Providing an infrastructure to systematically collect information for supporting their report including performance indicators.
— Developing specific subject on social aspect according to annual core strategy to highlight performance of community involvement and service.

Assurance level

The moderate level assurance provided is in accordance with AA1000 Assurance Standard (2008) in our review, as defined by the scope and methodology described in this statement.

Responsibility

This CSR report is the responsibility of the CSC's CEO as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead Auditors and Carbon Footprint Verifiers experienced in industrial sector, and trained in a range of sustainability, environmental and social standards including AA1000 AS, ISO14001, OHSAS18001, ISO14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

For and on behalf of BSI:

Peter Pu
Managing Director BSI Taiwan
14 May, 2012

AA1000
Licensed Assurance Provider
000-4

Taiwan Headquarters: 5th Floor, No. 39, Ji-Hu Rd., Nei-Hu Dist., Taipei 114, Taiwan, R.O.C.

BSI Taiwan is a subsidiary of British Standards Institution.

Appendix IV: Sustainable Development Charter of the World Steel Industry

worldsteel ASSOCIATION

worldsteel.org

2012 SIGNATORIES TO THE SUSTAINABLE DEVELOPMENT CHARTER OF THE WORLD STEEL INDUSTRY

We operate our business efficiently and in a financially sustainable way, to supply steel products and solutions that satisfy customers' needs and provide value to stakeholders.

We strive to optimise the eco-efficiency of products throughout their life cycle. We promote the recovery, reuse and recycling of steel.

We foster the well-being of employees and provide a safe and healthy working environment.

We promote values and initiatives that show respect for the people and communities associated with our business.

We conduct our business with high ethical standards in our dealings with employees, customers, suppliers and the community.

We engage our stakeholders and independent third parties in constructive dialogue to help fulfil our sustainable development commitments.

We build and share our knowledge of sustainability through open and active communications. We help others in the supply chain to implement sustainable practices.

Giovanni Arvedi, **Acciaieria Arvedi S.p.A.**
Gianpietro Benedetti, **Acciaierie Bertoli Safau S.p.A.**
Takahiro Fujioka, **Aichi Steel Corporation**
Xiaogang Zhang, **Anshan Iron & Steel Group Corporation**
Lakshmi N. Mittal, **ArcelorMittal**
Carolin Kramer, **Badische Stahlwerke GmbH**
Lejiang Xu, **Baosteel Group Corporation**
Norbert Bergs, **Benteler Tube Management GmbH**
Paul O'Malley, **BlueScope Steel Limited**
Francesc Rubiralta, **CELSA Group**
Jo-Chi Tsou, **China Steel Corporation**
Giuseppe Marzorati, **Cogne Acciai Speciali S.p.A.**
Joseph Alvarado, **Commercial Metals Company (CMC)**
Ivan Flores, **Compania Siderurgica Huachipato S.A. (CAP ACERO)**
Tadashi Shimao, **Daido Steel Co., Ltd.**
Raul Gutierrez, **DEACERO, S.A. de C.V.**
Karl Haase, **Deutsche Edelstahlwerke GmbH (DEW)**
Karlheinz Blessing, **Dillinger Hüttenwerke AG**
Soo-Il Lee, **Dongbu Steel Co. Ltd.**
Sae-Joo Chang, **Dongkuk Steel Mill Co., Ltd.**
Antonio Gozzi, **Duferco S.A.**
Mukesh Bhandari, **Electrotherm India Ltd.**
Serif Coskun Ulusoy, **Eregli Iron and Steel Works, Co.**
Prashant Ruia, **Essar Steel Ltd.**
Alexander Frolov, **Evraz Group**
George Matta, **EZZ Steel**
Jürgen R. Grossmann, **Georgsmarienhütte Holding GmbH**
André Bier, Gerdau Johannpeter, **Gerdau S.A.**
George Skindilias, **Halyvourgiki Inc.**
Rolf Höffken, **Hüttenwerke Krupp Mannesmann GmbH (HKM)**
Seung-Ha Park, **HYUNDAI Steel Company**
Hajime Bada, **JFE Holdings**
Vikrant Gujral, **Jindal Steel and Power Limited (JSPL)**
Sajjan Jindal, **JSW Steel Limited**
Hiroshi Sato, **Kobe Steel, Ltd.**
Igor Syry, **Metinvest Holding LLC**
Vivek Kamra, **NatSteel Holdings Pte Ltd.**
Shoji Muneoka, **Nippon Steel Corporation**
Kazuta Sugimori, **Nippon Yakin Kogyo Co., Ltd.**
Daniel R. DiMicco, **Nucor Corporation**
Geoff Plummer, **OneSteel Limited**
Mika Seitovirta, **Outokumpu Oyj**
Tom Erixon, **Ovako AB**
Joon-Yang Chung, **POSCO**
Ali Bin Hassan Al Muraikhi, **Qatar Steel Company (Q.S.C.)**
A.P. Choudhary, **Rashtriya Ispat Nigam Ltd. (VIZAG Steel)**
Sakari Tamminen, **Rautaruukki Oyj**
Fabio Riva, **RIVA FIRE S.p.A.**
Klaus Harste, **Saarstahl AG**
Hassan Al-Ghannam Al-Buainain, **SABIC-Saudi Basic Industries Corporation (HADEED)**
Win Viriyaprapaikit, **Sahaviriya Steel Industries Public Company Limited (SSI)**
Alexey Mordashov, **Severstal**
Tibor Simonka, **SIJ Slovenian Steel Group**
Martin Lindqvist, **SSAB AB**
Chandra Shekhar Verma, **Steel Authority of India Ltd. (SAIL)**
Hiroshi Tomono, **Sumitomo Metal Industries, Ltd.**
Karl-Ulrich Köhler, **Tata Steel Europe**
Hemant Nerurkar, **Tata Steel Limited**
Paolo Rocca, **Techint Group**
Daniel Novegil, **Ternium**
Heinrich Hiesinger, **ThyssenKrupp AG**
Jan Czudek, **TŘINECKÉ ŽELEZÁRNY, a.s.**
John P. Surma, **United States Steel Corporation**
Wilson Nélio Brumer, **USIMINAS – Usinas Siderúrgicas de Minas Gerais S/A**
Philippe Crouzet, **Vallourec**
Wolfgang Eder, **voestalpine AG**


2011
CSC Corporate Social Responsibility Report

CHINA STEEL

Head Office

Address: (81233) No. 1, Chung Kang Road,
Siaogang District, Kaohsiung City, R.O.C.
Tel.: (07) 802-1111
Fax: (07) 802-2511, 801-9427
Website: http: //www.csc.com.tw

Taipei Liaison Office

Address: (11049) Room A, 28F., No. 7, Sec. 5,
Xinyi Road, Xinyi District, Taipei City, R.O.C.
Tel.: (02) 8758-0000
Fax: (02) 8758-0007

Osaka Office

Address: 1F, Osaka U2 Bldg., 4-7 Uchihonmachi
2-Chome, Chuoku, Osaka 540-0026 Japan
Tel.: (81-6) 6910-0888
Fax: (81-6) 6910-0887

You may find various kinds of information on CSC website, including a PDF version of this report.
Websit: http://www.csc.com.tw/csc/hr/CSR/index.htm
You may use the following email, telephone number or mailing address to submit questions or comments on this report.
Office Of Energy and Environmental Affairs
Tel.: 07-8021111 Ext. 5785
E-mail: 143016@mail.csc.com.tw