This report was printed with soybean oil on eco-friendly papers certified by FSC (Forest Stewardship Council).

To know more about K-water’s sustainability management, you can download a free mobile app to view K-water’s most recent Sustainability Report. By scanning the QR code above, you can directly access a download link for the K-water Sustainability Report mobile app.

K-water 2014 Sustainability Report

Through Smart Water Services, featuring IWRM and SWC, K-water increases the level of safety and efficiency of water management and supplies Healthy Tap Water which contains balanced minerals that are good for one’s health.

Water for a happier world.
About this Report

This is a report on the performance of a water utility management which is mainly based on stakeholder issues. It covers various aspects including financial performance, social performance, and environmental performance.

The reporting period is from January 1 to December 31, 2013. The data were collected and adjusted to reflect the reporting period. The report includes external assurance statements.

Purpose of Publication

The purpose of this report is to provide a comprehensive overview of the company's performance in the reporting period.

Amendments

The report has been amended in accordance with the GRI (Global Reporting Initiative) standards.

Contents

The contents of this report are as follows:

1. Introduction
2. Performance Review
3. Stakeholder Engagement
4. Future Direction

References

- GRI (Global Reporting Initiative)
- International Water Association (IWA)
- Korean Environmental Policy and Administration Society
- Korea Water & Wastewater Works Association
- U-City Association
- Korea National Committee on Large Dams
- Korea Society for Quality Management
- International Water Association (IWA)
- Korean Environmental Impact Assessment Association
- Korea Electric Engineers Association
- American Water Works Association (AWWA)
- Korea National Committee on Large Dams
- Korea Society for Quality Management

Awards

- Korea Management Innovation Award 2013
- Global Most Admired Knowledge Enterprise (UK Teleos)
- Asian Most Admired Knowledge Enterprise (UK Teleos)
- Korea Green Architecture Competition
- 13th Korean Digital Green Management Award
- Korean Green Architecture Competition
- National Green Technology Award
- Eco-Star Eco-technology Award (The Ministry of Environment)
- Conservation & Creation Management Award (Environmental Management)
- Excellent enterprise with an outstanding performance in purchasing goods from small and medium enterprises (The Ministry of Employment and Labor)
- Smart Work Superior Institute Award
- Eco-Friendly Company (The Ministry of Environment)

Certifications and Registrations

- ISO 26000
- UN Global Compact
- Customer Charter Statement, Mission Statement for Innovation Vision
- Economic, Environmental, and Social Performance for 2013

Focus Issues

- Economic Performance
- Environmental Performance
- Social Performance

Appendix

- Sustainability Management Performance Data for 2013
- GRI Index
- Third Party Assurance Statement
- ISO 26000
- CDP (Corporate Climate Performance Index)

Voice of Readers

- Economic, Environmental, and Social Performance for 2013

Economic, Environmental, and Social Performance for 2013

Company Overview

Creating Sustainable Values

CEO Message

Sustainability Report

Corporate Governance

Vision and Strategy

Sustainable Management System

Developing Together with Our Stakeholders

Selecting VCS (voluntary carbon standards)

Ethical Management

Environmental Management

Risk Management
K-water, a Water Specialist Corporation

As an integrated water management organization, K-water endeavors to improve public safety and to heighten national competitiveness through safe water management practices to mitigate the effects of climate change. As well, we are committed to playing a vital role as an anchor that facilitates the growth of domestic water industries.

Water Crisis

Water is a precious resource that is essential for the survival of all organisms. Without clean and abundant water, we cannot ensure individuals’ health, national development or better living conditions for our citizens. Our country has been striving to secure adequate water resources year-round and to improve the quality of water in various ways. Population growth, however, has led to increased water consumption. It is a proven fact that we are currently facing a water resource crisis due to the effects of climate change such as more intense droughts, floods, and water pollution.

As the world population increased twofold over the last century, water consumption has increased by nearly 6 times during the same period. Based on this trend, the demand for water in 2030 will amount to approximately 6,900 per capita per year. This exceeds the amount of current water supply by about 40%. In addition, the rapid urbanization of approximately 3.5 billion people, which takes roughly 50% of the entire world population, has resulted in severe water-related environmental damages and these damages are expected to increase.

In recent years, damages from droughts and flooding have been increasing rapidly. The severity of climate change could not only demolish entire ecosystems but also cause negative impacts to a wider range of areas including water resources, food, industries and human health issues. On September 2013, IPCC (Intergovernmental Panel on Climate Change) published its 5th evaluation report and it forecasts that the average temperature of earth will increase by about 3.7 degrees Celsius by the end of the 21st century (year 2081–2100) in comparison to the average temperature of the earth during 1880–2005, and sea level is also expected to increase by 62cm.

WEF (World Economic Forum) selected water shortage and extreme climate change along with the global financial crisis and structural unemployment as the top 10 global risks in its “Global Risk 2014 Report”. Also, “UN Future Report 2040” warned that issues such as prolonged drought caused by climate change will be a catalyst to trigger conflicts in Southeast Asia, Middle East and Africa by 2022. This acutely depicts the severity of the water situation.

Our country has also been encountering damages such as flooding, droughts and algal blooms. In some mountain sides and islands, we are already facing a water shortage issue which is causing an imbalance between water supply and demand. Thus, the voice of the public is demanding the government to provide safer water services with sustainable water management, the supply of high quality tap water, and the realization of welfare in relation to water service.

International Community’s Efforts to Resolve Water Issues

The international community adopted “The Right to Water” at the UN General Assembly held in July 2010, and the universal rights for all humans to have access to safe drinking water which is essential to sustain life and health were recognized. The UN Human Rights Council is demanding each nation to legalize and implement policies to achieve water-related human rights. The concept of water-related human rights approved by the UN Human Rights Council consists of the availability of sustainable water supply, quality that guarantees safety in health and hygiene, acceptability that guarantees privacy and dignity, accessibility of which enables easy and secure access ubiquitously and a reasonable and affordable price for everyone to use water. As such, stricter human rights regulations regarding clean water and hygiene have been established as fundamental rights constitutionally, and the national government is responsible for supplying water and sewage of which its responsibility used to be that of local governments in the past.

As mentioned above, worldwide environmental changes such as climate change have augmented the seriousness of water-related issues including the worsening of water scarcity, increased frequency of water related disasters, water contamination, and the degradation of the aquatic ecology. Such crisis situations threaten the public’s safety on a national level and the lives of all mankind on a global level. This is why the water security is becoming an important issue recently. On a global level, an insufficient water supply triggered by the phenomena such as climate change, desertification, population increase, etc., is resulting in increased water disputes among countries. Thus, many nations are establishing and implementing policies to acquire water resources to secure public safety and well-being while achieving an economic and industrial growth.
Opportunities in the Water Industry

While the severe effects of rapid climate change have created adverse conditions from a water management perspective, there is still a great opportunity from an industrial perspective. A water research organization in the UK, GWI (Global Water Intelligence) estimated the size of the global water industry to be approximately USD 57.7 billion as of 2013, and the Japanese Ministry of Economy, Trade and Industry forecasted that the size of the global water industry will grow up to approximately USD 86.5 billion by 2035.

K-water is Preparing for the Future

We have been actively researching and developing advanced IWRM (Integrated Water Resources Management) and SWG (Smart Water Grid) as more specific and practical measures to respond to climate change. In order to resolve issues such as flooding and droughts which are becoming worse day by day and to settle water-related conflicts between districts that arise as a result of water scarcity, we have decided to adopt IWRM. Through IWRM, we set forth to consider not only the technical aspects but also the economy, society, and environmental issues in order to realize the water management which maximizes both the national economy and social welfare. Also, it is essential that we diversify the sources of water through the use of ICT (information and communication technologies) to supply and manage water more securely and efficiently, and adopt SWG which can increase the efficiency of water supply while consuming less energy.

Global Infrastructure Investment Demand Forecast

<table>
<thead>
<tr>
<th></th>
<th>2015~2020 Investment Demand (K-water, Total Global GDP, %)</th>
<th>2020~2030 Investment Demand (K-water, Total Global GDP, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>722 (1.01%)</td>
<td>1,037 (1.20%)</td>
</tr>
<tr>
<td>Telecommunication</td>
<td>646 (0.85%)</td>
<td>171 (0.21%)</td>
</tr>
<tr>
<td>Electricity</td>
<td>701 (0.96%)</td>
<td>360 (0.45%)</td>
</tr>
<tr>
<td>Roads</td>
<td>250 (0.32%)</td>
<td>270 (0.34%)</td>
</tr>
<tr>
<td>Railways</td>
<td>245 (0.32%)</td>
<td>258 (0.31%)</td>
</tr>
</tbody>
</table>

Source: Organization for Economic Cooperation and Development (OECD)

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As the sole state-owned enterprise specializing in water service in Korea, K-water sets the goal of making a happier world with water by managing the nation’s water resources efficiently to protect the public securely from water-related disasters such as floods and to supply clean water to ensure that there is no district excluded from the water service.

**Corporate Overview** as of 12.31.2013

- **Company name:** K-water (Korea Water Resources Corporation)
- **Location of head office:** Sintanjin-Ro 200, Deadeok-Gu, Daejeon 306-711, Republic of Korea
- **Incorporation date:** November 16, 1967
- **Institution type:** Semi-market type state-owned enterprise
- **Basis of establishment:** Korea Water Resources Corporation Act

**Business portfolio**
1. Construction, operation and management of water resource facilities
2. Construction, operation and management of multi-regional waterworks, local waterworks and sewage
3. Development of urban waterfront and industrial complexes
4. Installation and operation of renewable energy facilities
5. Overseas business, business in North Korea, etc.

- **Employees:** 4,265 people
- **Organization system**
  - Head office: 1 vice president, 4 business divisions, and 24 departments
  - Regional office: 1 business and 8 regional divisions, and 28 regional offices
  - Overseas business: 25 projects in 18 countries

- **Total assets:** KRW 25.6 trillion
- **Sales:** KRW 3.6 trillion
- **Total liabilities:** KRW 14.0 trillion
- **Credit rating:** Domestic AAA, Moody’s A1, S&P A+

**Composition of investors**
- Korean government: 91.1%
- Korea Finance Corporation: 8.8%
- Local government: 0.1%

**Subsidiaries and Affiliates (06–17a)**
- Waterway plus Co., Ltd. (Ownership 100%)
- Korea Construction Management Co., Ltd. (Ownership 18.9%)
- Pwujanggyang Co., Ltd. (Ownership 9.7%)
- P-Whats Co., Ltd. (Ownership 22.0%)
- KDS Hydro Pte., Ltd. (Ownership 80.2%)
- Sihwa Regional Division
- Chungcheong Regional Division
- Gyeong-in Ara Waterway Business Division
- Daegu–Gyeongbuk Regional Division
- Jeollabuk Regional Division
- Gyeongnam–Busan Regional Division
- Jeolla Regional Division
- Daegu–Imsil Regional Division
- Gyeong-in Ara Waterway

**Corporate History**

- **1967**
  - Established as Korea Water Resources Development Corporation
- **1970s**
  - Changed the company name into Industrial Sites and Water Resources Development Corporation in 1974
  - Constructed multipurpose dams in Soyanggang & Andong
  - Constructed industrial complexes (i.e. Changwon & Yeosu) and new cities (i.e. Sihwa & Ansan)
- **1980s**
  - Constructed multipurpose dams in Daejeon, Chungju, Hapcheon, Juam, Imha, and Namgang
  - Completed Four Major Rivers Restoration Projects
  - Opened Gyeong-in Ara Waterway
  - Completed the installation of Sihwa Tidal Power Station
- **1990s**
  - Constructed waterworks in metropolitan areas (i.e. Ulsan, Gumi)
- **2000s**
  - Entered local waterworks business (i.e. Nonsan, Jeongeup)
  - Expanded overseas businesses (i.e. Pakistan, Philippines, etc.)
Creating Sustainable Values

K-water participates in the creation of a sustainable society through its management activities. K-water supplies “Healthy Tap Water,” high quality tap water that contains naturally balanced minerals, clean energy, and high class urban waterfront and industrial complex to our society. K-water’s business creates economic value which is allocated to partnering companies, local communities, etc., and thereby contributes to the society in which all members jointly grow along with creating social and environmental values by providing a safe and clean water environment for everyone.
We would like to express our sincere gratitude to the stakeholders of K-water which is the only water-expert public enterprise, pursuing the mission, “making a happier world with water”, and it is our pleasure to publish the 10th Sustainability Report which contains the information on our sustainable activities and performances.

Creating a cleaner water environment for 47 years

As the only integrated water service company in South Korea, we have been supplying clean and safe tap water to the public and also carrying out our mission to protect the lives and wealth of the public from disasters arising from water such as flooding and drought.

Preparing for the next half century

In this, the 2014 Sustainability Report, we classified K-water’s sustainable management activities to prepare for the next half century into 4 themes based on our stakeholders’ interests: "Creative Management", "Smart Water Services", "Society Prospering Together", and "Creating a happy workplace", and endeavored to make a concrete reporting on each of the themes.

By strengthening its financial solvency and initiating strategic water-specific businesses, K-water pursues creative management and creates a sustainable driver of growth. Through WRM (Integrated Water Resources Management) and SWO (Smart Water Grid), K-water is increasing the level of safety and efficiency of water management, delivering smart water services which manufacture and distribute "Healthy Tap Water", which is high class tap water that contains naturally balanced minerals. We contribute to developing our nation through joint efforts by sharing with social communities and supporting the growth of our partnering companies. As well, we set forth to compete fairly, establish a balance between work and life, and create a workplace environment where we can learn and develop ourselves.

As we have been doing for the past half century, K-water promises that we will continue to secure public safety from water crises and uncertainties and to maintain a sustainable growth through creative and smart water services for the centennial K-water.

Thank you.

K-water CEO Choi, Gye Woon
Based on the traditional concept of ‘Mirinae’, which means everything in our galaxy, K-water sets forth to manage the entire hydrologic cycle by initiating its new ‘SMART Management’ practices. Through the creation of sustainable values and smart water management, we will achieve our vision of making a happier world with water.
Corporate Governance

K-water aims at productive management by reinforcing not only the executive directors’, but also the non-executive directors’ participation in management and by sharing their expertise.

Board of Directors’ composition and operation

K-water’s Board of Directors (BoD), the highest decision-making body, deliberates and passes resolutions on K-water’s major issues for its management goals by taking into account economic, social, and environment fields. It also checks and supports the executives at the same time. K-water’s Board of Directors is comprised of 15 directors: 7 Executive Directors and 8 Non-executive Directors, with a stakeholder who has direct interests in K-water cannot be appointed as a non-executive director. The position of chairperson is served by a senior non-executive director, thereby, contributing to checks and balances in the Board. In 2013, a total of 13 general meetings of the Board of Directors were held, in which 175 major management directives were reported. All management proposals that came up within the Board of Directors were reflected 100% and contributed to the improving of K-water’s management.

Non-executive Directors’ roles and strengthened professionalism

K-water’s Board of Directors has selected outside directors who have expertise to solve management issues such as improving financial soundness and developing waterfront areas. As a result, financial and urban experts make up 38% of the entire outside directors. More than half of the members of the Board, Executive Recommendation Committee, and the Audit Committee are the outside directors, thereby reinforcing their independence and the role of checks and balances. Also, K-water has enhanced the reporting to the BoD, focusing on current issues and major events; it strategically supports non-executive directors’ activities by arranging their offices in business areas and matching each of their professional skills with an appropriate department.

Board of Directors’ remuneration policy

K-water’s Board of Directors is objectively evaluated in various fields including management proposals, system operations, attendance rates, and remarks according to the government’s management evaluation and K-water’s internal evaluation guidelines every year. In addition, the outside (non-executive) directors and the executive directors receive performance-based payments according to the results of government evaluations, which consider quantified and non-quantified outcomes and implementation efforts. Based on this remuneration policy, K-water’s CEO was paid with about HRW 210 million in 2013; three times more than the average employee compensation and seven times more than that of a new employee.

Non-executive Directors

Kim, Yoon Kwon
President

Lee, Sung Hyun
Chairman, Board of Directors

Choi, Ho Sang
Auditor General

Kim, Tae Hee
Senior Executive Vice President

Lee, Hak Su
Senior Executive Vice President

Kim, Won Tae
Professor, Graduate School of Public Policy, Hanyang Univ.

Kim, Jae Bok
Vice President of Water Supply Business Division

Choi, Jeong Hoon
Vice President of Water Supply Business Division

Lee, Tae Jin
Vice President of Water Supply Business Division

Seo, Ju Sang
Vice President of Water Supply Business Division

Kwon, Youn Tae
Chairman, Board of Directors

Jang, Byung Jin
President, Korea DMC, Ltd.

Lee, Won Seo
Compliance Director, Public Policy, Hanyang University

Bong, Soon Wha
Chairman, Keeper, the National Water Supply Business Division

Lee, Jeong Duk
President, Unit PJMC, Ltd.

Kim, Heung Soo
Chair, Audit Committee, Keeper, the National Water Supply Business Division

Kim, Young Jo
Chair, Strategic Planning Division, Keeper, the National Water Supply Business Division

Park, Wha Seok
Chief Executive, Seyeon Accounting Corporation

Vision and Strategy

K-water’s sustainable management aims to create a happier world with its smart water service; it aspires to create sustainable values with its management activities and to pursue a balance of environmental integrity and social responsibility based on economic efficiency.

Declaration of the new ‘SMART Management’ system

In order to secure new-growth power for the future after the national project and to take full responsibility as the nation’s only water-expert public corporation which offers nationwide water services, K-water declared the start of new ‘SMART Management’ system and established the new mid- and long-term (2014-2023) Strategic Management Plan in January 2014. By making a new vision slogan, ‘SMART’ K-water START Together, hitting K-water’s management policies and 3 strategic goals as well as selecting 9 strategic tasks and 115 detailed tasks accordingly, and reorganizing its business directions, K-water clarified its determination to practice the new SMART Management.

Sustainable management strategy directions

SMART K-water START Together

Through ICT (Information & Communication Technology)-based water management (Smart Water On), Integrated Water Resources Management, K-water will play a pivotal role in solving of domestic and overseas water problems, implementing its roles, and realizing the utilization of its service, ‘a world leader in water management services.’
Sustainable Management System

K-water manages 23 Key Performance Indices (KPI) in order to systematically implement sustainable management; its excellence was proven by receiving the highest grade in the Korean Business Ethics Index-Sustainability Management Evaluation (KoBEX-SM) by the government.

Sustainable management system organization
The Management Services Dept. under the Office of the Senior Executive Vice President is in charge of K-water’s sustainable management, and has been annually publishing a sustainability report with third-party verification since 2005. In 2016-5, K-water reformed its organizational structure in accordance with the new SMART Management system. First, K-water established the Future Technology Division and the Disaster & Safety Management Department in order to enhance future technologies and safety services.

Second, K-water operates the Corporate Partnership & Diagnosis Team under the Water Supply Business Division to strategically promote shared growth with partnering companies within the enterprise supply chain. Third, K-water founded the Conflict Management Team under the Office of the Senior Executive Vice President in order to build a sustainable relationship based on mutual trust with its stakeholders. Lastly, K-water operates advisory committees and councils that encompass economic, environmental, and social matters in order to accompany the stakeholders’ various opinions.

Key performance indicator for K-water’s mid- and long-term sustainable management

<table>
<thead>
<tr>
<th>Strategy Direction</th>
<th>Key Performance Indicator (KPI)</th>
<th>2013 (Performance)</th>
<th>2014</th>
<th>2023</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Safe mineral water supply (billion ɓ)</td>
<td>5,583 2014</td>
<td>5,516 2014</td>
<td>5,659 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food control capacity (billion ɓ)</td>
<td>47.3 2014</td>
<td>49.5 2014</td>
<td>54.6 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry waste sales (billion ɓ)</td>
<td>198 2014</td>
<td>243 2014</td>
<td>2,282 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban waterworks &amp; industrial complex sales (billion ɓ)</td>
<td>5,623 2014</td>
<td>9,915 2014</td>
<td>148,933 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean energy supply (GWh)</td>
<td>3,040 2014</td>
<td>2,854 2014</td>
<td>3,050 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Domestic sales (USD billion)</td>
<td>986 2014</td>
<td>5,801 2014</td>
<td>11,072 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Talent training Index (%)</td>
<td>40.5 2014</td>
<td>40 2014</td>
<td>45 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disaster/Disaster Technology (Key technology) (project number of cases)</td>
<td>4 2014</td>
<td>4 2014</td>
<td>31 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water supply (billion ɓ)</td>
<td>3,709 2014</td>
<td>3,772 2014</td>
<td>4,499 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bonded water (billion ɓ)</td>
<td>32.7 2014</td>
<td>35.5 2014</td>
<td>79.1 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source of water in local waterworks (%)</td>
<td>81.4 2014</td>
<td>80 2014</td>
<td>83 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level of risk management effort (percentage)</td>
<td>93.5 2014</td>
<td>95 or above 2014</td>
<td>95 or above 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate of accident prevention effort (percentage)</td>
<td>0.52 2014</td>
<td>0.46 2014</td>
<td>0.10 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level of corporate integrity (grade)</td>
<td>Unsatisfactory 2014</td>
<td>Outstanding 2014</td>
<td>Outstanding 2023</td>
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<tr>
<td></td>
<td>Debt ratio (%)</td>
<td>120.6 2014</td>
<td>121.6 2014</td>
<td>86.2 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sales increase rate (%)</td>
<td>19.7 2014</td>
<td>6.7 2014</td>
<td>9.7 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Profit rate (%)</td>
<td>22.5 2014</td>
<td>12.5 2014</td>
<td>15.9 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Performance Evaluation in dust (percentage)</td>
<td>66 2014</td>
<td>69 2014</td>
<td>84 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social contribution activities index (point)</td>
<td>151 2014</td>
<td>150 or above 2014</td>
<td>154 2023</td>
<td></td>
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<tr>
<td></td>
<td>Customer satisfaction level (grade)</td>
<td>Excellent 2014</td>
<td>Excellent 2014</td>
<td>Excellent 2023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level of creativity and innovation (percentage)</td>
<td>2.9% 2014</td>
<td>3.10 2014</td>
<td>6.00 2023</td>
<td></td>
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</tbody>
</table>

Highest Grade for 3 consecutive years in Sustainable Management Evaluation (KoBEX-SM index)

K-water received the highest grade (AAA) for 3 consecutive years [2011~2013] on the Korean Business Ethics Index-Sustainability Management Evaluation (KoBEX-SM), an investigation on the level of corporate sustainable management of public institutions by the Ministry of Trade, Industry & Energy. K-water endeavors to practice sustainable management.
Developing Together with Our Stakeholders

K-water has been securing transparency and credibility while preventing conflicts that might occur during project implementation through stakeholders’ participation in decision-making and projects.

Stakeholders’ communication and participation

K-water’s stakeholders are the customers who receive K-water’s services, and include indirectly: local communities affected by K-water’s projects; academia, civic groups, and the government who influence K-water’s businesses; partnering companies participating in K-water’s projects; and all employees carrying out the projects. K-water defines stakeholders from the aspects of 5 strategic businesses: water resources, waterworks, or water/landfront, renewable energy, and overseas and North Korea. It also operates various communication windows per stakeholder groups such as advisory council, customer service committees, regional councils, etc. so that all stakeholders can directly and indirectly participate in all processes of K-water’s management. In particular, K-water has been running the Mutual Growth and Cooperation Committee for true communication that accommodates critical opinions of stakeholders since 2015. It also operates the Voice of Customer bulletin board and customer suggestion system on K-water’s official website, through which customers and stakeholders, diverse interests and opinions are continuously collected and actively reflected on K-water’s management. Anyone can suggest, and outstanding suggestions can be lead to results of up to KRW 5 million. [S-28]

Transparent information disclosure to stakeholders

K-water expands the public announcement of management and strengthens the disclosure of information that influences people’s lives in order to practice open and transparent management. By analyzing public needs for information disclosure in 2013, we opened in advance the information about how we handle the algal bloom on our official website, as they were regarded as being in high demand of customers. On top of this, K-water posts information on source water quality and tap water quality on its website on a real-time, and offers an electronic display panel of water quality for apartments residents that take tap water. Furthermore, K-water has simplified its information announcement website to be more image-based and mobile compatible so that customers can access and find information more easily.

Open disclosure of company’s rules and an enhanced communication system with stakeholders

We institutionalized the prior notification of enactments or legislation of company’s regulations, so that we can more fully reflect various public opinions regarding the company’s rules in civil service. As of June, 2014, you can access the firm’s 94 regulations on K-water’s website. In 2013, we held 47 diverse opinions on the amendment of “Lots Sale and Rent Regulation” through a prior notification. Moreover, in order to improve the fairness and transparency of K-water’s civil service by considering people’s opinions or experiences regarding corruption, we operate “Integrity Happy Call” and “Integrity Postcard” around the clock. Through these programs, we can effectively communicate with the stakeholders. These programs also enable us to better understand and solve whatever discontent that the stakeholders may have throughout the work process of K-water.

Cooperative governance among stakeholders

The business of K-water impacts directly and indirectly on its stakeholders and in turn, the stakeholders exercise large influence on K-water’s businesses. Therefore, K-water pursues the shared growth between the firm and the stakeholders’ trying to detect and respond to potential risk factors in advance. It highly values communication with stakeholders, and considers such communication to be indispensable for K-water’s sustainable growth. K-water also supports cooperative governance with local communities, NGOs (Non-Governmental Organizations), academia, local governments, the central government, and individual water management organizations. Through this cooperative governance, K-water aims to realize IWRM (Integrated Water Resources Management) centering on regions and businesses through the participation of local community, NGO, academic circles, local government, central government and individual water management organizations. For this purpose, it is important to construct sustainable relationships with the stakeholders on the basis of trust; in this context, K-water is developing its efforts for the construction of long-term trust with stakeholders by assigning the Conflict Management Team under the Office of the Senior Executive Vice President an exclusive charge of trust building with stakeholders.
Selecting K-water’s Material Issues

Through a ‘Materiality Test’, an investigation on stakeholders’ interests based on the GRI G4 framework, K-water selected the material issues that its stakeholders are interested in and tried to provide sufficient information about them in this, the 2014 Sustainability Report.

This, the K-water 2014 Sustainability Report addresses important issues that are selected based on internal and external stakeholders’ interests. The issues were drawn through a 3-step process: collecting pertinent information, investigating interests of both the people in and out of the industry, and selecting material issues. The report was written in accordance with G4 Reporting Principles for Defining Content in the GRI Sustainability Reporting Guidelines: Sustainability context, Materiality, Completeness, and Stakeholder inclusiveness. (06-18)

Step 1: Collecting issues that stakeholders concern
We examined the K-water 2013 Sustainability Report, Firm’s policies, KPI (Key Performance Indicator), and legislation. We, thereby, garnered 62 relevant issues from benchmarkings of advanced companies within the same fields, media reports, and surveys targeting both people in and out of water resource industry.

Step 2: Investigating the interests of both the people in and out of the industry
K-water implemented ‘Materiality Test’ in order to grasp the level of internal/external concerns targeting the selected 62 issues. The materiality test reflected 4-step test results: in-house policy, KPI, norms and laws, surveys on stakeholders, benchmarking and media analysis. K-water grasped the level of internal concern by combining the test results with K-water’s in-house policies, KPI, and review of related norms and laws, while grasping the level of external concern by combining the survey result on external stakeholders and benchmarking the business circles in the same industry and media search results.

Step 3: Identifying the material issues
Integrating both external and internal concerns in relation to the selected 62 issues, we were able to analyze and prioritize the issues. We categorized 20 high-ranked issues, which are placed above the threshold**, into 4 Focus Issues, and made efforts to make a concrete reporting of them in this report.

** Threshold: The GRI G4 guideline directs a company to set a threshold for the determination of material issues in connection with a corporate sustainable management based on the result of IPS Materiality Test, and to report the material issues which locate above the threshold.

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4 Focus Issues
K-water identified 4 major issues integrating the stakeholders’ interests investigated in the materiality test, and defined the pertinent Aspect and Aspect boundary of these 4 Focus Issues based on the GRI G4 Guidelines. (04-19, 20, 21, 27)

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* IPS Materiality Test Model: Developed by The Institute for Industrial Policy Studies (IPS) in 2006 to develop sustainable management strategies and sustainability report, it consists of a step test model to draw out materiality issues of a corporation based on the corporate characteristics and its current status.

** Threshold: The GRI G4 guideline directs a company to set a threshold for the determination of material issues in connection with a corporate sustainable management based on the result of IPS Materiality Test, and to report the material issues which locate above the threshold.
A corporation where personal ethics and business ethics stand upright is what K-water pursues.

**Ethical Management**

- **K-water’s ethical norms** consist of Code of Ethics, Employees’ Code of Behaviors, and Regulation of Occupational Integrity Pact. In 2013, K-water extended the application of the Code of Ethics to temporary workers in addition to regular workers and domestic “establishment of a fair cooperative relationship with subcontractors” as a mandatory duty in its Employees’ Code of Behaviors, thereby strengthening its responsibility for joint-growth.

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- **Efforts to discover and to remove corruption inducing factors**

- By improving corruption-vulnerable factors in the management system and implementing the ‘Self-regulating System Improvement Assignments’, K-water heightened its work transparency and strengthened the internal control for anti-corruption. In 2013, K-water carried out a total of 29 Self-regulating System Improvement Assignments involving instituting the establishment of the ‘Promotion Screening Committee’ to ensure the fairness in the promotion. K-water especially has focused on identifying customary and structural corruptions in advance and eradicating them.

- In addition, the company runs a confidential in-house reporting system called ‘Integrity Help-line’ to encourage the reporting of corruption cases; it also has responded strictly to corruptions by strengthening standards and adhered to zero tolerance policies. Along with this, K-water has put tighter work discipline continuously operating the ‘Joint Inspection Team’ to monitor work discipline of each department; strengthening a close monitoring at corruption-vulnerable period; executing a monthly self-inspection by a director of each department; inspecting to identify unreasonable practices prevalent in its management systems; and implementing the ‘Prior Notice of Audit’, etc.

- **Business ethics that put emphasis on the stake holders**

- K-water fully understands that ethical management is essential to earn the trust of its stakeholders: employees, customers, and business partners, etc. With this understanding, K-water carries out programs to enhance cooperation and communication with its stakeholders.

- First, K-water improved its electronic procurement system to preclude illegal bidding and to enhance transparency in bidding processes, and simplified requirements for bidding documents to protect customers’ privacy and mitigate their inconveniences. Second, we pursue a win-win relationship with our partnering corporations. K-water expands a sustainable partnership with its small- and medium-sized partnering enterprises through ‘Green Partnership Program’, which supports financially its partnering enterprises’ achievement of ISO 14001 (Environmental Management System) certification. Third, K-water carries out an equitable HR management, systematic accident prevention programs in its workplace, thereby ensuring that K-water’s ethical management steps are leading to high quality water service. In addition, K-water makes its best to implement low-carbon management, to expand sustainable energy business, and to align CSR (Corporate Social Responsibility) through its community services at both home and abroad.

**Excellent organization in anti-corruption efforts for 8 consecutive years & Highest-rated organization in work ethics and discipline**

- Under the CEO’s strong initiative for ethical management, all the employees of K-water have participated in anti-corruption programs actively. K-water’s anti-corruption efforts earned “Excellent” grade in the evaluation by the Anti-Corruption and Good Rights Commission of Korea, which evaluated anti-corruption efforts and transparency of 225 public institutions nationwide. K-water is one of the four organizations in the nation to be rated as excellent for eight years in a row. In addition, K-water’s strong work ethics and discipline made K-water the highest-rated public corporation for 2 consecutive years in MOLIT’s (the Ministry of Land, Infrastructure, and Transport) evaluation of work ethics and discipline among 14 MOLIT-affiliated public corporations.

- Although K-water received positive reviews on its anti-corruption efforts, its corporate integrity was rated as “ Unsatisfactory” in 2013. We humbly listen to this critical opinion and admit that our work ethics might not sufficiently reflect the customer perspective. Through seamless self-scrutiny, K-water will make more efforts to put customer-oriented corporate ethics into practice.
Environmental Management

K-water reinforces environmental management in all of its business processes, building an eco-friendly supply chain with its partners and suppliers.

Strengthening environmental management in all K-water’s management activities

Environmental pollution influences not only polluters but also all members of a society. K-water has enhanced environmental management in its entire process of production ranging from raw materials to waste disposal, and has been pushing its direction toward increasing the environmental integrity of the entire corporate supply network. K-water’s push towards environmental integrity includes the investment to environmental management of small & medium businesses which are raw materials or equipment makers, the strengthened oversight on on-site environmental management of construction companies, and supports to eco-friendly agriculture, thereby building an environmental business system. Through promoting the purchase of green products, applying the resource recycling and saving technologies, and maximizing the reuse and recycle of water and wastes, K-water will increase environmental integrity of its business.

ISO 9001/14001 & KSI 7001 Certifications

K-water is heightening its quality and environmental management systems through maintaining ISO 9001/14001 & KSI 7001 Certifications. In particular, in accordance with ISO 14001 (Environmental Management System) and KSI 7001 (Green Management System), K-water has put efforts to establish an eco-friendly way of working. K-water has introduced the cyclic process of the Plan-Do-Check-Action (P-D-C-A) to its all departments, and implemented internal management system audits and external audits by an external accreditation body (every year). In order to fulfill the environmental management practice into the employees, K-water has fostered certified auditors among its employees on a regular basis for the past 7 years (2007-2013), and the number of the certified auditors reached 154 in 2013. Their inspecting for improving the quality of each department’s management facilitates the internalization of K-water’s quality and environmental management.

Environmental Performance Evaluation (EPE)

Since 2003, K-water has been implementing the ISO 14020-based Environmental Performance Evaluation (EPE) program. The EPE program is to induce continuous improvement by regular measuring and diagnosing of the corporate environmental management performances. In 2007, K-water obtained a patent for an EPE computerized system for the first time in Korea, and has been managing its environmental performances utilizing this system. The EPE index represents a relative improvement level of environmental performances compared to that of the base year (2006), and is managed as K-water’s KSI. In 2013, the EPE index was 151 points, showing that the environmental performances improved by 51% compared to that of the base year (2006).

Environmental Accounting

K-water has adopted and run environmental accounting to enhance environmental investment efficiencies and environmental performances. K-water established the concepts and standards of environmental cost and investment on its own, and has thus been calculating environmental cost and investment annually since 2000. The calculated environmental cost and investment help K-water consider environmental impacts by its business in major decision-making process. In 2013, the total environmental cost was KRW 196.3 billion, while the total environmental investment was KRW 147.1 billion. They are used toward operating environmental pollution prevention facilities and activities as well as ecological recovery to enhance our society’s environmental soundness.
Risk Management

Based on its own unique risk management system, K-water predicts in advance and responds on real-time to potential dangers in its businesses and services.

**Risk Management System**

K-water responds to risks through its own, distinct risk management system called KRM (K-water Risk Management). K-water’s risk management system is divided into preventive activities and risk response activities, managing four areas of risks: financial risks, conflicts, disasters, and publicity. The preventive activities involve to prevent risks (danger) from manifesting, and the risk response activities handle the risks that actually occurred with prompt recovery activities.

When a risk is realized, K-water takes immediate recovery steps that include deciding of a risk alert level and setting up of Emergency Response Head Office in accordance with its risk response manual for each area of risks. K-water’s response to a risk differs depending on the alert level of each risk: Moderate, Substantial, Severe, and Critical. By promptly accomplishing immediate risk management strategies, organizing risk management systems, and governing on-site departments to respond to risks promptly and efficiently according to risk types and alert levels.

**Audit Risk Management through K-water Risk-based Internal Audit**

Through its own risk management method called KRM, K-water manages and mitigates audit risks in advance by investigating audit opinions by the internal audit. Audit risks are defined as ‘inherent risk’ and ‘control risk’, audit risks are evaluated as high/medium/low, depending on the impact and potential of reoccurrence for the inherent risks and on the inadequacy of the internal control system for the control risks, respectively. For high ‘inherent risks’, on-site audits and prevention activities are conducted, and for high ‘control risks’, efforts to lower the degree of danger through system improvement are made. In 2013, the audit risks were assessed in the perspectives of: strengthening of management support, quality assurance and safety prevention, and the prevention of lax management, while 19 cases of audits were conducted in order to mitigate the risks in advance.

**Real-time Response to Emergency**

K-water has established risk management processes in stages to prevent risks from spreading, reflecting the public service risk management standards of the government. Employees utilize the risk response hands-on manuals in regards to 297 areas in 4 areas of risks: financial risks, conflicts, disasters, publicity) on-site. Moreover, K-water developed a model of real-time Emergency Management Center (EMC) based on in-depth interviews of the employees who experienced water shortage crises, which facilitates a prompt recovery. This real-time EMC model installed on KRM helps to report and respond to emergencies more promptly, and organizes and summons an emergency response team more easily. It also facilitates real-time broadcasting on emergency sites with mobile broadcasting equipment and real-time commanding without spatial constraints as well as integrating the information of: emergency response experts, recovery equipment, emergency response team, and status reports.

In addition, K-water operates the IT [Emergency Response Center] in the office of its Chungcheong Regional Division in case its major computer center's functions break down by disasters such as a fire or an earthquake. K-water also conducts a recovery simulation exercise once a year to activate facilities of the IT Emergency Response Center within four hours after a disaster occurs.

These efforts in risk management led to K-water being selected as the most outstanding institution for 2 consecutive years (2012-13) in the Safety Korea Exercise IS007 held by the National Emergency Management Agency.
Prompt recovery of water supply after the helicopter crash in the Imha Dam

On May 9th of 2013, a helicopter operated by Korea Forest Service crashed into Imha Dam. The fuel tank of the helicopter was filled with approximately 5,000 liters of aviation gasoline. If the fuel was leaked into the Imha Dam Reservoir, which supplies source water for tap water to Pohang city and other downstream regions, it could have caused a long-term suspension of the water supply. However, a prompt and efficient response by K-water Andong Office minimized interruptions in the water service to the downstream regions by the accident. As soon as being informed of the accident, the Andong Office promptly sent aid workers for search of missing people, and immediately ceased the hydropower generation in Yeongcheon Waterway, which is connected to Pohang region, in order to prevent water released through the hydropower turbines from contaminating Pohang and downstream regions. At the same time, the office promptly notified the Pohang Office of the accident and requested to take source water from the Yeongcheon Dam Reservoir instead of the Imha Dam Reservoir. In addition, it installed 2 or 3 layers of oil fences around the accident site, removed the leaked oil with absorbent papers, and monitored the water quality to prevent the fuel from spreading on the surface of the reservoir. K-water provided 150 aid workers for the recovery activities during four days after the accident, removing approximately 750 liters of the leaked gasoline with 2,000 meter long oil fence and 200kg of absorbent papers. Soon after its throughout water quality examination confirmed that water in the Imha Dam Reservoir was safe to use for source water, K-water resumed the water supply from the Imha Dam Reservoir to the downstream regions on the morning of May 15th.

K-water’s risk response system achieved ISO 22301 Certification for the first time across the world in the field of water resource business

K-water is the world-first corporation in the water resource industry that achieved ISO 22301 Certification (certified by Norway DNV in 2013). Adopting the concept of BCM (Business Continuity Management), K-water has advanced its risk response system, applying its risk response skills and know-how to emergency situations. The risk response system thereby earned the world recognition for K-water’s ability of risk response. K-water will continue to strengthen its risk response system, securing a ceaseless water service against any of accidents, natural disasters, and terrorism.

Material issues per each stakeholder group

According to the survey result on K-water’s sustainable management (April-May, 2016), top 5 material issues selected by each stakeholder group were significantly different, while five (customers, local communities, NGOs, partnering companies, and academia) out of six stakeholder groups showed interests in improving the recognition on tap-water quality in common. Those who are supportive of K-water’s business, such as its employees, answered that fair HRM (Human Resources Management) policy is the most significant issue for K-water’s sustainable management. On the other hand, those who are critical such as customers, local communities, and NGOs responded that contribution to local communities is the most pivotal. The government, partnering companies and academia, who are neutral, prioritized financial soundness, improving recognition on tap-water quality, and contribution to local communities, respectively.
Focus Issues

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Just like two streams of water converging at one place called ‘Dumulmeori,’ K-water will make reciprocal efforts for making a society prospering together, a happy workplace, and a happier world through its creative management and smart water services.

두물머리를 맞대다
‘Dumulmeori’, Inspirational Convergence

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Focus Issue 1
Creative Management

Since the completion of major national projects, K-water has recognized the current situation as both a risk and an opportunity, and been pushing ahead with its plan to achieve a sustainable growth by securing financial integrity and restructuring business strategies.

DMA (Disclosures on Management Approach)

1. Importance of Creative Management

K-water is facing contrasting tasks: securing financial health caused by an increasing debt with the completion of major national projects and pioneering into new business areas because of the growth stagnation of the domestic water market. The interest groups of K-water are giving weight to financial performance and financial health of K-water as well as business opportunities in new markets.

2. Approaches of K-water towards Creative Management

By building a stable financial structure and by maintaining future growth engines, K-water will accomplish its financial goals which are to increase the sales rate by 9.7% and the operating profit rate by 15.9%, and decrease the debt ratio to 86.2% by 2023.

Sustainable growth

3. Performance management for Creative Management

K-water’s assets at the end of 2013 totaled KRW 25.6 trillion and the debt was KRW 14.0 trillion (debt ratio 120.6%). The financial status of the past five years is shown in the table below. The total amount invested in private construction works decreased because of the completion of national projects such as the Four Major Rivers Restoration Project and the Gyeong-in Ara Water Project were completed. Distributed economic value, thereby, decreased; Over 83% of economic value created in 2013 was used for operating cost, labor, and capital cost, etc. In 2013, investng KRW 2.5 trillion in total into constructing and operating social infra structures, we, thereby, contributed to revitalizing the economy of our society and produced indirect effects of increasing socio-environmental values such as safety and environmental soundness.

Economic Performance and Tasks

K-water is creating economic value by constructing, operating, and managing water resource facilities such as dams, weirs, local waterworks and sewage facilities. As well, K-water is constructing urban waterfront & industrial complex, and is generating renewable energies by utilizing water resources. Economic value created in 2013 decreased compared to the previous year because major national projects such as the Four Major Rivers Restoration Project and the Gyeong-in Ara Water Project were completed. Distributed economic value, thereby, decreased; Over 83% of economic value created in 2013 was used for operating cost, labor, and capital cost, etc. In 2013, investing KRW 2.5 trillion in total into constructing and operating social infrastructures, we, thereby, contributed to revitalizing the economy of our society and produced indirect effects of increasing socio-environmental values such as safety and environmental soundness.

Financial performance

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Tasks for the Creative Management

By building a stable financial structure and by maintaining future growth engines, K-water will accomplish its financial goals which are to increase the sales rate by 9.7% and the operating profit rate by 15.9%, and decrease the debt ratio to 86.2% by 2023.
Securing Financial Soundness

As a state-owned enterprise, K-water sets forth to secure a sound financial structure through stringent self-efforts to debt reduction. Also, information on its financial status, performance to improve the financial structure, and debt reduction fulfillment will be disclosed transparently.

Causes of increase in debt

K-water’s debt has increased by approximately KRW 12 trillion from KRW 2 trillion at the end of 2008 to KRW 14 trillion at the end of 2013. The causes of this debt increase are as follows.

- National projects
  - The significant increase in debt can be attributed to the investment cost for the national projects such as the Four Major Rivers Restoration Project and the Gyeong-in-ah Waterway Project. Since 2009, the firm’s investment costs totaled KRW 12 trillion, accounting for 77% of the total debt increase amount.

- K-water’s own businesses
  - A total of KRW 2.8 trillion of debt was incurred as a result of the investment costs of existing businesses. This amount accounts for 22% of the total debt increase, among which K-water’s waterfront and industrial complex business has a structural characteristic requiring significant pre-investment with long-term profit collection.

- Plans for debt reduction

K-water will reduce KRW 1.9 trillion by 2017 through self-efforts for debt reduction, which include business restructuring, asset sales, production cost reduction, management efficiency improvement and profit creation. Through financial management planning and stringent self-efforts, we plan to reduce 36.2% of the debt increase amount by 2017 and to stabilize the debt ratio to 140%.

- Business restructuring
  - Through the scrutiny of all businesses from the beginning stage, we will optimize investment amount. A period so to secure the financial health as long as these measures do not damage the quality of public services that we provide. Along with this, we will continue to invest in the new strategic business areas.

- Cost reduction
  - While consistently cutting costs, we will ensure that water services are not negatively affected. As well, we seek to reduce costs by expanding the application of new technologies in the construction stage.

- Sales of assets
  - Although K-water has a limit of improving its financial structure through asset sales because 90% of the total assets are necessary for businesses which cannot be sold, we will push forward with asset sales by actively discovering assets that can be sold such as marketable investment shares and non-business sites.

- Profit creation
  - We will expand our sales through marketing campaigns to promote K-water’s water services and will make additional profit through the diversification of renewable energy sales.

- Debt management system
  - We will continuously push ahead with activities such as the establishment of a systematic debt management system, creation of a debt management council, and concentration of company-wide capability to implement the debt reduction plan systematically and effectively. We also created a new team, under the Office of the Senior Executive Vice President, which has the sole responsibility of improving K-water’s financial structure. As well, four briefing sessions for sharing and expanding the efforts to reduce debt are being conducted with the regional offices.

- Management improvement
  - We will continuously discover and implement management improvement tasks to meet the expectations and demands of the public. For example, the high-level officers have pledged to return a portion of their 2013-2014 wage increases. The returned funds are designated for use for social activities that benefit the public.

As a part of our commitment towards financial integrity, all of the executives and senior officers participate in returning 16% of their total wage increase amount in 2013-2014. Also, we plan to place a focus on the wages of senior officers for 2014. The outside directors have unanimously agreed to reduce their 2014 wages by 36%. The funds raised by our commitment towards financial health will be used for social contribution activities. As seen from this example, we will make efforts assiduously to put the debt reduction plans into practice.

New Businesses in New Markets

We are developing capabilities for foundational businesses such as water resources and waterworks management, while initiating the expansion of business areas that require its expertise in water services.

Business visions and strategies

K-water has designated water resources management, waterworks, urban waterfront planning & development, clean energy, and projects in foreign countries including North Korea as its five major strategic businesses. As well, K-water has a long term plan to upgrade its service to smart and integrated one, covering the whole hydrologic cycle based on the Smart Water Grid (SWG) and the Integrated Water Resource Management (IWRM).

For the water resources management business, we will conduct the Integrated Water Resources Management (IWRM), which considers both water quantity and quality of the basin connecting the operating and monitoring systems of dams, weirs, and streams. For the waterworks business, we will maximize the supply of high quality tap water that contains balanced minerals healthy for the human body using advanced water management technologies including the Smart Water Grid (SWG), and will maximize the use of existing waterworks facilities and alternative water resources in order to improve the conditions of areas suffering from water supply and water quality issues. For the urban waterfront planning & development business, we will construct eco-friendly urban complex that incorporates water-friendly designs such as waterfront parks and water-related leisure and tourism facilities. For the clean energy business, we will lead the way in the domestic market by developing and investing in clean and renewable energy sources such as tidal power, floating solar power on the surface of dam reservoirs, and wind energy. Lastly, for overseas business ventures, K-water has set its goal to accomplish sales worth USD 10 billion by 2023. To achieve this, K-water is creating a business-friendly environment to widen its business scope to new market as well as preparing the foundation for conducting activities in North Korea.
Focus Issue 2
Smart Water Services

Through smart water services combined with Information and Communications Technology (ICT), K-water is pushing ahead with its goals to mitigate the effects of climate change, to improve energy efficiency, to secure resources year-round, and to supply “Healthy Tap Water.”

1. Importance of Smart Water Services

As water is a necessary resource for securing living organisms, safe water management and the securing of clean water by responding to climate change, shortage of energy and resources, and environmental pollution are becoming more important than ever before. As the World Economic Forum selected shortage of water and radical weather events as parts of the ten global risks, to which the world should pay attention, international as well as domestic societies are concerned about the increasing uncertainty in water resources management. In relation to the water services of K-water, its stakeholders have shown interests in responding to climate change, using energy efficiently, saving resources, and improving public perception on the quality of tap water.

2. Approaches of K-water towards Smart Water Services

K-water is promoting the Smart Water Services to secure and effective water management and supply high-quality tap water even under the future water conditions threatened by climate change, shortage of energy and resources, and environmental pollution. K-water seeks to actualize the Smart Water Services through the Smart Water Grid and the Integrated Water Resources Management that utilizes ICT. We will supply “Healthy Tap Water” that preserves well-balanced minerals for the human body through maximizing an efficient use of water resources and minimizing energy consumption. Also, by realizing the Integrated Water Resources Management over a river basin unit that encompasses water quantity, water quality, and water-related natural disaster prevention, we will efficiently respond to climate change, effectively use limited water resources, relieve a regional imbalance of water supply, and secure the stability of water supply.

3. Performance management for Smart Water Services

<table>
<thead>
<tr>
<th>Focus Issues</th>
<th>K-water’s Goal</th>
<th>SMART Water Services Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance management for Smart Water Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the resources and management practices</td>
<td>Setting the standards for water management</td>
<td></td>
</tr>
<tr>
<td>Providing safe, steady, and healthy tap water service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigation to climate change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing clean, safe, and healthy tap water service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Water Quality Standard</td>
<td>99.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Retreated water pipes (km)</td>
<td>2,851</td>
<td>2,930</td>
</tr>
<tr>
<td>Flood control capacity (million m³)</td>
<td>49.3</td>
<td>49.5</td>
</tr>
<tr>
<td>Clean energy supply (GWh)</td>
<td>32.7</td>
<td>35.5</td>
</tr>
<tr>
<td>Rate of accident prevention</td>
<td>0.52</td>
<td>0.46</td>
</tr>
<tr>
<td>Level of risk management effort (points)</td>
<td>95</td>
<td>93.5</td>
</tr>
</tbody>
</table>

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As We Proceed

Networking

As We Proceed

real-time monitoring and inspections, and minimize resources and energy consumption over the whole business cycles. Therefore, K-water seeks to respond to the increasing uncertainty of water management with the Smart Water Services, which maximizes automation and instrumen-

tation in quality, and the actualization of intelligent pipeline network through the establishment of a sensor network, which collects and analyzes various water data in

treatment plants to consumers, and is targeting to supply tap water to consumers without changes in water quantity or quality. K-water also pursued the integrated operation of waterworks and establishment of intelligent management system, which utilize ICT, in the aspects of informatization and industrialization.

South Korea has a fundamentally disadvantageous water management condition. Because of high population density, the amount of usable water resources per person is 1/5 of the world average. Also, the rate of the water amount actually used (intake amount) over total usable water amount still remains at 34% because the precipitation varies by periods and regions, and rainfall rapidly runs off into the ocean due to steep slope and relatively short length of river reaches in Korea. This makes water manage-

ment in Korea difficult, and makes Korea internationally recognized as being a "water scarce nation." The Flood Risk Index of Korea is three times higher than that of Japan, which has similar water resource conditions to ours, and the water self-sufficiency was once evaluated to be the fifteenth lowest out of 100 countries (UNESCO-IHE).

Water management conditions

South Korea has a fundamentally disadvantageous water management condition. Because of high population density, the amount of usable water resources per person is 1/5 of the world average. Also, the rate of the water amount actually used (intake amount) over total usable water amount still remains at 34% because the precipitation varies by periods and regions, and rainfall rapidly runs off into the ocean due to steep slope and relatively short length of river reaches in Korea. This makes water manage-

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Rate of water actually used (intake amount)

- Egypt: 48%
- Iran: 34%
- South Korea: 34%
- India: 34%
- Singapore: 22%
- Spain: 22%
- South Africa: 29%
- Italy: 22%
- China: 22%
- Denmark: 21%
- Denmark: 30%
- Japan: 20%
- USA: 16%

Rate of water actually used in South Korea: 34%

Comparison of Flood Risk Index (UNDP)

- Canada: 2.31
- Germany: 0.20
- France: 5.10
- Italy: 2.81
- Japan: 2.28
- USA: 2.59
- South Korea: 6.86

Number of deaths per one million people due to floods and storms (UNDP)

- Canada: 0.22
- Germany: 0.01
- France: 0.09
- Italy: 0.07
- Japan: 0.07
- USA: 0.15
- South Korea: 2.86

Deaths per one million people in South Korea exceed those of the OECD countries.

Water scarce nation.

- Individual supply system
- Water and energy loss
- Supplier-centered, and unilateral

Smart Water Grid has already started

Smart Water Grid (SWG) is a next-generation intelligent water management technology that increases stability, safety, and efficiency through an intelligent water supply network, which combines existing water grids with information and communication technologies (ICT). The attempt to improve efficiency and functions by integrating ICT to the water management industry has been consistently carried out internationally, and various forms of approaches to SWG for advancement, informatization, and industrialization of water services are being made. So far, on one hand, K-water has initiated the rearrangement of water supply networks to relieve water shortages and the retrolining of waterworks to secure tap water supply stability in the aspect of advancement. On the other hand, K-water has also pursued the integrated operation of waterworks and establishment of intelligent management system, which utilize ICT, in the aspects of informatization and industrialization.

- Diversification of supply routes
- Integrated operation of infrastructure
- High efficiency, and reduction of energy
- Consumer-centered, and multi-directional

K-water’s Smart Water Grid

Smart Water Grid can be applied across all areas of water services such as management of water sources, production and transport of water, reuse, etc., and can be applied in various forms according to water management conditions. K-water is pursuing SWG, especially focusing on the transport process from water treatment plants to consumers, and is targeting to supply tap water to consumers without changes in water quantity or quality. K-water’s approach to SWG includes the balancing of real-time monitoring on every unit of the entire water supply networks to stably supply water with neither loss in quantity nor change in quality, and the actualization of intelligent pipeline network through the establishment of a sensor network, which collects and analyzes various water data in pipes such as quantity, quality, pressure, leakage, etc. SWG, thereby, makes a timely and optimal operation possible. As well, it enables customers to access to real-time information about tap water over the whole transport processes, which results in strengthening of customers’ trust on tap water.

Existing water management (Water Grid)

- Supplier-centered, and unilateral
- Water and energy loss
- Smart measuring devices
- Real-time information transmitting and receiving

Next generation water management

- Improvement of water supply efficiency
- Securing of water quality safety
- Increase of supply stability
- Securing of water quality safety
- Improvement of water supply efficiency

Intelligent Water Supply Network

Smart Water Grid

Through the Smart Water Grid, K-water provides high quality tap water that is stable in quantity and quality which thereby, customers can trust.

Water Management Conditions and
Smart Water Services

Water management conditions

South Korea has a fundamentally disadvantageous water management condition. Because of high population density, the amount of usable water resources per person is 1/5 of the world average. Also, the rate of the water amount actually used (intake amount) over total usable water amount still remains at 34% because the precipitation varies by periods and regions, and rainfall rapidly runs off into the ocean due to steep slope and relatively short length of river reaches in Korea. This makes water management in Korea difficult, and makes Korea internationally recognized as being a “water scarce nation.” The Flood Risk Index of Korea is three times higher than that of Japan, which has similar water resource conditions to ours, and the water self-sufficiency was once evaluated to be the fifteenth lowest out of 100 countries (UNESCO-IHE).
Not a Choice, but a Requirement for Future Water Resources Management, Integrated Water Resources Management

We are pushing forward to implement the Integrated Water Resources Management in order to realize sustainable water use by improving the efficiency and safety of water management.

Why is the Integrated Water Resources Management needed?

On one hand, the Integrated Water Resources Management (IWRM) refers to water resource management led by an integrated governance of stakeholders rather than an individual interest group; and on the other hand, water resources management that integrates the economy, society, culture, and environment issues as well as technological issues in a comprehensive perspective of basins and regions. Water resources management has been becoming more difficult since the uncertainty of rainfall has increased and water-related natural disasters occur more frequently due to climate change. Moreover, water management conditions are worsening due to conflicts and disputes between stakeholders with the increasing social diversity. IWRM is considered to facilitate more effective water services through the integrated management of upstream regions, dam reservoirs, and downstream regions to prevent water disaster and secure usable water resources. Also, it could minimize and prevent water disputes between regions or stakeholders through the participation of stakeholders in decision-making on water issues such as quantity, quality, water-related disaster response, etc. Since an individual approach by single interest group has a limit to counter these water issues with increasing uncertainty of water condition and deepening social conflicts, IWRM is thus not a choice but a must.

Realization of the Integrated Water Resources Management

K-water has implemented IWRM within its business scope: e.g. integrated operation of an upstream dam and a downstream dam; and that of an upstream dam and downstream weir in a river basin. However, it has not reached the level of the integrated management that covers the entire hydrologic system of a river basin unit. As the only state-owned professional water service enterprise in the country, K-water is leading the realization of a country-wide IWRM. We plan to form a consensus with policy-making organizations by establishing IWRM master plan customized for the nation and to organize social and political driving forces for IWRM through policy forums. As we are proceeding in stages with the establishment of an integrated governance with water-related organizations, residents, environmental groups, and professionals. With the integrated governance, we also move towards the sharing of water-related information and data with players in the industry.

Mitigation and Adaptation to Climate Change

Creating new growth engine through responding to the risk of climate change

Countering climate change has rapidly emerged as a top priority task in the international society after international organizations such as IPCC (Inter-governmental Panel on Climate Change) have published prospects on the acceleration of global warming. In order to join in the global effort for climate change response and to realize sustainable growth, the government has established a comprehensive plan in response to climate change (September, 2008). In order to counter the risk of climate change and to convert it into an opportunity of creating new power for growth, K-water established the strategy master plan for responding to climate change (December, 2009), and has focused on enhancing the stability of water services to counter the uncertainty and complexity by climate change. As the Korean government is committed to start carbon (greenhouse gas or CO2) trading in 2015, K-water is actively participating in the development of renewable energy opportunities in order to respond to the global risk caused by climate change and endures this move as a stepping stone to make a new leap. K-water's capability of hydropower generation by 2013 is 1,070MW which accounts for 61% of domestic hydropower capacity (1,761MW). As well as we are in the process of constructing five facilities including the Sihwa tidal power plant. On the other hand, we finished the construction of the Shinwol tidal power plant (254MW), the largest tidal power plant in the world, in November, 2011, and are supplying clean electricity to society. As well as consistently developing and nurturing down energy facilities such as the Four Major Rivers hydropower (51MW), Shinwol-Banghwaemul and Gyoun (in Harbor) wind power, we are leading the development of clean energy industry by succeeding in the development of water-surfaced solar power plants. K-water built the world’s first solar power test plant (103MW) floating on the surface of a dam reservoir in November, 2011 and the world’s largest commercial water-surfaced solar power plant (500MW) in October, 2012, which secured economic value and safety through the standardization of constructing materials and optimization of a constructing method. Also, through technology development related to water-surfaced solar power, we have accumulated core technologies, registering six intellectual properties (5 patents, 1 design), and made headway into the overseas market.

In 2013, K-water produced 3,040GWh in 84 facilities using hydropower, tidal power, wind power, solar power, and temperature difference power generation, which has an equivalent effect of replacing 5.19 million barrels of crude oil and CO2 emission reduction of 12.35 million tons. The water-surfaced solar power, especially related to K-water, is a true eco-friendly technology that does not damage vegetation and has a generating capacity of 10 percent point greater than that of land-based solar power. This new business option contains vast potential to expand power generation (2,937 MW in 31 dams).

K-water’s Smart Mitigation To Climate Change

As Korea’s No.1 corporation in the field of renewable energy, K-water is actively participating in global carbon emissions reduction efforts and is responding to climate change through the smart water services that minimizes energy and resource consumption. South Korea’s No.1 corporation in the field of renewable energy generation

<table>
<thead>
<tr>
<th>Classification</th>
<th>Current status of operation (MW)</th>
<th>Developing sites</th>
<th>Total (MW)</th>
<th>Amount of energy produced in 2013 (GWh)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro power</td>
<td></td>
<td></td>
<td>43.9</td>
<td>478.0</td>
<td></td>
</tr>
<tr>
<td>Tidal power</td>
<td></td>
<td></td>
<td>10.0</td>
<td>71.8</td>
<td></td>
</tr>
<tr>
<td>Wind power</td>
<td></td>
<td></td>
<td>6.7</td>
<td>5.1</td>
<td>4W</td>
</tr>
<tr>
<td>Solar power</td>
<td></td>
<td></td>
<td>6.8</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Temperature difference</td>
<td></td>
<td></td>
<td>6.4</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>67.0</td>
<td></td>
<td>5.7</td>
<td>5.6</td>
<td></td>
</tr>
</tbody>
</table>

Appendix

<table>
<thead>
<tr>
<th>K-water 2016 SUSTAINABILITY REPORT</th>
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<th>43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Management 4 Focus Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSTAINABILITY REPORT</td>
<td></td>
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<tr>
<td>Appendix</td>
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</tbody>
</table>
R&D activity and expenditure to provide reliable electricity and to promote sustainable development

Although the size of local hydropower production market seems to be continuously expanding, current hydropower facilities are highly dependent on foreign technologies. Approximately HRW 250 billion has been spent for importing foreign materials which were required for the Four Major Rivers Restoration, Sihwa Tidal Power Plant, and other major projects. Therefore, the needs for the localization of core technologies and nurturing of domestic small and large professional hydropower businesses have risen to fulfill these needs. K-water is initiating a national R&D project to domestically produce hydropower facilities and materials, thereby, creating new growth engines for the future. K-water plans to modernize its facilities with the domestic technologies by investing a total of HRW 630 billion by 2032. Currently, K-water is designing the modernization project of the Nam River hydropower plant of which capacity is 8MW including a basic design for tidal power plant of 30MW as the national R&D project, and is also creating the domestic production of small capacity water-turbine generator such as high-efficiency water-turbine generators of under 4MW and micro water-turbine production systems (Tongdam Dam).

Programs and processes to ensure the availability of skilled workforce

Although K-water has outsourced the maintenance and inspection of its energy production facilities, it has started conducting the facilities maintenance and inspection with its own workforce since the completion of the Sihwa Tidal power plant in order to achieve technological independence from and venture into the overseas businesses. We have employed 20 technicians with experience in related business for regular inspections and maintenance of the facilities of the Sihwa Tidal power plant, and have been conducting in-house facilities inspection beginning in May 2012. In May 2014, we converted all of Sihwa tidal power's workers. In addition, we are nurturing skillful facility inspectors as facility superintendants and giving them various incentives for technological advancement.

Greenhouse gas emissions reduction

Systematic efforts to reduce greenhouse gas emissions

The Korean government has set a national goal of 30% reduction in greenhouse gas (GHG) (carbon or CO₂) emission compared to BAU (Business As Usual), estimated emission volume by 2030 in order to respond to climate change. As an implementation measure of this goal, the government has set a GHG emissions reduction policy and emissions trading policy. K-water was designated as a company to comply with the GHG emissions reduction policy in 2010 and is implementing it to fulfill the national demands to mitigate the impacts of climate change. Applying the corporate GHG inventory system certified by the world-renowned accreditation agency, DNV (Det Norske Veritas), K-water has managed an annual GHG emission statement and reported the GHG emissions to the government. K-water operates both the EPE system and GHG inventory system to monitor its GHG emissions on real-time. Along with this, the company, especially in January, 2013, connected the inventory system with FMS (K-water Financial Information Management System), ensuring the reliability of energy usage data and convenience of data collection. In addition to these, K-water is mitigating the effects of climate change by nurturing “Carbon Managers” among its employees, expanding education and workshop programs which invite external professionals for its employees, and publishing and sharing of handbooks on exemplary GHG emissions reduction activities.

K-water’s response to GHG Emissions Reduction Goal

4 Focus Issues Economic, Environmental and Social Performances for 2013

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Sustainability Management
Achieving the carbon emission reduction goal for two consecutive years

Saving energy reduces Greenhouse Gas (GHG) emissions and cost for tap water production. The energy consumed by K-water in 2013 is 12,955 TJ, which is an increase of 7.9% from that in the previous year, and the electricity spent on waterworks services such as water intake, booster of transport pump accounts for most of it. In 2013, the direct consumption of energy, which is by the fuel use, was 127,711 TJ. Electricity used at K-water’s worksites does not come from self-produced electricity, but is purchased from the national electricity supply network of Korea Electric Power Corporation (KEPCO), which is the state-owned corporation that monopolizes the sectors of power generation, transmission, and distribution. About 97% of the electricity supplied by KEPCO is produced from non-renewable energy sources such as fossil fuels. (Source: 2013 Korea Strategy Statistics). K-water is making diverse efforts to save energy, which include analyzing the amount of energy consumed in each unit of its business cycle such as water intake, tap water production, transport, etc., and developing energy saving measures and technologies customized to each facility and process. As a result, the amount of energy consumption was reduced by 56,711 MWh in 2013, and K-water achieved its carbon (GHG) reductions emission reduction goal allocated by the government for two consecutive years from 2012 to 2013. The total amount of GHG emissions from K-water’s worksites in 2013 is 637,626 ton CO₂. The sum of the emissions from each site after eliminating numbers in decline, which is an increase of 7.9% from the previous year, and this increase is analyzed to be caused by the increased sales of tap water and the operation of newly constructed waterworks facilities. According to the national policy on carbon (GHG) emissions reduction, K-water’s GHG emissions in 2013 was calculated to be adding the direct emission of 4,221 ton CO₂ by the fuel use to the indirect emission of 627,000 ton CO₂ by the electricity use. Most of GHG emissions are emitted by the electricity use for running of pumps to transport tap water, while there is no biogas or KO2 emission from K-water’s production processes. As well, there is no production process that emits substances such as Freon that destroys the ozone layer, and K-water regularly performs safety inspections on its air-conditioning facilities in order to prevent the leakage of Freon.

## Efforts for low-energy and low-carbon production

### Carbon Labeling ‘tap water’

By 2013, 10 K-water waterworks have been qualified for “Carbon Labeling.”“Carbon Labeling” certification is granted for a product that has been proven to minimize the emission of GHG in the entire cycle of its production. K-water’s waterworks have reduced the use of packing materials or water-purifying substances, thereby saving energy and minimizing the emission of GHG. As a result, in 2011, the tap water produced at Cheongju waterworks has succeeded in being qualified for the nation first “Carbon Labeling” tap water in Korea, and the certification of “Carbon Labeling” has been extended to 10 K-water waterworks by 2012.

### Energy efficiency improvement of dams and waterworks facilities

K-water mitigates the impacts of climate change not only by expanding the supply of renewable energy through the performance improvement of hydropower facilities, but also by improving the energy efficiency in dams and waterworks facilities. K-water’s measures to minimize the electricity use include retrofitting to high-efficiency devices that have less energy loss, using LED light fixtures, and optimizing the operation. Waterworks operations are being improved and optimized to minimize the energy consumption by monitoring, analyzing, and remotely controlling on a real-time basis by the Energy Management System (EMS). For this, we are introducing and developing technologies for the optimal operation of pumping stations based on tap water demand predictions over time and optimal control of transport flow rate, etc., and for the increase of flow rates and reduction of water losses in pipes of local waterworks. Also, we are regularly diagnosing the performance of the main parts of waterworks such as pumps and converting the parts to high-efficiency and low-energy-consuming ones, thereby, saving energy in the whole production cycle. In 2013, we replaced pipeline pumps with low-energy ones with high efficiencies (KRW 1.14 billion/year), installed bald waterways that minimizes the resistance of pump stations (KRW 250 million/year), and converted transmitters to high-efficiency ones (KRW 50 million/year).

### Lower cost and higher quality tap water supply through cooperation with local governments

The linear tap water service system of the nation, which consists of multi-regional waterworks (operated by K-water) and local waterworks (operated by local government), has caused inefficiencies in water service (limitation of a prompt respond to pipeline accidents, increase of expenses from electricity use by uneven water supply, etc.). In order to improve the inefficiencies, K-water has initiated a cooperative operation of 52 main distributing reservoirs of local waterworks linked to 17 governments) have caused inefficiencies in water service (limitation of a prompt respond to pipeline accidents, increase of expenses from electricity use by uneven water supply, etc.). In order to improve the inefficiencies, K-water has initiated a cooperative operation of 52 main distributing reservoirs of local waterworks linked to 17 governments). K-water has initiated a cooperative operation of 52 main distributing reservoirs of local waterworks linked to 17 governments), and for the increase of flow rates and reduction of water losses in pipes of local waterworks. Also, we are regularly diagnosing the performance of the main parts of waterworks such as pumps and converting the parts to high-efficiency and low-energy-consuming ones, thereby, saving energy in the whole production cycle. In 2013, we replaced pipeline pumps with low-energy ones with high efficiencies (KRW 1.14 billion/year), installed bald waterways that minimizes the resistance of pump stations (KRW 250 million/year), and converted transmitters to high-efficiency ones (KRW 50 million/year).

### Current system (temporarily uneven supply)

<table>
<thead>
<tr>
<th>Water-intake plants</th>
<th>Water treatment plants</th>
<th>Distributed reservoirs</th>
<th>Local government A</th>
<th>Local government B</th>
<th>Integrated operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump station</td>
<td>Consumers</td>
<td>Water level control</td>
<td>Nighttime</td>
<td>Nighttime</td>
<td></td>
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<tr>
<td>Night time</td>
<td>Daytime</td>
<td>Night time</td>
<td>Daytime</td>
<td></td>
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<tr>
<td>High electricity cost</td>
<td>Low electricity cost</td>
<td>Manual valve</td>
<td></td>
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</tbody>
</table>

### Improved system (temporarily well-proportioned supply)

<table>
<thead>
<tr>
<th>Water-intake plants</th>
<th>Water treatment plants</th>
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<td>Nighttime</td>
<td>Nighttime</td>
<td></td>
</tr>
<tr>
<td>joint operation</td>
<td>Local government</td>
<td></td>
<td></td>
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</tbody>
</table>

*Voluntary reduction of greenhouse gas emission through self-initiated efforts to greenhouse gas and energy target management system made a positive impact on the 10 K-water waterworks.
K-water’s Smart Adaptation To Climate Change

Based on the water resources management technologies accumulated for the past 47 years, K-water is providing stable water services against climate change by constructing a national water disaster prevention system and by preemptive acting to preserve the quality of drinking water sources.

Stable water management and supply against climate change

As the complexity and uncertainty of water management increase because of climate change, K-water is making efforts to prevent water-related disasters and to improve the stability of tap water supply. With regards to water resources management, K-water is preventing water disasters such as floods and droughts and securing qualitative water resources through the integrated management of upstream regions, dam reservoirs, and downstream regions based on accurate predictions of weather and floods. For the monsoon season in 2013, which was the longest 59 days in history, K-water prevented flood damages in the downstream regions (reduced the damage cost of over KRW 100 billion) by controlling 96% of incoming flood waters. In 2013, although the rainfall was just 70% of the previous year, K-water secured the water storage of 106% compared to that of the previous year and generated the hydropower of the second highest in history (33.6 billion kWh). Moreover, K-water is establishing an integrated flood disaster prevention system customized to local regions by integrating local flood characteristics and K-water’s operation technologies. In addition, K-water is preparing against climate change by improving the performance of old dams and by acquiring sufficient water sources. With regards to tap water supply, K-water is focusing on enhancing the tap water supply stability nationwide in case that climate change may affect precipitation and water quality, thereby, threatening the water availability. K-water established a waterworks facility stabilization plan in 2011, and in accordance with this plan, it has reinforced vulnerable facilities, secured emergency water supply facilities, and retrofitted pipelines in stages since 2012. Also, K-water strengthened the risk management for waterworks facilities and accidents prevented by introducing its own risk management system, KRM (K-water Risk Management), and global water safety management tool, WSP (Water Safety Plan). As a result of these efforts, K-water has reported zero water supply stoppages for two consecutive years of 2012 and 2013, ensuring the stability of tap water supply.

State-of-the-art flood prediction technology

Prompt and accurate predictions of hydrologic conditions are critical for stable flood control and water supply. Therefore, K-water has taken a lead in developing and applying advanced technologies. K-water developed K-HIT (K-water’s Hydro Intelligent Tool), in which it is the domestically first unit of advanced water management system, integrating weather forecasts and real-time observation, rainfall-runoff and flood analysis, water usage, and energy production systems. In addition, K-water has strengthened and innovated its all management systems for the newly constructed facilities in the Four Major Rivers Restoration Project. Restoration Project and the recent flood control abilities strengthening projects, and has developed and applied its own next-generation water quantity and quality integrated prediction models, K-DMR, KURASE.

Cooperation between local governments and K-water for preventing flood disasters

K-water is playing a leading role in protecting the lives and properties of citizens by providing advanced water management prevention technologies to local governments. Local government may have difficulties in preventing floods because of the lack of ICT professional workforce and sufficient technologies. For example, K-water successfully established flood disaster management systems for the city of Namyangju in 2011, and the district of Muge in 2013, and contributed to the flood damage prevention during the previous monsoon season. In 2013, it launched a development of a flood disaster monitoring system (Smart TM) for local governments as a ‘Star Brand’ project, which means a key fostering technology, and this project was appreciated as an exemplary work of a state-owned enterprise by the Ministry of Strategy and Finance.

Local government flood disaster management system developed by K-water

<table>
<thead>
<tr>
<th>Local government</th>
<th>Project cost (Completion year)</th>
<th>Business content</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Namyangju</td>
<td>KRW 66 million (2011)</td>
<td>Establish flood disaster management system of vulnerable-streams (Kim Yeo-gyeong, a future-hydrologist)</td>
</tr>
<tr>
<td>District of Muge</td>
<td>KRW 138 million (2013)</td>
<td>Demand and hydrological analysis of drainage facilities and rainfall-runoff model (K-water)</td>
</tr>
<tr>
<td>City of Gunan</td>
<td>KRW 174 million (2012)</td>
<td>Establish a disaster control center and integrate the traffic control facilities</td>
</tr>
</tbody>
</table>

Proactive management of water quality in drinking water sources against climate change

Global warming may change weather patterns, thereby causing large-scale and extremely concentrated lightnings. These extraordinary changes in weather patterns are contributing to water pollution such as long-term turbid water and frequent occurrence of algal bloom. Through scientific and proactive water quality management of dam reservoirs and basins, K-water is overcoming limits in ex post facto responding, and is making efforts to secure drinking water sources that are essential for our lives.

Enhancing water quality management for upstream pollution sources

As an initiative to reduce pollution loads into dam reservoirs from upstream catchment, K-water is participating in national businesses to control upstream pollution sources such as the construction of an ecological wetland of So-oh Brook in the upstream of Daecheong Dam Reservoir. Also, K-water is constructing wastewater treatment facilities on the upstream of dam and operating 115 facilities in 70 rivers to reduce non-point pollutant loads such as domestic sewage and livestock wastewater. The efforts by K-water make a foundation for the integrated management of water quality over the entire river basins that connects upstream regions, dam reservoirs, and downstream regions.

Advanced water quality management in dam reservoirs

Water quality management requires reliable and accurate scientific models capable of predicting future water quality. Because many variables such as local flowrates, temperatures, topography, etc., evolve into water quality, K-water developed an advanced three-dimensional prediction model integrating the diverse variables that affect water quality. Since the construction of a pilot model in 2009, a total of 11 dams have been analyzed using this supercomputer-based water quality prediction model [SURIAN], which integrates models of upstream non-run-off, dam reservoirs, and streams by 2013.

* SURIAN (Supercomputer-based River Integrated Runoff Analysis), for detailed understanding of the SURIAN model

Developing algal bloom control technologies

Generally, in summer, algal bloom occurs in upstream reservoirs and streams, causing source water pollution and waterworks system interruptions. In order to control algal bloom, K-water is operating algal bloom prevention facilities such as antialgal bloom fences, water circulation system (submersible aerator), and selective water intake facilities. As well, various research activities have been conducted along with the effect analysis of anti-algal bloom facility operation and the creation of algal bloom response guidelines in order to increase the effectiveness of anti-algal bloom facilities operation. Also, through the collaboration with related institutions, we are making efforts to prevent algal bloom fundamentally by reducing pollution sources or pollutant inflow from upstream catchment. Moreover, government-wide joint research is being undertaken to improve the accuracy of algal bloom projection and to develop customized control technologies according to the stage classification of algal bloom. In addition, K-water is taking efforts to reduce the inflow of pollutants to drinking water sources by extending voluntary pollutant control agreements with local governments (8 agreements in 2012~2013 agreements in 2015) and by performing the integrated operation of dams and weirs. In water’s efforts to counter algal bloom reduced 25% of algal concentration (based on Chlorophyll-a concentrated in the dry season from January to June in 2013) compared to the previous year.
**Smart Water Services providing “Healthy Tap Water”**

K-water is building public trust through supplying “Healthy Tap Water” that has balanced mineral components which are good for health.

### Paradigm shift in tap water service

As Korean average income and living standards continue to improve, the general public has put more importance on their health, resulting in the increased desire for drinking water of better taste and quality. Developed countries and some domestic local governments are making efforts to provide tasty and healthy tap water by reflecting the needs of consumers regarding drinking water. For example, Japan has developed and applied mineral-related indicators such as OI (bodily water index) and MI (healthy water index). Although K-water has made much effort to improve the quality of tap water through the introduction of advanced water treatment systems, multi-item quality inspections, the percentage of population using tap water for drinking, 5% is still low compared to that of developed countries such as USA (56%), Canada (47%), and Japan (42%). The tap water satisfaction investigation report published in 2012 by the Association of Tap Water Initiation found that people think the quality of tap water is not satisfactory for drinking because of obscure anxiety (31.9%), taste and odor (15.0%), etc. Considering the fact that the total expense spent in the purchase of water purifier, bottled mineral water, and other water options in Korea amounts to KRW 2.25 trillion every year according to the survey result in 2010 by the Ministry of Environment, improving public recognition on the quality of tap water as well as improving tap water quality is required. Therefore, K-water seeks to actualize the Smart Water Services to earn public trust and satisfaction by supplying not only clean and safe, but also healthy tap water that contains balanced minerals through the stringent management on the whole production and transport processes.

### Initiation of a pilot project to provide ‘Healthy Tap Water’

As the first step of its smart services in the production and transport of tap water, K-water is initiating a pilot project of “Smart Water City”. The project focuses on real-time monitoring and providing of water quality information of tap water in the whole production and transport cycle using information and communication technologies (ICT). K-water, thereby, seeks to produce and transport healthy tap water that contains balanced minerals, addressing obscure anxieties about drinking of tap water.

### Main contents of ‘Smart Water City’ pilot project

1. **Improve the supply stability**
   - K-water improves the supply stability by strengthening real-time monitoring on water quantity and quality in water-intake processes and establishing an emergency Management of Water Leaks so that a tap water supply in seamless is even in case of accidents.

2. **Produce tap water that is healthy for the human body**
   - K-water is conducting cooperative research with medical institutes in order to produce “Healthy Tap Water” containing adequate amounts of minerals. Also, K-water plans to improve the purifying process to minimize taste and odor that deteriorate from drinking tap water.

3. **Strengthen the water quality management in all processes throughout the supply of tap water**
   - We initiate real-time water quality monitoring on all supply processes, and establishing of the re-chlorination (re-disinfection), flushing, and automatic drainage facilities in pipelines and at distributing reservoirs, which ensure the quality of tap water during the transport.

4. **Enhance the reliability of tap water quality at taps in buildings**
   - We are implementing water quality investigations in pipelines and water tanks of buildings regularly as well as flushing, and providing real-time information of tap water quality at taps of buildings to customers via SMS and smartphone apps.

### Future Plans

Through the performance analysis of pilot projects implemented in 2014, we will develop and expand the Smart Water Services providing “Healthy Tap Water” in the mid- and long-run.

**2014**
- Implement “Smart Water City” pilot projects and R&D

**2015~2016**
- Promote the application of “Smart Water City” business
- Establish a “Healthy Tap Water” service model

### Appendix

Economic, Environmental and Social Performances for 2013
Focus Issue 3
Society Prospering Together

K-water seeks ways to develop together with our society through the community sharing activities and the supporting of partnering companies.

DMA (Disclosures on Management Approaches)

1. Importance of a Society Prospering Together
Developing bilateral, constructive and cooperative relationships with stakeholders such as local communities, partnering companies, and customers, is a key that enables a sustainable growth of a company. The stakeholders of K-water have interests in contribution to local communities, social contribution activities, mutual growth, and impartiality in selecting and dealings with subcontractors.

2. Approaches of K-water toward a Society Prospering Together
K-water seeks to create shared values for stakeholders and communities, while proceeding with its businesses. First, K-water initiated social outreach activities, taking advantages of its business expertise. It designs and implements local contribution programs customized to local residents’ needs that can bring desirable changes to the lives of local residents. Next, we endeavor to construct cooperative networks in our supply chain, which bring a mutual growth to both our subcontractors and us. For this, as well as securing the fairness in trading with subcontractors, we supports small and medium-size enterprises in our supply chain for their enhancement of technological competitiveness.

K-water will come forward to outreach activities for local communities and society, which take advantage of its business expertise and are customized to the communities’ needs.

Making a Happier Society with Hearty Sharing

K-water will come forward to outreach activities for local communities and society, which take advantage of its business expertise and are customized to the communities’ needs.

Performance in 2013
- Enhance communication with stakeholders
- Expand social welfare
- Establishing bilateral cooperative networks

Performance in 2014
- Goals for the year 2014
- Goals for the year 2013

Social outreach that utilizes K-water’s business expertise
K-water has established and implemented a social contribution strategic plan with its own visions towards social contribution activities, three core values, and four strategic directions to create shared values for the society. K-water is making efforts to become a trusted company that leads to the development of the nation and local communities by providing practical benefits to beneficiaries through differentiated social contribution program in which its business expertise is applied.

Expanding social welfare
- Creating jobs for elderly in regions around dams
- Revitalize local villages around dams
- Support youth experience study programs in rural areas
- Provide technical support for local waterworks

Establishing bilateral cooperative networks
- Create a synergy with overseas businesses
- Create a shared value with global society
- Expand participations by employees

Strategy
- Vision
- Core Value
- Participation
- Communication
- Change

Vision
Making a happier society with hearty sharing

Core Value
Sharing cleanness
- Support community sharing activities and the supporting of partnering companies
- Create a synergy with overseas businesses

Participation
Making a happier society with hearty sharing
- Create a synergy with overseas businesses
- Create a shared value with global society
- Expand participations by employees

Communication
Making a happier society with hearty sharing
- Create a synergy with overseas businesses
- Create a shared value with global society
- Expand participations by employees

Change
Making a happier society with hearty sharing
- Create a synergy with overseas businesses
- Create a shared value with global society
- Expand participations by employees

Global sharing
Making a happier society with hearty sharing
- Create a synergy with overseas businesses
- Create a shared value with global society
- Expand participations by employees

Strategy Direction
Sharing cleanness
- Support community sharing activities and the supporting of partnering companies
- Create a synergy with overseas businesses

Sharing happiness
- Support community sharing activities and the supporting of partnering companies
- Create a synergy with overseas businesses

Sharing warmth
- Support community sharing activities and the supporting of partnering companies
- Create a synergy with overseas businesses

Goals for the year 2014
- Excellent
- Good
- Fair
- Below
Sharing cleanness

K-water is implementing “Water with Happiness Project,” which is the representative social contribution program that improves the quality of lives of socially disadvantaged people by retrofitting their water service facilities. As shown in the table below, we also endeavor to enhance social welfare services by the activities such as protecting the ecosystem in streams, cleaning up of streams, and providing of free-of-charge drinking water for elementary and middle schools and water quality inspection for socially disadvantaged people, providing desalination services to regions with water shortages, so on. In addition, we are sharing our water related technologies and know-how through education programs with the society.

<table>
<thead>
<tr>
<th>Water with Happiness Project</th>
<th>Cultivating of clean streams</th>
<th>Cleanwater service</th>
<th>Water education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renath water service facilities</td>
<td>Eco-friendly measures such as the draining-up of sludge</td>
<td>Free drinking water for elementary and middle schools</td>
<td>Water related education opportunities</td>
</tr>
<tr>
<td>Build water source</td>
<td>Manage water resources downstream</td>
<td>Free on charge water quality inspection for disadvantaged groups</td>
<td>Water education for developing countries</td>
</tr>
<tr>
<td>Retrofit pipelines, and improve water pressure</td>
<td>Construct clean underground water management</td>
<td>Desalination services to regions with water shortage and expanding water supply in emergency</td>
<td></td>
</tr>
</tbody>
</table>

Sharing happiness

K-water is conducting customized social contribution activities that reflect the needs of local residents based on their life cycles. We are also maximizing values of dams by creating eco-friendly dams as so as to become tourist destinations. In addition, K-water is committed to the improving of the lives of local residents and increasing of public awareness on the preciousness of water by supporting or hosting water related cultural events as shown in the table below.

<table>
<thead>
<tr>
<th>Filial duty sharing service</th>
<th>Cultivating dams as tourism destinations</th>
<th>Boosting of local residents’ income</th>
<th>Supporting of water-related cultural events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operate Filial Duty sharing service centers</td>
<td>Cultivate eco-friendly dams</td>
<td>Job-sharing projects</td>
<td>Build eco-friendly agricultural complexes and support market activities</td>
</tr>
<tr>
<td>Provide housing and medical services</td>
<td>Operate Water Culture Centers</td>
<td>“Water Love Sharing Medical Service”</td>
<td>“Water-Tour” contests of picture, essay, or etc.</td>
</tr>
<tr>
<td>Provide medical services</td>
<td>Construct eco-friendly rest area</td>
<td>Physical therapy, free meals, assistance to elders who suffer from mobility problems, and caring services</td>
<td>“Water-Tour” contest of painting, essay, or etc.</td>
</tr>
</tbody>
</table>

Filial duty sharing service

K-water provides continual welfare services in order to stay connected to people’s lives. Establishing the Filial Duty Sharing Service Centers in rural regions around dams is one of K-water’s welfare services, which are elderly care centers with care-helpers and physical therapists residing on-site that provide physical therapy, free meals, assistance to elders who suffer from mobility problems, and caring services. For those who are sick by the end of 2013, 8 centers in total were built including one at Daechung Dam. Also, K-water has conducted “K-water Love Sharing Medical Service” since 2007 in cooperation with The Medical Association of The Republic of Korea to provide the free medical service for residents living nearby to dams with prior medical infra. This service was offered to 6,000 people in sixteen regions in 2013, contributing to the improvement of local medical welfare. In 2014, oriental medical service was added to the list of K-water’s Filial duty sharing services.

Cultivating of dams as tourism destinations

K-water operates the Water Culture Centers nearby to multi-purpose dams to provide leisure and recreational space for residents. As well, we cultivate eco-friendly leisure space for all members of the society by forest nurturing in dam basins and planting rape blossoms, cosmos, etc. in flood-control sites and downstream river-vales. Our efforts are contributing to increasing tourism and revitalizing the economies of local communities.

Boosting of local residents’ income

K-water is initiating job sharing projects to provide employment for both the youth and elderly in regions around dams. In 2013, K-water gave priorities to 476 local self-supporting laborers and hired them as care-helpers to improve welfare for senior citizens and as house renovators to improve local residential conditions. Also, K-water has promoted eco-friendly agricultural complexes in the upstream of dams which has a restriction in farming of agricultural products with pesticides by the national water source protection policy. With this, it aims to both protect water quality and revitalize the local economy.

Supporting of water related cultural events

K-water is supporting cultural events such as “CleanWater Music Festival” to enrich the residents’ living around dams. In 2013, we fostered and supported severely disabled athletes in water-related sports by employing them as rowers and synchronized swimmers. K-water also comes forward to increase public acknowledgement on the values of water by hosting cultural events such as “Water-Tour” and “Water-Love” contests.

Sharing warmth

K-water supports socially disadvantaged groups such as low-income families and youth for their health and emotional revitalization.

Youth mentoring program, “Watering Your Dream”

The concept of “Watering Your Dreams” refers to the relationship between mentors and mentees. While the mentees, who are youths in rural areas nearby to dams, are like seeds that require watering (supporting), the mentors, K-water employees, are watering (supporting) the mentees to reach their full potential. This mentoring program provides the multi-lateral mentoring among youths → college students → K-water employees, targeting the local youths in socially disadvantaged regions in order to cultivate their leadership of sharing.

Support for multicultural families

K-water is supporting the homeland isolation, home schooling to learn Korean language, and wedding ceremony for multicultural families in order to facilitate their stable settlement and social and economic independence.

Community service group, “Water Love Sharing Team”

In 2013, 4,248 employees, accounting for 95% of all employees, joined 106 volunteer service clubs and carried out a total of 52,000 hours of volunteer services (12 hours per person). To support these services, employees have donated a portion of their monthly wage to the “Water Love Sharing Fund”, and the expenses for volunteer services of the community service team are supported from matching grants provided by the company.

Global sharing

Every year since 2006, K-water has made a good use of its professionalism through volunteer activities to develop drinking water sources and living support to local residents in the regions like Cambodia, Mongolia, Vietnam that have suffered from a water shortage. In 2013, we conducted four volunteer services in Manoharpervillage, Kathmandu, Nepal, and in Sungkon village in the state of Savannakhet, Laos. As well as the installation of waterworks facilities (tube wells, water tanks, pipelines, purifying facilities, and so on) that could serve about 26,000 residents in villages suffering with poor water quality, K-water conducted customized volunteer services for local regions such as building of river embankments, repairing of public buildings, etc.

Social contribution investment size per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Unit: KRW hundred million</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>629.1</td>
</tr>
<tr>
<td>2012</td>
<td>752.4</td>
</tr>
<tr>
<td>2013</td>
<td>774.2</td>
</tr>
</tbody>
</table>

Volunteer service hours per employee

<table>
<thead>
<tr>
<th>Year</th>
<th>Unit: hour/person</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>13.2</td>
</tr>
<tr>
<td>2012</td>
<td>12.8</td>
</tr>
<tr>
<td>2013</td>
<td>13.1</td>
</tr>
</tbody>
</table>

Social contribution investment amount for 2013: KRW 74.8 billion (about 2% of total sales)

Being acknowledged of its effort to resolve global water problems that are affecting people around the world, K-water was awarded of the “Happiness Sharing Enterprise Prize” in the field of global sharing by the Ministry of Health and Welfare for two consecutive years since 2013.

*Detailed information about social contribution activities of K-water can be found in K-water’s website (http://english.k-water.or.kr).
**Mutual Growth**

K-water seeks shared growth that makes it possible to develop together with partnering companies within the corporate supply chain.

K-water’s partnering companies are classified as material supplying companies, construction companies, and facilities inspection & maintenance companies. Inspection and maintenance works on K-water’s facilities are mainly outsourced, and in 2013, 119 people from four external companies have carried out the inspection and maintenance tasks in 16 water resource facilities of K-water, while the inspection and maintenance of Shinwang Tidal Power Plant was outsourced.

**Fair trades which protect socially disadvantaged groups**

K-water is expanding social cooperation networks through a scoring program that protects and benefits the socially disadvantaged (such as small businesses, local companies, companies run by females, and socially contribute companies) when selecting contractors. For construction contracts, K-water set forth to subcontract to local businesses for the contracts which amount less than KRW 2.2 billion whereas the National Contract Law requires it for the contracts of less than KRW 8.7 billion. Along with this, K-water gives extra points for subcontract with small businesses, and applies a mitigated evaluation standard for newly created companies. We advantage especially local companies that locate in construction areas by allowing them exclusive participation in bidding to contracts of less than KRW 8.7 billion in order to achieve social equity. The amount of contracts with local companies in 2013 takes about 11.5% of total contract amount (KRW 1.0 trillion).

In order to put our commitment towards a mutual growth into practice, we created the performance evaluations on the socially disadvantaged scoring program and mutual growth index. As well, we are taking an administrative measure to ensure that construction contract companies are paying social insurance fees (health insurance and national pension for its laborers), and have prepared an institutional strategy called ‘Selection of labor expenses’ in order to prevent overdue wages for equipment/materials-suppliers and day workers. For service contracts, we prepared a separate grade table for the evaluation of contract’s financial conditions that is used for small businesses, and increased extra points for a joint-work with small businesses. In addition, we are promoting the products manufactured from female-owned businesses and socially contribute businesses for small scale contracts, while this policy is applied for general construction projects to the contracts of less than KRW 200 billion, for professional construction projects to those of less than KRW 120 billion, for other constructions to those of less than KRW 100 million, and for service/products to those of less than KRW 50 million. On the other hand, as overseas businesses run by K-water are small amount investment businesses such as official development aid (ODA) and development agencies (investigation, design, and construction supervision), it does not operate protection measures for the socially disadvantaged in regards to overseas businesses yet. We will consider the implementation of protection measures for the socially disadvantaged with the expanding of overseas investment businesses in the future.

**Establishment of growth ladder to nurture small businesses in water industry**

K-water has established its unique performance scoring model called ‘One-stop’ which supports from the technology development to the pioneering of sales channels according to its mid- and long-term build-up strategies for small businesses in its supply chain. First, it is creating an on-site performance test bed to small businesses in order to test their new technologies on-site, considering the fact that acquiring a test-bed is one of difficulties that small businesses face. Moreover, K-water opens a market to small businesses by social contracts for their product or technology of which performance is proven in the test-bed that K-water provided. K-water has especially established and operated the nation’s first performance test-bed for new technologies in the field of hydropower in order to support the development of domestic technologies, and thereby, has performed a leading role in enhancing the technological competitiveness of small businesses. For example, K-water led the official performance certification of an industrial-purpose value developed by a small business, using its world’s fifth best calibration ability accredited in the field of fluid and liquid measurement. Also, K-water is expanding the budget to support small businesses for R&D through raising a private-public joint investment fund in addition to signing the MOU (Memorandum Of Understanding) for the establishment of a loan program for small businesses called ‘Water Loan’ with major financial companies. Moreover, it promotes the technology transfer to small businesses as well as providing education programs customized to small businesses’ needs. Being acknowledged of these efforts, K-water achieved the highest grade in the evaluation on the small businesses support performance of state-owned enterprises in 2013, which was held by the Ministry of Trade, Industry, and Energy. K-water will continue to support small businesses for their self-sufficiency and market competitiveness so that it fulfills the social responsibility for mutual growth as a state-owned enterprise.

**Cooperation with construction contract agencies**

K-water has obliged the use of standard contract to prevent the unfair trading, and has installed and operated the ‘Unfair Subcontractors Report Centers’ in the main headquarters and 8 regional division headquarters. It has also introduced and enhanced the oversight program on contracts to prevent them from the overdue pay to subcontract agencies, who are mostly small businesses. Along with these, K-water is making efforts to improve-unfair practices and policies in its way of working through consistent communication with construction contract agencies.

**Support for voluntary environmental management system of partnering companies**

As K-water understands that the establishment of environmental management and clean production system of its partnering firms can contribute to the competitiveness of K-water, it endeavored to establish eco-friendly partnership with small businesses by providing various environmental management programs such as education, technological support for environmental management, and ISO 14001 certification expenses, while receiving eco-friendly products and services from them. K-water’s technological support for each partnering business to establish a customized environmental management system leads it to positive outcomes such as the establishment of clean-production process, accomplishment of risk management ability, establishment of environmental management infrastructure, improvement of customer services, and establishment of clean production and consumption system. These achievements, thereby, will result in various benefits such as the productivity improvement, increase in profit through increased customer satisfaction, and reduction of production cost by reducing environmental cost. K-water has supported 17 companies through this program until 2013, and in 2014, it is currently supporting the environment for the maintenance of ISO 14001 certification as well as environmental management education to partnering companies. As it has been doing so, K-water will continue to make efforts to improve environmental integrity in the corporate supply network.
Focus Issue 4  
Creating a Happy Workplace
K-water seeks to make a happy workplace creating harmony between work and life, providing opportunities for mutual growth of individuals and the company, and conducting fair evaluations of all employees.

DMA (Disclosures on Management Approach)

1. The importance of Creating a Happy Workplace
The productivity of a company depends on the cultivation and application of its workforce. K-water seeks to recognize members of the organization as partners for sustainable growth and to create a happy workplace where individual members can develop and exhibit their potential abilities ethically, passionately, and creatively. The interested groups of K-water also showed interests in fair HRM (Human Resources Management) policy, employee benefits (work-life balance), and world class HR (Human Resources) cultivation.

2. Approaches of K-water toward Creating a Happy Workplace
In order to accomplish its new management strategy, ‘SMART Management’, K-water set a goal in 2013 to upgrade its managerial efficiency to the global level by focusing on 5 specific sections, which are safety, technology, ability, responsibility, and teamwork. In the aspect of teamwork, by introducing a new concept of welfare called ‘Welfare 3.0’, which pursues customized welfare to employees’ needs, K-water is making efforts to build an organizational culture with balance between work and life as well as mutual growth of both individuals and the company.

3. Performance management for Creating of a Happy Workplace
SMART Management is the concept of creating a company culture through a culture plan. The strategic management of K-water is centered on the values and the organizational culture that pursues mutual progress with respect for human rights and diversity. The management values are the core of SMART Management and are conducted through four perspectives, such as leadership, performance management, and social performances for 2013.

Workplace where Healthy Competition and Fair Rewards are given

Rewards and Human Resources Management centering on performance and capabilities

The monthly wage of a new college graduate employee in 2013 is 22% of the legal minimum wage, and all employees go through regular performance evaluation to decide their wages. The executive directors are evaluated by performance, and other employees are also evaluated by internal management performance evaluations which reflect collectively business/department/division/unit evaluation, department/unit evaluation, and team evaluation, which determine their wage and promotion. The evaluation criteria consist of department core indicators and company-wide common indicators according to four perspectives (i.e., customers, finance, process, and learning growth) of the Balanced Score Card. Differential rates of pay from a fair evaluation lead to the motivation for improving employees’ capabilities and contribute to establishing the organizational culture which realizes ability and performance. Also, we are conducting the policy of interacting employment between administrative and technical jobs in order to provide opportunities for the capability development through various business experiences, and are maximizing employees’ concentration at work by rewards given for task achievements, exemplary employees, outstanding knowledge, and suggestions.

Respect for human rights and diversity
K-water is conducting policies such as the expansion of employment, gender equality, and motherhood protection program in order to protect the rights of minorities such as disabled people, women, and non-regular workers in the workplace. The wages of men and women are equal if the position and length of service are equal, and as well, we have eliminated discriminatory factors on women in the workplace. Since the introduction of gender equality policies in 2006, we have actively managed women in the workplace by focusing on addressing grievances from female employees, strengthening the motherhood protection, etc. For human rights education, we are currently conducting company-wide sexual harassment prevention training and plan to implement an education for human rights protection in the future. Based on Article 17 of the Framework Act on Women’s Development and Article 272 of its enforcement regulation, we are reporting the results of sexual harassment prevention education at least once a year to the Ministry of Gender Equality and Family. As well, a sexual harassment prevention monitoring officer has been designated for each department in order to create a healthy and bright workplace with gender equality by preventing the sexual harassment.

Open employment
K-water carries out the most transparent open recruitment program out of all state-owned enterprises in the nation. Anyone can apply for a position (except specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just specialized job positions) regardless of academic ability, major, grade, gender, experience, and certificates if one has the minimum standardized foreign language test score at the time of employment. Also, we have increased the weight of the career aptitude test to recruit employees based on work skills, not just.
Fun Workplace with a Balance of Work and Life

Balance between work and life

We are consistently expanding the ‘Work Smart’ environment so that employees will secure more leisure time through creative and efficient work. We are supporting the employees to work regardless of time and places by installing and running 13 Smart Work Centers in regional division headquarters and overseas places of business and by providing a tool for remote work such as VDI (Virtual Desktop Infrastructure) and VNC (Virtual Private Network) that are based on the cloud computing platform. As for policies, we are making efforts to facilitate flexible working hours schemes by the introduction of short-time labor, expansion of telecommuting, etc., and are running various family-friendly policies such as the parent-coaching education, expansion of maternity leave, infant inspection leave, etc. Also, we are creating an organizational culture that can balance work and family life through the improvement of working practices including meeting, reporting, and dining together, which, thereby, decreases overtime work.

Operation of a welfare program that reflects the needs of employees

K-water’s places of business are spread throughout the nation and thus, the firm basically operate in the framework of job rotation. In order to solve housing problems that employees experience because of this, K-water provides boarding houses and leased company housing for families, and provides loans to partially cover the cost of purchasing houses. Also, we are running family-friendly welfare policies such as the supply of recreational facilities, childbirth grant, operation of workplace daycare center, etc., and has been certified as a family-friendly corporation by the Ministry of Gender Equality and Family. In the meantime, we support retiring employees by preparing them for their second lives through professional education, expansion of medical checkup, funeral expenses, cancer diagnosis expenses, etc. Also, we are running two-way communication window on HR-BANK (K-water human resources management integration system) to handle the grievances of employees. In 2013, we have addressed 53 grievances through online and face-to-face counseling. Unsettled grievances are continuously being considered and reviewed to be addressed later.

Efforts to improve the health of employees

K-water pursues its vision of a great workplace (GWP) by caring the health of employees. The 2013 medical checkup found that 36.8% of employees have medical issues, which registered an increase of 0.3 percentage points, compared with the previous year, but the increasing trend has abated since 2009. Also, the prevalence rate has slightly decreased from 7.1% in 2012 to 7.0% in 2013. This can be seen as a result of consistent health management efforts such as smoking cessation, obesity clinic, sudden cardiac death prevention program, and chronic illness management. In 2014, we plan to expand preventive health management to emotional health diagnosis and the dozily employee exercise core, and to improve the quality of the checkups with individually customized health checkups plans.

Employees communication

The CEO and executives are regularly communicating online by using CEO SMS, video news (Focus View), video meeting, and real-time broadcasting. After the appointment of new CEO in 2013, especially, open forums have been hosted by CEO to communicate with employees and share management principles, and since 2014, “Talk-Talk Square” (free message board on the CEO’s bulletin board) of K-water Intra-net has been open and facilitated the bilateral communication between the management and employees. Through the two-way communication window between the top management and all of the employees in the organization, we are settling a sincere communication culture by searching for solutions and by proposing opinions freely about important management decisions. Also, we are running the grievances addressing window on HR-BANK (K-water human resources management integration system) to handle the grievances of employees. In 2013, we have addressed 53 grievances through online and face-to-face counseling. Unsettled grievances are continuously being considered and reviewed to be addressed later.
As We Proceed

STEP 3

Achievement of global competitiveness (2013–)

- HR composition satisfied for the new strategy execution
- HR management based on HR education principles that reflect the characteristics of businesses
  • Establishing a performance-oriented HR management system with appropriate performance system and performance management based on performance evaluation

HRM (Human Resource Management) Development

- K-water is initiating the strategic human resources management that focuses on talents of employees and performance of the corporate in order to achieve its vision and goal, and is thus securing the global competitiveness of its human resources.

Workplace that enables employees to Learn and Develop themselves

Global talent fostering roadmap

K-water is making efforts for its employees to grow required capabilities by establishing a capability development model in regard with three types of capabilities: common ability, leader ability, and job competence. The capability development model aims at the improvement of the current capability level to achieve the capabilities that are necessary for the performance creation in actual workplaces. It manages HR data in an integrated manner using HR-Bank, and has systemized all functions of HRM (Human Resource Management) and HRD (Human Resource Development) in order to fundamentally prevent errors.

Human resource management based on capabilities

K-water is making efforts for its employees to grow required capabilities by establishing a capability development model in regard with three types of capabilities: common ability, leader ability, and job competence. The capability development model aims at the improvement of the current capability level to achieve the capabilities that are necessary for the performance creation in actual workplaces. It manages HR data in an integrated manner using HR-Bank, and has systemized all functions of HRM (Human Resource Management) and HRD (Human Resource Development) in order to fundamentally prevent errors.

Career development plan for employees

K-water Academy has constructed and operated a CRP system which supports its employees to develop their career in the company since 2003, and has sufficiently reflected the needs of the company for balanced work experience of its employees. As a measure of this, K-water abolished occupational limits in the selection of training courses offered by K-water Academy in order to widen the learning choice of its employees in 2010 and has extended employees’ opportunity to participate in training courses. By introducing a learning credit system in 2011 where OJT (On-the-Job Training) in which the learning club research time are counted as a learning credit, we are making efforts to settle the learning atmospheres of the corporation. In 2014, we are especially focusing on the fostering of human resources that will lead future water management businesses. This fostering program aims at nurturing the talented human resources that facilitate the integrated approaches to businesses, preparing for the business convergence of the future.

Nurturing K-water core professionals

K-water launched its water specialist training course in 2008 in order to achieve the global competitiveness by nurturing quality human resources specialized for the needs of future water businesses. By the end of 2013, we have fostered 468 professionals from 63 training courses. Moreover, in 2014, K-water selected 75 employees for the intensive training over of total 250 hours per year of which level is equivalent to a master’s degree course, and is training the selected employees in order to advance in core areas of the future water management businesses: Integrated Water Resources Management, Smart Water Grid, clean energy production, overseas business, local waterworks business, strategic investment.

Strategic fostering of leaders

In 2011, K-water was the first public corporation to introduce the Developing Center (DCI) technique to its HRD, and has since systematically fostered leaders through its unique leader-nurturing program, “Leadership Academy,” which enables the development of insufficient capabilities of leaders based on the diagnosis by their subordinates. Also, we have been running the “Leadership Workshop” since 2012 for second-level or higher officers. This course consists of various learning activities (role-playing, topic debate, etc.) and conversation with the management board, and is conducted quarterly with the purpose of recognizing the role of leaders in core businesses of K-water as well as enhancing the capacity of leaders to communicate with and build a consensus with their subordinates.
As small streams come together to form a river, we are pulling together our best efforts towards the shared value creation in economics, environment, and society to make K-water the most advanced and reliable water service enterprise that wins love and trust of people in the society.
Economic Performance

Creative innovation Overview
K-water’s innovation activities consist of CoP and collaboration activities. CoP activities are intra-departmental and innovative activities, while the collaboration activities occur inter-departmentally or jointly with outside parties. In order to encourage innovation activities, the management team is running an executive innovation office to support innovation tasks performers while providing them with various services such as budgeting, training, and manpower. Also, the team holds an annual competition for the creative innovation performed by employees in order to establish the innovation as a part of its organizational culture and spread its performance. Rewards are given to outstanding performers of innovative tasks who are selected through the competition.

K-water’s unique, creative, and innovative activity system, “K-sigma”
K-water has established its own system for the innovative corporate culture including K-sigma, 6 Sigma, and a research club, 364, which is used to solve qualitative, informal problems while 6 Sigma is used to solve quantitative problems. The research club is a voluntary research activity group of employees for creating knowledge about corporate common issues over a period of time through discussions and research, which ultimately improve the work efficiency.

R&D, the key to sustainable growth Strategy
- Make (%) which sets the level of developed countries at 100.

R&D achievements
K-water performs about 80 research projects by investing more than 2.2% of annual sales to R&D. On average, more than 600 research papers have been published annually through the corporate R&D projects, and the number of applications for intellectual property rights including patents continues to increase every year.

R&D development capabilities
K-water has 238 professional researchers with a master’s or a doctoral degree (including 77 commissioned researchers) that develops its core technologies. They conduct researches on the commercialisation of low-carbon-emission environmental technology and renewable energy responding to the climate change with the emphasis on the fields of water resource environment, infrastructure, waterworks and sewage, green technology, policy & economy, and tap water quality analysis.

Performances
The average number of annual proposals and knowledge submission by innovation activities is about 3,500, resulting in a financial achievement of more than KRW 20 billion annually. In order to expand the sharing of its creative innovation achievements with more people, K-water annually holds the company-wide presentation of creative innovation at IHEM, and also publishes position in a readable manner for outstanding creative innovation cases. K-water has been recognized externally as a world-class innovation company by receiving the presidential award of Korea’s Knowledge Award, Asian MAKE, and Global MAKE in 2013—which is reputed to be the most prestigious award for the outstanding knowledge management of corporations in the world. For the Asian MAKE, K-water has been awarded it for 6 consecutive years (2008-2013).

Investment Incurred Each Year (Accumulated)

<table>
<thead>
<tr>
<th>Year</th>
<th>Unit (KRW hundred million)</th>
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<tbody>
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<tr>
<td>2017</td>
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R&D development capabilities

R&D budget (KRW hundred million)

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<tr>
<th>Year</th>
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<tr>
<td>2009</td>
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<tr>
<td>2012</td>
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</tr>
<tr>
<td>2013</td>
<td>145</td>
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</table>

Mission and Vision of K-water Research Institute
- Providing of professional knowledge services and advanced technologies to lead water industry by reinforcing research capacities and creating technological values.
- A global water management research institute that grows with customers.
- Creating of demand-oriented technological value.
- Development of core technologies through the selection and concentration.
- Efficient operation of organization.
Environmental Performance

Reduced environmental impact during the entire production processes

Resources saving and circulation

To promote the resources saving and circulation in the whole production processes, K-water encourages ‘Green Purchasing’, a purchase of green products (recycled or environmental-friendly manufactured products). K-water built an automation system to promote the purchase of green products such as state-certificated Eco-Labeled products and Solid-Recycling-Labeled products on real-time, and is managing the corporate goal of green purchase inter-operating with K-water’s Environment Performance Evaluation (EPE) Index. K-water’s green purchases totalled KRW 108 billion in 2013, which takes 9.6% of the entire purchase cost. K-water will make efforts to increase continuously the green purchase rate.

Water reuse and recycling

K-water has been re-collecting the water used for filter backwash in its treatment processes of tap water and industrial purified water, and recycling the water. The amount of recycled water in 2013 is 36.146 million m³, recycling 86% of the total water used which is 40.995 million m³. Water recycling contributes to the environmental protection by reducing the amount of water intake, and in addition, the monitoring on changes in recycled water amount enables us to sense the tap water backwashing rate, thereby, ensuring tap water quality.

Discharged water quality

Waterworks

Since the amount and quality of discharged water from water purification plants can bring significant impacts on the water quality of rivers and the ecological environment, K-water applies management standards that are stricter than the legal requirements. In particular, to minimize the impacts on the ecological environment within discharged areas and preserve the water quality in rivers, K-water is continuously monitoring the quality of discharged water by a water quality remote inspection system. By selecting the quality of discharged water as a green business goal and a core index of Environmental Performance Evaluation, K-water has been doing its best to improve the quality of discharged water since 2004. In 2013, the average quality of discharged water from water purification plants was BOD 1.0mg/L, COD 3.3mg/L, SS 2.4mg/L, which was only 10%, 8%, and 12% respectively of the discharge tax levy standards: BOD 20mg/L, COD 40mg/L, and SS 20mg/L.

Efforts to reduce water intake impacts

The total amount of tap-water that K-water supplied in 2013 is 3,209 million m³. While residents in the downstream of the Nakdong River take most of the water for living from the Nakdong River, the downstream region of the Nakdong River is vulnerable to water pollution because of industrial and residential developments and size fluctuates of the regions. K-water is thus working on the Nakdong River Filter Water Project (2011-2017) to supply filtered clean water to the cities of Busan and Yangsan in the downstream of Nakdong River, which are both traditionally vulnerable to water pollution (plastics, benzenes, etc.). However, in Changnyeong-gun, where a underground water pool can be affected by this project. Thus, our company is aware that the repair of facilities, ports, bridges, and tunnels. With a goal to supply clean water intake, and in addition, the monitoring on changes in recycled water amount enables us to sense the tap water backwashing rate, thereby, ensuring tap water quality.
Sewage treatment facilities
In 2013, among 22 sewage treatment plants with capacities over 580,000 m³, the average water quality of discharged water from 5 plants in 3 areas where stricter discharged water requirements by the government are held was BOD 1.3 mg/L, COD 5.8 mg/L, and SS 2.7 mg/L, which were 13%, 29%, and 27% respectively of the discharge water quality standards for public sewage treatment facilities. BOD 5 mg/L, COD 20 mg/L, and SS 10 mg/L. For 17 plants in 3-3 areas with relatively less stringent discharged water quality requirements, they were BOD 1.7 mg/L, COD 7.1 mg/L, and SS 3.2 mg/L, which were 17%, 20%, and 22% respectively of the discharge water quality standards. BOD 10 mg/L, COD 20 mg/L, and SS 10 mg/L. Dr. Waste Water (Dr. WW), an internally developed core sewage treatment program, has stood at 47.873 mg/L, 0.9 mg/L, and 47.873 mg/L, respectively of the legal standards of BOD 20 mg/L and SS

Wastewater treatment facilities
The average water quality of discharged water from the wastewater treatment facilities of K-water is BOD 6.0 mg/L and SS 5.4 mg/L, which are within quality requirements, they were BOD 1.7 mg/L, COD 7.1 mg/L, and SS 3.2 mg/L, which were 17%, 20%, and 22% respectively of the discharge water quality standards. BOD 10 mg/L, COD 20 mg/L, and SS 10 mg/L. Dr. Waste Water (Dr. WW), an internally developed core sewage treatment program, has stood at 47.873 mg/L, 0.9 mg/L, and 47.873 mg/L, respectively of the legal standards of BOD 20 mg/L and SS

Hazardous material discharge management
Hazardous materials such as waste oil and chemical substances discharged from project sites can bring serious adverse influences to the surrounding environment, bio-diversity, and the health of local citizens. All hazardous substances from K-water’s project sites are strictly treated according to related regulations, and there have been no accidents due to the leakage of hazardous substances so far. However, K-water is enhancing its abilities to take preemptive measures against potential accidents by establishing a manual and holding regular training activities to prepare for hazardous substance leakage accidents.

*Chlorine gas. It is often used for disinfection in waterworks, but hazardous in case of leakage.

Recycling waste products
Waterworks sludge
In 2013, the amount of sludge produced from purifying of 1 m³ water was approximately 54.2 g. The total amount of sludge produced at waterworks in 2013 is 110,277 tons, 106% of this amount are recycled and reused as cement materials (30.8%), cover materials (12.1%), planting soil (12.1%), and potting soil (32.1%). (Based on the London Dumping Convention 1996), banning the dumping of waste materials into ocean, Korea amended the enforcement regulations in the Maritime Pollution Prevention Law (Ministry of Maritime Affairs & Fisheries Regulations No. 330 on February 21, 2006). As a result, the disposing of sludge from waterworks into oceans has been banned as of 2007. Since 2006, K-water has been recycling all sludge generated from its waterworks, and no sludge has been exported.

Sewage sludge
Sludge produced at sewage treatment plants operated by K-water was 29,560 tons in 2013. From the total amount, the amount of sludge recycled in 2013 is 19,191 tons, which is 131% higher than that of the previous year, and the recycling rate is 49%. Of the 19,191 tons of sewage, most was recycled for planting soil, fertilizer, earthworm breeding, etc. K-water will gradually increase the sludge recycling rate and actively recycle it into reusable resources in strict compliance with the prohibition of ocean disposal.
Management of air pollution substances

All of K-water’s project sites do not have a manufacturing process that directly emits air pollutants. However, air pollutants can be emitted while using fuel such as diesel to operate the project sites and facilities. Since the introduction of the green management system in 2011, each department in K-water has been working on various activities to minimize oil consumption, as the reduction performance of each department is reflected in its management performance evaluation.

Compliance with environmental laws

K-water supplies products and services in compliance with environmental laws. In 2013, it was once charged a fine by the Ministry of Environment for not appropriately reporting the changes in discharged substances from two purification plants (Wabu, Deokso). However, K-water completed a licensing application for the substances discharged from the Deokso purification plant. In 2013, it was once charged a fine by the Ministry of Environment for not appropriately reporting the changes in discharged substances from two purification plants (Wabu, Deokso). However, K-water completed a licensing application for the substances discharged from the Deokso purification plant.

Environmental Impact Assessment

In order to conduct an environment-friendly dam, K-water has implemented eco-friendly techniques for the entire project cycle from initial planning, designing, constructing, to management stages. By doing so, K-water is creating a balance of development and conservation by not only taking into account the preservation and restoration of the surrounding environment but also the area’s unique social, cultural, and historical features.

Post environmental impact study

The study of post-environmental impacts is an environmental monitoring system which continuously monitors and evaluates environmental impacts caused by construction, and arranges mitigation measures to reduce such impacts in order to prevent the unexpected occurrence of environmental damage. In 2013, K-water conducted a post-environmental impact study for its water resource development projects, and the result is that all project execution procedures satisfied the environmental standards.

Development of eco-friendly water resources

Construction of eco-friendly dam

In order to construct an environment-friendly dam, K-water has implemented eco-friendly techniques for the entire project cycle. By doing so, K-water is creating a balance of development and conservation by not only taking into account the preservation and restoration of the surrounding environment but also the area’s unique social, cultural, and historical features.

Environmental mitigation measures

In order to minimize various environmental impacts such as air pollution, water pollution, noise/vibrations, etc. that occur at construction sites, K-water is executing environmental impact mitigation measures for construction businesses. The company requires the installation of auto-bike & vehicle washing facilities, anti-dust fences to prevent scuffed dust, sand bible to prevent the soil runoff from construction sites to streams from incurring turbid water in streams, and noise-proof panels to minimize noise and vibration from construction equipment. Moreover, it is building ecology preservation facilities such as animal pathways and alternative habitats in order to relieve the disconnection between animals and their natural habitats.

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As We Proceed
Legally Protected Species
Shooting star along
Professional Pollution Sources
Naeseongchun sand
Complex Cultural Space
Legally Protected Species
Nature and Ecology Hiking Path
Crane Theme Park
Crane
Construction Facility

Contributing to the expansion of opportunities for local residents to enjoy leisure
by featuring each area
Dam facilities and its surrounding spaces are recreated as local tourism sites
Constructing waterfront ecological and cultural

Category
Gumun Dam
Cheong Dam
Construction Facility

Plants
• Protect rare and valuable species of flora and fauna
  • Replant and conserve protected plants
  • Protect endangered species

Insects
• Create suitable habitats for the target species

Mammals
• Make plans to maximize the diversity of species

Birds
• Make plans to minimize night lighting

Amphibians / Reptiles
• Make plans to maximize the diversity of species

Fish
• Make plans to maximize the diversity of species

Protection for bio-diversity
Ecology restoration projects

K-water is undertaking various ecology-restoration projects in order to
minimize negative effects on natural environment due to the execution of water
resources development projects and to preserve the habitats of animals &
plants.

Ecological environment study
K-water regularly monitors the current status of animal and plant habitats
and ecological environment in order to impact any changes in the ecologi-
cal environment before and after the implementation of water-resources
development projects. According to the research on ecological conditions of
dam-areas, various living creatures such as 7 to 18 species of mammals, 14
to 37 species of fish, 7 to 18 species of amphibians and reptiles, and 31 to 37
species of birds were found to be inhabiting the areas.

Also, K-water conducts investigations once a decade on the environmental
impacts on major dams that are operating after construction in order to de-
termine the species’ current inhabitation status. It utilizes the investigation
result as a base data for establishing its ecological restoration plans.

Ecological restoration and building of
ecological network
K-water has installed various ecological restoration facilities to protect the
habitats for major species such as mammals, fish, amphibians and reptiles,
and birds near dams. It focuses on the installation of ecological passages
and alternative habitats for legally protected species such as others to prevent
the ecological collapse and to encourage the ecological recovery. Further-
more, K-water has also been developing fish-ways and fish-spawning
areas to promote diversity of fish resources and to preserve the habitats
of animals & plants.

Selected as the outstanding work site in the 2nd construction environment
management evaluation by the Ministry of Environment in 2013

K-water’s Gumun Multi-purpose Dam received the second place award and was appreciated for an appropriate attitude for a new
clear concept-based eco-friendly construction site in an eco-friendly construction business competition for 1,500 development
projects across the whole country.

Being acknowledged for the introduction of an eco-bridge, first at home and abroad, realization of the successful
ecological restoration, and advancement of the dam reservoir water quality management.
Sustainable ecosystem development project for Dwi-Teu Bank in Jecheon

In 2013, K-water promoted an ecological network development project in the Dwi-Teu Bank area of Jecheon, Chungbuk Province, where water pollution and disturbance of ecosystem have been created due to the excess spread of vegetation, fishing, and illegal garbage dumping. Through the project, an endangered plant species, Siton-chae, was restored, wild animal habitats were created, and the ecology network was created and is to be used as an ecosystem education site for local residents.

Successful execution of an ecological network development project for Dwi-Teu Bank in Jecheon

Legally protected species inhabiting in major dams

<table>
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<tr>
<th>Category</th>
<th>Dam Name</th>
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Investigation of train operation

Investigation plan for ecological restoration (Unit : Places)

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<th>Installation plan for ecological restoration (Unit : Places)</th>
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<th>After Project</th>
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<td>Fish spawning grounds (number of sites)</td>
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<td>Ecological pathways (number of sites)</td>
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Customer Happiness management beyond customer satisfaction

K-water has set forth the vision of its customer service, ‘Making Customer’s Life Happier’ and the customer service values of ‘Comfort, Security, Trust, Service that moves one step ahead’ based on the enterprise-wide participation and consensus in order to fulfill the customer services and secure the competitiveness. Under the vision, K-water set four strategic directions: enhancing infrastructure for the Customer Happiness Management, consolidating customer-centered service capacities, differentiating a base for customer management, and activating CS (Customer Satisfaction)-centered culture. K-water is then pushing 10 strategic tasks and 40 practical tasks such as the customer-oriented process innovation.

K-water Customer Happiness Management strategic implementation system

Customer satisfaction training to 667 employees in 27 offices annually for improving the customer service quality and enhancing all employees’ customer service competencies. Meanwhile, K-water provides the customer satisfaction training to 667 employees in 27 offices annually for improving the customer service quality and enhancing all employees’ customer service competencies. Moreover, K-water has strengthened the reward system for employee activities to motivate its employees for higher customer satisfaction performances and published a “Customer Happiness Best Casebook” after collecting exemplary customer service cases through a contest. Also, it continually develops its customer service capabilities through various ways such as the monitoring of phone etiquettes as well as the disseminating examples of customers’ compliments.

Service quality enhancement process

Differentials of customer services

For the first time among SOC state-owned enterprises, K-water branded the Service Identity (SI) to efficiently deliver the characteristics of K-water’s unique customer happy management and highlight its differentiations from competitors. Water-Pro reflects the company’s strong will to provide proactive and professional services to its customers; the brand is being actively used in front-line employee’s uniforms, business cards, banners, and various activities for customer satisfaction.
K-water is increasing tap water safety by introducing the Water Safety Plan (WSP) set by the World Health Organization for all the waterworks. The WSP is an internationally-certified technique to clearly and safely manage all procedures of generating and supplying tap water. In accordance with K-water’s introduction of WSP, South Korea was officially registered as the 36th WSP adopter country by the World Health Organization. Moreover, in order to verify the safety of water sources and tap water, the company monitors and tests 252 water quality items, far exceeding the 84 items required by the national law for reviewing water quality. K-water also manages tap water quality by monitoring it on a real-time basis by installing an automatic water quality measurement device. Since 2001, K-water has been operating an internal water quality rating system in order to produce high-quality tap water. For all multiregional purification plants, K-water applies its internal standards that are stricter than legal standards to review 13 items such as turbidity, residual chlorine, taste, smell, and disinfection byproducts. There were no cases of violation in 2013 while managing the number of inconsistent water quality cases in accordance with the internal service implementation standard.

Guarantee of customer rights
As a public enterprise that implements social overhead capital (SOC) investment by constructing dams, waterworks, and complex projects, K-water inadvertently faces disputes with local residents during proceeding with the projects. Most of them are related to property and land compensation issues, and a total of 36 lawsuits (12 land compensation cases) occurred in 2013. However, K-water strives to protect the rights of local citizens who must leave their residences and resolve such cases expeditiously. As part of support measures for local citizens forced to emigrate from their residences due to dam construction, K-water provides benefits to local citizens through various support projects for local residents. Protection of customer’s personal information
As seen from the massive leakage of customers’ personal financial data from South Korean credit card firms, information security is emerging as a very important issue in business activities. K-water develops and operates high-tech infrastructures and regularly holds training on enhancing information security to protect personal information as well as establishing a personal information protection standard. Moreover, K-water operates a firewall system to block information leakage in addition to a solution to implement the personal information data split. Customers’ personal information is protected by establishing customer data base security policies such as access restrictions, authentication controls, and post audits. There has been no personal information-related complaint by any customers so far.

Enhanced user convenience of VOC System
K-water strives to provide answers to customers in a timely manner by operating a complaint filing window that is open and accessible at all times on K-water’s homepage (VOC bulletin board). In 2013, K-water induced speedy and reliable customer services by applying internal standards that are more consolidated than the legal one for handling customer issues. K-water uses the complaints received as important resources to discover management improvement assignments by sharing them throughout the company. Compliance with laws on marketing communication and supply of products and services
All marketing influences customers’ decision-making, so K-water strives to provide them with accurate information. All sales activities including advertisements, promotions, sponsorships, and marketing communication must comply with related regulations and company-wide work principles. Also, an internal standard is applied to all advertisements such as sales of land to ensure impartiality in selection of advertisement companies. Terms of advertising, K-water follows the review regulations and laws of the Korea Advertising Review Board. There has been no violation against marketing laws or fines charged for breaking products and services-related laws.

Reached the highest level in the customer services performance index
With the efforts for the customer happiness, K-water received the highest rating in the survey about customer satisfaction level of state-owned companies conducted by the Ministry of Strategy and Finance for 7 consecutive years. K-water leads the Customer Happiness Management in the public enterprise field by achieving the highest level in major customer services performance indices by handling 100% of VOCs in a timely manner and receiving 99 A points in Service Quality Index.

<table>
<thead>
<tr>
<th>Year</th>
<th>State-owned company customer satisfaction</th>
<th>K-water (point)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>93.7</td>
<td>97.2</td>
</tr>
<tr>
<td>2012</td>
<td>94.6</td>
<td>97.0</td>
</tr>
<tr>
<td>2013</td>
<td>95.0</td>
<td>97.2</td>
</tr>
</tbody>
</table>

Local waterworks customer satisfaction

<table>
<thead>
<tr>
<th>Year</th>
<th>State-owned company average (points)</th>
<th>K-water (point)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>73.0</td>
<td>71.7</td>
</tr>
<tr>
<td>2012</td>
<td>73.0</td>
<td>71.7</td>
</tr>
<tr>
<td>2013</td>
<td>80.4</td>
<td>88.3</td>
</tr>
</tbody>
</table>

Number of complaints

<table>
<thead>
<tr>
<th>Year</th>
<th>In writing (Number of Cases)</th>
<th>Electronically (Number of Case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1,383</td>
<td>1,351</td>
</tr>
<tr>
<td>2010</td>
<td>1,257</td>
<td>1,270</td>
</tr>
<tr>
<td>2011</td>
<td>1,414</td>
<td>1,011</td>
</tr>
<tr>
<td>2012</td>
<td>766</td>
<td>122</td>
</tr>
<tr>
<td>2013</td>
<td>788</td>
<td>122</td>
</tr>
</tbody>
</table>

Service Quality Index (SQI) (Points)

<table>
<thead>
<tr>
<th>Year</th>
<th>SQI (Points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>97.0</td>
</tr>
<tr>
<td>2012</td>
<td>97.0</td>
</tr>
<tr>
<td>2013</td>
<td>97.5</td>
</tr>
</tbody>
</table>

Employee Employment conditions
The total number of employees at K-water is 4,651 (based on full-time positions) including seven executive members as of December 31, 2013. This also includes those on maternity leaves, military service, and workers of entrained businesses that are excluded from AUD official notice. In order to strengthen global competitiveness, departments with similar functions were integrated or rearranged, and a corporate hierarchy was simplified in order to increase the efficiency of human resources operation. A total of 232 new employees (205 males, 27 females) were publicly recruited in 2013 to improve organizational activities for performing new growth engine industry in 2013.

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Executive</th>
<th>General Positions</th>
<th>Specialized Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Personnel</td>
<td>4,651</td>
<td>7</td>
<td>3,637</td>
<td>279</td>
</tr>
<tr>
<td>Rate per Age Group (%)</td>
<td>20s-30s</td>
<td>38.4%</td>
<td>42.7%</td>
<td>41.6%</td>
</tr>
<tr>
<td>Field of Work</td>
<td>24.7%</td>
<td>36.3%</td>
<td>34.4%</td>
<td>51.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Current members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>152</td>
<td>212</td>
<td>170</td>
<td>227</td>
<td>252</td>
<td>252</td>
</tr>
<tr>
<td>Females</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>57</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>Disabled</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Science and Technology</td>
<td>171</td>
<td>164</td>
<td>126</td>
<td>126</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>Regional Technology from Non-metropolitan Areas</td>
<td>92</td>
<td>154</td>
<td>187</td>
<td>128</td>
<td>141</td>
<td>151</td>
</tr>
<tr>
<td>High School Graduates</td>
<td>20</td>
<td>18</td>
<td>13</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

Employee & executive status per year by personnel basis
K-water follows the review regulations and laws of the Korea Advertising Review Board. In terms of selection of advertisement companies, K-water makes efforts to ensure impartiality in selection of advertisement companies. In terms of marketing, K-water follows the review regulations and laws of the Korea Advertising Review Board. There has been no violation against marketing laws or fines charged for breaking products and services-related laws.
Employee Turnover Rate

- Efforts to improve the efficiency of state-owned enterprise management were taken from 2009 to 2012. The employee turnover rate had been increasing every year compared to 2008 before starting the efficiency efforts. In 2013, however, the number of employees switching jobs reduced by 66 compared to 2012 due to the extension of retirement age, which decreased the number of retirees.

- The figures in the brackets indicate the turnover rate over the entire workforce (%): female 2.95%, total 2.20%, female 81, total 2011.

- In accordance with the Article 35 of the Labor Union & Labor-Related Conciliation Law, the rights to collective bargaining and to negotiate collective agreements are guaranteed for all employees. Based on Article 27 of the Collective Agreement (Responsibility to Notify), any changes made to labor conditions or the Articles of Incorporation should be notified to both the management and employee without delay. Employees of third or lower level can join the labor union that was established in 1997. It is a Union Shop system in which all full-time employees automatically become union members upon entering the company, and 83% of the total workforce or 3,662 employees were union members as of March 2014. On the other hand, the ratio of personnel covered by the result of collective agreement in subcontracting firms that impact and repair K-water’s facilities was about 59.1% on average. The labor-management attempts to improve communication by operating a task force and building a top-down/bottom-up communication system in which the labor union participates. Also, K-water reinforces mutual trust and information sharing between the labor and management and also forms company-wide consensus. K-water’s labor-management cooperation body has been established since 2008 by performing practical tasks that fulfill employees’ needs, thereby reaching management goals and increase work efficiency. In particular, in 2013 to become a ‘Water-Love Plant’ and second more funds for social contributions through increased participation of employees, expanding K-water’s social outreach practices. These collaborative activities of the management and labor is fulfilling the corporate social responsibility and suggesting a new vision of labor movement. Also, it improved labor conditions for temporary staff to protect social amenities and promote organizational harmony. In 2013, for the first time as a state-owned company, the labor-management established a loan system for temporary staff equivalent to that of full-time staff. To create a sustainable work environment, K-water endeavors to reduce unnecessary overtime work and promote efficient work processes, while reinforcing disciplinary actions on sexual harassment to protect women’s rights. In addition, K-water has declared an ‘One Heart’ partnership of the labor-management, including the sound establishment of a productive labor-management culture. Such efforts by the labor-management have become a driving force to maintain the signing of agreement for 26 consecutive years without disputes.

- Reinforced cooperation between the labor and management for K-water’s next great leap

K-water received a merit presidential citation for being selected as having the most outstanding labor-management relationship among state owned institutions in 2013. This was possible due to the mutual efforts by the management and labor such as the declaration of labor-management mutual growth in 2012 and the declaration of ‘One Heart’ partnership in 2013. These all have become the foothold for K-water’s next great leap.

Safety & health

Labor-management council

K-water discusses workplace safety and health improvement plans jointly between the labor and management. The Labor Management Joint Safety & Health Committee was replaced by a Joint Labor-Management Council, which is comprised of 16 members, each from labor and management.

- Improve maternity protection system
- Improve childcare support system
- Enhance medical check-up to workers
- Improve occupational health services in the head office

Injury, occupational disease, job-related injury rate, prevalence rate

The company reinforces various industrial safety education and safety management at construction sites to prevent safety accidents. It also runs a system to prevent safety accidents during sports events to help employees recover quickly from accidents and return stably to work.

The company gives an additional 70% of monthly wage to an employee that becomes disabled since joining as well as three days of paid leave and encourages gifts to registered disabled employees around Disabled People’s Day. Furthermore, convenient facilities for the handicapped have been installed, including designated parking zones, elevators, restrooms, stairways, and pathways. The company has implemented a health check-up, non-smoking program, obesity clinic and SCD (sudden cardiac death) prevention programs, which have been met with good results.

Employee leadership

- Since the first female director (professional position) was selected in 2010, the female leadership has continuously increased to reach a total of 48 women by 2013. The male to female ratio of K-water executives is 88.3% (3,930) vs 11.7% (521), with males still significantly outnumbering females. However, since the female employee target system was implemented in 2004, the female labor force is increasing every year.

- Female leadership has added the need to develop policies for gender equal opportunities. The company has announced the first child-care support policy at a state-owned company in 2005, and the child-care system is constantly being developed. In 2013, it introduced a new leave system that employees can use for short-term leave, long-term leave, or care leave. K-water also is participating in the implementation of a work environment improvement program to reduce the number of workplace accidents. In March 2013, it implemented the ‘Safer Work Environment’ program to proactively provide necessary protective equipment in workplaces and improve the environment. In addition, K-water has implemented the ‘One Heart’ partnership of the labor-management, including the sound establishment of a productive labor-management culture. Such efforts by the labor-management have become a driving force to maintain the signing of agreement for 26 consecutive years without disputes.

- Furthermore, K-water has provided a comprehensive system to prevent safety accidents during sports events to help employees recover quickly from accidents and return stably to work. The company has implemented a health check-up, non-smoking program, obesity clinic and SCD (sudden cardiac death) prevention programs, which have been met with good results.

- In addition, K-water has implemented a health check-up, non-smoking program, obesity clinic and SCD (sudden cardiac death) prevention programs, which have been met with good results.
Injury and occupational diseases in 2013

<table>
<thead>
<tr>
<th>Injury</th>
<th>Injured Rate</th>
<th>Occupational Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

Injury Rate is calculated on the basis of regular and fixed-term employees.

Annual industrial accident rate, prevalence rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial Accident Rate (%)</th>
<th>Prevalence Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>6.4</td>
<td>0.25</td>
</tr>
<tr>
<td>2011</td>
<td>9.2</td>
<td>0.12</td>
</tr>
<tr>
<td>2012</td>
<td>7.1</td>
<td>0.22</td>
</tr>
<tr>
<td>2013</td>
<td>7.0</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Policies and education to ensure health and safety of all employees in the field of power generation and subcontractors

According to article 7 of the management regulations for hydropower plant being operated by K-water, power plant employees always keep their surroundings clean, and maintain related manuals, safety equipment and tools in order to prepare for emergencies. Also, article 8 (Device Controlling and Safety Management) states that power plant workers must follow safety rules when handling devices; it also ensures safe workplaces by reminding workers of working methods, vulnerable factors in safety management, as well as warnings. K-water is striving for all employees’ and subcontractors’ health and safety by giving regular safety trainings to all employees (100%) and outsourced workers.

Childcare and women’s Health support

K-water has designated areas to enable breast feeding and female employees to provide maternity assistance for female employees as well as an in-company childcare center. All employees who want a parental leave (100%) have been allowed for the leave, and all of them, both males and females, have been re-instating to their work after the leave. This is done in order to help reduce the childcare burden and create a balance between work and family life. In addition, K-water is also operating various parental protection programs such as the notification system of childcare leave, the substitute employee support system, the optional shortened work hour, and the providing of equipment for breast-feeding employees, etc.

Parental Leave Status per Year

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of employees who applied for leave</td>
<td>71</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Personnel on leave (Number of people)</td>
<td>71</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Re-instatement Rate (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Maintenance Rate (%)</td>
<td>82.4</td>
<td>88.5</td>
<td>83.3</td>
<td>81.0</td>
<td>76.9</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of employees who applied for leave</td>
<td>254</td>
<td>88</td>
<td>76</td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td>Personnel on leave (Number of people)</td>
<td>254</td>
<td>88</td>
<td>76</td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td>Re-instatement Rate (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Maintenance Rate (%)</td>
<td>86.9</td>
<td>83.3</td>
<td>81.0</td>
<td>76.9</td>
<td>76.9</td>
</tr>
</tbody>
</table>

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### Sustainable Management Performance Data for 2013

#### Creative Management

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit: KRW million</strong></td>
<td><strong>Unit %</strong></td>
<td><strong>Unit %</strong></td>
</tr>
<tr>
<td>2011</td>
<td>2,557,035</td>
<td>194,342</td>
<td>155,028</td>
<td>1,077,776</td>
<td>6,437,936</td>
<td>3,86,2</td>
<td>455</td>
<td>5.8</td>
<td>4.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>2,612,719</td>
<td>193,028</td>
<td>151,077</td>
<td>1,158,520</td>
<td>6,824,436</td>
<td>4.5</td>
<td>43.9</td>
<td>11.8</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>2,646,719</td>
<td>191,028</td>
<td>151,077</td>
<td>1,218,520</td>
<td>6,882,436</td>
<td>4.4</td>
<td>45.9</td>
<td>16.6</td>
<td>2.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sales in 2013 (excluding private investment sales) increased 9.3% compared to the previous year through active extension of efforts such as increased sales price of tap water and dam reservoir water, increased revenue in local waterworks and overseas businesses, and strategic marketing.

The water resources business revenue increased by 10.6% compared to the previous year through increase of dam-dam reservoir water sales by active marketing, offsetting the decrease in the unit price by increasing the amount of power generation, and the effort to actualize dam commis- sioned maintenance cost.

The waterworks business revenue in 2013 increased by 7.8% compared to the previous year through sales extension and consistent efforts for customer satisfaction, and achieved a goal of over KRW 1 trillion for the first time.

The revenue in 2013 exceeded KRW 463 billion which is an increase of 15% compared to the previous year through active extension of efforts such as local waterworks operation, etc., and efforts to reduce production cost.

The water resources business revenue increased by 11% compared to the previous year through increase of dam-dam reservoir water sales by active marketing, offsetting the decrease in the unit price by increasing the amount of power generation, and the effort to actualize dam commis- sioned maintenance cost.

The revenue operating profit rate increased by 2.8% compared to the previous year through increasing the increase in revenue resulting from the increase in dam reservoir water and tap water sales profit as well as the effort for cost reduction.

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By improving financial soundness through self-effort such as revenue expansion and production cost reduction, debt ratio decreased (2.2%p) for the first time upon carrying out national major projects.

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Efforts for maximizing new investments in tangible asset and making good use of budgets in order to actively fulfill governmental policy increased the efficiency of investment on facilities in 2013. (Increase of 13.9%p from the previous year).

Based on cooperative labor-management relationship, we have changed compensation / welfare systems to meet the expected standard of the public and the responsibility as a state-owned corporation (complied to governmental guidelines).

By improving financial soundness through self-effort such as revenue expansion and production cost reduction, debt ratio decreased (2.2%p) for the first time upon carrying out national major projects.

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Based on cooperative labor-management relationship, we have changed compensation / welfare systems to meet the expected standard of the public and the responsibility as a state-owned corporation (complied to governmental guidelines).

Increased tap water sales and power generation in 2013 resulted in the achieving of the highest net profit ever.

Main business revenue extension through tap water price increase, new local waterworks operation, etc., and efforts to reduce production cost have improved the added value rate.

The tap water production amount increased by 3.0% compared to that of the previous year through converting local waterworks into that of multi-regional, identifying new sources of demand, etc.

Local waterworks service population share in 2013 increased by 0.2%p compared to that of the previous year through new consignments in the Bonghwa County, etc.

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Local waterworks service population share in 2013 increased by 0.2%p compared to that of the previous year through new consignments in the Bonghwa County, etc.
### Sustainable Management Performance Data for 2013

#### Smart Water Service

<table>
<thead>
<tr>
<th>1. Multi-regional waterworks water flow rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>99.8</td>
</tr>
</tbody>
</table>

- The flow rate in pipelines in 2013 is maintaining the high rate of 99.8% through systematic facilities maintenance such as pipeline internal investigation and water-gauge accuracy improvement.

<table>
<thead>
<tr>
<th>2. Number of water outage occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: Number of cases</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

- Number of cases where water outage occurred in 2013 decreased by 1.2% compared to that of the previous year by expanding leak prevention devices and no-outage techniques.

<table>
<thead>
<tr>
<th>3. Multi-regional waterworks supply rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>48.0</td>
</tr>
</tbody>
</table>

- Tap water supply rate by multi-regional waterworks in 2013 improved by 0.7%p from that of the previous year through the conversion of local waterworks into multi-regional waterworks and new supply.

<table>
<thead>
<tr>
<th>4. Global Water Quality Standard achievement rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>98.83</td>
</tr>
</tbody>
</table>

- Global Water Quality Standard achievement rate increased by 0.00%p through water treatment facilities improvement and optimized operation such as making and running of new pH control facilities, and optimizing of remaining facilities.

<table>
<thead>
<tr>
<th>5. Retrofitted water pipes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: km</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>33.2</td>
</tr>
</tbody>
</table>

- The length of pipelines retrofitted by 2013 increased by 52.1% compared to that by the previous year by replacement and repair of old water pipes.

<table>
<thead>
<tr>
<th>6. Flood control capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: m³/h thousand m²</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>2,407</td>
</tr>
</tbody>
</table>

- Flood control capacity by 2013 increased by 14.9% compared to that by the previous year through the flood control capacity enlargement businesses at seven dams.

<table>
<thead>
<tr>
<th>7. Water safety index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>17.6</td>
</tr>
</tbody>
</table>

- Water safety index increased by 2.7%p compared to the previous year by checking on 140 harmful materials in every process of water production from intake to distribution, and by improving 187 risk factors through doubling chemical facilities and installing water condition monitoring devices.

<table>
<thead>
<tr>
<th>8. Dry season Algae occurrence reduction rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>14.8</td>
</tr>
</tbody>
</table>

- Average Algae (Chlorophyll-a) concentration around 14 river weirs decreased by 25.3% compared to that of in 2012 by increasing dry season dam discharging amount to the algae occurred regions.

<table>
<thead>
<tr>
<th>9. Local waterworks tap water drinking rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>55.6</td>
</tr>
</tbody>
</table>

- We are making continuous efforts to improve credibility of tap water quality by providing free tap water quality check services.

<table>
<thead>
<tr>
<th>10. Local waterworks water flow rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: m³/s/million m²</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>2.631</td>
</tr>
</tbody>
</table>

- Water flow rate in pipeline of local waterworks improved by 0.8%p compared to that of the previous year through systematic leakage maintenance and pipeline water meter replacement by establishing block system, controlling water pressure, organizing policies, and expanding water-NET system leakage rate decreased by 1.9 million m².

<table>
<thead>
<tr>
<th>11. Power generation facility failure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>5.6</td>
</tr>
</tbody>
</table>

- Failure rate reduced by 30% compared to that of the previous year by improving the maintenance system for prompt recovery and failure reduction, securing performance self-diagnosis technology, and replacing depreciated facilities.

<table>
<thead>
<tr>
<th>12. Renewable energy production rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: GWh</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>115.281</td>
</tr>
</tbody>
</table>

- Renewable energy production in 2013 increased by 21.3% compared to that of the previous year through stable operation of the Sihwa Total Power Plant and river weir hydropower plants.

<table>
<thead>
<tr>
<th>13. Water supply plant utilization rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: %</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>105.6</td>
</tr>
</tbody>
</table>

- The rate in 2013 increased by 1.6%p compared to that of the previous year through the increase in demand of water for industrial complexes, expansion of multi-regional waterworks supply areas, and expansion of multi-regional waterworks supply quantity due to drought.

<table>
<thead>
<tr>
<th>14. Number of Star Brand Technology (Key-technology) projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit: Number of cases</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

- To lead the technologies of water industry and become a global company, we have implemented 6 key fostering technologies as a part of technological innovation, and plan to develop 31 technologies in total by 2018.
Sustainable Management Performance Data for 2013

1. Customer satisfaction level
   - Unit: Point
   - 2013 customer satisfaction level increased by 0.6 points by improving core-maintenance factors of customer service quality and strengthening service quality monitoring.

2. Local waterworks customer satisfaction level
   - Unit: Point
   - The satisfaction level in 2013 increased by 0.1 points through outstanding efforts for local waterworks service quality improvement, and thereby, K-water obtained the highest point in local waterworks customer satisfaction level.

3. Number of water-bill-related complaints
   - Unit: Number of cases
   - The number of cost-related complaints decreased by 62% compared to that of the previous year by preventing errors through checking QR codes and bar codes, and by introducing new water-gauge reading post-it service.

4. Water outage notification satisfaction level
   - Unit: Point
   - Water outage notification satisfaction level increased by 8.1 points by using no-outage techniques and using diverse channels for pre-notification (text messages, voices, on-site broadcasting, etc.).

5. Complaint processing satisfaction level
   - Unit: Point
   - Complaint processing satisfaction level increased by 4.9 points through prompt processing using work-smart systems such as the use of SNS.

6. Dam Residents Support Business satisfaction level
   - Unit: Point
   - The satisfaction level continuously improved by creating jobs for local residents to increase the incomes of residents living near the dams and by making the dams tourist attractions as well as the Filial Duty Center and Youth mentoring program.

7. Social contribution activity index
   - Unit: Points
   - We have exceeded the target society contribution index (99.4 points) by implementing various social contribution activities that utilize our expertise and resources, which the employees actively participated in.

8. VOC timely processing rate
   - Unit: %
   - We have reached a 100% processing rate through running independent complaint processing deadline (within 1~3 days through website, and 5 days through e-mail) which is strengthened from the legal processing deadline (7 days).

9. Small businesses product purchase rate
   - Unit: %
   - As a result of efforts toward mutual growth with small businesses including the promoting of purchase of small businesses’ products, we have earned the Outstanding grade in the evaluation of the National Commission for Corporate Partnership.

10. Information disclosure rate
    - Unit: %
    - The information disclosure rate increased consistently through setting independent information disclosure deadline (5 days) which is half the legal disclosure deadline of 10 days, automatic deadline notification, and regular feedbacks of departments in charge.

11. Management disclosure satisfaction level
    - Unit: %
    - The disclosure satisfaction level increased by expanding voluntary disclosure items for the public’s right to know (49 items in 2012 → 61 items in 2013), and by the improvement efforts for the information accessibility.

12. Public sensory level
    - Unit: %
    - We have reached the highest grade of ‘Superior’ in the evaluation about public sensory level, which was 3.9 points higher than the state-owned enterprise average, through customized promotion activities that consider generational characteristics.
Creating a Happy Workplace

1. Performance evaluation policy acceptance rate
   - Unit: points
   - 2011: 73.6
   - 2012: 65.3
   - 2013: 72.9

2. High school graduate employment
   - Unit: people
   - 2012: 13
   - 2012: 51
   - 2013: 71

3. Employment of local talents
   - Unit: people
   - 2011: 187
   - 2012: 128
   - 2013: 161

4. Compensation/welfare satisfaction level
   - Unit: points
   - 2011: 2.62
   - 2012: 3.01
   - 2013: 3.26

5. Communication satisfaction level
   - Unit: %
   - 2011: 85
   - 2012: 87

6. Corporate confidence index
   - Unit: points
   - 2011: 67
   - 2012: 65
   - 2013: 75

7. Employees’ vision/strategy recognition rate
   - Unit: %
   - 2011: 66.5
   - 2012: 93.4
   - 2013: 93.9

8. Labor and management mutual trust level
   - Unit: %
   - 2011: 85
   - 2012: 88
   - 2013: 88

9. Labor and management relationship satisfaction level
   - Unit: %
   - 2011: 85
   - 2012: 86
   - 2013: 88

10. Talent fostering index
    - Unit: %
    - 2011: 38
    - 2012: 39.1
    - 2013: 40.5

Sustainable Management Performance Data for 2013

- The preparation of performance improvement plans that employees can relate to, cultivating a culture focusing on performances and mitigating the corporate seniority, and expanding of customized consulting for low-performance departments increased the employees’ acceptance on performance evaluation policy a lot more than the previous year.

- We are actively promoting the employment of local talents from non-metropolitan regions, who had inferior education options, for social equity.

- The trust level between the labor and the management is improving through the labor and management partnership activities as well as diligent performance of collaborative tasks.

- After the new CEO was appointed in November, 2013, labor and management relationship satisfaction level has been consistently improving by spreading cooperative atmosphere between labor and partnership mutual agreement.

- We are maintaining consistent level of education hours per person through continuous improvement efforts of education quality and voluntary education participation.
Third Party’s Assurance Statement

To the Readers of K-water Sustainability Report 2014:

Foreword
Korea Management Association Registration and Assessments (KMAR) has been requested by K-water to verify the contents of its Sustainability Report 2014 (the Report). K-water is responsible for the collection and presentation of information included in the Report. Our responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

Scope and standard
K-water describes its efforts and achievements of the sustainability activities in the Report. KMAR performed a type 2, moderate level of assurance using AA1000AS (2008) as an assurance standard. That is, the assurance team assessed whether inclusivity, materiality, and responsiveness were observed, and verified the findings to assess the reliability of the data and information specified in the Report where professional judgement of the practitioner of KMAR’s assurance team was exercised as materiality criteria.

Assurance of the economic section:
Reviews whether the financial data and information have been extracted appropriately from K-water’s 2013 financial statements and public notification data

Assurance of the environmental and social section:
Reviews whether the environmental and social data and information included in the Report are appropriately presented

" Appropriately presented" means that the original data and information are reported appropriately in the Report with consistency and reliability.

The team checked whether the Report has been prepared in accordance with the requirements of the ‘Core Option’ of GRI G4 which cover the followings.
- G4 Reporting Principles
- Overall Standard Disclosures
- Core Option Specific Disclosures
- Core Option of GRI G4 which cover the followings.
  - Economic Performance: EC1, EC2
  - Procurement Practices: EC9
  - Energy: EN1, EN2, EN6
  - Employment: LA2, LA18
  - Equal Remuneration for Women and Men: LA13
  - Local Communities: SO1
  - Product and Service Labeling: PR3

Our conclusion
Based on the results we have obtained from material reviews and interviews, we had several discussions with K-water on the revision of the Report. We reviewed the Report’s final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data and information are not presented appropriately.

Inclusivity
Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability.
- K-water is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder group left out during this procedure.

Materiality
Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.
- K-water is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out during this process.

Responsiveness
Responsiveness is an organization’s response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.
- The assurance team could not find any evidence that K-water’s counter measures to critical stakeholder issues were inappropriately recorded in the Report.

We could not find any evidence the Report was not prepared in accordance with the ‘Core Option’ of GRI G4.

Recommendation for improvement
We hope K-water’s publication of the Report is actively used as a communication tool with stakeholders and recommend the following for improvements.
- K-water should improve the process for preparing the Report, especially in the step of planning.
- K-water should consider making the Report more balanced.

Our independence
With the exception of providing third party assurance services, KMAR is not involved in any other K-water business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.

27 June 2014

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27 June 2014
ISO 26000

ISO 26000 is an international standard guideline on seven core topics about social responsibility based on basic principles using the method of integrating social responsibility throughout the organization with the recognition of social responsibility, identification, and participation of stakeholders. The following are reported contents of K-water about seven core topics of social responsibility.

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<th>Issues</th>
<th>Page</th>
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<td></td>
<td>Threats to human rights</td>
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<td></td>
<td>Avoidance to public participation</td>
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</tr>
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<td></td>
<td>Grievance settlement</td>
<td>55, 41, 78, 100</td>
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<td></td>
<td>Discrimination and disadvantaged group</td>
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<td></td>
<td>Civil political rights</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Economic, social, and cultural rights</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Basic principles and rights in workplaces</td>
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<td>Corruption prevention</td>
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<td>52-55, 98</td>
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</tbody>
</table>

As we were publishing the report, we tried to contain the voices of internal and external stakeholders of the company, and the contents of the report were verified by a third-party organization.

The scope of the performance index report

This report contains the current sustainable management and business performances of 28 local business sites and overseas businesses in 18 countries. Since the accounting period of seven subsidiary, affiliated companies is the same as that of K-water, they do not affect the possibility of periodic and organizational comparison. Moreover, either equity method or cost-value method is used depending on the percentage of shares owned.

Performance data reporting standard

K-water has made every effort to fulfill the reporting principals stated in GRI G4 guideline. The performance data of economic, environmental, and social sections were produced according to the index description attached to the G4 guideline. The environment section usually referred to the data of Environmental Performance Evaluation (EPE) system developed as a computer system in 2005 and the data of Carbon inventory system developed in 2010, and the financial section applied the data from the audited financial statements and the statements of accounts. Materials of social and other sections were directly received from relevant departments. Each performance indicator was presented with the time-series data for 3-5 years, and its absolute values were presented along with the ratio for reader’s understanding.

Efforts for consistent improvement

It has been ten years since we first published the report in 2005. We have made our best effort so far to identify the expectations and the interests of stakeholders, listen to the opinions of stakeholders, and produce a useful report that communicates the sustainable management of K-water with its stakeholders in accordance with GRI G4 guideline.

G4 Guideline application level

The 2014 Sustainability Report of K-water was drafted to meet the requirements for “Core” level application of GRI G4 guideline. Through the verification of the Korea Management Association Registration and Assessment, this report was verified to be written in compliance with the requirements for “Core” option of the G4 guideline.
K-water is a business of the people that contributes to the quality of life of citizens and the development of the country by developing, managing, and preserving water resources of Korea to be sustainable in environmental, economic, and social aspects and by providing the best products and services. With this confidence and pride in this 21st century period of water, we promise the following to become a global professional water business.

**Code of Ethics Preamble, Green Management Policy**

- We accomplish our missions through creative thinking and challenges and make efforts to actualize transparent management by processing tasks with honest and fair attitude.
- We recognize that the Earth is a precious heritage for our offspring and is a healthy and clean shelter of life and practice eco-friendly management.
- We provide the best products and services to customers and actualize consumer-oriented policy through customer satisfaction and management of new value creation.
- As a part of the local community, we respect the tradition and the culture of the community and enrich the lives of local residents by contributing to the development of the local community.
- We comply with ethical/legal values, respect market order of free competition, and seek the realization of fair competition.
- We respect each personality of all people without discrimination, and respect characters and creativity.
- With the recognition that labor and management is one, we develop partnering relationship based on trust and harmony and seek for prosperity of community.

*Please refer to the ethics management section in the website for details about principle of ethics and principle of employee behavior.*

- We deeply recognize that this is a time that needs the best effort to make sustainable development that harmonizes with environment in order to create clean and livable environment. Our company, which handles water, the source of life, declares the policy of green management with the participation of all employees in order to become an eco-friendly business that receives the trusts and love of citizens by developing and managing water resources in eco-friendly ways.
- We respect each personality of all people without discrimination, and respect characters and creativity.
- We secure a healthy consumption culture of saving and reusing resources and energy, and seriously consider at all times so that we will not destroy environment because of inattention.
- We reflect the opinions of the citizens as best we can in making plans that relate to environment, and disclose information and materials so that we will increase the trust on the organization as well as the transparency of the task.
- We take the responsibilities and duties of preventing natural pollution, promptly addressing natural pollution that occur from business activities, and always keeping in mind that these kinds of practices are the foundations of business ethics.
- We provide continuous environmental education. So that our activities will become code of ethics and make our best efforts for search development of conserving and improving the environment. All employees of K-water practice this declaration so that all of our future generations will enjoy prosperity in clean environment.

**Customer Charter Statement, Mission Statement for Innovation Vision**

- K-water will make best efforts to practice customer-oriented management by approaching to the customers based on the management philosophy “The values of customers are our values.”
- K-water will provide water and territory of best quality that customers can trust in a stable manner.
- K-water will provide information and services for the safety and ownership protection of customers even before customers request them.
- K-water will always be open to advices and suggestions of customers, regularly accept opinions, and use them for improvement of customer services.
- K-water will perform its tasks without any discrimination to any customers and will secure the profit of customers to the maximum by seeking for the most efficient management.
- K-water promises that we will set the best service performance standards that K-water can provide and practice them in order to realize ideal goals on the side of customers.

- We declare the following in order to provide clean and safe water to citizens, protect the lives and properties of citizens from water-related disasters, and to become the best water service organization through continuous changes and innovations.
- We recognize the importance of nature for health life and sustainable growth of future generations and make efforts in order to preserve this. By putting this declaration into action, we focus all of our capabilities to make K-water a business that does its job well, a business that is loved by the citizens.
- In order to become a trusted public enterprise, we process tasks in an honest and fair manner without violating conscience, common sense, and the law, and actively participate in social contribution activities in order to be together with the local community.
- With confidence and passion that do not fear change, we will secure global-level competency to accomplish the vision and establish continuous and stable foundation for growth.
The principles of Global Compact are based on the following international agreements:

- The Universal Declaration of Human Rights
- The International Labor Organization’s Declaration on Fundamental Principles and Rights at Work
- The Rio Declaration on Environment and Development
- The United Nations Convention Against Corruption

The UN Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment and anti-corruption:

**Principle 1**: Businesses should support and respect the protection of internationally proclaimed human rights; and

**Principle 2**: Make sure that they are not complicit in human rights abuses.

**Principle 3**: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; and

**Principle 4**: The elimination of all forms of forced and compulsory labor; and

**Principle 5**: The effective abolition of child labor; and

**Principle 6**: The elimination of discrimination in respect of employment and occupation.

**Principle 7**: Businesses should support a precautionary approach to environmental challenges;

**Principle 8**: Undertake initiatives to promote greater environmental responsibility; and

**Principle 9**: Encourage the development and diffusion of environmentally friendly technologies.

**Principle 10**: Businesses should work against corruption in all its forms, including extortion and bribery.

K-water practices and complies to the ten principles of UN Global Compact

K-water CEO  Choi, Gye Woon

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**Glossary**

- **Non-point pollutant source**: A pollutant source with unspecified emission route unlike the point pollutant sources of people or businesses which have point polluted sources. The pollutant load rate is calculated by the land use pattern in the basin (rice paddies, fields, forest) and the pollutants are run off into water systems during heavy rainfall.

- **Renewable energy**: Concept that includes eight renewable energies of solar heat, sunlight, bioenergy, wind power, waterpower, geothermal heat, ocean, and waves.

- **SWOT (Smart Water Grid)**: Next-generation intelligent water maintenance technology that combines precise water grid with innovative ICT in order to increase stability, safety, and efficiency of water services.

- **Prevalence rate**: The ratio of population who have a particular disease at a specified point in time and in region over the total population at a specified point in time and in region.

- **EPE (Environmental Performance Evaluation)**: Program that measures, analyzes, and evaluates environmental management performance of corporations through environmental index.

- **CSR (Corporate Social Responsibility)**: Spokes responsibility of corporations

- **ISO (International Organization for Standardization)**: International organization that is a network of national standards bodies and that develops international standards to promote the transfer of technological knowledge.

- **UN Global Compact**: An organization established in 1997 by the support of UNDP in order to develop the guidelines for sustainability reports.

- **ISO 14001**: International standard of environmental management set by ISO

- **ISO 9001**: International standard of quality management system set by ISO

- **ISO 26000**: As the international standard to define social responsibility, includes voluntary compliance principles focusing on 7 social responsibility principles of organizational governance, human rights, labor practices, environment, fair operating practices, consumer issues, and community involvement and development.

- **EPC (Engineering, Procurement, and Construction)**: Unique innovative technique of K-water for problem solving, Modified and developed from the work-out method of GE to fit the environment of K-water

- **CSR (Corporate Social Responsibility)**: Unique innovative technique of K-water that combines Six Sigma with emphasis on process reduction, process improvement, the activity of eliminating unnecessary work processes, and encouraging research developments.

- **KRM (K-water Risk Management)**: Company-wide risk management activities of K-water which predict potential dangers of management (financial, non-financial) in company-wide perspective, achieve management goals through efficient danger/risk management and increase the public safety.

- **ISO 14001**: International system standard of environmental maintenance set by ISO

- **ISO 9001**: International system standard set by ISO

- **KSI 7001**: Company-wide risk management activities of K-water which predict potential dangers of management (financial, non-financial) in company-wide perspective, achieve management goals through efficient danger/risk management and increase the public safety.

- **UNFCCC (United Nations Framework Convention on Climate Change)**: An international convention to regulate artificial release of the greenhouse gas in order to prevent global warming. The official name is United Nations Framework Convention on Climate Change.

- **ISO 9001**: International quality management system standard set by ISO

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You can download this report in PDF format from K-water’s website and a free mobile app to view this report from Apple Store or Play Store, using your smartphone. Please contact us with the following contact information if you want more detailed information about sustainable management activities and performance of K-water.

Thank you for giving K-water’s sustainable management activities your attention.

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Voices of Readers

We would like to extend our gratitude to our stakeholders for reading the '2014 Sustainability Report' and for your interests in sustainable management of K-water. Each opinion and suggestion that you send us will be utilized as precious materials to develop sustainable management of K-water. We will cherish the opinions and suggestions received and reflect them in the next report.

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1. Where do you belong to?

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2. Investor/stockholder  
3. Government/officer  
4. Local resident  
5. Citizen/social organization such as NGOs  
6. Cooperative businesses  
7. Academic  
8. Press  
9. K-water employee  
10. Others ( )

2. How did you come across the Sustainability Report of K-water?

1. K-water website  
2. Internet  
3. Newspaper/magazine  
4. K-water employee’s introduction  
5. Others ( )

3. What was the most interesting section in this report?

1. As we proceed  
2. Sustainable Management  
3. 4 Focus Issues  
4. Economic, environmental, and social performances of for 2013

4. What is the part that needs the most improvement?

1. As we proceed  
2. Sustainable Management  
3. 4 Focus Issues  
4. Economic, environmental, and social performances for 2013

5. Please write freely about any areas for improvement, your opinion about sustainable management activities of K-water, or about the overall structure and content of the report.


We are waiting for your opinions.
Every one of your opinions will play an important role to drive our sustainable management forward. We will cherish your opinions and reflect them in the next report.