Global Smart Water Initiatives
K-water is creating a healthy and smart future with water!

Healthy water
Smart water management
Water for a happier world
Mission, Vision, and Management Policy

CEO’s message
Becoming a country with exceptional water management through smart management

Water & Smart Innovation
We realize water welfare with smart water management

Water & Green Planning
Eco-friendly space designed with water revives cities

Water & Renewable Energy
Clean energy, produced by water and new energy resources, ensures your health

Water & Global Business
We lead the world’s waterways with upscale technologies

Water & Global Contributions
We help create a pleasant, happy world through water

K-water history
K-water, established in 1967, goes through a half century of creation and rapid changes

Introduction to K-water organization
Organizational chart/ regional offices nationwide
VISION
We create a happier world with water

MISSION
Leading future water management
Realizing water welfare
Customer-oriented management

The world’s best integrated water services corporation
Based on 47 years of experience, K-water is ready for a new beginning through smart management to accomplish another 100 years of success.
Safe water services for happier citizens and a healthier Korean Peninsula

Founded in 1967, K-water has gone through an era of rapid change, industrialization, and urbanization, and is soon to mark its 50th anniversary. K-water, which has strived to protect the lives and properties of the people of Korea from 'water-related disasters' such as floods and droughts, has also been supplying clean and safe tap water over the past 47 years while being a foundation for improving the quality of life and economic development.

Leading future water management - realizing water-related welfare

K-water has focused on its competencies to play a vital role in solving water related issues, both in Korea and overseas. Actively responding to climate change, K-water has been improving the reliability, fairness, and efficiency of the water industry with an intelligent water management system for the next generation based on information and communications technology (ICT). By producing and supplying healthy tap water for the human body, beyond safety regulations, K-water’s efforts have led to the realization of water-related welfare for the citizens.

We will create eco-friendly spaces specialized in water through urban environment and clean energy projects, while leading the way for national economic growth.

Citizens-oriented management - online and offline activities for better communication

Along with continual offline activities, K-water has exerted itself to form a social consensus and improve communication with citizens through various online activities using its website, Facebook page, Twitter, and Opencast. It has continuously strived to reinforce the platform to share knowledge and information with citizens through the running of communication channels such as the World Water Forum and its official blog, ‘Delicious Chitchat.’

Sharing with the world

K-water has practiced love and sharing through its social contribution activities. It is the first public corporation to have implemented the social contribution project, 'Sharing 1% of employees' salaries,' and it runs many other programs such as 'K-water Bank,' a water preservation campaign, and a natural ecology school. Such activities for sharing will continue and will be expanded to Asian countries such as Philippines, Laos, Nepal, Equatorial Guinea, and North Korea as well as other countries in Africa, America, and Europe that suffer from lack of water.

We promise that K-water will seek to make the world a happier place for all to live in and enhance Korea’s global stature through water initiatives based on its 47-year experience, while looking ahead 100 years to a future which will be much brighter and different.

K-water CEO Choi Gye-woon
Realizing water-related welfare through smart water management
Water enriches people’s lives in Korea

K-water has scientifically and systemically managed water resources and operates an ICT-based smart water management system, ‘Smart Water Grid.’ It has taken a leading role in producing tap water utilizing new concepts, changing the paradigm of water supply from ‘safe and clean water’ to healthy water for the human body.
K-water has realized smart water management by way of Korean-type Integrated Water Resource Management (IWRM), which has taken account of changes in water management conditions such as climate change, to increase and diversify the value of water, enriching nature and humankind.

**Advanced, integrated water management system to prepare for climate change**

**Improving the water cycle system by optimizing the management of existing water resources**
- Handles 95% flood control capacity, 65% water supply capacity, and 63% hydro power generation and supply of Korea
- Runs and manages 50 water resource facilities including multi-purpose dams, multi-functional reservoirs, and industrial water dams
- Five new water resource facilities including Yeongju Multi-Purpose Dam and Seongdeok Multi-Purpose Dam are currently under construction
- Responds to water quality issues including green algae through the integrated management of water in each basin
- Restores aged water resource facilities and re-evaluates the water resources to respond to climate change
- Advances the operation of the existing water resource facilities by linking their functions

**ICT-based water management system**
- Weather prediction using satellites
- Real time sluice information and integrated sluice data management
- Precipitation prediction
- Supply of reservoir water
- Flood analysis, water-related disasters monitoring
By enhancing water management competencies to the global level and realizing water-related welfare, K-water is improving public welfare by providing integrated solutions for water through the continual development of water resources that are in harmony with nature, ecology, and environment based on advanced water management technologies accumulated over the past half-century and the introduction of scientific and systemic water treatment processes.

**Strengthening its global competitiveness in future water management**
- Creating a system to implement and evaluate the IWRM
- Ensuring new technologies for ecology restoration, pollution reduction, and flood control
- Collecting and analysing vast amounts of data using smart technologies and providing information on water

**Enriching the country by providing water benefits**
- Building a community that unifies different regions with local outreach activities and cooperation
- Developing underground water sources and dams to help communities that suffer from a lack of water supply
- Providing communities with region tailored solutions such as projects to prevent flood disasters
To supply the most beneficial and healthiest water for the human body, K-water continues to research methods that can preserve minerals in water while rigorously managing the quality of the water by applying advanced water treatment technologies. An intelligent system Smart Water Grid System (SWG) handles the management of water resources from production, to the supply, retreatment and reuse of water.

Building a future-oriented tap water supply system based on the SWG
- Ensuring the capacity to supply 47.1% of Korea’s water consumption (supply of 3.7 billion tons of water)
- Managing the amount and quality of water during the whole process of water supply using ICT
- Builds a tap water supply system with high efficiency and low energy consumption
- Improving water supply stability by connecting multiple water supply resources and supply facilities with each other

Efficient operation and management of local waterworks and sewage facilities
- Constructed and operating 21 local waterworks and sewage facilities and 12 local environmental infrastructures nationwide
- Efficiently operating waterworks facilities by linking local waterworks and sewage facilities to those in wide areas
- Improving fairness by supplying water in areas that lack water supply such as rural areas

Operation of the Water Quality Analysis Research Center
- Obtained U.S. Water Association 5-Star Certification
- 250 test categories (the world’s largest number)
- World’s top-class water treatment plants
Eco-friendly spaces designed with water to vitalize and rejuvenate cities
Beyond K-water’s efforts to achieve world-class scientific water management, it is striving to construct complexes where water, nature, and ecology are in harmony. With the development of eco-friendly complex cities such as Sihwa Multi Techno Valley (MTV), Songsan Green City, and Busan Eco Delta City, K-water has constructed water-friendly spaces including the river restoration project, Ara Waterway, and Sihwa Lake while creating future-oriented cities in which tourism and leisure facilities coexist.

The beautiful harmony of water and land
K-water develops eco-friendly multiplex cities with waterfront enhancements. Its efforts have contributed to the vitalizing of local economies and the development of regional specialties by creating eco-friendly waterfront cities that function as destinations for residential, commercial, industrial, cultural, tourism, and leisure activities, centering on the water-friendly spaces along some of the nation’s streams.

**Busan Eco Delta City**
- Co-executed with Busan City
- An eco-friendly waterfront city created at the merging site of three waterways (Western Nakdong River, Pyeonggang Stream, and Maekdo River)
- To be fostered as a hub for international logistics and cutting-edge industries which is expected to lead to new growth for Busan

**Naju’s Noan District**
- Designated as a water-friendly zone
- A water-friendly village connected with Yeongsan River
- A Namdo cultural village featuring the tastes and style of Namdo
- Forming an ancient village, in which tradition and modernization coexist

**Buyeo’s Gyuam District**
- Designated as a water-friendly zone
- A waterfront village where people can experience water leisure activities along with the history and culture of Baekje
- An eco-friendly resort village that includes cottages connected with waterfront parks and bike-tels
National industrial complexes and new towns that hardened the foundation of national economic growth in the 70’s & 80’s which have gone through industrialization & urbanization, are now becoming eco-friendly ecological cities and multi-purpose cities through ICT which combines water, nature, tourism, and leisure activities.

**Development of national industrial complexes**
- Started to develop industrial complexes in 1974 in line with the government policy to nurture the heavy chemical industry
- Developed national industrial complexes in Onsan, Changwon, Gumi (complex 2-4), and Yeosu
- Currently developing the Gumi complex, High Tech Valley, Digital Industrial Complex, and other eco-friendly industrial complexes

**Development of the Sihwa District**
- Developed Ansan New Town to secure urban and industrial land, of which the metropolitan area lacked
  - Completed Ansan New Town (1977~2009 / population of 750,000)
  - Completed Sihwa New Town (1986~2010 / population of 150,000)

**Visions for creating creative waterfront cities**
- To launch the development of the Sihwa district in line with a land reclamation project in Sihwa Lake
  - Sihwa Multi Techno Valley (MTV): a multifunctional complex that has state-of-the-art industries and research centers
  - Songsan Green City: an ecological, resource recycling city that values tourism, culture, and environment
- To build an ICT-based smart city
- To develop multifunctional cities where nature, tourism, leisure, and living can exist in harmony
- To create eco-friendly, waterfront cities by conducting environmental improvement projects and building ecological parks in water-friendly spaces
The beautiful waterfront spaces created around Ara Waterway, dams, and streams nationwide have increased the happiness of citizens and enriched the lives of animals and plants. K-water will continue to invigorate local economies and improve the quality of life for all citizens by enhancing the value of the waterfront spaces and creating cultural contents.

Adding new values to waterfront spaces
- Past - a source for civilization, trades and a center of living
- Present – spaces are used passively, disconnected from cities, vulnerable to disasters
- Future – spaces will be used actively, creating leisure space with vitality, complex spaces for living, working, and taking a rest, local development is a new source for new growth

Creating future values by combining waterways and culture
- Cultural event spaces
- Modern, emotional spaces
- Spaces where nature and humans coexist
- Spaces for various cultural contents of local communities
Water & Renewable Energy

Convergence of water and new and renewable energy: Clean energy ensures our health.
The answer is embraced in nature

The sun, wind, moon, and water…

The key for clean energy projects, in which new energy sources are derived from nature, is to respect the order of nature. Sihwa Lake produces clean energy every day using the force of the moon and water. K-water’s tidal power station, which is capable of generating electricity using ocean water, will help to reduce CO2 emissions and does not create any waste and is truly an eco-friendly power generation that does not harm the environment.
New and renewable energy generated by water is best suited to the Korean peninsula as the country is surrounded by water on three sides and receives an abundant amount of precipitation. K-water has reduced energy import costs and carbon emissions by producing clean energies that include hydropower energy from dams and tidal power generated by falling and rising water, while developing both the economy and environment in balance.

**Hydropower generation**
- Generates 60% of Korea’s hydroelectric power capacity (2,546GWh)
- World-class capabilities in testing performances of hydropower facilities
- Launched a testing center for hydropower facilities (November 2013)

**Tidal power generation**
- Constructed and operating the world’s largest tidal power station (254MW)
- Generates 552.7 million KWh/year, can supply 500,000 households annually

**Benefits of this new type of energy**
- 1,335MW of new and renewable energy (25% of the total energy generated)
- Replacing imported energy worth of 600 billion won a year
- Reducing CO2 emissions by 1,350,000 tons a year
K-water successfully installed and commercialized SOLATUS, a floating photovoltaic power plant, on the water surface of Hapcheon Dam in July, 2012, for the first time in the world. It plans to develop and install floating photovoltaic power plants at eight dams and Sihwa Lake by 2022, with the expectation that 1,050,000 tons of CO2 emissions will be reduced annually.

**Convergence of water and energy**
- Installation of photovoltaic power plants at waterwork sites
- A photovoltaic power plants with 20 units, including the world's first floating photovoltaic power plant, is currently operating
- Environmental safety and future environmental effects of the plants with the Korea Economic Institute (KEI) are being monitored

**Deployment of floating photovoltaic power plant projects**
- 2014~2017: Building infrastructures for floating photovoltaic power plants
  - six sites (51MW) including one in Chungju
- 2018~2022: Developing a large-scale floating photovoltaic power plant
  - seven sites (1,140MW) including one at Sihwa Lake
Nowadays, the world focused on developing new and renewable energy. Clean energy technology has become essential to reduce CO2 emissions, which are some of the main causes of global warming. K-water has proposed new business models by developing new energy sources such as small hydropower, wind power, and energy created by temperature differences, while leading the establishment of national energy policies.

New business model for new and renewable energy
- Forming a natural energy cluster at Sihwa Lake
- Developing business models for hydrothermal energy as part of the government’s Renewable Portfolio Standards
- The trading of Renewable Energy Certificates (REC) for small hydropower, wind power, and solar power energy are creating additional revenues
- Securing additional profits through Clean Development Mechanism (CDM) initiatives

Medium and long-term plan for clean energy projects
- 2014~2017 Strengthening of K-water’s business foundation
  - Certifying the performance of hydropower equipment, establishment of systems to optimize the operation of tidal power stations, development of business models for energy created by temperature differences
- 2018~2020 Diversifying energy sources
  - Replacement of aged generators, review of capacity expansion plan for Sihwa tidal power plant, promoting the value of new and renewable energy sources
- 2021~2023 Leading the way in the development of new and renewable energy
  - Development of offshore wind power stations at Sihwa Lake, regional cooling and heating system projects, and drawing a social census on the value of hydro power
Water & Global Business

Leading the global water market with the best technologies and techniques.
With its accumulated experience and technical skills, K-water has conducted overseas water resources projects, becoming a world-class water expert through interactions with advanced water-related institutes worldwide. K-water strives to establish Korea as a world-class leader in water resources.

Becoming a global leader in water treatment
K-water operates an overseas business division to diversify its investment and operation. Having consolidated its foundation for overseas business with such projects as the Patrind hydropower project in Pakistan, a water supply project in Siyang Xian, Jiangsu Province in China, and the water management project in Thailand, K-water plans to establish overseas corporate bodies by 2023. Preparing for the unification of Korea, it has established a stepping stone to advance into the North Korean market.

**Overseas business strategy**

- Aims to achieve over 50% revenue contribution from the overseas business
- Establishment of a stepping stone to act as a foundation for regional overseas corporate bodies
- Focused on Southeastern Asian market in short run, while gradually expanding to emerging markets
- Actively participates in MDB’s projects through technical cooperation support to developing countries

**A stepping stone to advance into the North Korean market**

- Finding ways for short-term participation, linking with the government policy
- Establishment of a plan for water resource infrastructures, taking into account special zones in North Korean
- Researching ways to share water and electricity by adding multi-purpose capabilities to aged hydropower facilities
- Reinforcing international cooperation with neighboring countries in Northern and central Asia, including China and Russia
K-water is strengthening its business competencies by organizing a risk management committee for overseas projects to be prepared for contingency operation. It differentiates its operation system by region and project, while systematically managing cooperative relationships with affiliated departments.

Global business management
- Standardizes project selection criteria by project and country, and strengthens risk management
- Develops strategic ties with global organizations such as Multilateral Development Bank (MDB)
- Enhances localization strategies targeting countries like Thailand and Pakistan

Expanding market participation
- Structuring the foundation for the ICT-based water management system, alternative water resources, and other related projects
- Focused on the Southeastern Asian market in the short run while gradually expanding to emerging markets
  - The Southeast Asian Belt: Thailand, Philippines, Indonesia, Laos, Myanmar, Vietnam, Cambodia
To strengthen its global competitiveness, K-water has exerted itself through the systemic fostering of creative, talented employees, continuous innovation activities, and by supporting employees expenses for educational programs. Such endeavors have been recognized by various agencies and has culminated in winning the ‘Global Most Admired Knowledge Enterprises Award’ which is commonly referred to as the ‘Nobel Prize in the field of knowledge management.’

**Fostering creative and talented employees**
- **Hires, fosters, and manages talented people strategically**
  - Selects and manages talented employees with objective profile criteria
  - Foster talented employees in key areas such as business development, finances, ICT, and SWG
- **Trains experts through a global personnel exchange system**
  - Trains talented employees to become experts, taking account of the needs and competencies of the existing, new, high school graduate employees

**Continual implementation of business innovative activities**
- **CoP 'K-sigma': K-water’s unique, creative innovation program**
  - Creativity club activities including six-sigma, JOA+, and research clubs
- **Voluntary activities such as building an open knowledge network**
  - Deployment and operation of open knowledge networks such as KMS, and Waterpedia
  - Sharing and learning creative innovation cases through the K-water Innovation Concert
Water & Global Contributions

Pleasure enjoyed with water, creating a happier world
K-water, a corporation specialized in water management, has undertaken social contribution activities with the slogan ‘Water for the Happier World’. Expanding its outreach work overseas, K-water has carried out drinking water development and local community projects in countries that lack water since 2006 to deliver hope to those who suffer from water issues. The endeavor of K-water to enrich the world with water will only be intensified.
K-water has undertaken overseas outreach activities for those who suffer from a lack of water. By providing support in various ways including the installation of waterworks facilities, educational programs, and public building repairs, K-water is sharing its love with the world as a global leader in the water industry using its competencies in water management accumulated over the past 47 years.

**Overseas social contribution activities**

- Initiated social contribution activities in eight countries including Nepal and Laos since 2006, making the best use of the competencies of the company

**Activities by year**

- **2006**
  - Developed new water resources to generate electricity in Tajikistan

- **2007**
  - Constructed wells in Cambodia
  - Provided volunteering services to build the Mongolian Ger (a traditional house for Mongolia nomads) in Mongolia

- **2008**
  - Installed drinking water systems in four villages in Vietnam

- **2009**
  - Installed tube wells for drinking water in eight villages in the Philippines and Laos

- **2010~2011**
  - Developed waterworks facilities in villages in Laos

- **2012~2013**
  - Developed waterworks facilities in four villages, provided educational volunteering activities, repaired public buildings, and held track and field events in Nepal and Laos
Utilizing its resources and competencies to the fullest, K-water has offered social contribution activities in Korea. Along with a social contribution organization ‘Water-Love-Sharing Group,’ in which all employees are engaged, and a campaign of ‘Sharing 1% of salary’ that has been practiced for the first time among public corporations, K-water has continually expanded the ‘Water Project of Happiness to the Fullest,’ its signature social contribution program that helps vulnerable groups improve their water environments, by providing volunteering works nationwide.

K-water’s ‘Water Project of Happiness to the Fullest’
• Improving water supply environments of aged houses of the vulnerable and social welfare centers
  - Repairs water supply facilities such as pipes, drains, and sinks

Social contribution activities in local communities
• Improving the welfare of the local communities around dams
  - Senior welfare, clean water project, job sharing, support for multi-cultural families
• Supplying clean and safe drinking water
  - Purifies sea water, supports for contingency water supply, and offers protection to prevent frozen pipes

Outreach activities of the Water-Love-Sharing Group
• Helping the needy
  - Delivers meals to single living seniors and persons with disabilities, and other outreach activities including being companions to talk with

• Environmental protection campaigns
  - Cleans streams and plants trees

• Disaster aid supports
  - Provides help and support including relief goods in disaster-stricken areas hit by flood or drought,

• Contribution to local community
  - Offers technical training programs, water quality testing, and other community events in rural communities
K-water has been active in pursuing shared growth with small and medium-sized companies to ensure sustainable global competitiveness and fulfill its social responsibility as a public corporation. With the six support systems for small and medium-sized companies, infrastructure support, including provision of test-beds, financial support, and mutual cooperation in construction projects, K-water has continuously offered actual benefits to small and medium-sized companies.

### K-water’s small and medium-sized company support systems
- Performance sharing scheme (cost reduction, quality improvement)
- Development of new products designated by the government
- Supplier Estimation Management System (SEMS)

### Support for infrastructure including test-beds
- Provides 95 test beds for waterworks and dam facilities
- Founded Korea’s first testing center for hydropower facilities
- Technology transfer and technical competency programs

### Financial support
- Support for loans (including the Water loan) for technical development of small and medium-sized companies
- Raises cooperative funds for technical development projects jointly invested by private and public sectors

### Mutual cooperation in construction projects
- Set up a dispute report center for subcontractors and provides rewards to those who reported unfair business practices
- Built a monitoring system for payment to subcontractors
Established Korea Water Resources Development Corporation in 1967
Established Industrial Sites and Water Resources Development Corporation in 1974
Established Korea Water Resources Corporation in 1988
1967 • Established Korea Water Resources Development Corporation in 1967

In 1970s • Established Industrial Sites and Water Resources Development Corporation in 1974
Completed Soyang River and Andong Multi-Purpose Dams
Completed Changwon and Yeosu industrial complexes, and Sihwa and Ansan new towns

In 1980s • Established Korea Water Resources Corporation in 1988
Constructed Daechang, Chungju, Hapcheon, and Imha Regional Waterworks,
Nam River Multi-Purpose Dam, and Nakdong River Barrier

In 1990s • Commenced waterworks constructions in the metropolitan area of Ulsan and Gumi

In 2000s • Expanded its water supply business to local areas including Nonsan and Jeongeup

In 2010s • Completed the 4 major river project, opened Gyeongin Ara Waterway,
completed Sihwa Tidal Power Plant, and launched overseas projects in many countries including Pakistan

Commenced waterworks constructions in the metropolitan area, Ulsan, and Gumi in the 1990s
Expanded its water supply business to local areas including Nonsan and Jeongeup in the 2000s
Completed the 4 major river project, opened Gyeongin Ara Waterway, and so forth, since 2010
K-water is a public corporation that aims to contribute to the improvement of public welfare, the quality of citizens’ lives by enhancing water quality and supplying water safely and efficiently through the integrated development and management of water resources.

- Manages construction and operation of facilities to use and develop water resources
- Constructs and manages waterworks located in broad areas and sewage facilities (including facilities for industrial water)
- Develops industrial complexes and special purpose areas
- Operates regional waterworks and sewage facilities under consignment
- Installs, runs, and manages new and renewable energy facilities