Addressing the Region's Most Pressing Water Issues.

Communities and industry alike face serious challenges to ensure uninterrupted quantity and quality of water, while reducing demand on fresh water supplies and meeting regulatory and environmental requirements. In the Asia Pacific region, Siemens Water Technologies is working to help customers meet these challenges in the most cost-effective and energy efficient way possible, while minimizing waste.

Singapore Hub Employees	500
Regional Locations	16
Regional R&D Personnel	45
Countries Covered	Hong Kong, India, Indonesia, Japan, S. Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam
Number of Installations	More than 200
Markets Covered	Municipal, metals/mining, biopharm, chemical, hydrocarbon, semiconductor/solar, food, power, beverage, biofuels, oil and gas

Answers for the Environment

In SE Asia, population growth and industrialization continue to drive water and wastewater treatment needs. Municipalities and industries are faced with the challenges of: upgrading existing equipment to help reduce costs; better managing water resources; and complying with new regulations. Siemens Water Technologies offers sustainable solutions for these challenges while continuing to innovate, and to invest in and expand its presence in the region.

- The opening of Siemens Water Technologies' global R&D center in Singapore in 2007 was an important step towards realizing the goal of making Siemens in Singapore a global water hub.

- Siemens Water Technologies was awarded the first-ever Innovative Technology Challenge from Singapore's Environment and Water Industry Programme Office (EWI) for developing an advanced desalination technology that would cut energy consumption by at least 50%. A demonstration plant was built, and since 2010, has been treating 50 m^3/day of seawater at a PUB facility in Singapore. The new process reduces desalting energy by over 50% compared to best available technology. A full-scale system will be built by 2013.

- Siemens is developing a new micro-media column (MMC) based on a new filter media and flow design. The column removes contaminants such as selenium, chromium, mercury and arsenic down to parts per trillion levels. It will help municipalities and industrial customers meet new contaminant reduction regulations.

- Siemens Water Technologies in Singapore and PUB are cooperating on a full-scale membrane bioreactor (MBR) testing facility at PUB's Changi Water Reclamation Plant. The 250,000 gpd/1,0 Mio liters/day MBR system treats domestic wastewater and allows testing of new innovative design parameters for Siemens' MBR system.

- Siemens Water Technologies is working on "green technologies" by demonstrating the feasibility of retrofitting large-scale treatment plants to approach virtually zero energy consumption, reduce CO_2 footprint and reduce sludge generation. Since June 2010, a pilot facility has been treating about half a cubic meter of wastewater per day, while operating in an energy neutral manner.

- The Maritime Environmental Protection Committee (MEPC) of the United Nations' International Maritime Organization (IMO) has granted Siemens Basic Approval for its SiCURE ballast water management system, which combines physical separation with a proprietary process of on-demand treatment with biocides produced in-situ from seawater.

- Two newer products are available to help customers reduce operating costs and ensure greater efficiency: The Vanox™ advanced oxidation process for point-of-use semiconductor applications; and the IonRight™ system, which offers an alternative to portable deionization, with carbon, reverse osmosis and continuous electrodeionization technologies in a single skid-mounted design.

Efficient, Smart Solutions for Customers

- Siemens provided comprehensive water management for a global soft drink producer's plant in Malaysia. The project includes water and wastewater treatment and a two-year operation and maintenance service agreement. The solution from Siemens offers the lowest total cost of ownership while allowing greater operating flexibility, and environmental benefits such as energy, water and chemical savings.

- Siemens is providing a condensate polisher package with external regeneration facility to treat condensate for two 660-megawatt super-critical boilers for a new power plant in India. The project, awarded to Siemens by Indian construction company Larsen & Toubro, involves design, engineering, fabrication, installation, testing and commissioning of the condensate polisher system. It is currently scheduled for start-up in April 2013.

- Siemens is providing a wastewater treatment solution for a new bottling plant in the Philippines, including Siemens' Omniflo® Sequencing Batch Reactor (SBR) system for biological treatment. The system was chosen for its modular design and batch processing capability that makes it ideal for the bottling lines.

- Siemens is providing a Chloropac® electro-chlorination system for a 4,000-megawatt Ultra Mega Power Project in India. The system chlorinates once-through cooling water by electrolyzing seawater to produce sodium hypochlorite. The sodium hypochlorite controls micro and macro fouling that would otherwise affect the heat transfer efficiency in the condenser and its tubes. The system is one of the largest in India at the first ultra mega power plant in the country.

- Siemens provided a deionized (DI) water system upgrade for a microelectronics application in Singapore. The project includes: upgrading reverse osmosis systems to high capacity units; replacing an existing competitor's electrodeionization system with an Ionpure CDI® system; adding a second Ionpure CDI system; and adding a new DI water polishing system. This system reduces the footprint and capital cost to meet the customer's budget.

- As part of Siemens' expansion of services in S.E. Asia, Siemens Ltd. Thailand is supporting the need for bulk carbon media replacement and carbon reactivation services at the wastewater treatment plant for the Thailand Growth Project's Asia Industrial Estate in Rayong, Thailand. Siemens designed, engineered, manufactured and constructed the water and wastewater plants. The wastewater plant is treating up to 200 m^3/hr of process wastewater from the Estate's chemical manufacturing facilities, to meet discharge limits. The plant includes: biological treatment using jet aeration, clarifiers, sand filters, four activated carbon filters and a reactivated carbon storage vessel.

- The Sembcorp NEWater Plant (SNP) in Singapore is a Design-Build-Own-Operate (DBOO) project executed by Sembcorp Industries, which signed a 25-year NEWater agreement with PUB. Siemens supplied the equipment and engineering for the membrane filtration portion of the NEWater plant. The membrane system incorporates seven MEMCOR® CP membrane trains, each consisting of 960 membranes. The Sembcorp NEWater Plant is one of the largest recycled water plants in the world, capable of producing a total of 228,000 cubic meters of NEWater per day.

- Siemens will provide cooling tower make-up treatment equipment for Torrent Power Limited's 382.5-megawatt UNOSUGEN Power Plant in India. Two CONTRAFAST® Concentric systems will treat Tapi River water and produce up to 15,142 m^3/day of cooling tower make-up. The system is expected to be commissioned in 2012.

Local Presence

In addition to the company's global water research and development center based in Singapore, Siemens Water Technologies' offers a wide variety of technology, product and service capabilities in the region to help customers with their total water management needs.

- In 2010, Siemens expanded its service line offering in S.E. Asia for aftermarket services and parts, including ion exchange resin, membranes, and spare parts for water treatment systems. Service branches are located in Thailand, Malaysia, Singapore, The Philippines and India. The company also established its mobile water treatment solutions in the region. The mobile units are self-contained treatment plants

housed in international-standard ISO containers, with all the necessary interconnecting piping, power distribution and instrumentation.

- Siemens Ltd. Thailand now offers bulk carbon media replacement and carbon reactivation services in Thailand. Part of Siemens' service expansion into S.E. Asia, these services offer chemical plants and refineries in Thailand with a way to exchange spent activated carbon with fresh carbon. Siemens designed and built activated carbon slurry vehicles to transfer and transport large volumes of carbon.

Serving the Global Community

Siemens Water Technologies has major business hubs in Australia, Brazil, China, Europe, Singapore, Saudi Arabia, and the United States. Eighty-five percent of the U.S. population, and most of the U.S. industrial bases, are located within 100 miles of a Siemens Water Technologies service branch. In addition, the company's global R&D headquarters is based in Singapore.

SkyJuice Foundation. Siemens supplies ultrafiltration for the SkyJuice Foundation's SkyHydrant™ water filtration units, which have provided clean drinking water to more than 300 remote areas worldwide that previously had no access to clean drinking water.

Siemens AG. Siemens is a global electronics and engineering company with about 336,000 employees worldwide. For over 160 years, the company has stood for technical achievements, innovation, quality, reliability and internationality.

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