

Highlight — Benefitting to Customers and Society —

## Contributions to Improve the Environment in Saudi Arabia through the Environmental Management System

The rapid industrialization of developing countries has resulted in significant environmental problems such as water and air pollution. To help solve these problems in developing countries, we apply expertise and know-how used in overcoming pollution here in Japan.

By providing Japanese know-how and cutting-edge technology, Fujitsu is helping to improve the environmental conditions in Saudi Arabia's industrial cities. These efforts are being undertaken through multi-layer collaborations with governments, academia, and various enterprises.

### Air and Water Pollution: Urgent Problems

In recent years, Saudi Arabia, which has the world's largest oil reserves, has been aggressively pursuing industrial diversification and industrial city development through national policies. The Saudi Industrial Property Authority (MODON) is charged with the mission of advancing economic development and solving social problems through the operations of industrial cities. MODON has already created 20 industrial cities and is planning to increase the total to 40, covering a total area of approximately 150,000 hectares, by FY 2015.

Environmental issues, such as air and water pollution, which often accompany rapid industrialization and urbanization, have become an urgent challenge in Saudi Arabia's industrial cities, where Fujitsu has performed on-site measurements, and detected serious levels of air pollution (SO<sub>x</sub> and NO<sub>x</sub>), and water pollution (COD).



Field survey in Saudi Arabia

**Pulling Together Japanese Expertise and Know-How**

Through analysis of enormous volumes of data, ICT enables not only the solving of problems but also creation of new values for a prosperous society. Fujitsu is utilizing the power of ICT to help solve environmental problems and create a sustainable society in Saudi Arabia.

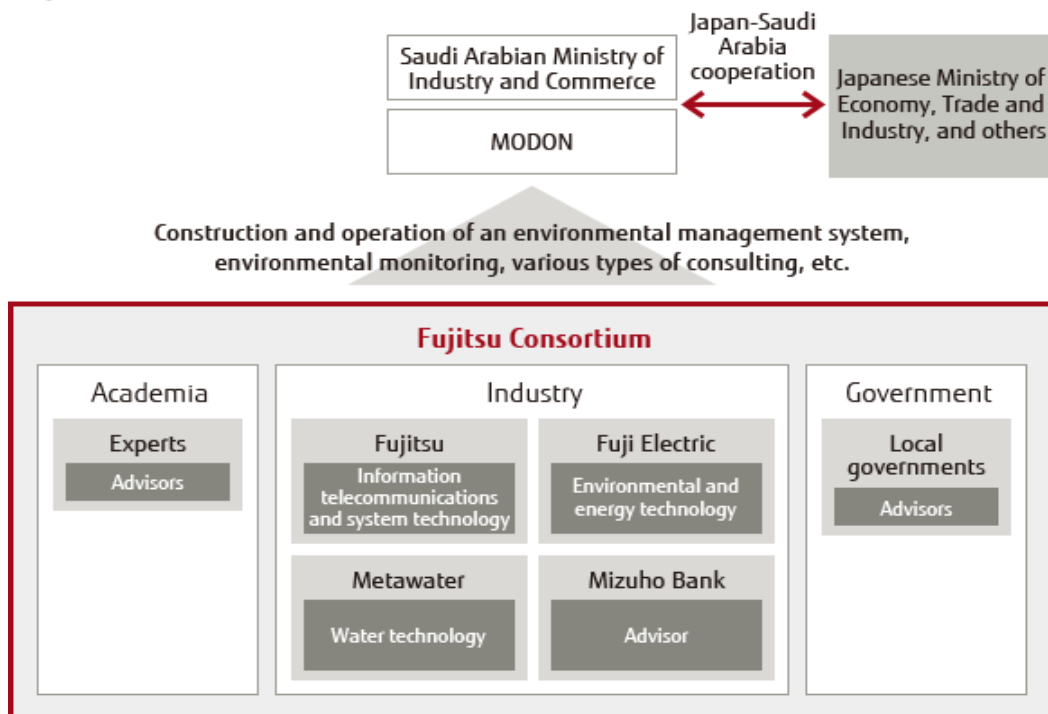
Fujitsu and MODON have been engaged in a detailed dialogue concerning approaches for environmental improvements in Saudi Arabia's industrial cities. The history of these discussions is summarized below.

Dialogue History

Date	Content
September 2011	Fujitsu Arabia signed a "memorandum of understanding" (MOU) with MODON to collaborate in the development of eco-friendly industrial cities.
October 2011	Fujitsu's proposal for using cutting-edge IT and environmental technology to make industrial areas eco-friendly was adopted by the Japanese Ministry of Economy, Trade and Industry as an FY 2011 "Feasibility Study for the Overseas Development of Smart Communities." With the government's support, the project is expected to become a model case for the export of infrastructure systems through public-private collaboration.
December 2011 and January 2012	Detailed local surveys and measurements were conducted on two occasions.
February 2012	With the Japanese Minister of Economy, Trade and Industry and the Saudi Arabian Minister of Industry and Commerce present, Fujitsu and MODON entered into their second MOU, at a Japan-Saudi Arabia industrial cooperation forum.
November 2012	An environmental symposium was held in Saudi Arabia to help raise environmental awareness.

To improve the environment in Saudi Arabia, Fujitsu has formed a consortium with Fuji Electric Co. Ltd., Metawater Co. Ltd., and Mizuho Bank, Ltd. In addition, we are encouraging cooperation from local governments that have experience in overcoming pollution problems, and from researchers and other experts, to make this endeavor an "All Japan" effort to apply Japanese expertise and technology.

**Project Structure**



## Using ICT to Centrally Manage Industrial City Environmental Information

In March 2013, MODON and Fujitsu signed a contract for the development and operation of environmental management systems in Saudi Arabia's industrial cities. Under this agreement, Fujitsu and MODON will work together to build a monitoring system that employs air and water quality sensors to constantly monitor environmental pollution. The new system will be installed in the Dammam 2nd Industrial City in Saudi Arabia's Eastern Province, the Riyadh 2nd Industrial City in the Saudi capital, and the Jeddah 1st Industrial City in the western province of Mecca.



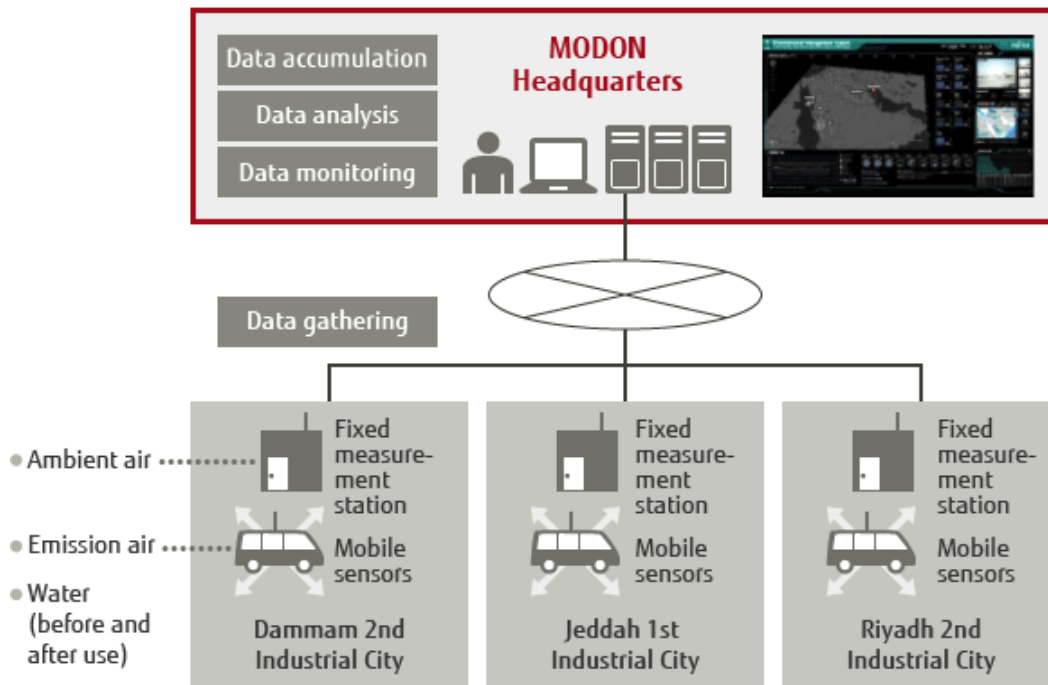
Signing ceremony

These systems will use fixed measurement stations to continuously gather air-quality data and mobile sensors to gather data on industrial and other atmospheric emissions, and effects on the water supply. Measurement data will be centrally managed at MODON, and the creation of visual representations on 3D maps will be used to promote efficient, integrated monitoring.

Once the systems have been constructed, Fujitsu will operate them, monitor environmental conditions, and provide various types of consulting services using measurement data to make environmental improvements.



## Environmental Management System Overview



## **Toward the Realization of Eco-Industrial Cities**

Environmental data gathered and analyzed by environmental management systems will be used to evaluate achievement of environmental standards and to make decisions on environmental policies for making improvements. In addition, these data, by making it possible to quickly respond to air and water pollution incidents, will help to minimize damage and promote safety and security in the daily lives of local residents.

It is expected that environmental data will also be used to develop environmental strategies and systems, as in the cases of the construction of a sustainable environmental management model and the development of eco-city master plans for Saudi Arabia.

Going forward, Fujitsu will continue to use Japanese expertise, technology, and the power of ICT, to help improve the environment in Saudi Arabia.