# Value Created through Dialogue with Customers

By pursuing *Monozukuri*, we provide true value to the customers and society.

#### Senior government officials of the Republic of Botswana visited the Tokyo Works.

In July and November 2013, senior government officials of the Republic of Botswana ("Botswana" herein) visited the Tokyo Works of the Company, with the purpose of researching the Japanese system of terrestrial digital television broadcasting.

Botswana is the first country that decided to adopt ISDB-T<sup>\*1</sup> terrestrial digital broadcasting in Africa. In this country, analog broadcasting is now used, and terrestrial digital broadcasting is to be diffused. The senior officials of Botswana visited Japan to study the preceding case, in response to the invitation of Japanese government.

During the tour of the factory, they confirmed the maintenance, services and trainings necessary for the equipment of terrestrial digital broadcasting, and exchanged information and opinions about the specific points considering the actual installation of equipment.

In Japan, people can watch television on a daily basis, but in the world, there are still some regions where terrestrial digital broadcasting has not been introduced or those where it is difficult to watch TV because electricity infrastructure has not been arrived. The Company will contribute to the popularization of terrestrial digital broadcasting

VOICE

Special

Report

Through the tour in the Tokyo Works, we were able to deepen our understanding of what kinds of facilities are necessary and what kinds of specifications are furnished with them, as we plan to adopt the Japanese system of terrestrial digital broadcasting. We would like to expect your continued support and cooperation for the sake of ongoing growth of Botswana. equipment, so that people all over the world will be able to glean necessary information through TV broadcasting.



Presentation by the Company

\*1 ISDB-T: Integrated Services Digital Broadcasting – Terrestrial; an international standard on Digital Terrestrial Broadcasting originally developed in Japan.

#### H.E.Mr. Nonofo Molefhi Minister of Transport and Communications The Republic of Botswana

#### Letter of thanks for the installation of monitor cameras in the Hanshin Expressway

The Company provided cameras for monitoring the road situation of Yodogawa-Sagan Line of the Hanshin Expressway. The contract span is 4.3 km between Shimaya Exit and Ebie Junction, of which 3.6 km consists of a tunnel named Shorenjigawa Tunnel.

The cameras set in this tunnel are equipped with the function to dispel a haze, and can take moving pictures with less effects of mist or smoke, even when the tunnel fires and sprinklers work. Accordingly, the customers, who are responsible on safety, place expectations on this camera as a highly reliable monitoring device in case of disasters.

For the installation of this camera, we received a letter of thanks from Hanshin Expressway Co., Ltd.

We kept designing meticulous schedules considering the entire tunnel construction progress, which constantly changed as the plan went

on, confirming and adjusting the interface with the cooperative system with other facilities. By completing all these complex tasks, we satisfied construction conditions and finished the installation of



Fixated camera for preventing disaster in the tunnel



Pan-tilt camera for monitoring the tunnel entrance/exit (in the circle)

Koichi Nishimura Kansai Area Operation

VOICE

cameras.

#### 3 Received Supplier appreciation award from the 3rd Depot of Japan Air Self-Defense Force (JASDF)

At "The 3rd Air Depot<sup>\*1</sup> JASDF Supplier appreciation ceremony" held on November 29, 2013, our Company received Supplier appreciation award.

This award is given to a Company that has supported and contributed to their mission for many years.

Our Company was highly evaluated by the abundant experience and high technology for supporting the operation of the forces, by swiftly and appropriately maintaining the various ground radio communication equipment, shortwave radio of aircrafts, and the components of the flight simulator for C-1<sup>\*2</sup>, etc. and subsequently securing the high operation rate of each device.



\*1 The 3rd Air Depot: It belongs to Air Material Command Headquarters, and is mainly in charge of the procurement, storage, replenishment, and development of communication and electronic devices and components.

\*2 C-1: The medium-ranged carrier jet produced in Japan. Since it performed its first flight in 1970, the same model has been used for over 40 years.

### VOICE

Encouraged by this award, our Company has resolved to keep contributing to the operation of JASDF with advanced technologies and the morale of our relevant sections has been boosted.

> Akiyoshi Arai Sales Department Defense Electronics Division





C-1 (Medium-range carrier) Illustration provided by Kokusai Electric Techno Service Co., Ltd.

#### Received the PQS award from Intel Corporation

At the "Intel Supplier Recognition Event 2014" held in Santa Clara, California, the U.S. on April 10, 2014, the Company received the Preferred Quality Supplier (PQS) award from Intel Corporation. The PQS award is part of Intel's Supplier Continuous Quality Improvement (SCQI) program that encourages suppliers to strive for excellence and continuous improvement. To qualify for PQS status, suppliers must score 80 percent on a report card that assesses performance and ability to meet cost, quality, availability, technology, environmental, social and governance goals. Suppliers must also achieve 80 percent or greater on a challenging improvement plan and demonstrate solid quality and business systems.

The General Manager of the Semiconductor Equipment Division expressed his delight in receiving the award, and mentioned emphatically, "Hitachi Kokusai is thrilled to receive Intel's PQS award for 2013. It demonstrates the strong commitment we have to our partnership with Intel and to continuously improving quality in a fast changing marketplace for semiconductor manufacturing."

Our staff made up our mind to continue improvement efforts further in this year on.



"PQS award" trophy

### Value Created through Dialogue with Customers

We develop advanced technologies as a world pioneer with the aim of creating an affluent and sustainable future.

#### Development of batch thermal process system for 450mm wafers— Enlargement of wafer diameters to reduce production cost

The demand for semiconductor devices is expected to further grow mainly in the market of mobile terminals such as smartphones. Our customers have promoted device miniaturization in order to add technical advantages to semiconductor devices as well as to reduce production cost per chip. But in recent years, they are planning to enlarge wafer diameter as another way of reducing production cost per chip.

In 2011, five leading device manufacturers established Global 450 Consortium (G450C), accelerating the development of process for 450mm wafers.

The Company has developed the batch thermal process system for 450mm wafers "ADVANCEDACE®," actualizing high-speed wafer transfer automation, high-performance wafer processing, ultra-clean environment, etc.

The batch thermal process system for 450mm wafers is one of the advanced development for semiconductors. One of the leading designers of this system is an engineer, and deeply cherishes "Etchu

Note: ADVANCEDACE<sup>®</sup> is a registered trademark of the Company.

#### VOICE

Special

Report

I think that those who spearhead technological innovation can directly communicate with customers to grasp their requirements and what to do for satisfying the requirements, and consider things from the viewpoint of customers. Thanks to the support by the residents of Yatsuo, Toyama City, the Toyama Works commemorated the 25th anniversary of the operation this year. We will continue efforts for contributing to local communities by inheriting traditional cultures, and developing products

Owara Kaze-no-Bon," a traditional festival in Yatsuo, Toyama City, where the Toyama Works is located.

The Company will keep contributing to the evolution of the world by developing semiconductor manufacturing equipment with full use of a variety of human assets, and to the development of traditional cultures and local communities.



Vertical equipment for 450-mm wafers



An engineer of the Company singing at "Etchu Owara Kaze-no-Bon"

Tomoshi Taniyama Component Technology Development Department Toyama Works

When you visit Fukushima or nearby places, please drop by the



#### Donation of a camera to Jodo-Daira Astronomical Observatory in Fukushima City, hoping for the recovery from the earthquake disaster

We donated a high-sensitivity camera system for astronomical observation to the Jodo-Daira Astronomical Observatory in Fukushima City.

The Jodo-Daira Astronomical Observatory is located at an altitude of 1,600 m inside Bandai-Asahi National Park, which is the highest among publicly accessible observatories in Japan. It is one of the few Japanese sites for astronomical observation where we can see the numerous stars spread in the heavens by eyes even without binoculars.

In recent years, space-related animations and movies have become popular, and astronomical observation is attracting attention especially from children, who will lead the coming age.

One of the attractive sightseeing spots in Fukushima City is the Jodo-Daira Astronomical Observatory, and the use of a highsensitivity camera technology for astronomical observation would lead to the invigoration of the local community and the recovery from the earthquake disaster. With this thought, we decided to donate the camera.



Jodo-Daira Astronomical Observatory.

(From left) Mr. Kaoru Kobayashi, the mayor of Fukushima City, and our President





High-sensitivity camera system donated to the Jodo-Daira Astronomical Observatory

Scene of the ceremony (From left) Mr.Satoshi Kuriyama, the vice chief of the Department of Commerce, Industry and Tourism, Fukushima City Mr. Yoshio Yamauchi, the chief of the Department of Commerce, Industry and Tourism, Fukushima City Mr. Kaoru Kobayashi, the mayor of Fukushima City

President of the Company Taichi Osumi, General Manager - Tohoku Area Operation

Kazuhiro Yamashita, Tohoku Area Operation

#### VOICE

The starry sky seen in Tokyo is totally different from that visible in Fukushima.

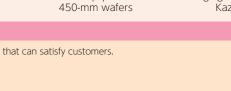
I hope that the donated camera will attract the citizens of Fukushima City and all other regions and they will visit the Jodo-Daira Astronomical Observatory to enjoy the starlit sky.

I expect that visitors will deepen their understanding of Fukushima City and children will have hope and dream for the future.

Next year in Fukushima City, the Ministry of the Environment will hold "National conference on cities with the starry and azure skies," to discuss regional development taking advantage of the beautiful stars. In such events, we will make an effective use of the donated highsensitivity camera. Mr. Kaoru Kobavashi



Mayor of Fukushima City, Fukushima Prefecture



## **Special Report**

#### FM equipment for emergency disaster broadcasting stations responded to torrential rain

Nowadays, various information transmission systems are attracting attention, because of the necessity to secure information transmission routes at the time of serious disaster, such as a large earthquake, abrupt heavy rain, and a tornado. One of them is an emergency FM station for transmitting the disaster and living information by FM radio when a disaster occurs. The Group developed and released the "FM equipment for emergency disaster broadcasting stations," which is a package of necessary devices for establishing an emergency FM station, and municipalities around Japan adopted it.

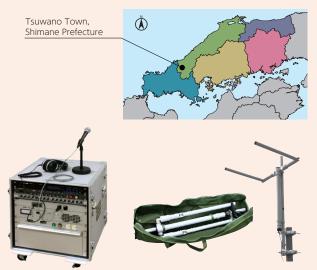
In February 2013, this equipment was installed in Tsuwano Town, Shimane Prefecture. When torrential rain caused a landslide, isolating the town in July 2013, the equipment was effectively used for transmitting the information on (1) road restoration, (2) weather forecast, and (3) messages from the town office.

Since radio can be powered by dry cell batteries during outage and citizens of any generation can handle it easily, we think that this transmission method is useful for residents to feel secure.

#### VOICE

By preparing broadcasting devices in advance, it becomes easier to receive permission for opening a radio station smoothly in case of disaster, and therefore we hope to deliver this equipment to the municipalities nationwide as soon as possible.

Tsuwano Town was commended by the Ministry of Internal Affairs and Communications for "procuring broadcasting equipment in advance and opening a radio station swiftly." Our equipment helped citizens feel



Portable transmitter

Portable transmission antenna

proud of their town and energized the local community.



Yasuhiko Ito Communication and Broadcasting Sales Section Hitachi Kokusai Yagi Solutions Inc.

#### Improvement in efficiency of a dual-mode radio device for fire-fighting and rescue communication with the world's first\*1 ET technology

As fire-fighting and rescue wireless systems are being digitalized, the function to switch systems readily in the existing space is important to customers, who use several wireless systems, including nationwide radio systems and existing systems for large-scale disaster. It is necessary to improve the efficiency and miniaturize the size of digital radio devices to be replaced or added.

In this circumstance, we developed a dual-mode\*2 radio device by utilizing the high-profile ET technology\*3. Its size and power consumption are 1/2 of those of our conventional products\*<sup>4</sup>, and it has been launched in fiscal 2013 and on.

The fire-fighting and rescue wireless systems are part of important infrastructure for living. We hope to contribute to the realization of a secure and safe society by shortening the system transition period of each customer and by implementing the dual channel communication applicable against a large disaster as soon as possible.

\*1 The world's first : According to our survey in September 2013

\*2 Dual mode : To have both the functions of the wireless system for usual operation and the nationwide emergency wireless system to

#### VOICE

We completed the challenging technological missions of substantial miniaturization and power efficiency for the in-vehicle radio device using two digital wireless systems with the limited installation space as before, by adopting the ET technology in an industrial radio for the first time in the world.

We will keep applying such technologies as these horizontally, aiming to realize a secure and safe society and offering the merits of advanced



with a removable controller

be used in cooperation with other fire headquarters

- \*3 ET technology (method): The method of amplification by tracking the envelope for digital radio with the power-supply voltage for the amplification and eliminating excessive power supply in comparison to the constant voltage operation of conventional technology. It can realize highly efficient amplification, by supplying power with minimized waste.
- \*4 Comparison with our conventional products: Comparison with those if both of the digital wireless device for fire-fighting and rescue communication released in 2005 and the in-vehicle device for fire-fighting and nationwide emergency wireless system released in 2011 are installed

environment-conscious design, thus contributing to society.



Shinichi Kato Wireless Engineering Department Video & Communication Systems Division