

# CSR Activity Topics 2008–2009

## Topic 01

### Electronic-paper Signage for Emergency Communication Support

Toppan participated in a field test for a local emergency communication support system now being developed by the Kanto Bureau of Telecommunications, a division of the Ministry of Internal Affairs and Communications of Japan. The chief function of this system is to transmit emergency information within disaster-stricken areas via radio. At a field test conducted around Ikebukuro Station in Tokyo on January 23, 2009, Toppan provided digital signage, an electronic-paper display device, to post the emergency information.

Electronic-paper signage has features of high viewability even under sunshine, ultra-low power consumption\*, and screen display retention after power shutoff. The signage holds promise as an emergency display medium for conveying information within disaster-stricken areas. Its chief advantage is the ability to retain the latest information displayed on the screen before power shutoff: when a disaster cuts off the power, the information stays on display.

As an active electronic-paper signage provider, Toppan has been operating a machikomi (town communication) service using electronic-paper signage as an advertising medium at subway stations in Sendai City in Miyagi, Japan. Toppan will further develop its signage technology by examining the strengths and weaknesses of the system for disaster preparedness, as revealed by the Ikebukuro field test.



Left: Large-size electronic-paper signage at Toshima Post Office  
Right: Electronic-paper signage mounted on a bus stop sign at Higashi Ikebukuro 2-chome

\***Ultra-low power consumption:** The former, a post office sign, consumes about 24 watts. The latter, a bus stop sign, consumes about 9 watts.

## Topic 02

### Showing VR Productions at an Exhibition in Paris

Convinced that virtual reality (VR)\*1 technology has great potential as a visual medium for the exhibition of cultural assets, Toppan has created numerous VR productions of cultural assets using color management and other printing-related technologies. Based on its experience in VR production, the Company has created VR reproductions of Kinkaku-ji and Ginkaku-ji, two of the most historically important Japanese temples in Kyoto (formally known as Rokuon-ji and Jisho-ji). From October to December 2008, the Petit Palais museum in Paris used the latest ultra-high-definition 4K\*2 projectors to display these VR reproductions at “Art Treasures from Shokokuji, Kinkakuji and Ginkakuji temple,” an exhibition to commemorate 150 years of exchange between France and Japan and 50 years of friendship between Paris and Kyoto. The beautiful, immersive ultrahigh-definition images on the large screen convey the lifelike experience of actually standing on the temple grounds. They also enable views not possible at the sites themselves.



Kinkaku-ji



Kyoko-chi (mirror pond) seen from the rooftop

\*1 **Virtual Reality (VR)** allows viewers to move freely within computer-generated 3D graphic images and experience a sense of actually occupying 3D space.

\*2 **4K** is a format advocated by Digital Cinema Initiatives, LLC (DCI), a digital cinema standardization organization led by seven leading U.S. motion picture companies. It has a resolution of 8.85 million pixels (4,096 × 2,160 pixels; 4K × 2K), more than four times that of full hi-vision.

## Topic 03

### Awards for Environmental Initiatives at Toppan Plants in Japan

#### Toyama Plant of NEC Toppan Circuit Solutions, Inc. (TNCSi)

In fiscal 2008, the Director General of the Chubu Bureau of Economy, Trade and Industry awarded the Toyama Plant of TNCSi for a series of energy-saving measures judged to be outstanding among subscribed projects carried out in the Chubu (central) region in Japan. The plant's adoption of a new humidity-control system received high praise. Compared to conventional systems, this system consumes less energy for the control of room humidity. It works via a two-step process: extract heat dissipated from existing plant equipment to warm up air, then humidify the warmed air with spraying machinery.

#### Kannabe Toppan Co., Ltd. (the current Fukuyama Plant of Toppan Nishinohon Printing & Processing Co., Ltd.)

In fiscal 2008, Kannabe Toppan Co., Ltd. received an Outstanding Energy-Efficient Factory Award from the Director General of the Chugoku Bureau of Economy, Trade and Industry of Japan. Kannabe Toppan's success in reducing energy consumption per unit of production volume by 5-10% year-on-year was highly commended. Its measures have included a monthly energy-saving committee, a switchover to highly efficient lighting apparatus, and the introduction of a "free cooling" system that works with outside air in wintertime.

#### Niigata Plant in the Electronics Division (the current Niigata Plant of Toppan Electronics Products Co., Ltd.)

The Niigata Plant in the Electronics Division received the Excellent prize at the PRTR\* Awards 2008 in Japan. The PRTR Awards were established to recognize companies for outstanding achievements in the management of chemical substances at factories and in risk communication with local governments and residents. The plant was highly commended for its progress in chemical substance management in accordance with its own set of well-defined policies that go beyond the environmental management policies across the Company. In setting the management policies, the plant carefully considered the properties of the region hosting the plant and the features of the products the plant manufactures. The plant was also commended for its many years of dialogue with neighboring residents.

\*The Pollution Release and Transfer Register (PRTR) system requires the confirmation, summary, and disclosure of data on the release and transfer of diverse chemical substances deemed to be potential environmental pollutants. The data required include information on the amounts of chemicals released, the sources from which chemicals are released, and the amounts of chemicals transferred outside business premises as waste.

## Topic 04

### Newly Constructing One of Japan's Largest-scale Plants for Next-generation Back Sheets for Solar Cells

In April 2009, Toppan completed the construction of the Fukaya Plant in Fukaya City in Saitama, a new manufacturing site for next-generation functional films. The Company will build up production lines at the plant for the manufacture of a wide variety of functional films to keep up with the brisk market demand.

Earlier, in July 2008, Toppan signed a technology transfer and license agreement for a polyvinyl fluoride coating technology with E.I. du Pont de Nemours and Company (DuPont) of the United States. Tedlar® Film, a material for solar cell back sheets developed by DuPont more than 25 years ago, has been rated highly for its outstanding weather resistance. The Fukaya Plant will mainly produce next-generation back sheets for solar cells based on the further amalgamation of the material technology of Tedlar® Film and the processing technology of Toppan. Using materials supplied by DuPont for Tedlar® Films, an integrated mass production line for finished back sheet products will be constructed.

Toppan aims to expand its share of the global market by supplying a broad range of back sheets tailored to diverse specifications required for applications such as solar cells for large-scale photovoltaic power plants and solar panels for ordinary houses.



External view of the Fukaya Plant, a future manufacturing site for solar cell back sheets

## Topic 05

### Leaking Solvent at the Itabashi Plant of Toppan Printing Co., Ltd.

Toppan Printing Co., Ltd. has promoted routine implementation of environmental measures to ensure thorough safety management at every operational site. Regretfully, however, these precautions failed to prevent a toluene leak from an underground tank of printing solvent at the Itabashi Plant (Itabashi Ward, Tokyo) on June 12, 2009.

Toppan sincerely apologizes for the anxiety caused to surrounding neighborhoods.

As an emergency measure, this underground tank has already been emptied and decommissioned. The following columns report the actual incident and details, including the results of a subsequent investigation.

From now on, Toppan will take vigorous steps in good faith to protect the safety of local residents and conserve the environment surrounding the plant by strictly preventing the diffusion and recurrent leakage of solvent.

#### ■Details and Causes of the Leakage

Approximately 4,500 liters of toluene, a solvent for printing, leaked from an underground tank at the Itabashi Plant on June 12, 2009. The source of the leak was a steel-plate tank with a capacity of 13,500 liters, buried about four meters below the surface of the ground.

The Company will identify the causes of the leak through a detailed investigation in the near future. Preliminary inspections suggest that cracks may have formed at the bottom of the tank during a regular maintenance operation.

#### ■Detection and Countermeasures

The liquid level of an underground tank rapidly fell during a regular maintenance operation on June 12, 2009. The tank concerned was decommissioned and a different tank was used to supply solvent for manufacturing. The following measures have been taken so far.

- Both the interior and exterior of the underground tank were inspected to estimate leakage conditions, and the leakage of solvent from the underground tank was confirmed.
- The leakage was reported to Shimura Fire Station of the Tokyo Fire Department, which conducted an onsite investigation and instructed the plant on specific countermeasures in the coming days.
- A boring investigation around the underground tank has been commenced to examine the impact on the soil, etc. surrounding the tank.
- The leakage was also reported to Shimura Police Station, Itabashi City Office, and Tokyo Metropolitan Government to receive guidance on future measures.

#### ■Future Measures

Toppan will take the following measures in good faith based on consultation with local authorities to protect the safety and environment of the plant and local communities.

- The diffusion and recurrent leakage of solvent will be prevented to ensure the safety of local residents.
- The cause will be ascertained by an investigation to be conducted in collaboration with independent organizations, and appropriate responses will be taken according to the investigation results.
- Details will be reported to local residents whenever necessary.

Toppan will carry out the following specific measures without delay.

Specific measures:

- 1) Enclosure of the leakage area through the burial of steel sheet piles to prevent the solvent from diffusing
- 2) Suction of the solvent from the soil via newly installed pumping wells
- 3) Removal of the underground tank that contained the solvent
- 4) Excavation and removal of the soil surrounding the underground tank concerned, and backfill with good soil
- 5) Inspection of the soil, water, and air in the area