

AvanStrate Environment • CSR Report 2011



AvanStrate Inc.

Contact us

AvanStrate, Inc. Administration Headquarter
TEL: 81-3-5780-7638 FAX: 81-3-5780-7635

©Enquiry Form
<http://www.avanstrate.com/inquiry/>



Corporate principles

We will continue innovating, become a company with a strong sense of presence by creating new products, services, and ways of management and contribute to society.

Action Policy

- We value our customers and provide high quality products and services
- We believe in trying new things and place emphasis on taking actions
- We pursue free, vigorous and rational discussions and consistently create new concepts
- Each one of us will comply with regulations, strive to preserve the environment and act with high ethical standards

Origin of Corporate Name

Corporate Name "AvanStrate"

Our corporate Name, AvanStrate, is a combination of "Avan" which means a spirit of innovation, and "Substrate" of glass. It is unconventional in contrast to existing glass makers, and makes people imagine proactive corporate attitude, as well as high quality and sophisticated products.

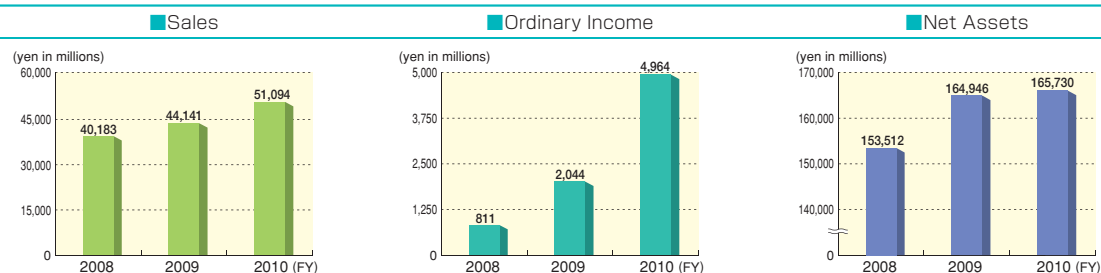
About Company Logo

The symbol in the motif of "A" expresses advanced images of our products with silhouette effects in fresh green. Its four edges represent corporate attitude to develop into a bright future, business and technology, spirit of innovation, and creativity. The simple and dynamic logo is more impressive and appealing with "S" in the same color as the symbol which offers a sense of unity.

AvanStrate株式会社



Financial Data



Relationship with Stakeholders

The AvanStrate Group manufactures and sells glass substrates for liquid crystal displays and panels as its core business in Japan and overseas. We intend to promote group-wide CSR activities for various stakeholders involved in AvanStrate's business.

Editorial Policy

The "AvanStrate Environment-CSR Report" has been published on an ongoing basis since FY2010 to report the activities of the AvanStrate Group which consist of AvanStrate Inc. and three consolidated subsidiaries. FY2011 is in the 20th anniversary of the foundation of AvanStrate Inc. Furthermore, AvanStrate Taiwan Inc., which will mark its 10th anniversary in 2011, is featured in a special article.

With a far larger percentage of production volume begin output overseas rather than in Japan, the AvanStrate Group will enhance contents of this report for the activities of overseas bases as a global company.

As with the previous issue, the contents of this report are determined with materiality analyses according to the concepts of the GRI* guidelines.

Editing the report, we are aware that its contents should facilitate communication with our stakeholders. Please contact us with any question or comment you may have through our inquiry form on the company's website.

*GRI: An abbreviation of Global Reporting Initiative, an organization established for the purpose of formulating and diffusing international guidelines for sustainability reports.

◆Reporting period

Covers the activities performed in FY2010 (April 1, 2010 to March 31, 2011). Some activities performed in previous years are included.

◆Scope of coverage

AvanStrate Inc. and its three consolidated subsidiaries

◎Notations on this report

- Japan.....「AvanStrate Inc.」
- Taiwan.....「AvanStrate Taiwan Inc.」
- Singapore.....「AvanStrate Asia Pte Ltd.」
- Korea.....「AvanStrate Korea Inc.」

◆Reference Guidelines

- Environmental Reporting Guidelines (2007 Edition), Ministry of the Environment
- Global Reporting Initiative (GRI®) Sustainability Reporting Guidelines 2006

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- ISO26000: Guidance on Social Responsibility 2010
- Guidelines for Creating Corporate Social Responsibility Report in China (CASS-CSR2.0), Chinese Academy of Social Sciences

◆Date of issue

December 2011 (Previous issue: issued in December 2010. Next issue: scheduled to be issued in November 2012.)

*AvanStrate Environment-CSR Report will be issued annually.

◆Responsible departments and inquiries

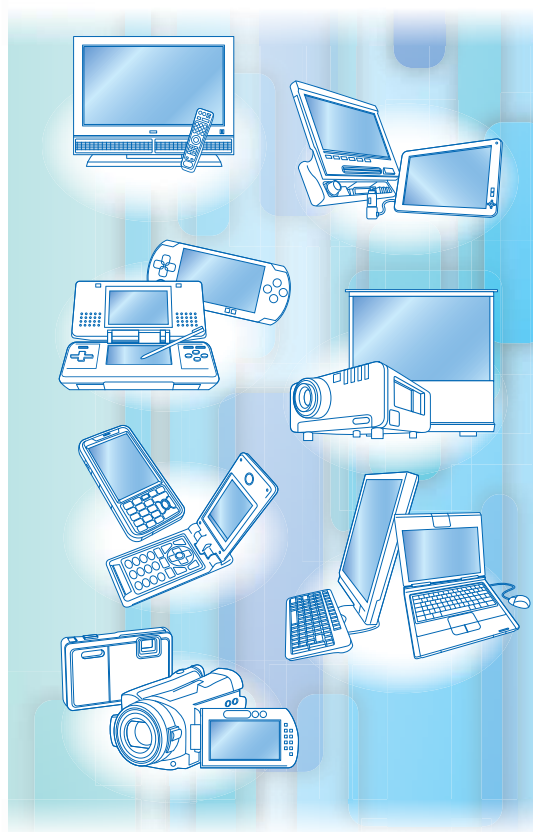
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TEL:03-5780-7638 FAX:03-5780-7635

Enquiry form

<http://www.avanstrate.com/inquiry/>

◆[Web site URL]

CSR Activities <http://www.avanstrate.com/>



Company Overview

Company Name : AvanStrate Inc.

Establishment : May 21, 1991

President : Jun Makino, CEO

Site : Head Quarters / Yokkaichi Plant

- Tokyo Office
(Overseas Subsidiary)
- AvanStrate Taiwan Inc.
- AvanStrate Asia Pte Ltd.
- AvanStrate Korea Inc.

Capital : 13.5 billion yen
[Principal shareholders: The Carlyle Group, HOYA Corporation, board members, etc.] (At the end of September, 2011)

Sales: 51,094,465 thousand yen
(Consolidated: FY ended March 2011)

Ordinary Income: 4,964,174 thousand yen
(Consolidated: FY ended March 2011)

Number of employees: About 300 (Japan)
(at March 31, 2011)

About 1,700 (Consolidated)
(at March 31, 2011)

Site Profile

AvanStrate Inc. (Head office / Yokkaichi Plant/ Tokyo office)

Address: Chitose-cho 2, Yokkaichi City, Mie Prefecture
(Head office / Yokkaichi Plant)

Address: Konan 1-8-40, Shinagawa Place 2F, Minato-ku, Tokyo
(Tokyo office)

Number of employees : About 300

AvanStrate Korea Inc.

Address: Hyeongok Industrial Park, 462, Hyeongok-ri,
Cheongbuk-myeon, Pyeongtaek-si,
Gyeonggi-do, 451-831, Korea

Number of employees : About 400

AvanStrate Taiwan Inc.

Address : No.8, Industry III Road, Annan, Tainan, 709,
Taiwan R.O.C.

Number of employees : About 700

AvanStrate Asia Pte Ltd.

Address: 32 Tuas South Avenue 8
Singapore 637602

Number of employees : About 300



We offer our deepest condolences for the precious lives lost in the Great East Japan Earthquake in March 2011, and express our heartfelt sympathy to people affected by the disaster.

Jun Makino, CEO

Business Activities in FY2010

In FY2010, we got off to a favorable start in sales to AvanStrate Group's major customer, i.e. the liquid crystal display and panel industry, thanks to expanding demands for LCD televisions in emerging countries. However, panel makers adjusted operating rates of factories due to product inventory adjustment and review of production in the middle of fiscal year, having no small effect on the demands for glass substrates for liquid crystal displays and panels. Subsequently, the demand has become average toward the end of the fiscal year.

As a result of the AvanStrate Group's commitment to provide products focusing on quality to meet our customers' requirements, our net sales turned upward with a steady expansion in production while influenced by the market.

CSR activities of the AvanStrate Group

In order to provide high-quality products to the customers, it is our first priority to respond to our customer's quality requirements. At the same time, we consider that our CSR activities should be conducted to reduce the environmental impact in our production processes, as well as to enhance

systems for corporate governance and compliance in our day-to-day business.

Regarding "human resources" as an infrastructure of our business activities, we will be committed to creating a vigorous workplace where we can realize the growth of our employees, the AvanStrate Group itself, as well as the development of our stakeholders.

CSR Activities in FY2010

In FY2010, we continued to focus on providing high-quality products as we continue our efforts at each of our bases to provide products carefully tailored to our customer's needs.

We also make continuous efforts on a daily basis to improve our production efficiency and quality.

To Summarize

AvanStrate Inc. marked the 20th anniversary of its foundation in 2011. The AvanStrate Group will work together to achieve a sustainable society by further promoting CSR activities.

We greatly appreciate our stakeholders' continuous understanding and support for the AvanStrate Group.

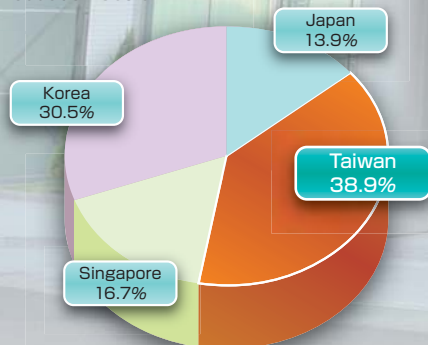
Special
Topic

AvanStrate Taiwan Inc.

Overview of the AvanStrate Taiwan Inc. Plant

AvanStrate Taiwan Inc. is located in Tainan Science Park, Annan, Tainan, about 7km away from the city center of Tainan. The Tainan Science Park is adjacent to Chianan Canal in the south, No. 17 Road in the north, and Anshun Salt Field and Sihcao Wetlands in the west, where AvanStrate Taiwan Inc. has its first and second plants, and manufactures and sells substrate glass for liquid crystal displays and panels.

Production Scale (As of March 31, 2011)



Company Name	AvanStrate Taiwan Inc.
Address	No.8, Industry III Road Annan, Tainan 709, Taiwan, R. O. C.
Number of employees	About 700
Main Business	Production and sale of substrate glass for liquid crystal displays and panels
Acquired certifications	ISO9001:2000, ISO14001:2004, OHSAS18001:2007, TS16949:2002



Manufacturing Processes (HOT Process/COLD Process)

The manufacturing processes of glass substrates for liquid crystal displays and panels is classified into two processes, i.e. HOT processes to melt raw materials and mold rough glass, and COLD processes to shape glass into forms required by customers. In the HOT process, it is important to make glass surfaces flat and smooth, and to eliminate foreign substances and air bubbles in order to decrease defect density (the number of defects per unit).

In the COLD process, it is necessary to ensure a high "surface quality" with no flaws and stains. We seek to produce high quality products by appropriately controlling both these processes.

The fundamental idea concerning products, legal compliance and the environment in Taiwan is the same as that in Japan.

As with Japan, we put emphasis on the acquisition of international certifications in order to assure product quality, and we have acquired the ISO9001, ISO14001, OHSAS18001, and TS16949 certifications.

Considering that improvement in quality of products provided to customers is a critical element of CSR, we strive to raise the employees' awareness, for example, by granting awards to employees who conducted excellent QC activities.

We regard compliance with Taiwanese laws and regulations as well as promotion of CSR activities as the major premise of corporate activities in Taiwan.

To be more specific, we share internal information by holding safety and health meetings as well as environmental meetings on a regular basis, and we proactively provide environmental education to employees.

We intend to conduct business activities in the future based on the idea that respecting culture and customs of various countries including Taiwan, i.e. respecting humans would lead to building trustworthy relationships with stakeholders.

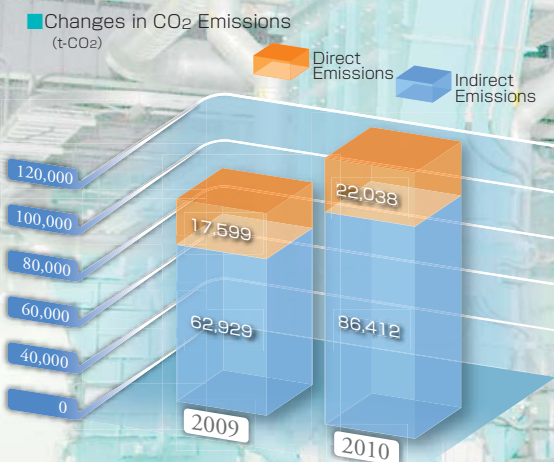
Yoshikazu Ito, President



Prevention of Global Warming

Total greenhouse gas emissions from the plant in FY2010 was 108,000 t – CO₂, including CO₂ related to LPG for production processes, fuels for boilers, etc., and external electricity, as well as CO₂ emitted through transportation.

AvanStrate Taiwan Inc. strives to control and reduce greenhouse gas emissions by acquiring ISO14064 certification in order to understand the greenhouse gas emissions in an exact, transparent and consistent manner, as well as to provide appropriately managed information where needed about the greenhouse gas emissions to our domestic and overseas customers.



Air and Water Quality Management

For air quality management, AvanStrate Taiwan Inc. makes efforts for reducing nitrogen oxide in combustion exhaust gas by equipping all glass melting furnaces with flue gas denitration equipment in order to curb environmental burdens in air. At the same time, the surveillance system was also enhanced by introducing a continuous monitoring system. For water quality management, the company determined stricter voluntary management criteria than relative laws and regulations, and analyzes and monitors water quality on a regular basis. In addition, initial drainage in the glass washing process is recycled in order to save water resource.

Waste Management

AvanStrate Taiwan Inc. is committed to improving a recycling rate with separate collection of wastes. The recycling rate at about 90% has been presently achieved. For further improvement in the recycling rate, the company has studied recycling of wastes containing hazardous substances in cooperation with National Pingtung University of Science and Technology in Pingtung County, Taiwan.

Environmental Awareness Activities

In addition to general environmental education, AvanStrate Taiwan Inc. provides specialized education for new employees about environmental conservation in the work of each of their divisions.

The company also promotes awareness to employees about energy saving in everyday life, reduction of CO₂ emissions, environmental conservation as well as environmental laws and regulations by disseminating new knowledge about environmental conservation among employees, and displaying environmental message posters featuring one theme per month on company bulletin boards, and furthermore by placing educational materials on the intranet for easy reference by our employees.

Clean Activities

AvanStrate Taiwan Inc. has established the tenth of each month as the "Taiwan Plant Clean Day" to coincide with the "World Clean Day Activity", where the area inside of plant, surrounding roads and green zones are cleaned for 30 minutes after leaving work for the day.

Moreover, as a part of our employees' contribution to environmental conservation and environmental awareness activities, the company has participated in the "Clean Up the World" activities co-hosted by the "Good Neighbor Foundation" and "7-ELEVEN".



Scene of "Clean Up the World"



Scene of "Taiwan Plant Clean Day"

Environmental Improvement Cases in FY2010

Appropriately operating ISO14001 to comply with environment-related laws and regulations and promote global environment conservation, AvanStrate Taiwan Inc. chiefly addressed environmental improvement activities shown below in FY2010.

- Reduction in dust in the air at a workplace for blending materials
- Improvement in fuel efficiency of boilers
- Formulation of standards for maintenance of a backwashing drain tank
- Prevention of leakage from a diesel oil storage tank

HOT Process

There are five glass melting furnaces in the HOT process at the Taiwan Plant. Among them, the latest model has a structure which is resistant to external impacts, such as a rapid change in temperature and typhoons. As energy-saving and environmental measures, it is scheduled to conduct external air cooling tests for the purpose of reducing power consumption for air conditioning. We also put emphasis on security of equipment and disaster prevention with the earthquake-proof structure in which a device named "Lehr" starts to operate at the time of an earthquake. Considering environmental and security issues is very important, we work on day-to-day business under definite rules. In the previous year, there was no accident in the HOT process. We will work aiming at no industrial accident.



Naoki Habata

COLD Process

In the COLD process, a special team consisting of 8 staff has been set up to measure and evaluate employee's occupational skills in order to ensure quality management. When there is variability in working accuracy among workers, the special team makes workers take retraining and examination. Furthermore, all workers have to take occupational skill examination every three months in order to proactively make efforts for maintaining and improving quality. As for workplace safety, there is a shower room in which a whole body can be washed in the workplace in preparation for a case where chemicals for glass washing are attached to a human body. For thorough ensuring of security in the manufacturing process, special staff for safety in production has been set up, and conducted surveillance and safety evaluation. In environmental terms, we strive to reduce use of resources and use of fuel for transportation by simplifying packaging of products. Furthermore, sealed typed washing equipment has been adopted in order to prevent scatter and leakage of chemicals for washing.



Jeng Hung Sun Chang Kuei Keng

AvanStrate Taiwan Inc.

Environment Conservation Division

We have acquired certifications of ISO14000 series since 2004. Results of environmental assessment conducted every year in accordance with environment-related laws and regulations are disclosed at the company-wide environmental meeting. As environmental education, we implement training about environment conservation including separation of wastes for new employees. We also started training on prevention of global warming this year, and held seminars 8 times for all employees inviting outside experts. Apart from implementation of cleaning up activities around the plant, we participate in local cleaning up activities hosted by an outside organization. Like this, we make efforts for proactively fulfilling a role in social action programs.



Yu-Ching Lin, Po-Hsuan Chen, Rosemary Tsai

Administration Division

The Administration Division conducts education about prevention of discrimination on the basis of gender and religion, etc., and bribe through Intranet, in-house newsletter, etc., and training for new employees. Moreover, a helpline for anonymous reporting and support service by lawyers has been set up. We strive to improve working environment to enable all employees to work healthily, safely, and comfortably. We also have set up a paid leave system which can flexibly respond to various events, such as childbirth, childcare, and nursing care. As for labor-management relationship, a smooth communication system has been established to discuss issues concerning working environment and terms and conditions, by holding a workplace meeting for each division every month, and a worker-manager meeting every three months.



Li-hsueh Chen Tsan-Hui Cheng



Environment Management

Environment report

Environment Management

AvanStrate manufactures glass substrate for liquid crystal displays and panels using energy and various chemicals. While they are essential to conduct our business, AvanStrate makes sincere efforts for reducing impacts on the global environment as much as possible with deliberation.



Environmental Vision

Considering environmental conservation activities as the most important business issue, AvanStrate Group has built and operated the environment management system (EMS) according to ISO14001 in all business bases. In order to present the beautiful and clear future to the next generation, we aim to grow in harmony with the environment, thinking much of limited natural resources and energy, as well as contributing to creation of a sustainable society.

Environmental policies

- 1 In addition to complying with applicable laws and regulations, we establish voluntary control standards and strive to improve environmental management to continuously reduce environmental burdens related business activities.
- 2 Recognize the importance of conserving the global environment, hold concepts such as "zero emission by saving natural resource and energy, reducing emissions of harmful substances and recycling resources" as a shared objective among all employees and continuously promote organizational environmental activities.
- 3 Maintain environment control systems and organization systems, set environmental objectives and targets and aim to realize them while also promoting continuous improvement of the environment control systems by regularly reviewing these objectives and targets as necessary.
- 4 Share the company's environmental principles and basic environmental policies among all employees, promote employee training to encourage actions that comply with these principles and policies and aim to enhance awareness regarding conservation of the environment.
- 5 Share the company's environmental principles and basic environmental policies with vendors and suppliers of raw material and request for understanding and cooperation.

Environment Management System Certification

In AvanStrate Group, all business bases in Japan, Taiwan, Singapore, and Korea have obtained ISO14001 certifications to operate the management system for continuous improvement.

ISO certification obtained

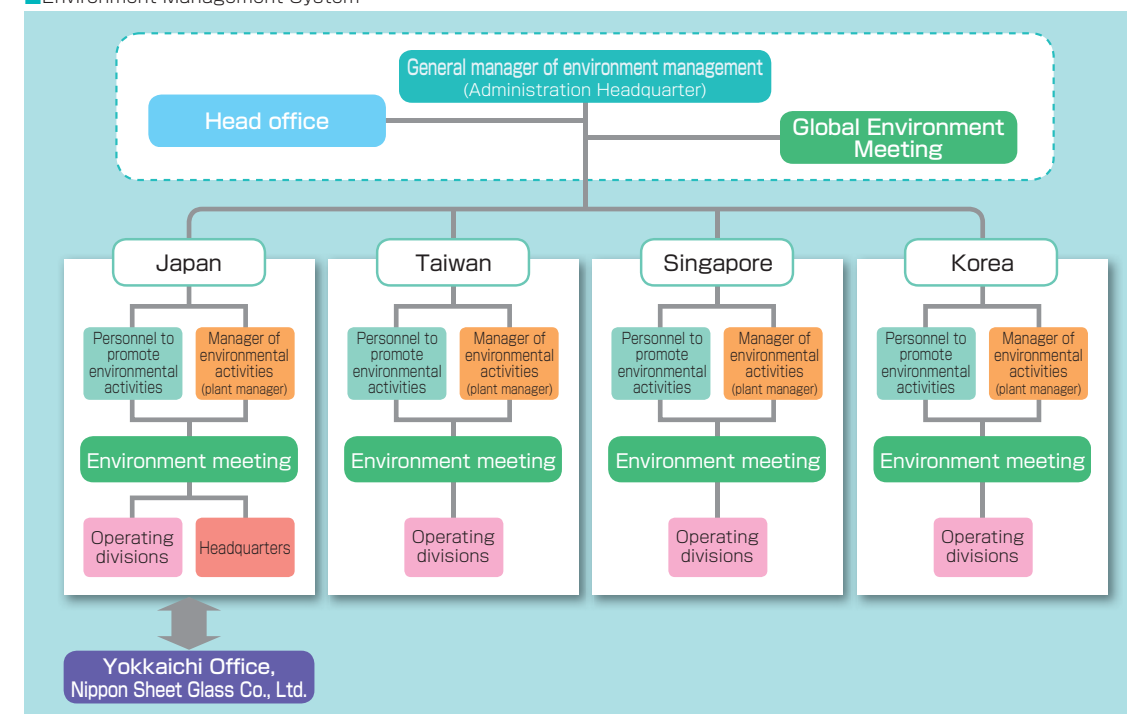
Business areas	Years certified	
Japan (Yokkaichi Plant)	ISO14001	February 1999
Taiwan Plant	ISO14001	September 2005
Korea	ISO14001	July 2007
Singapore	ISO14001	July 2008



Environment Management System

In AvanStrate Group, the environment management system is operated in each business base in Japan, Taiwan, Singapore, and Korea. Located on a premise of Yokkaichi office of Nippon Sheet Glass Co., Ltd., AvanStrate Inc. has built and operated the environment management system in cooperation with Nippon Sheet Glass. The system to manage activities related to occupational health and safety is also incorporated.

Environment Management System



Environmental purpose and target

Business bases of AvanStrate Group in Japan, Taiwan, Singapore, and Korea have respectively formulated environmental purposes and targets, and conduct environmental conservation activities based on them. In Japan, we achieved the targets for FY2010 as shown right, and formulated new targets for the period from FY2011 to FY2013.

Environmental targets and objectives of the Yokkaichi Factory (~FY2010)

Items	Environmental objective	Targets for FY2010	FY2010	
			Results	Evaluation
Energy saving, Reduction in CO ₂	Reduce electric power consumption by 12% per basic unit compared with the performance in FY2004.	Reduce by 12%	Reduce by 14.3%	○
	Reduce gas consumption by 12% compared with the performance in FY2004.	Reduce by 12%	Reduce by 13.6%	○
Industrial Wastes	Reduce industrial wastes by 6% per basic unit	Reduce by 6%	Reduce by 6.7%	○
	Ongoing efforts to achieve zero emissions	Ongoing	Ongoing	○

【Evaluation】 ○: Achieved △: Almost achieved ×: Not achieved

Environmental targets and objectives of the Yokkaichi Factory (FY2011~ FY2013)

Items	Environmental objective	Targets for FY2011
CO ₂	Reduce CO ₂ emissions by 1% annually per basic unit compared with the performance in FY2007.	Reduce by 4%
	Reduce CO ₂ emissions by 50% in total by the end of FY2013.	—
Industrial Wastes	Reduce industrial wastes by 1% per basic unit compared with the performance in FY2010.	Reduce by 1%
	Ongoing efforts to achieve zero emissions	Ongoing

【Evaluation】 ○: Achieved △: Almost achieved ×: Not achieved

Environment auditing

AvanStrate Group annually implements internal auditing and conducts examination by a verification organization as environment auditing in order to examine whether the environment management system effectively functions. Like this, we make efforts for continuous improvement. Results of environment auditing in FY2010 are as follows.

	Internal auditing	Examination by a certification organization
Significant nonconformity	0 case	0 case
Minor nonconformity	28 case	1 case
Items to be observed	17 case	14 case



Environmental Conservation Activities

Environment report

Environmental Conservation Activities

Regarding a reduction in consumption of global resources as a gift to the next generation, AvanStrate has made various efforts. We conduct activities such as thorough control of chemicals, reducing emissions and industrial wastes, and raising employee's environmental awareness, considering how to reduce environmental burdens in business activities. Some examples are presented below.

Energy-Saving Activities

In FY2010, CO₂ emissions caused by use of energy at the Yokkaichi Factory were about 20,000 tons, accounting for most of the total green house gas emissions in the plant. Meanwhile, we reduced about 15,000 tons of CO₂ caused by use of energy compared to the figure in FY2005 with favorable effects from more efficient production, structural and technological innovation of melting furnaces, as well as day-to-day efforts for improving lighting systems and engines. In FY2010, with a goal of further streamlining energy consumption, we received a "evaluation of reduction in global warming potential gas emission" by the Ministry of the Environment and a suggestion about measures for energy rationalization. We plan to work on curbing heat release of furnaces with large energy loss in the future. Since the previous year, we have continuously promoted activities toward resolution of global warming by considering measures for energy rationalization together with equipment makers, etc., and taking the company-wide measure for energy saving, in addition to daily small efforts for improvement in energy saving.

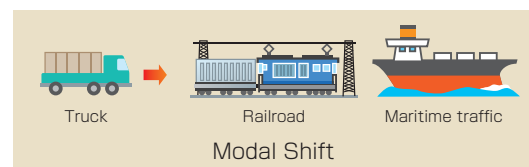
Zero Emissions

AvanStrate Group makes efforts for an improvement in recycling rate of industrial wastes in order to effectively use limited resources. Defining zero emissions as "achieving a recycling ratio of industrial wastes close infinitely to 100% to almost completely eliminate landfill and simple incineration of industrial wastes, we are addressing zero emission activities in Yokkaichi Factory. In an attempt to restrain the consumption of limited natural resources on the earth, and contribute to forming a sustainable recycling society, we thoroughly sort out and collect wastes generated in each manufacturing process and seek good waste disposers as a part of our zero emission activities, while considering industrial wastes generated in business activities as one of useful resources. Since FY2007, we have achieved zero emissions with 100% of recycling ratio.



Modal Shift

In Yokkaichi Plant, we are making efforts for reducing CO₂ emission at a time of transportation of specific industrial wastes with modal shift to rail cargo. Modal shift is a change of transportation method to a more eco-friendly one, for example, from individual transportation by truck to mass transportation by maritime or railroad traffic. It is considered that modal shift using railroads can restrain CO₂ emission to one seventh compared to transportation by truck. In vicinity to a rail cargo station and a seaport, Yokkaichi Plant is blessed with excellent location to promote modal shift. Therefore, when commissioning industrial waste disposal, we comprehensively evaluate performance such as a reduction in environmental burdens with modal shift, in addition to costs for disposal and transportation in order to improve environments through distribution.



Green Purchasing

In Yokkaichi Plant, we implement green purchase of office supplies. Green purchase is to buy as eco-friendly goods as possible from, in preference, suppliers who strive to reduce environmental burdens, fully taking into account the environment, as well as necessity, quality, and price of goods. As the first step to change a social structure including various environmental issues considered to be caused by mass production, mass consumption, and mass disposal into a structure of sustainable recycling and low-carbon society with less environmental burdens, we proactively implement green purchase.

Chemicals Management

AvanStrate Group has formulated and operated preventive rules and a handling procedure manual, etc. for appropriate chemicals management. As a large number of chemicals are handled in manufacturing processes, we thoroughly implement appropriate chemicals management from product development through disposal, conforming to not only laws and regulations related to chemicals but also ones related to occupational health and safety.

PRTR substances list

Name of chemical	Unit	Groups	2008	2009	2010
Arsenic	kg	Chemical usage	35,079	20,964	—
		Chemical discharged	4.0	2.2	—
		Chemical transferred	17,952	7,097	3,492
Boron	kg	Chemical usage	189,639	134,457	103,745
		Chemical discharged	50	41	260
		Chemical transferred	94,697	68,077	101,516
Barium	kg	Chemical usage	154,283	47,631	16,719
		Chemical discharged	3.9	2.2	2.2
		Chemical transferred	44,140	14,255	17,253
Antimony	kg	Chemical usage	154,283	47,631	—
		Chemical discharged	3.9	2.2	—
		Chemical transferred	44,140	14,255	220

※Since 2011, barium has been excluded from substances subject to PRTR.
※Only in AvanStrate Inc.

Environmental Risk Management

In AvanStrate Group, wide-ranging and various laws and regulations are applied in manufacturing of glass substrates for liquid crystal displays and panels, for example, environmental ones concerning air and water pollutions and wastes, and ones related to chemicals and raw materials. In FY2010, there were no complaints and violation of laws regarding the environment. We intend to implement thorough environmental risk management including being compliance with laws and regulations in the future.

Japanese major environmental regulations relate to our operations

- Law Concerning the Promotion of the Measures to Cope with Global Warming
- Law Regarding the Rationalization of Energy Use
- Air Pollution Control Law
- Water Pollution Control Law
- Law Concerning the Improvement of Pollution Prevention Systems in Specific Factories
- High Pressure Gas Safety Law
- Waste Disposal and Public Cleansing Law
- Poisonous and Deleterious Substances Control Law
- Pollutant Release and Transfer Register Law

Environmental Communication

AvanStrate Group is proactively developing environmental communication inside and outside of the Company. As internal communication activities, an environment global meeting consisting of environmental managers of individual bases and an environmental meeting inside each base are held on a regular basis. For employees, environmental datebooks and environmental enlightenment news are issued, and environmental patrol is implemented. In this way, we strive to disseminate environmental information to the entire Company, and raise and improve the employee's motivation for environmental activities. In the Yokkaichi Factory, we regularly held an environmental activity manager meeting and promoter meeting with Yokkaichi office of Nippon Sheet Glass Co., Ltd. We will proactively develop environmental communication also in the future.



Environmental Education

In order to establish the environmental conservation activities in the Company, AvanStrate Group provides environmental education for all employees to raise each employee's environmental awareness. This environmental education broadly contains general environmental issues from the Company's environment management systems to activities for surrounding environments. In the Yokkaichi Factory, a seminar was held with a lecturer invited from outside on the theme of countermeasures against global warming and energy-saving activities in everyday life. We will address environmental education aiming to foster personnel who can take ecologicallyfriendly and responsible actions.



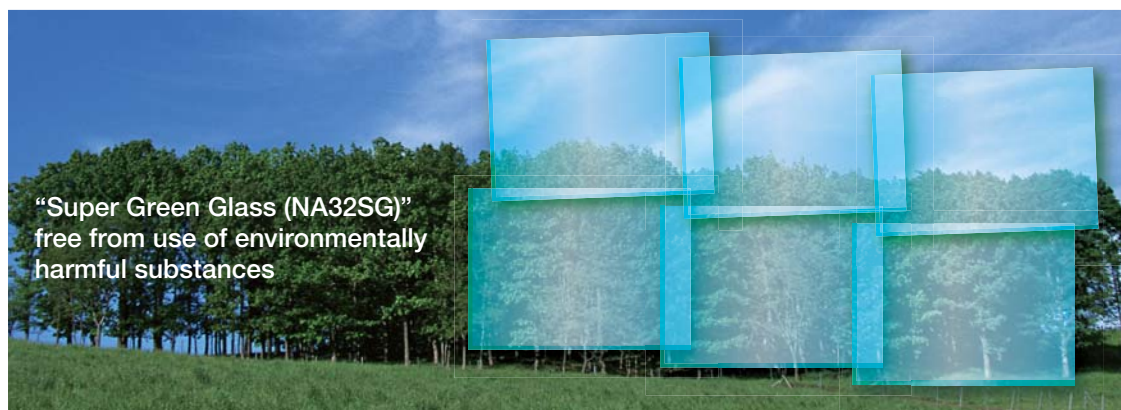


Eco-product Development

Environment report

Eco-product Development

Having kept on studying, AvanStrate successfully developed “Super Green Glass”, glass substrate for liquid crystal displays and panels free from use of environmentally harmful substances which are recognized as a critical problem. With the development of Super Green Glass, we also succeeded in reducing CO2 emissions.



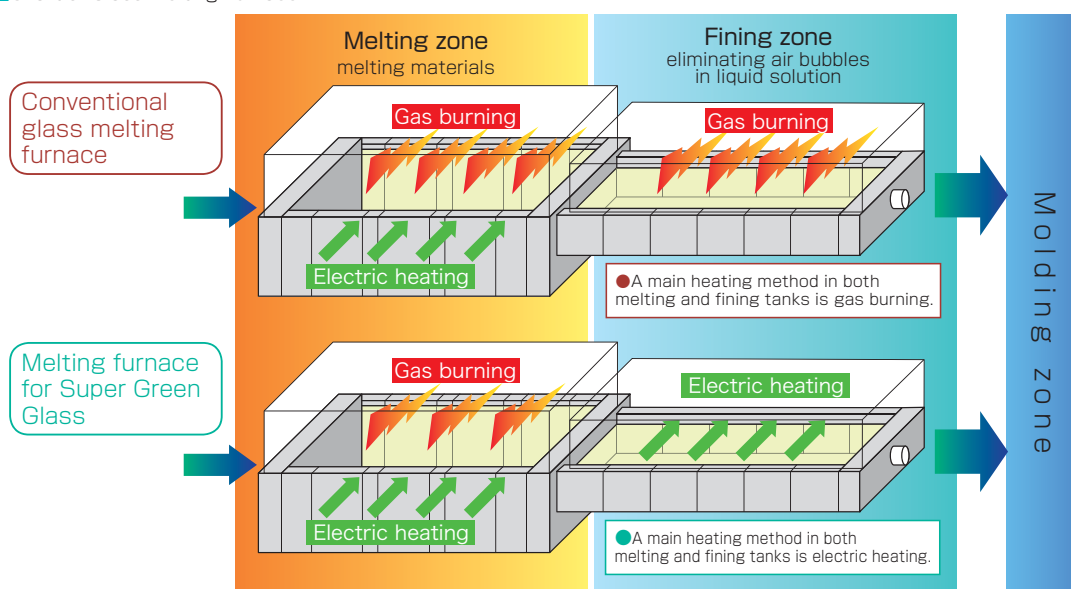
Production of Super Green Glass

In order to maintain quality of glass at a time of melting glass substrates for liquid crystal displays and panels, specific environmental load substances were used as a part of glass materials. However, we successfully developed technology to keep quality of glass without using the environmental load substances by reviewing a structure of glass melting furnace and a balance of supply of thermal energy for melting. Presently, “Super Green Glass (NA32SG)” free from use of the specific environmental load substances is our main product.

Melting furnace for Super Green Glass

As it is required to melt glass materials at high temperature, a lot of energy is used in the process. Compared to conventional glass melting furnaces, the melting furnace for Super Green Glass has a structure to make glass clearer by changing main glass heating methods from gas burning to electric heating. The melting furnace for Super Green Glass which is conscious about global environmental conservation has been horizontally deployed to all overseas bases, as reducing CO2 emissions caused by use of energy and restraining thermal NOx and exhaust gas generated by gas burning.

Chart of Glass Melting Furnace

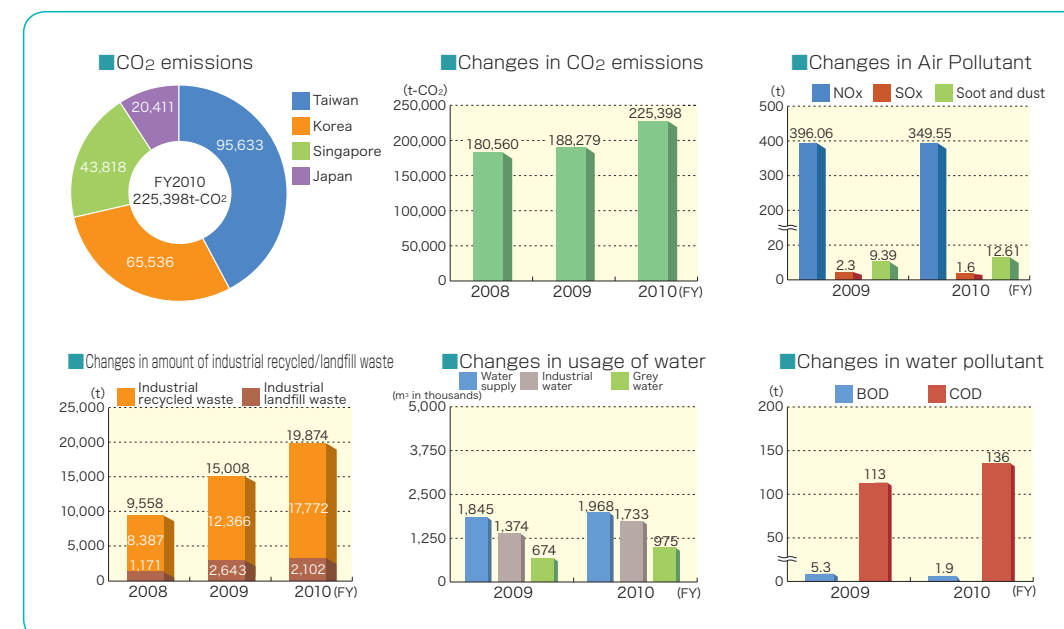
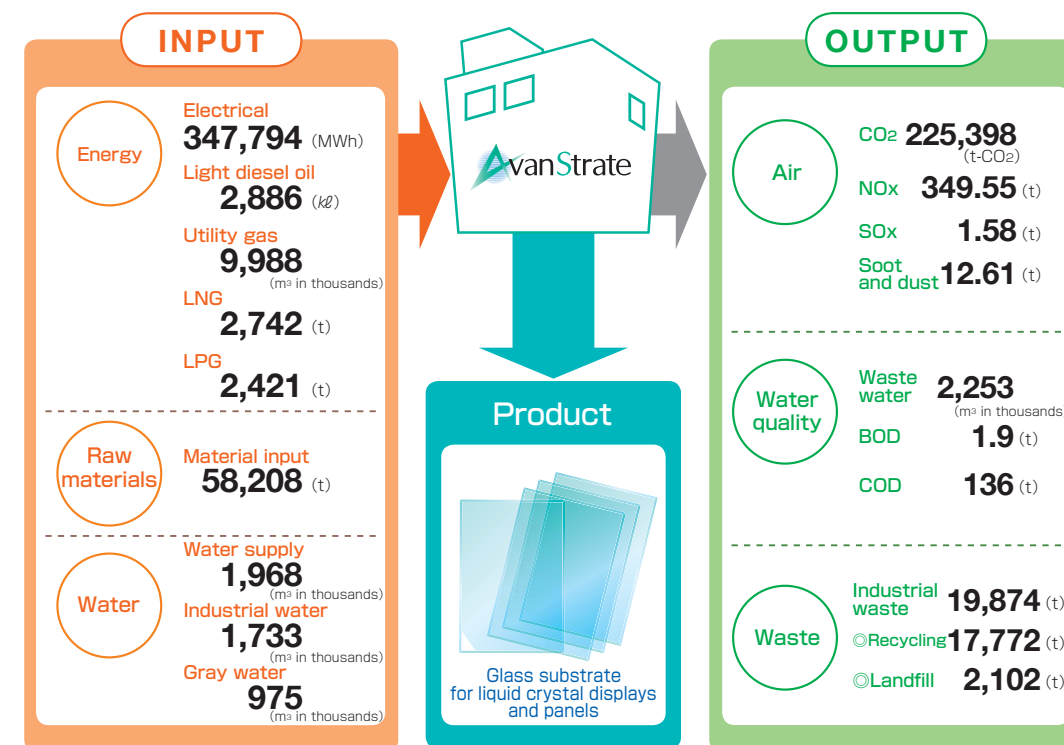


Environmental Performance Data

Environment report

Environmental Performance Data

◎Reporting period: FY2010 (April 2010 - March 31, 2011)
◎Reporting scope: AvanStrate Inc. and three overseas bases



※CO2 emission is calculated with CO2 emission coefficient given by an electric power company or an energy provider of each base, according to the manual of calculations and reports of GHG emissions.
CO2 emission also includes other green house gases than CO2 (excluding in Singapore).



Product Quality & Customer Satisfaction

Social Report

Product Quality & Customer Satisfaction

It is natural for a manufacturing company to maintain product quality and built trust relationships with customers. AvanStrate puts emphasis on the attitude to do its best to conduct such natural things. Now, some of our approaches to provision of high-quality products to customers are shown below.

Process **HOT**

Process **COLD**



Quality management system

AvanStrate operates the quality management system in each plant, using ISO9001 and ISO/TS16949, in order to develop and provide high quality products and respond to customers' needs as taking into account environment. We will thoroughly control and assure product quality through operation of the quality management system.



ISO certification obtained

Business areas	Years certified	
Japan (Yokkaichi Plant)	ISO9001	September 2005
Taiwan Plant	ISO9001	September 2005
	ISO/TS16949	September 2007
Korea	ISO9001	March 2006
Singapore	ISO9001	January 2007

Efforts for Customer Satisfaction

AvanStrate has built a 'CS' system in each base to respond to customers' needs promptly and flexibly and improve customer satisfaction. Furthermore, sales and other departments in each base are functioning as customer service to handle customers' requests and complaints.

Efforts for Business Partners

AvanStrate promotes environmental and CSR activities in the whole supply chain in cooperation with business partners, aiming to improve mutual corporate value. When making transactions, we request business partners for cooperation in following the green purchase guideline, and allowing us to stipulate articles concerning CSR in an agreement, apart from CSR purchase.

R & D System

AvanStrate implements R & D activities mainly in HOT and COLD divisions of Technology Development Center (D Center) in the headquarters in cooperation with each base. The HOT division is in charge of R & D concerning composition of glass substrates for liquid crystal displays and panels and production of the glass substrates with the melting furnace. The COLD division is in charge of R & D concerning technologies to cut, process, and wash rough glass substrates, as well as inspection and valuation of products.

Automatic Inspection

AvanStrate has introduced the world's first original automated evaluation equipment by which it is possible to detect submicron particles and flaws. The quality of each process is monitored with analysis of these images. Like this way, we use the equipment for optimizing processes so as to match each customer's specifications.

Thin Glass Substrates

Glass composition of lower specific gravity and technology to make glass thinner is required in order to meet demands for lighter parts and improved production volume for mobile telephone products. AvanStrate has promoted research and development, and presently achieved 0.5mm in thickness in the eighth generation, and 0.4mm in thickness in the fifth generation. We are still striving to achieve 0.3mm in thickness.

State-of-the-art Laser Cutting Technology

AvanStrate is working on practical use of the latest cutting technology using sophisticated laser cutting equipment with a highly advanced laser head. Laser cutting produces fewer fragments than diamond wheel cutting, and does not need chamfering. Accordingly, the number of processes can be reduced. Furthermore, with the possibility to cut objects into various shapes and even cut holes, laser cutting can be applied to diversity of new products in the future.



Community Activities

Community Activities

Community activities

It is necessary to develop with a local community in order to manufacture glass substrates for liquid crystal displays and panels. In addition to transactions with local business operators, tax payment, and creation of employment, AvanStrate is seeking what we can do for the community. Some examples of our efforts for contributing to development of local communities toward achievement of sustainable society through business activities are shown below.



Acceptance of Internship

In Yokkaichi Plant, we implement an internship for students of industrial high school every year, participating in "Project to develop human resources to work in local industries" promoted by Mie Prefecture Education Board and Mie Industry Enterprise Support Center (a designated project by the Ministry of Education, Culture, Sports, Science and Technology, and the Ministry of Economy, Trade, and Industry). We hope to be helpful to foster manufacturing personnel by providing students opportunities to experience AvanStrate's technology and skills through lectures and practical training by employees of Yokkaichi Plant so as to raise students' motivation for manufacturing.

Plant Tour of Local Junior High School Students

Yokkaichi Plant makes proactive efforts for having contact with people in the community, aiming to be a friendly local plant. Yokkaichi Plant accepts local junior high school students to visit the plant in cooperation with Nippon Sheet Glass Co., Ltd. every year. Students learn how to produce glass and connection between glass and the society, and the tour of glass processing lines of AvanStrate are also provided. In order to further learn about Yokkaichi Port and its port area, students actually visit facilities and companies, and find how it is or people work there. This is very helpful to understand jobs in the society.





Employee relations

Social Report

Employee

Business of AvanStrate is undeniably operated by employees, and its future will be also built mainly by them. Therefore, we wish to be a company which encourages each employee to grow and develops together with them. The relevant efforts are as follows.



Basic Policy for Employees

AvanStrate is making efforts for creating the environment in which employees can continuously grow in their ability and live with a purpose, based on the basic policy, "fostering a sense of unity to grow individuals and corporate value." We expect our employees to have the attitude as stated below: "Employees find pleasure through working and challenging, and become committed to their jobs, creating new unique ideas everywhere in the organization. Sophisticated creation and innovation exceeding the sum of individual ideas in quantity and quality are produced by stimulating mutual creativity through borderless and open-minded discussion without hierarchy".

Labor Management System

In AvanStrate Group, three business bases in Taiwan, Singapore, and Korea have obtained "OHSAS 18001", occupational health and safety management system standards. With introduction of this management system, the possibility of occurrence of industrial accidents, and its attendant management risks are reduced. Furthermore, we make efforts for achieving healthy organizational management and winning social confidence in the organization while rising employees' satisfactions and motivation, and building favorable working environments.

Labor-management Relationships

Although labor unions have not been formed in AvanStrate Group excluding the Singapore base, favorable labor-management relationships are maintained in each base. We will keep good relationships between "the Company" and "employees", aiming to be a socially reliable company.

Global Personnel System

AvanStrate Group further promotes optimum assignment of employees to improve corporate competitiveness, and activate foreign human resources accounting for over a half of all employees. We also aim to organize global personnel system while inspiring employees to have international sense and to improve language skills.

Employees Data

	Unit	2008	2009	2010
Employees				
Total number of employees	persons	1,441	1,532	1,737
Male	persons	1,343	1,423	1,602
Female	persons	98	109	135
Regular employees	persons	1,334	1,437	1,611
Temporary employees	persons	107	95	126
Local employees	persons	1,144	1,266	1,402
Average age**	years old	36.8	37.2	37.1
Average service years**	years	6.5	7.6	6.5
Average annual wage**	Thousand yen	6,659	5,907	6,105
Minority				
Employment rate of the disabled	%	0.4	0.5	0.7
Number of employees using the re-employment system	persons	2	4	8
Industrial accidents**				
Frequency rate	%	0.000	0.000	4.500
Severity rate	%	0.000	0.000	0.000
Benefit package				
Number of applicants for childcare leave system	persons	20	24	28

**Only in AvanStrate Inc.

Human Resource Development (Education System)

AvanStrate desires to maximize an organizational growth with creative value which is produced only by pleasure and enthusiasm. Major education systems are as follows:

◆Tutor System

Under the tutor system, a new employee who has been just assigned to his/her workplace after group training for new comers is trained and fostered on the job by a senior employee (tutor) on a one-to-one basis. To be more specific, a new employee, a tutor, and their boss carry out a PDCA cycle together, clarifying the ideal state a year later by preparing "Yearly training plan", "Weekly report", and "Quarterly activity report".

●Objectives of Tutor System

1. Make new employees full-fledged early with one-on-one detailed coaching.
2. Encourage new employees to early adapt to their workplace and autonomously grow while a familiar senior employee eliminates their worries and anxieties.
3. Implement OJT systematically and surely by clarifying a person to take care of a certain new employee.
4. Cultivate corporate culture in which they can grow with new comers by making senior employees have a consciousness of being a coach or instructor.

◆Self-development Program

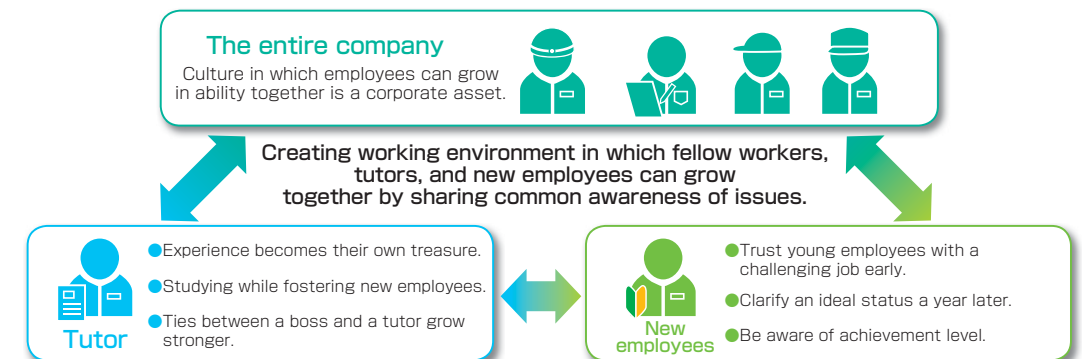
Employees' own motivation to learn is totally supported. Abundant menus of correspondence courses which are helpful at work are available. Personal computer school and in-house English classes grouped according to ability are also open to employees.

◆Specialized Education

Highly-professional programs including technological training are planned and executed by department. We systematically carry out training programs for statistical methods, presentation ability, how to prepare technical reports, and knowledge of patents, etc. as expertise which all engineers should have, regardless of which department they belong to.

◆Education by position

We have an educational system by position linked with a role and rating system. Abilities and skills required in a certain position are defined and relevant training is systematically implemented. We also carry out flexible and effective education in combination with outside training and correspondence courses.



Column



Personnel and Administration Section
Personnel Team Leader Tsukasa Kobayashi

Serving as a tutor last year, I had a good experience as receiving inquiries about business from new employee's viewpoint sometimes triggered reconsideration of the business. When I saw the new employee whom I coached answering questions from other employees responsibly, I felt greatly satisfied with my role as a tutor. In addition to the tutor system, many educational programs are provided for new employees to facilitate their development. I intend to put emphasis on the creation of better environments as a personnel team leader.



Corporate Governance

Corporate Governance

Simply put, corporate governance is a system to prevent a company from committing misconduct and violating rules. In this section, it is reported how AvanStrate has conducted reliable management for stakeholders.

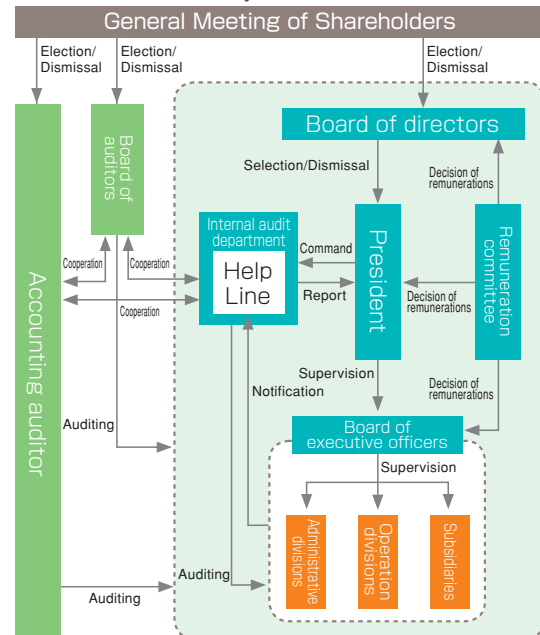
Concept of Corporate Governance

In order to "contribute to the society while establishing our presence" as stated in our management principles, we consider it our challenge to build a system with which we can continue to win trust of stakeholders, such as customers, local communities, and creditors. Moreover, considering that the stability acquired by this corporate governance system contributes to an expansion in AvanStrate's corporate value, as well as corporate continuity which is essential for growth, we have positioned this system as a core of management organization.

Corporate Governance System

AvanStrate is a company with a board of directors and a board of auditors. The board of directors consists of seven directors in total, including a president, two directors, and four outside directors. The board of auditors consists of three auditors in total, including one full-time auditor and two outside auditors. AvanStrate's articles of incorporation provides for director's term of office for one year. In an attempt to ensure appropriate business activities by directors, shareholders' confidence in each director is annually put to test at the ordinary general meeting of shareholders. With introduction of an executive officer system, we also strive to achieve quick execution of business and appropriate management at the same time by clarifying the positions of executive officers to perform operations and directors to supervise management. Remunerations of directors and executive officers are to be decided by the remuneration committee consisting of outside directors so as to prevent management from deciding their remunerations in an arbitrary manner.

■ Chart of Governance System



Internal Control

◆ Basic Policy of Internal Control

AvanStrate established the basic policy of internal control system to ensure appropriate business operations in AvanStrate Group, and has been improving the following systems:

■ Items of the basic policy

- 1 System to ensure that business execution by directors and employees conforms to laws and the articles of incorporation.
- 2 System to ensure proper financial reports.
- 3 System to discontinue relationships with anti-social forces.
- 4 System regarding storage and management of information on business execution by directors.
- 5 Rules related to management of loss crisis and other systems.
- 6 System to ensure efficient business execution by directors.
- 7 System to ensure appropriate business execution in the Group.
- 8 System related to employees requested by statutory auditors to assist in conducting audits, and the independence of such employees from directors.
- 9 System for reporting by directors and employees to statutory auditors, and other systems for reporting to statutory auditors.
- 10 Other systems to ensure effective execution of audits by statutory auditors.

◆ State of enhancing the system to eliminate relationships with anti-social forces

It is AvanStrate's management basic policy that we never have and definitely eliminate relationships with anti-social forces with no exception. Therefore, we formulated "the guideline to deal with anti-social forces," in which it is specified that a director of administration headquarter is responsible for dealing with them. In cases when antisocial forces make contact with the Company, all relevant information shall be reported to the director of administration headquarter. We also provide training for employees to make them deeply aware of the Company's attitude. AvanStrate has built the system to obtain information in cooperation with a relevant police office which we filed report, designating a head of personnel and administration section as responsible person to prevent undue claims.

Risk Management

AvanStrate has provided for risk management rules, and holds the risk committee consisting of directors and executive officers including officers of subsidiaries. The risk committee continuously decreases risks, by assessing extracted business risks to identify which issues to address intensively, taking actions against them, and further reviewing activities for the following steps. Especially for disaster risks including earthquake, we have formulated BCP (Business Continuity Plan) based on the crisis management rules provided separately.



Compliance

Compliance

Compliance means "acting according to laws and regulations". We consider it necessary to gain profits from corporate activities on the premise of conforming to public rules. To say nothing of conforming to rules, there are systems to avoid violating rules. Efforts of AvanStrate are as follows.

Compliance System

Having formulated compliance rules and built a compliance system centering on the administration headquarter, AvanStrate enhances necessary rules and manuals, and provides education for employees. The director of administration headquarter is appointed as an administrator to promote compliance activities. A legal division and other divisions related to each compliance theme jointly implement activities, for example, holding workshops and trying to resolve problems.

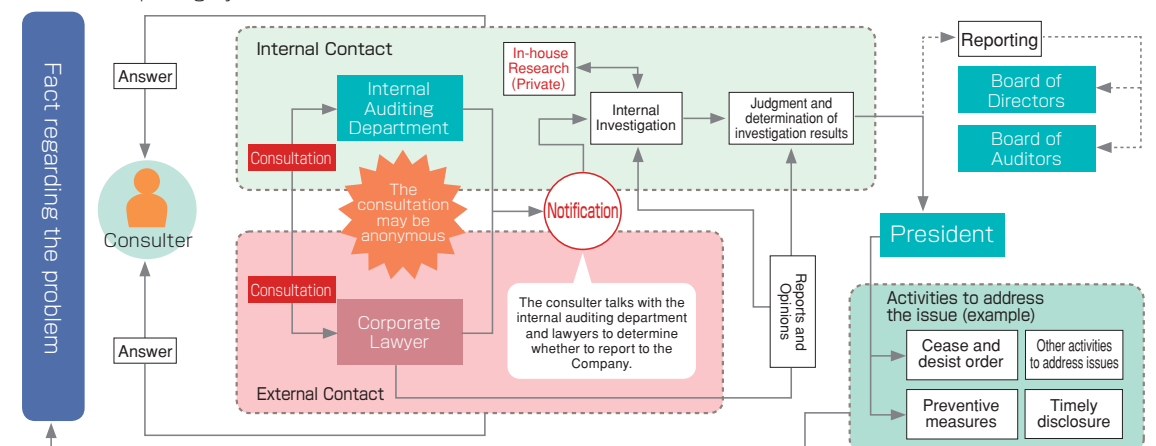
Information Protection and Management

Taking into account the features as a manufacturer, AvanStrate strive to protect intellectual property rights and information on customers and employees, and implement compliance activities regarding other confidential information. In order to improve internal compliance and to ensure transparency, the basic policy for private information was established in 2008. Furthermore, in 2010, we established a guideline for use of Internet, IT data security policy, and a guideline for use of e-mail, and familiarized employees with them. In terms of information security, IT divisions of all bases held a meeting once a month in order to exchange information among bases and improve the level of information security in the entire group.

Internal Reporting System

Help Line is a system to minimize losses caused by problems regarding compliance, etc. which took place in business activities. In this system, those problems are reported to management by employees, and dealt with quickly so as to resolve them within the corporate organization. On the assumption that it can hardly be expected to resolve problems and protect a consumer in an ordinary organizational structure, the internal auditing department and corporate lawyers supervise this system from the standpoint of third parties. Consequently, in principle, information on consumers is investigated and reported confidentially.

■ Internal Reporting System



Yoshito Nakamura

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Certified Public Accountant

Chairman of Research Institute of Accounting for Construction industry
Member of Assessment Committee for Independent Administrative Institutions of Ministry of Defense
Auditor of the Supporting Organization of JOCV
Auditor of Kawasaki City Council of Social Welfare



This year again, I will make third party comments about “Environment•CSR Report 2011” (hereinafter referred to as “the Report”) of AvanStrate Inc. (hereinafter referred to as “the Company”).

In order to report environmental and social activities to stakeholders, the Company publicized a report for the first time in FY2010, and compiled the better one in FY2011. As a special topic, the Report features environmental approaches of AvanStrate Taiwan Inc., an overseas subsidiary in Taiwan, which are equal to ones in Japan. As the production scale of the Taiwan subsidiary is the largest in group companies, its environmental burdens are also considerable. With reports on environmental efforts from local employees, it can be understood that the activities are effectively conducted by managers and employees together.

Environmental Activities

Regarding environmental conservation activities as the most important business issue, the Company explains that it has built and strictly operated an environmental management system related to energy and chemicals used for production of glass for liquid crystal displays and panels.

Consumption of electric power and gas per basic unit of Yokkaichi Plant, a production base in Japan, reduced 14.3% and 13.6%, respectively, exceeding targets for FY2010 of 12% reductions. However, total CO₂ emissions from the Company Group increased. I expect the Company to make further efforts for achieving a 4% reduction of CO₂ emissions per basic unit in FY2011 compared with the figure in FY2007. Since the global demand for end products such as LCD televisions and smart phones is expected to expand in the future, it is considered that the Company's role to supply products will be further important. Under such circumstances, it is considered necessary to surely implement global environmental measures and keep their contents

transparent in order to increase user's confidence and expand corporate value. Therefore, I think further explanations will be necessary in the Report as shown below.

- In relation to environmental activities, include as many quantitative reports as possible, in addition to qualitative accounts. Devise contents, for example, by stating goals, results, and reasons by group company or activity, etc.
- The relation between environmental activities and environmental conservation effects should be explained with accounting values which have not been disclosed in financial information (environmental accounting) to win understanding from creditors and investors.

CSR Activities

As the basic policy for employees, the Company is supposed to foster a sense of unity for growth of individuals and corporate value. As employees are the most important business resource to achieve corporate business goals, I think it is necessary to create the environment in which all people engaged in management and operations can work with motivation. In the Report, a global personnel system and a tutor system to educate new employees are explained to facilitate understanding of specific efforts for employees. In addition, it is desired to explain details of employee's welfare program, survey on satisfaction, and contents of efforts for protecting human rights.

With corporate business goals associating closely with environmental/CSR activities, it is recommended to clarify the process to lead the results of relevant activities to an expansion in corporate value. I hope the details are publicized in the future report. I believe this will win stakeholders' confidence and lead to corporate continuous development.

(The comments do not express opinions on accuracy and completeness of contents stated in the Report.)

For preparation of “Environment•CSR Report 2011”, “GRI Application Level” was applied, which indicates that the Report was made in compliance with GRI Guideline. This objectively indicates how much the framework of “GRI Guideline 2006 (Ver. 3.1) was applied in preparation of a report. Indices of the Guideline and seven core themes of ISO26000 are as follows.

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Editor's Note

Thank you for reading “AvanStrate Environment•CSR Report”.

In preparing the Report, we feel that it is necessary for AvanStrate Group to promote CSR activities further proactively as a whole. Meanwhile, as CSR activities of AvanStrate cannot be sufficiently communicated to stakeholders, we intend to edit a report easier to understand next year.

Finally, we would like to express our thanks for cooperation of people involved in issuance of the Report.

Environment•CSR Report Production Office AvanStrate Inc.