

Survey of Selected Companies on Green Purchasing in Republic of China

EPSON INDUSTRIAL CORPORATION

Seiko Epson Group's Earth-Friendly Concept

The Seiko Epson Group (SEG) investments in Taiwan include Epson Industrial (Taiwan) Corporation and Epson Taiwan Technology & Trading Ltd. The latter company, an Epson sales affiliate, has implemented green purchasing policies for stationery, business cards, and document paper. The former, Epson Industrial (Taiwan) Corporation (EIT) manufactures small and medium-sized liquid crystal displays (LCDs) for cellular phones, pagers, calculators, watches, and other devices for sale in Taiwan, Hong Kong, Japan, Singapore, and South Korea, as well as for markets in Europe and North America. The company has 550 employees as of July 2003. As an SEG member company, EIT is following the SEG green procurement system to establish its own green procurement policy and guidelines.

In 1998, to mark the tenth anniversary of SEG's CFC elimination program, SEG launched a series of new environmental policies and set ambitious environmental targets for all its business activities, from product development to end-of-life recycling. As part of this effort, SEG has implemented a thoroughgoing green purchasing program that focuses on production materials and supplies, enabling SEG to create and provide Earth-friendly products.

SEG Environmental Policy

Philosophy

Epson will integrate environmental considerations into its corporate activities and actively strive to meet high conservation standards in fulfilling its responsibilities as a good corporate citizen.

SEG is engaged in the major activities listed below in order to implement the above environmental philosophy:

Major Activities

- Creating and providing Earth-friendly products
- Transforming processes to reduce their burden on the environment
- Recovering and recycling used products
- Sharing environmental information and contributing to regional and international conservation efforts
- Continually improving the environmental management system

With a policy for saving energy and resources and for eliminating hazardous substances, SEG strives to continually produce environmental products that impose less environmental burdens throughout their product life cycles.

SEG Green Procurement

SEG established green procurement guidelines in 1999, to give priority to the purchase of environmentally-friendly parts. In the first stage, SEG reviews and evaluates suppliers based on their stances on environmental issues, to identify green vendors. In the second stage, SEG reviews and evaluates the level of environmental friendliness of parts targeted for purchasing, and registers them as green parts. In view of the globalization of production, SEG also recognizes the importance of fully implementing green procurement policies overseas. In 2000, SEG held meetings at 15 overseas production sites and commenced a review of green vendors and a survey of parts, including EIT. In Taiwan, EIT is using the SEG method to conduct its own vendor reviews and surveys. SEG has established green procurement standards for production supplies, general supplies, and equipment, and

EIT is implementing these same standards in stages.

SEG Green Procurement Standards for Production Materials

EIT has applied the SEG green procurement standard to production materials in Taiwan to achieve the targets set by SEG. The standard applies to all parts and raw materials, collectively referred to as “production materials.”

SEG/EIT green procurement of production materials refers to preferential procurement of production materials from green vendors.

SEG/EIT green vendors must meet four conditions:

- Certification that products do not contain banned substances (mandatory)
- Certification that substances banned from manufacturing are not used (mandatory)
- Management of industrial waste (flexible)
- ISO 14001 certification and disclosure of environmental policy, activities, implementation plan, and organization

SEG/EIT green production materials must meet the following three conditions:

- Information provided on controlled chemical substances content in supplies (mandatory)
- Product procured from SEG/EIT green vendors
- Paper packaging materials used for supply deliveries must incorporate recycled paper and cannot incorporate PVC

SEG has established detailed procedures and forms for conducting the green vendor survey and green production materials survey. There are 34 chemical substances banned in products (Appendix 1), 32 chemical substances banned from manufacturing (Appendix 2), and 28 controlled chemical substances incorporated in products (Appendix 3).

EIT Green Procurement Achievements

Under the influence of SEG, EIT has implemented green procurement in three areas -- general supplies, production supplies, and equipment.

(1) General Supplies

Criteria

For green procurement of general supplies, EIT focuses on Taiwan’s Green Mark (eco-label) products. There are 19 product types, including toilet tissue, printing paper, paper boxes, name card paper, toilet bowls, LCD monitors, tape, non-mercury batteries, recycled-paper envelopes, detergent, water pigment, refrigerators, washing machines, light bulbs, correcting fluid, and humidifiers.

Mechanism

When items (such as the items listed above) are needed, the people in charge of placing orders at the EIT Production Dept., Facilities Dept., or other departments use the EIT procurement system to ask the Procurement Dept. for the required items. Basically, the person in the Procurement Dept. in charge of procuring the needed materials (one person is assigned to each product category, such as chemicals, electronic parts, etc.) looks for products bearing the Green Mark environmental label, a third-party certification in Taiwan, and then orders the items that best satisfy the performance and characteristics requirements of the department placing the order.

If the green product already has an order history (performance), then the same product will be ordered. But if it is a product to be ordered for the first time, or to be ordered in large quantities, then an optimum product investigation is conducted to determine whether a certified eco-mark product is available.

In cases when the investigation shows that no Green Mark product is available, then the department

may use a Taiwan-made environmentally-friendly product that has not yet received the Green Mark certification. In Taiwan, registration of eco-mark products requires time, money, and the submission of various documents. There are many unregistered products that still utilize recycled paper, exclude toxic chemical substances, or reutilize resources. Such information may be available in product catalogs, etc., and the procurement officer can confirm the information by checking with the sales representative or the manufacturer.

There are special procurement items that are imported from Japan that cannot be classified as production materials. Such items are nevertheless passed on to the customer alongside the EIT products (such as the ink used on packing materials). In these cases, if no appropriate item is locally available in Taiwan, a green product from Japan may be used after due consideration of costs.

Achievement

2002 performance: 17%

2003 performance: 40% (to reach 60% between June 2003 and the end of the fiscal year)

2005 goal: 100%

	FY2000	FY2001	FY2002
Green procurement ratio for general items	10 items per year	15 items per year	20 items per year

Although EIT launched green procurement for general items in 1997, very few products bearing the Green Mark certification were available at that time. As a result, EIT was initially unable to show procurement ratios for either performance or targets, and instead used as the target value the actual number of items obtained each year. 2003 marks the first year that the company actually set a target value for the green product procurement ratio for general items. The target ratios are 60% for 2003, and 100% for 2005. One major impediment to meeting these high target values is the small number of products bearing the Green Mark. In this regard, EIT is considering the following policies:

- Constantly checking the Internet for the latest listings of Taiwan-made eco-products, and immediately utilizing any new items that are on the order demand list.
- For items that can only be obtained in Japan, finding an agency in Taiwan for temporary product procurement until lower-priced certified products can be found in Taiwan.

(2) Production Supplies

Criteria

EIT uses the SEG Green Procurement Standard, including registration of Green Vendors and a list of Green Production Materials.

Mechanism, Prospects

Utilization of the Green Vendor system in Taiwan began in 1997 with a request for cooperation with the certification program that was sent out to all vendors. Procurement priorities by country is currently as follows: Taiwan, 55%; Japan, 20%; and other countries, 25%. For Taiwanese vendors, in particular, EIT sent people to each company to explain the program and also conduct a survey. Certification of all green vendors was completed in October 2002. The green vendors are registered in a database. In some cases, EIT also prefers to conduct on-site inspections to go alongside the survey responses.

For procurement in Japan, the SEG Display Department has prepared a joint database for all SEG companies. Depending on the country, some suppliers are reluctant to cooperate with the survey and certification process, indicating huge variations in environmental awareness between companies in different countries, including the United States. The vendor system will become even more rigorous in the future, with implementation of a stricter survey (starting December 2003). For information about substances used in products, the vendors will be required to submit constituent analysis forms and MSDS (material safety data sheets for chemical substances) for all product materials, and to submit declarations that no items on the Epson list of 31 banned substances are contained in materials or otherwise being used.

Achievement

	FY2000	FY2001	FY2002
Green Vendor ratio	99% (62 companies)	99% (62 companies)	100% (63 companies)

(3) Equipment

Criteria

In liquid crystal display plants like that at EIT, there is a broad mix of equipment ranging from large-scale machines that utilize a lot of water to small manually operated machines. While there are no concrete guidelines for equipment, any order for equipment at EIT must include green product specification requests, such as energy-saving performance, etc. The suppliers are asked to provide information on the environmentally-friendly specifications of their equipment. For example, procurement of heat source parts from an energy-saving viewpoint can include utilization of heat insulating structures, installation of operation functions in energy-saving mode, and increased utilization of high-efficiency parts. In some cases, energy volumes can be specified in accordance with the scale (size) of the facilities.

Achievement

By 2002, EIT had achieved only 8% of the green procurement goal, since it is often difficult to implement green procurement in this area due to difficulties in setting procurement criteria and to a shortage of suppliers. Since demands on production equipment manufacturers usually focus on quality and cost-oriented specifications, there appears to be very little production equipment in Taiwan that takes energy use and recycling into account.

Consideration about higher costs

Green Mark products are usually 10-20% more expensive than ordinary products (including old paper products). Moreover, additional personnel costs arising from extra management tasks require about the equivalent of an additional ¥130,000. Despite these costs, however, EIT is determined to press forward with green procurement to ensure compliance with the SEG environmental philosophy. The prices for general item Green Mark products have come down by about 20-25% in the last two years. Copy paper, for example, cost 97 NT\$ per unit when EIT first began purchasing Green Mark products, but has now dropped to 74 NT\$. It should be noted, however, that uncertified paper, which makes use of old paper, is even cheaper, at 67 NT\$.

EIT's Prospects

In Taiwan, EIT has always taken a leadership role in environmental protection activities. Before 2000, EIT was cautious about disclosing information out of concerns that confidential information could leak out. Since that time, however, the policy has been reversed gradually, in consideration of the company's responsibilities to society. Since 2001, EIT has been selected as a Taiwanese environmental model corporation, and has joined with the Taiwanese government to perform the following activities.

FY2001

- Selected as an ECO index model plant for calculation of the environmental burden of manufacturing plants, disclosing all environmental burdens in the form of plant consumption and emissions. EIT's liquid crystal display plant in Taiwan was reported throughout the world as a model plant for environmental burden disclosure (the plant name was not publicized, however).

FY2002

- Received invitations from other companies to share experiences as a Green Productivity model corporation. Visitors also came to tour the EIT plant, and EIT played an important role of coordinating environmental protection activity efforts among the Taiwanese government,

environmental protection groups of other countries and other environmentally-friendly companies.

- Certified as an environmentally-friendly corporation promoting pollution prevention facilities, and acted at the request of the Taiwanese government to serve as a pollution prevention model corporation, presenting seminars and programs targeted at environment officers in other companies that showcased EIT's pollution prevention management and environmental management systems.

EIT is at a transition period to become a fully-localized company. Even if the corporate structure undergoes changes, however, the environmental philosophy and environmental activities policies will continue to ensure that the company retains its No.1 ranking as an environmentally-friendly corporation.

FORD LIO HO MOTOR COMPANY Ltd.

Ford Conservation Environmental Grants and Environmental Commitment

The global environmental policy of the US Ford Motor Co. Ltd. (abbreviated as Ford) originated from Ford-Ford Conservation and Environmental Grants which was established in England in 1983. During the last 19 years, this Grant has funded approximately 50 countries and 15,000 relevant projects. This Grant has been recognized and praised throughout Europe and is the biggest grant in the world.

Ford's commitment to the environment is to use wisely the materials. Ford's environmental pledge states that Ford is dedicated to providing ingenious environmental solutions that will position Ford as a leader in the automotive industry and care about preserving the environment for future generations.

Environmental activities include global company-wide recycling, cleaner operating vehicles, recyclable vehicle components, cleaner manufacturing, employee involvement in environmental cleanups, alternative fuel and low emission vehicles.

Major recent environmental developments include:

- Corporate Citizenship Strategy: love and appreciation for the world by working to maintain a balance between industry and the environment;
- SUV Fuel-Saver: involvement of Ford in electric vehicle, hybrid electric vehicle and fuel cell, and the first hybrid Sport Utility Vehicle (SUV) was announced;
- Zero Emissions: producing a zero tailpipe emission electric Ranger which has readily available fuel, reduces fuel costs and maintenance, and quite operation;
- Hybrid Electric: the hybrid electric vehicle program is an important of Ford's environmentally friendly vehicles; and
- ISO 14001 Certification: to meet ISO 14001 standards and certify all its plants in the world.

Ford Lio Ho Motor Company Ltd Environmental Activities

Ford Lio Ho Motor Company Ltd. (abbreviated as Ford Lio Ho) is the Ford investment in Taiwan, the Republic of China (ROC) with manufacturing plant producing automobiles supplying ROC and some of the Asian markets. Ford Lio Ho has established its business in Taiwan automobile market for 30 years since 1972.

The major focus of Ford Lio Ho's environmental protection is on design for environment (DfE), pollution prevention (P2) and ecology preservation. Ford Lio Ho's environmental policy is:

- Actively striving to reduce the environmental impacts of the products in the life-cycle of the products from design, use to waste by using low pollution materials and cleaner technology;
- Provide suppliers with necessary information and work with them to enhance recycle, resource reuse and decrease the use of banned substances;
- Through sales to provide clients environmental information and promote DfE; and
- Establish corporate citizenship and share with stakeholders the environmental experience.

Ford Lio Ho has initiated many environmental enhancement programs and received many awards since its inception. Key programs that have been implemented included 5S (since 1972), Kaizen (since 1972), ISO 9000 (since 1996), QS 9000 (since 1998), ISO 14000 (since 1998) and Six Sigma (since 2000).

Ford's Product Development System

Under Ford, there is a global Ford Product Development System (FPDS) which is already implemented in north and south America and Europe. In Asia, this is still under pilot test and Ford

Lio Ho is Ford's Asia design center to carry this pilot test.

Under FPDS, there is an Enterprise Material Management (EMM) which contains four main components:

- International material data system (IMDS): this will be a system on the web to be implemented through procurement department and suppliers have to comply with the material requirements;
- Material toxicology system (MATS): this will be a system performing LCA with reference to toxicology and hazardous substances, under this system there is a restricted substances management system (RSMS) providing an inventory and database of the restricted substances;
- Global material approval process (GMAP): this process involves environmental management system, safety, design and procurement for the approval of materials used in the manufacturing of automobile; and
- Global material integration and reporting (GMIR): this will involve design, procurement and suppliers so as to monitor how the suppliers are responding to the requirements.

It is under the above structure that Ford is generating all the green procurement requirements for its global suppliers. Ford Lio Ho is at the beginning of building this system and this year will be a pilot period and full implementation will be expected to start next year.

Vehicle End-of-Life Directive

As Ford has joint venture in Europe on automotive manufacturing and also forming Vehicle Recycling Partnership in North America with the other two large automobile manufacturing companies, Ford is using the Europe vehicle end-of-life directive as it develops its future automotives. The directives include:

- Manufacturer's certification is required for cars, light trucks, minivans and replacement parts;
- Elimination of non heavy metals (hexavalent chromium, lead, cadmium and mercury) by July 2003;
- Reuse and recyclability of at least 85% average vehicle weight by 2005;
- 100% polymeric parts marking by 2003; and
- Cost free take back for vehicles put on the market after July 2002 and all vehicles after Jan 2007.

Ford Lio Ho's Achievement in Greening of Supply Chain

It is under the FPDS and vehicle end-of-life directive that Ford Lio Ho is implementing greening of supply chain and green procurement to achieve the requirements and targets. So far, FLH has been promoting the following four areas in the greening of supply chain and green procurement:

- Requesting suppliers on plastic parts to mark all plastic materials to facilitate recycling and procurement department has implemented this through the bidding and delivery process;
- Implementing restricted substances management system (RSMS) to control toxic and hazardous materials such as heavy metals and listing the requirements in the procurement contracts;
- Training the suppliers on PU recycling to encourage the suppliers to recycle the PU from end-of-life vehicles and reuse the recycled PU in the new supplies; and
- Requesting first tier suppliers to obtain ISO 14001 certification and 85 suppliers have completed this already.