



GREEN PURCHASING NETWORK MALAYSIA  
2017

# A SAMPLING OF SUCCESSES IN GREEN PUBLIC PROCUREMENT

Case Studies of Green  
Public Procurement  
Implementation in  
Asia-Pacific Countries







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Network Malaysia  
2017**



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We hope the case studies will provide policy makers, trainers and those interested in implementing GPP with insights into the different procurement scenarios and inspiration to improve their green procurement practices.

**Augustine Koh**

Secretary General,  
Green Purchasing Network, Malaysia

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# CASE STUDY 1:

## Improving Supplier Practices Through the Procurement of Green Flexographic Ink for Packaging by Siam Cement Group Thailand

**COUNTRY:** Thailand

**PROCURING ENTITY:** Siam Cement Group (SCG)

**YEAR OF THE CONTRACT:** 2015

**SIZE OF THE CONTRACT FOR FLEXO INK:** About  
240 Million Baht (6.76 Million USD)

## OVERVIEW OF THE PROCUREMENT OF GREEN FLEXO INK BY SIAM CEMENT GROUP (SCG)

SCG's green procurement work is well established. It began in 2004, with the commitment to purchase from suppliers that were environmentally friendly. SCG was the first Thai company to publish its own "Guidelines for Green Procurement," which include green purchasing criteria for products and services. They have also established a Green Procurement Committee, and have systems in place to assist suppliers with green capacity development through their "Greening the Supply Chain" program.

Flexographic (or "flexo") ink is the most important material input for SCG Packaging (a division of SCG). SCG identified the purchase of ink used in water based flexographic printing as a potential target for Green Procurement, since the chemical content of conventional ink has environmental impacts. SCG has set up criteria for the ink used in printing and has developed an audit procedure for the supplier side to check for compliance with the criteria.

Flexo ink suppliers were screened and assisted through a rigorous process to ensure they met the requirements for green flexo ink production, including a pre-visit, to establish baselines, and auditing against tailored criteria that were developed for flexo ink suppliers by SCG. Upon completion of the audit, six out of the seven flexo printing ink companies passed the certification criteria, and were added to the register of eligible suppliers to SCG. In the processes of many companies, this would have been the end of the story; however, in the case of SCG, the unsuccessful supplier was provided with consulting and training to improve their practices, through SCG's innovative supplier engagement program. Following this period of improvement, the supplier had an opportunity to undergo a re-audit, which they passed.

As a result of SCG's engagement with suppliers of flexo ink, they not only reaped the benefits of procuring more environmentally and health friendly inputs, but they also elevated the practices of a supplier, resulting in improved health and safety practices, reduced indoor air pollution, improved chemical storage and waste management, the addition of water conservation measures, and savings in colour content used in their inks.

The work ultimately resulted in numerous benefits to the environment and society, including:

- **Reduced environmental impacts from chemical spilling and waste water.**
- **Reduction in toxic substances.**
- **Reduction in waste.**
- **Support and promotion of environmentally-friendly production processes.**
- **Growth of the environmentally-friendly product market.**

## BACKGROUND

### *The Context for Green Procurement & Packaging in Thailand*

The Royal Thai Government approved the **1<sup>st</sup> Green Public Procurement Promotion Plan (GPP Plan)** in 2008. It targeted approximately 170 central government agencies and departments within the Ministry of Natural Resources and Environment (MNRE).

The **2<sup>nd</sup> GPP Promotion Plan (2012-16)** was extended to private organizations as well. The groups targeted by the 2<sup>nd</sup> Plan included departments (both within ministries and municipalities), state enterprises, public organizations, universities, the private sector (production, services, and distributors), and the general public.

The private sector is a main economic driver in Thailand and can contribute significantly to the implementation of organizational green procurement policy. Some private organizations initiated green procurement programs in response to GPP regulations and initiatives by the government surrounding the 2<sup>nd</sup> GPP Promotion Plan (2012-16). One of these private organizations is the Siam Cement Group (SCG). SCG's work is used as an illustrative example in this case study, which focuses on mitigating the negative environmental effects of packaging waste.

Solid waste management has been and continues to be a challenging environmental issue for Thailand. Packaging waste is one of the major contributors to solid waste in Thailand. A 2013 survey revealed that about 25% of glass containers, 25% of paper packaging and 50% of plastic packaging waste was not being recycled and continued to end up at the landfill.<sup>1</sup>

In Thailand, the majority of products purchased under Green Public Procurement (GPP) are office supplies and equipment – printing paper, toilet rolls, envelopes, whiteboard markers, photocopiers, file boxes, printers, printer toner, liquid paper, file folders, fluorescent lamps, batteries, building paints, and steel furniture – which all require packaging and thus contribute to packaging waste. Therefore, any efforts to improve the environmental quality of packaging products can have substantial benefits.

### *The Siam Cement Group (SCG)*

The Siam Cement Public Company Limited (SCG) is the largest cement company in Thailand. It is listed on the Stock Exchange of Thailand (SET). In 2011, it was also ranked as the 2<sup>nd</sup> largest company in Thailand.

It was founded by the royal decree of King Vajiravudh (King Rama VI) in 1913. Since then, the company has expanded into various businesses with three core business units: SCG Chemicals, SCG Packaging, and SCG Cement-Building Materials.

SCG is composed of over 100 companies under their three business groups, employing approximately 51,000 employees, and handling more than 64,000 product items. The products are marketed domestically and exported to all regions of the world. Most companies in the group have been accredited with **ISO 9002** certification for **quality management**, **ISO 14001** certification for **environmental management**, and **TIS 18001** certification for **occupational health and safety** management. SCG has also received national and international awards in various areas.

### *SCG & Sustainability<sup>2</sup>*

SCG's sustainability initiatives started as early as 1991 with their Environmental Conservation and Safety policy. In 1997, SCG initiated **ISO 14001 certification for Environmental Management Systems** in its

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<sup>1</sup> The Federation of Thai Industries and Thammasat University. (2013), Thailand packaging recycle project. Retrieved from <http://www.energysavingmedia.com/news/page.php?a=10&n=109&cno=6111>

<sup>2</sup> Siam Cement Group (SCG). 2015. Sustainability Report. Retrieved from [http://www.scg.co.th/en/05sustainability\\_development/03\\_sustainability\\_report.html](http://www.scg.co.th/en/05sustainability_development/03_sustainability_report.html)



companies, and received its first **Thai Green Label** in 1998 for printing paper. SCG published its first environmental report in 2001. In 2004 SCG became a member of the **Dow Jones Sustainability Index (DJSI)** in the Building Materials & Fixtures category. In 2005, SCG published **Sustainable Development Guidelines**.<sup>3</sup>

SCG seeks to conduct business in a sustainable manner by **considering benefits and impacts to all stakeholders** through the **concept of “3Gs”**: Green Product, Green Process and Green Mind.

**Green Product** adds environmental value to existing products (by developing more environmentally friendly products) and helps expand the product range with new items.

**Green Process** fosters the development of less energy-intensive production technologies that use alternative resources and recycling, waste as raw materials, or that run on renewable energy.

**Green Mind** builds environmental awareness through CSR projects targeted at employees and consumers.

### Evolution of Green Procurement Practices at SCG

**2004:** Guidelines for Green Procurement

**2005:** Guidelines for Sustainability Development

**2006:** Greening Supply Chain Program

**2007:** SCG Contractor Safety Certification System (SCS)

**2009:** SCG Eco Value Label, Carbon Reduction Label, Carbon Footprint Label

**2010:** Stakeholder Engagement Policy

**2012:** Green Building Products Handbook

### Green Procurement & Ecolabelling Activities at SCG

SCG started its Green Procurement program in 2004, by making a commitment to purchase from suppliers that were environmentally friendly. SCG was the first Thai company to publish its own “Guidelines for Green Procurement”.

To operationalize the Green Procurement policy, SCG set up a **Green Procurement Committee**. The Green Procurement Committee along with the business unit’s purchasing divisions developed the **Green Procurement Guidelines** (<http://www.scg.co.th/pdf/en/Green-Procurement.pdf> ; Figure 1), , which included **purchasing criteria for products and services**.

These criteria were developed with the **consideration of lifecycle impacts** of the raw materials, spare parts, and products, and comprise: regulatory compliance, efficient use of energy and natural resources, green manufacturing processes, waste management and material recycling and reuse.

The Green Procurement criteria include the use of **Ecolabels (Thai Green Label)**, other similar certification tools, or the SCG Green Procurement Standard to certify raw materials, spare parts, and products as Green Products.

At the early stages of this initiative, only a few suppliers could meet the green requirements. Thus, the “Greening the Supply Chain” program was introduced to address gaps in supplier readiness.



Figure 1: Guidelines for Green Procurement

<sup>3</sup> Siam Cement Group (SCG). Sustainable Development Guidelines. Retrieved from [https://www.unglobalcompact.org/system/attachments/22827/original/SCG\\_Sustainable\\_Development\\_Guidelines.pdf?1372062492](https://www.unglobalcompact.org/system/attachments/22827/original/SCG_Sustainable_Development_Guidelines.pdf?1372062492)

In 2006, SCG launched the “**Greening the Supply Chain**” program, which offers expertise, consultancy, incentives, and encouragement to its suppliers to help them implement environmental management systems and safety measures.

Realizing the significance of environmental management throughout the supply chain, SCG’s Sustainable Development Committee agreed to merge the Greening the Supply Chain program with SCG Green Procurement to help suppliers who failed to meet the criteria for SCG Green Procurement in 2007. Under the Greening the Supply Chain program, SCG communicates with suppliers about the SCG Guidelines for Green Procurement. SCG and suppliers together reviews the criteria to improve environmental performance both for production processes and products. The criteria are approved and put into action after the review by SCG and suppliers.

### ***The Procurement of Flexographic Ink by SCG Packaging***

The procurement of green flexographic (or “flexo”) ink by SCG Packaging provides an illustrative example of how Green Procurement is implemented by SCG. SCG Packaging manufactures and supplies a complete range of paper products and packaging paper as the largest paper manufacturer in ASEAN. SCG Packaging is comprised of 2 main businesses: (i) packaging chain and (ii) fibrous chain. Flexo ink is the major raw material used in packaging production.

SCG has striven to continuously expand its business scope, while pursuing a sustainable development approach throughout product life cycle. Accordingly, SCG identified the purchase of ink used in water based flexographic printing (environmental and health friendly ink) as a potential target for Green Procurement, since the chemical content of conventional ink has environmental impacts. In flexographic printing, the most commonly used ink is water-based, although solvent-based and UV curable inks can also be used. Using water-based inks is much more environmentally friendly, as they have lower levels of volatile organic compound (VOC). However, the water-based inks can also cause problems when printing on certain materials.<sup>4</sup> SCG has set up criteria for the ink used in printing and has developed an audit procedure for the supplier side to check for compliance with the criteria.

SCG Suppliers are evaluated on the basis of environmental impacts throughout product lifecycle, and the quality of products supplied must meet Thai Industrial Standards (TISs) (available in Thai at [http://www2.rid.go.th/research/vijais/moa/fulltext/TIS2363\\_5-2550.pdf](http://www2.rid.go.th/research/vijais/moa/fulltext/TIS2363_5-2550.pdf)). Suppliers are engaged and are provided help in achieving the standards through SCG’s “Greening the Supply Chain” program.

In the case of flexo printing ink, supplier evaluation under the Greening the Supply Chain program included:

**1. Pre-visits:** Before initiating the “Greening the Supply Chain” process, pre-visits to suppliers were carried out to **understand** the baseline and **current practices related to resources, environmental and safety issues**. The following data was collected for one supplier of flexo ink:

#### ***Chemical Substance Management:***

- There were no records of MSDS (material safety data sheets), nor was guidance provided on practices for using chemicals correctly in production processes.
- The chemical mixing tank (water, acrylic polymer, pigment, and additives) was open-system. The odor and dust from chemical substances was causing indoor air pollution in the workplace.
- The chemical substances for production were kept alongside flammable substances, causing a risk of fire.

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<sup>4</sup> Kelsey Burgett. Cal Poly TAGA (February 17, 2016). Sustainability in Packaging. Retrieved from <http://www.calpolytaga.com/services/paper-2/>



#### CHEMICAL SUBSTANCES STORAGE

- There was no safety bund wall to protect the environment from chemical contamination.
- There were no personal safety practices in place.

#### Water Management:

- There were no practices in place to conserve water.
- The amount of wastewater was greater than the treatment capacity of the wastewater treatment plant.
- There was no guidance in place for practices to manage the wastewater treatment plant (maintenance, water quality control, sludge management).



#### WASTEWATER TREATMENT PLANT

- There were no water reuse and recycling practices used by the company.

#### Waste Management:

- There was no 3R ("reduce, reuse, recycle") policy in place.
- There were no practices in place to reduce waste in the production process. The waste from the mixing tank spilled onto the workplace floor.



#### WASTE FROM PRODUCTION PROCESS ON FLOOR

- There were no solid waste management practices. Hazardous waste, solid waste and reusable or recyclable waste were not separated or properly managed.





WASTE STORAGE

**Resource Loss and Efficiency Control:**

- Ink color did not meet SCG's specification.

**2. Creating Criteria:** Specific lifecycle evaluation questions were formulated for flexo printing ink.

## PRODUCT LIFE CYCLE EVALUATION FOR FLEXO PRINTING INK

### SYSTEM

- Has the supplier set an environmental policy?
- Has the supplier set an Environmental Management System?

### PRE-PRODUCTION

- How is raw material quality to be maintained?
- How is spilled raw material to be managed?
- Are there toxic substances in raw materials?
- How are toxic substances to be controlled?

### PRODUCTION

- Does the organization implement laws and regulations completely?
- How are resource loss and efficiency controlled?
- How can environmental impacts, such as, odor, noise, and dust, be reduced?

### DISPOSAL

- How is waste separated and managed?
- How can waste (water, sludge, ink bag) be managed?

### USAGE

- Does the product generate pollution during its utilization phase? How can pollution be managed?
- Does the product contain chemicals banned by international standards or consumer requirements\*?
- Can the product be reused?

\*Consumer requirements: For example, the company may protect wooden pallets from termites using solutions without human health risks for which consumer health and safety requirements are sometimes more stringent than international standards.

**3. Audits:** The supplier audit was carried out and **scores were assigned** based on the outcomes of these audits. In the auditing process, the following scoring system is used:

- **A = 81-100 – Pass:** suppliers qualify for the GPP program.
- **B = 61-80 – Pass with monitoring:** suppliers qualify for the GPP program, but need to be monitored on certain aspects.
- **C < 61 – Must improve:** Suppliers need support and guidance to qualify under the GPP program.















Six out of the seven flexo printing ink companies that were audited by SCG passed the certification criteria while one company was not able to pass.

COMPANY	A	B	C	D	E	F	G
AUDIT RESULT (SCORE)	A 94	A 88	A 94	B 75	B 75	B 68	NOT PASS 23

**4. Consulting and Training:** If the supplier does not pass the audit, the SCG experts give **recommendations regarding ways to improve** the supplier's performance on identified deficiencies. In the case of the company for which results of the pre-visit are profiled above, recommendations included suggested improvements to wastewater management, chemical substance management and solid waste management, as well as the establishment of adequate health and safety protocols and guidance.



**5. Re-audit:** To **evaluate the improvements and corrections** made by the initially unsuccessful supplier, the SCG team conducted a re-audit and assigned a revised score.

ISSUE	BEFORE	AFTER	
<b>Chemical Substance Management</b>	- No MSDS or guide of management practices	- Provide MSDS and guide of practices board	
	- Open chemical mixing system	- Installed closed chemical mixing system (changed to an automatic mixing system)	
	- Odor and dust pollution from chemicals emitted into workplace	- Measure the concentration of chemical pollution in workplace - Installed an air pollution treatment system and controller	
	- Unsafe chemical substances storage	- Built chemical storage area - Store flammable substances separately from other chemical substances and prepared a fire fighting system.	
	- Ineffective personal safety	- Set safety standards and practices for employees - Created a safety committee to control the safety system in the company	
<b>Water Management</b>	- No wastewater treatment plant management	- Installed wastewater management processes - Monitor wastewater quality control	
	- No water conservation practices	- Mix the water from the wastewater treatment plant and tap water at a ratio of 30:70 for watering trees. - Implement the 5S activity (SEIRI=Clearing Up, SEITON=Organizing, SEISO=Cleaning, SEIKETSU=Standardizing and SHITSUKE=Training & Discipline) to save water in the company (e.g., guidance on how to wash in a manner that saves water).	 
<b>Waste Management</b>	- No practices to reduce waste in the production process	- Installed automatic mixing technology	
	- No solid waste management	- Separate waste into different types of waste: • Hazardous waste • Solid waste • Reuse of rags	
<b>Resource Loss and Efficiency Control</b>	Ink color shade did not meet SCG's specification.	- Solved color distortion in ink that caused color remixing - Reduced 25 % of color remixing, and saved 110 kg per year of color content as a result	 



**6. Registration in “Green Product List”:** The qualified suppliers are included in the Green Product List and are eligible to participate in the bidding process.

## RESULTS

Benefits of the Procurement of Green Flexo Ink to SCG and Other Key Stakeholders

### For SCG:

- Increase in green products by supporting water based flexo printing ink production.
- Increase in the number of suppliers following SCG’s criteria to support SCG’s demand.
- Build and maintain good relationships with suppliers.

### For Flexo Ink Suppliers:

- Cost reductions from reduced raw material use, waste reduction, and effective waste water treatment: raw materials will be supervised in the pre-production phase to reduce spilled raw materials.
- Improved efficiency in the consumption of resources: raw materials, water and energy are audited and managed. The manufacturing waste will be managed and reduced.
- Reduced hazardous waste management costs: hazardous waste from the production process will be separated and treated; the amount of waste and cost for the management of hazardous waste are reduced; about 30% of treated wastewater is then reused.
- Improved work place environment: there is an overall reduction in the risk at the workplace, resulting in reduced employee turnover; employees can work more effectively and there is a reduced risk of worker complaints.
- Continuous improvement of their products.
- Increased opportunities to access the market of green consumers and companies: suppliers producing green materials and products can sell their more competitive products not only to SCG but also to other manufacturers.

### For the Environment and Society:

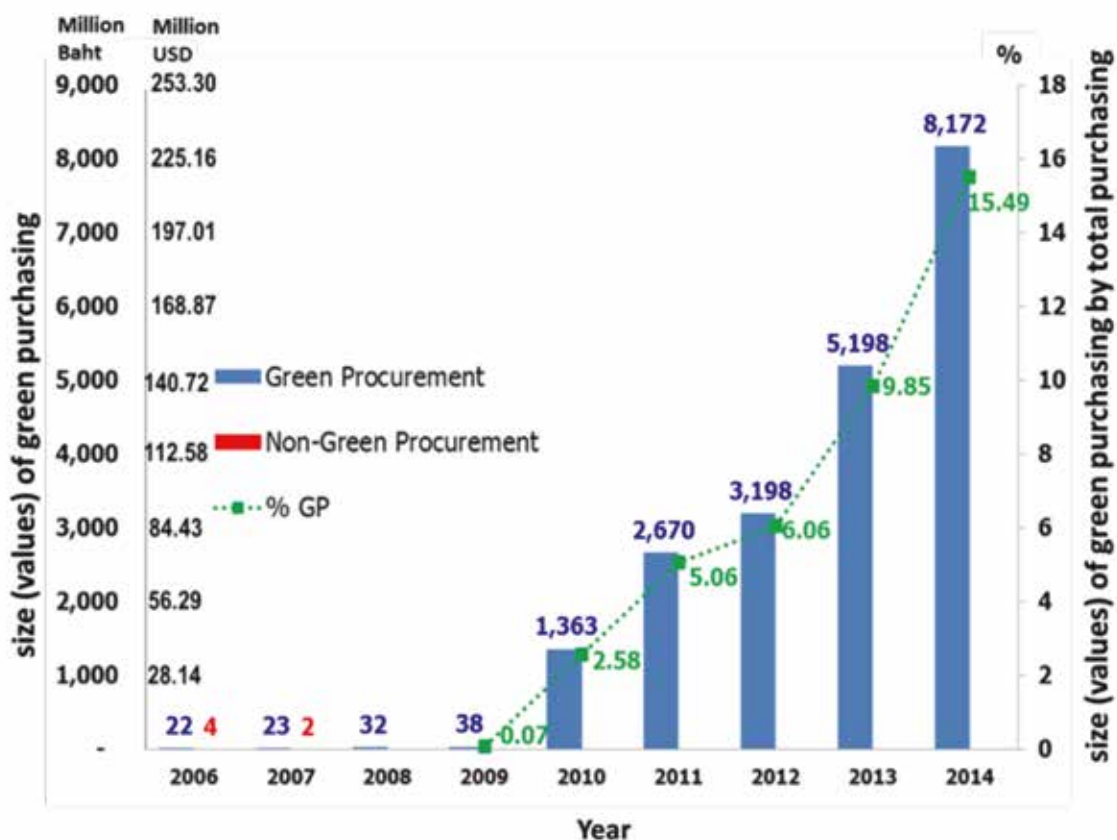
- Reduced environmental impacts from chemical spilling and waste water.
- Reduction in toxic substances.
- Reduction in waste.
- Support and promotion of environmentally-friendly production processes.
- Growth of the environmentally-friendly product market.

## General Results and Benefits of SCG’s Green Procurement Work

According to 2014 statistics on Green Procurement Products, there were **72 products with 724 models** designated in SCG’s procurement list as shown in figure 2 below. The volume of green procurement amounted to 8,172 Million Baht (233Million USD) and over 90 MB/y (2,566,729 USD/y) in cost reduction for suppliers due to the improvement of their practices through the “Greening the Supply Chain” program (e.g., through reductions in the quantity of new raw materials or spare parts required as well as improvements in energy and water efficiency).

The share of green purchasing in total purchasing (%GP) in 2014 was 14.49% as shown in Table 1 below.

Figure 2: Value and share Green Procurement at SCG (2014)



The Green Procurement and non-green procurement values for contracts awarded in 2014 by different SCG business units are shown in Table 1 below.

Table 1: Total Procurement Value for (Green and Non-Green Procurement)

GOODS/ SERVICES	SIZE OF THE CONTRACT (MILLION BAHT / MILLION USD)				
	CEMENT- BUILDING MATERIALS	CHEMICALS	PACKAGING	CORPORATE	SCG
NON-GP	0	0	0	0	0
GP	2,162 / 60.84	807 / 22.71	5,168 / 145.45	35 / 0.98	8,172 / 230.00
TOTAL	2,162 / 60.84	807 / 22.71	5,168 / 145.45	35 / 0.98	8,172 / 230.00

As of 2015, a total of 189 suppliers were registered in the green procurement list, covering 75 products and accounting for 9,838 Million Baht (280 Million USD) of green purchasing volume (see Figure 3).

Figure 3: Green Procurement Product Status and Number of Green Procurement List in 2015



Source: SCG, 2015, Sustainability Report 2015. Retrieved from [http://www.scg.co.th/en/05sustainability\\_development/03\\_sustainability\\_report.html](http://www.scg.co.th/en/05sustainability_development/03_sustainability_report.html)

## CHALLENGES & SUCCESS FACTORS

### Key Challenges

**1. Raising Green Procurement awareness throughout the product lifecycle:** SCG has continuously expanded its businesses in accordance with the application of a sustainable development approach throughout the lifecycle of its products. However, communicating the environmental aspect of procurement is difficult. Therefore, it is important for SCG to develop strategies to encourage stakeholders throughout product life cycle to raise environmental awareness and develop a shared, common sustainable vision for development.

**2. No sector-specific list for procurement:** Currently, the Government Green Procurement policy does not provide procurement lists adapted to all sectors including the private sector. Therefore, SCG has to develop their own solutions for green procurement to be in line with the organization's policy.

**3. Maintenance of standards for designated products in the procurement list:** SCG has managed to incentivize its supply chain to provide 'green' raw materials such as environmentally friendly ink. However, maintaining the ink quality standards is very challenging since an effective procurement system requires all stakeholders, including purchasing officers and suppliers, to have a common understanding of the green procurement policy. In addition, as new suppliers are continually sourced, SCG has to communicate and implement its green purchasing policy to those suppliers on an on-going basis. Therefore, to maintain ink quality standards, effective monitoring and evaluating systems have become critical. SCG has implemented a surveillance or re-visit program



for the suppliers in which suppliers are re-audited every 3 years to ensure that they can continue to maintain satisfactory production process and product quality.

### **Key Success Factors**

SCG has managed to implement **a successful green procurement program**, with excellent results. The procurement of green flexo ink is situated in the context of this program. Their success can be attributed to the following factors:

**1. Commitment from Senior Management and the Board:** SCG's senior management and Board endorsed the green procurement program as an important group-wide initiative. Such a clear **top-level commitment** gave a **strong motivation** to all the concerned staff to **work towards achieving the targets**.

**2. Systematic Approach to Design and Implementation:** Along with strong top management commitment, SCG developed a management system for green procurement. The systematic design approach focuses on environmental and social issues that significantly affect the supplier's business. The supplier will see clearly their business risks and opportunities. Consequently, the supplier will continuously improve their performance. This systems-based approach was the key factor conducive to a successful implementation of this program, as well as its long-term viability.

**3. Communication, Training and Awareness:** SCG's green procurement initiatives required support from a large number of internal and external parties. To create awareness about this new initiative and seek their involvement and commitment, SCG carefully developed a communication, training and awareness program. Without these sustained efforts, SCG's green procurement program would not have been a success.

**4. Product Selection:** As part of its corporate commitment, every year SCG sets targets for green procurement. Targets are set for the total value of purchases and/or the environmental and safety-related key performance indicators. To achieve these targets, SCG carefully selected the products covered under the green procurement program, such that it could meet all the targets. For example, products with high value or high consumption rates were selected (e.g. office stationary); together with those that could result in significant environmental benefits (e.g. energy-efficient equipment). This combination ensured the success of the program by achieving the targets year on year. For example, SCG has tried to develop a "Green Supply Chain" for their material inputs, for instance the ink used for printing. The greening of the supply chain is important in the case of ink use because of the environmental and human health impacts brought about by chemicals contained in the ink. As a result, SCG has adapted the supply chain for the production of an environmentally friendly ink, and has designated the selected environmentally friendly inks in their Green Procurement list. In addition, Flexo ink is main raw material used by SCG Packaging. Without green Flexo ink, the packaging business cannot operate. Moreover, Flexo ink on the packaging (environmentally-friendly packaging) reflects the quality and performance of the the organization, and affects customers' perception of SCG.

**5. Readiness of Suppliers to Engage & Improve:** Another important factor for the success of SCG's green procurement program was the readiness of suppliers to make necessary changes, to meet the additional "green" requirements. SCG's support of suppliers (training and technical advice) alongside the commitment and efforts made by the suppliers, ensured the success of SCG's green procurement and resulted in a win-win situation for both sides.



# CASE STUDY 2:

## The Procurement of Fire Extinguishers by Central Ministries in Japan

**COUNTRY:** Japan

**PROCURING ENTITY:** Central Ministries in Japan

**SIZE OF PROCUREMENT:** 40,858 units of fire extinguishers (GPP)

**SIZE OF THE MARKET FOR FIRE**

**EXTINGUISHERS:** 6,000,000 units of fire extinguishers

**EVOLUTION OF THE OVERALL MARKET SHARE**

**FOR GREEN PRODUCTS:** Increased from 46.0% in 2006 to 67.3% in 2013



## OVERVIEW OF THE PROCUREMENT OF FIRE EXTINGUISHERS BY CENTRAL MINISTRIES IN JAPAN

The procurement of Fire Extinguishers by the Central Ministries of Japan has been selected as an illustrative example of GPP, as the size of the market for Fire Extinguishers is moderately large in Japan and it has demonstrated a positive market transition to Green Products.

The GPP evaluation criteria for Fire Extinguishers are mainly based on Eco Mark certification criteria and take into account the whole lifecycle of the product. Fire extinguishers meet GPP criteria if the fire protection fluids they contain are made of at least 40% recycled materials, and there is a system in place for the collection and reuse/recycling of used materials, as well as a system for the proper disposal of components that cannot be reused or recycled. There are also several additional considerations, including the use of recycled plastics, the levels of VOCs in solvents or coatings, and the reduction of packaging.

The implementation of GPP is not mandatory at the local level in Japan, which poses a challenge for wide-ranging and consistent implementation. However, the country does have some key success factors in place, including a strong institutionalized legal framework for GPP, and the wide availability of information about ecolabeled products.

### Results

As of 2013, the total number of Fire Extinguishers procured was 41,244 units, 40,858 units of which met GPP criteria. The Procurement rate for Fire Extinguishers meeting the GPP criteria was thus 99.1%. As a result of market influence exerted by GPP, the proportion of Fire Extinguishers meeting GPP requirements to the overall fire extinguisher market in Japan increased from 46.0% in 2006 to 67.3% in 2013.

Positive impacts for suppliers include reduced costs from a decreased use of raw materials and waste reduction, improved products, and increased opportunities arising from the developing market for green products and changing consumption trends. The societal and environmental benefits include reduced waste and the support, promotion, and stimulation of the market for environmentally-friendly processes and products.

## BACKGROUND

Japan was the first Asian country to establish a Green Procurement (GP) policy. The policy activities began with the establishment of an ecolabelling scheme by the Japan Environment Association (with guidance from the Environment Agency). This was followed by the launch of several Green Procurement initiatives. The most important policies and plans for GPP are as follows:

In 1993, the “**Basic Environment Act**” (Act no. 91 of 19 November 1993) was enacted to promote the use of goods and services that help reduce environmental impacts.

In 1995, the Government of Japan adopted the first “**Action Plan for Greening of Government Operations**” which included Green Public Procurement (GPP) commitments and reporting requirements.

In January 2001, the “**Act on Promotion of Procurement of Eco-Friendly Goods and Services**” (“Law on Promoting Green Purchasing” required the government to establish a Basic Policy) came into force.<sup>5</sup>

<sup>5</sup> Ministry of Environment. Basic Policy on Promoting Green Purchasing. Retrieved from <https://www.env.go.jp/en/laws/policy/green/2.pdf>

After the enforcement of the “Act on Promoting Green Purchasing,” the Japanese government issued the first **Basic Policy** and a **list of 101 designated goods** along with procurement standards.

The Ministry of Environment (MoE) is the main government agency in charge of implementing GPP in Japan and is responsible for the development and implementation of all environmental policies and laws. MoE has developed GPP guidelines as per the Basic Policy for the facilitation of the implementation process. These guidelines are used by all government agencies when procuring the designated products.

Since 2001, when Green Public Procurement (GPP) became mandatory for central government ministries in Japan, all governmental institutions have been required to implement GPP and to report the results to the Ministry of Environment (MoE) every year. The aim is to reduce environmental impacts and to promote awareness and green purchasing activities among suppliers and citizens.

In this case study, the procurement of Fire Extinguishers by the Central Ministries of Japan has been selected as an illustrative example of GPP, as the size of the market for Fire Extinguishers is moderately large in Japan and it has demonstrated a positive market transition to Green Products.

The procurement of Fire Extinguishers by central ministries was conducted in accordance with the GPP guidelines. As per the “**Act on Green Purchasing**,” the ministries report results back to the Ministry of Environment (MoE) for the compilation of procurement results.

## GREEN PUBLIC PROCUREMENT OF FIRE EXTINGUISHERS BY CENTRAL MINISTRIES IN JAPAN

According to the “Act on Promoting Green Purchasing”, **GPP is mandatory for all central government agencies**. The ministries and agencies are required to procure goods and services that meet the “**Evaluation Criteria**” specified in the **Basic Policy**.

As per the “Act on Promoting Green Purchasing”, each ministry and administrative agency is required to **establish its own procurement plan** for Green Purchasing.

Figure 1: GPP Process as per the Act on Promoting Green Purchasing



Following the revision of criteria, MoE organizes seminars to disseminate information regarding revised GPP criteria before the revised GPP policy comes into effect. As of the 2015 version of the Basic Policy, 21 product categories have been identified as targets for Green Purchasing.

### *GPP Criteria for Fire Extinguishers*

The **evaluation criteria** for Fire Extinguishers are mainly **based on Eco Mark certification** criteria and take into account the **whole lifecycle of the product**. The Eco Mark label is recommended for reference to meet the evaluation criteria.

The evaluation criteria for Fire extinguishers include ABC powder extinguishers,<sup>6</sup> but do not include aerosol handy fire extinguishers, fire extinguishers for ships, or fire extinguishers for aircrafts. The criteria also include the replacement of the fire protection fluid to be used during inspection.<sup>7</sup>

The GPP criteria<sup>8</sup> for Fire Extinguishers include:

1. Fire protection fluids must be based at least on 40% recycled material.
2. A system should be in place for the collection and reuse/recycling of used materials, as well as a system for the proper disposal of components which cannot be reused or recycled.

### **Factors for Consideration**

1. The item is designed so that it can be **easily dismantled** and its materials separated **to facilitate** either **reuse of components or recycling of materials**.
2. The item uses as much recycled plastic as possible when plastic components are used.
3. Organic solvents, or paints used in coating should have the lowest emissions possible.
4. Packaging and storage is to be as simple as possible and take into account **ease of recycling and reduced environmental impact** upon disposal.
5. A **system for the collection** and reuse/recycling of packaging, etc. is considered.

The full GPP evaluation criteria for Fire Extinguishers are available on the MoE website <https://www.env.go.jp/en/laws/policy/green/2.pdf>.

### *The GPP Process*

In Japan, most of the government procurement is conducted **via competitive tendering** procedures, with the participation of qualified suppliers. During the procurement process, bids from suppliers are evaluated based on the compliance of their products with GPP criteria. When products from suppliers do not satisfy the GPP criteria, they are not permitted to participate in the bidding. The GPP evaluation criteria mainly align with Eco Mark ecolabel criteria. Eco Mark criteria for fire extinguishers are available at <http://www.ecomark.jp/english/pdf/127eC2.pdf>

<sup>6</sup> ABC powder extinguishers are powder fire extinguishers complying with the "Ordinance to determine technical standards for fire extinguishers (Ministry of Home Affairs Ordinance 27, September 17, 1964)", applicable to all Class A, Class B and Class C (Electrical equipment) extinguishers

<sup>7</sup> Ministry of Environment. Basic Policy on Promoting Green Purchasing. Retrieved from <https://www.env.go.jp/en/laws/policy/green/2.pdf>

<sup>8</sup> Ministry of Environment. Basic Policy on Promoting Green Purchasing. Retrieved from <https://www.env.go.jp/en/laws/policy/green/2.pdf>

As a part of the tendering and procurement process, **each procuring entity primarily checks whether designated products** being procured **satisfy the GPP criteria** (for example, as described above for fire extinguishers).

The verification of GPP requirements as stipulated in procurement contracts is done by self-declaration: on the basis of the list provided by MoE, the manufacturer declares whether the product meets the evaluation criteria (including those related specifically to environment and compliance).

To facilitate the self-declaration process, MoE has issued two guidelines, namely:

- (i) The “Guideline for Environmental Performance Indicators<sup>9</sup>” <https://www.env.go.jp/policy/hozen/green/ecolabel/guideline/guideline.pdf>, and
- (ii) The “Guideline for Reliability Assurance” [https://www.env.go.jp/policy/hozen/green/trust/guideline/attach/guideline\\_1main.pdf](https://www.env.go.jp/policy/hozen/green/trust/guideline/attach/guideline_1main.pdf)

The **award decisions** for procurement contracts are mainly based on suppliers’ environmental performance, lowest cost, and lifecycle considerations of the product in question.

## Monitoring and Reporting

Each ministry and incorporated administrative agency **tracks the amount of procured fire extinguishers** as per the monitoring process stipulated in the **Basic Policy**. Each ministry and incorporated administrative agency reports results to MoE, including the amount of fire extinguishers procured and the ratio of ‘green’ fire extinguishers to the total amount of conventional fire extinguishers.

The data reporting is carried out through **a standardized reporting form** (a spreadsheet with **monthly reporting** sheets and a **yearly** sheet) developed by MoE.<sup>10</sup> Each ministry and incorporated administrative agency fills in the number of Fire Extinguishers purchased (in total and those meeting GPP criteria) and the total annual data is automatically calculated in the form.

Figure 2: Standard Reporting Forms for GPP

平成 26 年度特定調達品目調達実績取りまとめ表 年間集計用						Agency name	
						自動計算	自動計算
Category	Items	①Target number	②Total amount of procurement	③Amount of procurement of designated items	④Procurement rate of designated items = ③/②	⑤ Achievement rate = ③/①	⑥ 備考
Paper(7)	Copier paper	%	0 kg	0 kg	%	%	
	Forms	%	0 kg	0 kg	%	%	
	Coated inkjet color printer paper	%	0 kg	0 kg	%	%	
	Non coated printing paper	%	0 kg	0 kg	%	%	
	Coated printing paper	%	0 kg	0 kg	%	%	
	Toilet paper	%	0 kg	0 kg	%	%	
	Tissue paper	%	0 kg	0 kg	%	%	
Stationery (83)	Mechanical pencils	%	0 本	0 本	%	%	
	Mechanical pencil lead	%	0 個	0 個	%	%	
	Ball-point pens	%	0 本	0 本	%	%	
	Marking pens	%	0 本	0 本	%	%	

<sup>9</sup> Ministry of Environment. Verification of the product in the designated list. Retrieved from <https://www.env.go.jp/policy/hozen/green/ecolabel/guideline/guideline.pdf>

<sup>10</sup> Ecoinstitut Barcelona Final version, October 2014. Monitoring Green Public Procurement in Japan’s Public Sector





It can be seen from the graph that the amount of Green Products meeting certification criteria has increased steadily from 2006 to 2013 and thus that the market for Green Products has transformed positively.

Due to the systematic implementation of Green Procurement by all the ministries, **positive results** were obtained for the supplier and the environment as follows:

- **Supplier**

- Reduced costs from a decreased use of raw materials, waste reduction, and waste water treatment savings.
- Improved products.
- Increased opportunities arising from the developing market for green products and changing consumption trends.

- **Environment and society**

- Reduced use of resources.
- Reduced waste.
- Support and promotion of environmentally-friendly production processes.
- Stimulation of the development of an environmentally-friendly market.

## CHALLENGES & SUCCESS FACTORS

### Key Challenges

***Implementation of GPP is not mandatory at the local level in Japan.*** In order to boost Green Purchasing in Japan, implementing GPP for more local government organizations is a significant opportunity. The Ministry of Environment issues the “Green Procurement Guideline for Local Government Organizations” and the “Green Procurement Guideline for Government Procurers” to encourage implementation of GPP in local government organizations. Implementing GPP and improving its effectiveness in local government organizations will play an important role in encouraging the green market and is expected to accelerate demand for eco-friendly products.

***There are no direct regulations for green procurement outside of the government.*** Economic activities of central and local government organizations in Japan accounted for roughly 25% of GDP in 2013, which is a significant part of Japanese economy. Hence, it can be said that GPP plays a key role in economic activities. Leadership in green purchasing shown by central and local government organizations is expected to encourage green purchasing in the private sector, which also represents a significant portion of economic activities, as well as amongst NGOs and consumers. An increase in the demand of eco-friendly products will cause a ripple effect in the market.

### Key Success Factors

***Institutionalized legal framework for Green Procurement:*** To promote Green procurement, the Japanese government took **a systematic approach** and enacted related policies. The government has enforced the “Law on Green Purchasing” thus **making it mandatory for all government organizations to implement Green Procurement**. The mandatory GPP policy of the government and associated public announcements have helped in creating awareness about ecolabeled products, as well as about the benefits of GPP.

***Availability of information about ecolabeled products:*** Initiatives and efforts by MoE facilitated **information dissemination and awareness raising** about GPP and ecolabels. Having available information at hand greatly facilitates the successful and consistent implementation of GPP across public agencies.





## CASE STUDY 3:

### **The Procurement of “Green” School Textbooks by the Local Provincial Bureau of Press, Publication, Radio, Film and Television Administration of China**

**COUNTRY:** China

**PROCURED GOODS:** Eco-friendly printing for school textbooks

**PROCURING ENTITY:** Local Provincial Press and Publication Administration of China

**SIZE OF CONTRACT BY PURCHASING**

**ENTITY:** Green printed textbooks for 16.56 million primary and middle school students nationwide.



## OVERVIEW OF THE PROCUREMENT OF GREEN SCHOOL TEXTBOOKS IN CHINA

The main sources of pollution generated by the printing industry are emissions from printing operations, arising primarily from the evaporation of organic solvents contained in the inks. Other sources of pollution include ancillary operations such as press washing (cleaning) and ink mixing operations. Adhesives used in finishing operations such as laminating may also contain volatile organic compounds (VOCs) and hazardous air pollutants, and are a potential source of emissions. The press cleaning operations can result in significant wastewater generation, which may contain the hazardous organic chemicals from ink, solvents, adhesives, and other materials used in the process.

In order to address the issue of environmental pollution, the Ministry of Environmental Protection (MEP) and the State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China (SAPPEFT) jointly initiated the **Green Printing program** to systematically **reduce the impacts of modern printing processes** on the environment and citizens' health.

The main initial activity of the program was to begin the Green Printing initiative with the printing of eco-friendly textbooks for primary and middle school students with 100% coverage across China. Since there are 16.56 million primary and middle school students in China, and as the Green Printing initiative covers all school textbooks used by primary and secondary students, the initiative reveals a huge **potential for the reduction of environmental impacts related to the printing industry**.

### Results

The green printing of school textbooks has resulted in estimated electricity savings of 355,000 KWh and a reduction in the amount of printing ink consumed by 1 ton per one hundred million Yuan in output value. It has also resulted in a reduction in the various forms of pollution caused by the printing industry.

Although the switch to green printing is resulting in some financial and technical challenges for printing companies, support mechanisms have been put in place to facilitate the transition, and cost increases in inputs can be offset through reductions in material and energy use.

## BACKGROUND

### GPP in China

To promote sustainable development and an environmentally-friendly society, the government of China began adopting Green Public Procurement (GPP) policies in 2003. The **Ministry of Finance (MOF)** and **Ministry of Environmental Protection (MEP)** are the main ministries **facilitating the promotion and implementation of GPP** in China. Various administrative agencies support MEP and MOF in the implementation of GPP.

Several initiatives have been carried out by the Chinese government to promote sustainable development and Green Procurement, including the Green Printing initiative, launched by the **State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China (SAPPEFT)** and the **Ministry of Environmental Protection (MEP)**. SAPPEFT and MEP jointly started this initiative in alignment with the relevant provisions of the **"PRC Environmental Protection Law"** and **"Printing Industry Management Regulations"**.

## THE GREEN PRINTING CONTEXT IN CHINA

The People's Republic of China has one of the largest and fastest growing printing industries in the world. After 20 years of industry development, China can now boast more than 100,000 printing companies. Unfortunately, most printing companies still resort to traditional and highly polluting technologies that result in the use of volatile organic compounds (VOCs) and solid waste emissions such as waste oil barrels. These companies therefore have a significant impact on the environment through their use of solvents, water and energy.

In order to institutionalize Green Printing, relevant ministries and commissions of the Chinese government introduced a number of policies:

- In May 2011, the **"Twelfth Five-year Development Plan for the Printing Industry"** was introduced. The plan was drafted to conduct initiatives with the following objectives:
  - Organize the "Development of an Environmentally friendly "Green" Printing System";
  - Coordinate with relevant departments to enhance multi-level cooperation;
  - Develop environmentally-friendly, "Green" Printing Standards;
  - Foster certification for environmentally-friendly printing companies and products.
- On 8 October, 2011, SAPPEFT and MEP jointly issued the **"Announcement on Implementing Green Printing"**. The announcement provided details regarding the implementation of Green Printing on the ground, which included:
  - guiding principles for the implementation of green printing,
  - the definition of a relevant scope,
  - objectives and an institutional framework,
  - green printing standards and certifications
  - a plan for a pilot project.<sup>13</sup>
- On October 17, 2011, the State Council issued the **"Opinions on Strengthening the Key Work of Environmental Protection."**<sup>14</sup> The document stressed the importance of encouraging the use of Environmental Labelling and Environmental Certification for Green Printing products.
- On April 6, 2012, SAPPEFT, Ministry of Education and MEP jointly issued the **"Announcement on Implementing Green Printing in Primary and Middle School Textbooks"**. As per the announcement, all textbooks, including books used for compulsory education at both national and local level were to be incorporated in the implementation scope of green printing. In addition, the printing of primary and middle school textbooks was to be entrusted to companies having been granted green printing Environmental Labelling certification<sup>15</sup>.

SAPPEFT, Ministry of Education, and MEP jointly established a Leading **group** to facilitate the implementation of Green Printing for school textbooks. The leading group is responsible for the coordination of relevant departments, and the supervision and inspection work for Green printing. While SAPPEFT is the main authority supervising the green printing of primary and middle school textbooks, the local press and publication agencies are responsible for the specific implementation of Green Printing applied to schoolbooks.

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<sup>13</sup> State Administration of Press, Publication, Radio Film and Television of Peoples Republic of China: "The announcement on the implementation of green printing . Retrieved from <http://www.SAPPEFT.gov.cn/news/1663/103336.shtml>

<sup>14</sup> The Central People's Government of the Republic of China. "State Council's view on strengthening key environmental protection work". Retrieved from [http://www.gov.cn/zwqk/2011-10/20/content\\_1974306.htm](http://www.gov.cn/zwqk/2011-10/20/content_1974306.htm)

<sup>15</sup> Ministry of Education of the People's Republic of China. "Press and Publication Administration, the Ministry of Education, Ministry of Environmental Protection Notice on the implementation of green printing school textbooks". Retrieved from [http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/moe\\_1779/201204/134800.html](http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/moe_1779/201204/134800.html)

Furthermore, to facilitate the implementation process, **Green Printing standards** were developed and published. SAPPEFT and MEP jointly issued “**Technical Requirements for the Environmental Labelling of Printed products**”. In addition, MEP enforced “**Technical Requirements for the Environmental Labelling of Products in the Printing industry, Part 1: Planographic printing**” (HJ 2503-2011) in March 2011.<sup>16</sup> ([http://kjs.mep.gov.cn/hjbhzb/bzwb/other/hjbz/201103/t20110309\\_201597.htm](http://kjs.mep.gov.cn/hjbhzb/bzwb/other/hjbz/201103/t20110309_201597.htm)).

The standards set for Green Printing do not only include **restrictions regarding the use of certain types of materials** (i.e., heavy metals and volatile organic compounds), but also **specify requirements for manufacturers in terms of environmental management**: saving resources used during pre-press, press and post-press processes, energy savings, management of pollutants and emissions, recycling, and so on.

Green Printing certification is currently made on a voluntary basis, thus encouraging qualified enterprises to apply for certification.

## THE PROCUREMENT PROCESS FOR GREEN PRINTING

The Press and Publication Administration, the Ministry of Education, and the Ministry of Environmental Protection jointly launched the “Green Printing of School Textbooks” initiative in May 2013. The procurement of green printed textbooks usually takes place during spring and summer of each year.

The objectives of the Green Printing initiative were:

- (i) to raise awareness about environmental and safety performance of school textbooks, and
- (ii) to disseminate and generalize the uptake of green printing and the management of implementation methodologies.

In terms of practical implementation, the **State Council** covers the cost of schoolbook printing and designates the printing companies implementing green printing. During the procurement process, printing companies must comply with the relevant laws and regulations: “**3-waste**” enterprises (i.e. those that produce *waste, water, and noise* by-products) must meet emissions standards in line with the national “**Solid Waste Pollution Prevention Law.**” Moreover, the designated companies are required to hold **Environmental Labelling certification** in order to be eligible to win green printing contracts.

In accordance with the **green printing certification standards**, the paper used for printing books should be officially recognized by **international forestry certification organizations** as sustainable. The ink and glues should meet strict environmental standards set by the Ministry of Environmental Protection.

The **award decisions** are based on the printing quality and price of the textbooks. It is compulsory for printing companies to ensure the quality of textbooks (green and environmentally safe), considering their performance on various criteria, including:

- Impact of pre-press, printing, and after- printing standards on **resource conservation**;
- Reduction of **energy consumption** and **emission of pollutants**;
- **Recycling** and handling of raw and auxiliary materials, especially the control of **heavy metal levels** and **volatile organic compound** content in printed products and that of other substances hazardous to human health.<sup>17</sup>

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<sup>16</sup> Ministry of Environmental protection of the People's Republic of China. “Environmental labeling product technology requirements printed the first part: planographic printing”. Retrieved from [http://kjs.mep.gov.cn/hjbhzb/bzwb/other/hjbz/201103/t20110309\\_201597.htm](http://kjs.mep.gov.cn/hjbhzb/bzwb/other/hjbz/201103/t20110309_201597.htm)

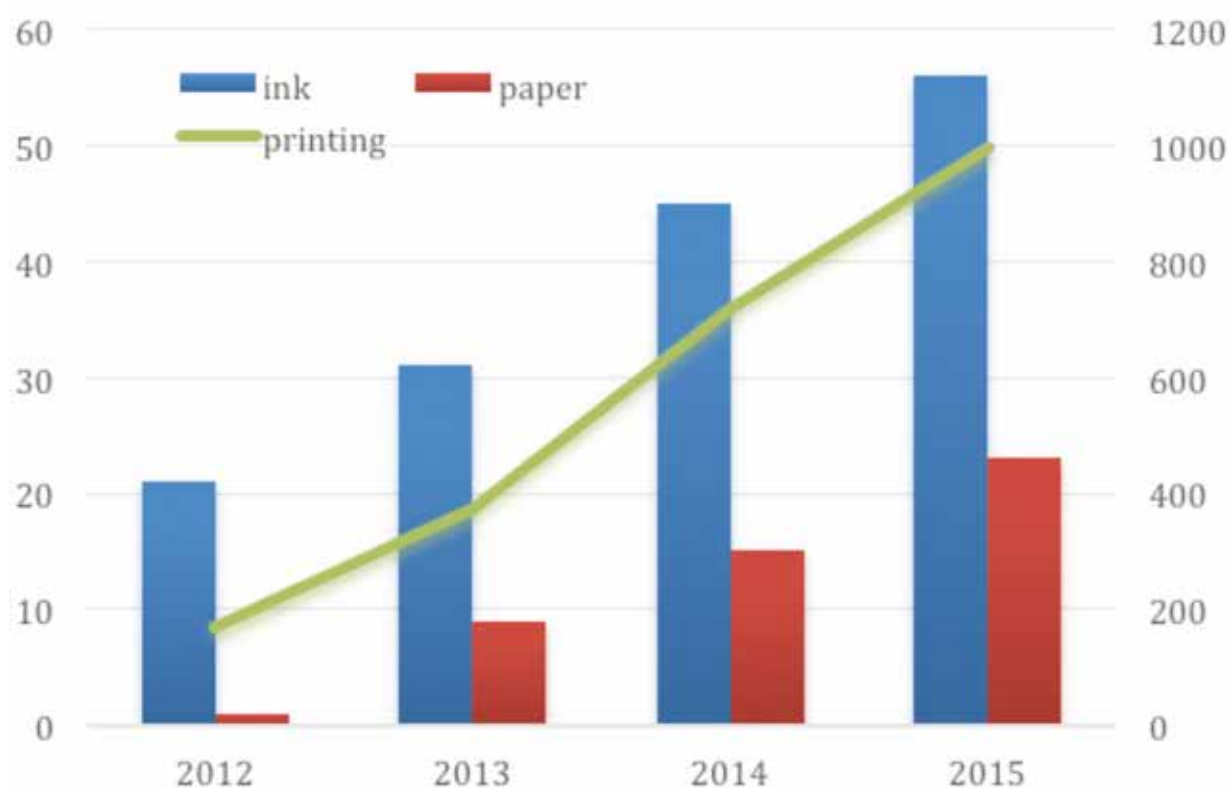
<sup>17</sup> Questionnaire from China regarding Green Printing Initiative

The **verification and monitoring** of the contract is carried out by the local provincial press and publication administrations. Local provincial press and publication administrations perform regular **checks** on the ground in printing companies to ensure **compliance with the Green Printing standard**. The **inspection team** formed by SAPPEFT, Ministry of Education, and MEP controls the Green Printing quality of primary and secondary school textbooks. The **designated laboratories** certify the printing quality of the textbooks as per the Green Printed Books Standard -GB18359 "**General requirements and test methods of paper and printing for primary and secondary school textbooks.**"

## RESULTS<sup>18</sup>

- According to SAPPEFT data, although the implementation of green printing for school textbooks is still in the development stage, 7 publishing houses, 11 printing companies and several suppliers had participated in the pilot by the end of 2015.
- As of 2015, **993 printing companies were providing green textbooks** for SAPPEFT. The number has risen close to 2,000 in 2016. All of these companies have been awarded **China Environmental Labelling certification** (Green Printing certification).
- The government purchases textbooks directly, which has led to a rapid increase in the number of Environmental Labelling certifications delivered to companies in relevant industries, such as the paper and ink industries. The following graph shows the changes in quantities procured for green ink, paper and printing.

Figure 1: Changes in the "green" shares of the ink, paper and printing markets



According to data collected in 30 provinces (autonomous regions and municipalities), in 2013, **approximately 71% of primary and secondary school textbooks** had been issued following Green

<sup>18</sup> Questionnaire from China regarding Green Printing Initiative



Printing practices.

- As per these estimates, the Green Printing initiative has resulted in reductions in energy and resource use by printing companies. Specifically, it is estimated that green printing has resulted in:
  - A reduction in electricity use by printing companies by 355,000 KWh;
  - A reduction in the amount of printing ink consumed by 1 ton per one hundred million Yuan in output value.
- Furthermore, estimates of Industry Statistics institutions for energy consumption show that the comprehensive production costs for the printing industry have been reduced by 500 million Yuan per year, through savings in electricity, water, ink, and paper, and other manners of efficient production.

## BENEFITS OF THE GREEN PRINTING INITIATIVE

The positive outcomes of the Green Printing initiative are:

- ***Reduced discharge and emissions from printing companies:*** As per the requirements of the Green printing standards, manufacturers are switching to more environmentally-friendly processes and technologies. With the gradual optimization of technology and processes, such as **environmentally friendly printing materials, digital printing, digital workflow, CTP, central ink-providing system, and cyclic utilization**, green printing has effectively **reduced the discharge of the above-mentioned “3 Waste”** (i.e. waste, water, and noise by-products).
- ***Reductions in energy use and resource consumption by printing companies:*** Energy-saving devices and consumption-reducing technologies, such as eco-friendly ovens, secondary combustion, energy-saving lighting, and central gas-supply systems have been promoted in the printing industry through this initiative.

## CHALLENGES & SUCCESS FACTORS

SAPPEFT and MEP introduced this new initiative with ambitious targets. The key to the success of this program is the **participation and engagement from the printing companies** who will have to ultimately meet these requirements. SAPPEFT and MEP are mindful of the challenges that these companies face as they work toward meeting the requirements of green printing.

Such challenges include, for example, **technical challenges** in making changes to processes and raw material used, and additional **costs** associated with making these changes which may have an impact on **cost competitiveness**.

### 1. Economic challenges and mitigation strategies

- The environmentally-friendly materials used in green printing are typically more expensive than conventional alternatives. These include printing ink, adhesives, embellishing liquids, powder, plates, pre-coating film, etc. Switching to green alternatives is estimated to increase the cost of printing processing by about 20%.
- These costs can be offset through savings in energy and raw materials through improved processing, raw material recycling, and other measures. In addition, as the market for green inputs grows, the cost of these products should fall.

## **2. Technical challenges and mitigation strategies**

- Printing enterprises must now comply with national emissions standards (e.g. waste water, air pollution, and noise). There will be challenges and costs to controlling, managing, and effectively disposing of items on the national hazardous waste list, such as waste ink, waste oil, waste adhesives, etc.
- Once these issues were identified, CEC organized a variety of training programs for green printing enterprises to ensure that these suppliers will be able to meet the environmental requirements.

A note to the reader: SAPPEFT and MEP have designated local authorities to monitor the results of this program. In these early stages of the Green Printing initiative, the monitoring systems are still being developed and institutionalized. As a result, accurate data for the results of the green printing initiative is as yet unavailable.





# CASE STUDY 4:

## Ministry Procurement of Ballpoint Pens in Japan

**PROCURING ENTITIES:** All ministries of Japan  
**SIZE OF PROCUREMENT:** 2,189,000 ballpoint pens  
**SIZE OF THE OVERALL MARKET FOR  
BALLPOINT PENS:** 588.9 million ballpoint pens  
**GREEN SHARE OF OVERALL MARKET FOR  
BALLPOINT PENS:** Increased by 2.6 times to  
33.8% in 2013 from 13% in 2000



## OVERVIEW OF THE PROCUREMENT OF BALLPOINT PENS BY MINISTRIES IN JAPAN

Green Public Procurement (GPP) became mandatory for central governments ministries in Japan in 2001, with the aim of reducing environmental impacts and promoting green purchasing awareness and activities among suppliers and citizens.

In this case study, the procurement of ballpoint pens by all of the Ministries of Japan has been selected as an illustrative example of GPP. The ministries procure ballpoint pens as per the GPP Guidelines and report the results back to the Ministry of Environment (MoE).

Largely as a result of green public procurement efforts to procure this product, the Japanese ballpoint pen market showed a rapid increase in the percentage of green pens from 13.0% in 2000 to 33.8% in 2013 (2.6 times higher).

Green procurement of ballpoint pens has also resulted in tangible environmental benefits. According to data collected in 2013, a reduction in CO<sub>2</sub> of 16.8t was achieved through the switch to purchasing green ballpoint pens, and in 2013, there was a 6.1t reduction in plastic consumption compared to 2000 levels.<sup>19</sup>

## BACKGROUND

### *The Context for Green Procurement in Japan*

Japan was the first country to establish a Green Procurement (GP) policy in Asia. The policy activities began with the establishment of an **ecolabelling scheme** conceived by the Japan Environment Association under the guidance of the Environment Agency, followed by the launch of several Green Procurement initiatives. The most important policies and plans guiding Japanese green public procurement activities are as follows:

In 1993, the “**Basic Environment Act**” (Act no. 91 of 19 November 1993) was enacted for the promotion of the use of goods and services that help to reduce environmental impacts.

In 1995, the Government of Japan adopted the first “**Action Plan for Greening of Government Operations**” which included **Green Public Procurement** (GPP) commitments and reporting requirements.

In January 2001, the “**Act on Promotion of Procurement of Eco-Friendly Goods and Services**” (including the “Law on Promoting Green Purchasing”) came into force.<sup>20</sup>

After the enforcement of the “Act on Promoting Green Purchasing”, the Japanese government issued the first **Basic Policy** and a list of 101 goods designated for GPP along with procurement standards.

The Ministry of Environment (MoE) is the main government agency in charge of implementing GPP in Japan and is responsible for the development and implementation of all environmental policies and laws.

As dictated by the Basic Policy, the MoE has developed GPP guidelines (“Green Procurement

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<sup>19</sup> Questionnaire from Japan regarding Ballpoint pens

<sup>20</sup> Ministry of Environment. Basic Policy on Promoting Green Purchasing. Retrieved from <http://www.env.go.jp/en/laws/policy/green/2.pdf>

Guidelines for Government Procurers” and “Green Procurement Guidelines for Local Government Organizations”) to facilitate the implementation process. These guidelines are used by all government agencies when procuring designated products. MoE revises the GPP Basic Policy and various product guidelines each fiscal year. Following the revision of green product criteria, the MoE organizes seminars to disseminate information regarding revised GPP criteria before the revisions come into effect.



**Figure 1: GPP Process as per the Act on Promoting Green Purchasing**

According to the “Act on Promoting Green Purchasing”, **GPP is mandatory for all central government agencies.** The ministries and agencies are required to procure goods and services, which meet the “Evaluation Criteria”, specified by the Basic Policy.

**Each ministry and administrative agency is required to establish its own procurement plan for Green Purchasing.** All governmental

institutions are also required to report annually to the Ministry of Environment (MoE) on the progress and results of their GPP implementation.

## GREEN PUBLIC PROCUREMENT OF BALLPOINT PENS

### GPP Criteria

The implementation of GPP for goods and services is carried out in accordance with the Basic Policy. As per the 2015 revision of the Basic Policy, 21 product categories have been identified for Green Purchasing.

The evaluation criteria for ballpoint pens, which fall under the “stationary products” category, are mainly **based on Eco Mark certification criteria and take into consideration the whole lifecycle** of the product. Certification of the products by Eco Mark is recommended as a reference to meet the evaluation criteria.

The GPP criteria<sup>21</sup> for ballpoint pens include:

1. More than 40% (by weight) of the total plastic used should be recycled plastic (if the main material is plastic – if the main material is wood or paper, it should follow the respective criteria for these materials).
2. Ink cartridges should be replaceable.

The GPP evaluation criteria for ballpoint pens are available on the Ministry of Environment website.<sup>22</sup>

<sup>21</sup> Ministry of Environment. Basic Policy on Promoting Green Purchasing. Retrieved from <http://www.env.go.jp/en/laws/policy/green/2.pdf>

<sup>22</sup> The criteria for ballpoint pens are available at: <https://www.env.go.jp/en/laws/policy/green/2.pdf>.

## Procurement Process

In Japan, the majority of government procurement is conducted via **competitive tendering**, with the participation of qualified suppliers. During the procurement process, bids from suppliers are evaluated based on the compliance of the products in question with GPP criteria. If products from suppliers do not satisfy the relevant GPP criteria, they are not permitted to participate in the bidding. The GPP evaluation criteria mostly coincide with **Eco Mark Ecolabel criteria**<sup>23</sup>; however, GPP criteria are not always as stringent as Eco Mark criteria.

The **verification of the GPP requirements** as stipulated in the procurement contract is done by **self-declaration** whereby the manufacturer declares that the product meets the evaluation criteria (including those related specifically to environment and compliance).

To facilitate the self-declaration process, the Ministry of Environment has issued two **guidelines**, namely:

- (i) The “**Guideline for Environmental Performance Indicators**”<sup>24</sup> and
- (ii) The “**Guideline for Reliability Assurance**”.

The **award decisions** for procurement contracts are mainly based on **environmental performance, lowest cost and lifecycle considerations** of the designated product.

## Monitoring and Reporting<sup>25</sup>

As stipulated in the Basic Policy, each ministry and incorporated administrative agency tracks the amount of goods and services it procures. Each body **reports its results to the Ministry of Environment**, including the **amount of eco-friendly goods and services** procured and the **ratio of eco-friendly goods** to the total amount of goods and services procured.

The data reporting is carried out through a **standardized reporting form** (a spreadsheet with **monthly reporting** sheets that aggregate into a **yearly** sheet) developed by the Ministry of Environment. Each ministry and incorporated administrative agency fills in the number of designated products/services purchased (those that meet green public procurement criteria and the total amount purchased) and the total annual data is automatically tabulated. An example is shown in Figure 2, below.

Figure 2: Standardized Reporting Form for Ministries & Incorporated Administrative Agencies

			自動計算	自動計算	自動計算	自動計算	自動計算
Category	Items	①Target number	②Total amount of procurement	③Amount of procurement of designated items	④Procurement rate of designated items = ③/②	⑤ Achievement rate = ③/①	⑥ 備考
Paper(7)	Copier paper	%	0 kg	0 kg	%	%	
	Forms	%	0 kg	0 kg	%	%	
	Coated inkjet color printer paper	%	0 kg	0 kg	%	%	
	Non coated printing paper	%	0 kg	0 kg	%	%	
	Coated printing paper	%	0 kg	0 kg	%	%	
	Toilet paper	%	0 kg	0 kg	%	%	
	Tissue paper	%	0 kg	0 kg	%	%	
Stationery (83)	Mechanical pencils	%	0 本	0 本	%	%	
	Mechanical pencil lead	%	0 個	0 個	%	%	
	Ball-point pens	%	0 本	0 本	%	%	
	Marking pens	%	0 本	0 本	%	%	

23 Available at <http://www.ecomark.jp/english/pdf/112eC2.pdf>

24 Ministry of environment. Verification of the product in the designated list. Retrieved from <https://www.env.go.jp/policy/hozen/green/ecolabel/guideline/guideline.pdf>

25 Ecoinstitute Barcelona Final Version, October 2014. Monitoring Green Public Procurement in Japan's Public Sector

The results are calculated as a **rate of procurement** and submitted to the Ministry of Environment. **The Ministry compiles the results and publishes them annually on its website** in Japanese.<sup>26</sup>

RESULTS

As of 2013, there were 101 companies carrying Eco Mark certification for their ballpoint pens.

The total number of ballpoint pens purchased was 2,205,000, of which 2,189,000 met GPP criteria. The Procurement rate for ballpoint pens meeting the GPP criteria was thus 99.4%, as shown in Figure 3, below.

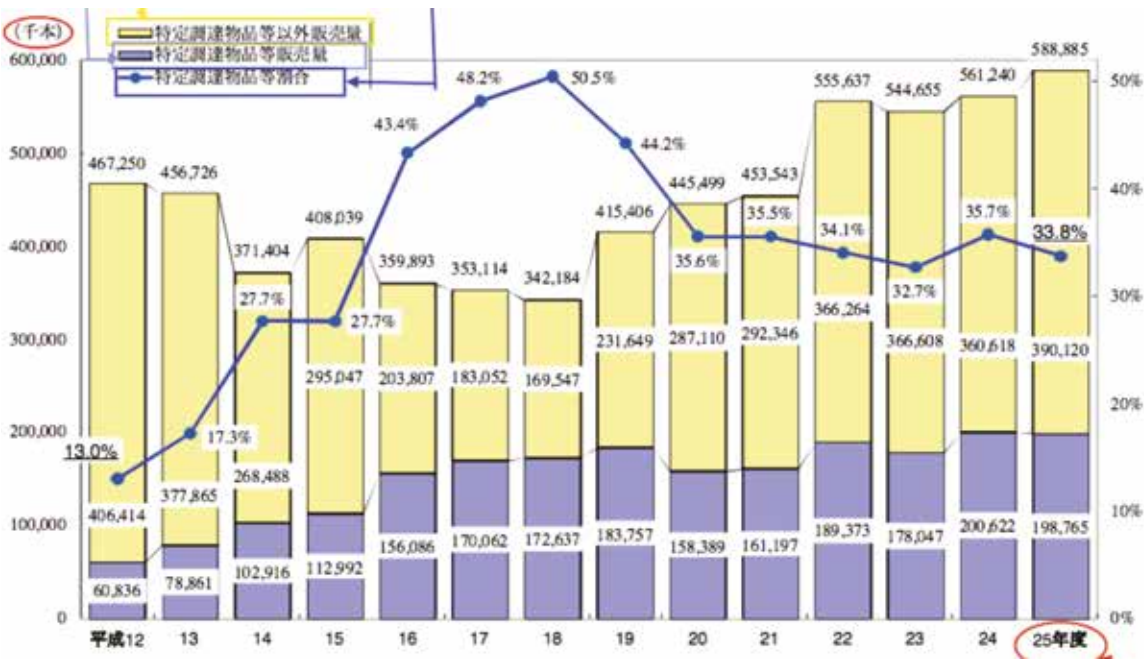
Figure 3: Aggregated GPP Reporting Form for Ballpoint Pens



According to data collected in 2013, a reduction in CO<sub>2</sub> of 16.8t was achieved through the switch to purchasing green ballpoint pens. Moreover, in 2013, there was a 6.1t reduction in plastic consumption compared to 2000.<sup>27</sup> The reported results are available on the website of the Ministry of Environment.

The ballpoint pen market showed a rapid increase in the percentage of “green” pens from 13.0% in 2000 to 33.8% in 2013 (2.6 times higher). The market transformation of ballpoint pens can be seen in Figure 4, below. GPP activities were a main driver in the greening of this market.

Figure 7: Transformation Toward Greener Products in the Ballpoint Pen Market



26 The results can be found at: [https://www.env.go.jp/policy/hozen/green/g-law/jisseki/reduce-effect\\_h25.pdf](https://www.env.go.jp/policy/hozen/green/g-law/jisseki/reduce-effect_h25.pdf).

27 Questionnaire from Japan regarding ball point pens



Due to the systematic implementation of Green Procurement by all the ministries, **positive results** were obtained for the government, suppliers and the environment as follows:

- **Government:**

- Increased number of suppliers complying with the evaluation criteria to support procurers' demand.
- Enhanced relationship with suppliers.

- **Suppliers:**

- Reduced costs due to decreased use of raw materials, waste reduction, and waste water treatment savings.
- Product performance improvements.
- Enhanced market opportunities arising from the developing market for green products and changing consumption trends.

- **Environment and Society:**

- Reduced use of resources.
- Reduced waste.
- Support and promotion of environmentally friendly production processes.
- Stimulation of the development of an environmentally-friendly market.

## CHALLENGES & SUCCESS FACTORS

### Key Challenges

**1. Implementation of GPP is not mandatory at the local level in Japan.** In order to boost Green Purchasing in Japan, implementing GPP for more local government organizations is a significant opportunity. The Ministry of Environment issues the “Green Procurement Guideline for Local Government Organizations” and the “Green Procurement Guideline for Government Procurers” to encourage implementation of GPP in local government organizations. Implementing green public procurement and improving its effectiveness in local government organizations will play an important role in encouraging the green market and is expected to accelerate demand for eco-friendly products.

**2. There are no direct regulations for green procurement outside of the government.** Economic activities of central and local government organizations in Japan accounted for roughly 25% of GDP in 2013, which is a significant part of the Japanese economy. Hence, it can be said that GPP plays a key role in economic activities. Leadership in green purchasing shown by central and local government organizations is expected to encourage green purchasing in the private sector, which also represents a significant portion of economic activities, as well as amongst NGOs and consumers. An increase in the demand of eco-friendly products will cause a ripple effect in the market.

### Key Success Factors

**1. Institutionalized legal framework for green procurement:** To promote green procurement, the Japanese government took **a systematic approach** and enacted associated GPP policies. The government has enforced the “Law on Green Purchasing”, thus **making it mandatory for all central government organizations to implement green procurement**. The mandatory GPP policy of the government and associated communications to the public have helped in creating awareness about ecolabelled products, as well as about the benefits of green public procurement.

**2. Availability of information about ecolabeled products:** Initiatives and efforts by the Ministry of Environment have facilitated **information dissemination and awareness raising** about GPP and ecolabels. Having available information at hand greatly facilitates the successful and consistent implementation of green public procurement across public agencies.

## CASE STUDY 5:

### Mitigating Climate Change Through an Efficient Use of Energy: The Procurement of LED Lights by Korea's National Health Insurance Service

**COUNTRY:** Korea

**PROCURED GOOD:** LED lights

**PROCURING ENTITY:** National Health Insurance Service

**TOTAL VALUE OF ECOLABELLED INDOOR LED LIGHTS PROCURED BY PUBLIC AGENCIES IN KOREA:** 700 million KRW (700,000 USD)

## OVERVIEW OF THE PROCUREMENT OF LED LIGHTS BY THE NATIONAL HEALTH INSURANCE SERVICE

As a part of Sustainable Consumption and Production (SCP) initiatives, Green Public Procurement (GPP) has been introduced and implemented at the national level in Korea. To ensure the successful implementation of GPP, the Korean government enforces several Acts and Regulations related to it. The experience of the Republic of Korea can serve as an example to showcase the instrumental role of government initiatives in the establishment of a supportive environment to facilitate Green Production and Consumption patterns.

In this case study, the procurement of LED lights by the National Health Insurance Service (NHIS) in Korea is taken as illustrative example of Green Public Procurement (GPP). NHIS is a program (that is both publicly and privately financed) that pays for privately provided health care.

This procurement example showcases how climate change can be mitigated through the reduced use of energy, and how the demand for energy can be stabilized through a more efficient use of energy.

In 2015, the NHIS procured 3,697 indoor LED lights that carried an ecolabel. The monetized environmental benefits generated from the purchase of ecolabelled LED lights by the National Health Insurance Service were as follows:

- **Reduction in harmful substances: 4,399,430 KRW**
- **Reduction in the use of electricity (per product per year): 52,759,317**

The procurement of ecolabelled LED lights by NHIS thus amounted to environmental benefits valued at a total of 57,158,747 KRW.

Key success factors for this procurement were the legal mandate for all public organizations and institutions to purchase green products, the establishment of internal green procurement guidelines by the the National Health Insurance Service, and the specific inclusion of LED lights in the NHIS's energy saving action plan.

## BACKGROUND

In recent years, Korea has implemented green initiatives to tackle the environmental and resource depletion challenges made more acute by rapid economic growth. Accordingly, Sustainable Consumption and Production (SCP) policies have been introduced in the Republic of Korea to support sustainable and resource-efficient production practices, including supporting the creation of new markets for environmentally friendly products and services.

### *The Legal Framework for green public procurement in Korea*

Beginning in the early 1990s, the Korean government has introduced comprehensive policies for Green Public Procurement (GPP). The policy package includes various initiatives such as ecolabelling, green public procurement, green store certification, and a green credit card scheme.

The legal framework for green public procurement in Korea consists of two main Acts: the “**Environmental Technology and Industry Support Act**” and the “**Act on Promoting the Purchase of Green Products.**” Green public procurement in Korea was introduced in conjunction with the **Korea Eco-label** under the 1994 “Act on Development and Support of Environmental Technology.” Two main

Acts and Regulations, listed below<sup>28</sup>, specifically relate to the purchase of LED lights by any institution or organization in Korea.

The “**Act on Promoting the Purchase of Green Products of 2005**”: According to this Act, state organizations are obliged to submit an annual **implementation plan on green purchases** to the Ministry of Environment at the beginning of each year, along with the **performance records** for the previous year.

The “**Regulation on Energy Use Rationalization of Public Organizations**”: According to Article 11 (“Use of High-Efficiency Machinery, Equipment or Materials”), public organizations should install LED lights in accordance with national targets.<sup>29</sup> Accordingly, the government has set **targets for the installation of LED lights** as depicted in the table below.

**Table 1. Targets for the installation of LED lights in public buildings**

	2013	2014	2015	2017	2020
<b>New buildings</b>	30%	45%	60%	100%	-
<b>Existing buildings</b>	40%	50%	60%	80%	100%

### **The National Health Insurance Service & Green Procurement**

The Republic of Korea has a National Health Insurance system that provides health care benefits to the entire population. Nearly all South Koreans are beneficiaries of the program, meaning that the government has nearly achieved its goal of providing health insurance for all South Korean citizens.

The Ministry of Health and Welfare (MoHW) sets an overall health sector policy and budget, including the reimbursement ceiling for the NHI system.

In line with national policies (i.e., the “Act on Promoting the Purchase of Green Products” and “Regulation on Energy Use Rationalization of Public Organization”) the National Health Insurance Service began to shift to the use of LED lights in order to significantly reduce energy use.

## **THE PROCUREMENT OF LED LIGHTS BY KOREA’S NATIONAL HEALTH INSURANCE SERVICE (NHIS)**

In accordance with national Acts and Regulations, the National Health Insurance Service carries out the procurement of indoor LED lights **based on framework contracts**. The purchase of LED lights is performed through the **Korea Online E-Procurement System (KONEPS)**. KONEPS was established in 2002 by the **Public Procurement Service (PPS)** to digitize some of its procurement processes.

The procuring staff purchase indoor LED lights **at the online shopping mall KONEPS** (see Figure 1). The online shopping mall provides various functions for the convenience of procurers, so that procurers can search products, comparing them across the comprehensive information provided, including the types of ecolabels pertaining to that product, prices, manufacturers, specifications, and other information.<sup>30</sup>

28 Ministry of Environment, Korea Environmental Industry and Technology Institute, Policy Handbook for Sustainable Consumption and Production of Korea. Retrieved from [www.scpclearinghouse.org/upload/publication\\_and\\_tool/file/399.pdf](http://www.scpclearinghouse.org/upload/publication_and_tool/file/399.pdf)

29 MOTIE, Korea Energy Agency. KOREA ENERGY EFFICIENCY POLICIES Korea’s Energy Standards & Labeling. Retrieved from [bpms.kemco.or.kr/efficiency.../download.aspx?...Korean%20Energy%20...](http://bpms.kemco.or.kr/efficiency.../download.aspx?...Korean%20Energy%20...)

30 The information is available at [http://www.g2b.go.kr/gov/koneps/pt/intro/file/4\\_KONEPS\\_eng.pdf](http://www.g2b.go.kr/gov/koneps/pt/intro/file/4_KONEPS_eng.pdf)



Figure 1: KONEPS Online Shopping Mall



When purchasing Green products, public procurement staff refer to the following criteria:

- Certified or meeting the criteria set by the **Korea Eco-label** for the product or service in question;
- Certified or meeting the criteria set by the **Good Recycled Mark** for the product or service in question;
- In compliance with **other environmental criteria** set by the Ministry of Environment in consultation with the heads of relevant ministries.

Once the purchases are made through the online shopping mall, the purchase records of each public institution are automatically transferred to the **Green Product Information Platform (GPIP)** (see Figure 2) for data aggregation. GPIP was set up in 2007 by the Korea Environment Industry and Technology Institute (KEITI) to **facilitate the implementation of green public procurement and data reporting**. An institutional arrangement between the key stakeholders, the Public Procurement Service, the Ministry of Environment, and the Korea Environment Industry and Technology Institute, was instrumental in setting up an integrated e-monitoring system.<sup>31</sup>

Figure 2: Green Product Information Platform (GPIP)



31 Ministry of Environment, Korea Environment Industry and Technology Institute (KEITI). Policy handbook on Sustainable Consumption and Production 1st edition. Retrieved from <http://www.scpclearinghouse.org/resource/policy-handbook-sustainable-consumption-and-production-korea>

All GPP data is compiled by KEITI through GPIP and Green Purchase records from each public authority are made available to the public by the Ministry of Environment and KEITI. The compiled GPP results are disclosed on the Ministry of Environment's website (<http://eng.me.go.kr/eng/web/main.do>) and GPIP website (<http://gd.greenproduct.go.kr>), where results can be easily accessed and compared by the public.

## RESULTS<sup>32</sup>

Currently 16 LED light manufacturing companies carry ecolabel certification on their products. One company with ecolabel certification for LED lights supplied 3,697 LED lights to the National Health Insurance Service.

According to 2015 data, the total value of ecolabelled indoor LED lights procured by public agencies in Korea amounted to 700 million KRW (700,000 USD).

The progress report on green public procurement by KEITI (January 2015) stated that the environmental benefits gained from the purchase of ecolabelled LED lights by the National Health Insurance Service in 2015 were equivalent to a total monetary value of 57,158,747 KRW.

The monetized environmental benefits received from the switch to ecolabelled LED lights were broken down in the 2015 progress report on green public procurement as follows:

- **Reduction in harmful substances (per product): 1,190 KRW**
- **Reduction in the use of electricity (per product per year): 14,271 KRW**

As such, the monetized environmental benefits arising from the purchase of ecolabelled LED lights by the National Health Insurance Service in 2015 are as follows:

- **Reduction in harmful substances: 3,697 units x 1,190 KRW = 4,399,430 KRW**
- **Reduction in the use of electricity (per product per year): 3,697 units x 14,271 KRW = 52,759,317**

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32 Questionnaire for LED lights by Korea Environmental Industry and Technology Institute (KEITI)

## CHALLENGES & SUCCESS FACTORS

### *Key Challenges & Mitigating Measures*

**LED lighting needs to be incorporated into the design phase for buildings:** It is more efficient for indoor lighting to be procured as part of the design and construction of the building shell, rather than as part of a retrofit program later in the building lifecycle. In order to easily procure indoor LED lights, it is necessary to include a clause to use eco-friendly indoor lighting in specifications and building designs. Therefore, many stakeholders from across the organization must be involved in the procurement process for indoor LED lights – not only purchasers from the financial department, but also internal staff in charge of public works, architects, and an auditor. The National Health Insurance Corporation developed a standard green specification for public works so that eco-friendly lighting can be procured. In addition, there has been continuous communication with architects and auditors in order to make sure that eco-friendly lighting is incorporated into building design.

### *Key Success Factors & Lessons Learned*

**1. Legal mandate to purchase Green Products:** The Korean government mandated the purchase of green products for public organizations and institutions (central and local) with the “Act Promoting the Purchase of Green Products.” Additionally, it is **mandatory for all public institutions and organizations (central as well as local) to purchase designated LED lights** during procurement, as per the “Regulation on Energy Use Rationalization of Public Organizations.” With these mandatory purchasing requirements set by the government, it has become easier for public organizations to implement GPP.

**2. Establishment of Internal Green Procurement Guidelines by NHIS:** The National Health Insurance Service has established **internal green procurement guidelines, taking into account the procurement rate of LED lights** and performance evaluation as key indicators. The guidelines help purchasers to choose green products, and to implement and monitor the procurement of LED lights.

**3. Inclusion of LED lights in the energy saving initiative of the NHIS:** The purchase of LED lights was included as **part of the energy saving action plan** of the National Health Insurance Service.

# CASE STUDY 6:

## Improving the Environmental Health of Residents in Public Housing: The Procurement of Paints by Korea Land & Housing Corporation

**COUNTRY:** Korea

**PROCURED GOOD:** PAINTS

**PROCURING ENTITY:** KOREA LAND & HOUSING CORPORATION (A PUBLIC AGENCY)

**SIZE OF CONTRACT BY PURCHASING ENTITY:**  
SINGLE CONTRACT OF 7.4 BILLION KRW (7.4 MILLION USD)



## OVERVIEW OF THE PROCUREMENT OF PAINTS BY KOREA LAND & HOUSING CORPORATION

This case study illustrates the shift to the procurement of green paints by Korea Land and Housing Corporation (LH), a government-owned corporation that is responsible for the maintenance and management of land and housing. LH carries out green purchasing of products intended for construction projects according to the “Act Promoting the Purchase of Green Products.” This case study demonstrates how a public institution can make strides in reducing environmental impacts and decreasing health risks to residents due to the uptake of a mandatory policy on green purchasing.

In 2014, Korea Land and Housing Corporation procured 7.4 billion KRW in ecolabelled paint. The monetized environmental benefits generated from the purchase of ecolabelled paint by LH were as follows:

- **Reduction in harmful substances: 1,130,555,250 KRW**
- **Reduction in indoor air pollutants: 10,688,886,000 KRW**

The procurement of ecolabelled paints by LH thus amounted to environmental benefits valued at a total of 12 billion KRW.

Key success factors for this procurement were the legal mandate for all public organizations and institutions to purchase green products, the establishment of a supplier pool for green products by LH, and the existence of well-established monitoring and reporting processes.

## BACKGROUND

### *The Legal Framework for GPP in Korea*

The Korean government is promoting a “low carbon green growth policy” in order to address the global energy and resource crisis and global warming<sup>33</sup>.

To mitigate the challenges of resource depletion and environmental impacts, the Korean government has shifted the paradigm of national development towards sustainable development since the early 1990s. Accordingly, Sustainable Consumption and Production (SCP) policies have been introduced in order to support enterprises in adopting more sustainable and resource-efficient production practices and address obstacles hindering the shift to sustainable consumption.

Green public procurement was introduced in Korea in conjunction with the Korea Eco-label under the “Act on Development and Support of Environmental Technology” of 1994. State agencies, including central and local governments and public organizations, were mandated to preferentially purchase products that were awarded the **Korea Eco-label or Good Recycled Mark**.

Green public procurement took a more concrete form when the government introduced the “Act Promoting the Purchase of Green Products” in 2005. The Act mandated that all central and local organizations and institutions purchase green products.<sup>34</sup> The Act also stipulated that state organizations must submit an annual **implementation plan** to the Ministry of Environment on green purchases to be made throughout the year; the plans also feature performance data from the previous year.

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<sup>33</sup> Korea's Third National Communication under the United Nations Framework Convention on Climate Change Low Carbon, Green Growth Retrieved from <http://unfccc.int/resource/docs/natc/korn3.pdf>

<sup>34</sup> Ministry of Environment. Korea Environmental Industry and Technology Institute (KEITI). Policy Handbook on Sustainable Consumption and Production 1<sup>st</sup> Edition. Retrieved from [www.scpclearinghouse.org/upload/publication\\_and\\_tool/file/399.pdf](http://www.scpclearinghouse.org/upload/publication_and_tool/file/399.pdf)

Another important piece of SCP legislation was the “Act on Support for the Establishment of Green Buildings.” Beginning in March 2010, buildings constructed by public institutions with a total floor area greater than 10,000 square meters must meet Green Building Certification. The use of ecolabelled products in building construction is one of the criteria by which Green Building Certification is assessed.<sup>35</sup>

### *Korea Land and Housing Corporation & Green Procurement<sup>36</sup>*

Korea Land and Housing Corporation (LH) was established with the aim of improving national residential life through the development, maintenance, and management of land, housing, and cities and to contribute to national economic development through the efficient use of land. **A main objective of LH is therefore to improve the environmental health for residents in public housing by using environmentally-friendly products** – for example by using paints with a lesser impact on the environment in building public houses.

Furthermore, LH pursues **eco-friendly land development, eco-friendly urban development, collective energy programs, and clean development mechanism (CDM)** projects in order to fulfil its vision of environmentally-friendly construction and housing supply.

LH developed a green procurement plan including voluntary annual targets for purchasing green products. In accordance with the Korean government’s Low Carbon Green Growth Policy, LH has formulated four strategies and ten tasks to fulfil its vision of “becoming a “leader of green growth with the creation of world-class green cities and green housing.”<sup>37</sup> These are shown in Figure 1.

**Figure 1: Green Management Strategy of LH**



Moreover, LH has developed a guide with specifications for the construction of housing projects, including the use of ecolabelled products as a requirement for new housing projects. One of the

35 Ministry of Environment. Korea Environmental Industry and Technology Institute (KEITI). Policy Handbook on Sustainable Consumption and Production 1st Edition. Retrieved from <http://www.scpclearinghouse.org/resource/policy-handbook-sustainable-consumption-and-production-korea>

36 Land and Housing Corporation (2015). Sustainability Report. Retrieved from [https://www.unglobalcompact.org/system/attachments/cop\\_2015/174781/original/2015\\_LH\\_Sustainability\\_Report%28English%29.pdf?1436763200](https://www.unglobalcompact.org/system/attachments/cop_2015/174781/original/2015_LH_Sustainability_Report%28English%29.pdf?1436763200)

37 Land and Housing Corporation (2015). Sustainability Report. Retrieved from [https://www.unglobalcompact.org/system/attachments/cop\\_2015/174781/original/2015\\_LH\\_Sustainability\\_Report%28English%29.pdf?1436763200](https://www.unglobalcompact.org/system/attachments/cop_2015/174781/original/2015_LH_Sustainability_Report%28English%29.pdf?1436763200)

guidelines states that “green products should be preferentially purchased when the prices of green products/materials are equivalent to or lower than conventional ones.”

Moreover, to facilitate the implementation process, LH developed a **Green Products Supplier Pool** for priority green product groups, thereby making it easier for purchasers to buy these products. With the help of the supplier pool, suppliers also get first-hand information about the market demand for their green products and can thus plan the production and supply of these products.

## THE PROCUREMENT PROCESS FOR PAINTS<sup>38</sup>

In 2014, the procurement of ecolabelled paints by Korea Land and Housing Corporation (LH) was carried out through a lump-sum contract.

The procurement of Green Products by LH is conducted in accordance with the “**Act Promoting the Purchase of Green Products.**” LH purchasing staff refer to the following requirements:

Certified or **meeting the criteria set by the Korea Eco-label,**

Certified or **meeting the national criteria for quality certification of recycled products ('Good Recycled' Mark),** or

In compliance with **other environmental criteria** set by the MoE in consultation with the heads of relevant ministries.

Purchasing of green products by Korea Land & Housing Corporation is monitored via its “LH COTIS” internal online monitoring system (Construction Technology Information System accessible only to internal users at: <http://cotis.lh.or.kr>).

## RESULTS<sup>39</sup>

The total value of ecolabelled paints procured by all public agencies in the Republic of Korea was 60 billion KRW (60 million USD). The market size for paints in Korea was valued at 3 trillion KRW (3 billion USD) in 2014.

Currently, there are 146 companies manufacturing ecolabelled paints of which one is the supplier of ecolabelled paint to the Korea Land and Housing Corporation.

According to the progress report on green public procurement from KEITI (January 2015), the environmental benefits gained from the purchase of ecolabelled paints by Korea Land & Housing Corporation in 2014 are equivalent to approximately 12 billion KRW.

The monetized environmental benefits received from the switch to ecolabelled paints were broken down in the 2015 progress report on green public procurement as follows:

- **Reduction in harmful substances (per product): 8,250 KRW**
- **Reduction in indoor air pollutants (per product): 78,000 KRW**

It is assumed that the average unit price of ecolabelled paints is 54,000 KRW, and Korea Land & Housing Corporation procured about 137,037 units of ecolabelled paints in 2014. As such, the monetized environmental benefits arising from the purchase of ecolabelled paints by Korea Land &

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<sup>38</sup> Questionnaire for Republic of Korea: Paints

<sup>39</sup> Questionnaire for Republic of Korea: Paints

Housing Corporation in 2014 were as follows:

- Reduction in harmful substances: 137,037 units X 8,250 KRW = 1,130,555,250 KRW
- Reduction in indoor air pollutants: 137,037 units X 78,000 KRW = 10,688,886,000 KRW

## CHALLENGES & SUCCESS FACTORS

### Key Challenges

**1. Challenges identifying green alternatives for required construction materials & lack of availability of these products in the marketplace:**

Often, purchasers find it challenging to identify whether eco-friendly versions of the required construction materials exist, and from where they can be sourced. Purchasers sometimes find that sustainable alternatives meeting the required technical specifications are not always available in Korea.

**2. Lack of awareness and understanding of green purchasing amongst business units in charge of construction:**

KEITI often works with officers from Environment departments when accomplishing sustainable purchasing activities. These employees don't usually have the power to directly influence purchasing decisions on construction materials, as this is decided by the construction department. More education, outreach, and coordination with other departments is necessary to build awareness and comfort with green purchasing activities.

**3. Lack of time and resources dedicated to GPP:** Although all public-sector organizations are mandated to do GPP, the work can be overlooked in favour of competing priorities when demands on staff time and resources are high.

### Key Success Factors

**1. Mandate for GPP at national and institutional level:** The "Act Promoting the Purchase of Green Products of 2005" established a clear legal mandate for GPP both at national and institutional levels. With this mandatory purchasing requirement set by the government, it has become easier for public organizations to implement GPP.


**2. Development of a prequalified supplier pool by LH:** The Korea Land & Housing Corporation developed an early green procurement plan, enabling the creation of a prequalified supplier pool for green products. The development of a supplier pool for green products was helpful as it gave suppliers a better understanding of purchasers' needs and thereby empowered them to supply quality products at a reasonable price. The supplier pool has also helped to increase the market share of green products. Finally, the supplier pool continues to facilitate the procurement of green construction materials by providing to buyers an exclusive list of green products and materials with detailed information on product features and environmental benefits.

**3. Well established monitoring and reporting processes:** Green procurement activities are monitored and evaluated on a regular basis by LH. Moreover, green procurement achievement is included as one of the key performance indicators at the Korea Land & Housing Corporation, which provides an incentive to achieve the targets.









*This is a compendium featuring six successful examples of green public procurement implementation in four different Asia-Pacific countries, namely Thailand, Japan, China and Korea. Each case study can be read independently and focuses on identifying the challenges faced in the implementation process, as well as the key factors that determined the success of the green procurement activities. The compendium was prepared by the Green Purchasing Network Malaysia in the framework of the Asia-Pacific GPPEL project ("Strengthening the capacities and improving the knowledge on green public procurement and ecolabelling in the Asia Pacific region") run by UN Environment and supported by the Chinese Ministry of Environmental Protection and the Korean Environmental Industry and Technology Institute. The case studies were written with the contribution of green public procurement practitioners from the four countries involved, with the goal of showcasing successful examples of green purchasing in the public sector and inspiring policy makers to improve their green procurement practices.*