Greening Supply Chain and Green Purchasing

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Green Purchasing Network (GPN), Japan



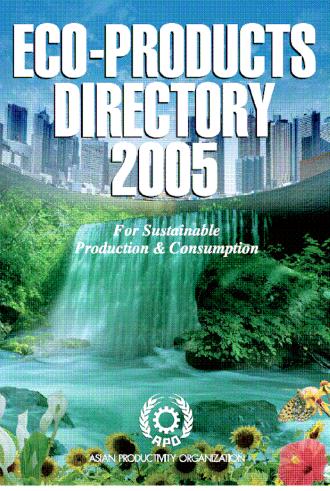


Structure of the Presentation

- Concept and role of Green purchasing
- Green Purchasing in Japan
- Market Impact of Green Purchasing
- Conclusions







- This directory was edited by Prof. R. Yamamoto and published by the Asian Productivity Organization (APO) in 2004 and 2005.
- This databook includes about 700 eco-materials, ecocomponents, and ecoproducts manufactured in Japan.



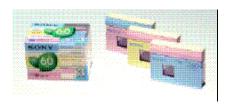
Home electric appliances



Toshiba Energy saving air conditioner



Victor video camera



Cassette with recycled resin



Sony Walkman using bio-plastic



Victor Compact DVD system



Liquid crystal color television



Victor Digital LCA TV





Sharp Plasma-cluster Ion Air purifier Sony Notebook computer



Home electric appliances











Toshiba Aero-cyclone vacuum



Sharp Washer and dryer



Water-saving dishwasher



Induction heat stove



Compact fluorescent lamp

Sharp Plasma-cluster Ion refrigerator

Sanyo water heater

Solar-powered charger Home sewing machine

Mitsubishi FHT fluorescent lamp



OA/IT equipments



NEC Lightest Fax



Panasonic high performance fax NEC Multi-functional copier





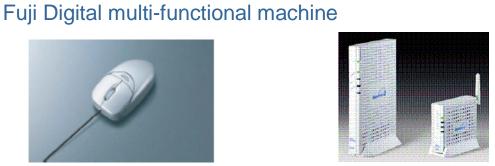
Canon Energy saving scanner



NEC Water-cooled computer



Kokuyo Computer mouse made from recycled ABS



NEC Wireless broadband router



Canon Inkjet printer using recycled plastic



Automobiles



Honda Fuel-cell car



Honda Hybrid power car



Isuzu Giga



Natural gas Truck



Isuzu Elf CNG Truck



New Eco-body Truck Model



Car Navigation system



Yamaha Cygnus X scooter



Commodity







Table made from agriculture wastes

Recycled resin office chairs

Clothes made from recycled plastics









Eco-hand soap Bio-plastic spoon, fork and cup Home water purifier Bio-degradable diaper







Hyper selan curtain



S-wood mouse pad



S-wood desk mat



Machines



Ebara 850VA fuel cell system



Ebara wind generator



JSW cogeneration system



Komatsu construction crusher



JFE bigadan biogas system



Yamatake green Bio-Tower



Asashi oil filter



Hitachi laboratory automatic analyzer

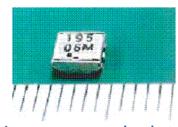


Examples of eco-components

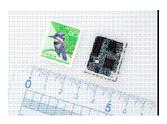
Global warming



High performance roofing "ecolony"



4mm square isolator



Silicon-based TV tuner



GS ceramic halide lamp



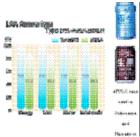
Lightweight hub-unit bearing



RENESIS engine



Magnet wire



ATULC can



Recycled toner

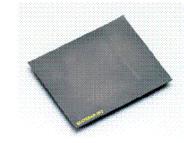


Examples of eco-components

Hazardous-free components



Murata lead-free transparent ceramics



NEC halogen-free Noise suppression sheet



ALMT Cd-free electrical contact



Pb-free electric wire



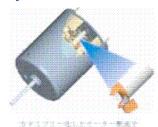
Toyo soybean oil-based ink



Toyo water-based ink



Toyobo water-based printing plate



Mabuchi Cd-free motor



Furukawa halogen and lead-free electric wire



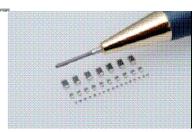
Examples of eco-components

Resource saving





PTC thermistor



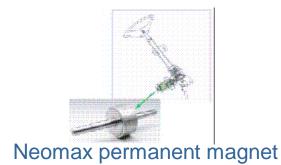




Taiyo recyclable feeder



FDK actuator unit

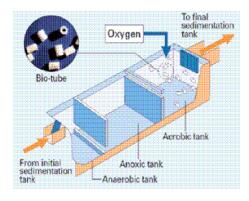




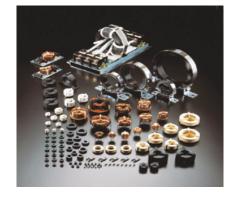
NSK lube guard bearing



Eco-Metals



Bio-tube for sewerage treatment by JFE



Hitachi FINEMET® EMC



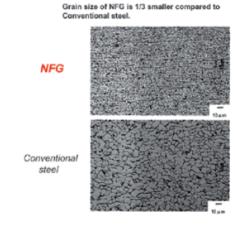
Eco-brass® of Sambo Copper Alloy



Mitsubishi Polycrytalline Silicon



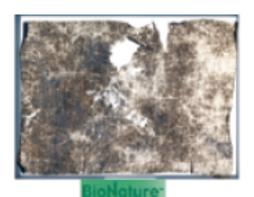
JFE Cr-free coated steel sheet



Nakayama NFG® Ultrafine grained steel sheet



Natural Materials



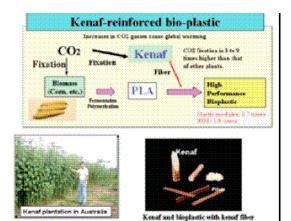
Kurabo Bio-Nature® fabrics



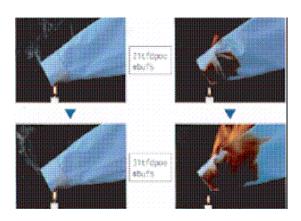
Industrial Hemp for textile fibers



"Hinokitiol" extracted from waste wood anti-microbicide



NEC inflamable bioplastics for PC



Kurabo "BREVANO ECO" antistatic fabrics



LHT 100% recycled "Technical Wood"



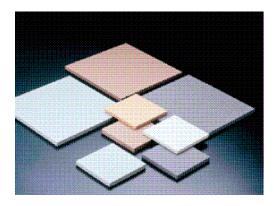
Eco-ceramics and glass



Nikon lead-free optical "Eco-glass"



Taiheiyo "Eco-cement"



Crytal Clay FP-series from waste glass



Kajima Artificial lightweight aggregate



Taiheiyo ST-coating material containing photocatalytic TiO₂



Baio "Katatumuri" soil conditioner

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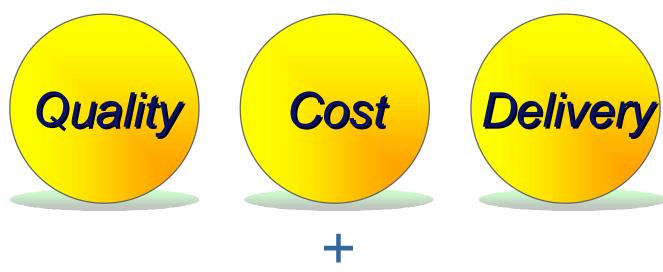
Concept and Role of Green Purchasing



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What is "Green Purchasing"?



Environment

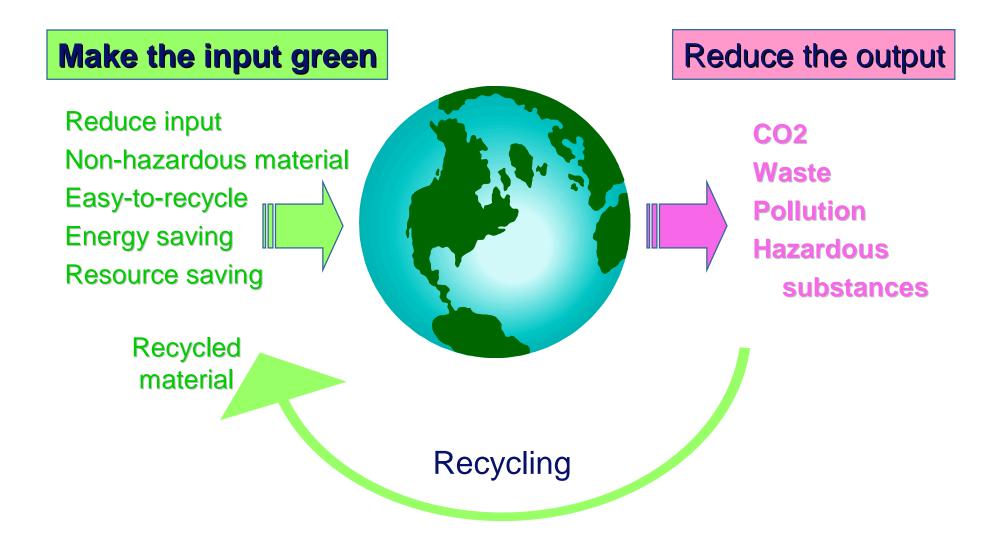
Balancing Q C D and E

Green purchasing





Find Fundamental Solution by Changing the Input





Environmental Effect of Green Purchasing RELIEF Project by ICLEI Europe

Project funded by EC to identify environmental relief potential of green purchasing in Europe

Desktop Computer

- Over 2.8 million units purchased by public authorities
- 830,000 tones of CO₂-equiv. could be reduced.
 - 982,000 global person equivalents

Electricity

- 61,350,363 tones of CO₂—equiv. could be reduced.
 - One quarter of European Kyoto commitments

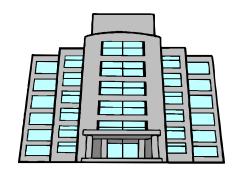
Sanitary Devices

190,407,539 I of water consumption could be reduced.

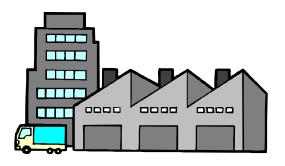


Who are the players?









Consumer

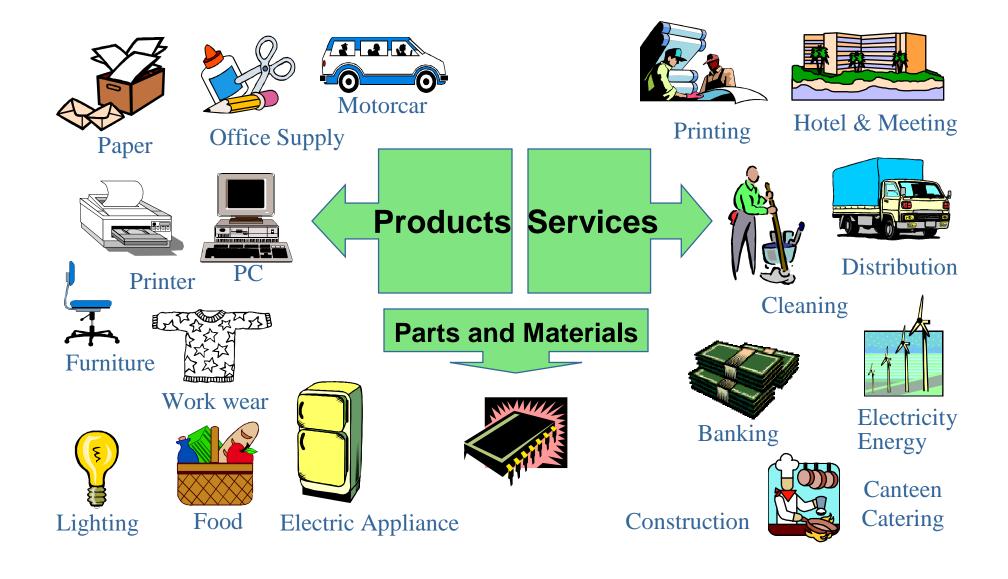
Green consumer



- Anyone can take the initiative!



Target fields of Green Purchasing





Principles of Green Purchasing

- Principle 1 Consider whether a product is needed before purchasing it or not.
- Principle 2 Purchase a product considering the various environmental impacts over its life cycle - from extraction of raw materials to disposal.
- Principle 3 Select suppliers who make a conscious efforts to care for the environment.
- Principle 4 Collect environmental information on products and suppliers.

Established by Green Purchasing Network(GPN)

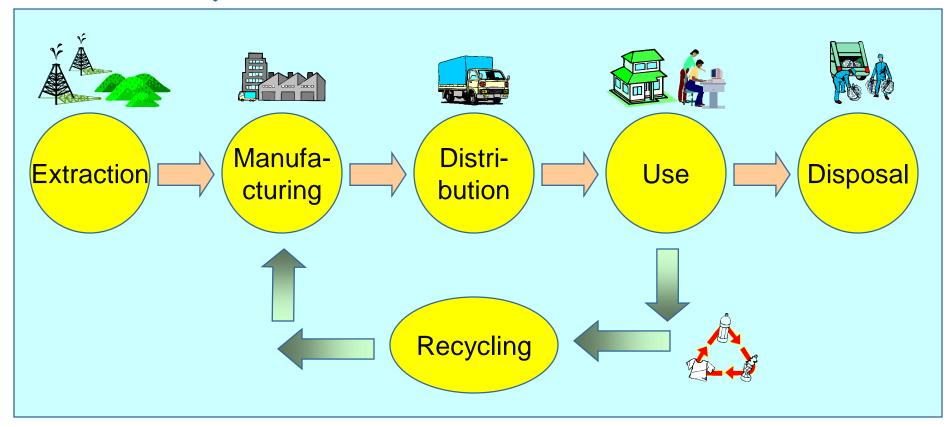
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Life Cycle Consideration "From Cradle to Grave"



Materials, Fossil Fuels, Water, Woods etc.





Water, Air, Solid waste etc.

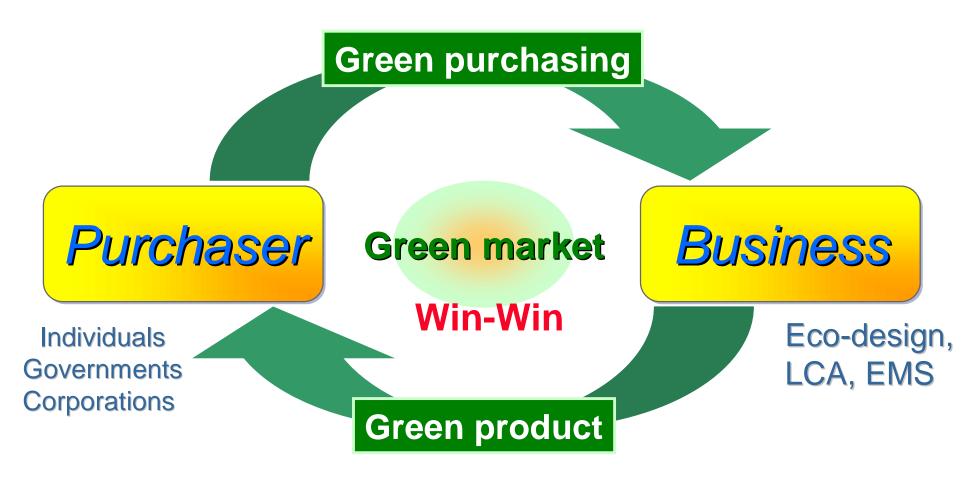


Principles 2 of Green Purchasing

- Promotion of Eco-design
- Principle 2 Purchase a product considering the various environmental impacts over its life cycle - from extraction of raw materials to disposal.
 - 1) Usage of hazardous substances
 - 2) Energy and resource conservation
 - 3) Usage of renewable resources in a sustainable way
 - 4) Long life
 - 5) Reusability
 - 6) Recyclability
 - 7) Usage of recycled materials and reused parts
 - 8) Trouble-free disposal and treatment



Green purchasing & Green Business

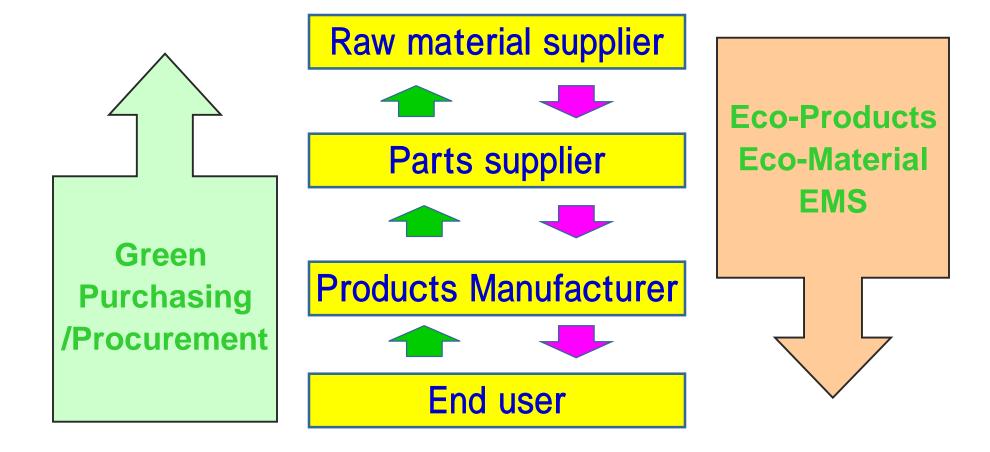


Green Purchasing encourage environmentally conscious

Management and eco-product development through the market



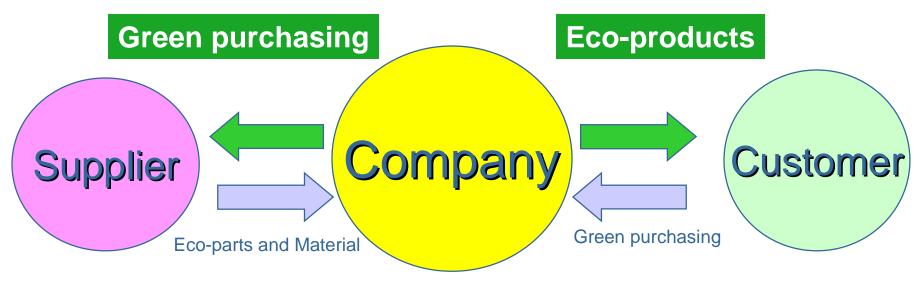
Greening Supply Chain



To be competitive in the global market, all the businesses "must" enhance green manufacturing.



Corporate Social Responsibility (CSR) in the Market



Environmental Management Eco-design, Eco-products Development

As a purchaser;

Purchasing eco-parts and material to make eco-products
Promotion of EMS of suppliers

Greening supply chain

As a supplier;

Response to market voice
Active communication on the
environment and eco-products
with customers

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Green purchasing promotes Sustainable Businesses

- Sales of "green" products increase.
- Environmentally conscious companies are supported by the market, and grow up.
 - In the future only "green" companies will be able to survive.
- Development of "green" products and environmentally conscious management are accelerated.
- Environmental protection can be consistent with economy and businesses.
- → We can realize the sustainable development.

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Green Purchasing in Japan





History of Green Purchasing in Japan

- In 1980's, single-criteria approach such as buying recycled paper, low-emission vehicle started.
- In 1987, Eco-Mark program was launched.
- In 1994, Shiga prefectural government was the first to formulate comprehensive guidelines on green purchasing.
- In 1996, GPN was established, and nation-wide movement had begun.



 In 2000, Green Purchasing Law was enacted.



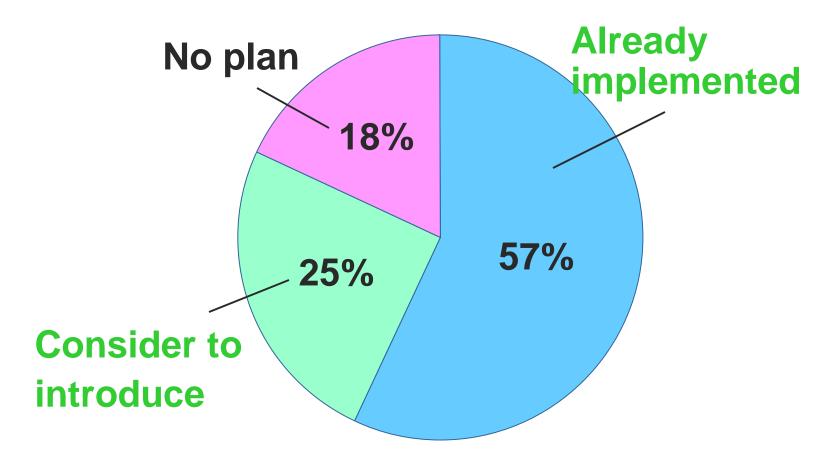


Green Purchasing in Public Sectors

- All the central government ministries practice green purchasing
- 100% the 47 prefectural governments and 12 designated cities are engaged in green purchasing
- 68% of 700 cities systematically implement green purchasing
- Particularly advanced areas: papers, office supplies, office furniture, OA & IT equipments, motorcars, uniforms, and electric appliances



Green Purchasing in Business Sector

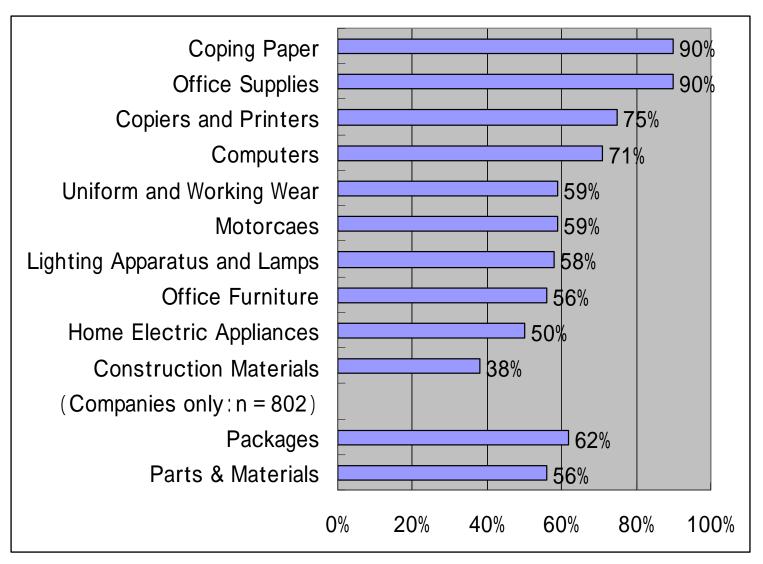


2,524 respondents (large sized companies)

Survey by MoE Japan in 2005



Products Areas where Japanese Institutional Purchasers practices Green Purchasing





Three Key Actors of Green Purchasing Activities in Japan

Green Purchasing Network (GPN)



- Founded in 1996
- 2,800 members (2,200 companies, 300 governments, 300 NGOs)
- 15 Purchasing Guidelines, Product DB(13,000 products registered), Hotel DB, Award, Training/Seminar, etc.

Government - Green Purchasing Law



- Action Plan for Greening Government Operations (1994)
- Green Purchasing Law enacted in 2000
- All the national institutions must draw up annual purchasing policy, implement, and report results.
- 201 items are designated with criteria

Eco Mark Program

- Since 1989 by Japan Environment Association (JEA)
- 5,000 certified products within 45 categories



Legal Framework concerning the Environment and the Economy

Waste Management and Public Leaning Law
Law for the Promotion of Effective Utilization of Resou
Container and Packaging Recycling Law
Home Appliance Recycling Law
End-of-Life Vehicle Recycling Law
Food Waste Recycling Law
Construction Material Recycling Law



Law on Promoting Green Purchasing Green Purchasing Law

Action Plan for Greening Government Operations (1994)

- Encourage all national administrations to buy greener products



Green Purchasing Law (2000)

- Enacted as one of six laws for establishing a recyclingbased society
- Oblige all the national ministries/agencies to draw up green procurement policy annually, to practice it, and to report the result to Environmental Minister.
- Oblige local authorities to endeavor to draw up annual policy and to practice it.

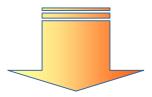


Objectives of Green Purchasing Law

Objectives

Goods and Services that contribute to reducing Environmental Loads (Eco-Friendly Goods and Services)

- Promoting Greener Purchasing by Public Organizations
- Providing Information on Eco-Friendly Goods and Services



Establishment of an Environmentally Friendly and Sustainable Society



Mechanism of Green Purchasing Law

Promotion of Greener Purchasing By Ministries and Agencies

Establishment of the Basic Policy for the Procurement of Eco-Friendly Goods etc.

- Direction for Promoting Green Procurement
- Designated Procurement Items and Evaluation Criteria

Ministries and Agencies

Each Organization creates and publicizes a Procurement Policy

Procurement of goods and services based on Procurement Policies

Report on the results and achievements of Green Procurement

Requests from the Minister of the Environment and other ministries to be taken into account

Local Governments

- > Create or update existing versions of green procurement policies every fiscal year
- ➤ Procure goods and services based on the policies

Ministries and agencies should not increase or adjust their total procurement amount for the reason of implementing this law.

Responsibility for Businesses / Citizens

Consciously purchase eco- friendly goods as much as possible

Categor	ies	Designated Procurement Items
Paper (8 Items)		Copier Paper, Printer Paper , Toilet Paper, and 5 other items
Stationery (79 Items)		Ballpoint Pens, Scissors, Glue, and 76 other items
Office Furnitu (10 Items)	re	Chairs, Desks, Shelves, and 7 other items
Office Automa Machines (13 Items)	ntion	Copiers, Printers, Fax Machines, and 10 other items
Home Electron Appliances (4 Items)	nic	Electric Refrigerators, and 3 other items
Air Conditions (3 Items)	ers, etc.	Air Conditioners, Gas Heat Pump Air Conditioners, Space Heaters
Water Heaters (4 Items)	, etc.	Electric Hot Water Supply System, Gas Cooking Appliances, and 2 other items
Lighting (3 Items)		Fluorescent Lighting Equipment, Fluorescent Light Bulbs, various bulb-shaped lighting
Vehicles, etc (5 Items)		Vehicles, ETC Adaptable Car Accessories, VICS Adaptable Car Accessories, Tire, Engine oil

l

Categories	Designated Procurement Items
Fire Extinguishers (1 Item)	Fire Extinguishers
Uniforms and Work Clothes (2 Items)	Uniforms, Work Clothes
Interior Fixtures / Bedding (9 Items)	Curtains, Carpets, Blankets, Comforters, and 6 other items
Work Gloves (1 Item)	Work Gloves
Other Fiber Products (3 Items)	Tents, Tarps, Safety Nets
Facilities (4 Items)	Solar Power Generation Systems, Garbage Disposals, and 2 other items
Public-Works Projects (58 Items)	Portland Blast Furnace Cement, Pavement Material, Flushable Toilets, Greening of Rooftops, and 54 other items
Services (7 Items)	Printing, Cafeterias, Automobile Repair, and 4 other items
Total(17 Categories)	214 Items



Green Purchasing Network (GPN)

- Founded in February 1996 to promote green purchasing in Japan by the initiative of the Environment Agency
- The mission of GPN
 - to promote the concept and practices of green purchasing
 - to provide guidelines and information necessary for practicing green purchasing.
- 2,800 members
 - 2,200 companies, 300 governments, 300 NGOs
- GPN has taken a leading role in promoting green purchasing in Japan.

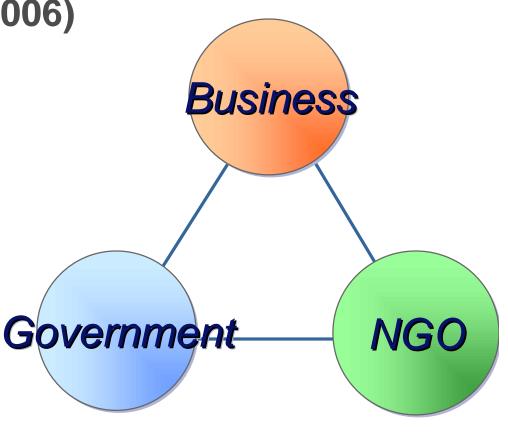


More About GPN

Independent non-profit organization

2,860 members (Jan. 2006)

- 2,261 enterprises
- 317 governments
- 282 NGOs, NPOs
- Executive Committee
 - 45 membersfrom each sector



One of the largest environmental organizations in Japan

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Celebration of 10th Anniversary of GPN



Feb. 2006

GPN設立10周年記念フォーラム 第8回グリーン購入大賞表彰式



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Celebration of 10th Anniversary of GPN







Activities of GPN

- Conferences, Seminars, Exhibitions
- "Green Purchasing Award"
- Training Course
- Case study on success stories
- Newsletter, Website
- Promotion pamphlet, posters
- Regional Networks
- Annual Surveys
- Principles of Green Purchasing
- Purchasing Guidelines
- Products Database
- Hotel Database
- Information Plaza









Green Purchasing Guidelines

Products

- Printing and Copying Paper
- Copiers, Printers, Facsimiles
- Personal Computers
- Stationery and Office Supplies
- Office Furniture
- Motor Vehicles
- Refrigerators
- Washing Machines
- TV Sets
- Air Conditioners
- Toilet and Tissue Paper
- Lighting Equipment
- Uniforms and Work Wear
- Toilet Facilities

Services

- Offset Printing
 Service
- Hotels and Inns





Under Making Process

Foods



Clothing



Restaurants





GPN Products and Service Database

GPN Database

13 products area where purchasing guidelines exist

Green Purchasing Information Plaza

Various products and services not listed in GPN database

Eco-Challenge Hotel Database





About GPN Eco-Products Database

Product Environmental Performance Database

- More than 13,000 products registered
- About 600 companies participating
- Comparable data unified by information format
- 300,000 page-views monthly

Product Categories

- Printing and Copying Paper
- Copiers, Printers, Facsimiles
- Personal Computers
- Stationery and Office Supplies
- Office Furniture
- Motor Vehicles
- Refrigerators
- Washing Machines
- TV Sets
- Air Conditioners
- Toilet and Tissue Paper
- Lighting Equipment
- Uniforms and Work Wear
- Toilet Facilities



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How to Use GPN Database





Top page





Detail information (respective)



Product category top page



Products Information Table

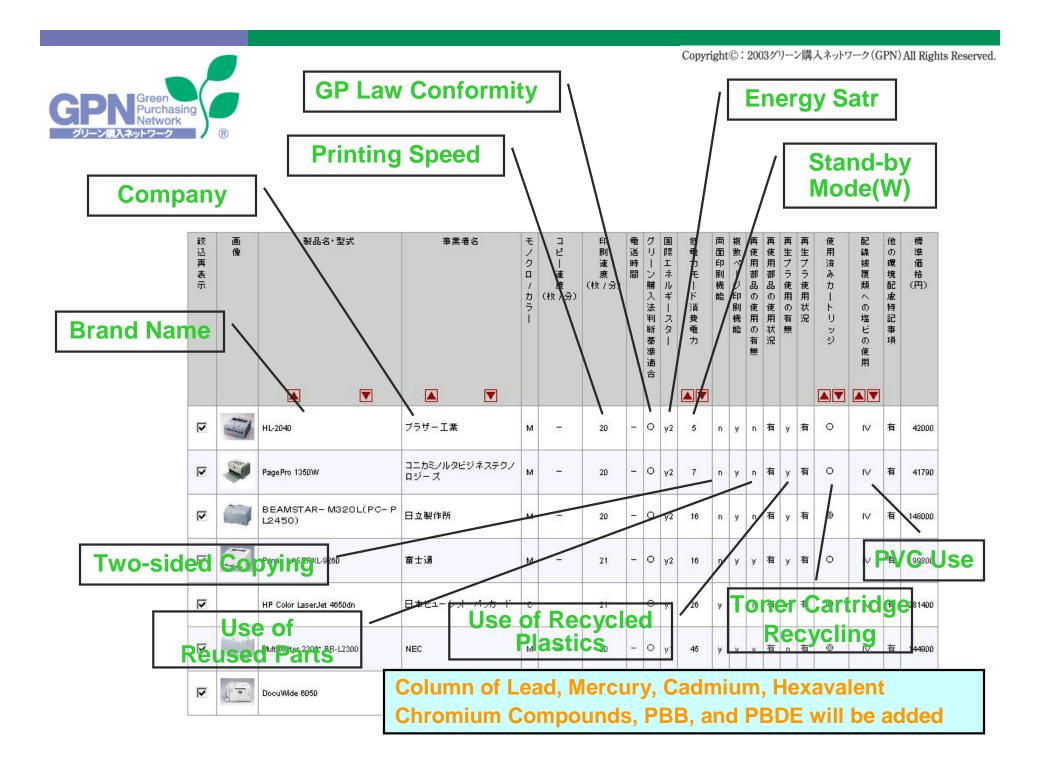


GPN-GL2 Purchasing Guidelines for Copiers, Printers, Facsimile Machines

- 1) Minimal power consumption during operation and standby mode, (fulfilling requirements for "low energy consumption rate", as stipulated in the Law Concerning the Rational Use of Energy, and the International Energy Star program)
- 2) Function to reduce the quantity of paper consumed, (i.e. two-sided copying/printing and multiple-page in one page copying/printing)
- 3) Recovered at the end of its usage-lifecycle, and its parts reused and recycled as raw materials
- 4) A toner cartridge, when used, that will be properly recovered and its parts reused and recycled as raw materials
- 5) Incorporate reused parts and/or reproduced plastic materials
- 6) Does not contain lead, mercury, cadmium, hexavalent chromium compounds, or specific bromine-based flame-retardants (PBB, PBDE), to the utmost extent possible

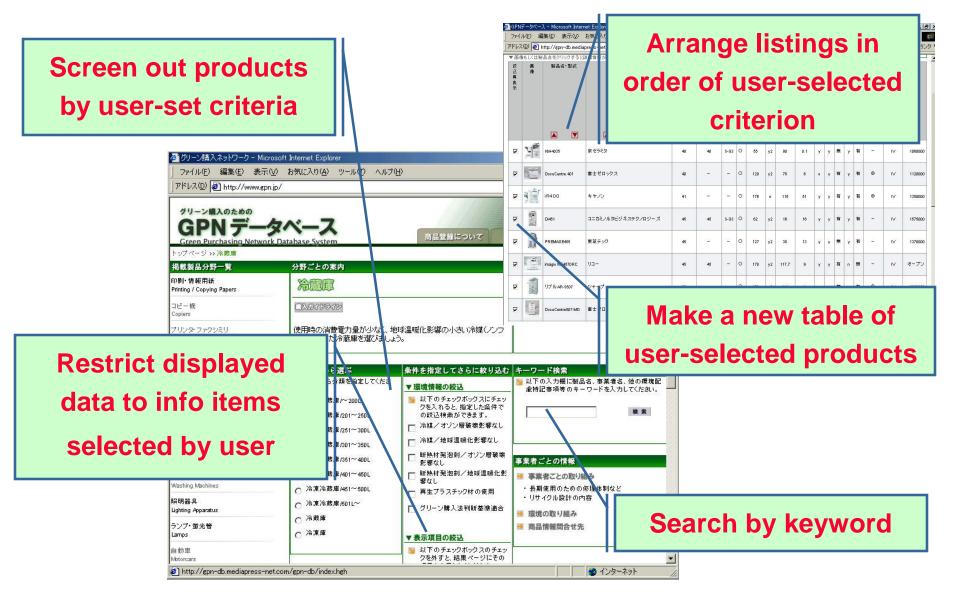
[Information Requirements]

Use of PVC for coated wire





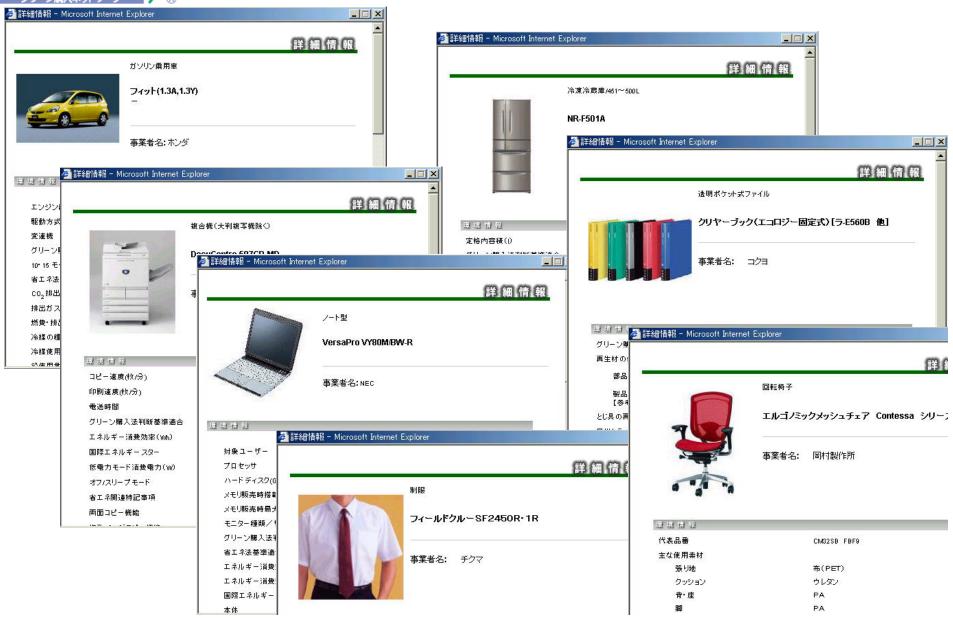
Useful Functions of GPN-Database



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GPN DB - Registered Products





Eco-Challenge Database for Hotels

- Database specific to Hotels and Inns
- Provides environmental performance information on hotels.
- Based on GPN guidelines
- Self-declaration system
- Started in 2003
- Any hotel meeting minimum requirements can be registered.
- 89 check points
- 240 facilities are registered
- From "Beginner" to "Top Class"



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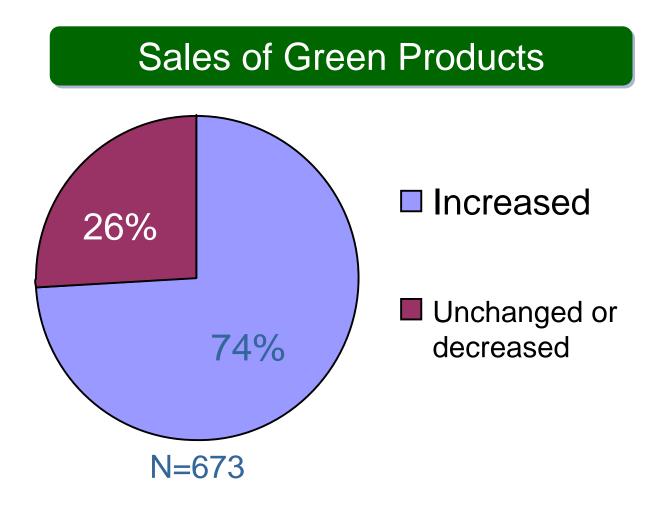
Market Impact of Green Purchasing





Market Impact of Green Purchasing

Findings from survey by GPN in 2001





GPN Annual Suppliers Survey, Japan

2001 Survey

- 74% of 673 supplier companies responded "sales amounts of green products have increased in the past couple of years".
- 75% have increased green products brand.

2002 Survey

 74% of 802 suppliers responded "customers' interest in green products have increased.

2003 Survey

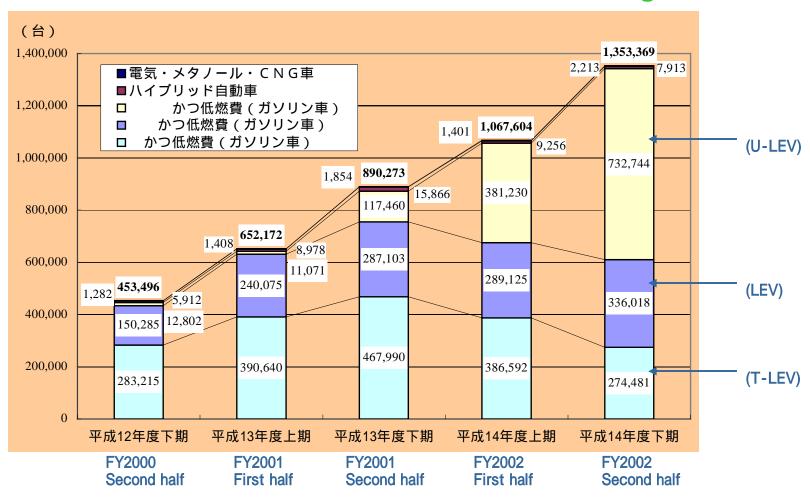
- 58% of 722 suppliers responded "sales amounts of green products have increased in the past year".
- Domestic market size of green products is roughly estimated as 50 trillion yen.



Effect of Green Purchasing

Market impact - Surveyed by MoE, Japan

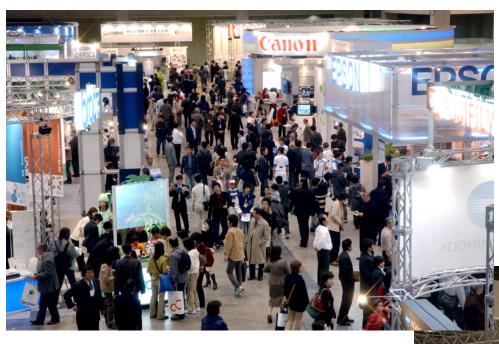
Sales of lower emission and fuel efficient vehicles rapidly increased after enforcement of Green Purchasing Law

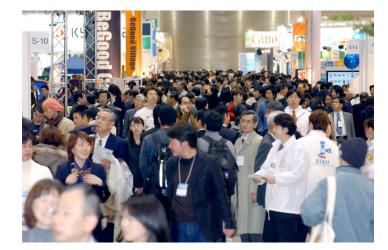


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Eco-Products Exhibition in Tokyo





More than 400 companies, Exceeds 140,000 visitors

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Conclusions





Purpose of Green Purchasing

- Reduce environmental impact
- Enlarge eco-products market
- Green supply chain

Simultaneous pursuit of Economy and Environment!





Conclusions

- Both of supplying eco-products and green purchasing are indispensable for greening supply chain toward sustainable society.
- Governments and businesses already started green purchasing across the world and had made reasonable successes.(Japan, USA, Europe, etc.)
- Businesses are increasingly required to supply ecoproducts, eco-components, and eco-services from customers throughout the supply chain.
- To be competitive (to survive) in the global market, businesses must enhance environmentally conscious management.
- Cross-sector organization like GPN is effective to promote green purchasing. (Japan, Korea, China, Malaysia, Thailand, and India)

