

**An Introductory Study on Green Purchasing Activities
in Malaysia**

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**Green Purchasing Network Malaysia
Kuala Lumpur**

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by

Green Purchasing Network Malaysia

INTRODUCTION

In so far as Green Purchasing or Green Procurement (GP) is concerned, it is a very new concept in Malaysia. The proposed strategy would encircle the involvement of an organization or company in the four fundamental principles as follows:

- a) to consider necessity before purchasing,
- b) to note the environmental impact of a product at all stages of its life cycle,
- c) to consider the corporations' and distributors' environmental performance, and
- d) to promote the gathering of environmental information when purchasing products.

Environment Regulatory Framework in Malaysia

Malaysia, like many developing countries, in the early days of abundant resources and minimal development pressures, little attention was paid to growing environment protection and conversation. However, since the enactment of the Environmental Quality Act in 1974, and the subsequent establishment of the Department of Environment, environmental management in Malaysia began to be more formalized and structured. Department of Environment Malaysia (DOE), under the Ministry of Science, Technology & Environment, Malaysia is formed to administer and enforce, amongst other environmental laws and regulations, the Environmental Quality Act, 1974 (Amendments 1985, 1996) and Section IV of the Economic Exclusive Zone Act, 1984.

Environmental Policy Objectives

The Environmental Policy Objectives are geared towards ensuring continued economic, social and cultural progress of Malaysia and the enhancement of the quality of life of its

people, through environmentally sound and sustainable development. The objectives seek to achieve:

- A clean, safe, healthy and productive environment for present and future generations.
- Conservation of the country's unique and diverse cultural and natural heritage with effective participation by all sectors of society.
- Sustainable lifestyles, patterns of production and consumption.

Current Situation of Malaysian Industry

As stated earlier, the concept of Green Purchasing (GP) and the establishment of a network is relatively new to the Malaysian industries. Even though other quality standards such as the ISO 9000, ISO 14000 series was launched as early as 1987, the Malaysian industries only realized the benefits when some of the firms were awarded "registered firm" in 1988. The ISO 9000 series or ISO 14000 series certification is carried out through the national accreditation body - SIRIM or the Standards and Industrial Research Institute of Malaysia and the National Productivity Corporation (NPC), Malaysia.

It is noticed that mainly the larger companies where the headquarters are from the USA, UK, Japan and other European countries have taken the challenge to promote 'green' practices. For the local manufacturing industries, especially the small- and medium-sized industries (SMIs), many if not all of them are still having the attitude of "wait and see".

Like most other countries, Malaysia has enacted a series of laws and regulations to stimulate pollution abatement based on end-of-pipe treatment. As discharge standards have become more stringent over the last two decades, the cost of end-of-the-pipe treatment has increased to the point of impacting the economic viability of companies in Malaysia. SMIs are particularly strongly impacted by rising costs due to their limited technical and financial resources. Equally important, the end-of-the-pipe approach does not eliminate pollutants, but merely transforms them from one medium to another. Therefore, it is crucial for Malaysia to look beyond the end-of-pipe methods to resolve pollution control problems. Although there is much public discussion on '5Rs' – reduce, reuse, recycle, recovery and refuse, at the moment the Malaysian government does not

have a formal policy on recycling activities. However, it is understood that a National Strategic Plan for the Management of Solid Wastes is in the final stages and it should be out towards the end of 2003. Meanwhile, government incentives are available which include:

- a) Capital rebate up to 50% for the purchase of recycling machineries, claimable from the Inland Revenue Board, Malaysia; and
- b) Exemption on the Import Duties and sales tax for such machines are applicable.

In Malaysia, statistics have indicated that a large portion of the country's environmental problems is associated with the activities of the small and medium-sized industries or SMIs. SMIs attribute their difficulties in compliance to their numerous constraints such as the lack of access to new technologies, lack of skills, low capital investment, low profit margins, small and variable scale of operation, and low productivity. However, with environmental standards and enforcement becoming more stringent, activities related to pollution prevention, control and waste minimization are steadily gaining momentum and attracting interest in Malaysia. Several programs that are relatively new in terms of concept and practice have been introduced and implemented on an ad hoc and piece meal basis. Some of the environmental programs or activities that have been launched in Malaysia are cleaner technology, cleaner production, pollution prevention, adoption of the Environmental Management System (EMS), and the ISO 14000 certification.

Trends of Quality Management in Malaysia

The main trends within quality management in Malaysia can be classified according to the following categories:

- Japanese affiliates, joint ventures with Japanese companies or those companies supplying products which apply Japanese system of quality management such as 5Ss.
- Multinational companies from Europe or the USA which apply TQC (total quality control) in accordance with their own standard manuals.
- Those companies aiming to realize quality system in line with ISO 9000, to meet the demands of export markets.

- Those companies recognizing the importance of quality management and which try to realize this but whose efforts are no more than line inspections.
- Those companies recognizing the importance of quality management but which are unable to realize objective results because of insufficient facilities.

Only a small number of Malaysian SMIs have reached a stage of development where they are able to apply quality management and effect an upgrading of their technical levels autonomously. The majority of these SMIs implement quality management in response to demands from their clients. (Hamzah & Ho 1994, pp.27-35)

Awareness of the Importance and Role of Quality Management

Many SMIs have no awareness of the necessity to implement quality management. Only some firms whose main markets are abroad or companies that produce parts and materials to be supplied to the manufacturers of products for export have the tendency to practice quality management. It is extremely rare among local SMIs to find companies which actually apply quality management systems, including quality control (QC) circle activities and other necessary practices, as an important element in upgrading in-house technical levels. The majority of local SMIs regard quality management as a response to buyers' requirements, and so they rarely undertake anything beyond product inspection. (Hamzah & Ho 1994, pp.27-35)

Education and Training for Quality Management

At this juncture, only a limited number of SMIs make active use of the services of promotional bodies such as the NPC (the National Productivity Corporation) and SIRIM (the Standards and Industrial Research Institute of Malaysia). One of the plausible reason for the low level of awareness amongst the SMIs in this field is the fact that there are very few textbooks or reference works on quality management written in local language i.e. Bahasa Malaysia. This implies that local staff in charge of training would need to translate materials for use during training sessions. This slows down the promotion of quality management considerably. In addition, there is also an inability to comprehend the directions given by quality management staff due to educational level of

the trainees. Basic education on statistics is generally lacking, and this hampers the general application of statistical methods on quality management. (Hamzah & Ho 1994, pp.27-35)

Approaches to ISO 9000 Quality System

Many local firms are interested in complying with demands from export markets to apply quality management systems based on the ISO 9000 Series. To meet this requirement, industrial associations are examining the possibility of instituting technical assistance, to be provided to member firms which intend to seek certification of quality systems based on ISO 9000. This assistance would include holding seminars organized with the help of SIRIM or employing qualified quality consultants by the associations. However, in general, because of the large amount of paperwork required by ISO 9000, it is difficult for the SMIs to tackle such tasks.

SIRIM's Quality Improvement Practice

The Malaysian Government implemented its "Umbrella Project" in 1990, with the aim of upgrading technical levels and product quality among the SMIs, through SIRIM. This project aims to promote the gradual introduction of quality systems among SMIs based on ISO 9000 with the technical assistance of foreign affiliates and other advanced manufacturing companies. The aim was to encourage quality management by promoting the application of such systems under the Quality Improvement Scheme (QIP) and to tap those companies accredited under the QIP as suppliers to the main manufacturing companies co-operating under the aegis of the Umbrella Project.

Malaysian Standards (MS)

Generally, the Malaysian Standards are classified into three categories:

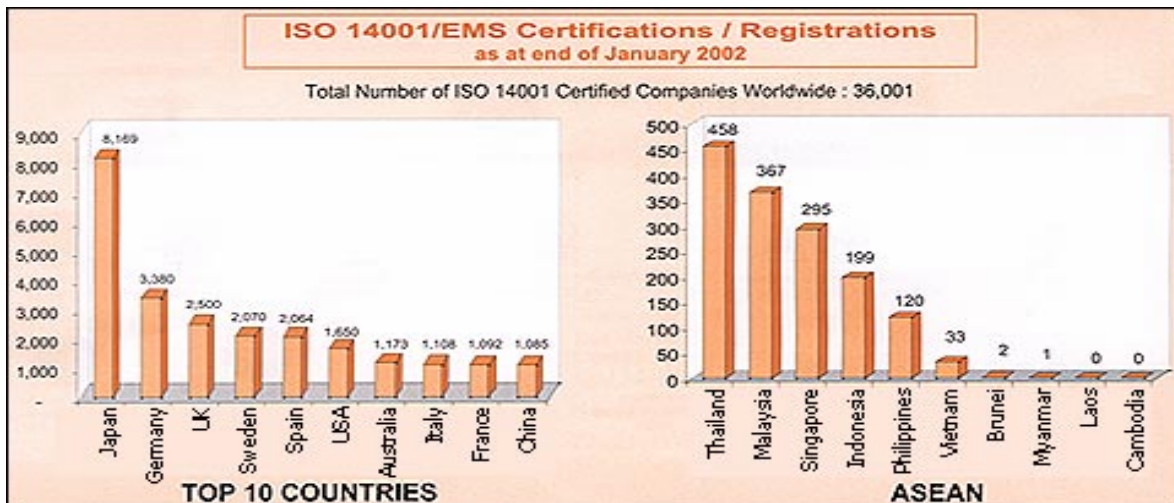
- a) Product standard: to specify the shapes, dimensions, quality and functions of products;
- b) Method standard: to specify methods of tests, analyses and inspection, and to establish procedures as well as codes of practice; and

- c) Basic standard: to specify such basic elements as glossaries of terms, marks, units and progressions.

The MS is used as a basis for product certification since it covers all industries including products related to electrical safety, automobiles and fire-fighting which are subjects of mandatory certification, as well as such principal export products such as rubber and palm oil (Hamzah & Ho 1994)

Awareness on ISO 14000

The ISO14001 Environmental Management System is an example of a standard developed by ISO/TC207 that has made significant impact on the global scene. After only 5 years since its introduction the number of companies that are certified to ISO14001 in the world has grown to more than 36,000, with Japan leading the rest of the world with more than 8,000 companies certified. Malaysia ranks 2nd within the ASEAN region and the number of ISO14001 certified companies in Malaysia have also seen exponential growth with an increase from 241 in December 2000 to 367 as end January 2002.



(Extracted from Transevent Sdn.Bhd. Corporate Website)

PRACTICES: GOVERNMENT INCENTIVES & POLICIES

The Malaysian government provides several legal framework and incentive schemes for the manufacturing sector as described briefly as follows:

Promotion Act 1986

Through the Promotion Act 1986, Pioneer Status (PS) /Investment Tax Allowance (ITA) will be given out to any companies which carry out activities such as forest plantation project, proper storage, treatment and disposal of toxic and hazardous waste, waste recycling activities, the conservation of energy, utilizing biomass as a source of energy and also on specific manufacturing related activities

Pioneer Status (PS)

A company that is granted PS will be granted tax exemption on 70% of the statutory income for 5 years. The balance 30% of that statutory income will be taxed at the prevailing company tax rate.

Investment Tax Allowance (ITA)

The Investment Tax Allowance (ITA) is an alternative incentive that companies can opt for other than the Pioneer Status. ITA is designed to cater for projects which have large capital investments with long gestation period.

As in the case of PS, a company granted ITA will be granted an allowance of 60% in respect of qualifying capital expenditure (such as factory, plant, machinery or other equipment used for approved project) incurred within 5 years from the date the first capital expenditure is incurred. The allowance can be utilized to set off (exempt) up to 70% of the statutory income in the assessment year. The balance of that statutory income will be taxed at the prevailing company tax rate. Any unutilized allowance can be carried forward to subsequent years until the whole amount has been fully utilized.

Other Incentives

In addition, the Malaysia government through Ministry of International Trade & Industry (MITI) has offered grants for qualified Malaysia SMIs. The details are described briefly as follow:

Grant for Productivity and Quality Improvement and Certification (ITAF 3)

The Scheme provides assistance to SMIs for productivity and quality improvement and to achieve international quality standards and certification. The Scheme provides grants to assist SMIs in:

- Productivity and Quality Improvement;
- Productivity and Quality Improvement based on customer's requirement;
- Documentation of Productivity and Quality Improvement;
- Productivity and Quality System Certification;
- Total Quality Management (TQM);
- Quality Development Systems [5S, Production and Planning Control (PPC), Quality Control Circles (QCC), Total Preventive Maintenance (TPM)];
- Occupational and Safety Measures;
- Quality Series: ISO 9000, ISO 14000, ISO 18000; and
- HACCP, Halal and other product quality certifications.

Form of Assistance

The maximum grant allocated per company is RM250, 000.00. Assistance is given in the form of a matching grant where 50% of approved project cost is borne by the Government and the remainder by the applicant.

Eligible Expenses

The grant covers the costs of:

- Cost of technical expertise;
- Cost of acquiring skills and technology through training and acquisition of technical information;
- Service cost for related schemes;
- Cost for testing and calibration;
- Cost of acquiring equipment for product testing, pollution prevention or safety; and
- Cost of material, used in designing and developing prototypes. Matching grant where 50% of approved

Project cost is borne by the Government and the remainder by the applicant.

BACKGROUND OF BUSINESS SECTORS

In Malaysia, GP practice is new in corporate society. Only a number of Japanese companies which have subsidiaries or branches in Malaysia are found to practice GP activities. Even in these cases, it was learnt that the local companies or affiliates companies would have obtained certain management directives from the Headquarters based in Japan. Companies such as Fujitsu, Sharp, NSK and Brother Limited are a handful of private companies in Malaysia which have started green purchasing activities.

The followings are brief activities on Green Purchasing as practiced by the local Japanese branches:

a) Brother Industries (M) Sdn Bhd.

Brother promotes green procurement activities featuring priority purchase of products that are friendlier to the environment. In particular, Brother Industries, Ltd. became affiliated with the Green Purchasing Network in 1997 and set procurement standards using the recommended products list, ranging from toilet paper to company vehicles. In 1997 and 1998 respectively, Brother Industries (Johor) Sdn. Bhd (Malaysia) and Brother Industries Technology (Malaysia) Sdn. Bhd. managed to obtain ISO 14000 and started to implement GP in response to Brother's global GP campaign.

b) The Nitto Denko Group.

The Nitto Denko Group started its green procurement in year 2000. In year 2001, through its subsidiary in Malaysia, Nitto Electronics Denko (Malaysia) Sdn. Bhd. has started its environmental accounting. In year 2002, the Nitto Denko Group, which aims for harmony and management, has application of green procurement guidelines and creating of survey information database for all the subsidiaries worldwide. According to Nitto Denko Group, due to the fact that laws and conditions differ from country to country, environmental activities must be pursued with attention on fine details. Centered on overseas expansion of environmental accounting, they are attempting to spread global environmental activities based on environmental impact cost reduction activities. Also, they are also synchronizing their conscious-sharing and activities by considering a global environmental management assessment system and holding international conferences on the environment.

c) Others

Apart from these companies, the following companies are also found to have knowledge on green purchasing practices. These include:

- i) Fujitsu Corporation via Fujitsu Component (Malaysia) Sdn. Bhd. (Malaysia), Fujitsu Microelectronics (Malaysia) Sdn. Bhd. (Malaysia) and Fujitsu Computer Systems (Malaysia) Sdn. Bhd. (Malaysia)
- ii) Casio (M) Sdn. Bhd.
- iii) SA6 Minolta (M) Sdn. Bhd
- iv) Olympus (M) Sdn. Bhd.
- v) Shinko Electronics (M) Sdn. Bhd. Systems

PLAUSIBLE OBSTACLES TO THE IMPLEMENTATION OF GREEN PURCHASING NETWORK

The barriers and constraints in implementing GP activities in Malaysia can be perceived at two levels. One is at the Policy level and the other is at the enterprise level. However, if the organization of GPN Malaysia is well thought off, with the help and collaboration of GPN Japan, these obstacles can be overcome. Moreover, it is envisaged that at the early stage of implementation of GP Malaysia, slow steps and participatory involvements of some key industrial players would be important. Also, at the initial set up of GPN Malaysia, it is suggested that companies will not be charge a fees for being member. Nevertheless, some related issues are discussed as follows:

At the policy level, implementation of GP activities should be viewed on account of:

- **Incentives to encourage adoption of GP activities.**

At the national level, not many incentives are offered to companies or corporations to implement GP activities. Incentives such as Pioneer Status or Investment Tax Allowance, as well as ITAF 3 grant may not be significant to motivate companies, especially SMIs to adopt GP practice. However, as more companies are members of GPN, the 'self-motivation' concept may work and this may attract more companies to voluntarily come forward to have the products listed in the GP's directory.

- **Lack of awareness on the GP concept.**

In this regard, trained and qualified personnel in this area are of first priority. Industry would largely have to depend on manpower and resources outside the country for training, design and auditing the product or services so as to be listed into GPN directories.

At the enterprise level, the process of designing and implementing an effective GP practice may be constrained on account of:

- **Business Requirements**

Business to business environmental requirements has begun to influence corporate behavior in favor of environmental protection. Buyers abroad are increasingly demanding proof of environmental responsibility from all those who are in the supply chain. While product related environmental requirements like eco-labels have been a part of business stipulations for quite some time, now process related certifications are also gaining currency internationally. Such certification related to organic and sustainable farming, floriculture, forestry marine food etc. In the case of GP practice, most of the local or international buyers still do not regard it as mandatory. This may be true for some time. However, once GPN Malaysia starts as a legal and official organization to list the organization and display their products in the directory as done in the case of GPN Japan, the 'self-requirement' would propel the business requirement for the companies and their products to be within the listing of GPN Malaysia. This is especially so if GPN Malaysia can convince the government sector to be member of GPN Malaysia.

- **Customers' Awareness on Green Purchasing**

In this regard, there are two aspects i.e. the companies as consumers of intermediary products as well as individual consumers as end product users. The important aspect will be to raise the awareness of the companies' procurement department and their staff so that purchasing will go 'green'. This will influence the suppliers or the contractors of the company to be members of GPN Malaysia.

On the other hand, individual customer's awareness in green purchasing will be an added advantage to promote GPN Malaysia.

- **Unable to perceive the benefit of GPN Initially**

It would not be surprising that the initial reception of GPN Malaysia will be met with skepticisms especially when it is difficult to quantify the benefits, cost savings and customer rewards associated a green purchasing network. This is especially so in the absence of a legal framework to push for the so-called positive environmental action, and generally the businessman would not want the benefits accrue slowly but costs quickly in joining GPN Malaysia. The only way to this is to be patient to build up the network initially and once there is a critical mass of members with certain number of the products listed in the directory, the mis-conception will slowly but sure wane as in the case of GPN Japan.

Potential Trade Impacts of GPN

With the implementation of GPN Malaysia, the likely outstanding concern that its implementation may likely to pose a barrier to trade, particularly for small and medium enterprises and for companies in developing countries will have to be tackled. This has to be explained in the context of voluntarism for the promotion of environmental protection and the improvement of overall socio-economic development.

Some of the trade issues relevant to the implementation of GPN which might be raised are as follows:

- There is a concern that the GP practice will be adopted as a mandatory requirement by some quarters and therefore may pose a barrier to free trade. This should not be a concern as there is no effort to make joining the green purchasing network compulsory at any time
- It is possible that in future, government procurement practices will give preferential treatment to GP certified supplier. (Nyati, 2001) This might be so as the society demands for better products and goods as well as cleaner environment.

INTRODUCTION OF ORGANIZATIONS PROMOTING GREEN PURCHASING

Green Productivity Association, Malaysia (GPAM)

The Green Productivity Association is legally registered with the Register of Society Malaysia on 30th, July 2001. Amongst the objectives of GPAM are:

- a) To meet on a regular basis to promote technology, management experience, and training and sustain green productivity related activities among members
- b) To promote issues and encourage the implementation of Green Productivity through management methodologies such as the Environmental Management System (EMS) and in particular in relation to best business practices.
- c) To encourage active participation and share productivity related information among members.
- d) To share where possible relevant expertise and database on the area of productivity enhancement and environmental protection.
- e) To collaborate with local and foreign organizations involved in green productivity improvement activities including training programs, seminars, workshops, demonstration projects and publications.

The GPAM is still at its infancy stage and due to various factors including financial constraints; GPAM's activity has been limited to membership drive and organizing green productivity awareness meetings and workshops. The response towards the association's membership drive has been extremely encouraging thus far, with interested organizations and individuals applying for the membership. (Adapted from GP Country Paper-Malaysia)

The Green Purchasing Network Malaysia (GPN)

A group of like-minded individuals have gathered and submitted an application to the Register of Society Malaysia for the registration of a Green Purchasing Network of Malaysia in early January 2003. It is expected that the registration to form a legal entity will take several months. Once the formality of registration is completed, the Association

will than invite companies to attend the inaugural meeting in which case GPN Malaysia will be formally launched.

The stated objectives of GPN Malaysia are as follows:

- a) To promote, educate, disseminate, investigate and research on green purchasing issues and encourage the implementation of green purchasing through management methodologies and principles such as the establishment of guidelines for products and merchandise information in relation to best business practices.
- b) To encourage active participation and share productivity related information proliferating among Members; including the use of eco-mark, environment labels and data book.
- c) To share where possible relevant expertise and database in the area of green purchasing, procurement and related enhancement so as to achieve environmentally conscious products or services.
- d) To collaborate with local and foreign organizations involved in green purchasing improvement activities including training programs, seminars, workshops, demonstration projects, publications, disseminations and other related events.

NATIONAL ACTIVITIES THAT ENHANCING GP ACTIVITIES

Prime Minister's Hibiscus Award

The Hibiscus Award was first launched in 1996 as the premier private sector environmental award in Malaysia. With the support of the Prime Minister, the Award was upgraded to be the Prime Minister's Hibiscus Award in 1998. The Award's objectives are to provide business and industry with the opportunity for an independent evaluation of their environmental commitment and sustainable development; Stimulate business and industry initiatives in assuming a proactive role in environmental protection and sustainable development; and recognize the achievements of exemplary participating organizations for other organizations to emulate.

Malaysia Environment Week

The Commonwealth Heads of Government Meeting (CHOGM) held on 18-24 October 1989 strengthened the framework of environmental management with the adoption of the Langkawi Declaration on the Environment on 21 October 1989. To commemorate this date, the Government decided that Malaysia Environmental Day will be celebrated on 21 October each year to mark the adoption of the Langkawi Declaration. Henceforth, 21-27 October each year will be Malaysia Environment Week (MASM). Many activities were planned for the celebration at National and State level during one week event

LOCAL AUTHORITY'S EFFORT IN PROMOTING GP

Malaysia is running out of space to dispose of the urban waste generated daily by wasteful consumption. There simply aren't enough landfills. According to Housing and Local Government Minister Datuk Seri Ong Ka Ting, 80% of the country's landfills will be full in two years. In fact, landfills themselves cause many serious environmental problems both for us and for future generations.

Breakdown of solid waste created by Malaysians

27 %	Paper
36.5%	Household waste
3.9%	Steel
3.7%	Glass
16.4%	Plastic
12.5%	Others

Experts believe a landfill can last 10 years longer if Malaysians recycled 50% of their garbage. According to an estimate, in the 1990s, the average solid waste disposal by a Malaysia was 0.7 kg per day and today the solid waste disposal by the same Malaysia has risen to about 2.2 kg per day. The residents of Johor Bahru generate 1300 tons of waste every day. It will take only 3 days to fill the entire length of the Johor Causeway with this amount of garbage.

Local Agenda 21

To start on all this - saving water, recycling, composting, Local Agenda 21, or LA 21, is a means of linking local authorities with the people towards a common goal of sustainable development. Launched by the United Nations at the seminal Rio Earth Summit in 1992, it is aimed at empowering local communities in the 21st century - hence "Local Agenda 21".

LA 21 in Malaysia is jointly implemented by the United Nations Development Programme, the Housing and Local Government Ministry and various local authorities. LA 21 will provide affirmation and encouragement to local authorities, and will at the same time provide growing opportunities for community participation in planning and development. It also increases social integration and promotes a self-help attitude among the people of a particular community. [Adapted from Kitarsemula Website]

Petaling Jaya Community Centre (PJCC)

The PJCC is a program based on a smart partnership of government, non-governmental and private organizations and communities. It was conceptualized in September 1996 and the smart partnership program started in 1997. The PJCC has the objective of setting up continuous and self-reliant programs at community level utilizing the resources of older persons, with participation from the young, for the benefit of all groups in society. Emphasis is given to activities and services which are economic, educational, health, social, environment, cultural, sports and recreational, and related to information and communication technology. [Adapted from PJCC Community Website]

One of their activities is collecting recyclable items. All items brought in must be clean, dry and in the conditions specified or they will be rejected. Besides items in the list below, also accepted are toys, clothes, bags, furniture (beds, cupboards), appliances (fans, fridges), dinnerware (cutlery, cookware) etc.

Items/ Material	Price per kg*	Conditions	Some examples
Aluminium Cans	RM1.00	Crushed	Soft drink cans
Tin Cans	2 cents	No rusty tins	Food, biscuit and milk tins

Paper	5 cents	No food wrappers	Newspapers, magazines, telephone books and cardboard boxes
Glass bottles/jars	5 cents	Clear or colored. No ceramics, window panes or light bulbs	Vitamin, jam and drink bottles
Plastic	10 cents	-	Drink bottles/straws, tupperwares, plastic bags and wrappings
Useable clothing	15 cents	No torn clothes or rags	Adult's or children's clothes

* Prices indicated are based on rates set by the respective recycling companies and may vary accordingly.

ENVIRONMENTAL FRIENDLY ORGANIZATIONS & EFFORTS

Eco Labeling - NTCC

The establishment of the National Timber Certification Council (NTCC) is an important development towards sustainable forest management in Malaysia. Incorporated as a company limited by guarantee in October 1998, the council had started its operations since January 1999. The NTCC is a non-profit company established to plan and operate the timber certification scheme in Malaysia, as part of Malaysia's overall efforts to ensure sustainable forest management as well as to facilitate international trade of timber.

Incentives for Energy Efficiency & Conservation (EEC)

EEC programs will focus on the industrial and commercial sectors being the major consumers of energy. Measures to promote the efficient utilization of energy include the enforcement of the Energy Efficiency Regulation, extension of financial and fiscal incentives and demonstration projects. In this respect, the establishment of new integrated complexes and townships that are managed on an energy-efficient manner will be encouraged. The implementation of demand-side management will be intensified during the Eight Malaysia Plan (2001-2005) period, which includes energy auditing,

retrofitting and district cooling programs, changing the energy usage pattern and appliance labeling.

One of the most promising programs is energy auditing that aims to encourage industries and building owners to audit their energy use towards reducing energy cost and increasing productivity. Under this program, about 40 units of buildings and industries have been audited between 1993-1995 through the bilateral and multilateral cooperation. This is the first energy audit program carried out under the Malaysia Development Plan 1991-1995. The Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP) is one of the biggest projects that is currently being carried out by Malaysia Energy Centre (PTM) targeting the industrial sector while Energy Audit in Government Buildings (EAGB) is targeting the building sector.

Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP)

The implementation of this RM 80-million 4-year project is guided by the utilization objective of the National Energy Policy. This project is jointly funded by the Government of Malaysia, the private sectors, the Global Environment Facility (GEF) and the United Nations Development Programmed (UNDP). The project is developed to remove the barriers to energy efficiency and conservation in the country's industrial sector, i.e., Global Environment Facility (GEF) Operational Program No. 5. The objective is not to constrain the consumption of energy but to promote efficient use of energy resources. In addition, the MIEEIP is expected to make accelerated inroads as a practical and economic "green" energy option to reduce the negative environmental impacts on energy consumption on the local, regional and global environment.

The MIEEIP aims to reduce the barriers and encourage implementation of energy efficiency improvements in the eight energy intensive manufacturing sectors namely; cement, ceramic, iron and steel, food, glass, wood, pulp and paper and rubber. The project will develop benchmarks for energy use in the eight industrial sectors, enhance their capacity to identify and evaluate energy saving measures, provide training and education and demonstrate the viability of new energy saving technologies through pilot project.

On top of that, the government has provided fiscal incentives through Malaysia 2001 Budget for energy efficiency companies via Pioneer Status and Tax Allowances
[Adapted from ASEAN Energy Corporate Website]

Private Sector in promoting to GP

As part of a continuous improvement process, Malaysian manufacturers, especially in chemical related producers constantly work towards meeting existing and new "green" guidelines imposed by key export markets like the European Union and Japan. In line with meeting eco-labeling requirements, Malaysian manufacturers are working towards phasing out chemical substances such as *cadmium*, *lithium* and polyvinyl *chloride* (PVC) from electrical and electronic equipment. Malaysian producers are also working towards fulfilling Japan's new green product guidelines covering the designated labeling of *nickel cadmium* batteries, *lead acid* batteries, and PVC in building materials such as pipes, floor coverings and wallpaper.

As a mark of their commitment towards environmental conservation, many Malaysian chemical companies have eradicated the use of *CFCs* in aerosol products, which was identified as a major contributor to greenhouse gases and global warming.

In the area of R&D, many Malaysian companies and brands are constantly investing in new product development for items like adhesives, paints and petrochemicals. Significantly, Malaysia produced a world first with the Silverfil mercury-free dental amalgam, a major contribution to global dental health.

In order to completely globally, ISO 9000 series and 14000 series, and other standards such as GMP are being adopted. As for 2003, 50 Malaysian-based companies have managed their operations according to the 10 guiding principles and 6 codes of management practices of the Responsible Care Program. These codes include *Distribution, Community Awareness and Emergency Response, Pollution Prevention, Process Safety, Employee Health and Safety and Product Stewardship Code*. [Adapted from MATRADE Corporate Website]

CONCLUSION

At present, the practice of GP amongst the manufacturing industries including the SMIs in Malaysia is virtually non-existent. This is because the concept is still new to many. The implementation of environmental techniques by Malaysian SMIs is based very much on ad-hoc practices and many of them do not actually subscribe to any particular environmental concept. Most of the firms in Malaysia are still in the 'wait and watch' stage to actively participate in any environmental protection related programs because many organizations in Malaysia do not recognize the need to link the business to the environment for greater benefits.

Several issues related to the implementation of green purchasing in Malaysia have been discussed and with the commitments from individuals, companies and collaborations from GPN Japan, many of these issues can be overcome slowly but surely. For more effective implementation and promotion of GP practice, efforts should be taken to include government departments and agencies, the academic institutions and NGOs to be part of the GP family. In this context, the role of supporting agencies like the Green Productivity Association Malaysia, the NGO's and related government bodies could play a significant role in promoting awareness of existing environmental practices that may generate better environmental performances. Various approaches such as technical demonstration, public awareness and training programs, information services and offering financial incentives could be held simultaneously in creating the awareness of GPN practice.

With the support from government and enforcement to instill awareness among the local and international traders and business communities, there is no reason why Green Purchasing Network could not be well received among Malaysia companies. What is expected for the future in terms of environmental management is the wide acceptance and practice of GP in industries and related organizations.

CASE STUDIES

For this introductory study on green purchasing or green procurement (GP) in Malaysia, an effort was made to categorize the manufacturing industries into two big groups namely, the big Multinational Corporations where the local organizations are branches, affiliates, subsidiaries or regional set-up of the parent companies based abroad including Japan. An example of such a company will be NSK Sdn. Bhd. The other group comprise of the local SMIs which may be the small or the medium set-up.

Surveys were carried out for the purpose of this study on the following companies:

- a) NSK Sdn. Bhd., Selangor
- b) REM Corporation Sdn Bhd, Selangor
- c) LEP Precision Components Sdn Bhd, Selangor
- d) Progress Plastic Sdn Bhd, Melaka

The case studies for each of the above companies are attached as in Appendix I-IV.

APPENDIX I: CASE STUDY ON NSK (M) SDN. BHD.

Company Background

NSK (M) Sdn. Bhd. located at Taman Taming Jaya Industrial Park, 43300-Balakong in the state of Selangor is a subsidiary company of NSK Co. Japan. The principal products are: bearings, precision machine parts and automotive parts. Most NSK bearings are made of steel that is recycled from scraps. Machinery, which use bearings and no longer have any useful life, are recycled and the recycled steel products are re-used as raw materials.

Environmental Practices

The companies have a varied environmental policies and practices. NSK Japan established the Global Environmental Protection Committee in 1993 and since then NSK has engaged in the development of environmentally friendly products as well as the reduction of energy consumption, waste management and the reduction of hazardous substances at each manufacturing site, including in Malaysia. NSK also practiced some form of environmental policies with their headquarters in Japan insisting on an environmental policy e.g. Green Purchasing policies for their products which are being supplied to various multi-nationals like Sony. They possess ISO 14001 certification though they do not have any kind of eco-labeling as yet (UPM. 1999).

NSK Group of Companies have taken note of the growing environmental concerns and a comprehensive mid-term goal was outlined in the year 2000. Under these voluntary action plans, the companies enact and strive to achieve environmental protection activities throughout the entire company. The companies have also introduced LCA activities and successfully reduce negative impact on the environment including the waste management goals.

In terms of green purchasing and green procurement, the midterm goals were two-folds:

- a) to adopt green procurement standards; and
- b) to adopt guidelines for green purchasing.

In these efforts, the companies had compiled standards and adopted them for 93% (in terms of total volume of purchase made) of vendor companies. In green purchasing, guidelines for papers, office equipment, stationary and vehicles were established. On the other hand, they have minimum related information utilizing green purchasing such as eco-labeling criteria or guidelines, products database and other parameters.

Barriers

It was noted that the suppliers to NSK do not have ISO 14000 certification and do not have a policy of environmental conservation policies. Their purchasing of final products, parts and materials do not take into account of life cycle assessment. It was told that there are at present no legal requirements for these green practices in Malaysia. (Department of Environment, 1974).

The Companies' Awareness

The company is aware of the organization promoting green purchasing i.e. the GPN Japan. It is, however, not sure of the movements involved. They have minimum business approaches as shown in comparison to other MNC's (Harvard Business School, 2002)

APPENDIX II: CASE STUDY ON REM CORPORATION SDN BHD

Introduction

REM Corporation Sdn. Bhd. was established in 1983 as a Resource Environmental Management Company. It is a SME with total staff of twelve person. Its early business activities consisted of earthwork, road, drainage, sewerage, construction, waste paper recycling, precious metal recovery, hazardous wastes and environmental pollution consultancy. Other associated businesses in the past included plant tissue culture, cosmetic and pharmaceutical and starfruit farming.

During the later part of 1980s, the company diversified into fruit wine and brandy production thus, became the first and only company to be awarded a manufacturing license by the Custom and Excise Department of the Ministry of Finance to produce wine using the local starfruit as its raw material. The company produced perhaps the first Starfruit Wine (**Rambola**) and Starfruit Brandy (**Stagnac**) in the world. In the later part of 1999, it was granted the Good Manufacturing Practice (**GMP**) license by the Ministry of Health to produce traditional herbal medicine.

During a glut of starfruits (*Averrhoa carambola L.*) in Malaysia, many farmers discarded them in order to reduce their losses. Confronted with the fluctuation of the growing seasons, the supply and demand of the markets, Rem Corporation decided to make history by converting the good quality off grade fruits into fruit wine and fruit brandy. This is how the history of fruit wine and fruit brandy industry began in Malaysia. REM's customers are wholesalers, retailers, night spots in Malaysia, Singapore and Japan. REM also sells its product directly online at <http://www.rem.com.my>. It also does contract beverage manufacturing for other companies.

REM and the environment

REM does not have written environmental nor green purchasing policy. In fact, when approach, REM admitted to not having knowledge of green purchasing network. However, it has the business philosophy of keeping their production clean with

minimum wastage, and the staff can work in a safe and comfortable environment. REM is sensitive to the environmental aspect of its business due to the background of its founder. The founder of REM is a veteran environmental scientist with a doctorate in environmental health. The early business activities are in the environmental protection realm such as consultancy in environmental pollution and resource recovery.

REM as a purchaser of environmentally less damaging good and services

The most critical issues affecting REM's purchasing decisions are quality, consistency and reasonable price structure. Currently, environment aspect of the product does not critically affect its purchasing decision; REM only asks for the standard product specification. REM will be compelled to ask for environmental-related information when the quality is below acceptable standards. REM do not consider genetically-modified organism as a critical issue in the winery industry. However, REM would consider these products as priority if it were to incorporate green purchasing; concentrates, fruit quality, herb quality (basically the raw material for production).

REM as a supplier of environmentally less damaging good and services

The most critical aspects of the beverage industry are chemical residues and microbial contamination. REM has taken action to minimize environmental impacts of your operation by reducing wastage and reusing by-products and rejects (for example odd-sized fruits). The actions taken are due to legal requirements, customer demand and it is cost effective to do so. REM do not disclose the environmental measures, for example on the labels, it has taken on its products because it is not required at the moment.

REM does not often encounter environmental-related queries from its customers. Customer demands necessitate stringent quality control to ensure its products are safe and healthy. GMO is not a critical issue and organic wine would not be part of REM in the near future because of high cost.

Conclusion

REM's environmental actions are motivated by its experience in the environmental consultancy business. REM practices elements of cleaner production such as waste minimization and was able to capture the cost savings through such measures. As a

purchaser, REM's emphasis is on products that maintain and enhance the quality of its beverages. As a supplier, the market place more emphasis on the taste rather than the environmental aspects of REM's products.

APPENDIX III: CASE STUDY ON LEP PRECISION COMPONENTS SDN. BHD.

Introduction

In general the electroplating sector is dominated by small and medium enterprises (SMEs) working on a wide range of job orders. These SMEs provide electroplating services catering to automotive, motor-cycles, electronics, wire products, fasteners and appliances in one end to smaller components and fittings for recreational products on the other end of the continuum. At the same time, this industry has always been noted as one of the major contributor to pollution.

The electroplating process involves the deposition of heavy metals such as copper, nickel, chromium, zinc, etc. electronically on metal surface or components. As a result of electroplating, the stipulated heavy metal get deposited thereby the surface is resistant to corrosion or rust which in turn increases its durability. In addition, electroplating also increases the aesthetic appearance of the component and enhances the special surface properties.

This brief write-up provides some basic information in a SME which involves in the die-casting and electroplating industry. The company, LEP Precision Components Sdn Bhd. (LPC), located in Shah Alam produces completed consumer and industrial products as well as intermediate parts to other companies. Some of the company's products include furniture fittings, food service equipment components, architecture handles and fishing reel components. The products are electroplated with copper, nickel or zinc. Does the company face problems in its waste treatment and pollution control such as the treatment of its polluted wastewater? If it does, it can result in the destruction of environmental balances and pose health hazard to both human and animals dependent on these water bodies.

Company Profile

The LEP Precision Components (LPC) Company is a partnership company between 2 enterprising businessmen. It has an authorized capital of RM100, 000 (approximately

equivalent to USD26, 000). In term of sales, in 2001, the company's volume of sales was estimated to be RM1.5 million (USD400, 000). The products are mainly marketed locally but a certain volume of its products are also exported to the neighboring country in Singapore as well as contracted work for a Japanese company.

Some other information regarding this company is summarized in Table 1.

Table 1 - Company Profile

Name & Address of Company	LEP Precision Components Sdn. Bhd. 26 & 28 Jalan 5, Off Jalan Rimau Bukit Kemuning Shah Alam 42450 Selangor, Malaysia
Number of Employees:	Professional: 1 Management & Administrative Staff: 4 Full-time Workers: 20 Total: 25 (does not include seasonal or part-time staff)
Nature of Business:	Die-casting & Electroplating
Years of Operation:	2 years (since 2000)
Market:	Largely domestic
Major Products:	Fishing Reel Components, Furniture Fitting & Food Service Equipment Components
Electricity Consumption:	35,000 Kwh/month
Other Energy Consumption:	Fuel – 2,000 liters per month (average)
Water Consumption:	RM600 per month
Production Capacity:	Fishing Reel Components: 12,480 pcs per 8-hours Furniture Fitting: 5,000 pcs per 8-hours Food Service Equipment Components: Between 500 – 1,000 pcs per 8-hours Total: 9.5 - 9.8 million units/annually

Input Materials

The major input materials, quantity and costs figures are as follows:

No.	Input materials	Quantity (per mth)	Total costs (RM)
1.	Zinc - alloy	5 M Ton	5,000 per M Ton
2	Nickel metal	300 kg	25 per kg
3	Copper metal	120 kg	13 per kg

4	Chemicals (general)	NA	13,000
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In addition, the company's electricity bill per month averages RM10,000. The water supply is from the municipal and costs RM 600 per month.

Wastewater

It has been estimated that the volume of wastewater generated per day is around 10 - 13 m³ per day. The wastewater generated from the electroplating process is discharged into centralized treatment facility within the industrial park. The wastewater is generally alkaline in nature and contained heavy metals. The company has not applied any method to minimize the volume of waste water generation at the moment.

Solid wastes & others

LPC has identified the following solid wastes from the production process:

Solid waste	Source	Quantity (month)
Dross	Zinc alloy preparation	1 - 1.5 ton
Paper	Packing	30 kg

According to LPC, almost all dross are collected and sold to the metal suppliers. The waste paper are dumped at the municipal sites and collected regularly by the local authority.

The production process also generates noise although the noise level has not been measured. The noise is generated from equipment operations in die-casting. On the other hand, small quantity of air emission through the casting, electroplating and drying process are emitted. Typically the emission contains small quantity of SO_x, NO_x, CO₂ and dust particulates which has not been ascertained at this juncture.

Green Purchasing & Other Information

It is the company's ultimate objective to be ISO certified in the near future. In addition, the management endeavors to monitor and control wastes and wastewater discharge as well as the solid or hazardous waste disposal. In this regard, the company would like to

know more on green purchasing or green procurement network and how this will ensure a better environmental protection for the benefits of the community at large. At the moment, the company has no knowledge on this subject.

The management also realizes there could be room for improvement in term of energy conservation and other process flows. Since there is no monitoring on the air emission at the moment, it may be one area for the company to upgrade the air emission system. In addition, the management would like to improve the quantity of chemical usage and chemical substitutes, improve the drainage system on the production line where wastewater is currently being drained and discharged. The company is also interested to learn more on the possibility of switching over to new technology and practices especially in lowering or eliminating the use of cyanide compounds.

APPENDIX IV: CASE STUDY ON SYARIKAT PROGRESS PLASTIKS, MELAKA

Background

Syarikat Progress Plastiks (SPP) was formed in 1983 by Madam Lee Gek Chu and a few local entrepreneurs in Malacca State (about 2 hours drive from the capital- KL), Malaysia. Initially, the company had only 3 reconditioned plastic injection machines and operated in a 22 feet x 70 feet shop lot. 6 staffs which included the owner themselves were the pioneers in managing this company initially.

As of 2003, the company has expanded into 2 shop lots. More machines were bought in and as for now, a total of 7 reconditioned Japanese made plastic injection molding machines were bought. However, SPP's scale is considered a small scale of original equipment manufactures (OEM) as they do not have industrial designing capabilities. SPP's core business is to manufacture third party plastic components or products such as plastic latex cup, plastic household products and plastic industrial components.

Roles of Purchaser

The procurement process of SPP is still predominantly based on traditional approaches, tools and communication channels. Being a small SMI, SPP does not have a systematic procurement system. The purchaser, who is the owner herself, relies on market information provided by the sales personnel who visit them on a regular basis. In addition, regular visits to trade exhibitions and subscriptions to trade magazines provide the management some insights on the current industry trend. The primary communication tools are telephone and fax machine. Even though web site and email communication are fast gaining popularity in local community, it is still rarely practiced by the owner of SPP.

SPP makes their purchasing decisions based on a routine and non-routine basic. Routine purchases will include raw materials (plastic resins), industrial lubricants and other wear and tear components. Non routine purchase will include fixed asset purchases such as additional machines, new shop lots or even new factories.

Factors that Affects the SPP's Procurement Decision

Pricing

The purchase of machines and raw materials are normally done by the Madam Lee. Few factors are taken into considerations below a purchase decision is made. First and foremost, the cost itself. It is a norm for her to source and bargain for the lowest cost for both routine purchase and non routine purchase. Lately, there is an emerging threat by the China made plastic components or end- products as the likely substitute over SPP's products. In order to remain competitive, micro companies such as SPP has to ensure that their operation cost (which include the raw material cost) is minimized.

“Guan Xi” or Relationship with the Suppliers

Apart from that, reliable and reputable suppliers are given priority when come to selecting suppliers. For SPP, “*Guan Xi*” or relationships plays a very significant role in determining the choices of suppliers. Guan Xi simply refers to the relationships or friendship that taken place between the suppliers and the owner of SPP. Apart from Guan Xi, factors such as willingness to give credit terms also being considered. Under normal circumstances, the better the “guan xi”, the longer the credit term period would be provided. Industry standard for credit terms would be either 60 days or 90 days. However, in the case of SPP, some major suppliers could give them credit terms as long as 120 days.

Reliability of Suppliers

In many cases, SPP prefers to deal with reputable or established suppliers due to the following reasons. Firstly, SPP has to ensure that their supply of raw materials is constant in term of quality and quantity as well as the pricing. Secondly, in the case of asset purchase such as additional machines, SPP will be assured of good after sales service from the machine suppliers. This is critical to ensure that all the machines are functioning properly and break down time is minimized.

Apart from that, the suppliers also act as market and product information disseminator. Some of the suppliers will supply up-to-date information and under certain circumstances, their opinions and views will be taken considerations before a major decision is made in the case of SPP.

Barriers and Constraints in Implementing GPN

The information on environmental issues is lacking. When contacted, the management of SPP does have some basic understanding on the importance of ISO 9000 and 14000 series, but adoption effort is low. In addition, there is no GP awareness. In regards to house keeping, SPP only performs the basic house keeping as required by the local authority.

For SPP, the process of designing and implementing an effective GP practice may be constrained because the priority is profit, rather than environmental issues, thus management commitment is lacking. In addition, the management of SPP is has very little information and knowledge about GP practice. SPP are skeptical about the benefits, cost savings and customer rewards associated with positive environmental action.

To the owners of SPP the environment is not a core business issue and the lack of allocation of resources conspire to keep the status of environmental issues low on the business agenda. SPP feels that it lacks resource personnel and technical know how in carrying out GP practice. As a company, SPP's internal resource is limited. Documentation could be a deterrent. Companies may feel that GP practice may lead to generation of too much paperwork and hence may not implement the system. Customer indifference to SPP environmental performance is another key reason why SPP considers environmental issues unimportant to business.

Conclusion

Most small companies, such as SPP are still lacking and adopting a 'wait and watch' policy in pursuing activities in regards to environmental factors. A huge effort needs to be carried out to promote GP practice to micro companies such as SPP. Awareness need to be created by relevant authority in order to attract more companies like SPP to implement GP practice. SPP is willing to start its GP practice with the right support and guidance. In this context, the role of supporting agencies like the Green Productivity Association Malaysia, and related government bodies could play a significant role in promoting awareness of existing environmental practices that may generate better environmental performances. Various approaches such as technical demonstration,

public awareness and training programs, information services, and offering financial incentives could be held simultaneously in creating the awareness of GP practice.

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