

## Green Purchasing Formulation: First Step towards Green Procurement

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**Abstract:** The research paper undertakes the study of Green Purchasing Formulation in a Manufacturing Steel Plant Equipment. Green purchasing involves identifying, selecting and purchasing products (i.e. goods and services) with significantly less adverse environmental impacts than competing products. Further, it involves considering the costs and environmental characteristics and performance of a product in all stages of its life-cycle, from product design, development and production/ provision, through product use, to the ultimate handling (i.e. recovery, recycling, re-use and/ or waste disposal) of whatever remains of the product at the end of its useful lifespan, such that these purchasing methods lowers the effective production cost and increase productivity.

Productivity can be defined as the average amount of Goods and services produced by a unit of productive factor in a specified time. The productivity emphasizes effective utilization of resources and cost on Men, Material, Money of Business and Management. Increment of productivity is basically dependent on the degree of motivation that can be infused within the employees in a proper environment of teamwork.

The research paper shows that Materials Managers can play a key role in making the operation of enterprise successful by procuring Right Quality Material at Right Place in Right Quantity at Right Time from Right Vendor considering concept of Green Purchasing in mind.

**Keywords:** Green purchasing, procurement, cost curtailment, sustainable purchasing decision

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### I. Introduction

Ideally, while green purchasing considers multiple environmentally preferable aspects and associated reduced impacts of products through entire life-cycles, where possible and appropriate, it should target and give greatest preference to those products that are environmental leaders from a cumulative and full life-cycle perspective.

Ideally speaking, today's scenario is demanding that each Organization/ Purchaser should at least purchase one Green material to contribute to Global Green Purchasing concept, these remains on similar guidelines that 'Little Drops of Water Make the Mighty Ocean'.



With the boom in the industrial economy and involvement of new technologies, the new restructure of Indian Economy has been introduced to push the Country towards the attainment of its entrepreneurial and industrial potential. Indian Economy has been restructured with an aim to open the door for both the Domestic Market and Global Market. As a whole, the Indian Economy will benefit the industries in becoming more competitive, more efficient with quality of product and services. This will lead the industries to become a Global Player.

Now the question of survival of industries has come. The ultimate objective of any business is to generate Profit out of its activities. Thus an Organisation is better off than its competitors, when it is able to control the cost better and thereby either passing more benefits to the customer or building up a healthy bottom line, with this scenario it becomes very much difficult to retain Green Purchasing strategies in short span of time.

### **Customer Is The King**

Today's business market has become extremely competitive. As the new economy policy has liberated a whole lot of industries from the clutches of various red-tapism procedures like license etc. The EXIM policy has also offered an easier export-import policy. To win the market share by satisfying the **Customer** includes **Price** as an important element vis-à-vis **Quality/ Service**.

As a member of Materials Management profession the key issue to which we can address ourselves to is the **Cost Control/ Cost Curtailment** specifically Cost Management.

Cost is managed, maintained, curtailed, and reduced when WASTE is eliminated. Waste can be identified as "Waste on over specification", "Waste on Transportation" "Waste on Overheads", "Waste on carrying inventory for higher period" and so on.

It has been observed that in an average industry, purchase constitutes 60% of the product cost, so major impact of Green Purchasing is directly through material selection. Purchasing and/ or cost are assuming an increasingly important role in the context of any typical organisation in the era of inflation. It is also been observed that 1% saving in purchase can increase profit to the tune of 10% and it turns multifold benefit to environment, which is more difficult to achieve by any other department. So the concept of purchasing is no more a Cost Centre on today's scenario. Rather modern day's concept is Profit Centre. Hence, considering the present situation it is said that:

### **Sell For Existence but Make Profit from Your Materials**

With the concept of Green Purchasing, the above statement has been further modified to the following statement.

### **Sell for Existence but Make Profit from Green Materials, for further Existence.**

Thus we continue to identify the areas of purchasing where even an insignificant change contributes significantly to the cause of the Organization and widely to the environment.

## **II. Explanation of vocabulary used**

**Cost:** The amount of sacrifice or out lay attributable to a given item, equipment, material etc.

**Cost Centre:** A location, individual item of equipment etc, for which cost may be ascertained and used for purpose of cost reduction or product costing.

**Cost Curtailment/ Reduction:** The process of seeking ways to achieve a given result through improved design, better methods, negotiations, rate contracts, import substitution.

**Cost Control:** The regulations by an executive action on various costs of operating an organization. The control process essentially involves the setting up of cost standards and the study of significant deviations from standard.

### **Cost Factors and Controls:**

The element of cost composes of:

- (1) Material cost i.e. the cost of commodities supplied to the undertaking,
- (2) Wages or labour cost i.e. the cost of remuneration, sourcing of manpower resources.
- (3) Expenses i.e. the cost of services provided to the undertaking and the Notional cost of the use of owned assets. It also comes under prerogative of procurement of services, AMC contracts, facility contract, work orders, broadly considered as procurement of services.

**Concept of Cost Centre:** A location, person or item of equipment for which cost may be ascertained and use for the purpose of cost control is known as Cost Centre. Each and every Cost Centre must be profitable.

**Cost Unit** is a device for the purpose of breaking up or separating costs into smaller subdivision attributable to products or services.

## **III. How to make balanced and sustainable purchasing decisions**

Price is often the determining factor when making most product purchasing decisions. However, it's only one aspect to consider. The sustainability movement has taught us that cost evaluations also involve social and environmental considerations. In other words: How much energy was spent sourcing, creating and distributing the product? What natural resources were impacted? How will the product be disposed? This balance of consideration between social, economic and environmental outcomes comes together with the term "sustainable purchasing." When making procurement decisions, we have to give equal consideration to the acquisition cost (price), use cost (consumption), disposal cost (resource stewardship) and efficiency cost (supply chain). Just as the USGBC's LEED Certification program has made significant advances that consideration be given to a building's operating expense, occupant comfort, site location and material sourcing (all of which can

carry an initial higher price), the same types of considerations need to be applied toward our purchasing decisions regarding the true or “total” cost associated with product purchases. We need to think broadly and look beyond just price.

It’s easy for us to measure price, but measurement metrics for consumption, disposal, resource use and supply chain efficiencies are more difficult to pin down. This means that such costs are often not considered in purchasing decisions, though they should be as they are the true costs paid for by businesses in the course of operations. Type of the costs being:

**Acquisition cost:** In addition to the actual price of a product, businesses should also consider the costs associated with the actual purchase. How much time did an employee or employees spend finding the right product, ordering it and paying for the item? Was the process easy or was it unnecessarily laborious and time consuming.

Other considerations can include ease of order placement, return policies, account management, customer service and invoicing options.

**Use cost:** This begins with product design features. Does the product’s design have potential for overuse? How well-made is the product. If the product is of lower quality, will that cause premature failure and require early replacement.

**Disposal cost:** This can begin with an evaluation of the product’s packaging. How much waste is created unwrapping the item? Subsequently, how is the product packaged for shipping? How much waste is created discarding shipping dunnage.

**Efficiency cost:** These costs can run a wide gamut, but they essentially come down to shipping and distribution of product. How many warehouses does the supplier maintain? Depending on what items are being sourced, a supplier with multiple, strategically located warehouses can bring higher efficiencies, faster response times and lower delivery costs than a supplier with one or two warehouses. Asking such questions brings us closer to determining the true cost of an item. They reveal areas of potential waste or inefficiency, both from an environmental perspective, as well as for a business’ bottom line. For example, a poorly designed product which causes overconsumption not only increases the environmental cost of disposal (i.e. landfill placement), but it’s a cost borne by the user in the pricing of the product. The same applies to suppliers with inefficient supply chains. While a product may appear well-priced, there is a cost ultimately passed down to the purchaser in terms of gas and fuel, not to mention the social cost of all that CO<sub>2</sub> and pollution in the air.

Looking ahead, the early sustainability movement of the 1960s and ’70s was mainly focused on the environment, with little to no consideration given to the economic or societal impacts of being green. Early environmentally preferable products usually cost more and performed worse than the traditional products they intended to replace. Not surprisingly, these products failed in the marketplace. Such products were not successful until manufacturers realized that there was a balance needed – sustainable products should not cost more and should perform the same, if not better, than their traditional counterparts. Once this balance was achieved and sustainability entered the mix, the sustainability movement was revived and took hold. The flow of good information around sustainability measurement is rapidly growing and changing. Our societal, personal and business sustainable journey continues to evolve and adapt. USGBC is currently working on version 4 of LEED. Many reputable third-party environmental certifications have emerged to provide reliable proof of claims. As more standards and measurements are created, it will be even easier for business to make balanced and sustainable purchasing decisions.

#### **IV. Introduction to green procurement - It's Easy Being Green**

Green Purchasing, also known as Environmentally Preferable Purchasing (EPP) is important, and not just because we would need the resources of five (5) earths to sustain us if everyone in the world consumed like the developed world did (and the US, Australia, and Canada in particular). It's important because purchasers, be they government, corporate, or institutional, yield a great influence over the future of the planet with every buying decision they make, and because every purchase has a hidden cost and impact on the environment.

Public sector and private sector institutional buying combined accounts for the vast majority of spending in most developed countries. It's true that we as consumers in buy a lot, but when you consider that we're (almost) always buying from a private sector company that is in turn spending 60% to 80% of its revenues buying raw materials, products, and services from other businesses, and that, in some countries, public sector buying alone accounts for as much as 25% of GDP, it's easy to see that, combined, purchasers ultimately control 70%+ of GDP in much of the developed world. Thus, if we were to refuse to buy products that were not green, we would effectively force our suppliers to provide us with green products, as the alternatives would be for those suppliers to go out of business.

So, the question rises what is green purchasing. Simply put it's one of the three corner stones of sustainable purchasing, where the other two corner stones are sound social policy and economic soundness. However, whereas economic soundness insures that the overall decision is sound from a life-cycle cost and corporate sustainability perspective, and whereas social policy addresses your need to be a responsible corporate citizen when it comes to human rights and welfare, green purchasing addresses the environmental impact of your buying decision.

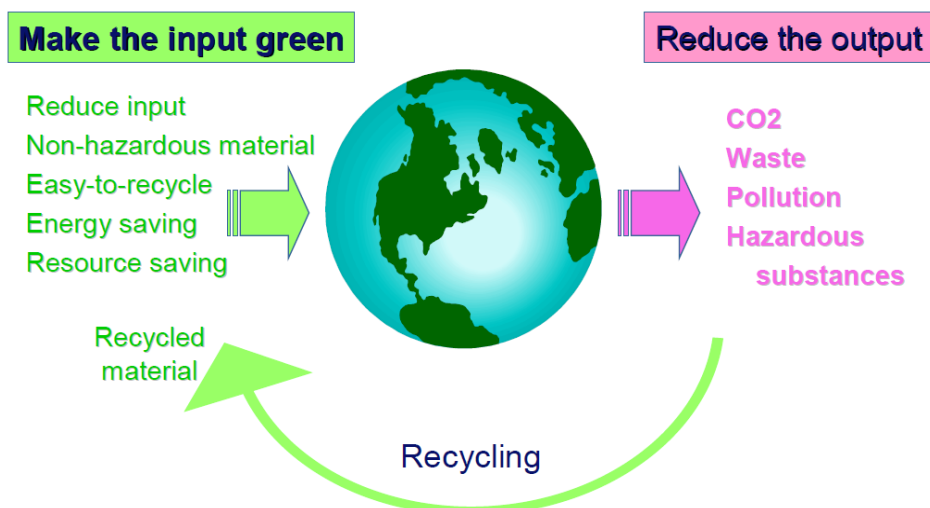
One might think that buying green is the easiest criterion of the spend triumvirate to meet now that we have "organic" and "local" food and "eco-friendly" labeling and "energy-star" standards, but it is, in fact, the most challenging criterion! A food product does not necessarily have a low carbon footprint just because it is "organic" or "local"; just because a product is "eco-friendly" when used, does not mean that it's production process was "eco-friendly"; and just because a product is "energy-star" compliant does not mean that it will have the best overall energy utilization.

Buying local produce makes sense during the fall harvest season, because you are eliminating the carbon footprint that accompanies transportation, but it does not make sense in the spring when the entire product is coming from greenhouses. The energy footprint associated with a greenhouse often has a much higher carbon footprint than transporting products by land from the opposite hemisphere. Eco-friendly detergent is much better than hazardous bleach, but if it's been produced in a factory that (still) uses a process that generates toxic chemicals as byproducts, it's not very eco-friendly at all. And your average energy-star desktop workstation still consumes 80+ watts of power, which really adds up if your employees never turn them off. If all your employees are doing is word-processing and internet purchasing, they could be using a thin-client that only consumes 4W of power when in use, and a fraction of a watt in standby mode, hosted on a multi-core modern server that supports automatic power-down of processors, drives, and power supplies when utilization drops beyond a certain threshold.

The purpose of this dissertation is to help in understanding the different aspects of green purchasing and how one can go about being green.

Many developing Countries are now showing concern on sustainable development which can meet the requirements of the current generation without compromising the ability of future generations to meet their own needs. One way in which countries are attempting to meet Sustainable Development Objectives, is to restructure and refine the Procurement policies to include Sustainable Procurement. Sustainable Procurement as a wider concept first emerged after the Rio Earth Summit in 1992. During the 1990s, Environmental Procurement policies started appearing at the European and international levels and some even lead to formulation of Sustainable Procurement Policies. The concept of Sustainable Procurement involves analyzing the economic, social and environmental risks and benefits over the entire life cycle of the goods and services.

Many organizations and governments have implemented Sustainable Procurement practices in their operations. The US and UK governments are two International examples of governments that have policies and guidelines for considering Sustainability in Procurement Process. Public procurement in India which accounts for 25-30% of GDP and can be treated as a tool which can motivate positive socioeconomic development in a country, is still to have a firm regulatory system. It is worth mentioning that there is no legislation at the Central Government level. The current Public Procurement framework in India is silent on Sustainable Public Procurement (SPP), however, suggestion have been called by Ministry of Finance to have a robust Public Procurement Law.



Sustainable Procurement in India is at a naïve stage and hence requires better understanding of the concept of Sustainability in Procurement. Value for money should be the core governing principle for Sustainable Procurement. This means that all relevant financial and non-financial costs and benefits should be taken into account over the entire life cycle of the product/ services like adopting strategies to avoid unnecessary consumption and manage demand, minimizing negative environmental impacts, fostering innovation in sustainable product/ services and those suppliers are complying with socially responsible practices, including legislative obligations to employees. Sustainable Procurement requires a comprehensive approach including various instruments and actions, such as identifying priority areas in Procurement, enhancing capacity and quality building of suppliers and awareness of various stakeholders.

There is an urgent need to integrate various stakeholders such as policy-makers, suppliers, procurement officials and general public, in to the procurement process. Raising awareness, knowledge and skills, availability of greener products, formulation of eco-labeling schemes and professional standards etc. will facilitate for a policy on sustainable procurement and therefore better implementation. Sustainable procurement can make important inroads to sustainable consumption and production, and may have the power to influence markets in pursuit of sustainable development objectives.

### Basic Policy On Promoting Green Purchasing

This document defines the basic policies for promoting comprehensive and planned procurement of materials, components, products and services with low environmental impact (hereinafter referred to as “eco-friendly goods”). This is the basic policy of the national government (e.g. government ministries and agencies, and courts) and corporations defined by the government ordinance 556 of the year 2000 specifying corporations (hereinafter referred to as “Incorporated Administrative Agency”) in Article Act on Promotion of Procurement of Eco-friendly Goods and Services by the State and Other Entities. It is hoped that local governments, enterprises, and citizens will also make a commitment to the procurement of eco-friendly goods by taking this basic policy into consideration.

The national government shall continue to work in existing dealings to promote environmental conservation in coordination with this basic policy.

## V. Basic Direction for the Promotion of Green Purchasing by the Government and Incorporated Administrative Agencies.

### 5.1 Background and Significance of the Promotion of Green Purchasing

Current concerns for global warming and waste management, among other environmental issues, are rooted in the system of production and consumption, which has promoted mass production, mass consumption, and mass waste. In order to address these issues, it is essential that we transform our economy and our societies into sustainable ones. This will require a commitment by all sectors to reduce environmental impact. We must immediately reduce the environmental impact of the goods and services that support our lifestyles and economic activities, and promote a shift in demand toward eco-friendly goods.

In order to shift demand toward eco-friendly goods and services, it is important to not only promote the supply of eco-friendly goods and services, but also to promote prioritizing the purchase of eco-friendly goods and services. Prioritizing the purchase of eco-friendly goods and services will help form markets for these goods

and services, which in turn will promote their development and, as a result, increased purchase of eco-friendly goods and services. The resulting continuous improvement will create a ripple effect in the market. It is necessary for all persons to make a strong commitment to prioritize the purchase of eco-friendly goods and services as an integral part of their lives. This is the first step toward wider environmental conservation activities by the procurement entities.

The Government and Incorporated Administrative Agencies (hereinafter referred to as “the Government”) play a major role in the national economy and have huge influence on the other entities. Their role is very important in promoting a ripple effect in the market, by prioritizing and popularizing the purchase of eco-friendly goods and services.

That is to say, the Government’s initiative promoting the planned purchase of eco-friendly goods and services will have a priming effect, expanding this commitment to local governments and the private sector, promoting the shift in demand toward eco-friendly goods and services in Japan as a whole.

In consideration of the recent measures against global warming, the Government needs to take the leadership in green purchasing more than the equal in the past, based on “Immediate-Term Policy on the Countermeasures against Global Warming” (Global Warming Prevention Headquarters decision, March 15, 2013).

### **Basic Approach toward the Promotion of Green Purchasing**

Each fiscal year, each institution of the government (hereinafter referred to as “each institution”) shall formulate and publish a green purchasing policy in conformance with this basic policy and based on Article 7, “Act on Promotion of Procurement of Eco-friendly Goods and Services by the State and Other Entities” (Law No. 100, 2000; hereinafter referred to as “Act on Promoting Green Purchasing”) taking into consideration its budget and planned projects and activities for the fiscal year, and shall purchase goods and services during the fiscal year based on this green purchasing policy.

Specifically, each institution shall purchase and utilize goods and services based on the following philosophy:

- 1) In addition to conventional considerations such as price and quality, environmental conservation must be considered when making purchasing decisions. This will make the reduction of the environmental impact of goods and services an element for a successful procurement contract, along with price and quality. The resulting competition between enterprises will lead to the popularization of eco-friendly goods.
- 2) In awareness of this, each institution shall consider the possibility to reduce environmental impact in its procurement for as wide a range of goods and services as possible, considering the business’s promotion for reduction of the environment impact not to mention the observance of regulations related to environment.
- 3) In view of the maximum reduction of environmental impact, a wide range of environmental factors, including global warming, air pollution, waste, and the decrease of biodiversity, need to be considered in a holistic manner as possible. At the same time, goods and services must be selected in consideration of the reduction of the environmental impact throughout the product lifecycle from resource acquisition to disposal. With regards to areas with specific environmental issues such as local air pollution, such local environmental issues may be considered with priority in making purchasing decisions.

Each institution too take care that the purchase of environmental goods and services based on Act on Green Purchasing does not increase the total purchasing amount of goods and services. Each institution shall strive to use goods and services reasonably in order to keep the total purchasing amount of goods and services to a minimum.

Additionally, each institution shall strive to realize the expected reduction of environmental impact of the purchased environmental goods and services, considering their long-term use, proper use and separate disposal.

Additionally, each institution shall carefully consider that green purchasing does not pose unnecessary impediment on international trade, taking compliance with the WTO Agreement on Government Procurement (particularly the stipulations of Article 10, Technical Specifications and Tender Documentation) into full account.

## **5.2 Designated Procurement Items, Evaluation Criteria, and Basic Matters relating to the Promotion of the Procurement of Designated Procurement Goods.**

### **Basic Approach**

**a. Setting Procurement Targets for Goods Meeting the Criteria:** Each fiscal year, each institution shall establish targets of the procurement of goods and services meeting the evaluation criteria for each designated procurement item (hereinafter referred to as “designated procurement goods”).

**b. Character of Evaluation Criteria etc:** Though it is preferable to take into account the reduction of environmental impact over the entire product lifecycle when making green purchasing decisions, evaluation

criteria for each designated procurement item shall be established on clear matters including the use of numerical criteria, so as to use them as objective guideline for the actual purchase of eco-friendly goods and services.

Additionally, while each eco-friendly good makes a corresponding contribution toward reducing environmental impact, the evaluation criteria are established to clarify the goods and services included in the procurement targets set by each institution each fiscal year in its procurement policy, and to be used as one of the standard for the promotion of green purchasing. Therefore, goods and services meeting the evaluation criteria are neither the only ones that contribute to environmental conservation, nor the only ones recommended for purchase. It is preferable for each institution to strive to purchase goods and services not only meeting the evaluation criteria but also contributing to the reduction of environmental impact to the greatest extent possible, taking into account a variety of environmental factors over the entire product lifecycle in line with Basic Approach toward the Promotion of Green Purchasing.

Furthermore, factors which are important for reducing environmental impact but are not appropriate to be set as uniform evaluation criteria at the present time are specified as “factors for consideration” to be considered in addition to the evaluation criteria when making purchasing decisions. Each institution should specify the factors for consideration as concrete and explicit specifications for procurement, when applying the factors for consideration to their procurement, in order to ensure transparency and fairness to the procurement process.

Because these evaluation criteria are set in terms of reduction of environmental impact, needless to say, it is necessary to separately ensure the general matters, such as quality, functionality etc., and appropriate price expected to purchased goods and services.

**c. Revising and Adding Designated Procurement Items and Evaluation Criteria:** The designated procurement items and evaluation criteria shall be revised as appropriate, considering the progress of development and popularization of the designated procurement goods and accumulation of scientific knowledge. Future revisions and additions to the designated procurement items and evaluation criteria shall be made in accordance with the appropriate procedures as stipulated in Act on Green Purchasing, and also incorporate the opinions of experts from the academic and business worlds, while ensuring transparency.

**d. Approach toward Public Works:** Public works account for a large share of each institution’s procurement, and have a large impact on the national economy. Additionally, it is believed that the Government’s initiative to conduct public works by methods which contribute to reduce environmental impact promote effectively the same approaches conducted by local governments and private enterprise. Therefore, public works that contribute to reduction of environmental impact are included in designated procurement items relating to services, and this type of procurement shall be actively promoted in accordance with the following points.

As constructions (including architectural structures) as the aim of public works are directly linked to the lives of the people, long term safety and functionality of those constructions must be ensured. Therefore, special considerations to the strength, durability, and functionality of materials as the components of public works are needed, based on the specific characteristics of the project concerned. Additionally, it is also taken into account that minimizing the costs of public works projects is severely required from the point of the appropriate use of the institution’s budget. More appropriate procurement targets will be considered respecting the difference between types of usage of materials due to the objective of each project, the purpose of each structure, the difficulty of construction, etc., and the limitation of the areas and/or quantities of materials available for public works.

There are many possible ways to reduce the environmental impact of public works in addition to material utilization, such as the construction methods with low environmental impact. The issue shall be considered from a holistic viewpoint spanning the entire lifecycle of the public works project.

### **Eco-friendly Goods Other than Designated Procurement Goods.**

The purchase of eco-friendly goods other than the designated procurement items shall also be promoted by specifying the matters about the wide range of those goods and setting concrete procurement targets as far as possible in the procurement policy, considering the status of the administrative task or project.

In particular, as to services category, each institution shall strive to take up services in which some of designated procurement goods are used in their own procurement policy even if the services are not listed in this basic policy as designated procurement items, because those services are thought to have a big potential to reduce environmental load.

It is also important for each institution to extend its efforts to reduce environmental impact to custom built or ordered goods and services beyond ordinary commercially available products and services. It is therefore preferable to incorporate those special goods and services into the procurement policy and study the possibility of reducing environmental impact at as early a stage as possible, including the planning stages.

In addition, each institution shall strive to decrease environmental load generated not only from the procured goods themselves but also from the procurement process as much as possible, requiring the use of fuel-efficient and/or low pollution vehicle, the use of an appropriate size vehicle according to the amount of procured goods, simplification of the documents to be submitted within the enforceable range.

### **5.3 Other Important Matters Regarding the Promotion of Green Purchasing.**

#### **About Procurement Promotion System**

Each institution shall establish a system for promoting green procurement. As a rule, this system shall be managed by a person with the ability to exercise control over all of the institution's internal green purchasing. (In the case of government ministries and agencies, the system shall be managed by the equivalent of a Director (Director-General, or higher). All organizations belonging to an institution shall participate in the system. Note that environmental departments and accounting/ procurement departments must independently contribute to this process. Each institution shall clearly describe a concrete green purchasing promotion system in its purchasing policy.

#### **Scope of Procurement Policy Application**

As a rule, the procurement policy shall be applied to all organizations belonging to the institution. However, in the case of specific departments where it is not feasible to uniformly promote green purchasing, a separate procurements policy shall be created for those departments, after clearly noting the reasons in the procurement policy. Each institution shall clearly note the scope of its application in the procurement policy.

#### **Publication of Procurement Policy, Summary of Procurement Track Record, and Methods Therein**

Publication of procurement targets of environmental goods and services each fiscal year through publication of procurement policy assumed to lead the supply of eco-friendly goods and services by the enterprises from the demand side. Additionally, in order to successfully promote green purchasing, it is necessary to accurately grasp the procurement track record, which will be reflected to procurement policy, and to show the summary of record in an easy-to-understand format to clarify the progress of green purchasing objectively.

**Establishment of Committee of Related Government Ministries and Agencies, etc.** A committee of government ministries and agencies, etc. shall be formed to enhance communication between organizations and to study policies for the promotion of green purchasing so as to facilitate green purchasing effectively.

#### **Employee Training and Other Educational Activities for the Promotion of Green Purchasing**

Training, seminars, and other educational activities shall be actively implemented to give employees, especially those in charge of procurement, a greater awareness and practical knowledge concerning the promotion of green purchasing.

#### **Utilization and Provision of Information about Eco-friendly Goods and Services**

A wide variety of information about eco-friendly goods and services is already available, including various environmental labels and product environmental information database. Therefore, each institution shall try to utilize information from environmental labels provided by third-party organization, such as Eco-Mark and Eco-Leaf, while taking into account its appropriateness, including reliability of information and transparency of its procedures. And each institution shall strive to purchase goods and services which contribute to reduce environmental load to the greatest extent possible, referring to the Carbon Offset Attestation Label and the Carbon Footprint Mark, which are recent programs for the reduction of Greenhouse gas emission. The Government shall strive to provide and spread the appropriate information about eco-friendly goods and services as to promote the green purchasing by the governmental organizations, businesses and citizens. Moreover, the business, each institution and other concerned parties shall strive to ensure the reliability within the procurement of designated procurement goods.

## **VI. Benefits of green procurement**

Before an organization can go green, it has to want to go green in following respect:

**Brand Image:** An organization that has gone green is seen as a good corporate citizen. This increases its image in the eyes of the public.

**Customer Satisfaction:** An organization that goes green in response to customer concerns increases its levels of customer satisfaction, a key point in customer retention.

**Reduced Risk:** There is no company that does not go green risking a run in with the law by failing to comply with green regulations, which are multiplying at the rate of Fibonacci's rabbits around the world, but it also maintains more liability than it needs to. Hazardous chemicals are just accidents, and lawsuits, waiting to



happen. With green purchasing, you can offset financial and environmental risk, rather than just inheriting it from suppliers.

**Cost Reduction:** Going green doesn't cost more. Most of the time it actually saves money, especially when the new products use less energy, generate less waste, and last longer. Plus, sometimes green products work better than their toxic counterparts!

Going green can reduce the following costs, among others:

- hazardous material management costs
- operational costs
- repair and replacement costs
- disposal costs
- health & safety costs (which often come in the form of liability insurance and expensive settlements)

**Increased Shareholder Value:** A better brand with happy customers who keep coming back and drive up sales while costs keep falling results in significant ROI and EPS, and this makes investors as giddy as school-girls - which is every company's goal, whether they admit to it or not. Furthermore, when considering that a study from the Center for Advanced Purchasing Studies by Craig R. Carter and Marianne M. Jennings found that increased corporate social responsibility is generally correlated with higher revenues, healthier and safer work environments, and improved relationships with customers and suppliers.

In brief, over the last two decades, growing concerns about ecosystem quality have led to a renewed interest in environmentalism. Purchasing professionals should also be concerned and need to rethink purchasing strategies which have traditionally neglected environmental impacts. To help foster environmentally concerned purchasing strategies, this article presents the findings of an empirical survey of NAPM members in firms with a high level of awareness and frequent applications of "green" purchasing. Environmental factors are identified that may reshape supplier selection decisions. The role of "green" purchasing in reducing and eliminating waste is discussed. Also, effects of "green" purchasing on packaging decisions are explored. Finally, some important practical guidelines are suggested which may enhance the effectiveness of regulatory compliance, pollution prevention, and resource recovery.

Rapid environmental deterioration over the last few decades has dramatically increased consumer awareness of environmental problems. As consumers become increasingly critical of industry's reactive environmental policies, a growing number of companies are developing company-wide environmental programs and "green" (environmentally sound) products. Recognizing the increased importance of environmental programs to market success, firms in the United States are expected to invest more than \$200 billion during the 1990s to make their products "green". The Marketing Intelligence Service also reported that the share of "green" products as a percentage of total new products introduced in the first half of 1990 rose to 9.2% from 0.5% in 1985. Increased investments in "green" products alone, however, do not guarantee a successful environmental program. The establishment of a company-wide environmental program should begin with source reduction of solid wastes. Examples of such wastes include packaging materials, metal scrap, food waste, yard waste, and organic waste. Among these, packaging materials account for 30.3% of the municipal waste stream, the largest single component. Considering that packaging materials represent a major source of solid waste, an effective green packaging program is vital to the success of the overall environmental program. Leading companies such as Du Pont, Coca-Cola, PepsiCo, Procter & Gamble, H.J. Heinz, and International Paper have launched various forms of green packaging programs through the introduction of recyclable and reusable packages.

Green packaging, in turn, cannot be totally successful without the systematic reduction of upstream waste sources associated with purchased materials/ parts and their packaging. Bloemhof - Ruwaard, observed that waste and emissions caused by the supply chain have become the main sources of serious environmental problems including global warming and acid rain. Furthermore, the importance of the supply chain in improving overall environmental performance has been recognized in environmental standards such as BS 7750 on Environmental Management Systems and the parallel European Union (EU) regulation on eco-management and auditing. Thus, one of the most effective ways to tackle environmental problems is to focus on waste prevention and control at the source through green purchasing. This sentiment is echoed by purchasing professionals. In a 1994 survey, purchasing managers picked environmental and regulatory costs as their second most important economic concerns.

Formulation of a green purchasing strategy is not a simple matter. Green purchasing may result in increased material cost and qualified suppliers may be limited because of the need for non-traditional materials and parts.

**Ways to reduce waste and costs on your works premises:**

1. **Establish centralized purchasing and a reuse store for office supplies.**

A reuse store helps unneeded supplies reach others who need them. An easy and efficient strategy to reduce waste is to consolidate commonly used workplace supplies.

First, limit the purchase of supplies such as scissors, pens and pencils, sticky notes, facial tissue, tape, file folders and paper clips to a single person or unit, which reduces redundant purchases and thus purchasing costs. Next, locate the items in a central location for easy access and encourage staff to place their unneeded supplies in the central supply area. Reuse reduces the need for new purchases and reduces disposal of expired, obsolete or otherwise unused items. Encourage or require that staff seek out supplies in the central supply area before submitting a purchase request for new items.

Fairview Health Services, a Minnesota-based healthcare system, established reuse stores in three hospitals and two office buildings and encouraged staff to take from the reuse stores before ordering new supplies. In the first phase of implementation (about two years), the company saved more than \$1 million in office supply costs and \$300,000 in furniture costs and reduced waste by 32,000 pounds.

## **2. Offer re-usable in the break room or cafeteria:**

A common source of waste is single-use tableware. Instead of purchasing and providing disposable tableware, encourage employees to bring their own reusable mugs, cups, plates and flatware, or supply reusable tableware and wash on-site. To take it a step further, replace disposable takeout containers with returnable, reusable ones.

With a grant from the Minnesota Pollution Control Agency, two middle schools in Minnetonka, Minn., replaced their disposable tableware with reusable bowls and utensils. They were able to prevent 6,700 pounds of trash and expect to save \$23,000 over three years. What's more, they lightened their environmental footprint: The use of stainless steel utensils reduces greenhouse gases by 77% and conserves tens of thousands of gallons of water over the lifecycle of the product.

If your campus cafeteria doesn't have a dishwasher, it can be cost-effective to install one and make the switch to re-usable. A Minnesota Technical Assistance Program assessment of a state agency cafeteria found that switching from disposable to reusable tableware would reduce an estimated 7,700 pounds of waste and save the agency \$17,400 annually, even taking into account an initial investment in a dishwasher.

## **3. Improve your recycling program:**

Color-coding your company's recycle bins increases the amount of recycling.

Improving your facility's waste and recycling processes is another achievable win. The first step is to create waste stations with bins for trash, recyclables and food or organics, if applicable. Stations should be placed in convenient locations, and trash and recycling containers always should be located together. Labeling bins with clear text and images of acceptable items is an integral component of this strategy.

Color-coding signage and, if possible, containers helps reinforce recycling behavior. Finally, communicating your commitment to waste reduction and information about how to recycle is a necessary step in any recycling improvement process.

A MnTAP assessment of the recycling systems within four Minnesota state agencies found that many recyclables still were ending up in the trash. Setting up centralized waste stations, color-coding bins, updating signage and educating staff would increase recycling rates by up to 12%. With a more effective system, the four agencies could recycle an additional 76,200 pounds and save \$5,400 annually.

## **4. Manage your food waste:**

To achieve a high recycling rate and move toward "zero waste," looking at food waste and other organic materials (also known as compostable) is a must.

Compostable are a large percent of the waste stream. For example, in Minnesota organics comprise 31 % of solid waste. Investigate the potential for sending pre-consumer food to people or food scraps to animals. According to the U.S. Environmental Protection Agency, after source reduction, feeding people and feeding animals are the preferred ways of managing food waste.

If composting is an option in your area, consider establishing an organics recycling program in your facility. A good place to start is in restrooms, if paper towels are used for hand drying. Bathroom waste bins tend to contain primarily organic waste (paper towels and tissues), making it unnecessary to sort waste and thus easy to capture this material for organics recycling.

Another area to find compostable is in the kitchen or your campus cafeteria. Install organics recycling containers and train kitchen staff to put food-prep waste (pre-consumer food waste) in these containers. You then can expand your program to capture post-consumer food waste in dining areas by educating your entire staff on where to put organic materials.

MnTAP helped the Eagan Community Center (Eagan, Minn.) establish an organics recycling program, which included purchasing color-coded bins, training staff members, purchasing and offering compostable

service ware and engaging the public with signage. Based on the results of a waste sort, the facility reduced its daily trash generation by 55%, with the potential to divert 45,000 pounds of waste annually from the landfill. The facility now recycles three pounds of material for every pound of trash.

#### **5. Conduct a waste assessment on your campus:**

To best understand the opportunities for waste reduction and cost savings on your campus, conduct a waste assessment. A waste assessment involves examining what wastes are generated and how they are managed throughout your facility.

Start with the following questions:

- What type of trash do we generate, and how are we disposing of it?
- Are there items in the trash that could be source reduced, reused or recycled?
- Are our trash bins the right size and collected at appropriate intervals?

### **VII. Major findings and implications of green purchasing**

This section summarizes some of the major issues with green purchasing and develops practical guidelines for green-minded purchasing professionals.

First, current green purchasing strategies seem to be “reactive” in that they try to avoid violations of environmental statutes, rather than embedding environmental goals within the long-term corporate policy. The linkage between green purchasing and supplier quality assurance is still weak. Nonetheless, the respondents’ concern over environmental compliances is understandable given the added environmental responsibilities imposed on waste generators at the beginning of the supply chain. The environmental compliance process is complicated and environmental liabilities are based on both willful and negligent violations. Thus, neither ignorance nor simple carelessness can free violators from serious convictions and fines. To make matters more complex, environmental statutes are often enforced by several different federal agencies and state governments under somewhat different compliance rules.

Perhaps the best response to this situation is to develop more aggressive, proactive environmental audit programs. As a guideline, the following audit process is suggested:

1. Identify applicable environmental statutes.
2. Develop standard checklists for environmental compliances.
3. Organize an audit team comprised of both internal management and outside third- party inspectors (e.g., private contracting consultants).
4. Maintain records related to handling, storage, use, and disposal of waste.
5. Assess the nature and degree of potential violations and liabilities.
6. Develop a corrective action plan and monitor its progress.

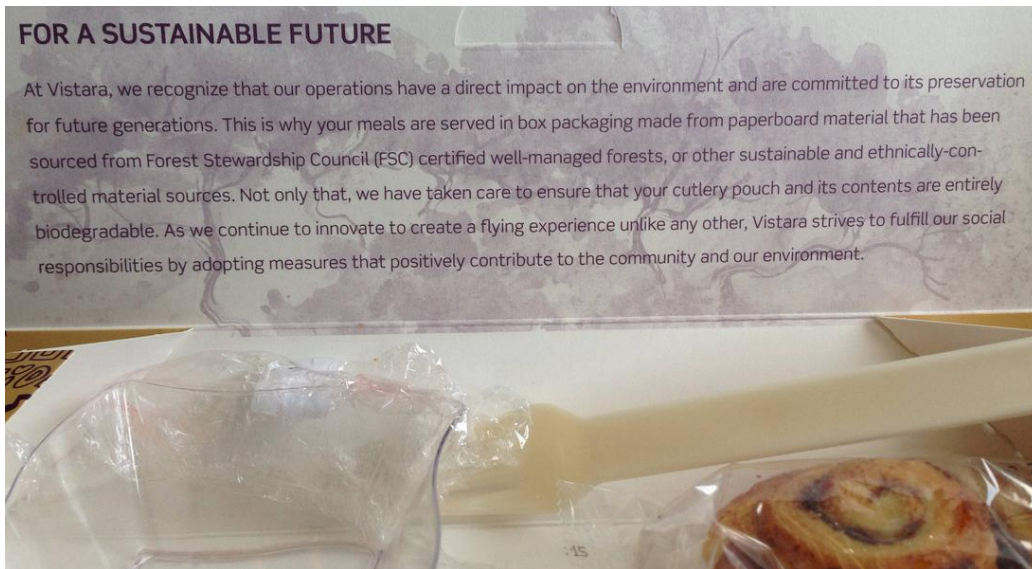
Second, purchasing professionals cited recycling as the most popular waste source reduction strategy. For this strategy to be effective, buying firms need to specify their recycling policy involving collection, separation, storage, transportation, reprocessing, and remanufacturing. For example, purchasing professionals need to determine which items are recycled, who collects recyclables, how recyclables are sorted, and where recyclables are sold back or remanufactured. Such a policy should also accompany comprehensive education and training programs for all participants.

Third, despite world-wide legislative efforts which enforce the progressive reduction of packaging waste, most purchasing professionals still do not feel the urgency of pursuing innovative package materials and design. The survey results showed that innovative methods such as low-density and biodegradable packaging are seldom used by purchasing professionals as an important part of green purchasing strategy. Innovative packaging, however, is certain to increase its role in green purchasing because a growing number of consumers are willing to buy biodegradable packages, and the United States Congress has contemplated legislation which mandates the use of biodegradable packages. In response to such changes, purchasing professionals should consider making systematic comparisons between traditional and innovative packaging in terms of their effects on ecosystem quality, economic consequences, and resource recovery. Those comparisons will require careful cost/ benefit analysis and detailed environmental performance guidelines.

The conventional purchasing may impact on environment in longer run, there may be chances of imposition of Green tax, refer article in The Times of India, Mumbai edition, Dt: 04-07-2015.

#### **An example**

The packing used in Vistara airlines is an example of purchase of material from Sustainable Source.



Based on day-to-day requirement, we also feel the need of developing alternative source/ vendor as per requirement. In our present scope of analysis we basically emphasis on a few cases of developing vendor for OEM spares and import substitution of material.

### **VIII. Conclusion**

The above research was an effort or a focus to opt for Green material, sustainable impact on environment through Green procurement activities and highlighted some its salient points. By implementing some of the suggestions, the organization benefited to a large extent. However, this is only the start of the journey towards Green Procurement and lot needs to be done in the future, few of the inferences are as:

- Saving by way of alternate green sourcing.
- Standardization of green products, consumables thereby reducing material cost.
- Standardization of purchase processes, hence by reducing ordering cost.
- Maintaining earlier records of Green procurement through usage of SAP

Global inferences are as:

- 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 eco-products, 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)

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