

# MASTER'S THESIS

## GREEN PROCUREMENT IN KENYAN HOSPITALS

Exploring the awareness and opportunities for Kenyan hospitals to  
implement green procurement

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## ABSTRACT

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<p><b>Abstract</b></p> <p>The significance of having a positive environmental impact has rapidly been growing. More and more industries are beginning to identify and implement the ways in which they can be environmentally friendly. One such way is green procurement. In many developed countries where green public procurement is at the fore-front of procurement activities, many industries have implemented it, including the healthcare industry. In Kenya, a developing country in East Africa, sustainability is a well-known concept, with the country striving to achieve its Millennium Development Goals (of which certain goals on sustainability are included) by 2015. However, green procurement is not as widely developed as it could be.</p> <p>The focus of this thesis is on green procurement in Kenyan Hospitals. The thesis aims to reveal the level of awareness of green procurement in the hospitals, the extent to which they may have implemented green procurement, as well as the opportunities that these hospitals have for implementing green procurement.</p> <p>After the research, only one hospital was revealed to use environmental criteria for most if not all its procurement processes. This hospital was a private for-profit hospital. In the other hospitals interviewed (a public hospital and a faith-based hospital), use of environmental criteria was not a priority. One of the reasons for this was lack of awareness. Another reason was lack of policies and other mandates from the government. Many felt that the hospitals (in particular the public one) are most likely to implement green procurement should the government be involved and include it in the form of a law.</p> <p>Overall, the basic concepts of green procurement were known and the hospital representatives interviewed understood the significance of implementing it. Also, the hospitals do have the opportunities to implement green procurement, as the research did not discover any major hindrances impeding them.</p>	
<p><b>Keywords</b> procurement, green procurement, green public procurement, Kenyan hospitals, environmental criteria</p>	
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## **ACRONYMS**

- GDP: Gross Domestic Product
- OECD: Organization for Economic Co-Operation and Development
- EPP: Environmentally Preferred Purchasing
- EU: European Union
- NAPs: National Action Plans
- SMEs: Small to Medium Enterprises
- ISO: International Organization for Standardization
- AHP: Analytical Hierarchy Process
- LCA: Life Cycle Assessment
- REPA: Resource and Environmental Profile Analysis
- FDA: Food and Drug Administration
- NRL: Natural Rubber Latex
- EMCA: Environmental Management and Co-ordination Act
- MDG: Millennium Development Goals
- GoK: Government of Kenya
- PPOA: Public Procurement Oversight Authority
- PPDGM: Public Procurement and Disposal General Manual
- KEMSA: Kenya Medical Supplies Agency

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## 1 INTRODUCTION

The world has now reached the point at which public health problems and ecological challenges have merged together, with the combination being more destructive than the individual aspects. Ecological factors such as climate change and unsustainable resource-use intensifies ill-health throughout the world. Paradoxically, the healthcare sector contributes to these environmental problems, even while trying to confront their impacts (Karliner & Guenther, 2011). Hospitals generally consume large amounts of energy because of the way in which they are run and the large number of people that use them. They are open 24 hours per day and can occupy thousands of employees, patients, and visitors daily. There are also many energy-intensive activities (such as laboratory equipment use and computer equipment use) that occur within a hospital. Thus hospitals can cause significant environmental issues (CBECS, 2012). In the United States alone, it is estimated that the healthcare sector generates more than 5.9 million tons of waste annually (Practice Greenhealth, n.d.a) Furthermore, in 2007, United States' hospitals were estimated to have produced 8 per cent of the country's total greenhouse gas emissions (Chung & Meltzer, 2009). While these statistics should not be generalised to other health care facilities throughout the world, it does indicate the need for sustainability-oriented programs to be implemented in the healthcare sector (Johnson and Johnson, 2012).

The implementation of strategies geared towards sustainability has been rapidly increasing in companies and organizations today, and is now often used as a competitive advantage. This is also true for the health care sector, which, as of the year 2009, represented approximately 10 per cent of gross domestic product (GDP) among Organization for Economic Co-Operation and Development (OECD) countries and approximately 7 per cent of GDP in the world as of the year 2012. (OECD, 2013; The World Bank, n.d.). Solutions towards health and environmental sustainability have been emerging. Many health sector leaders such as doctors, nurses, hospitals, health systems and ministries of health have become advocates for the creation of policies and implementation of practices geared towards public environmental health, while

at the same time also saving scarce financial resources. (Karliner & Guenther, 2011)

One of the ways in which hospitals have been integrating sustainability has been in ensuring that their purchasing decisions are geared towards sustainability, such as ensuring that their suppliers meet certain requirements regarding sustainable products, or even ensuring that the entire supply chain is "green". A green supply chain is the incorporation of environmental criteria into traditional supply chain management (Emmett & Sood, 2010). Some healthcare facilities have adopted Environmentally Preferred Purchasing (EPP) programs which ensure that the environmental attributes of a medical product are considered during the procurement process. Furthermore, health care manufacturers have begun to pay closer attention to the ways in which they can make the medical equipment they produce, sustainable. This may be from the viewpoint of the overall life-cycle of the product, to refurbishing products, and even making products from recycled material (Johnson and Johnson, 2012).

Many of the hospitals that have incorporated green procurement are in countries in which green public procurement is encouraged through policies and voluntary schemes. For example, in 2003 Member States in the European Union (EU) were encouraged to develop National Action Plans (NAPs). The NAPs, which should be publicly available, should contain an assessment of the current procurement situation and targets for the next three years. Following the NAPs is not obligatory, but it provides a platform that makes the process of implementing green (or greener) procurement easier. As of the year 2014, 22 Member States had adopted a NAP, or equivalent (European Commission, 2015a).

Within the African context however, sustainable development is greatly challenged by poverty and other factors such as lack of awareness and lack of appropriate legal frameworks. This affects the implementation of sustainability practices in healthcare (Economic Commission for Africa, 2012). "Apart from being the poorest in the world, Africa remains the least developed, the most technologically backward, the most indebted, the most food-insecure and the most marginalized" (Sustainable Development Report, 2005 p. 1). This has resulted in low priority towards sustainable practices in healthcare systems in Africa. Instead, Africa gives priority to ensuring access to clean water and sanitation, stemming the large number of deaths which are caused from preventable factors such as immunization and access to a health care facility (Economist Intelligence Unit, 2012).

However in Kenya, a country in East Africa, the potential for implementing sustainable practices in the economy is rapidly increasing. Advocates of sustainability such as environmental activist Professor Wangari Maathai have fought for environmental justice. Professor Wangari even achieved a Nobel Peace Prize for her work in establishing and raising awareness in environmentally sustainable practices in Kenya (Nixon, 2011). Furthermore, The Government of Kenya has launched the Kenya Vision 2030. This is a blue-print that highlights national development goals to be achieved

by the year 2030. The Vision is being executed in successive five-year Medium-Term Plans, and commenced in the year 2008. The Kenya Vision 2030 promotes sustainability and environmental protection, but it does not mention the use of environmental criteria during public procurement, let alone in the procurement practices of hospitals.

This thesis will look into the purchasing processes of Kenyan hospitals, and will reveal their views on green purchasing. Using an inductive thematic analysis, the researcher aims to find out whether there is potential for green purchasing in Kenyan hospitals, whether these hospitals use any green criteria during procurement, and whether these hospitals are aware of the significance of purchasing green products.

## **1.1 Background and motivation of the research**

I have a Bachelor's degree of Engineering in Supply Chain Management and Logistics. During my bachelor studies, I delved deeply into the different concepts of supply chain management and procurement. However, I did not study, nor was I fully aware, of the concepts of green supply chain and green procurement. Now that I am studying Corporate Environmental Management, I have been able to study and understand the possibilities of integrating sustainability and "greenness" into supply chain management. I decided to combine my interests from my previous studies with my current studies for my thesis.

I am particularly interested in green procurement in hospitals because it is a relatively new area of research. Green procurement in itself is relatively new but green procurement in hospitals is even more so, particularly in Kenya (Zhu & Sarkis, 2006).

Furthermore, as hospitals have a relatively large contribution to environmental issues, incorporating green procurement would not only be beneficial to hospitals but also to an entire community (or even nation) as well.

## **1.2 Aim of the research**

The overall aim of the research is to reveal information on whether Kenyan hospitals give priority to "greenness" (environmental criteria and attributes) during procurement, as well as how aware these hospitals are on issues about green procurement. Based on this research aim four research questions are raised:

- What is their understanding of green procurement?
- Do they currently include any green criteria during procurement?
- What are the likely influences to implement and maintain green procurement?

- What are the aspects that may be preventing them from implementing and progressing towards green procurement?

### 1.3 Thesis outline

Excluding this chapter, the rest of this thesis is divided into six chapters as explained in table one below;

TABLE 1 Thesis outline

Chapters two and three	These chapters form the theoretical framework, which consists of theories and key concepts regarding green procurement and procurement in Ken
Chapter four	This chapter discusses in detail the research method used in this thesis and how method used to retrieve data from the Kenyan Hospitals
Chapter five	This chapter reveals the results from the research method and analysis
Chapter six	This chapter discusses how the results answer the research questions
Chapter seven	Chapter seven concludes the thesis and gives information on the thesis' limitations and possible future research

## 2 GREEN PROCUREMENT

### 2.1 Procurement/purchasing

Procurement, which may also be referred to as purchasing, buying, or sourcing, is an organizational process in which supplies, materials, and services are secured at the right quantity, quality, time, place, and cost price (Emmett & Sood, 2010). Figure 1. below highlights a typical procurement procedure for a product.

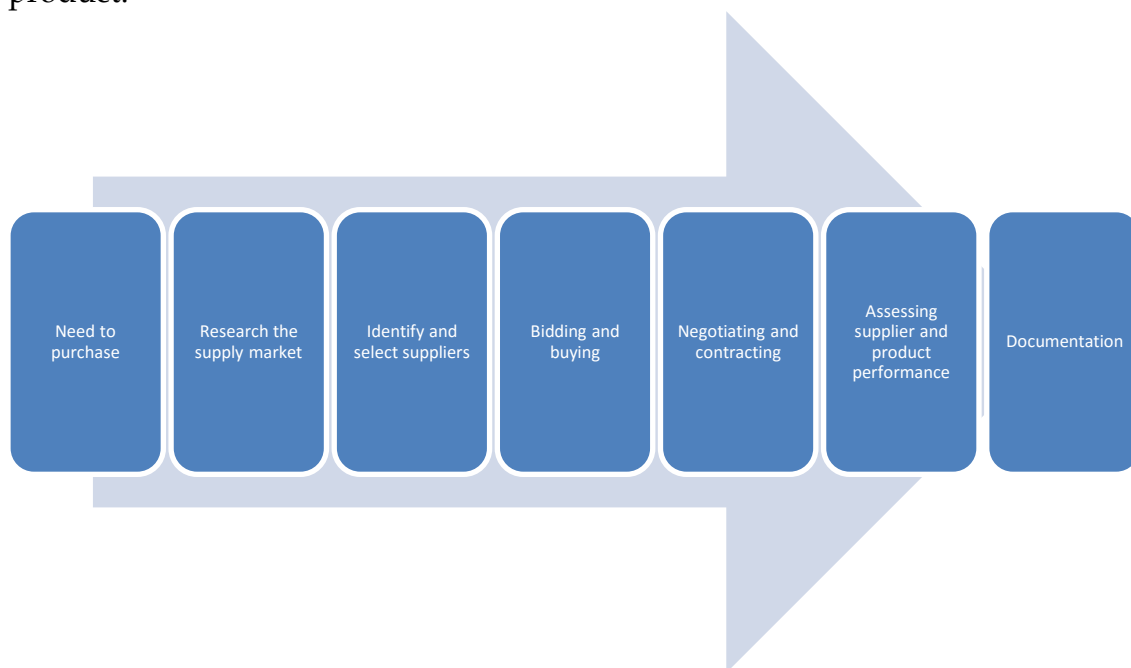


FIGURE 1 Typical procurement procedure (Turner, 2011)

Purchasing on the corporate level is vastly different than on the consumer level. One difference is that the amount of money used in corporate purchasing is very large. A single purchase may cost millions of Euros. Contracts also last for several years. Since the risks are higher, and there is greater return on

investment, the need for in-depth analysis during the purchasing process is justified. Corporate purchasing is also much more complex than consumer purchasing. Contracts are often long and detailed and include extensive monitoring of performance and service improvement. Finally, corporations often stick to a strict system of bureaucratic control when purchasing in order to ensure that money is spent wisely and honestly. Thus, even before a purchase is done, many forms need to be filled and authorization acquired (especially for public or government-owned organization). One example of this is the 'sealed bid' tender process, which many organizations do. During this process, the procurement manager will provide suppliers with detailed specifications about the purchase, and suppliers are required to provide a bid in a sealed envelope by a specific date. The bids are then opened and the lowest quotation is chosen, provided that the purchase fits the requirements. Other organizations use less demanding methods though with the same intent. For example, purchasing managers may be required to get at least three quotations and would be expected to make a formal case if the quotation they choose is not the cheapest. Also, suppliers used are often those who are on an "approved" list based on certain criteria (New, Green & Morton, 2000).

Procurement can be broadly divided into two types: public and private procurement. Public procurement is the procurement done by or on behalf of ministries, departments of central and local government and state corporations. The aim of public procurement is to achieve various objectives namely economic progression (achieved, for example, via preference to local suppliers including small-to-medium enterprises (SMEs), efficiency, fairness, liability, transparency, and adherence to international obligations (in the case of international procurement). Public procurement laws and policies are typically determined by government bodies (Ogot, Nyandemo, Kenduiwo, Mokaya, & Iraki, 2009).

In private procurement, the economic and efficiency benefits are for the buyer only. Private procurement is not bound by laws and does not rely on the government for funding. Private procurement typically has less complications than public procurement and therefore tends to be faster and more efficient. (Ogot et al., 2009).

## **2.2 Definition of environmental (green) procurement**

Many different tools have been developed in an effort to steer humankind towards sustainable development and one such tool is green purchasing/procurement (Erdmenger, 2003a). There is also the concept of sustainable procurement. In sustainable procurement, an organization aims at ensuring that its purchasing and supply chain activities are sustainable. This means that, while also taking into consideration financial factors, the purchases should have the lowest environmental as well as the most positive social impact. For example, an organization should also procure from small

businesses and local suppliers in order to boost and also positively impact the disadvantaged sections of the local economy (UNDP, 2008; Walker, Gough, Bakker, Knight & McBain, 2008). While sustainable procurement encompasses aspects other than environmental ones, this thesis will be focusing on environmental (or green) procurement.

UNDP (2008, p.4) defines environmental or green procurement as, “the purchase of products and services which have less impact on the environment and human health compared with competing products or services that serve the same purpose”. However, there are others who would argue that green procurement may also be based, not only on purchasing a green product, but on a green process of procurement. This may be done during the supplier appraisal where a supplier is chosen due to (for example) its environmental accreditation (for example implementing ISO (International Organization for Standardization) 14001 standard), or due to its environmental policy. As this ‘green’ criterion results in a supplier’s increased business, it encourages them to continue incorporating ‘greenness’ in their processes and even in their products and it also encourages competitors to implement green business processes (New et al., 2000).

Though relatively new, green procurement is an excellent way of increasing environmental awareness which then motivates people to buy environmentally sound products (EPTA, 2007). Other advantages of green procurement is that it improves the market position of environmentally sound products, and as demand for green products increases, it acts as an incentive for technological advancements towards green products (Brander, Olsthoorn, Oosterhuis & Führ, 2003). Furthermore, purchasing green products may result in lower costs at the organizations, for example purchasing energy and water-efficient products would result in lower costs of energy and water (Emmett & Sood, 2010).

Green procurement affects the entire supply chain as suppliers/manufacturers are pressured to provide equipment that is environmentally-friendly. To this effect, manufacturers, often in collaboration with their suppliers, opt to design and develop equipment that are easy to disassemble and recycle, and acquire raw materials and other supplies and services that take into consideration environmental aspects (Emmett & Sood, 2010).

Finally, having green qualifications does not necessarily need to be the basis of the final product or supplier used. They can be used as a pre-qualification amongst other criteria during the procurement process. Thus the final deciding factor on the supplier or product could be a criterion other than its ‘greenness’. Though this may not result in a significant environmental result, it communicates to suppliers that including green aspects in their business or products is important. This approach is fairly simple and it may be considered the best way for a corporation to begin their green procurement journey (New et al., 2000)

Other reasons for implementing green procurement in an organization include reduction of potential negative publicity, and green public procurement policies and/or schemes (European Commission, 2011).

### 2.3 Green public procurement

The Commission of the European Communities (2008, p.4) defines green public procurement as, “a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life-cycle when compared to goods, services and works with the same primary function that would otherwise be procured.” There are many examples, especially in Europe, where green public procurement has been successfully implemented (Parikka-Alhola, 2008; PricewaterhouseCoopers, 2009; Testa, Annunziata, Iraldo & Frey, 2014). One of the leading countries in green public procurement is Denmark. In 1994, Denmark developed an action plan for a sustainable public procurement policy. By the following year, all government institutions were expected to include environmental aspects in their purchasing processes. Furthermore, by the end of 2001, both counties and municipalities were expected to have developed and implemented a green purchasing policy. However the country that is most prominent in green public procurement is Japan. In the 1980's, Japan established an ecolabelling scheme at the national level. By 1996, the Green Purchasing Network was established which dealt with many of the activities geared towards green procurement and also promoted green purchasing ideas and practices. As of 2001, green purchasing was made obligatory for all national departments by the Japanese government (European Commission, 2011; Ochoa et al, 2003).

Additionally, in Europe, many green purchasing institutions have been created, as interest and consideration green purchasing has risen. For example in Austria, the Austrian Procurement Service gives consultation services to those involved in procurement in public administrations or enterprises. It is a service that offers information on all aspects of green purchasing including an information newsletter which is sent out to all municipalities. Meanwhile in Denmark, governmental and municipal institutions that take green environmental issues into consideration are offered a commercial purchasing service by the National Procurement Ltd. This service is based on “framework agreements with suppliers of different product categories which are used by more than 7,000 subscribers” (Ochoa et al., 2003 p.23).

However, unlike in OECD countries, national frameworks for green procurement in developing countries are virtually non-existent though they have been increasing in interest. For example in Latin America, political and fiscal decisions have been decentralized, though further decentralization is needed to facilitate and create a platform for the development of green procurement activities and programmes. According to Ochoa et al. (2003), only



15% of government expenditure is in the control of local authorities compared to an average of 35% in industrialised countries.

Moreover, Ochoa et al. (2003), notes that the impacts of green procurement and green purchasing policies on the market and the environment vary from one country to the next. An effective tool for measuring environmental impacts at the product level is yet to exist, and thus far countries have been conducting qualitative surveys as a way of monitoring impacts.

Past studies have however shown that it is not enough to have national laws on green purchasing for its implementation to be successful. Departments also need to contribute and should be willing to develop their own green purchasing policy and monitor their achievements. (Ochoa et al., 2003)

## **2.4 Implementing green procurement**

When an organization decides to incorporate environmental criteria into its procurement processes, it is difficult to determine how to do it as there are many different ways and sources giving information about it. The European Commission (2011) suggests that the organization should start small and work its way up incrementally. For example starting with the purchase of office paper, an organization can start by purchasing paper with 10% recycled content and with every purchase cycle increase the percentage in 10%-20% increments until they reach their final goal of 100% recycled content.

Also, when determining the environmental criteria used during the procurement process, it should be done such that it does not discriminate against potential bidders. For example, requiring the suppliers to have an environmental certificate that is hardly used and that may be region-specific therefore disallowing international suppliers the opportunity to bid (Palmujokki, Parikka-Alhola & Ekroos, 2010).

Moreover, it is important to ensure that the purchase acquired is of great value. To that effect, the criteria to focus on in terms of the cost of the purchase during the procurement process should be the life-cycle costs (or total cost of ownership). Life-cycle costs include all the costs of the different stages in a product's life-cycle from the production costs to the end-of-life costs. One simplified approach towards identifying the life-cycle costs of a product is to take into account, during the procurement process, the buying price of the product; future additional costs (such as shipment and installation costs); operational costs (includes energy and fuel consumption and maintenance costs); and end-of-life costs (EPTA, 2007). However, many purchasing managers find it easier to simply focus on the price of the purchase. They may presume that they are being effective by choosing the cheaper option, but this may unfortunately result in purchasing a product that has poor quality and is more expensive to maintain and dispose. This point is especially more significant when it comes to costs that deal with environmental issues as they tend to be difficult to measure (New et al., 2000).

To determine the possibilities of including environmental aspects as part of a contract, one has to first consider the nature of the content of the contract and the nature of the work that would be carried out based on the contract. In the procurement documents of service contracts, for example, purchasing authorities may ensure that the contract is performed in an environmentally sound mode. For example authorities may ensure that public transport services use low-emission vehicles (Barth & Fischer, 2003). For EU member states, the Procurement Directives (Directive 2004/18/EC and Directive 2004/17/EC) clearly define the sections where and how environmental criteria can be included in the tender documents during a procurement cycle. These sections include; the subject of the contract, the technical specifications of the product/service/work, the supplier selection criteria (see chapter 2.5), the contract award criteria, and the contract performance clause (Clement et al., 2007 p.21):

The subject of the contract identifies what is to be purchased. If environmental criteria will be considered during the procurement process, Clement et al. (2007) advises that this should be stated in the subject matter. The environmental specifications will be further outlined as part of the technical specifications, but stating environmental requirements as part of the subject matter ensures that the process is completely transparent and communicates to potential suppliers that the contracting authority intends on buying "green". For example a contracting authority may state in their contract that they wish to purchase "energy-efficient computers", or may have a "contract for the supply of recycled paper for writing, printing and copying purposes" (Clement et al., 2007 p. 22).

In green procurement, the technical specifications can be based on environmental technical standards and ecolabel criteria. In Europe there are several European and national technical standards to choose from, but unfortunately this is not the case in other parts of the world (Clement et al., 2007). In Africa, for example, only one country has a national ecolabelling scheme (Tunisia), though there is a national ecolabelling scheme under development in South Africa. There are, however, a number of national energy-efficiency appliance labeling schemes in Africa which may be useful during green procurement (Janisch, 2007). References to any environmental technical standards or ecolabel criteria in the tender documents should also be accompanied with an "or equivalent" clause so as not to discriminate against suppliers who can prove that they can provide products and services that meet the standards without having a specific ecolabel. Environmental criteria can also be based on the material that should or should not be included in the product, as well as the methods used in processing and producing the product (Clement et al., 2007).

If the contracting authority is not sure whether the products/services/works that they would like to purchase are on the market or if they are not sure about their quality or price, they may ask suppliers to supply "variants". The use of variants is a useful tool that allows contracting

authorities to compare products that meet different sets of technical specifications with the same evaluation criteria, especially if the award criterion used is the most economically advantageous offer (award criteria other than the price, are taken into consideration such as life-cycle costs). Contracting authorities can use variants by “setting the minimum (non-environmental) requirements of the product/service to be bought, this represents Variant 1 – the “neutral” offer” (Clement et al., 2007 p. 24); and adding environmental specifications to the minimum requirements in Variant 1, this represents Variant 2 – the “environmental” offer. Offers that meet the minimum requirements are selected and when the bids are opened, the contracting authorities have the opportunity to compare conventional solutions and environmentally-friendly ones based on the same set of award criteria (Clement et al., 2007).

Contracts awarded are typically based on the lowest price or the most economically advantageous offer. If the final purchasing decision is solely based on the price of the bids then there is no opportunity to include environmental criteria. Thus, a contracting authority should ensure that environmental criteria were included in the technical specifications. If the final purchasing decision is based on the most economically advantageous offer, then criteria other than the price are taken into consideration such as quality, environmental characteristics, technical aspects, and maintenance and other after sale prices (Clement et al., 2007; Parikka-Alhola, Nissinen & Ekroos, 2006).

Additionally, after a contract has been made, contract performance clauses are a way of including additional environmental requirements to it. The contracting authority may specify, for example, how the purchases are to be supplied (the packaging used should be recyclable for example) including the method of transport, and to ensuring that the suppliers take back and recycle their packaging (European Commission, 2004). The contract clauses should not be a way of determining which bidder gets the contract (for example having clauses so specific that only few bidders can fulfil it), thus all bidders should, in essence, be able to follow them (Palmujoki et al., 2010).

Wide implementation of green purchasing within a country is possible without needing environmental training for every purchaser. This is done via co-operation, simplification, and information. Co-operation refers to the networking among green purchasers. In the case of public purchasing, the networking can take place on a regional or national scale. Simplification means that not every single possible environmental product choice has to be imposed on the procurement process, but only those that make a difference on a large-scale. Thus, a set of guidelines are needed that focus on one to three ‘key’ criteria. Information refers to the availability of the needed information for green purchasing. The information on the applicable methods should be readily available in different languages and are typically easily found on the internet (and may also be found via other media) (Erdmenger, 2003c).

### 2.4.1 Ecolabels

Procurers are not typically environmental experts, and environmental experts often do not have the knowledge of procurement process. Various useful tools have been developed to bridge the gap between procurement and environmental expertise and one such tool is the environmental label. Environmental labels are often confused with ecolabels, but according to UNOPS (2009), there is a difference. Many labels have been created regarding environmental performance and this large family of labels should be referred to as “environmental labels”. Ecolabels are merely a, “sub-group and they respond to special criteria of comprehensiveness, independence and reliability.” (UNOPS, 2009 p. 6).

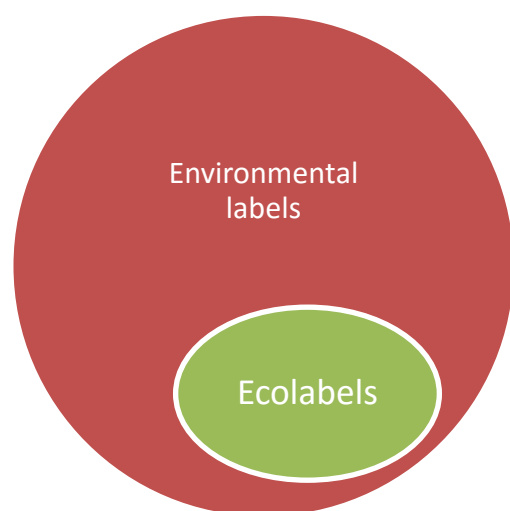


FIGURE 2 Relationship between environmental labels and ecolabels (UNOPS, 2009 p. 6)

Barth & Fischer (2003) define an ecolabel as a certification indicating that a product meets certain requirements regarding how environmentally sound its production process or the materials used to create it is. Consumers are able to make purchasing decisions based on the ecolabel it has. Thus, an ecolabel is a label that a company can put on its products and services and this label shows that the products and services meet certain environmental criteria. A company needs to be certified by a third-party in order to use a certain ecolabel on its products (European Commission, 2011; Salzman, 1998). Often times, manufacturers choose to adopt the use of ecolabels as part of their overall marketing strategy, since the environmental aspects of the products can be used as a competitive advantage (ISO, 2012).

The International Standards Organization (ISO) created the 14020 series of standards, which provides businesses worldwide with a set of international benchmarks with which they can create their environmental labelling (ISO, 2012). The current environmental labels have been classified by ISO into three typologies - Type I, Type II, and Type III (UNOPS, 2009). ‘Type I environmental

labelling' (the standard name is ISO 14024:1999) is the identity given to the 'classic' ecolabelling schemes (ISO, 2012). These ecolabels take into account the life-cycle impacts of products and services (UNOPS, 2009). 'Type II self-declared environmental claims' (the standard name is ISO 14021:1999) are claims made by manufacturers and businesses. These environmental claims are voluntary and, though the claims often placed on the packaging of products (or on the products themselves) in the form of a label, they also include all other types of environmental claims, however they were made, such as in advertising, on the Internet, or in services such as tourism. 'Type III environmental declarations' (the standard name is ISO 14025:2006) may be described as, "quantified environmental data for a product with pre-set categories of parameters based on the ISO 14040 series of standards [these standards provide the principles and frameworks for Life Cycle Assessment (ISO, 2010)], but not excluding additional environmental information" (ISO, 2012 p. 21).

Amongst ecolabels, Salzman (1998) explains that there are three basic types. The first basic type is the single-issue voluntary label. These types of labels are the largest class of ecolabels. Examples of these labels include "recyclable" and "CFC [chlorofluorocarbon]-free". These labels are placed on the products by the manufacturers and typically face few legal constraints provided the labels are verifiable and accurate. The second type is single-issue mandatory label. These types of labels are required by law in many national and sub national governments. Examples include "flammable" and "eco-toxic". Finally the third type is the third-party voluntary label. Third-party voluntary labels look at the overall environmental quality of a product from a holistic view. These labels identify the product as being environmentally superior to its competitors. This environmental seal of approval is given to products that prove their superiority via their life-cycle (i.e. the environmental impacts of their life-cycle).

The goal of ecolabels is to provide the end customer accurate information concerning the environmental qualities of a product including information about its life-cycle. Examples of well-known ecolabels are the Blue Angel in Germany, Nordic Swan in Scandinavia, and the Green Seal in USA. Such ecolabeling programs are either government-sponsored or private and can be found all over the world - in more than 25 countries. Within these programs, a committee agrees on the category of products (for example copying paper) and the objective criteria that the products must meet in order to meet the criteria (for example the product contains 100% recyclable content and is chlorine-free). Manufacturers then voluntarily send their products to the program for consideration and if the products meet the specifications then the manufacturers can purchase the license to put the label on their products (Salman, 1998; European Commission, 2011).

Additionally, ecolabels are used within certain product categories where there is a variety of alternatives available. This is done so that it is possible to scientifically compare the different products, and so that manufacturers can

have a competitive advantage by differentiating their “green products” from alternatives in the market. Unfortunately specialist or innovative products such as medical equipment do not often have ecolabels. Instead, product groups such as foods, household appliances, and paper products have a wide variety of ecolabels (UNOPS, 2009).

Ecolabels are often used in green procurement in various ways, such as criteria that suppliers’ products and/or services must meet, though a company cannot discriminate by requiring their suppliers to have a specific ecolabel. Should a specific ecolabel scheme be mentioned then it should be followed by the words “or equivalent” in the technical specifications (UNOPS, 2009). When assessing the ecolabels provided by suppliers, it is important to ascertain that they are genuine and provide accurate information. Surveys worldwide have shown that some ecolabels may be scientifically inaccurate, such as a label stating, “Was made with care for the environment” without any concrete information on its environmental impact. (European Commission, 2011).

In Africa, the majority of ecolabelling schemes currently in use are international ones which are relevant to a specific sector (such as fisheries and forestry). There are, however, a few sectoral ecolabelling schemes being implemented in certain regions in Africa (Janisch, 2007).

## 2.5 Supplier selection

One method of including environmental criteria in green procurement is via the supplier selection. Murray and Cupples (2001) believe that purchasing should focus on the selection of quality suppliers and thus, successful green supplier appraisal should assess the supplier rather than the product. Extensive research has been done regarding the methods and processes of selecting suppliers during the procurement process and several frameworks have been developed. Nocci (1997), for example, pinpointed performance criteria that organizations could consider during the green supplier selection process and also suggested methods for effectively selecting suppliers from an environmental viewpoint; while Shen, Olfat, Govindan, Khodaverdi & Diabat (2013), suggested a fuzzy approach for appraising green suppliers (the fuzzy approach uses mathematical strengths to resolve uncertainties of human cognition during the appraisal process.) Due to the wide range of practices and methodologies an organization can choose from, multi-criteria decision support tools have been created as a result. Often, when an organization decides to develop or choose a supplier evaluation and selection method, the organization must first determine what their specific requirements are. It is imperative, therefore, that there is a range of selection methods and applications to choose from as different methods may cater to different requirements (Wu, Zhang, Wu & Olson, 2010; Govindan, Rajendran, Sarkis & Murugesan, 2013 ).

In their research, Govindan et al. (2013) identified some of the more commonly used approaches in supplier selection. Their research was based on

the amount of online journals available that discuss different methods of supplier selection. They noticed that 77.77% (25 papers) of the papers they selected utilized a single technique in their analysis. They speculate that this may be due to the simplicity of focusing on one approach. 22.22% (8 papers) use an integrated approach “with the objective of trying to achieve a more realistic application given the complexities of a real-world decision process.” (Govindan et al., 2013 p. 5)

The most popular individual approach in supplier selection, based on Govindan et al.’s (2013) research, was Analytical Hierarchy Process (AHP). According to Handfield, Walton, Sroufe and Melnyk (2002), AHP, originally created by Saaty (1980), provides a framework in which different types of multi-criterion decision problems are solved based on the relative priorities of each criterion in achieving a stated goal. It is a benefit measurement (scoring) model in which subjective managerial inputs on multiple criteria are converted into scores that are then used to assess each possible alternative. The significance of using AHP is that it treats a decision like it is a system. Therefore complex decision processes are made more rational by incorporating all available information (both quantitative and qualitative) about a decision (such as the decision to include environmental criteria during the supplier selection process) in a systematic manner. Also, the process of executing the analysis helps the manager to prioritize the criteria in a way that may otherwise not be possible (Handfield et al., 2002; Govindan et al., 2013).

Govindan et al. (2013) also observed that a popular integrated approach was integrated AHP. The main reason for integration was that other techniques provide unique advantages that complement the AHP approach.

With regards to the most popular criteria, Govindan et al. (2013) found that the major criteria considered for green supplier appraisal are environmental management system and quality, though they found that some studies were based on the drivers such as the level of environmental commitment and the degree of green supplier collaboration.

Kraljic (as cited in Murray & Cupples, 2001) supported a portfolio approach which has the variables ‘supply market complexity/supplier strength’ and ‘company attractiveness/strength’. This allows for the placement of the products into four categories: “bottleneck, strategic, non-critical and leverage items” (Murray & Cupples, 2001 p. 33). With this matrix, cost-effective identification can be done with regards to the types of purchases that are most suitable for supplier appraisal. Murray and Cupples (2001) believe that, using Kraljic’s model, purchasers (or purchasing managers) can easily approach green purchasing from a familiar position. They developed two models that purchasers can use to firstly identify where and how they should focus their attention on and secondly to teach them how to approach green supplier appraisal.

A green supplier evaluation does not necessarily have to be applied to all contracts. When deciding to which contracts it would be applicable, consideration needs to be taken on the cost of conducting the process. Some of

these costs include, the opportunity costs of purchasing, data collecting and analysis costs and travel costs from visiting the supplier sites. Thus it may be recommended that a green supplier appraisal should only be applied to those purchases that are perceived as having high value (or high priority) and relating to high environmental risk. In considering which methodology to be used, especially for organizations that do not have the expertise or knowledge to carry out an extensive green supplier appraisal, Murray and Cupples (2001) recommend the model proposed in TABLE 2.

TABLE 2 Simple supplier evaluation methodology

Financial Cost	High	Objective: to reduce the cost of evaluation while also promoting and creating greater awareness <ol style="list-style-type: none"> <li>1. Comprehensive questionnaire</li> <li>2. Check references</li> <li>3. Talk to customers</li> <li>4. Second party accreditation</li> <li>5. Sample testing</li> <li>6. Visiting supplier sites</li> </ol>	Objective: to reduce environmental risk by adding onto existing supplier appraisal tools <ol style="list-style-type: none"> <li>1. Comprehensive questionnaire</li> <li>2. Check references</li> <li>3. Talk to customers</li> <li>4. Second party accreditation</li> <li>5. Sample testing</li> <li>6. Visiting supplier sites</li> <li>7. Analysing financial accounts</li> </ol>
	Low	Objective: to create environmental awareness at the lowest possible cost <ol style="list-style-type: none"> <li>1. Questionnaire dealing with 'green issues only'</li> <li>2. Third party accreditation</li> </ol>	Objective: to reduce environmental risk at low cost <ol style="list-style-type: none"> <li>1. Questionnaire dealing with 'green issues only'</li> <li>2. Check references</li> <li>3. Talk to customers</li> <li>4. Second party accreditation</li> </ol>
		Low	High
		Environmental Risk	

Furthermore, often during supplier selection, many procurement laws have a list of criteria for excluding suppliers. Some exclusion criteria include if the supplier's company is bankrupt, or if they have been found guilty of corruption, or fraud or any other similar crimes. Similarly, as long as it complies with the law, suppliers can be excluded due to environmental reasons; for example if they have been charged with environment-related crimes (Clement et al., 2007).



## 2.6 Market analysis for green purchasing

When it comes to procurement, it is important to analyse the market from which the products come from. A market analysis collects needed information about companies and the market condition and environment within which they are in, in order to be able to estimate the consequences if one factor changes, and also to create strategies for a number of market actors (Günther et al., 2003). Similarly, a supply market analysis is a method used in procurement to identify the market characteristics for certain products and services. It is important because it enables procurers to gain information that is significant in developing effective procurement strategies during procurement planning. Such an analysis provides information and understanding on how a particular market works, the competitiveness, capability and capacity of a market, the key suppliers in a market, and much more. It is also useful in managing risk by identifying the favourability of a supply market to buyers compared with suppliers, as well as the likelihood of supply market failure (Department of Housing and Public Works, 2014).

The questions that arise when analysing the market of a conventional product are also applicable and just as significant for green products. Questions such as, “Will the green products be represented on the market? Will the market share of the producer increase? What effects would purchasing networks of local authorities have on the market?” (Günther et al., 2003 p. 194) need to be considered. Exploring a market for green products is made even more complicated by the fact that they are only sold if the consumer is also aware of the environmental benefits, purchasing the green products would lead to cost savings, and the purchaser is legally obligated to purchase green products. (Günther et al., 2003)

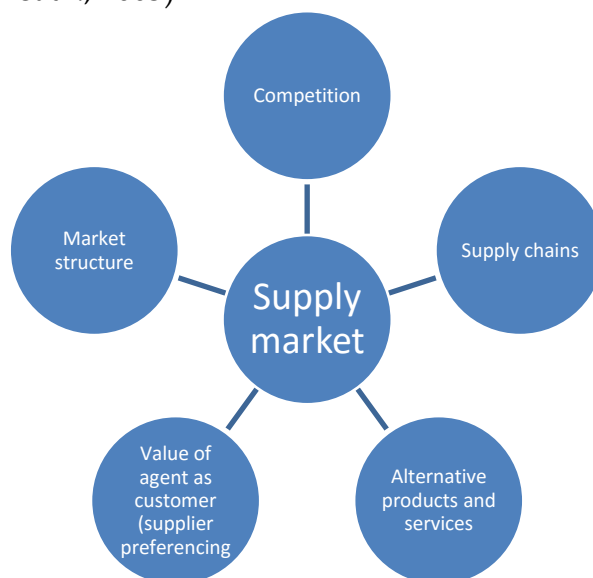


FIGURE 3 Factors affecting the supply market (Department of Housing and Public Works, 2014)

As part of the market analysis, it is important to pay attention to certain aspects such as, “the market power of producers/suppliers on the market” (Günther et al., 2003 p. 195). This information is useful when bargaining with a supplier. If the negotiating power of a supplier is high then they have dominance in the market thereby decreasing the competition in the market. This may also reduce the choice of suppliers.

Another important aspect of the market to pay attention to is the, “concentration of producers/suppliers in the market for the selected product groups” (Günther et al., 2003 p. 196). Concentration in a market reveals the percentage of market volume represented by a certain number of companies. The “barriers to environmental products entering the market” (Günther et al., 2003 p. 196) is also important to consider. There may be barriers inhibiting companies from entering a market with a new product. Those companies that have been established in the market for a long time have many advantages (which may then act similarly to barriers for new companies) such as experience and sunk costs. (Günther et al., 2003)

At the end of the supply market analysis, the information gathered should also include details on any environmentally-friendly alternatives as well as their general price level (European Commission, 2004).

## **2.7 Challenges in green procurement**

In order to implement green procurement, it is important to identify any challenges or hurdles that are likely to be encountered and determine ways of overcoming them. For example, in green public procurement, if a municipality is able to identify the criteria for purchasing environmentally friendly products but contracting authorities refuse to accept or use them then the products will be rendered useless (Günther, 2003).

One significant element lacking in green procurement is a mechanism that would be used for calculating or quantifying the environmental benefits. Having concrete and sound data provides decision-makers with stronger arguments for a nation-wide engagement and commitment to green procurement (Ochoa et al., 2003).

Another challenge in green procurement is unawareness and/or uncertainty. Many purchasing managers and other purchasing professionals struggle in defining the term “environmentally preferable” and therefore have a difficult time incorporating environmental attributes during their decision making (Emmett & Sood, 2010).

Furthermore, there is the potential for barriers in trade in green purchasing. For example, ecolabels have, in the past, been seen as a “barrier of trade” issue since requesting only products that have an ecolabel during the procurement process (particularly during public procurement) may be interpreted as limiting the number of suppliers who can respond to the tender

and would thus be viewed as a closed and not “open to all bidders” tender (Emmett & Sood, 2010)

Often, environmental information on products and/or services is not provided or may not be sufficient during the procurement process. For many suppliers, this information is not readily available therefore it is challenging for them to provide it to procurement managers, especially during the preliminary stage of procurement where they need to meet the initial specifications demanded by the procurement managers. Thus, including green aspects as part of the initial specifications may prove challenging (Emmett & Sood, 2010).

Moreover, it is difficult to determine what environmental aspects should be considered (i.e. those that are most significant) and which ones should not. To combat this, the Life Cycle Assessment (LCA) process was developed which allows for the environmental impacts of a product to be on a unified basis allowing for the comparison of two different products (Erdmenger, 2003b). LCA refers to “the assessment of the environmental impacts of a given product or service throughout its lifespan regarding the raw material production, manufacture, distribution, use and disposal including all intervening transportation steps” (EPTA, 2007 p. 1). It emerged in the USA at the end of the 1960’s, where it was then known as Resource and Environmental Profile Analysis (REPA). Since then, the use and interest in LCA has rapidly grown. Today however, only a few LCA reports are available to the public and it can therefore be difficult to retrieve one specific to one’s needs (Schmidt & Frydenal, 2003)

Green products are often perceived to cost more, usually because the initial purchasing costs do tend to be higher. This perception is often misconstrued because the overall costs of green products (the life-cycle costs) actually tend to be less as there is compensation in the operation, maintenance, and disposal costs. Thus it is often challenging to change the behaviour of procurers so that they focus more on the life-cycle costs and not the purchase costs (European Commission 2015c).

The European Commission (2015c) also identifies lack of training as a challenge in implementing green procurement. Those responsible for carrying out specific tasks during the procurement may not necessarily have the appropriate skills required, or may not have received the appropriate training. Training that focuses on the concept of life-cycle costs, and the technical and legal aspects of green procurement is generally required. Furthermore it is also important to train the end-user on how to use products sustainably.

Finally, environmental criteria differ greatly among product groups such that some product groups are more inclined to have suitable criteria than others (Parikka-Alhola et al., 2006). According to a study by Kippo-Edlund et al. (2005), environmental criteria were used most commonly with such product groups as food products and beverages, office equipment such as paper and computer machinery, repair services, maintenance services, installation services, and disposal services. This implies that it would be difficult to procure products outside these product groups based on environmental criteria.

## 2.8 Green procurement in hospitals

Within most health care institutions, supply chain teams typically make the majority of purchases on behalf of various departments. In doing so, they must first consider the efficacy of products they purchase. While health care products must always be safe and of high quality, procurement staff are becoming increasingly concerned with additional factors, such as a product's packaging, and efficient use of energy or water. Health care organizations and manufacturers have made significant strides during the past two decades in embracing and integrating environmental, social and financial sustainability throughout the industry. Suppliers are rethinking what goes into products and the ways they are made. Hospitals and health care systems are increasing recycling, using greener cleaning products and providing healthier food options. It is inevitable that sustainability will only continue to grow in importance as the link between environmental and human health becomes stronger. (Johnson & Johnson, 2012)

According to the research conducted by Johnson and Johnson (2012), 35% of health care organizations globally have reported that they have switched suppliers so as to purchase more sustainable products and supplies. Top of the list on greener supplies are administrative supplies such as printer paper and toner but, significant to purchasers, is also the availability of more sustainable medical products. Johnson and Johnson (2012) also reported that the three most important attributes that purchasers look for during the procurement process of medical equipment are if the equipment is heavy metal free (most hospitals will not purchase medical equipment containing heavy metals such as lead, mercury, hexavalent chromium and cadmium), if there are any "end-of-life" solutions (purchasers of medical equipment may want to know if the supplier offers recycling or reprocessing, or other take-back solutions), and the energy efficiency of the equipment since the hospital industry is known for consuming large amounts of energy. In fact, the average hospital consumes more total energy than any other type of commercial building, and in terms of energy per square foot, it is second only to retail food establishments (Boone, 2012)

A health care institution's decision to implement an Environmentally Preferable Purchasing (EPP) program is an important part of more holistic practices that support its commitment to sustainability. An EPP program may be used to guide simple decisions, such as buying recycled paper. Or it may require procurement staff to consider the total life-cycle impacts of a product to be purchased, from the raw materials used, to manufacturing and distribution, to its end-of-life disposal solutions (Johnson and Johnson, 2012).

Karliner and Guenther (2011) have developed green and ethical purchasing action items that hospitals implementing green procurement could consider. Each action items discusses the different actions that a hospital can do in their journey towards being "green". Some of these action items include developing a green hospital policy, increase awareness by educating staff, and

creating local networks of hospitals that advocate and work together in the creation and execution of environmental hospital policies.

Purchasing in a hospital often begins with committees of experts in different parts of the hospitals. For example, doctors and nurses who work in the dentistry department meet to discuss the medical equipment and products that they need and how they would like to spend their budget. Their requests, together with other requests from other hospital committees, are sent to a central purchasing department at the hospital (Orts & Sigonardo, 2014).

Due to the wide range of medical equipment and products available, the procurement process in a hospital can be quite complex. This is made even more so when environmental criteria is introduced. Issues that are often considered during a hospital's procurement process include public health, technical issues and economic issues (Kaur & Hall, 2001).

Before the actual implementation of green procurement, EPTA (2007) recommends that the staff members involved in the various stages of procurement are trained in order to have a successful implementation of green procurement. The training would be a way of ensuring that the staff members receive the legal, financial and environmental information needed for green procurement. EPTA (2007 p. 5-7) has also outlined a methodology for the implementation of green procurement in a hospital. This methodology has five stages; baseline situation analysis, selection of the products, designation of a green title for each product, designation of technical specifications, and designation of award criteria.

During the baseline situation analysis, when starting the implementation of green procurement, the hospital should evaluate the environmental impacts that occur from its procurements and record a baseline situation. Based on the number of products within each product category, and their direct and indirect environmental impacts, the product categories with the potential to be greened will be identified (EPTA, 2007).

Next is the selection of the products. In this stage, the product categories (or category) to be greened are selected. These products can range from electrical and electronic devices to consumables. These products are selected based on their availability in the market, their characteristics and needs in the hospital, and their environmental impacts. A product category may be chosen based on products that are eco labelled in the market, products with recycled or refurbished content, the energy consumption of products, the life-cycle costs of the products, whether the products are biodegradable, and whether it is possible for joint procurement with another hospital so as to reduce costs and packaging of material (EPTA, 2007). To make this process easier, executive bodies such as the European Commission (2015b) have created environmental criteria (including technical information) for various product categories. Similarly, Practice Greenhealth (n.d.) has compiled a list of environmental terms so that those new to green procurement may use them to become familiar with their meanings.

Next is the designation of a green title for each product. This is done during the stage in which the tender documents are prepared. It is important that the subject matter of the contract clearly defines what is being sought in a green product. Typical wording used includes, 'recycled paper', 'energy type A lamps' or 'energy efficient lamps', 'organic food' and so on (EPTA, 2007). The designation of technical specifications is also done during the preparation of tender documents. The minimum requirements regarding the environmental criteria of the products to be procured are set. These environmental parameters should be defined in such a way that it does not bind or hinder the market (EPTA, 2007).

In the final stage, the designation of award criteria, the hospital assesses the quality of the bids and also compares the prices. Deciding on the most advantageous offer may be based on criteria such as the quality of the product, the product's environmental characteristics, the product's technical specifications, operational costs and efficiency of the product, after sale services and many more. The different criteria used in determining the most advantageous offer should be linked to the subject matter and allow for the assessment of the bids to also be based on financial and quality criteria as a whole with the goal of awarding the contract to the bid with the best money utilization (EPTA, 2007).

### **2.8.1 Typical medical product categories that may be greened**

Below are some of the typical hospital product categories with the potential to be greened.

#### **2.8.1.1.1 Medical**

According to EPTA (2007) hospital and medical products should not have latex, quicksilver, polyvinylchloride (PVC), and toxic substances. For medical hardware, alternatives that fulfil requirements but differ in life-cycle costs should be examined. Some examples of green medical products include products without PVC (such as bed covers, catheters and electrodes), quicksilver (such as thermometers, batteries), latex, lead, halogen, and toxic substances.

It should be noted that care should be taken when purchasing products that claim to have these characteristics as some may be misinforming. For example Food and Drug Administration (FDA) issued a press release in March 2013 stating that manufacturers should accurately label medical products that were made without natural rubber latex (NRL), because many had been labelling the products as latex-free or NRL-free, which was incorrect. Even if a product is made without NRL, there is a chance that it may be contaminated by NRL allergens during the manufacturing and packaging processes. There is yet to be a medical test that shows that a product is completely free of NRL allergens. Furthermore, the term 'latex-free' is ambiguous since it does not

specify the type of latex being referred to. There are various types of latexes that may be natural or synthetic (FDA, 2013).

#### **2.8.1.1.2 Lamps**

Throughout the entire hospital, the need for adequate lighting is great and this often results in large amounts of energy consumption. Procuring energy efficient lamps will not only be 'green' but will result in a reduction of energy costs as well. Energy efficient lamps are often identified by a consumer via a label (EPTA, 2007). One of the most common labels is the EU energy label. This label was brought about as a result of the European Energy Labelling Directive (ELD) which was approved by the EU Council in 1992 and amended in 2010. Based on the framework outlined by the directive, manufacturers and retailers of Energy-related Products (ErP) are required to display a comparative label on the products in the form of letters A-G (A being the most efficient and G being the least efficient) (BIO Intelligence Service, 2013).

Hospitals should procure lamps labelled as "A" or the equivalent. Also a hospital should ensure that they procure the lamp that is best suited for its different areas and departments (EPTA, 2007)

#### **2.8.1.1.3 Consumables**

Consumables in this case refer to office equipment such as paper, toner, pens and pencils. Paper with recycled content (or that is 100% recycled) can be procured as well as refillable toner and pens (EPTA, 2007).

## 3 KENYA

### 3.1 Sustainability in Kenya

In 1999, Kenya adopted the Environmental Management and Co-ordination Act framework (EMCA). EMCA established, among others, the National Environment Action Plan Committee (NEMA, n.d.). After every five years, the National Environment Action Plan Committee is to prepare a National Environment Action Plan for the consideration of the National Assembly. Among others, the Plan is to “recommend appropriate legal and fiscal incentives that may be used to encourage the business community to incorporate environmental requirements into their planning and operational processes” (Environmental Management and Co-ordination Act, 1999 section 38c). The Plan also provides a framework for the implementation of the Environment Policy, and is also a realization of the national Millennium Development Goals (MDG) and Vision 2030 (National Environment Action Plan Committee, 2009). The MDG’s are eight goals that are a response to the world’s main development challenges. They are to be achieved by the end of 2015. These goals are; the eradication of extreme hunger and poverty, achievement of universal primary education, promotion of gender equality and empowerment of women, improvement of maternal health, the combat of HIV/AIDS, malaria and other diseases, ensuring environmental sustainability, and the development of a global partnership for development (UNDP, 2015). The Kenya Vision 2030 is a blue-print that highlights national development goals to be achieved by the year 2030. The Vision is to be executed in successive five-year Medium-Term Plans, beginning from the year 2008 (Kenya Vision 2030, n.d.). Amongst the EMCA, MDG, Vision 2030 and the Environment Policy documentations, only the Environment Policy has a specific statement regarding the use of environmental criteria during procurement; “the government will promote public procurement policies that encourage development and diffusion of environmentally sound good and services” (Ministry of Environment, Water and Natural Resources, 2013 p. 28).



Few studies regarding green procurement have been conducted in Kenya. One example of such a study was conducted by Nasiche and Ngugi (2014) on the determinants of adoption of green procurement at the Kenya Pipeline Company. The main determinants were revealed to be incentives, pressures and organization green capacity. Other factors such as the cost of green products and green supply capacity were not perceived as significant (Nasiche & Ngugi, 2014).

Kipkorir and Wanyoike (2015) also conducted research on green procurement in Kenya. In particular, their research aimed to reveal the influences in adopting green procurement in multinational tea companies in Kericho County. They concluded that the financial resource variable was regarded by majority of the respondents as the factor hindering the implementation of green procurement. This includes the cost of purchasing recyclable products as well as purchasing non-ozone depleting substances.

### **3.2 Procurement in Kenyan Hospitals**

Kenyan hospitals are divided into four groups; public, private not-for-profit, private for-profit, and faith-based. The public hospitals may be further divided into three groups; primary hospitals (such as district hospitals), secondary hospitals (such as provincial hospitals) and tertiary hospitals (such as referral hospitals). This thesis will focus on one tertiary hospital, one private for-profit hospital and one faith based hospital. (National Coordinating Agency for Population and Development (NCAPD) et al., 2011)

Public hospitals (among other public entities in Kenya) have to adhere to the Public Procurement and Disposal Act 2005. This Act was the result of reforms by the Government of Kenya (GoK). In 2003, the GoK began implementing reforms to combat inefficiency in public resource use and weak governance. These reforms included the implementation of the Public Procurement and Disposal Act 2005. The content of the Act would ensure transparency, accountability, and reduction in wastage of resources during public procurement processes. The GoK also created the Public Procurement Oversight Authority (PPOA) (Tetra Tech, 2009). Some of PPOA's responsibilities include assisting in public procurement system implementation and ensuring that public procurement processes are complied with in accordance with the Act (PPOA, n.d.). The creation of the Public Procurement and Disposal Act 2005 and subsequently the Public Procurement Regulation 2006 portray the Government's commitment towards transforming the procurement processes of government agencies (PPOA, 2009a). The Public Procurement and Disposal Act (2005) will soon be revised in accordance to the Kenya Vision 2030. The revised Act is to promote faster public procurement, among other procurement related developments, during the implementation of the second Medium-Term Plans (2013 - 2017) (Kenya Vision 2030, n.d.).

As part of its duties, the PPOA created the Public Procurement and Disposal General Manual (PPDGM) as a guide for public officials who are responsible for public procurement processes, as well as other professions (such as auditors and accountants) that may have to deal with public procurement in their everyday work. The guidelines in the manual were developed in accordance to the Public Procurement and Disposal Act 2005 section 9 (c) (i). It is therefore mandatory for public entities (including public hospitals) to comply with the instructions of the manual. Within the manual, PPOA (2009a, p.6) outlines a procurement cycle that public procuring entities are expected to comply with. Each step of the procurement cycle must be documented and must also be approved by the designated authority. The complete procurement cycle is as follows; preparation of the procurement plans; preparation of procurement specifications as well as initiation of the procurement process, preparation of the pre-qualification/tender/bid documents; advertising of bids; receiving and opening of bids; evaluation of bids; award of contract; notification and, where applicable, negotiations during contract awarding; preparation and signing of the procurement contract; contract management and administration; receiving, inspecting and acceptances of product(s) or service(s); and storage and inventory. A budget must also be prepared during the procurement planning process. This budget must then be approved by Parliament. The Procurement Plan may have to be revised to reflect actual budget allocations. Approved funds must be spent as intended. It is also government policy to ensure that procurement is open, fair, and transparent, and that there is no discrimination (PPOA, 2009a)

The PPDGM also gives information on the consideration of life-cycle costs, as one of the ways of ensuring promotion of economy, and ensuring effective and efficient money practices. The manual explains that life-cycle costs should be used during the consideration and selection of procurement alternatives. It is not mandatory to consider life-cycle costs (PPOA, 2009a).

According to the PPDGM, Kenya has ratified the Kyoto Agreement. This implies that measures to protect the environment should be underway, though there is no indication that these measures are part of the procurement system. Even though there are no clauses in the Public Procurement and Disposal Act 2005 or in the Public Procurement and Regulations 2006 that discusses green procurement or incorporating green criteria during a procurement process, the PPDGM does include a small section that briefly discusses inclusion of environmental criteria during public procurement processes. Consultation with the environmental regulatory authority is deemed necessary when a public entity decides to include environmental criteria into the procurement process. The PPDGM gives further examples of environmental factors that could be considered during the tender design and evaluation of bids process. Some of the factors outlined are “climate mitigation, forest degradation, emissions or toxic chemical spillage, and level of non-biodegradable waste” (PPOA, 2009a p.18).

According to the Public Procurement Manual for Health Sector (2009b) all public medical procurement is to be done through open competitive public bidding unless there is justification for an alternative procurement method. During the procurement process of a public hospital, a procurement plan should be created. This plan, as well as the budget, must be based on realistic cost estimates based on the market research database. This database should be compiled and updated on a regular basis by the procurement unit in compliance with Regulation 8 (3) (z) of the Public Procurement and Disposal Regulations 2006. The different departments and sections of the institution each create a procurement plan which is then consolidated by the Head of Procurement Unit into one corporate procurement plan (PPOA, 2009b)

The GoK has aimed at reforming the agenda for the procurement and distribution of drugs and medical equipment and supplies since the early 1990s. As a result, the “Kenya Medical Supplies Agency (KEMSA) was established as a state corporation under CAP 446, through the Kenya Medical Supplies Agency Order 2000 (Legal Notice No. 17 of 11<sup>th</sup> February, 2000).” (Johnson, Hazemba, Kimeu, Kirika, & Thuo, 2008 p. 7). As of 2006, KEMSA has set in place a “pull system” and ensured that all 141 hospitals in Kenya adhere to it. A pull system is a procurement (and manufacturing) system that is demand-driven (Ruffa, 2008). KEMSA’s vision is, “to be a world class supplier of integrated quality, affordable essential medical commodities to health facilities” (Johnson et al., 2008 p. 10) and its mission is to improve the healthcare of Kenyans through efficient procurement and reliable distribution of quality medical commodities and promotion of rational drug use and practices” (Johnson et al., 2008 p. 10)

Public procurement in Kenya is also significant to the private sector. Through public procurement, it is also possible to expand commercial possibilities and fair competition for the private sector (PPOA, 2009a). This implies that the procurement practices in the public sector can heavily influence those in the private, including the healthcare sector.

Private hospitals in Kenya are controlled by agents who are mostly outside the control of the government (Muthaka, Kimani, Mwaura & Manda, 2004). Information on the procurement procedures and regulations of private hospitals has been difficult to obtain, possibly because each individual hospital is responsible for its own procedures and regulations.

## 4 RESEARCH METHODOLOGY

### 4.1 Qualitative research

“Qualitative research involves any research that uses data that do not indicate ordinal values”(Nkwi, Nyamongo, and Ryan, 2001 p. 1). Data collected in qualitative analysis includes texts, images, and/or sounds. It is a “response led” methodology and not a “question led” one (Smith, 2007). It is important to recognize that there are various qualitative research approaches and even within these approaches there are varieties in terms of the focus and research techniques. Examples of qualitative research approaches include grounded theory research, narrative research, and case study research. Identifying the correct approach for one’s research is significant in discovering the most accurate results (Eriksson & Kovalainen, 2008).

### 4.2 Data collection

There are various methods of data collection used in qualitative research such as interviews, focus groups, and observations (Philips & Stawarski, 2008). The method of data collection used in this research is interviews.

Interviews are typically structured, semi-structured, or unstructured. The interview method used for this thesis is semi-structured. In a semi-structured interview, the researcher has a number of key questions that are asked to each of the respondents. However, some of these questions are open-ended questions thereby allowing the responder to elaborate and discuss at length some issues, and also allows the researcher to ask follow-up questions (Stoke, 2011).

For this research, a total of six in-depth semi-structured interviews were conducted. The duration of the interviews ranged from thirty minutes to forty-five minutes. There were three representatives of the same public hospital, one representative of a private for-profit hospital, one representative of a faith-based hospital, and one representative of PPOA. Of the three representatives of the public hospital, their positions in the hospital were as follows:

- Senior Assistant Director of Supply Chain Management
- Deputy Chief Nurse
- Head of Biomedical department.

The position of the representative of the faith-based hospital and the private hospital was Head of Procurement, and the position of the PPOA representative was Principal Officer. For privacy's sake, the hospitals and the representatives will not be named in this thesis.

The reason for choosing to interview the three different types of hospitals was to be able to compare their methods of procurement and determine what the differences and similarities are. It is also useful to find out if, though the hospitals are different, if they can collaborate in certain cases of procurement.

Interviewing PPOA enabled me to have a further insight in public hospital procurement and to find out what the processes and procedures would be in implementing green criteria for public procurement.

Majority of the interview questions were open ended, allowing the interviewees to discuss, in depth, their opinions on green procurement, as well as to what extent they include green criteria during their current procurement processes. They could also discuss anything they felt was relevant to the topic, though the research questions ensured that certain points were discussed by all such as; to which extent, if at all, they have implemented green procurement or included environmental criteria during procurement; and what the reasons would be as to why they would not adopt green procurement. The full list of interview questions may be found in appendix 1 and 2 below.

### **4.3 Data analysis**

Inductive thematic analysis is the chosen method of analysis for this thesis. According to Guest, Namey & Mitchell (2013), one of the most common analytical approaches used in qualitative research is inductive thematic analysis. In this approach, textual data is read and themes are identified. A theme may be defined as "a phrase or sentence that identifies what a unit of data is about and/or what it means" (Saldaña, 2009 p. 139). The output of an inductive thematic analysis is often a recommendation for a program and/or policy (Guest, MacQueen, & Namey, 2012). "Inductivism is a methodological approach wherein the researcher undertakes data collection on a relatively limited or small sample in relation to a research topic or area" (Stokes, 2011 p. 58), therefore, there is a range of possibilities to conduct inductive data analysis such as grounded theory, coding, content analysis, narrative, and so on. Such

approaches begin with a body of data, and from this concepts and theoretical frameworks are developed and established. Subjectivity plays a central role in inductive analysis. The researcher interprets the responses of the participants of the research and writes up the final account. It is therefore important that there is in-depth background information so that the reader has sufficient information and insight to determine the validity and reliability of the account (Stoke, 2011). As the themes emerge, they can be put together to form a conceptual framework, which in turn develops into an emergent theory (Stokes, 2011).

There are different techniques used in identifying themes from qualitative data. Ryan and Bernard (2003) outlined eight techniques that may be used in discovering themes. These techniques are depicted in table 2 below.

TABLE 3 Theme identification techniques (Ryan & Bernard, 2003 p. 89-94)

<b>Technique</b>	<b>Description</b>
Repetition	This involves identifying topics or ideas that occurs various times throughout data (i.e. it is repeated often). It is, however, up to the researcher to determine how many repetitions results in a theme
Indigenous categories/typologies	This refers to finding themes by looking for terms that are unfamiliar or used in unaccustomed ways
Metaphors and analogies	Expressing oneself using metaphors and analogies can often reveal underlying themes. Guest et al. (2012 p. 66) use the example of how Thai people are known for flavourful food when cooking, and thus young men described sex with a condom as "like the sweet without the sour"
Transitions	Changes or shifts in content – such as shifts in topics, pauses, or changes in the tone of voice - may be indicative of themes.
Similarities and differences	Parts of the data are systematically compared in order to identify similarities or differences which can then be identified as themes
Linguistic connectors	Particular words or phrases could indicate a theme. Words and phrases such as, "because," "since," and "as a result" imply a causal relation

Missing data	In this approach, missing data is used to discover themes. Ryan and Bernard (2003) reveal that much can be learned from data that is missing, such as topics that interviewees intentionally or unintentionally avoid. Themes identified using this approach should be carefully scrutinized so as to avoid researchers only “finding” what they are looking for
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The main methods for identifying themes used in this thesis were “repetition” and “similarities and differences”.

#### 4.4 Research reliability and validity

It is important, when conducting a qualitative research, to assure the readers of the quality and trustworthiness of the research. The use of explicit evaluation criteria not only heightens the transparency of the research but also communicates its strengths and limitations (Eriksson & Kovalainen, 2008).

Reliability and validity are two classic evaluation criteria often used in a qualitative research. Reliability reveals the extent of consistency when a measure, procedure, or instrument is repeated or compared within a study (Eriksson & Kovalainen, 2008; Guest et al., 2012). This means that, if another researcher was to replicate one’s study, the findings should be similar. Validity reveals the extent of accuracy of the descriptions and explanations given in the conclusion of a study. Thus, stating that the findings are valid implies that they are true and certain (Eriksson & Kovalainen, 2008). Of the two concepts, validity is more significant. If one can be assured that their data is valid then it should also be reliable. If valid data is found to be unreliable (that is, the same results are not produced when the study is repeated), it is likely that, for some reason, properties of the phenomenon studied may have changed (Greg et al., 2012).

One way of enhancing validity during the data analysis phase is to transcribe the data using a transcription protocol. This is because transcription provides verbatim description of data collected. Using a particular transcription protocol ensures that the transcription is done consistently (Greg et al. 2012). The interviews conducted during this research were all recorded and transcribed using the “abridged/intelligent” protocol. With this protocol the text is “cleaned up”; that is poor word usage and grammar is corrected, and noises or noise words (such as um and uh) as well as false starts (when the interviewee begins a sentence, falters, and then starts the sentence again or starts a new sentence all together) are omitted. The aim of this transcription protocol is not to change meaning but to clarify it (right transcript, n.d.).

Furthermore, validity can also be enhanced with the use of verbatim quotes to support themes and interpretations (Greg et al. 2012). As there is a transcription of the interviews in this thesis, it will therefore be possible to quote verbatim.



## 5 RESEARCH RESULTS

In this chapter, the main themes identified during the research analysis will be discussed. Some of these themes highlight the similarities of the information provided by the interviewees, while others emphasise the differences. Quotes from the interviewees will be identified as follows.

- Senior Assistant Director of Supply Chain Management of the public hospital (personal communication, April 2, 2015) - (1)
- Deputy Chief Nurse of the public hospital (personal communication, April 14, 2015) - (2)
- Head of Biomedical department of the public hospital (personal communication, April 14, 2015) - (3)
- Head of Procurement of the private for-profit hospital (personal communication, April 9, 2015)- (4)
- Head of Procurement of the faith-based hospital (personal communication, April 9, 2015) - (5)
- Principal Officer at PPOA (personal communication, April 13, 2015) - (6)

The themes identified are highlighted in the subchapters below

### 5.1 Public hospital mandated to follow the Public Procurement and Disposal Act

One predominant theme in the procurement process of the public hospital is that they are bound by law to procure based on the Public Procurement and Disposal Act. Interviewee (1) explains, "Now in the hospital we are a public procurement entity that is guided by the public procurement and disposal act and its regulations which we have regulations 2006, 2009, 2010, 2011, 2013, and recently 2014" (1)

## 5.2 Private hospitals create their own manuals, standards, and procedures

Unlike public hospitals, private hospitals are not mandated to follow the Public Procurement and Disposal Act. Instead, they create their own manuals, standards, and procedures. Interviewee (4) says;

We do have a procurement manual. It stipulates on all the procedures, processes and work instructions on how it should happen... Maybe every private institution could be having its own manual, but this is a guideline on how you should do all your procurement processes. (4)

Interviewee (5) also represents a private hospital (though it is faith-based). He explains;

We have policies and procedures. Procurement procedures, policies, because we are an ISO certified company, there are policies and procedures of how we do procurement... But we don't adhere to the public procurement disposal act per se. But there is some bit of similarity. It's only that this one is not enshrined on the national procurement procedure but it falls under the individual hospital procurement policies and procedures... Every private hospital has its own policies and procedures but they override each other. They are more or less similar. (5)

## 5.3 Use of committees during procurement

One common theme during the current procurement processes of all the hospitals is the use of committees. For the public hospital, the committee focuses on the tenders once they have arrived, evaluating them and pitting them against their specifications, so as to weed out the suppliers they would like;

The hospital, through the user points, identifies the needs. Once these needs are identified, then now we formulate specifications for that need... Once these specifications have been drawn up, they come to supply chain management and we'll go over them to check if they are standard needs that are not skewed or tailored to anyone, and once these are ok then we go to the market to source for these needs. Once we advertise and after the closing mandatory periods that are given within the law, we set up a tender processing committee. The tender processing committee now gets the offers from the suppliers, those are the tender documents, and evaluate against the needs, the specifications that we have given. (1)

Similarly, the faith-based hospital forms a committee after the tenders have been received;

We advertise in the dailies with different categories be it stationary, be it medical supply, be it surgical supplies... So when they respond we open. It's open to the public, it's open tenders. So after opening, we have a small committee that analyses the tenders themselves. Overall the procurement and supply chain manager is the person who oversees the exercise but [he] is a non-official, he can only guide and advice... For non-stock items we prepare the budgets in the beginning of the year. Every department comes up with the budget of the things that they want to procure, capital in nature, and procurement consolidates all this. That is how we come up with a procurement plan for the year. When we consolidate them we apportion them in different quarters... and ordinarily the budgets after we consolidate them we pack them over to the governing council for approval. After they are approved then we now shift to the quarters, and each departmental head is also kept informed of when our purchase is due. This and this time we will be purchasing our item. So when the time comes they raise a non-stop purchase requisition detailing the items, the one they want, the specifications all that. Then we get competitive bids for the items which are opened in the presence of the user department, finance, [and] procurement. Those are the three people. They do the evaluation and then we prepare the documents. These documents are then passed on to the tender committee. The tender committee constitutes of a representative from the user department, representative from finance, representative from procurement and a representative from the governing council and a legal person to some extent, not necessarily. (5)

Unlike the public and faith-based hospital, in the private for-profit hospital, the initial stages of the procurement process are done via a committee. Thus a committee is involved in determining and creating the specifications of the need, as well as a different committee to evaluate the bids once they have all been received;

The initial stages can be governed through a committee, to be able to determine the need and also to do some projections against the costs and all that... The committees are usually constituted. They could be constituted in terms [of] an ad-hoc committee that is constituted based on the nature of the purchase, or the nature of the need. But there are committees already set, that they will be dealing with predetermined requirements or needs for the users. So once these committees convene, they are able to draw the specifications and to be able to do some analysis that will be able to help the users... we are not bound to the lowest bidder, because when we receive the bids, there is a committee that has to be convened immediately, which we call it technical committee. And this

technical committee is the one that carries out the analysis. We'd be able to deeply evaluate the document, the bid, or the requirement of what you are providing in terms of different parameters, and these parameters in most cases, ideally, we usually prepare them before we even float the document. (4)

#### **5.4 Environmental policy and/or environmental management system**

This subchapter highlights the themes that discuss environmental policies and/or environmental management systems that may have been implemented at the hospitals

##### **5.4.1 Unawareness of an environmental policy at the public hospital**

Only one representative of the public hospital knew that an environmental policy was in existent; "Yes we already have an environmental management policy and we are looking towards that" (1). However, she was not aware that the environmental policy discusses the implementation of an environmental management system via the guidelines of ISO 14001(after the interviews, the researcher was able to get a copy of the environmental policy via one of the hospital staff). She was also unable to recall the name of their recently acquired ISO 9001 quality management system; "The hospital has just acquired the ISO 111 what? 9 and 2008, this ISO the general ISO, that is the only one we have right now" (1).

When asked whether the public hospital had an environmental management system, interviewee (2) responded by discussing the hospital's processes in a way that indicates how they are being environmentally conscious, and yet not truly answering the question;

Yeah internally, they have started using processes that entail less power... we try to look at the end results to minimize materials that would be difficult to dispose of. So we have that in mind where we are able to avoid undegradable material, we do that. (2)

When asked if there is an environmental policy at the hospital, interviewee (2) discusses a different policy, and indicates that she is aware of ISO 14001, though she is unable to recall the full name;

Not environmental per se. It is together with, we have OSHE, occupational issues, safety and then, safety, health and environmental. So it is coined together with other things. All those, but there is planning to start working on the, is it 14 something? (2).

Similarly, interviewee (3) does not indicate that he is aware of the existence of the environmental policy or the environmental management system. His response indicates that he misunderstood the question, presuming that the researcher had asked if there was an environmental system for procurement, rather than if the hospital had an environmental management system in place;

I am not aware of any policy to do with environmentally friendly procurement system... We have a safety policy, I don't know if it is related ... We have, under a committee known as OSHE. It is more or less a safety policy which is related to the environment. So in a way we have a similar policy for sure. (3)

#### **5.4.2 Private for-profit hospital has implemented ISO 14001**

The private for-profit hospital's representative appeared to be the only one to be fully aware that the hospital has an environmental management system in place, based on the ISO 14001. "Yes, and we also have EMS" (4) he said, when asked if they have implemented ISO 14001.

#### **5.4.3 Environmental Health and Safety (EHS) program at faith-based hospital**

When asked if the hospital has an environmental policy or an environmental management system in place, interviewee (4) replied, "We have EHS which is Environmental Health and Safety program in the hospital which has a separate committee" (5). He goes on to explain how this committee is involved in the procurement process;

They are involved in the procurement in the sense they would give a report on the items that we have procured, that which have an environmental impact to the society and to the people around, and they would also come in especially when we are doing disposals to just know how did we dispose of this (5).

#### **5.5 Private for-profit hospital carries out a market analysis during procurement**

The private for-profit hospital was the only one to reveal that they conduct a market analysis during procurement. He said;

Again at the same time the procurement people should be able to tell, if these items are delivered, what would be the mode of delivery, what would be type of packaging, how would it affect the procurement, and

that is done now through market analysis. So the procurement person should be able to carry out a market analysis to be able to have a wider spectrum of knowledge to do with the item or requirement, and again as well to be able to give feedback on the market to the users (4)

## 5.6 Definitions of green procurement and use of environmental criteria

This subchapter discusses the themes that deal with aspects of green procurement, including the interviewees' definitions of green procurement and the use of green criteria during procurement including supplier evaluation.

### 5.6.1 Environmental consciousness at the centre of green procurement definitions

The definitions of green procurement all varied, though all the interviewees revealed that they understand that care for the environment is at the centre of green procurement. For example interviewee (3)'s response was, "To me I understand it is procurement related to taking into consideration the environment, whatever we procure somehow it does not harm the environment" (3). Interviewee (1)'s definition seems to be the only one that identifies the need to be environmentally conscious from the point of extracting raw material to the point of disposal;

Green procurement I believe is sourcing of goods and services in a way that you become a good global citizen. In this way it is that you are mindful of whatever it is you are procuring has interfered minimally with the environment in terms of how manufacturing happened for this item, how the raw materials were extracted, and then even in usage, how are they polluting our environment, and even after usage where we dispose them, are they items that are biodegradable or is it things that we will live with for the next several decades without getting biodegraded, or is it things that will produce effluent to our streams and oceans and destroy the rest of the oceans? Have we used too much paper?... is there an alternative to it? The kind of packaging that they have used? That is what green procurement is (1)

To my understanding it is that procurement whereby you are going to lessen or kind of minimize because as it were you may not be able to eliminate totally but you minimize factors that would cause harm to the environment. (2)

Green procurement is actually buying from the correct sources, getting the right items that enables in the reduction of the costs, and maybe pollution

and wastage and as well should have minimum loss in terms of handling, should not cause injuries and all that... the bottom line is that it should give you the most efficient [inaudible], the best in effectiveness of the requirement (4)

Green procurement essentially means you care for the nature in particular and it encompasses, when you are doing procurement you have to do procurement with that in mind especially the products that you are buying; how have they been produced, you go further along the supply chain to just get to know the paper we are buying, how has it been produced and what impact it has in the environment so that has an impact in the way you procure because you want to associate with your procurement policies and processes with organizations that practice green procurement in particular so that there is much emphasis on how you take care of the environment in particular, so this has come as a new way of looking at procurement in particular because you don't just buy, you have to have the environment in mind when you are doing your day to day operations and procurement, and you associate in the supply chain's mass practice, so if there is any form of procurement that you can do that takes care of nature then you practice it as much as possible (5).

Interviewee (6) confuses green procurement with sustainable procurement, even though he understands its link to the environment. When asked to define green procurement, he responds, "I think I understand it from the sustainability side of it". When asked to elaborate, he says, "Green sustainable, the same as sustainable procurement, where you have some policy on whatever you buy and how it impacts on the environment".

### 5.6.2 Use of life-cycle costs

When asked if they take into consideration life-cycle costs during procurement, interviewee (2) simply responded, "yes". Interviewee (1) said, "In the past, the hospital has not been looking at the life-cycle costing, and you'd find us procuring goods at very low prices", which implies that they now consider life-cycle costs during procurement. To emphasize this, interviewee (1) gave an example;

So what we are doing these days, like I just bought a CT scan and a linear accelerator and a cath lab. What we do, we tell you quote for the initial cost of acquisition, then after that quote for me how much these consumables would go for the next five years, tentative consumables that are used in the event that I have this number of patients, then next quote for me the cost of a service contract after the two year warranty. Quote for me for five years after the two year warranty. So my costs up to the 7th year are almost so clear and comparable between the different equipment.

So your equipment may be cheap but the cost of maintaining and running these equipment becomes unacceptable. (1)

Interviewee (3)'s response implied that the use of life-cycle costs is not always done; "It's not really documented but nowadays we ask bidders to include the cost of running our equipment... Once in a while we do ask... for informational purposes"

In the private for-profit hospital, they do not award the bid to the lowest bidder which implies, at least to a certain extent, that life-cycle costs are taken into consideration; "Not really, we don't base it on the lowest bidder. No. We really have to put a caveat on that but we are not bound to the lowest bidder" (4). Similarly, interviewee (5) also confirms that the faith-based hospital also takes life-cycle costs (in his case he refers to it as 'total cost of ownership') into consideration; "That is common. We do that, we take the total cost of ownership of the product that we buy".

### 5.6.3 Use of other environmental criteria during procurement

The use of environmental criteria, other than life-cycle cost, during procurement varies among the different hospitals. It is least prominent in the public and faith-based hospital, but they do acknowledge that it is sometimes considered. For example, interviewee (1) explains that they often add "energy efficient mark" as one of the specifications; "Most of the times in our specifications we will put that it must have the energy efficient mark... Yes to have been certified to be energy efficient". However, interviewee (2) feels that it is still a new concept and is therefore yet to be fully embraced, "The green whatever has not completely been embraced but the concept is, it is being introduced and people are being sensitized". Also, her response implies that she is not familiar with green terms when she stated "the green whatever". Interviewee (3) explains that environmental criteria are only considered when what they are procuring will have a direct effect on the patient, or when they are mandated to do it;

For example when we are procuring radiotherapy machines, we really look into the radiation part of it and there are bodies involved that come to ascertain. In some areas we consider, but it is a statutory requirement, it's not really that for us we want to do it. (3)

At the faith-based hospital, it is clear that the use of environmental criteria is not at the forefront during procurement, though they have made some effort to make some of the processes in the hospital more environmentally friendly;

I would not say there was great emphasis on it as in enshrines in our policies and procedures and also in the way we would do business. It has not picked up yet I must say, but from the open knowledge about it that we know... I would say to a very minimal extent. One of the key things,



especially on furniture when we were procuring we would ensure that where timber has been affected from our forest, we stopped that and went [to] I think it's waste paper or something so that is essentially the direction we moved to just ensure that we don't support companies that are affecting the environment in the way they do business. On paper we have not bought recycled paper as yet but what we have been doing is, to support green procurement we have automated our system to a greater extent and ensured that we minimize printing as much as possible. So you will find even payroll now are just sent to the people through the web, if you are to share any information you just send through the computers and you don't bring the paper, and we went a step further, every printout we would do in the organization we would say please minimize printing because we care for the nature, to save the environment. So there are gradual processes to ensure that this is enhanced and impressed. (5)

The private for-profit hospital was the only one that included environmental criteria for most of items they procure;

Most of the items that we look at in terms of the environment basically when we are buying, we look at the items, how is the items manufactured, what could be the ingredients of the item, that could they be having some hazardous chemicals or some materials that could affect people... We look at environment, as in the whole of the hospital, in terms of reducing the waste. One there is reducing the waste, consuming of less energy, the waste in terms of the administrative costs, there you have a lot of materials, paper work... (4)

#### **5.6.4 Environmental criteria are not often used during supplier evaluation in public and private for-profit hospital**

Interviewee (1) explains that the use of environmental criteria during supplier evaluation is only considered for contracts in construction and civil works;

Like if it is awards contracts we are giving, civil works, construction, we always ask them to have a NEMA certification, that is the National Environmental Management Authority certification to show that they carry out their stuff in a safe environment (1)

Meanwhile, interviewee (2) states that, "I don't think they go to that level" (2). The use of the word "think" implies that she is unsure of whether it occurs or not, which in turn implies that there may be a problem with the channel of communication among those involved in procurement at the hospital. Thus, the entire procurement procedure is not entirely clear for all those involved.

Interviewee (3) states that the use of environmental criteria during supplier evaluation does occur, but rarely; "It is rare, in some rare occasions"

Surprisingly, the private for-profit hospital does not often use environmental criteria during supplier evaluation;

Basically, locally as per now we have not really gone to that level... On very exceptional cases that we'd want to do that, it would be our wish to get to that level for all the suppliers. But based on the requirement, and maybe the supplier base, at times we close our eyes to some point. (4)

#### **5.6.5 Use of environmental criteria during supplier evaluation at faith-based hospital**

The faith-based hospital was the only one that took environmental criteria into consideration during supplier evaluation;

If they [the suppliers] do not care for the nature, because the team goes to do supplier visits just to know where they are, their disposal procedures, whether the lighting is ok, whether the staff are well taken care of, part of the thing that they do when they are evaluating the suppliers we do business with is to get to know where they are; how are they producing their product, are they polluting the environment. And if we realize the environment they are working in is not conducive, because of the nature of products we use in the hospitals mostly we don't do business with them, and that is explicit, it's straight forward. (5)

#### **5.6.6 Environmental criteria should be incorporate in the initial stages of procurement (during specifications)**

At the public hospital, all three representatives agree that environmental criteria should be included when creating the specifications. Thus, it would be reflected throughout the procurement and would ensure that the products they procure are "green". They each said;

I think initially these criteria should just form the rest of the criteria. As I look whether it suits the purpose I should also look whether it is fit for my environment. So it should just be given a weight just like the rest of the criteria that we are evaluating. (1)

"The most critical one is at the specifications, because if you don't start with specifications, it will be very difficult to change in the middle." (2)

So what I would do, I would put it in my own mandate. I go to the specifics of that green procurement. I want to give you for example like a boiler, maybe an incinerator which uses fuel. So I just go to specifics that, the machine you are to give us should have these levels of emissions. (3)

Interviewee (5), representing a faith-based hospital, also believes that the best stage to include environmental criteria would be at the beginning of the procurement process;

I think it needs to be built from the beginning and that is why we go to the source. So when we build it from the beginning and you know whether you practice green procurement, then the product that you get because most of the products that the hospital gets now they don't go any other transformation process, so they are used on the patient. It is important to notice that green procurement is practiced and even the kind of materials they are using, because it also becomes easy for you on the end of life. (5)

### 5.7 Use both local and international suppliers

Interviewee (1) reveals that the public hospital procures organic food from local suppliers;

Well most of our products per se are imported, most of what we use in the hospital... but we have a few local manufacturers like when we are buying our food stuffs, we insist on getting organically grown foods that is also environmentally, yes ...We insist on food that is not sprayed with chemicals and fertilizers and what because our patients do not need more diseases added onto them when they come here. (1)

In contradiction, interviewee (2) states that most of the products procured are local. This implies that the products from her department are mostly local, and not necessarily the products from the entire hospital;

Basically we have been local especially in this financial year they are local. Reason being it is one of the items that has been reserved for these special groups; the women, the youth, and the disabled. (2)

Interviewee (2) also refers to the directive that the President of Kenya made in 2013, which states that 30% of government procurement should be allocated to youth, women, and persons of disabilities. (The National Treasury, 2013). However, interviewee (2) goes on to say, "but what happens like, they could be themselves as an entity they are local, but maybe they may get their whatever, the supply from outside". This implies that they procure through agents and these agents may then get their supplies internationally. Interviewee (3) confirms the use of agents when he said, "Both. But majority are from local agencies. It's rare we procure from suppliers."

The faith-based hospital explains that they try to educate their suppliers when procuring from them. This indicates that whenever they introduce any

new concepts during their procurement process, then they educate their suppliers so as to ensure that they understand;

We do have local suppliers which we really actually have to educate them. We really try to partner, we have to partner in coming up with the proper products. The international companies that we have, they are through agencies, and in most cases you realise that the international have really placed the green procurement. (4)

At the private for-profit hospital, the interviewee simply stated; "We combine both local and international" (5).

## **5.8 Advantages of implementing green procurement**

This subchapter discusses the themes that highlight the advantages of implementing green procurement at the hospitals

### **5.8.1 Reduction of costs if green procurement is implemented**

One of the benefits of implementing green procurement that was echoed among some of the interviewees was a reduction of costs. Interviewee (1) said, "I think we stand to gain, if you look in the sense of the costs, cost of disposal" (1), while interviewee (3) said, when asked what the benefits would be, "Maybe the running costs, that can also, because for us here it's expensive to run our machines, our equipment. Maybe if this policy comes in, we may have a reduction" (3). Finally interviewee (4), who represents a hospital that has implemented green procurement, stated, "The bigger part of it is cost saving. That one I may say we have really saved a lot." (4)

### **5.8.2 Health benefits**

Health benefits are an advantage to green procurement that two interviewees shared; "I think it is a benefit or rather a benefit towards good health for us because we will get less pollutants around us, and we will get fresh air" (2);

The health of the patients in particular, if you implement green procurement in terms of the food you buy, in terms of the products that we buy. Of course, the final product to the patient would enhance their health and their lifestyles at large. (5)

## 5.9 Disadvantages of implementing green procurement

This subchapter highlights the themes that identify the disadvantages of implementing green procurement at the hospital

### 5.9.1 Resistance to change

Several of the interviewees explained that resistance to change is likely to be one of the challenges of implementing green procurement. Interviewee (2) feels that those who would be resistant to the change, would argue on the grounds that green procurement would be some form of discrimination. Perhaps because adding environmental criteria during the procurement process may greatly reduce the number of potential suppliers; "I imagine these days everybody when they don't want to do what they should they always use the constitution. So they will come in and they will start talking about discrimination and all that"

Similarly, interviewee (3) identifies that the suppliers are likely to be resistance to the change is environmental criteria are included during supplier evaluation, mainly because very few are likely to be able to meet the criteria;

I wouldn't put the criteria for example like saying should have a green procurement policy, as a criteria, that one would face some resistance because all the vendors, maybe 2 out of 10 will not have the policy and they will challenge through other policies. (3)

Interviewee (3) also explained that it is likely going to be challenging to get hospital staff involved in green procurement, especially the senior management; "I think the challenges are getting everybody involved, starting from the senior management, because we may not need even the external bodies like the ministry... The challenge is getting the senior management to buy the idea" (3).

Furthermore, while interviewee (5) also identifies the possibility of resistance due to the change, he positively explains that the resistance is unlikely to last;

[In] the initial stages there may be some resistance because it involves looking at issues in a different way especially for the suppliers. Other than the resistance which is a change that is inevitable. But I don't see us resisting this for long. This is something; it's an idea whose time has come. So green procurement give it 2-3 years 4 or 5 years, that is the direction to go (5)

### 5.9.2 Lack of supplies or good quality of supplies

Yet another challenge identified by two interviewees is the lack of suppliers or good quality of supplies. This is a challenge that may impede the implementation of green procurement, because it seems futile to include environmental criteria when there is a low likelihood of procuring products meeting the criteria. Interviewee (4) said, "The other issue could be, some requirements are not readily available. So it's a challenge that maybe the supplier base you have, they are not embracing the environment sustainable." (4). Meanwhile interviewee (1) states that at the moment the hospital has a problem with procuring products of good quality, and that this should be the priority first, before implementing green procurement;

...we are at a stage where we are still struggling to even get the right quality of the product itself; the right that will suite the purpose. Being a third world country and all, we end up getting a lot of items that do not really measure to the standards that we would want to use... Yes even when they are imported they will get the very low end items for us (1)

### 5.9.3 High costs of implementation

Ironically, while reduction of costs was seen as a benefit of implementing green procurement from some of the interviewees, high costs of implementation was seen as a possible challenge. Some of the interviewees feel that the process of implementing green procurement may have a high cost. Interviewee (1) states;

So if we start adding other things it will mean it becomes very costly to the hospital to acquire anything. That is why we are not too strict on these environmental issues, because we are also balancing with financial handicaps, we are balancing between quality conformance (1)

Interviewee (4) also identifies high costs of implementation as a challenge. It is likely that he was speaking from experience as his was the only hospital to have implemented green procurement. He explains;

Basically one of the main challenges is the cost, because those entail buying different items, changing the items that we have to a better item or the most update items. Then there is also the cost of in-training; you have to train people on how to evaluate the system and again to get the correct item. (4)

Interviewee (5), also identifying the high cost of implementation as a challenge, states;

They have a premium. Even in the restaurants that serve food that has been, they call green per se, the prices are premium, so that has been an

issue of course when you implement it. The price might be slightly higher to the customers. (5)

Interviewee (6) also acknowledges that green products cost more (or at least tend to cost more) but that they have long term benefits; “The green costs more, but in the long term there are benefits”. (6)

## **5.10 Influences in implementing green procurement**

This subchapter highlight the themes that discuss the likely influences that the interviewees identified in implementing green procurement

### **5.10.1 Executive management and government regulatory bodies**

At the public hospital, interviewee (1) identifies the executive management and government bodies as the entities that are likely to have the greatest influence in implementing green procurement at the hospital. She said;

I believe executive management would be best placed to come up with policies and the board of management are best placed to approve policies that allow environmental friendly usage of items. The government regulatory bodies should also be able to enforce and not allow anything that is harming our environment to come in. Then that way we'll all be on a level playing field because I may go and get very expensive environmental friendly items, whereas my competitor across the road and the other one is getting all the cheap things they want I will not have an edge... The bodies that are responsible for that is our Ministry of the Environment, [they] should be coming out very strongly to come up with policies as you do this procurement let us not bring garbage into our country. (1)

Interviewee (3) has a similar sentiment to interviewee (1)'s, stating;

I think the challenges are getting everybody involved, starting from the senior management... As per the structure of the institution, anything that falls under the environment, there is a specific department, and they should be the process owners, and that is the public health department. They should be the champions, I think that is a starting point... Those are the people who should buy this idea, and we have our own structure, ways of bringing up idea. (3)

Interviewee (4) also understands the significance of the government in influencing the implementation of green procurement, especially for public

entities, but he also argues that it should be a collective responsibility meaning that private institutions should be just as involved;

I think that this could be a collective responsibility. It should not only be a case of the private institutions, it should also be a case of, not only just the government but as well the private institutions... Government has a bigger take because of some public utilities and all that, but private institutions could only be confined on the institution... But we need people who are now in the profession to start building this into their processes and procedures so that even the suppliers get to know it, then also government legislation, it's important to ensure that they enforce it because when they do not have some laws in place to enhance it then it becomes also difficult for the players in the business to impress (4)

Despite the fact that it is not in the law or that there are no policies available, the public hospitals can still use green criteria during procurement according to interviewee (6), "They can do it. There is nowhere in the law that says you should not", thus they should not rely on the government to give them the push towards green procurement. However, he still feels that the main drivers should be the government. He implies that government involvement would make the process more standardized, when asked if the hospitals should be the main drivers, he responds;

It would be disjointed. And then if it's not something standard, you will have implementation at different levels and the outcome will not be standard. So the best thing is for the environment. Under the environment there are very many... (6)

### **5.10.2 Difference in influence between the public hospital and the private ones**

The influences for implementing green procurement in the private hospitals are different from the public ones. This is probably because the government does not play as significant a role in procurement as it does for the public ones. Interviewee (4) elaborates;

One of the influences I may say, is from 'clean' perspective. Basically you will realise that even the environment is not clean, is not well maintained, you talk of the general hygiene, then it has an effect to the patient, it has an effect even to ourselves that we will the always now getting to the cost of treatment and all that. The second part of it is that, if this was embraced in terms of cost reduction, at least to reduce the cost of purchase, the cost of the equity of the whole thing. (4)



Interviewee (5) perceives green procurement as a competitive advantage when he explained;

Is there certification for green procurement? If that would be introduced, just like quality assurance, most organizations would embrace it. I think this can be, if there can be a body that gives certifications for organizations that are doing green procurement, and do some audits. I think that would be a great idea... if that body was there, you realise one of the hospitals implemented green procurement and then they blow it out, they advertise it they talk about it even to their clients, this hospital practices green procurement, the products that you are getting have been evaluated, all that, then the other hospitals will follow suite very fast because it is a selling point. (5)

### 5.10.3 The users as an influence

Interviewee (2) takes a different approach in recognizing who would be the biggest influence to the hospital to implement green procurement. Though she recognizes the significant role that the government would play in green procurement, she believes that it would be best to begin practicing it now before it is made a mandate. She at first answers, when asked who or what is likely to be the biggest influence, "I think all of us; the users". She then goes on to expound, saying;

If we don't do it ourselves in good time, we will push ourselves to a situation where now the government has embraced it and now they are expecting all government entities to do that. For a long time people had to decide but those who have not embraced it, it has come a time when now the government says you have no choice, you have to do it. The same way the ISO certification; it is an expectation for every government entity to do that. But we can as well do it by ourselves without waiting for the government to push us (2)

Interviewee (5) has a similar approach to interviewee (2). He explains;

I think the people who are doing the procurement practice will be the main drivers. We need to just move from just buying, and be change agents. Change agents in terms of coming up with procedures and policies that enhance green procurement. And I'm sure when you give that idea to the administrators and the people who make decisions in the hospitals; it will be embraced. (5)

### 5.11 Little knowledge of green procurement

Interviewee (3) acknowledged that he does not know much regarding green procurement, stating, "Yeah with the little knowledge I have, I think environment has become a major issue and I'm sure many developed countries now are adopting green procurement process". He and interviewee (2) both go further to acknowledge that there is a likelihood that few people know about it in Kenya. Interviewee (2) states; "If the few of us who have known about it and see the benefits, if we can put more energy into it, I say maybe like 2 years" (2), while interviewee (3) says, "Myself I look at it this way, number one it is a new concept because few people do realize the benefit of this"

Interviewee (6) acknowledges the need for the public entities to be assisted in implementing green procurement, but is not clear on who should assist them. Perhaps the need to assist them may be because they might not be fully knowledgeable on how to do it. He said, "But now I don't know how easy it would be for implementers on the ground to come up with that criteria. They would need to be assisted". When asked if the assistance should come from them, he responds, "Not even from us... Yeah not just from us because even us we are not experts I would say in green procurement aspects"

### 5.12 Disposal

One recurring theme is 'disposal'. It seems to be a major issue for each hospital except the private for-profit hospital whose representative did not once mention disposal throughout the interview. This absence may also prove significant; perhaps the fact that they are the only hospital to have gone furthest in implementing green procurement also coincides with disposal not being a major issue. Interviewee (1) mentions disposal when discussing the hospital's method of procurement; "We also ask about disposal of that equipment... You need to show us how is it that this will be able to be disposed safely into the environment" (1). She also goes on to infer that disposal will become less of an issue should they decide to implement green procurement;

... I think in the long run disposal will become a less headache for us where we will live in a safer better environment and the cost of disposing some of these things would be much much cheaper because if it is recycled stuff we can sell it instead of burning it in a garbage heap. (1)

Likewise, interviewee (3) also views the implementation of green procurement as a solution to some if not all the problems and challenges they may have with disposing their products;

... as a department we create a lot of items which need to be disposed. It's a process in the life cycle, and we normally have the challenge of disposing them. So if this process is developed then we will benefit in terms of our disposal at least our disposable items because there is little danger to the population... (3)

Finally, the faith-based hospital's representative sees green procurement as a way of saving costs even during disposal;

So if you realize an organization is practicing green procurement in the initial stages, you are assured, even the end-of-life disposal process, you will get greater savings, you will care for the nature, there will be no major emissions, you won't have issues trying to dispose them... Especially when you are disposing. So if it is not green then there are others that impacts that are caused by the way you dispose this item, be it syringes, be it surgical supplies, be it used equipment. (5)

### **5.13 Barriers hindering the green procurement**

This subchapter discusses the themes that highlight the barriers hindering the implementation of green procurement.

#### **5.13.1 Lack of awareness**

The need to raising awareness was discussed by several of the interviewees. They view it as an issue that needs to be tackled in order to properly implement green procurement. Interviewee (1) had the following to say about the matter;

People have become very aware and are learned on global matters and there is a lot of pressure globally for people to become responsible global citizens. And I think it's going to catch up with us sooner or later. It is catching up with us. And that is the only way to go. We must sustain our universe and that is the only way for us to go (1)

Interviewee (2) first raises the issue of raising awareness when discussing how the suppliers are likely to react if environmental criteria are included during the supplier evaluation. She says, "I am seeing that as an issue in the beginning, but like I say, I think with proper awareness creation and selling the benefits, I think it can be swallowed" (2). Later, she also explains the need to raise awareness when discussing the possible challenges during green procurement implementation;

I am sure properly planned and well executed, I think once we are able to influence people that it is to their own benefit, I think it will still be

acceptable in the long run... I think basically even the staff, the same thing of creating awareness would be the way to go...tell them what it is first of all and what they stand to benefit, and then they will be the advocates for it once they have understood and they know the benefits. (2)

Interviewee (3) talks of the lack of awareness when discussing the reasons why environmental criteria and other aspects of green procurement have not often been used. He said, "I would say maybe lack of awareness, because it seems to be a new concept in our area" (3)

When asked what would be the best way for other healthcare institutions to implement green procurement, interviewee (4) discusses the need to raise awareness, saying;

I believe it should be an awareness to every institution. These bodies should be able to communicate to each other, every institution, and it would be a very good embracement because you will get to another level in terms of even changing the mindset from one point because it's a kind of a clause all vendors will be knowing [that] people are going green... I may say it is not very widely practiced but this is at the lower level for awareness, where people need to be more educated. (4)

### 5.13.2 Lack of policies

Interviewees (1), (3) and (5) all identified the need for a policy that would aid in the application of green procurement. When discussing the need for policies, interviewee (1) also referred to disposal as an issue by using an example. She discussed;

The bodies that are responsible for that is our Ministry of the Environment, [they] should be coming out very strongly to come up with policies as you do this procurement let us not bring garbage into our country... They should come up with such serious policies on terms of ICT, a lot of things that we do not know what to do with after 3 years. I am told ICT equipment becomes obsolete after 3 years then what do we do with it? (1)

Likewise, interviewee (6) also feels that the Ministry of Environment should create the necessary policies needed to instigate the development of green procurement. He also highlights the significance of the National Treasury in creating a law on green procurement;

You know they [Ministry of Environment] should be the ones to come up with a whole policy on environment. Then green procurement is just a subset. Then green procurement now, because they are not in charge of the procurement policy, they now involve the [National] Treasury and make sure it is included in the laws. (6)

Interviewee (3) discusses the need for a policy both for the vendors and for institutions;

To me, it's a bit tricky because yes we can put as a condition, but it would be far much better if it comes down as a policy, because some of the vendors may challenge the criteria... I think it has to be a policy. The institution has to come up with a serious policy that this should form a mandatory items. (3)

When discussing the need for policies, interviewee (5) does not discuss it in terms of the government creating them, but seem to refer to the hospitals themselves creating them; "We need to just move from just buying, and be change agents. Change agents in terms of coming up with procedures and policies that enhance green procurement." (5)

#### **5.14 PPOA involved in initial stages of policy creation**

The PPOA representative (6) explains that their main duty is to oversee the implementation of policies, "PPOA oversees, the policy part of it and the laws are developed by the national treasury, which is the ministry, we are under". When asked if about their influence to the National Treasury or to the Ministry of Environment in creating a law or policy, he responds, "Part of our mandate is to be involved in the initiation of public procurement policy; so just initiation. So you see now we can only suggest. So the national treasury can consider and find it important or not".

#### **5.15 Use of audits for maintaining green procurement**

Maintaining the green procurement, especially for public hospitals, could be done via audits. Interviewee (6) discussed this during the interview, saying,

If it's a must now, they have to do. If they don't then we also do audits. The Kenya national audit office also audits, and they audit based on the laws and directives that have been given so then after that you will be able to know who is complying... Audits, through training, ok creating awareness through training, develop manuals. (6)

## 6 DISCUSSION

In this chapter, the research questions will be discussed and the researcher will attempt to answer them. Thus, this chapter is divided into 4 subchapters, each correlating to the research questions. It is important to note that, though significant, the responses of the representatives of the hospitals may not be strongly generalized to the opinions of the rest of the staff at the hospital, as well as other hospitals in Kenya. Likewise, the response of the PPOA representative may not be strongly generalized to the views of the rest of the staff at PPOA. The generalization would be weak because very few representatives were interviewed. The generalization may have been made stronger if other hospitals and various representatives from each hospital were interviewed (Mayring, 2007).

### 6.1 Hospitals' understanding of green procurement

When defining green procurement, all representatives revealed their awareness that being conscious of the care for the environment is at the centre of green procurement. Phrases that infer minimal impact to the environment such as "does not harm the environment" and "[interferes] minimally with the environment" were echoed among the interviewees. Some definitions were more detailed than others, revealing the extent to which each representative truly understands what green procurement is, such as those that discuss the significance of the life-cycle of a product. They also understood the significance of implementing green procurement, giving examples such as health benefits and reduction of costs. These definitions are similar to UNDP's (2008) and EPA's (2014), which also defines green procurement as the procurement of products that have less impact on the environment than their alternates and that are beneficial to health.

Despite having a fair understanding of green procurement some of the interviewees revealed that they are not knowledgeable about it. Thus perhaps

only the basic concepts of green procurement are known. It could be that the processes involved in green procurement are not known because the interviewees have not had any influences such as forums and awareness campaigns. The lack of awareness is further discussed in subchapter 6.4.

Furthermore, most of the interviewees also understood the significance of including environmental criteria during the initial stages of procurement. According to UNDP (2008), the best possibilities for integrating environmental criteria during procurement are in the early stages. Doing this ensures that, during the awarding stage, most if not all the products and services for consideration have environmental characteristics (Clement et al., 2007)

## **6.2 Inclusion of green criteria during procurement**

The use of life-cycle costs during procurement is a common practice at the hospitals, according to the interviewees. Thus the hospitals have already begun taking the necessary steps towards developing green procurement. Life-cycle costs and analyses are at the core of green procurement, and while green procurement may be a relatively new concept, life-cycle analysis and life-cycle costing are not. In Europe for example, it is becoming mainstream to use them during procurement in both the public and private sectors (EPA, 2014). The European Commission has gone a step further and has begun a project that entails the development of a calculation tool on life-cycle costing. Thus public procurers will be able to use this tool to calculate the life-cycle costs of certain products. This tool will focus on specific product categories including Medical Electrical Equipment (European Commission, 2015d). It would be useful if such a tool was also available for the Kenyan hospitals, because then the procurers can calculate the life-cycle costs in cases where this information is unavailable.

The use of other environmental criteria was most prominent in the private-for-profit hospital, perhaps because it was the only hospital to have implemented green procurement.

## **6.3 Likely influences to implement and maintain green procurement**

Many of the interviewees stated that the government should be an influence in implementing and maintaining green procurement, though they did not all agree which government entity should be most dominant. The Ministry of Environment seemed to be the most often mentioned in terms of involvement in developing policies, though PPOA can also instigate it by suggesting it. The National Treasury could be a great influence by creating a law encompassing green procurement.

OECD (1996) recognized the significance of government involvement in integrating environmental criteria in public procurement. They recommend the

development of procurement policies geared towards improving environmental performance, by governments. They also recommend that governments should establish effective platforms for consultation, training, awareness-raising programmes, and regulations among ministries and agencies so as to assist in the integration of environmental aspects in decision-making processes (OECD, 1996). Though these recommendations are geared towards OECD member countries, they are also useful for non-members. However, this recommendation is geared towards the public sector and would therefore affect public hospitals. There is, however, a possibility that government endeavours can influence the private sector, and therefore private hospitals. Simcoe and Toffel (2014) refer to this as the “spillover effect”.

Government policies and guidelines have the potential of influencing private-sector procurement via both supply channels and demand channels. For example, should the Kenyan government develop green procurement policies for targeted medical products, the purchases by public hospitals may result in a reduction of suppliers’ average costs, which may in turn instigate private hospitals’ demand for the targeted products (Simcoe & Toffel, 2014).

#### **6.4 Aspects that may be preventing them from implementing or progressing towards green procurement**

One of the key issues that seem to be preventing the hospitals from implementing green procurement is lack of awareness. In their study on drawbacks and opportunities of green public procurement, Testa et al. (2014) found that training initiatives and the availability of information that increases the knowledge of green public procurement are strong drivers for adopting green procurement practices. Thus awareness campaigns on green procurement initiatives and tools would be highly significant in deciding to implement green procurement (Testa, Iraldo, Frey & Daddi, 2012). There are many channels that could be used in raising awareness such as forums and the media. In raising awareness, effective communication channels such as emails, one-to-one and group meetings, also need to be used within the hospitals (Rehman & Marouf, 2008). Two of the three representatives of the public hospital were unaware of the environment policy that is in place at the hospital. This may be due to ineffective channels of communication.

Many of the interviewees felt that the government should be at the forefront in raising awareness, but they should realize that they can raise awareness amongst themselves as well through joint forums for example. Hospitals such as the private for-profit one that have already implemented green procurement to the extent where almost all their specifications include environmental criteria could showcase the benefits of green procurement during forums. Perhaps other hospitals may take more interest when they know of a hospital that has actually implemented green procurement and are then able to request information about the process and what the benefits (such



as reduction in costs of disposal) and possible challenges the hospital went through during implementation.

Though information on green procurement is readily available on the internet, perhaps PPOA, through the Ministry of Environment, could create guidelines on how to do it such that it is tailored for Kenyan organizations and businesses. They could even collaborate with the Ministry of Health and create guidelines specifically for hospitals. Though these would be geared towards public hospitals, private hospitals could also adopt the guidelines as their own, especially if they are new to green procurement. Such guidelines may be useful during raising awareness, so that hospitals not only gain information on green procurement but use tailor-made guidelines for implementing it.

One other key issue discussed was the possibility of resistance to change. This is an issue that can be combated through the development and maintenance of communication and trust between management and users. Lack of awareness and information may be the cause of resistance to change, therefore ensuring that there are open and effective channels of communication may reduce the possibilities of resistance to change (Boohene & Williams, 2012).

Finally the issue of lack of green supplies and products was raised. The thesis researcher was unable to find information regarding the availability of green medical products in Kenya, and though there may be a higher possibility of procuring green medical products internationally, other factors come into play such as their compliance to certain standards in Kenya (for example whether the product is compatible with the electricity requirements in the country) (Kenya Bureau of Standards, 2015). Thus, though not impossible, procuring green medical equipment may prove difficult. According the study conducted by Johnson and Johnson (2012), top of the list of greener products that many hospitals opt to purchase are actually administrative supplies and not medical equipment. Examples of these administrative suppliers are printer paper and toner. Other products are organic food and less toxic cleaning and janitorial products (Johnson & Johnson, 2012). Perhaps these types of products may be less difficult to procure.

## 7 CONCLUSION

OECD countries have strived to be committed to green procurement. In 2002, the “Recommendation on the Environmental Performance of Public Procurement” was adopted by OECD countries. This recommendation encourages these countries to set green targets during procurement, as well as implementing policies that ensure the targets are met. However, in 2011, obstacles were identified that hinder the adoption of green procurement. The major obstacles have been the fear that green products cost more, the lack of ways to verify if green policies work, the lack of incentives for green procurement or green projects, and finally the lack of sufficient suppliers (OECD, n.d.). While Kenya is not an OECD country, the obstacles observed by the OECD countries are similar to those identified by the Kenyan hospital representatives, despite Kenya being a third world country. Thus, Kenya is very capable and has the potential to implement green procurement, not only in the hospitals but amongst all businesses in the country. There are multiple solutions and recommendations on the internet to the problems that arise from adopting green procurement (EPTA, 2007; UNDP, 2008; EPA, 2014). OECD, for example, offers information on raising awareness, and maintaining green procurement, and has various case studies to emphasize the various successful ways of raising awareness and maintaining green procurement (OECD, 2014)

Thus the overall conclusion is that the hospitals in Kenya do indeed have the opportunities to purchase green products though it may be difficult for them to procure green medical products as many of them are often too unique to have alternatives. Furthermore, as part of green procurement, they should also begin focusing on the suppliers and include environmental criteria as part of their supplier evaluation. This will alert the suppliers of the importance of stocking environmentally-friendly products, and of the significance of implementing an environmental management system as well. Thus the supplier evaluation would be a way of raising awareness on green procurement. The hospitals could also offer further information or training to the suppliers on how to identify green products, how to implement and environmental management system, and the various ways they can contribute to ensuring

more of the supply chain is green (such as using recyclable packaging, and optimizing their routing system when delivering the products so that less fuel is consumed).

The need to raise awareness was voiced by several of the interviewees. Raising awareness could be done by the Ministry of Environment through various mediums such as forums, awareness campaigns, workshops, and even, reporting systems. One of the common tools used in raising awareness is the use of mass media. Many governments worldwide have utilized mass media to raise awareness to environmental issues therefore it could be one of the tools used to raise public awareness on green procurement (Sampei & Aoyagi-Usui, 2009). In so doing, they could then begin to offer forums and workshops on green procurement in different fields including hospitals.

With time, if the hospitals and even the entire country are able to progress in adopting and developing green procurement, they could go a step further and implement sustainable procurement where economic and social aspects are taken into consideration (UNDP, 2008). The fact that public hospitals, among public entities, have to ensure that thirty percent of what they procure is from women, youth, and people with disabilities shows that they are well on their way in developing sustainable procurement (The National Treasury, 2013).

## **7.1 Limitations of the research**

One limitation of the research was the fact that the researcher was unable to interview or get any information from any of the hospital's medical suppliers or agents. Though contacted, none responded. Their input would have been useful in shedding light on how they would likely react should green criteria be part of the specifications of a product, or be used during supplier evaluation. It would also have been significant to know if they have any green products or have access to green products, and how they are likely to be affected should green criteria be part of the specifications for products.

Yet another limitation was the lack of information from the Ministry of Environment and the National Treasury. Their probable significance in implementing green procurement was not foreseen until the interview with the PPOA representative, at which point the researcher had limited time to contact and interview them while in Kenya. Attempts to contact them and conduct an email or phone interview from Finland have been futile. Interviewing them would have shed light on whether they have ever tried to raise awareness on green public procurement and whether there have ever been any attempts at creating policies and laws about it.

Lastly, interviews from more representatives in the hospitals, and more hospital as well, would have made the comparison between the private and public hospitals more prominent, as well as allowed for the generalization of the results to be stronger.

## **7.2 Suggestions for future research**

Further research could be done on the implementation of green public procurement as it expands beyond hospitals, since from the results it implies that the hospitals can already begin including environmental criteria.

Also, further research could be done on the development of ecolabel schemes in Kenya or in Africa, including the steps needed to do this and which ecolabel schemes are most likely to be adopted (for tourism for example, or major export product groups).

## SOURCES

- Barth, R., & Fischer, A. (2003). The European Legal Regime on Green Public Procurement: Corresponding and conflicting aspects of environmental law and procurement law in the EU. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 51-68). Sheffield: Green Leaf Publishing
- Boohene, R. & Williams, A. A. (2012). Resistance to Organizational change: A Case Study of Oti Yeboah Complex Limited. *International Business and Management*, 4 (1), 135-145. DOI:10.3968/j.ibm.1923842820120401.1040
- Brander, L., Olsthoorn, X., Oosterhuis, F., & Führ, V. (2003). Triggering Innovation (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 94-113). Sheffield: Green Leaf Publishing
- Chung, J. W., & Melzer, D. O. (2009). Estimate of the Carbon Footprint of the US Health Care Sector. *The Journal of the American Medical Association*, 302 (18), 1967-1972. doi:10.1001/jama.2009.1610
- Clement, S., Defranceschi, P., Hidson, M., Ochoa, A., Querol, A. A., Müller, R., Staller, H., Chatzimpiros, A., Skoula, I., Isaac, H., Immendörfer, A., Bergeret, D., Villari, F., Milardi, M., Marti, M. R., Puig, J., Armanini B., Mazzà, L., Arvanitakis, S., Herbertsson, C., Hjelm, P., Hultman, J. (2007). *The Procura 2<sup>nd</sup> Edition Manual, A Guide to Cost-Effective Sustainable Public Procurement*. Freiburg: ICLEI European Secretariat GmbH
- Department of Housing and Public Works. (2014). *Procurement guidance: Supply market analysis*. Queensland: The State of Queensland
- Emmett, S., & Sood, V. (2010). *Green Supply Chains: An Action Manifesto*. Sussex: John Wiley & Sons
- Erdmenger, C. (2003a). Public purchasing: a new, old policy tool. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 9-17). Sheffield: Green Leaf Publishing
- Erdmenger, C. (2003b). The Financial Power and Environmental Benefits of Green Purchasing. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 116-133). Sheffield: Green Leaf Publishing
- Erdmenger, C. (2003c). Green Purchasing: a concept lagging far behind its potential. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 253-257). Sheffield: Green Leaf Publishing
- Eriksson, P., & Kovalainen, A. (2008). *Qualitative Methods In Business Research*. London: Sage Publication Ltd
- EPA. (2014). *Green Procurement: Guidance for the Public Sector*. Ireland: Environmental Protection Agency
- Govindan, K., Rajendran, S., Sarkis, J., & Murugesan, P. (2013). Multi criteria decision making approaches for green supplier evaluation and selection: a

- literature review. *Journal of Cleaner Production*, 98, 66-83. doi:10.1016/j.jclepro.2013.06.046
- Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied Thematic Analysis*. California: SAGE Publications, Inc.
- Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting Qualitative Data: A Field Manual For Applied Research*. California: SAGE Publications, Inc.
- Günther, E. (2003). Hurdles in Green Purchasing: Method, findings and discussion of the hurdle analysis. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 30-50). Sheffield: Green Leaf Publishing
- Günther, E., Klauke, I., & Scheibe, L. (2003). Researching the Market Condition for Green Purchasing. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 194-206). Sheffield: Green Leaf Publishing
- Handfield, R., Walton, S. V., Sroufe, R., & Melnyk, S. A. (2002). Applying environmental criteria to supplier assessment: A study in the application of the Analytical Hierarchy Process. *European Journal of Operational Research*, 141 (1), 70-87. doi:10.1016/S0377-2217(01)00261-2
- Johnson, M., Hazemba, O., Kimeu, J., Kirika, R., and Thuo, M. (2008). *Assessment of Kenya Medical Supplies Agency*. Nairobi: MSH/SPS Regional Office
- Kaur, M. & Hall, S. (2001). *Medical supplies and equipment for primary health care. A practical resource for procurement and management*. Surrey: ECHO International Health Service Ltd.
- Kipkorir, L. E. & Wanyoike, D. M. (2015). Factors Influencing Implementation of Green Procurement in Multinational Tea Companies in Kericho County. *International Journal of Economics, Commerce and Management*, 3 (6), 431-446
- Mayring, Philipp. (2007). On Generalization in Qualitatively Oriented Research. *Forum: Qualitative Social Research*, 8 (3), Art. 26, <http://nbn-resolving.de/urn:nbn:de:0114-fqs0703262>.
- Ministry of Environment, Water and Natural Resources. (2013). *National Environment Policy*. Nairobi: Author
- Murray, J. G., & Cupples, V. E. (2001). Environmental purchasing: tools of engagement. In A. Erridge, R. Fee & J. McIlroy. (Eds.), *Best Practice Procurement: Public and Private Sector Perspective* (pp. 33-41). Hampshire: Gower Publishing Limited
- Nasichie, F. & Ngugi, G. K. (2014). Determinants of Adoption of Green Procurement in the Public Sector: A Case Study of Kenya Pipeline Company. *International Journal of Social Sciences and Entrepreneurship*, 1 (11), 351-372
- National Coordinating Agency for Population and Development (NCAPD) [Kenya], Ministry of Medical Services (MOMS) [Kenya], Ministry of Public Health and Sanitation (MOPHS) [Kenya], Kenya National Bureau of Statistics (KNBS) [Kenya], ICF Macro. (2011). *Kenya Service Provision Assessment Survey 2010*. Nairobi: National Coordinating Agency for Population and Development, Ministry of Medical Services, Ministry of

- Public Health and Sanitation, Kenya National Bureau of Statistics, and ICF Macro.
- National Environment Action Plan Committee. (2009). *National Environment Action Plan Framework*. Nairobi
- New, S., Green, K., & Morton, B. (2000). Buying the Environment: The multiple meaning of Green Supply. In S. Fineman. (Eds.), *The Business of Greening*(pp. 35-53). New York: Routledge
- Nixon, R. (2011). Slow Violence, Gender, and the Environmentalist of the poor. In B. Caminero-Santangelo & G. Myers (Eds.), *Environment at the Margins. Literary and Environmental Studies in Africa*(pp. 258–285). Ohio: Ohio University Press.
- Nocci, G. (1997). Designing ‘green’ vendor rating systems for the assessment of a supplier’s environmental performance. *European Journal of Purchasing & Supply Management*, 3 (2), 103-114. doi:10.1016/S0969-7012(96)00021-4
- Nkwi, P., Nyamongo, I., & Ryan, G. (2001). *Field research into socio-cultural issues: Methodological guidelines*. Yaounde: International Center for Applied Social Sciences, Research, and Training/UNFPA
- Ochoa, A., Führ, V., & Günther, D. (2003). Green Purchasing in Practice: Experiences and new approaches from the pioneer countries. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 20-29). Sheffield: Green Leaf Publishing
- Palmujoki, A., Parikka-Alhola, K., & Ekroos, A. (2010). Green Public Procurement: Analysis on the Use of Environmental Criteria in Contracts. *Review of European, Comparative and International Environmental Law*, 19 (2), 250-262. DOI: 10.1111/j.1467-9388.2010.00681.x
- Parikka-Alhola, K. (2008). Promoting environmentally sound furniture by green public procurement. *Ecological Economics*, 68 (1-2), 472-485. doi:10.1016/j.ecolecon.2008.05.004
- Parikka-Alhola, K., Nissinen, A., & Ekroos, A. (2006). Green Award Criteria in the Most Economically Advantageous Tender in Public Purchasing. In K. V. Thai, & G. Piga (Eds.), *Advancing Public Procurement: Practices, Innovation and Knowledge Sharing* (pp. 257-279). Florida: PrAcademics Press
- Philips, P. P., & Stawarski, C. A. (2008) *Data Collection: Planning for and Collecting All Types of Data*. California: Wiley
- Rehman, S & Marouf, L. (2008). Communication Channels and Employee Characteristics: An Investigation. *Singapore Journal of Library & Information Management*, 37, 13-34,
- Ruffa, S. A. (2008). *Going Lean: How the Best Companies Apply Lean Manufacturing Principles to Shatter Uncertainty, Drive Innovation, and Maximize Profits*. New York: AMACOM Books
- Ryan, G. W., & Bernard, H. R. (2003). Techniques to Identify Themes. *Field Methods*, 15 (1), 85-109. DOI: 10.1177/1525822X02239569
- Saaty, T.L. (1980). *The Analytical Hierarchy Process*. New York: McGrawHill

- Saldaña, J. (2009). *The Coding Manual for Qualitative Researchers*. London: Sage Publications Ltd
- Sampei, Y. & Aoyagi-Usui. (2009). Mass-media coverage, its influence on public awareness of climate-change issues, and implications for Japan's national campaign to reduce greenhouse gas emissions. *Global Environmental Change*, 19, 203-212. doi:10.1016/j.gloenvcha.2008.10.005
- Schmidt, A., & Frydenal, J. (2003). Methods For Calculating the Environmental Benefits of 'Green' Products. In C. Erdmenger (Eds.), *Buying into the Environment: Experiences, opportunities, and potential for eco-procurement* (pp. 134-163). Sheffield: Green Leaf Publishing
- Simcoe, T. & Toffel, M. W. (2014). Government green procurement spillovers: Evidence from municipal building policies in California. *Journal of Environmental Economics and Management*, 68, 411-434. <http://dx.doi.org/10.1016/j.jeem.2014.09.001>
- Shen, L., Olfat, L., Govindan, K., Khodaverdi, R., & Diabat, A. (2013). A fuzzy multi criteria approach for evaluating green supplier's performance in green supply chain with linguistic preferences. *Resources, Conservation and Recycling*, 74, 170-179. doi:10.1016/j.resconrec.2012.09.006
- Smith, D. V. L. (2007). The Role and Changing Nature of Marketing Intelligence. In M. van Hamersveld & de C. Bonts (Eds.), *Market Research Handbook. 5<sup>th</sup> Edition* (pp. 03-36). West Sussex: John Wiley & Sons Ltd
- Stokes, P. (2011). *Key Concepts in Business and Management Research Methods*. London: Palgrave Macmillan
- Testa, F., Iraldo, F., Frey, M., & Daddi, T. (2012). What factors influence the uptake of GPP (green public procurement) practices? New evidence from an Italian survey. *Ecological Economics*, 82, 88-96. doi:10.1016/j.ecolecon.2012.07.011
- Testa, F., Annunziata, E., Iraldo, F., & Frey, M. (2014). Drawbacks and opportunities of green public procurement: an effective tool for sustainable production. *Journal of Cleaner Production*. doi:10.1016/j.jclepro.2014.09.092
- The Environmental Management and Co-ordination Act of 1999, No 8 of 1999 CAP 387 K.L.R. §§ 37 - 41 (1999)
- Turner, R. W. (2011). *Supply Management and Procurement*. Florida: J. Ross Publishing Inc.
- Walker, H. L., Gough, S., Bakker, E. F., Knight, L. A., & McBain, D. Greening Operations Management: An Online Sustainable Procurement Course for Practitioners. *Journal of Management Education*, 33 (3), 348-371. DOI: 10.1177/1052562908323190
- Wu, D. D., Zhang, Y., Wu, D., & Olson, D. L. (2010). Fuzzy multi-objective programming for supplier selection and risk modeling: A possibility approach. *European Journal of Operational Research*, 200 (3), 774-787. doi:10.1016/j.ejor.2009.01.026



Zhu, Q., & Sarkis, J. (2005). An inter-sectoral comparison of green supply chain management in China: Drivers and practices. *Journal of Cleaner Production*, 14 (5), 472-486. doi:10.1016/j.jclepro.2005.01.003

## INTERNET SOURCES

- BIO Intelligence Service. (2013). *Implications of the new Energy Labelling Directive (2010/30/EU) and the Ecodesign of energy-related products (Ecodesign) Directive (2009/125/EC) on market surveillance activities, ATLETE II: Second Work Package prepared for.ADEME*. Retrieved February 12, 2015 from <http://www.atlete.eu/2/doc/Report%20on%20implementation%20and%20national%20legislation>
- Boone, T. (2012). *Creating a Culture of Sustainability: Leadership, Coordination and Performance Measurement Decisions in Healthcare*. Retrieved February 9, 2015 from [https://noharm-uscanada.org/sites/default/files/documents-files/70/Creating\\_a\\_Culture\\_of\\_Sustainability.pdf](https://noharm-uscanada.org/sites/default/files/documents-files/70/Creating_a_Culture_of_Sustainability.pdf)
- CB ECS. (2012). *Energy Characteristics and Energy Consumed in Large Hospital Buildings in the United States in 2007*. Retrieved March 18, 2015 from <http://www.eia.gov/consumption/commercial/reports/2007/large-hospital.cfm>
- Commissions of the European Communities.(2008). *Public procurement for a better environment*. Retrieved February 16, 2015 from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008DC0400&from=EN>
- Economic Commission for Africa. (2012). *Progress Towards Sustainable Development in Africa*. Retrieved November 24, 2014 from [http://www.uneca.org/sites/default/files/uploaded-documents/rio20\\_8-africa-review-report-on-progress-towards-sustainable-developmet-rio20.pdf](http://www.uneca.org/sites/default/files/uploaded-documents/rio20_8-africa-review-report-on-progress-towards-sustainable-developmet-rio20.pdf)
- Economist Intelligent Unit. (2012). *The Future of Healthcare in Africa*. Retrieved November 26, 2014 from <http://www.janssen-emea.com/sites/default/files/The%20Future%20of%20Healthcare%20in%20Africa.pdf>
- EPA. (1999). *EPA's Final Guidance on Environmentally Preferable Purchasing*. Retrieved February 3, 2015 from <http://www.epa.gov/epp/pubs/guidance/finalguidance.htm>
- EPTA. (2007). *Green Purchasing Guides For Hospitals*. Retrieved February 10, 2015 from <http://ec.europa.eu/environment/life/project/Projects/files/book/LIFE04ENVGR114-GP.pdf>
- European Commission. (2011). *Buying Green! A handbook on environmental public procurement*. 2<sup>nd</sup> Edition. Retrieved January 20, 2015 from <http://ec.europa.eu/environment/gpp/pdf/handbook.pdf>

- European Commission. (2004). *Buying Green! A handbook on environmental public procurement*. Retrieved January 20, 2015 from [http://ec.europa.eu/environment/gpp/pdf/buying\\_green\\_handbook\\_en.pdf](http://ec.europa.eu/environment/gpp/pdf/buying_green_handbook_en.pdf)
- European Commission. (2015a). *GPP National Action Plans*. Retrieved February 16, 2015 from [http://ec.europa.eu/environment/gpp/action\\_plan\\_en.htm](http://ec.europa.eu/environment/gpp/action_plan_en.htm)
- European Commission. (2015b). *EU GPP Criteria*. Retrieved February 17, 2015 from [http://ec.europa.eu/environment/gpp/eu\\_gpp\\_criteria\\_en.htm](http://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm)
- European Commission. (2015c). *Barriers to the take-up of GPP*. Retrieved September 22, 2015 from [http://ec.europa.eu/environment/gpp/barriers\\_en.htm](http://ec.europa.eu/environment/gpp/barriers_en.htm)
- European Commission. (2015d). *Life-Cycle Costing*. Retrieved November 5, 2015 from <http://ec.europa.eu/environment/gpp/lcc.htm>
- FDA. (2013). *FDA News Release*. Retrieved February 11, 2015 from <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm342855.htm>
- Health Care Without Harm. (n.d.) *The Issue*. Retrieved February 3, 2015 from <https://noharm-uscanada.org/issues/us-canada/environmentally-preferable-purchasing/>
- ISO. (2010). *ISO 14040: 2006*. Retrieved September 19, 2015 from [http://www.iso.org/iso/catalogue\\_detail?csnumber=37456](http://www.iso.org/iso/catalogue_detail?csnumber=37456)
- ISO. (2012). *Environmental labels and declarations: How ISO standards help*. Retrieved February 11, 2015 from <http://www.iso.org/iso/environmental-labelling.pdf>
- Janisch, C. (2007). *Background Assessment and Survey of Existing Initiatives Related to Ecolabelling in the African Region*. Retrieved March 24, 2015 from <http://www.unep.org/roa/docs/pdf/RegionalAssessmentReport.pdf>
- Johnson & Johnson. (2012). *The growing importance of More Sustainable Products in the Global Health Care Industry*. Retrieved November 20, 2014 from <https://www.jnj.com/sites/default/files/pdf/JNJ-Sustainable-Products-White-Paper-092512.pdf>
- Karliner, J. & Guenther, R. (2011). *Global, Green and Health Hospitals Agenda*. Retrieved November 25, 2014 from <http://noharm.org/lib/downloads/building/GGHHA.pdf>
- Kenya Bureau of Standards. (2015). *Pre-export Verification of Conformity to Standards*. Retrieved November 6, 2015 from [http://www.intertek.com/uploadedFiles/Intertek/Divisions/Oil\\_Chemical\\_and\\_Agri/Media/pdfs/Kenya%20Importer%20and%20Exporter%20Guidelines.pdf](http://www.intertek.com/uploadedFiles/Intertek/Divisions/Oil_Chemical_and_Agri/Media/pdfs/Kenya%20Importer%20and%20Exporter%20Guidelines.pdf)
- Kenya Vision 2030. (n.d.) *About us*. Retrieved March 10, 2015 from <http://www.vision2030.go.ke/index.php/home/aboutus>
- Kippo-Edlund, P., Hauta-Heikkilä, H., Miettinen, H., & Nissinen, A. (2005). *Measuring the Environmental Soundness of Public Procurement in Nordic*

- Countries. Retrieved March 25, 2015 from <http://norden.diva-portal.org/smash/get/diva2:702135/FULLTEXT01.pdf>
- Muthaka, D. L., Kimani, D. N., Mwaura, S., & Manda, D. K. (2004). *A Review of the Regulatory Framework for Private Healthcare Services in Kenya*. Retrieved August 03, 2015 from <https://www.wbginvestmentclimate.org/toolkits/health-in-africa-policy-toolkit/upload/PNADS076.pdf>
- NEMA. (n.d.) *Environmental Management and Co-ordination Act, 1999 (Act No 8 of 1999)*. Retrieved September 23, 2015 from [http://www.nema.go.ke/index.php?option=com\\_content&view=article&id=132&Itemid=487](http://www.nema.go.ke/index.php?option=com_content&view=article&id=132&Itemid=487)
- OECD. (1996). *Recommendation of the Council on Improving the Environmental Performance of Government*. Retrieved November 5, 2015 from <http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=43&Lang=en&Book=False>
- OECD. (2013). *Health at a Glance 2013: OECD Indicators*, OECD Publishing. Retrieved November 19, 2014 from [http://dx.doi.org/10.1787/health\\_glance-2013-en](http://dx.doi.org/10.1787/health_glance-2013-en)
- OECD. (2014). *Best practices for green procurement*. Retrieved October 19, 2015 from <http://www.oecd.org/gov/ethics/best-practices-for-green-procurement.htm>
- OECD. (n.d.). *Procurement – Green Procurement*. Retrieved September 4, 2015 from <http://www.oecd.org/gov/ethics/procurement-green-procurement.htm>
- Ogot, M., Nyandemo, S., Kenduiwo, J., Mokaya, J., & Iraki, W. (2009). *The Long Term Policy Framework for Public Procurement in Kenya*. Retrieved March 19, 2015 from [http://www.ppoa.go.ke/downloads/Manuals/public\\_procurement\\_policy\\_-\\_draft\\_zero.pdf](http://www.ppoa.go.ke/downloads/Manuals/public_procurement_policy_-_draft_zero.pdf)
- Orts, E. & Sigonardo, J. (2014). *Integrating Environmental and Human Health*. Retrieved February 10, 2015 from <http://d1c25a6gwz7q5e.cloudfront.net/reports/2014-04-23--Integrating-Environmental-and-%20Human-Health.pdf>
- Parliament of Kenya. (2005). *The Public Procurement and Disposal Act, 2005*. Kenya Gazette Supplement no. 77 (Acts No. 3). Retrieved from [http://www.ppoa.go.ke/downloads/The%20Act/public\\_procurement\\_and\\_disposal\\_act\\_2005.pdf](http://www.ppoa.go.ke/downloads/The%20Act/public_procurement_and_disposal_act_2005.pdf)
- Practice Greenhealth. (n.d.a). *Waste*. Retrieved November 19, 2014 from <https://practicegreenhealth.org/topics/waste>
- Practice Greenhealth. (n.d.b). *Environmental Purchasing Terms*. Retrieved February 17, 2015 from <https://practicegreenhealth.org/pubs/epp/EPPTerms.pdf>
- PPOA. (n.d.). *PPOA Background*. Retrieved March, 17 2015 from [http://www.ppoa.go.ke/index.php?option=com\\_content&view=article&id=97&Itemid=137](http://www.ppoa.go.ke/index.php?option=com_content&view=article&id=97&Itemid=137)

- PPOA. (2009a). *Public Procurement and Disposal General Manual*. First Edition. Retrieved February 19, 2015 from [http://www.ppoa.go.ke/downloads/Manuals/general\\_procurement\\_manual.pdf](http://www.ppoa.go.ke/downloads/Manuals/general_procurement_manual.pdf)
- PPOA. (2009b). *Public Procurement Manual for Health Sector*. Retrieved March 9, 2015 from [http://www.ppoa.go.ke/downloads/Manuals/procurement\\_manual\\_health.pdf](http://www.ppoa.go.ke/downloads/Manuals/procurement_manual_health.pdf)
- PricewaterhouseCoopers.(2009). *Collection of statistical information on Green Public Procurement in the EU*. Retrieved January 22, 2015 from [http://ec.europa.eu/environment/gpp/pdf/statistical\\_information.pdf](http://ec.europa.eu/environment/gpp/pdf/statistical_information.pdf)
- Right Transcript. (n.d.). *Transcription styles*. Retrieved September 28, 2015 from <http://www.righttranscript.com/styles.php>
- Sustainable Development Report on Africa. (2005). *Sustainable Development Report on Africa: Managing Land-Based Resources for Sustainable Development*. Retrieved November 24, 2014 from <http://www.uncsd2012.org/content/documents/SDRA1%20managing%20land-based%20resources.pdf>
- Tetra Tech. (2009). *Kenya: Reforming The Public Procurement System*. Retrieved March 17, 2015 from [http://www.tetrattechintdev.com/index.php?option=com\\_k2&view=item&id=163%3Akenya-reforming-the-public-procurement-system&Itemid=227&lang=us](http://www.tetrattechintdev.com/index.php?option=com_k2&view=item&id=163%3Akenya-reforming-the-public-procurement-system&Itemid=227&lang=us)
- The National Treasury. (2013). *Presidential Directive:- 30 Percent of All Government Procurement Be Allocated to the Youth, Women, and Persons of with Disabilities*. Retrieved October 19, 2015.
- The World Bank.(n.d.).*Health expenditure, total (% of GDP)*.Retrieved November 19, 2014 from <http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS>
- World Health Organization.(2011). *Procurement process resource guide*. Retrieved February 9, 2015 from [http://whqlibdoc.who.int/publications/2011/9789241501378\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241501378_eng.pdf)
- UNDP. (2008). *Environmental Procurement: practice guide volume 1*. Retrieved January 22, 2015 from [http://www.greeningtheblue.org/sites/default/files/UNDP-Environmental%20procurement\\_0.pdf](http://www.greeningtheblue.org/sites/default/files/UNDP-Environmental%20procurement_0.pdf)
- UNDP. (2015). *The Millennium Development Goals*. Retrieved September 23, 2015 from <http://www.ke.undp.org/content/kenya/en/home/mdgoverview/>
- UNOPS. (2009). *A Guide to Environmental Labels – for Procurement Practitioners of the United Nations Systems*. Retrieved September 16, 2015 from [https://www.ungm.org/Areas/Downloads/Env\\_Labels\\_Guide.pdf](https://www.ungm.org/Areas/Downloads/Env_Labels_Guide.pdf)

## APPENDIX 1

### Interview questions for hospital representatives

1. What are the steps the hospital takes when procuring, for example new medical equipment?
2. **For private hospitals:**
  - a. Is there a common standard that private hospitals have to adhere to when it comes to procurement (similar to the Public Procurement and Disposal Act 2005)? or does the hospital develop its own standards?
  - b. Is there a common authority among private hospitals that ensures that their procurement processes are up to standard? Do you ever collaborate with public hospitals during procurement?
3. Has the hospital adopted any environmental management systems? e.g. ISO 14001
4. What do you understand 'green procurement' means?
5. Do you give any priority to sustainability (or "greenness") when purchasing? To what extent? OR do you take into consideration any environmental criteria when purchasing?
6. Which environmental criteria do they think would be best to begin with when implementing green procurement (such as recyclable packaging)?
7. Are life-cycle costs taken into consideration during the procurement process?
8. Do you have any environmental policy? Are there any plans of creating one?
9. Are there any aspects of the supply chain (excluding the procurement) that are green (for example green transportation)?
10. Do you evaluate suppliers before purchasing from them? What are some of the typical criteria that you use to evaluate your suppliers?
11. Do you know if local suppliers provide green medical products?
12. Do you use any environmental criteria when evaluating your suppliers? If no, have you ever considered it? OR Do you select any suppliers based on their environmental or sustainability responsibility?
13. Do you think that you would have a strong influence on local suppliers providing green products or having internal environmental management systems if you implemented green procurement? If no, why
14. What benefits (if any) do you feel you are likely to gain from implementing green procurement?
15. What do you feel would be the biggest challenge(s) in implementing green procurement?
16. How do you think the staff will react to implementing green procurement? Will they be positive about it? Neutral? Or negative? Why do you think so?
17. Who (or what) is likely to most influence you to implement green procurement and why?

18. Do you have the power to influence the implementation of green procurement?
19. At which stage of your procurement process would you think it best to incorporate environmental criteria? Do you think, at least initially, the environmental criteria should be based on the product or on the supplier themselves? Why?
20. What would be the reasons why you would not adopt or implement green procurement?
21. Do you see a future in sustainability for the healthcare providers in Kenya? If yes, how do they think it would be best to begin implementing it and to ensure that it is maintained?
22. Who do you believe would be the main drivers of green procurement in the Kenyan healthcare industry?

## APPENDIX 2

### Interview questions for representative of PPOA

1. What do you understand green procurement to be?
2. Do you encourage and also assist public entities to create environmental/sustainability policies?
  - a. Do you think it should be required for them to create them?
3. Do you think implementing green public procurement may be seen as a form of discrimination?
4. How do you think public entities would react if they were required to implement green public procurement?
5. What are the factors that could promote green public procurement in Kenya?
6. What are the factors that could hinder green public procurement in Kenya?
7. Do you actively promote green public procurement? If yes, how? If no, why not?
8. Are there any guides currently for green public procurement for the different sectors?
9. Are there any ongoing plans to implement green public procurement or environmental criteria into the public procurement system?
10. Is there a list of products with “green” properties and their prices available similar to the market price index available in the PPOA website?
11. How do you think public entities would react if they were required by law to include environmental criteria during their procurement processes?
12. What would be the steps or procedure needed to incorporate green procurement into public procurement?
13. Do you have any influence towards the implementation of green public procurement? If yes how?
14. How would it be regulated once implemented?