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Analysis of the Key Drivers of Sustainable Procurement in Public Organizations in Kenya A Case of Kengen Olkaria Geothermal Station Naivasha

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Abstract: ***Organizations the world-over are seeking to identify key organizational function that enhances performance. The procurement function has emerged as a crucial department due to its strategic importance in acquiring inputs to production processes and its contribution to the firm's competitiveness. The study analyzed identified key drivers of the department and targeted employees from the procurement divisions at Olkaria. The study adapted a descriptive technique where structured questionnaires were used. Data was analyzed using descriptive and inferential statistics by us of SPSS Version 22. The key drivers of sustainable procurement were found to be, environmental, social and economic in nature***.

Keywords: Corporate Social Responsibility, Green procurement, Life-cycle costing, Public Procurement, Sustainability, Sustainable procurement, Total Cost-of-ownership

1. Introduction

Kenya Electricity Generating Company (Kengen) is a state-owned company, the largest power producing company in Kenya producing about 80% of the electricity consumed in the country. The company owns fourteen (14) hydropower stationswith a combined capacity of 615.3 MW, three thermal power plantsproducing 147 MW, three major geothermal power plants with a total capacity of 425 MW and one wind farmof 5.1 MW all these resulting a total installed capacity of 1,192.4 MW for Kengen. The company was founded in 1998 when it was separated from the Kenya Power and Lighting Company (KPLC).

Kengen core business is to develops, manages and operates power generation plants to supply electric power to the Kenyan market and Eastern African region. The produced power is sold in bulk to Kenya Power and Lighting Company (KPLC), the country's sole power distribution company. In 2005, Kenya ratified the Kyoto protocol, paving the way for the country to engage with developed countries in Clean Development Management (CDM) projects. Most of Kengen's ongoing geothermal, hydropower and combined cycle projects could qualify under the CDM since they generate less or no carbon dioxide at all in comparison to alternative fossil fuelled plants.

Olkaria Geothermal Stations (OGS) are located inside the Hells Gate National Park, in Naivasha District which is in the larger Nakuru County in the Kenyan Rift valley. Olkaria is within close proximity of Lake Naivasha and about 130Km from the Kenyan capital city of Nairobi. The geothermal stations are the most reliable source of electricity in Kenya since they are not dependent on climatic or prevailing weather condition for their operations. Geothermal energy is both clean and renewable since it is as a result of heating of underground water which is converted to steam which is then used to turn the turbines for energy production. Olkaria has three major power plants which include: Olkaria I, Olkaria II and Olkaria IV.

Olkaria I Power Station was the first geothermal power plant in Africa. The 45 MW plant was commissioned in three phases and has three units each generating 15MW of electricity. The first unit was commissioned in June 1981, the second and third units in November 1982 and March 1985, respectively. Olkaria II Power Station is Africa's second largest Geothermal Power Station and was commissioned in 2006. It generates 105MW and is the second geothermal plant owned and operated by Kengen. The Power Station is located in the North Eastern sector of the greater Olkaria geothermal field.

Olkaria IV is the newest and largest geothermal station in Africa, its first unit was commissioned at the middle of this year and is currently generating 70MW and after the commissioning of the second unit by the end of this year, it will generate 280MW. The older Olkaria I station is undergoing major expansion with two additional units which are rated at 70MW each and is expected to come online by 2015. Being a major player in the power generation industry, OGS has a robust procurement function that handles all it procurement needs which runs into billions of shillings every year.

To remain sustainable public organizations must adopt and subscribe to sustainable best practices among them sustainable procurement. Sustainability should be embedded in all organizations practices and processes so that these organizations can be in operation as long as it is necessary. Without these focus on sustainability, the future of these organizations cannot be assured. A lot of focus in the past has been on innovating new ways of doing thing and especially in relation to reduction of labour requirements in

production processes where automation and use of Information Communication Technology (ICT) has greatly been put to use. This has improved the efficiency of processes and has greatly reduced production costs, but little has been done in relation to the depletion of our natural resources which acts as the inputs to these production processes. If this is not checked, we will be left with efficient processes for productions but no inputs or raw materials for these processes.

The energy sector in Kenya has been faced with a number of challenges due increase of energy users and quest by many customers to be connected to the national grid. The growth of the industrial sector has put immense strain on electricity producers in Kenya to increase their production capacity in order to match the ever expanding demand. In light of environmental degradation, climate change, resource depletion, and persistent global poverty, the supply chain management professionals are increasingly being called upon to contribute to broader organizational goals of sustainable development through the inclusion of environmental, social and economic criteria within procurement processes in order to guarantee the future generations equal shares of resources that are bestowed upon us. There is therefore a great need to entrench sustainable practices in most of the procurement processes due to the critical role that the function plays in the overall success of the organization. The study analyzed available drivers that are used to enhance services delivery within the organization internal function as well as to both the suppliers and external customer of whom the organization exist to satisfy. The drivers were analyzed in relation to their contribution to sustainable procurement and the general sustainability of public organizations.

1.1 Research Objectives

The general objective of this study was to analyze the drivers of sustainable procurement and their effect on public organizations in Kenya. The specific objectives of this study were: to identify how environmental drivers contribute to sustainable procurements processes at Olkaria Geothermal Station in Naivasha; to assess the influence of social drivers on sustainable procurements processes at Olkaria Geothermal Station in Naivasha; to determine how economical drivers impacts on sustainable procurements processes at Olkaria Geothermal Station in Naivasha; to find out how sustainable procurement positively impact on the overall management of public organization in Kenya.

1.2 Research Hypotheses

To meet the above objectives the following research hypothesis were conceptualized: environmental drivers do not make significant contribution on sustainable procurement processes at Olkaria Geothermal Station; social drivers have no significant influence on sustainable procurement processes at Olkaria Geothermal Station; economical drivers have no significant impact on sustainable procurement processes at Olkaria Geothermal Station; sustainable procurement has no significant impact on the overall management of public organizations in Kenya.

2. Literature Review

The concept of sustainability first emerged into the mainstream discourse in 1972, during the United Nations (UN, 1987) Conference on Human Environment (CIPS, 2012). During that conference serious environmental concerns were beginning to be raised in relation to industrial development and practices on issues such as deforestation, pollution and use of toxic pesticides. The conference delegates debated which was more important between economic development and environmental protection (UN, 1987).

According to the UN (1987) report (*Our Common Future*), economic development is required to raise living and working conditions and to support investment in environmental conservation and viable technology. Any attempt to improve human wellbeing that threatens the environment is doomed to fail in the long-run. The report noted that attempts to maintain social and ecological stability through old approaches to development and environmental protection would increase instability. The depletion of resources, the degradation of environment and the pollution of air and water would have serious impact on the well-being and development potential of future generations. Sustainable developmentisdevelopment that meets the needs of the present without compromising the ability of future generation to meet their own need. Future generations must be put into perspective when undertaking development today; their needs must be factored in today's development for it to be sustainable.

The UN (1987) appointed a think-tank, under the chairmanship of Gro Harlem Brundtland to come up with strategies to enable continuing economic development without threatening the environment. The Brundtland commission focused on the need to develop a stable relationship between human activity and the natural world, which would reduce the prospects of future generations to enjoy a quality of life at least as good as that of the present generation (Paul *et al* ,2008). The Brundtland commission report, *our common future* was published in 1987.

The ideas of the Brundtland commission were later refined by the Rio Declaration on Environment and Development, in which the social justice and human right issues such as poverty, child labor, peace and role of women were added to the report (UN, 1992). The three-dimensional: economic, environmental and social view of sustainability became widely adopted. By 1997, the term 'triple bottom line' (TBL) was coined by John Elkington to highlight the need for nations and organizations to measure their performance in all three areas (John, 1998). In our modern times, these three dimensions have formed a framework for a range of business issues broadly related to business ethics and corporate social responsibility (CSR), which include good corporate governance, fair trade, labour relations, diversity and transparency (Lyson & Farrington ,2012). A number of environmental concerns which include: climate change, renewable energy and pollution have also been of great concern (Stephen, & Helen, 2010).

According to Lyson & Farrington (2012) sustainability is ensuring that actions taken today do not limit or jeopardize our plans or quality of life tomorrow. Sustainability seeks to ensure that, we are comfortable today and tomorrow. As nations seek to develop they should adopt activities that can be sustained, over the long term, without undermining or putting strain on resources required to preserve our wellbeing into future (UN, 1987). According to the Brundtland Commission, for development to be sustainable, it must satisfy criteria such as: long term decision making in which the organization pursues long term aspirations and recognizes the long term impacts and consequences of its action; interdependence of economic, environmental and social wellbeing (Lyson & Farrington, 2012); participation and transparency in decision making; equity between different generation and among different groups in society, aiming to reduce disparities in access to the benefits of development; and proactive prevention by promoting efforts to prevent problems and minimize risks as the first course of action (CIPS, 2012).

William (2007) argues that the aim of sustainability from an organization's perspective is the long term wellbeing of the society as a whole as well as itself. Michael (2011) observes that, continuing financial viability (economic sustainability) of the organizations supports human and social wellbeing, by creating and maintaining employment and stimulating investment. William (2007) continues to say that human and social wellbeing in return supports the organizational survival, by maintaining the flow of skilled and willing labour, consumer spending and investment. Therefore, it is important that the three aspect of sustainability be integrated in an organization processes and strategies to ensure its sustainability (Paul *et al*, 2008).

As Laura (2012) has noted, sustainability is forward looking and may present an organization with greater opportunities than burden. She argues that a strong financial case can be made for the move toward sustainable future. In her suggestion, sustainability is a long-term strategy and therefore organizations will need to adopt sustainable practices to ensure long-term survival. She also observes that the huge unmet market potential in the world can only be met in sustainable ways. Enormous business opportunities exist in serving the billions of people who need and are demanding economic goods and services. She continues to indicate that there are several benefits for organizations embracing sustainable best practices. First, significant cost reduction can be achieved through sustainable practices. Organizations stand to save significant cost in moves toward eco-efficiency. Saving on energy use and materials will not only reduce environmental wastes, but uncontrolled spending as well.

Paul *et al*, (2008) notes that minimizing wastes makes sense on economic grounds, as well as on environmental grounds and competitive advantages exist for sustainable businesses. Organizations that are ahead of the sustainability curve have advantage serving environmentally conscious consumers and also enjoy a competitive advantage attracting workers who takes pride and satisfaction in working for progressive organizations (Paul *et al,* 2008). Finally, sustainability is a good risk management strategy. UN (1972) noted that economic and social development is essential for ensuring a favorable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

Refusing to move toward sustainability offers many downsides that innovative organizations will avoid (CIPS, 2012). Organizations that take initiatives in moving toward sustainability are likely to be the ones setting standards for best practices in that field (Lyson & Farrington, 2012). Alan (2012), suggest that there are three priority areas for sustainability action in organizations, climate change and biodiversity (environmental), health and safety of its society and workforce (social) and sustainable management of resource (economical). He suggests that public organization should strive to maintain a healthy internal environment for it workforce and society. Sustainability in procurement terms takes into account social, economic and environmental factors alongside the typical price and quality considerations when procuring products and services.

2.1 Sustainable Procurement

The Chartered Institute of Purchasing and Supply- CIPS (2012) state that sustainable procurement follows the three dimensions of sustainability: environmental excellence; social equality; and economic prosperity. Sustainable procurement is normally typified by commitments to: environmental sustainability which emphasizes the use of sustainable products and reducing resources use and social sustainability which strives to reflect local diversity in the workforce encouraging use of local suppliers and local labour. Lyson and Farrington (2012) says that sustainable procurementis a process whereby organizations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole-life basis in terms of generating benefits not only to the organization, but also to society and economy, whilst minimizing damage to the environment.

A related concept to environmental sustainability is that of Green Procurement. This has to do with purchasing products and services that cause minimal adverse environmental impacts. It incorporates human health and environmental concerns into the search for high quality products and services at competitive prices. According to Lyson and Farrington (2012), environmentally friendly goods and services are those that have a lesser or reduced impact on the environment over the lifecycle of the goods or services, when put into comparison with competing goods or services fulfilling the same needs.

Stephen & Helen (2010) says that the aim of sustainable procurement is to minimize negative impacts of goods, works or services across their lifecycle and to minimize demand for non-renewable resources by reducing purchases, purchasing recycled products or using resource efficient process. It seeks to ensure that fair contract prices and terms are applied and respected, in at least meeting minimum ethical, human rights and employment standards while at the same time striving to promote diversity and equality throughout the supply chain.

2.2 Key drivers of sustainability

According to CIPS (2012) there are different types of support factors for sustainable procurement. Drivers of sustainable procurement are forces which create positive pressure to develop and implement sustainable procurement strategies by creating opportunities or threats which must be addressed by the procurement function in any organization. These drivers must enable the creation of conditions favorable to the effective and efficient introduction, implementation and acceptance of sustainable procurement processes and practices.

The driving forces of sustainable procurement or reasons for increased focus on sustainability includes: increased pressure for greater corporate responsibility and accountability (John *et al*, 2010); possible damage to the environment throughout the production processes (Masaaki & Michael, 2008); and growing awareness of the operational, financial and reputational risks of unsustainable business practices (Boaz and Shimeon, 2008). Factors such as scarcity of resources, legislation and legal frameworks, stakeholder pressure and concerns together with reputational risk and opportunities are likely to drive public organizational measures for sustainable procurement.

Adoptions of industry-wide sustainability standards are also likely to support sustainable procurement measures, (Michael, 2011). Public organizations can drive its sustainable procurement processes through three distinct dimensions which are built on the three major concerns of any organization namely, economic (profit maximization goals and targets), social (people who offer it services and operate it systems) and the environment (planet in which it operates and carries it activities (CIPS, 2012). Sustainable procurement is an approach that takes environmental, social and economic sustainability into account when making all procurement and purchasing decisions (Harold, 2013). It is concerned by what purchased items are made of, the source of these items, the processes through which they are made and how they are going to be put to use and whether the organization actually need them to start with.

John (1998) argues that drivers of sustainable procurement come into play when public organizations deliberate on important issues such as: whether the public organization is complying with environmental protection and sustainable use of available resources; whether its procurement function is enhancing the economic security of the organization by adding value, controlling costs and securing continuity of supply without negative social and environmental impact; and whether meeting present needs of the organization and its stakeholder compromise the ability to continue doing so in the future.

2.3 Environmental drivers and sustainable procurement

Patrick (2001) suggests that organization must consider various elements when deciding on facility location and their transportation needs. Design should be made in a way that minimizes energy use, reduces noise and pollution and make it more efficient to produce the products needed. Environmental drivers for sustainable procurement steers the organization toward efficient and sustainable use of available resources (CIPS, 2012). Lyson & Farrington (2012) urges organizations to promote use of renewable sources of input and to put great consideration on how those resources are used in order to guarantee availability of those resources in the future. Paul, *et al* (2008), states that environmental consideration helps the organization to make specification for green products through selecting, management and development of suppliers with environmental capability and commitment. He continue to say that there is also deliberate effort put to reducing waste of resources throughout the sourcing cycle, minimization of pollution, waste and emission and recycling or safe disposal of product at end- of-life. Environmental drivers of sustainability seek to minimize any negative environmental impacts of goods and services purchased, across their life cycle from raw material extraction to their end of life.

2.4 Social drivers and sustainable procurement

Alan *et al* (2012) widely discusses the concept of customer service. He suggests that for any organization, customer service or customer satisfaction should be an important aspect of their business. Public organizations exist to offer services to the public and therefore, they should be able to satisfy all their stakeholders for them to be sustainable. He continue to say that services offered to customer, or their social dimension has four important aspects, time of performance, dependability of service or product, communication to satisfy customer expectation and flexibility or ability to respond to customer changing needs. These four components are crucial for social sustainability. Social drivers to sustainable procurement have to do with adding social value to the procurement process (CIPS, 2012). These drivers aim at encouraging diversity in the purchasing team or function of public organization and among suppliers who are engaged by the organization to provide it with inputs or offer services; monitoring supplier practices to ensure observance of human rights and labor standards; and incorporation of health and safety standards in design and specification of products or services; and fair and ethical trading practices during procurement processes (UN, 1992).
Social drivers' aids in managing and monitoring supply chains to ensure that fair contract prices and terms are applied and that ethical, human rights and employment standards are adhered to. According to Alan *et al* (2012), public organizations should strive to maintain a safe and healthy internal environment for its workforce. This falls under the domain of social sustainability. The organization human resource or human capital is one of the most valuable assets that any organization would boast to have. It must therefore be treated with care and respect so that the organization can continue to be profitably. Without a healthy and motivated staff, the organization will find it more difficult to remain afloat.

Corporate social responsibility (CSR) is a key driver of social sustainability. Crocker *et al* (2012) says that CSR help organizations to operate a business in a manner that meets or exceeds the ethical, legal, commercial and public expectations that the society has of a business. He argues that all stakeholders in the organization need to be considered, not just the shareholders. He concludes that CSR has a great

role in the sustainability of an organization. According to Baily *et al* (2008), CSR is a continuing commitment by business to behave ethically and contribute to the economic development while improving the quality of life of its workforce, families, local community and the society at large.

2.5 Economical drivers and sustainable procurement

According to CIPS (2012), economical drivers to sustainable procurement are concerned with increasing economic value to the procurement processes in order to make them sustainable in the long term. These drivers are more geared toward securing value for money for purchased products and services; cost management and budgetary control; adding value through sourcing efficiencies, supplier involvement and quality improvement; ethical trading to support the long-term financial viability of suppliers and supply markets, including sustainable pricing, ethical tendering and negotiation with suppliers and paying them on-time to guarantee their sustainability.

Harold (2013) suggest that, when undertaking projects or procurement, economic sustainability relates not only to obtaining value for money from our contracts, across the whole life of the product or service, but also ensuring as far as possible under relevant procurement law, that local businesses, particularly Small and Medium size Enterprises (SME's) can benefit from our procurement processes. Baily *et al* (2008) introduced the concept of total cost of ownership (TCO) in the economic sustainability dimension. They suggest that, the cost of ownership should include all the cost associated with the product from need specification, through acquisition, usage, operation and maintenance up to it end-of-life safe disposal.Harold (2013) continues to suggest that projects or procurement should be evaluated using life-cycle-costing (LCC) mechanism where the entire life of product usage is put into consideration. He states that life-cycle costs are the total cost of ownership and acquisition of the product over its full life. He says that this approach is concerned with what the price of a product or service could be in the long-term.

2.6 The Public Procurement Oversight Authority (PPOA)

The Public Procurement Oversight Authority (PPOA) was established under an Act of Parliament, the Public Procurement and Disposal Act (PPDA) of 2005. Among other things, the Act established a semi-autonomous oversight body, the Public Procurement Oversight Authority (PPOA). The Authority is among other responsibilities charged with ensuring that all procurement entities observe the provisions of the procurement law. PPOA is mandated with the responsibility of: ensuring that procurement procedures established under the Act are complied with; monitoring the procurement system and reporting on its overall functioning; initiating public procurement policy; and assisting in the implementation and operation of the public procurement system (PPDA 2005).

PPOA being at the center of the procurement process in Kenya is well placed to drive the procurement sustainable agenda. Backed by a strong legislative framework, PPOA control what public organizations can do or not do in their procurement process. It therefore acts as a strong intervening variable in the public organization procurement strategy by making sure that all organizational activities are executed within the legal framework. PPOA is mandated to enhance national socio-economic development by facilitating and overseeing the implementation of an effective and efficient public procurement and disposal system. The Public Procurement and Disposal Act 2005 (PPDA) is meant to help public organizations to: maximize economy and efficiency; promote competition and ensure that competitors are treated fairly; promote integrity and fairness of public procurement procedures and to facilitate the promotion of local industry and economic development.

3. Research Methodology

The study used a descriptive research design. The choice of the said design is based on the argument by Kothari (2004) that it allows for a detailed profiling and description of the collected data, followed with a detailed explanation of the relationship between the variables. He asserts that descriptive research design primarily shows the current state of affairs. The study is specifically a case study of Olkaria Geothermal Station in Naivasha.

Case study refers to the collection of detailed information of a particular participant or a small group. It is a qualitative descriptive research which gives an account of the complexity of group behaviors or orientation and which bring out the group qualities and experience in a distinctive way. A case study is preferred in research because it enables the research to have an in-depth understanding of how the independent variables impacts on the dependent variable. The research study targeted all the 26 employees from the two procurement divisions at Olkaria Geothermal Station, namely Geothermal Operation Division (GOD) and Geothermal Resource Development Division (GRD). This is the total number of employees working in the procurement department at Olkaria. Therefore the study used a census since the entire population was interviewed. The main reason of targeting Olkaria geothermal station in this research is that as a public organization, it exhibits an elaborate procurement process that would be suited to put into practice sustainable procurement tools and drivers.

The researcher collected primary data. Self-administered questionnaires were used to collect the data. Questionnaires were used because they provide a high degree of data standardization and adoption of generalized information amongst a population (Chandran, 2003). Questionnaires are useful in situations where there is need to easily obtain information from people in a free environment.

Descriptive statistics was used to identify and establish patterns, trends and relationships, and to make it easier to understand and interpret implications of the study. Procurement function staff perceptions of how each the key driver affect sustainable procurement was measured through Pearson's Moment of correlation. The study used SPSS version 22 computer software to analyze the collected data. Pie charts and bar graphs, as well as, percentages were used

to represent data in a format that can be easily understood by other users.

Pearson correlation coefficient model

$$\rho\, x, y = \frac{cov(x,y)}{\sigma x \sigma y} = \frac{E[(X-\mu x)(Y-\mu y)]}{\sigma x \sigma y} \quad (1)$$

4. Data Analysis And Interpretation

The bio data information sought for this study was: respondent gender, age group of all the respondents, highest level of education attained, length of service in the procurement department at Kengen and employee job cadre of all the respondents in the study.

4.1 Respondents Gender

Findings on gender of respondents are as captured in Table 4.1. It appears that in Kengen there are higher numbers of males (73.1%) as compared to female (26.9%). This can be attributed to the fact that Kengen being an engineering company may require men to do most of the heavy job due to their weight and presence of heavy machineries and loads.

4.2 Age Group Respondent

Procurement department employees' age was categorized into four groups: 18 – 25 years, 26 – 35 years, 36 – 45 years, 46 – 55 years and 56 – 60 years old as show in Figure 4.1. It is evident that most of the respondents (39%) were between the age of 36 – 45 years and between 26 -36 years old at 23% and similarly 46 -55 years old at 23%. This is important for it strongly indicates that most of the respondents were mature enough knowledgeable on procurement issues and therefore able to give trustworthy information that was required in the study.

4.3 Highest Level of Education

The study found that most of the respondent had either a College diploma (30.8%) or Bachelor's degree (53.8%). This indicates that most of the respondents were well educated and therefore knowledgeable on their departmental function and therefore capable of offering the required information on sustainable procurement since they had sufficient education background. Only few employees (7.7%) had a lower education level of high school certificate. consequently their inability to fully understand issues of sustainable procurement may be negligible. There were also an equal number of respondent (7.7%) with Post Graduate degree. This seem to be a very small number but can be justified in that the employees in senior management are policy makers and not policy implementers and therefore their small number would not negatively impact on the findings of the study.

4.4 Length of Service at Procurement Department

Majority of the respondent had worked in the procurement department for a period of over 15 years (46.2%). These were experienced people and therefore the information they gave was reliable due to their high level of knowledge in procurement issues. Figure 4.3 shows that about 23.1% of the respondents were new in the procurement department, having worked there for less than 5 years but this number is small compared to those with over 10 years' experience and therefore their views were far much outweighed by those with solid and long-time knowledge. This number combined with those with over ten years' experience (15.5%) indicate a procurement function with a well-blended mixture of employees that has neither very old employees and therefore no longer interested with sustainable procurement issues nor a very young generation that would have very little to do with sustainability in procurement due to lack of information on the subject.

4.5 Procurement Staff Job Cadre

The study findings clearly indicates that majority of the respondent (57.7%) were in lower management and therefore they were fully in charge of the procurement function activities making them the best group to offer reliable information on sustainable procurement as Figure 4.4 shows. But there were no respondent from top management which indicated lack of people who are capable of advocating for change of policy in issues that would impact on sustainable procurement as a whole. For the sustainability agenda to be thoroughly advanced, they need to be people in the procurement function who have authority to impact on policy and strategy change.

a) The first hypothesis was:

H_{01}: Environmental drivers do not make significant contribution on sustainable procurement processes at Olkaria Geothermal Station (H_{01}: P = 0)

H_{11}: Environmental drivers make significant contribution to sustainable procurement processes at Olkaria Geothermal Station (H_{11}: P≠ 0).

To test this hypothesis, Pearson product moment correlation coefficient was used to determine the strength between All suppliers engaged by Kengen should be EMS certified and Embedding Sustainable procurement on procurement policy. The correlation statistics are shown on Table 4.3.

Pearson correlation test between All suppliers engaged by Kengen should be EMS certified and Embedding Sustainable procurement on procurement policy showed that there was a significant relationship between the two variables tested at a significance level of 0,01. This then implies that P≠ 0; therefore the study accepts the H_{11} and rejects H_{01}.

b) The Second Hypothesis was:

H_{02}: Social drivers have no significant influence on sustainable procurement processes at Olkaria Geothermal Station (H_{02}: P = 0)

H_{12}: Social drivers have significant influence on sustainable procurement processes at Olkaria Geothermal Station (H_{12}: P≠ 0).

To test this hypothesis, Pearson product moment correlation coefficient was used to determine the strength between All Suppliers Should Be Encourage to Engage in CSR and Embedding Sustainable procurement on procurement policy.

The correlation statistics are shown on Table 4.4. Pearson correlation test between Encouraging and supporting suppliers to engage in some form of CSR and Embedding Sustainable procurement on procurement policy showed that there was a significant relationship between the two variables tested at a significance level of 0,01. This then implies that $P \neq 0$; therefore the study accepts the H_{12} and rejects H_{02}.

c) The Third Hypothesis Was:

H_{03}: Economical drivers have no significant impact on sustainable procurement processes at Olkaria Geothermal Station (H_{03}: $P = 0$).

H_{13}: Economical drivers have no significant impact on sustainable procurement processes at Olkaria Geothermal Station (H_{13}: $P \neq 0$).

To test this hypothesis, Pearson product moment correlation coefficient was used to determine the strength between Energy usage and efficiency should be considered before buying equipment and machines and Embedding Sustainable procurement on procurement policy. The correlation statistics are shown on Table 4.5.

Pearson correlation test between Consideration of Energy usage and efficiency before buying equipment and Embedding Sustainable procurement on procurement policy showed that there was a significant relationship between the two variables tested at a significance level of 0,01. This then implies that $P \neq 0$; therefore the study accepts the H_{13} and rejects H_{03}.

5. Summary of Finding, Conclusion

Using the findings of this study, it can be concluded that, the key drivers of sustainable procurement are: environmental, social and economic in nature. These drivers have significant impact on sustainable procurement in particular and organizational sustainability in general. From the study findings these key drivers of sustainable procurement must be put in to practice in order to make public organizations sustainable now and into the future.

5.1 Environmental drivers' contribution to sustainable procurements

Environmental drivers have a major role in the procurement processes of public organization. They contribute to sustainable procurement process by helping the organization to take care of the environment and by preserving the limited resources that we have today and by reducing unnecessary wastes in the supply chain. Among the most import consideration that public organization must undertake in relation to environmental drivers are: ensure that they specify the acceptable amount of carbon that the equipment they buy must be permitted to emit in order to reduce pollution and emission of Green House Gases to the atmosphere; make sure that energy consumption and efficiency of machines and equipment is also specified to the suppliers in order to cut on resources usage and waste; make products made from recycled or recyclable materials part of Kengen specification requirements; ensure that all suppliers are EMS certified; and finally ensure that all suppliers provide reverse logistics mechanisms for products supplied to the organization for their safe disposal at end of their life so that pollution can be minimized as we make our immediate environment clean and sustainable.

5.2 Influence of social drivers on sustainable procurements processes

Social drivers would go a long way in ensuring the social sustainability of the society that these public organizations operate in. the social dimension of sustainability is important for it affects the welfare of those people supplying inputs to the organization production processes and include the employees, suppliers and external customers or in general all the organization's stakeholders. The important considerations as far as social sustainability is concerned in regard to public procurement are: ensuring that special preference is given to marginalize groups such as women, youth and disabled people to enable them to participate in economic activities of public organizations and at the same time give them means of earning a living; ensuring that all suppliers to public organization participate in CSR so that they can give back to the society from which they operate in; encourage SMEs suppliers to supply to public organization so that there is fair competition among all suppliers in the market place and at the same time help them to earn a living; and urge the suppliers to allow some form of staff representation so that the employee's issues of concern can be addressed without having negative impacts on the procurement processes.

5.3 Economical drivers impacts on sustainable procurements

Economic drivers of sustainable procurement ensure that public organization get value-for-money as they procure goods and services. This not only helps to meet shareholders expectation but also aids in helping the public organizations to be sustainable. To ensure sustainable procurement, the following economic activities should be put into consideration: whole-life costing should be embedded in all procurement processes by ensuring that the total cost of ownership is put into consideration before procuring any product; maintenance and operation costs of equipment should be treated as important as their acquisition costs to avoid organization buying cheap equipment which end-up being very expensive to operate and maintain; make consideration for equipment's energy usage and efficiency before buying them and factor in equipment decommissioning and disposal costs when buying all capital equipment to ensure that the stakeholders get value for money and the needs are met in the most sustainable ways

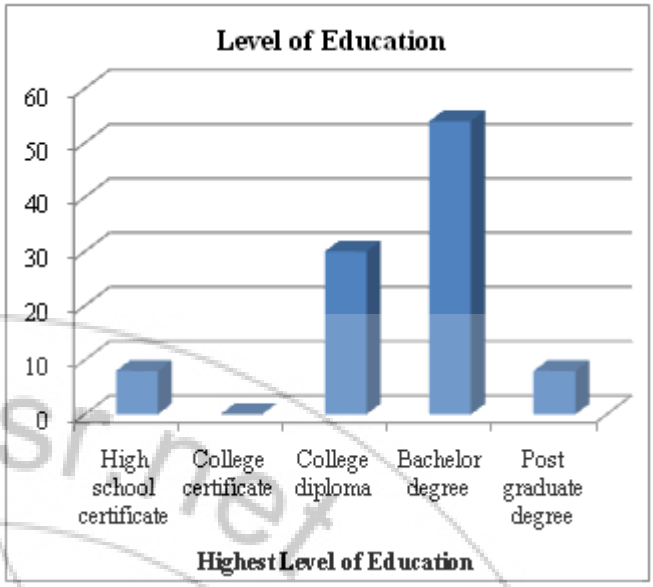
5.4 Sustainable procurement positive impact on the overall management of public organization in Kenya

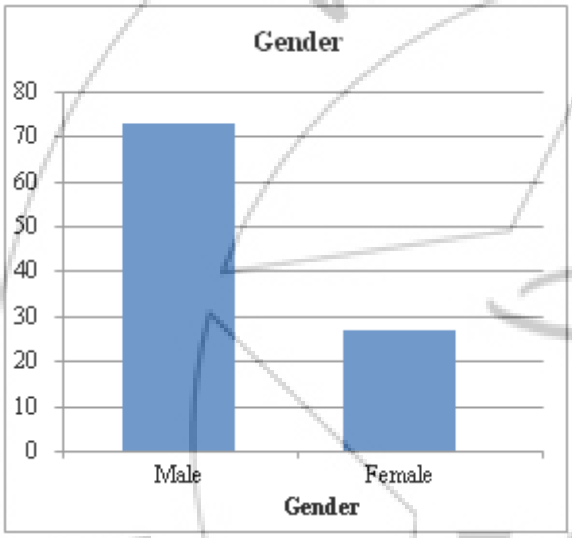
Sustainable procurement can have huge positive impacts on the overall management of public organizations that want to pursue a sustainable perspective. To embrace sustainability and reap the fruits of its benefit, public organizations must do the following: train all the procurement function personnel on sustainability and sustainable procurement; evaluate all suppliers on sustainability aspects to ensure that they only supply sustainable inputs; develop policies relating

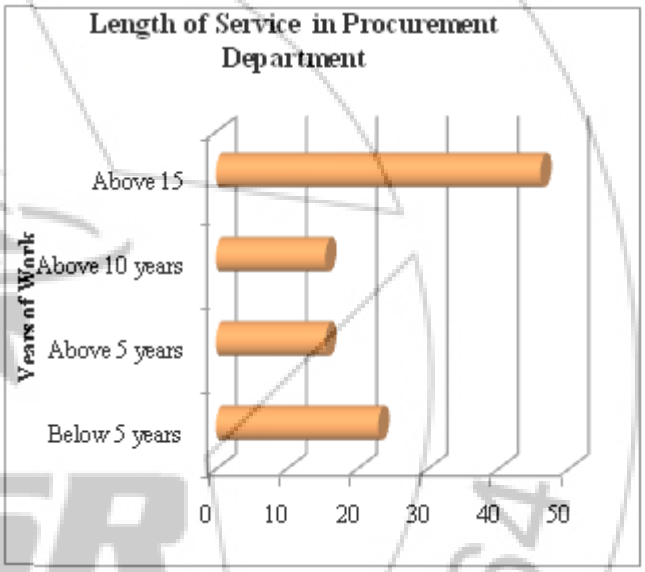
to sustainability in all procurement processes; embrace the fact that sustainability is critical in ensuring the organizations' long-term survival; and embed sustainable procurement on all procurement policies in order to ensure that sustainability is observed by all those concerned.

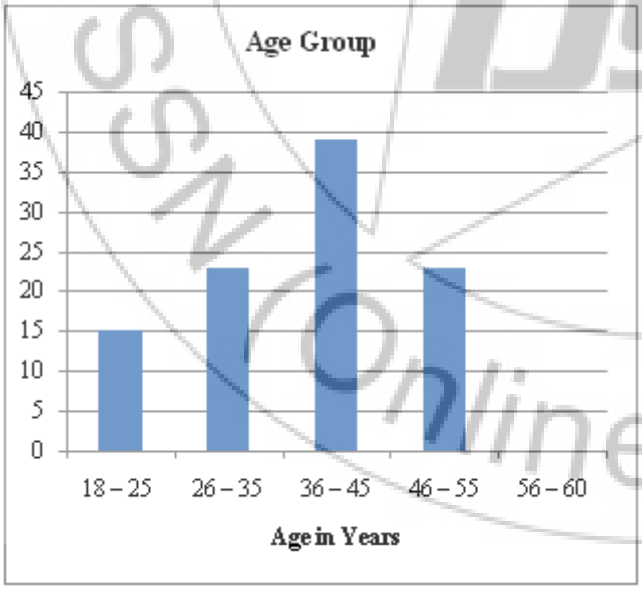
5.5 Suggestion for Further Research

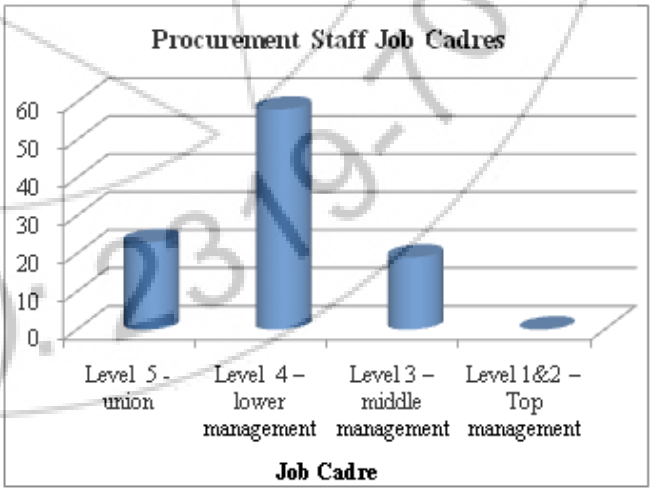
Similar studies should be conducted in other public organization to compare their key drivers of sustainable procurement and see how they undertake sustainability. A study to evaluate public organization sustainability as a direct impact of sustainable procurement should be undertaken in both public and private organizations. An in-depth study should also be conducted in public organizations to see whether there are other drivers of sustainable procurement.

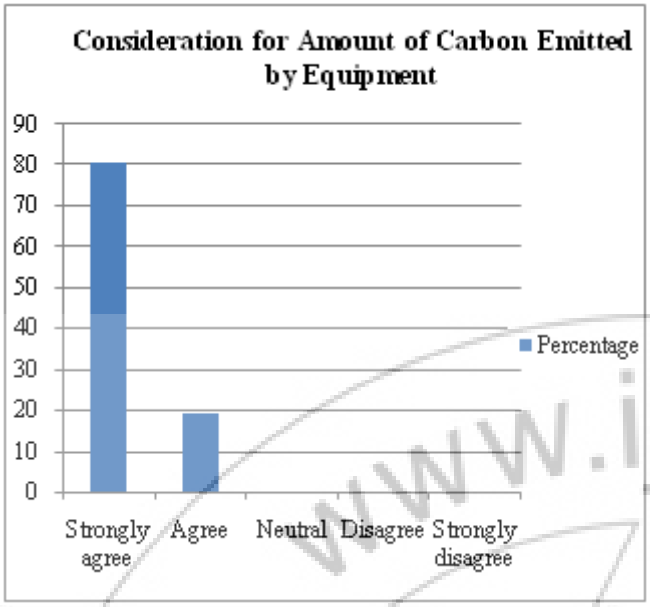


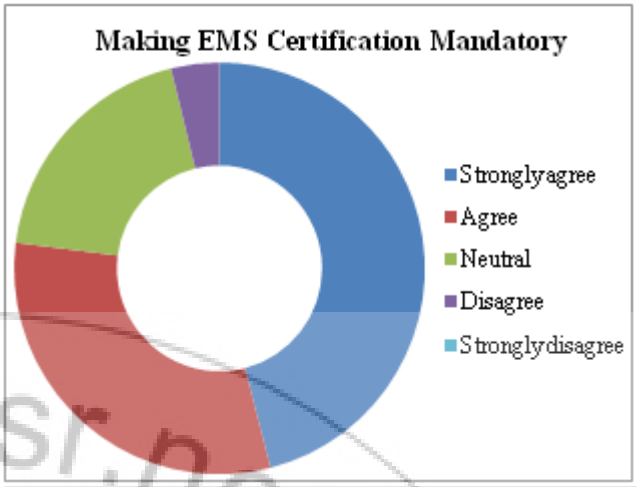


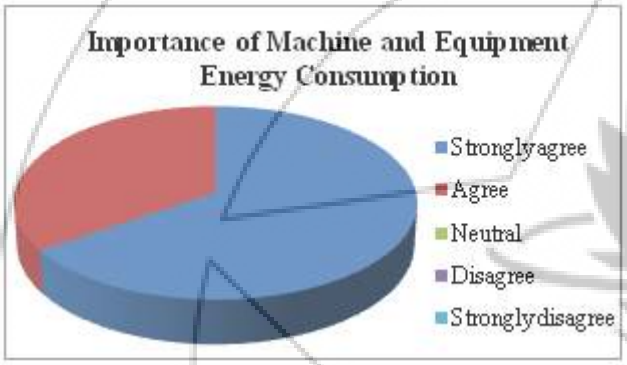


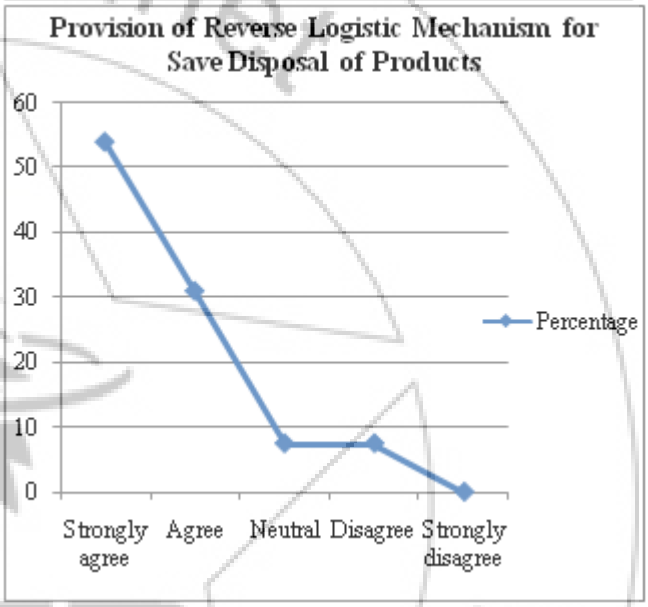


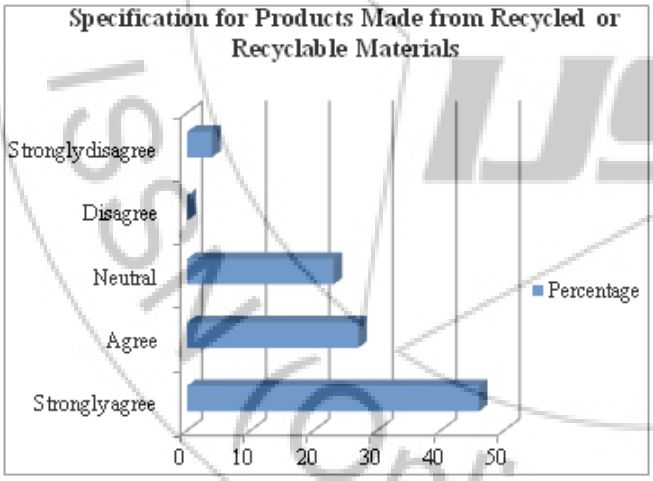


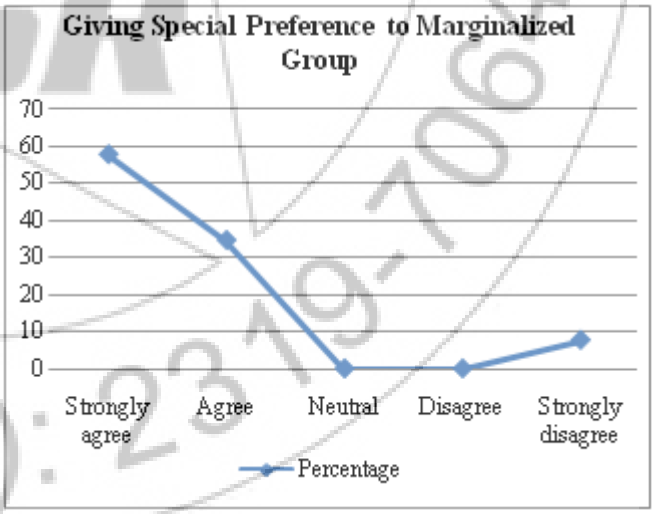


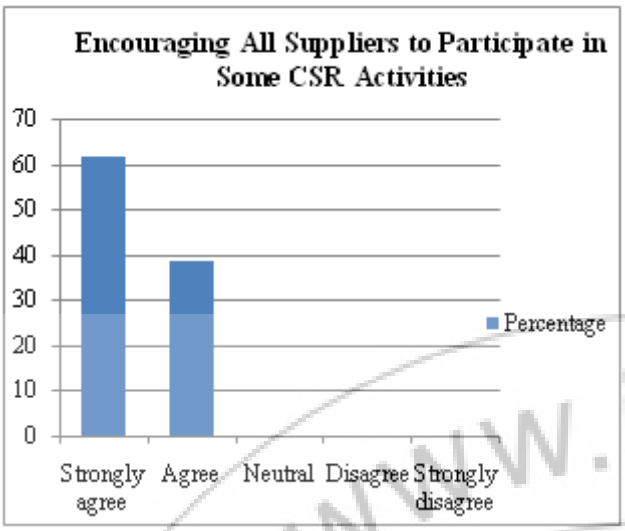


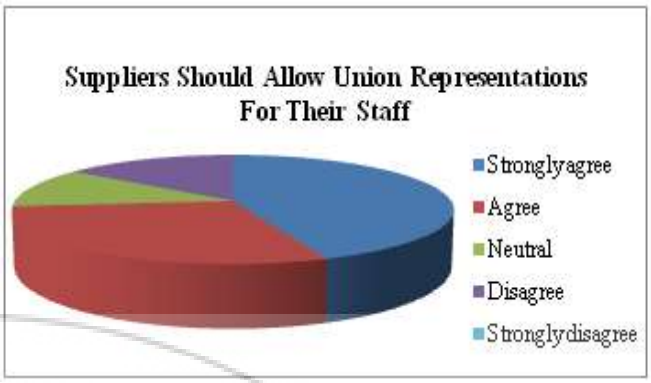




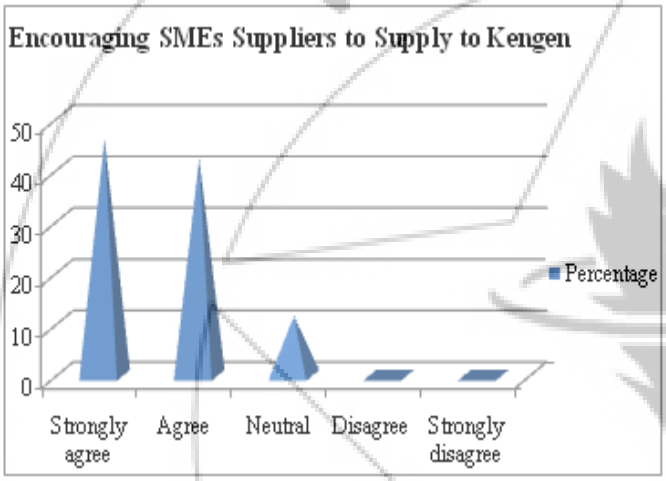


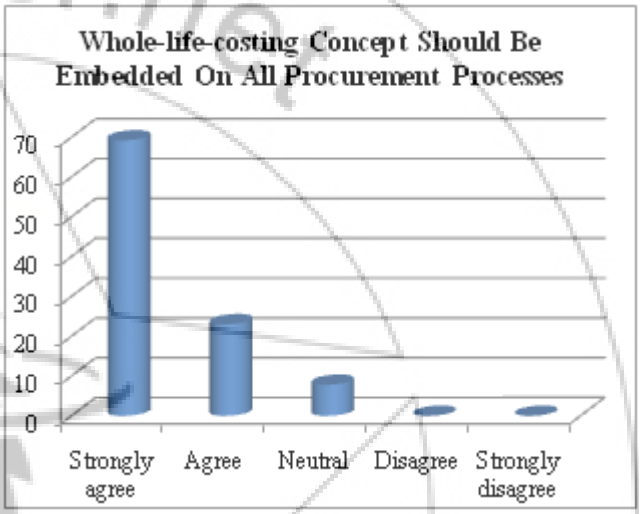


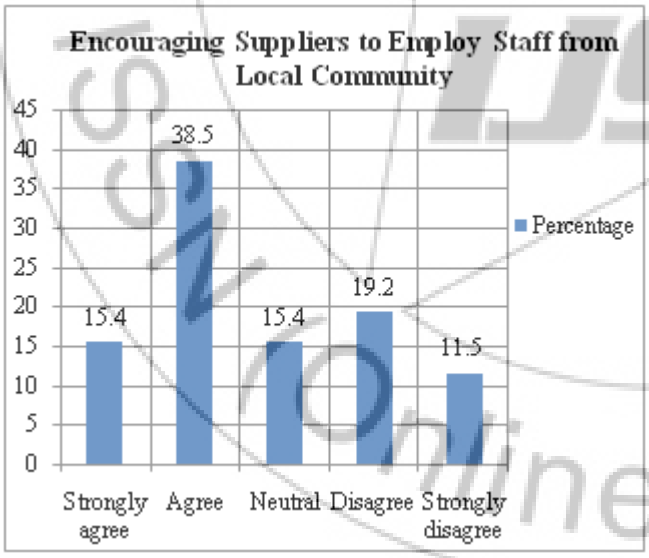


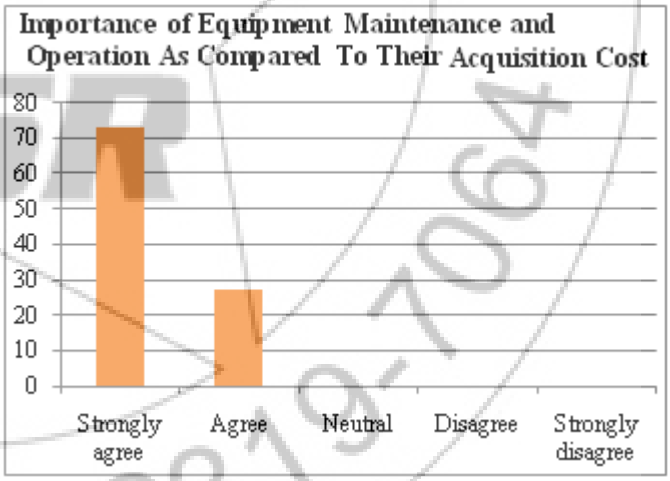


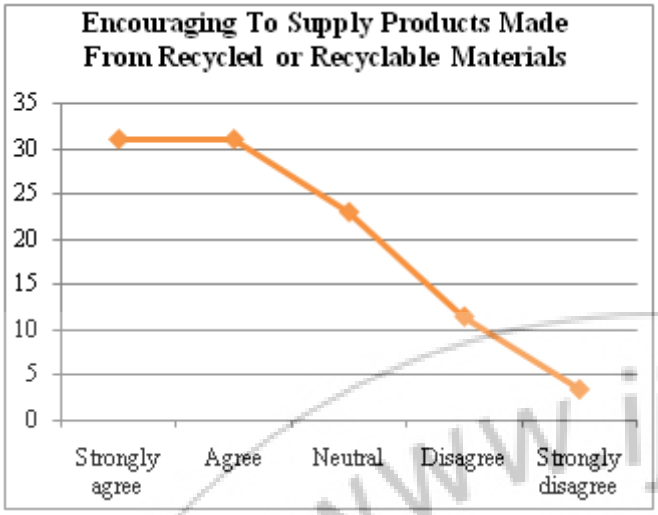
Section D: economic drivers and sustainable procurement

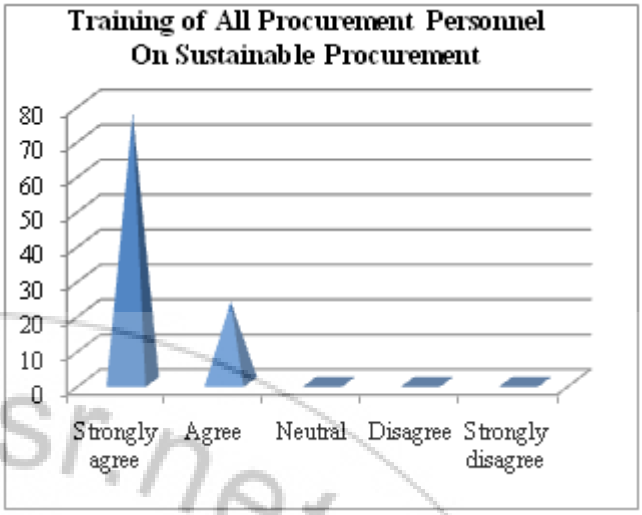


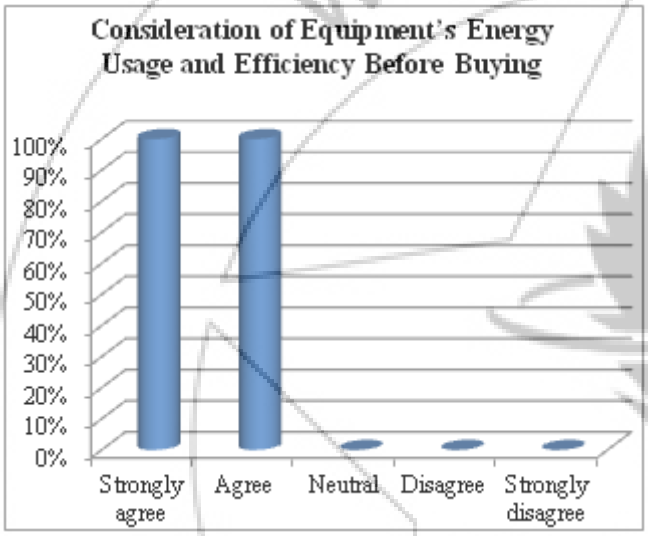


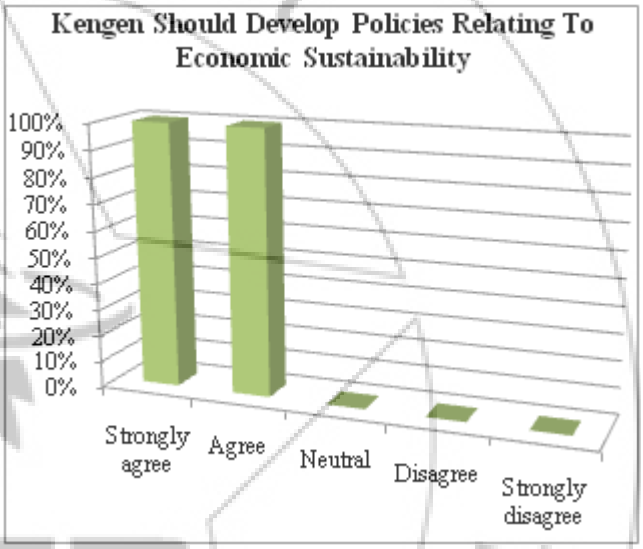


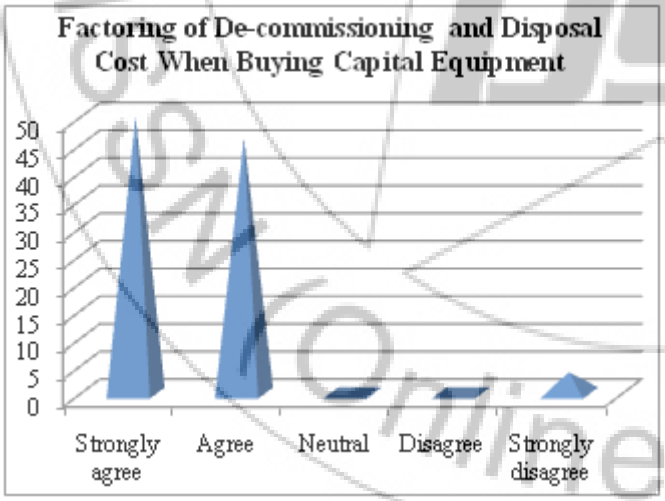


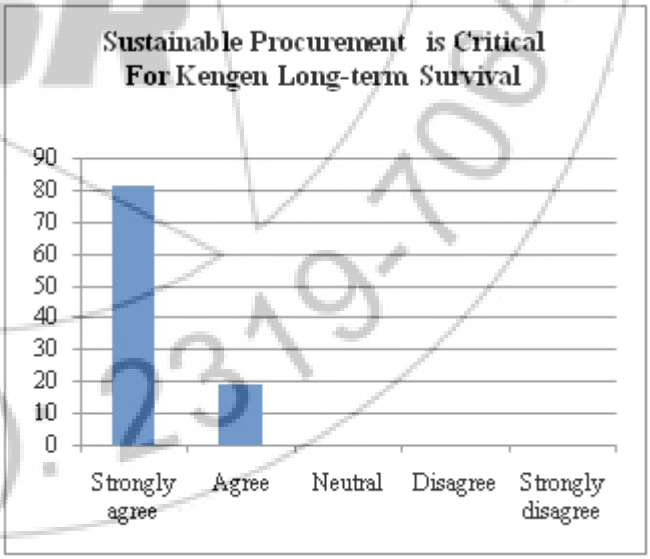












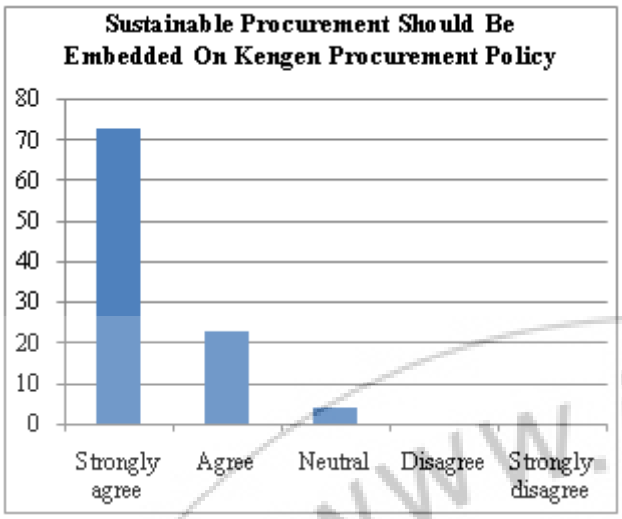


Table 4.2: Correlation between EMS Certification and Embedding Sustainable procurement on procurement policy

		All Kengen Suppliers should be EMS certified	Embedding Sustainable procurement on policy
All suppliers engaged by Kengen should be EMS certified	Pearson Correlation	1	.857**
	Sig. (2-tailed)		.000
	N	26	26
Embedding Sustainable procurement on procurement policy	Pearson Correlation	.857**	1
	Sig. (2-tailed)	.000	
	N	26	26
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 4.3: Correlation between Encouraging and supporting suppliers to engage in CSR and Embedding Sustainable procurement on procurement policy

		Encouraging suppliers to engage in some form of CSR	Embedding Sustainable procurement on procurement policy
Encouraging and supporting suppliers to engage in some form of CSR	Pearson Correlation	1	.723**
	Sig. (2-tailed)		.000
	N	26	26
Embedding Sustainable procurement on procurement policy	Pearson Correlation	.723**	1
	Sig. (2-tailed)	.000	
	N	26	26

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.4: Correlation Between Consideration of Energy usage and efficiency and Embedding Sustainable procurement on procurement policy

		Consideration of Energy usage and efficiency before buying equipment	Embedding Sustainable procurement on procurement policy
Consideration of Energy usage and efficiency before buying equipment	Pearson Correlation	1	.874**
	Sig. (2-tailed)		.000
	N	26	26
Embedding Sustainable procurement on procurement policy	Pearson Correlation	.874**	1
	Sig. (2-tailed)	.000	
	N	26	26
**. Correlation is significant at the 0.01 level (2-tailed).			

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