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Determinants of compliance with governance instruments for adoption of green concept in environmental management: Case of Nairobi

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Abstract

The constitutional guarantee to a clean and healthy environment was a win in Kenyan environmental space as safeguarded by her 2010 constitution. However, environmental governance in Kenya still lacks enforcement and compliance at institutional and citizen levels. This paper documents peoples' perceptions and factors that influence compliance with governance instruments that regulate adoption of green concept in environmental management; protection, conservation and preservation. Data was collected by surveying 92 households and five key informants (n=97) using semi-structured questionnaires, interviews and observations. The nonparametric *Data Envelopment Analysis (DEA)* was used to determine the degree of connectivity between the society/institutions and the environmental governance. Respondents' understanding of green concept in environmental management was significantly low although majority seemed to be aware of the existence of governance instruments regulating the concept in environmental management. Majority also neither knew the implication nor complied with its governance instruments in environmental management. Majority of the respondents agreed compliance to governance instruments would enhance application of green concept in waste management but majority were of contrary view for its application in use of clean energy and its role in industries. Majority of the respondents indicated lack of awareness affected compliance with governance instruments but agreed benefits attributed to its application could result to compliance with its governance instruments as applied to environment management. Majority were willing to comply with the governance instruments after awareness creation, civic education and strict enforcement of the instruments.

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Introduction

Governance refers to rules, processes, and behaviour by which interests are articulated, resources are managed, and power is exercised (European Commission, 2004). This means instruments are the laws, regulations and policies that guide the process of governance. Thus, governance framework includes laws and regulations, local and international conventions, policies and administrative structures including local and international institutions, social norms and traditions (HLPE, 2014). Biodiversity is under threat from human civilization requiring regulation to counter this threat (UNEP, 2012). Increased biodiversity loss, pollution, and climate change scenarios persist because of many factors that also include a gap in environmental governance (Lange *et al.*, 2013). Effective environmental governance embraces three elements at three different levels: formal and informal rules, the way and process they are established, and who contribute to it (HLPE, 2014). Thus, effective environmental governance encompasses national rules, international rules, local and customary practices (HLPE, 2014).

Since introduction of modern environmental regulation in 1970s there has been continuous challenge in design and implementation of effective, efficient and legitimate regulation for governments and society (Gunningham, 2009). Governments and their agents initially tried to manage environmental problems by enforcing strict rules and standards set out in legislation and treaties (Gunningham, 2009). However neoliberal ideals arose in 1980s that forced the governments to shift towards a curbed via market-based approach of governance that embraced voluntarism and other 'light-handed policy initiatives such as partnerships and cooperation (Gunningham and Holley 2010). Eventually in 1990s ecological degradation and other issues resulting from complex social and environmental problems started to be managed through what is increasingly being called 'new environmental governance' (Driessen *et al.*, 2012; Holley *et al.*, 2012).

Green concept in environmental management was introduced in 2000s to protection, preservation and conservation of the environment via resource-efficient throughout the life-cycle of the affected biodiversity (Ji and Plainiotis, 2006). To achieve effective implementation of the concept, its planning, design, and implementation required close cooperation of the stakeholders through effective governance instruments and compliance practices (Najam *et al.*, 2006; Bessa *et al.*, 2007; Cole and Grossman 1999; U.S. Environmental Protection Agency, 2009; Asare and Okyere, 2012; Aguilera *et al.*, 2015).

Environmental governance via state-centered approaches to law and regulation in Kenya achieved some gains in halting and reducing environmental degradation. However this approach, suffers from a number of weaknesses that limit its effectiveness in grassroots movements involved in management of the environment (Osborne and Gaebler 1993; Graham *et al.*, 2003; James, 2003; Maathai, 2009; Driessen *et al.*, 2012; Holley *et al.*, 2012). Notably, governance of environmental issues have been demonstrated to face complex types of management and institutional coordination problems that require a cooperative frame of approach in order to provide consented solutions via dialogue and participation (Hochstetler and Keck, 2007; Maathai, 2009). It is envisaged that green concept implementation requires active engagement of various sectors and sub-sectors working closely in partnerships and networks (Stoker, 1998; UNCED, 1992; Cerqueira, 2006). This paper seeks to address deficiencies in environmental governance on adoption of the green concept by studying governance interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say in the adoption processes. The data will contribute to practical ways of enhancing governance compliance through education and awareness via inclusivity, participation and involvement.

Materials and methods

Based on a previous approach, the theoretical framework of the research was based on institutional and resource based view where coercive push and resource benefits for society were expected to influence adoption of green concept in environmental management (Florida and Davison, 2001). Thus, in brief a conceptual framework (Fig. 1) was utilized to design the study that assumed that the actors (society and institutions) willingness to adopt the green concept in environmental management was dependent on existing governance instruments (laws, regulations and policies) and their level of compliance, public perceptions and awareness level, the public knowledge, attitudes and practices.

Data was collected in Nairobi because it is a host to key environmental organizations like UNEP, government ministry and other NGOs that formulate and implement policies on environmental management. Surveys were conducted using semi structured questionnaires and key informant interviews. The questionnaires and interviews focused on attributes of environmental governance as applied to green concept in environmental management (activities of conservation, preservation and protection). *Data Envelopment Analysis (DEA) method* was used to evaluate the determinants of human perceptions, decisions, activities as they related to governance of implementation of green concept in environmental management (Reinhard *et al.*, 2000; De Koeijer *et al.*, 2002; Sipiläinen *et al.*, 2008). In brief, DEA method compared various individual and institutional decisions as they impacted on the governance and these were considered to be based on homogenous set of decisions made by individual respondents as previously described (Boussonfiane *et al.*, 1991; De Koeijer *et al.*, 2002). The constructs of the determinant frontier (the most preferred combinations of decisions) took into account the impacts of the decisions on people's knowledge, attitudes and practices on governance instruments that affected adoption of the green concept in Nairobi.

As previously also described, since the surveys aimed to analyse individual and institutional decisions that affected the governance on the adoption of green concept itself, and the influence the governance had on management of the environment (Solovyeva *et al.*, 2011), possible theories of statistical variety on each decision type of the randomly chosen respondents were considered (MacDonald *et al.*, 2000, Tasser and Tappeiner 2002; Dullinger *et al.*, 2003, Fare and Grosskopf, 2004; Kuosmanen and Kortelainen, 2004 and 2005; Kuemmerle *et al.*, 2008).

Ninety two (92) household heads were surveyed and five (5) key informants interviewed. Data on perceptions, knowledge, attitudes and practices on governance of green concept implementation process was collected. Open and closed questions as well as qualitative and quantitative questions were used as previously described (Jahnke and Jahnke, 1982; Fare and Grosskopf, 2004). The indicators were weighed according to their importance in adoption of green concept in environmental management using chi-square test of significance level ($P \leq 0.05$, $n=97$). Statistical bias resulting from utilization of questionnaire surveys (i.e. social desirability bias, leniency bias) was minimized by adapting a previously described methodology (Michelsen and de Boer, 2009).

Results

Knowledge, attitudes and practice on green concept and its governance instruments in environmental management

The data presented in Table 1 and 2 indicate that the respondents' understanding of green concept in environmental management was significantly low (33.0 ± 2.11 , $n=97$, $P \leq 0.05$). However, majority seemed to be aware of the existence of governance instruments regulating environmental management (56.7 ± 1.62 , $n=97$, $P \leq 0.05$). Surprisingly, majority also neither knew the implication (64.9 ± 1.90 , $n=97$, $P \leq 0.05$) nor complied (69.1 ± 2.11 , $n=97$, $P \leq 0.05$), with the governance instruments in environmental management.

Majority of the respondents (50.7±1.44, n=97, P≤0.05) agreed compliance to governance instruments would enhance waste management but majority were on contrary view for use of clean energy (71.7±1.66, n=97, P≤0.05) and its role in industries (64.9±1.90, n=97, P≤0.05).

Factors Affecting Compliance with Governance Instruments for Adoption of Green Concept in Environmental Management

The data presented in Table 3 and Fig. 2. From data in Table 1, majority of the respondents (57.6±1.36,

n=97, P≤0.05) were of the view that lack of awareness was the factor affecting compliance with governance instruments for adopting green concept in environmental management. Also majority of the respondents were of the view that corruption of the enforcement officers (64.9±1.90, n=97, P≤0.05) and individual defiance (58.3±2.11, n=97, P≤0.05) contributed to lack of compliance to governance instruments for adoption of green concept in environmental management.

Table 1. Respondents knowledge, attitudes and practices on green concept and the governance instruments that promote adoption of green concept in environmental management (n=97).

Parameter	Yes (positive) (%)	No (negative) (%)
Understanding of green concept	33.0±2.11 ^a	67.0±2.17 ^b
Awareness of existing governance instruments	56.7±1.62 ^a	43.3±1.67 ^a
Knowledge on the implication of governance instruments	35.1±1.89 ^a	64.9±1.90 ^b
Compliance to the governance instruments	30.9±2.05 ^a	69.1±2.11 ^b

^{a,b} Different letters in the same row differ statistically by Chi-square, P<0.01; Positive: respondents aware of existence of governance instruments, their implication on environmental management and compliance to the same; Negative: respondents of the contrary views of the positive responses.

Table 2. Respondents perceptions on importance of compliance with governance instruments for adoption of green concept in waste management, use of clean energy and in industries (n=97).

Parameter	Agree (positive) (%)	Disagree (negative) (%)
Waste management	50.7±1.44 ^a	46.3±1.49 ^b
Clean energy	25.3±1.59 ^a	71.7±1.66 ^b
Industries (formal & Non-formal)	35.1±1.89 ^a	64.9±1.90 ^b

^{a,b} Different letters in the same row differ statistically by Chi-square, P<0.01; Positive: respondents agree compliance with governance instruments will enhance adoption of green concept on the various aspect of environmental management; Negative: respondents of the contrary views of the positive responses.

There was an equivocal (48.7±1.42^a, 51.3±1.48^a, n=97, P≤0.05) view for lack institutional and state good will on compliance to governance instruments. When combined together, majority of the respondents listed

three main factors for non-compliance to governance instruments in environmental management; lack of awareness, lack of public education and lack of proper enforcement (Fig. 2, n=96, P≤0.05).

Table 3. Respondents perceptions on factors affecting compliance with governance instruments for adoption of green concept in environmental management (n=97).

Parameter	Agree (positive) (%)	Disagree (negative) (%)
Lack of awareness	57.6±1.36 ^a	39.4±1.48 ^b
Lack of institutional and state good will	48.7±1.42 ^a	51.3±1.48 ^a
Corruption of enforcement officers	35.1±1.89 ^a	64.9±1.90 ^b
Individual defiance	38.7±1.97 ^a	58.3±2.11 ^b

^{a,b} Different letters in the same row differ statistically by Chi-square, P<0.01; Positive: respondents agree the factor affected compliance with governance instruments on adoption of green concept in environmental management; Negative: respondents of the contrary views of the positive responses

Perceived benefits on compliance with governance instruments for adoption of green concept in environmental management

The data presented in Fig. 3 indicate that the respondents had significantly ($P \leq 0.05$) different views on benefits that could result from compliance with governance instruments in environment

management. In order of ranking, the respondents indicated clean, safe and healthy environment (61.5%, $n=97$) would be the main benefit followed by sustainable wealth creation (27.1%, $n=97$), then low cost of production (9.4%, $n=97$) and finally strong institutions (2.1%, $n=97$).

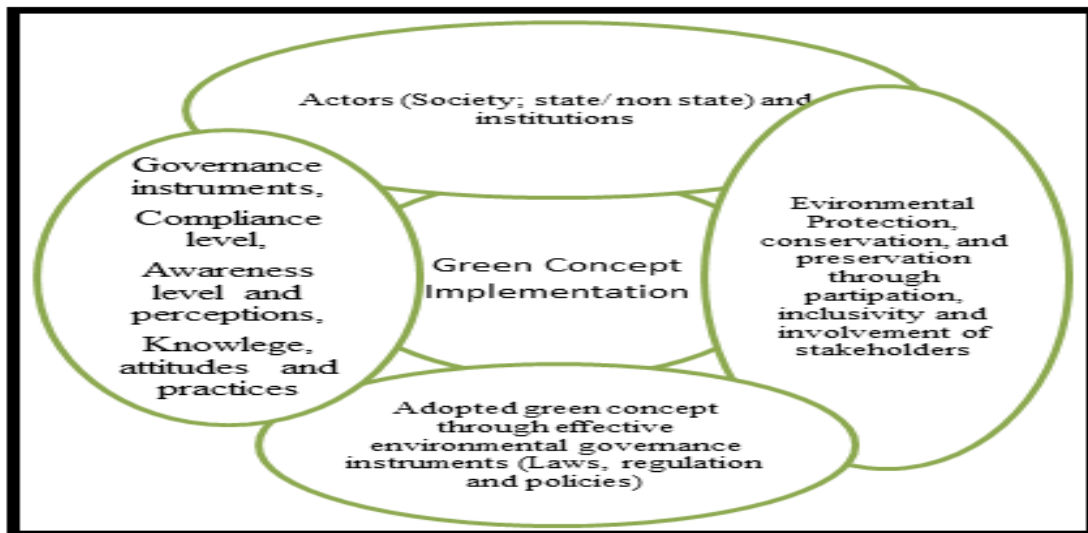


Fig. 1. The conceptual framework on adoption of green concept anchored by effective governance instruments.

Majority of the respondents were also willing to comply with the governance instruments after awareness creation, civic education and strict enforcement of the instruments (Fig. 4, $n=97$, $P \leq 0.05$).

Discussion

The finding that respondents’ views were different supports the fact that data “spoke for itself” (Kuosmanen and Kortelainen, 2005).

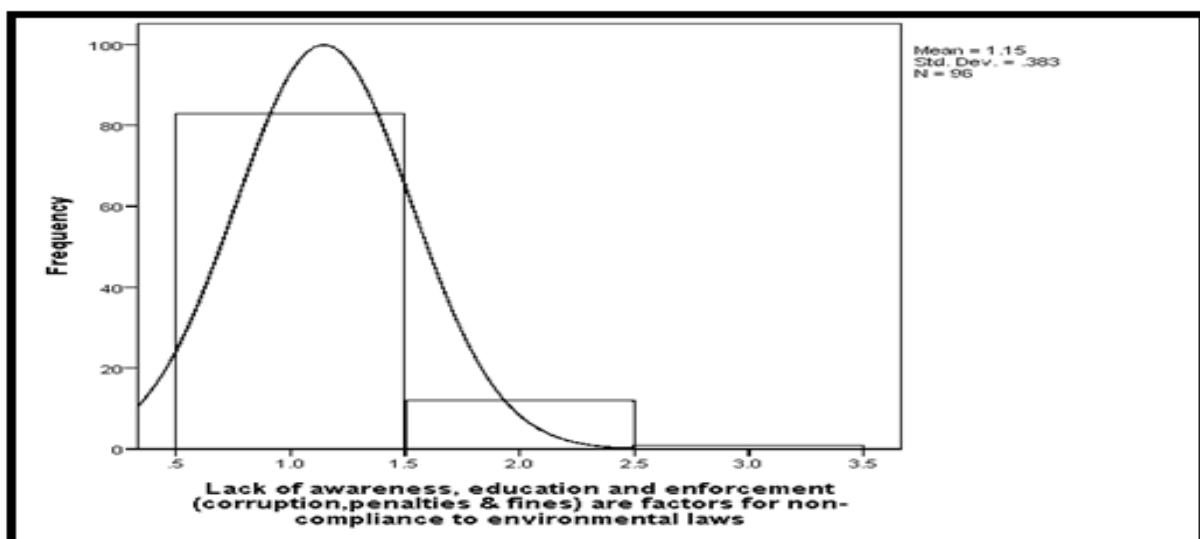


Fig. 2. Respondents views on factors affecting non-compliance to governance instruments for adoption of green concept in environmental management.

This data indicating understanding of green concept in environmental management was significantly low is similar to other observations (Cooper *et al.*, 2002; Kuosmanen and Kortelainen, 2004; Kuosmanen and Kortelainen, 2005). Also as reported by Winchester (2009), majority of the respondents seemed to be

aware of the existence of governance instruments regulating environmental management but neither knew the implication nor complied with the governance instruments in environmental management.

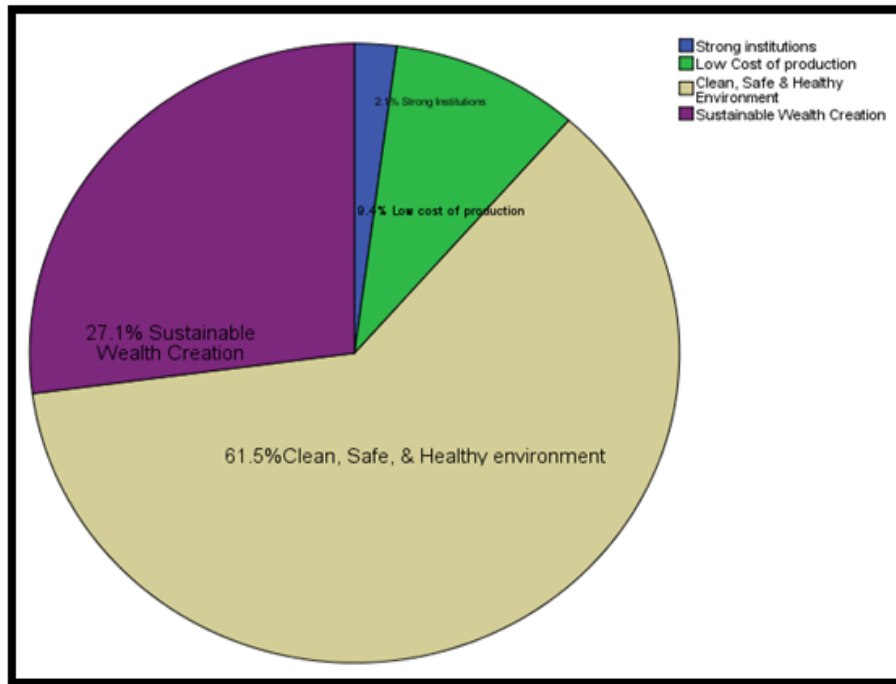


Fig. 3. Respondents perceived benefits for compliance to governance instruments for adoption of the green concept in environmental management.

This data, as suggested by other previous authors also seems to suggest that governance of environmental issues have been demonstrated to face complex types of management and institutional coordination problems that require a localized cooperative frame of approach to provide consented solutions via dialogue and participation (Hochstetler and Keck, 2007; Maathai, 2009). This also agrees with others who suggested that in order to understand the environmental management as impacted by activities (for instance, individual and institutional decisions and practices) there is a need to shift from state-centered approach of governance and adopt the grassroots approach for inclusivity, involvement and participation in management of the environment (Osborne and Gaebler, 1993; Reinhard *et al.*, 2000; Graham *et al.*, 2003; James, 2003; Maathai, 2009; Driessen *et al.*, 2012; Holley *et al.*, 2012).

This approach to law and regulation in Kenya could help reduce weaknesses that limit its governance effectiveness on natural environment based on our finding that is supported by the data that shows respondents agreed there were benefits attributed to adoption of green concept in environmental management. This is so because majority of the respondents agreed compliance with governance instruments would enhance attributes of green concept like in waste management (Swanson, 1995). Thus, this is suggestive of the fact that once institutions/policies put in place a holistic approach towards environmental management, the same can end up achieving complete adoption of green concept in Kenya.

Our results show that respondents were willing to comply with governance instruments for adoption of green concept in environmental management after

awareness creation, education and enforcement of the instruments. This is in agreement with previous authors like Maathai (2009), who suggested a bottom-up approach for effective management of natural resources. The data also agrees with others who suggested exploitation of the utilitarian value strategy to entail a holistic approach to conservation by taking into account the peoples' material well-

being, besides the feelings and emotions that give them satisfaction in conservation. These include utilization of conservative and productive materials from biodiversity e.g. agricultural materials or food sources, medicine, industrial raw materials, educational values and scientific research (Swanson, 1995; Agnes, 2011; UNEP Report, 2016).

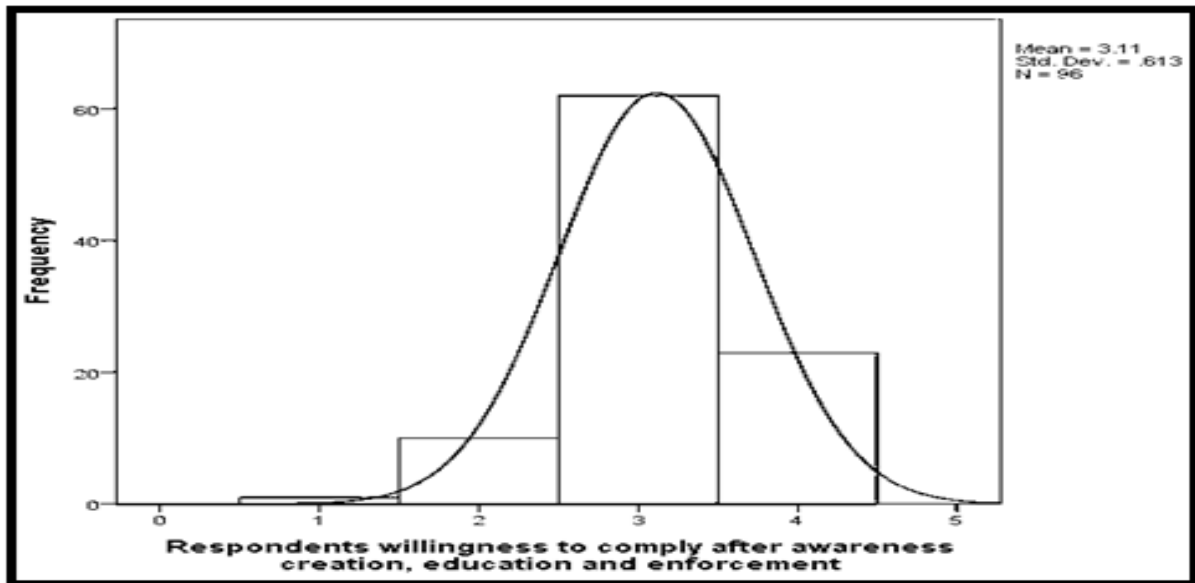


Fig. 4. Respondent's willingness to comply with governance instruments for adoption of green concept in environmental management after awareness creation, education and enforcement of the instruments.

The data supports a dynamic approach to compliance with governance instruments based on peoples' views and practices like others have previously reported (Lesschen *et al.*, 2004). Therefore, the dynamism of environmental management in Nairobi ecosystem, which host the national park, is likely to be affected by complex social and environmental problems that require to be managed through the so called 'new environmental governance' (Driessen *et al.*, 2012; Holley *et al.*, 2012). The data however gives a ray of hope for compliance with governance instruments on adoption of green concept in environmental management to protect, preserve and conserve the environment in Kenya as also by others reported for other ecosystems (Ji and Plainiotis, 2006). The fact that respondents were willing to comply to governance instruments have civic education, awareness creation and enforcement, this shows that effective implementation of the green concept

(planning, design, and implementation) is achievable through close cooperation of the stakeholders through effective governance instruments and compliance practices. This agrees with previous reports for other countries (Najam *et al.*, 2006; Bessa *et al.*, 2007; Cole and Grossman 1999; U.S. Environmental Protection Agency, 2009; Asare and Okyere, 2012; Aguilera *et al.*, 2015). Environmental governance in Kenya is therefore faced by two possible alternatives of either adoption of the green concept or lack of adoption of the same. This would then lead to various states of affairs in environmental governance (Kleijn *et al.*, 2009, Van Huelenbroeck and Whitby, 1999).

Thus, good environmental governance in Kenya, where environmental institutions still use traditional management practices, is significantly influenced by the willingness and/or the unwillingness of the people

to comply with instruments that governing practices of green concept in protection, conservation and preservation of the environment. This agrees with previous authors who reported that adoption of green concept through environmental governance (positive environmental externality) would help conserve biodiversity (Van Huelbroeck and Whitby, 1999; Kleijn *et al.*, 2009; Schader, 2009; Solovyeva *et al.*, 2011). This suggest that for sustainability, a solution to the enhancement of environmental governance in Kenya could consider the relative gains perceived by the respondents in relation to the adoption of the green concept; residents will see this as avenue for wealth creation and economic empowerment (UNEP Report, 2016).

Conclusion

The findings indicate peoples' willingness to comply with governance instruments for adoption of green concept as long as there were perceived benefits coupled with awareness creation, civic education and enforcement of the instruments. This finding can contribute to inform policy on environmental management through grass root inclusiveness, involvement and participation of the stakeholders in decision making processes for enhanced compliance in adopting green concept.

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