

Exploring the Acceptability of Spatial Planning Policy: Empirical Evidence from Somalia

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Conflicts of Interest

There are no conflicts to declare.

1. Introduction

Sustainable land use management policies escalated and become an increasingly important research topic over the last few decades (Camba Sans, Aguiar, Vallejos, & Paruelo, 2018; Liu, 2018; Pleger, 2017; Pleger, Lutz, & Sager, 2018; Reinikainen, Sorvari, & Tikkanen, 2016; K. Williams, 2011). Sustainable land use is vital for the economic progress of global society in general (Lambin et al., 2014; Liu, 2018), and underdeveloped societies in African sub-Saharan countries such as Somalia in particular. The capacity of such policies to meet

ABSTRACT

Public acceptability is increasingly considered as an essential criterion for the effective implementation of sustainable land use management policies. Understanding the acceptability of such policies can help policymakers avoid potential policy setbacks and therefore implement policy measures successfully. By employing binary logistic regression analysis, we examined public acceptability of spatial planning policy based on a set of data collected from a sample of the Somali population. More specifically, we examined how the acceptability of such policy is determined by attitudinal variables (self-transcendent, self-enhancement, openness to change, traditional value orientations, and general environmental concern) and socio-demographic variables. The aim was to better inform future policy implementation to avoid potential policy aversion that previous policies might encounter in practice. In general, the regression analyses show that several attitudinal variables play a crucial role in predicting the acceptability of spatial planning policy. However, regression analyses show that except gender, socio-demographic variables are not significant predictors of spatial planning policy acceptability in the context of our study. The results suggest that when implementing sustainable land use policies such as spatial planning, policymakers should consider attitudinal variables to avoid potential policy setbacks.

Keywords: ACCEPTABILITY, SPATIAL PLANNING, ATTITUDINAL VARIABLES, AND BINARY LOGIT MODEL.

the goals for which they were intended is determined by the political process that leads to policy implementation, as well as the existence of the underlying prevailing concepts, cultural discourses, resource and power distribution (Dasgupta & De Cian, 2018; Hughes & Lipsey, 2013; Jacobsson & Lauber, 2006; Jahn, 1998). Scholars and policy analysts recommend that policies should commonly be based on the policy instrument selection criteria, that is based on various competing values which are, efficiency, effectiveness, legitimacy, legality, and democracy (Van Gossum, Arts, & Verheyen, 2012; Vedung, Rist, & Bemelmans-Videc, 1998). In other words, certain factors must be considered when choosing a sound policy instrument. Firstly, the policy should be effective and efficient. Secondly, the policy should not cause public opposition, thus promoting its adoption, in a politically acceptable way (Goulder & Parry, 2008; Van Gossum et al., 2012; Van Gossum et al., 2009).

Acceptability falls under the legitimacy value of the policy instrument selection criteria listed above (Van Gossum et al., 2009). Legitimacy is defined as the extent of consent that policymakers can obtain for their policy decisions because they are viewed as corresponding to the actors' views, feelings, or goals (Vedung et al., 1998), and it is a political criterion that emphasizes that acceptance is an essential for the effectiveness of government policies (Vedung et al., 1998). Legitimacy is divided as managerial and public acceptability (Van Gossum et al., 2009). Public acceptability is a requirement for any democratic government system to enable the exercise of power and authority without force or coercion and has to be preserved and replicated by the power structures it legitimizes in turn (Van Gossum et al., 2009).

Public acceptability provides an important base for the formulation of policy measures within democratic government structures (Nilsson, Hansla, Malmborg, Jakobsson, & Martinsson, 2016; Pleger, 2017; Pleger et al., 2018) and it is deemed to be vital for the effective implementation of sustainable land use policy measures to achieve the intended policy outcome (Pleger, 2017; Pleger et al., 2018; K. Williams, 2011; K. J. H. Williams, 2014). Given this, land use policymakers and planners must take into consideration not just the ecological and economic viability of the policy, but also its public acceptability when implementing new policy measures (Stankey & Shindler, 2006; K. Williams, 2011; K. J. H. Williams, 2014). While public acceptability is only one factor in the effective choice and implementation of policy instruments (Goulder & Parry, 2008; Van Gossum et al., 2009), it has received growing attention in recent years (Pleger, 2017; Pleger et al., 2018; Ščasný, Zvěřinová, Czajkowski, Kyselá, & Zagórska, 2017; K. Williams, 2011; K. J. H. Williams, 2014), especially in sustainable land use management policies.

The growing importance of public acceptability in the context of sustainable land use policies is evidenced in the increasing number of research publications in recent years (Busse & Siebert, 2018; Pleger, 2017; Pleger et al., 2018; K. Williams, 2011; K. J. H. Williams, 2014). One reason why acceptability studies have increased in the field of sustainable land use management policy measures is that it helps policymakers understand the reaction of the people towards the policy measure (Pleger, 2017; Pleger et al., 2018; K. Williams, 2011; K. J. H. Williams, 2014), and has a significant effect on the approval processes for planning and development of policy measures (Ford, Williams, Bishop, & Webb, 2009; Toke, 2005; K. Williams, 2011; K. J. H. Williams,

2014). However, previous studies have demonstrated that in practice policy measures may not be acceptable to the public (Cherry, Kallbekken, & Kroll, 2012; Eriksson, Garvill, & Nordlund, 2006; Rienstra, Rietveld, & Verhoef, 1999; Stadelmann-Steffen, 2011) which downplays the very purpose of the policy to serve as a silver bullet and guarantee the intended outcome. The lack of acceptance may not be merely due to ineffective policy design but also social, cultural, and political processes (Mann, Loft, & Hansjürgens, 2015). Despite the growing importance of studies in the context of land use policy measures' acceptance, research using theoretical considerations is scarce and it has been shown that further studies can still benefit from investigating public acceptability using theoretical frameworks to advance the concept of acceptance especially in the context of sustainable land use (Busse & Siebert, 2018). Therefore identifying public acceptability is critical to designing and implementing successful land use planning policy measures that are effective to be implemented (Pleger, 2017; Pleger et al., 2018; K. Williams, 2011; K. J. H. Williams, 2014).

The present study attempts to contribute to this research line by exploring the public acceptability of spatial planning policy to help land use policy-makers understand local peoples' response to sustainable land use policy measures to implement acceptable policy measures. Acceptability is a term that is often used to describe as a positive or negative attitude toward a policy measure before its implementation (Schuitema, Steg, & Forward, 2010). The remainder of this paper is structured as follows; section two reviews the theoretical perspective. Section three illustrates the method employed for the study. Section four presents the results and discusses their relevant interpretations while section five presents the conclusion and gives policy implications.

2. Theoretical background

2.1 Values

Basic human values are the core principles in people's lives (de Groot & Steg, 2008; Schultz, 2001; Schwartz, 1992), and they are at the center of many everyday decisions (J. de groot & Steg, 2008; Joop de Boer *, 2007). Values remain constant over time and serve as abstract motivational or behavioral benchmarks (Feather, 1995) that can result in various similar attitudes and behaviors within the value domain (de Groot & Steg, 2008). Schwartz (1992) proposed a general instrument to determine values that has overwhelmingly gained cross-cultural support. This instrument is thus considered universal (Judith I M De Groot & Steg, 2007; Hansla, 2011). The commonly used value theory groups the values in four classes that represent two underlying dimensions (Schwartz et al., 2001).

The primary dimension is self-transcendent (altruism) values versus self-enhancement (egoism) values based on what they prioritize (de Groot & Steg, 2008; Schwartz, 1992). Self-transcendent values focus on the needs of other living creatures such as justice and equality for the society and protection for the environment, while self-enhancement values emphasize the pursuit of self-interests such as power and success (J. de groot & Steg, 2008; J. I. M. De Groot, Steg, & Poortinga, 2013; Dean, Fielding, & Wilson, 2019; Graham & Abrahamse, 2017; Nilsson et al., 2016; Rhodes, Axsen, & Jaccard, 2017). Altruistic values include biocentric or environmental values as the basic value theory conceptualizes. The value theory's second dimension which is

openness to change versus traditionalism differentiates between ideals that seek to embrace new ideas and experiences from the values that favor customs and traditions that are mostly passed down from family and relatives (J. de Groot & Steg, 2008; Dietz, Fitzgerald, & Shwom, 2005; Graham & Abrahamse, 2017). However, Individuals may hold conflicting values along a dimension, so these values are not mutually exclusive (P Wesley Schultz & Zelezny, 2003).

Previous studies have validated an association between the values especially egoistic versus altruism and numerous pro-environmental attitudes and behaviors (J. I. M. de Groot & Schuitema, 2012; Garvill & Jörgen, 2002; Groot & Steg, 2007; Hansla, 2011; Nilsson, von Borgstede, & Biel, 2004; P. Wesley Schultz et al., 2005). For instance, the research found a positive link between general self-transcendent values and pro-environmental behavior (Garvill & Jörgen, 2002; Graham & Abrahamse, 2017; Karp, 1996), and particularly biosphere value orientation and pro-environmental behavior (J. I. M. de Groot & Schuitema, 2012; Nilsson et al., 2004). On the other hand, egoistic value orientation is found to have a negative association with pro-environmental behaviors (Graham & Abrahamse, 2017; Nilsson et al., 2016; P. Wesley Schultz et al., 2005), which means lower engagement in pro-environmental behavior (Garvill, 2002). In particular, such a relationship was reported by studies on public acceptability of environmental policy measures (Nilsson et al., 2016). The opposite of the above associations can be seen as environmental decisions often involve a cost-benefit allocation (Judith I M De Groot & Steg, 2007). On the other hand, perceived severity of problems has long been considered a key driver of government policy interventions by policy researchers (Sapat, 2004), and it is found that when people think environmental conditions are worsening and posing serious problems, they are often more likely to make environmentally friendly choices (Bayard & Jolly, 2007; Laroche, Bergeron, & Barbaro-Forleo, 2001).

Sustainable land use policies such as spatial planning measures include strategies that affect the values we reviewed above to inspire behavioral changes. In view of that, understanding public acceptability of these policies is warranted as it affects the intended policy outcome. This study focuses more closely on how the above-reviewed values and socio-demographic variables may affect the acceptability of spatial planning policy in Somalia.

3. Materials and methods

3.1 Study area

This study was conducted in Somalia, a country in the horn of Africa. Somalia is one of the highly deforested areas in the world (Bolognesi, Vrieling, Rembold, & Gadain, 2015; Oduori, Rembold, Abdulle, & Vargas, 2011; Rembold, Oduori, Gadain, & Toselli, 2013). The regulations and control measures ended with the state collapse in 1991 (Oduori, S., Vargas, R., 2007). Since then, the country has been suffering from lack of effective governmental and land use policies (Kiage, 2013; Omuto, Balint, & Alim, 2011; Suarez, Árias-Arévalo, & Martínez-Mera, 2018). And this paved the way for militia groups such as Al-Shabaab and others to heavily exploit this unregulated land by conducting a lucrative business to export large tons of charcoal to middle east countries such as Yemen and the United Arab Emirates (Bolognesi et al., 2015; Oduori et al., 2011; Rembold

et al., 2013). In particular places like Sanaag and Sool provinces in Puntland state are undergoing rapid change in land cover and land use change such as high deforestation (Oduori et al., 2011). Also, the population here is increasing rapidly, as with other parts of Africa, which puts pressure on land-based resources (Sallaba et al., 2017). Deforestation in Somalia has already made substantial adverse impacts on the land resources such as Soil and biodiversity (Alim & Mumuli, 2010; Muchiri, 2007; Oduori, S., Vargas, R., 2007; Omuto, Balint, & Alim, 2014; Omuto et al., 2009; Waaben Thulstrup, Habimana, Joshi, & Mumuli Oduori, 2018). Furthermore, the limited interventions proposed by public authorities were neither accepted nor implemented successfully (Waaben Thulstrup, Habimana, Joshi, & Mumuli Oduori, 2018).

3.2 Survey design and respondents

The data was collected via an online survey questionnaire in May 2020 using Google forms (web/program). The survey questionnaire was in three parts. The first part asked the respondents to indicate their socio-demographic characteristics such as age, gender, personal income, educational attainment and area of living. The second part consisted of questions about respondents' attitudinal variables such as self-transcendent versus self-enhancement values, openness to change versus traditional values and general environmental concerns. The third part consisted of statements about spatial planning policy acceptability.

A total of 568 responses were received via online. Of 137 problematic responses were discarded, leaving 431 valid questionnaire responses for actual analysis meaning that the response rate was 76%. Our sample was representative of the country's population, with a slightly higher response rate from young educated females. To avoid language jargon and to elicit reliable responses, the survey questionnaire was written in simple words. Before the survey was distributed, a pilot test was carried out to 30 volunteer respondents who belong to different occupations, ages, genders, and education. These individuals were chosen based on their experience. Following suggestions from the experts, minor modifications were performed in the survey such as rewording some questions to clarify their meaning. The purpose was to assess the clarity of the survey content and to enhance its validity and reliability. The actual survey was then carried out.

3.3 Measures of the predictor variables

The value orientations and general environmental concern of the respondents were assessed. Using modified short statements from value scale by J. de groot and Steg (2008), respondents indicated the importance of values (social altruistic, biospheric, egoistic, openness-to-change, and traditionalism) in their life, by rating on a five-point Likert scale ranging from very important to not important at all. Self-transcendent value orientation (biospheric and altruistic) measures were these statements; respecting the earth and harmony with other species, protecting the environment and preserving nature and unity with nature, fitting into nature, social justice, equality for all, and a world of peace or free of war and conflict. The mean, the standard deviation and the Cronbach's alphas averaged ($M = 3.89$, $SD = .876$, $\alpha = 0.86$). Self-enhancement (egoistic) value orientation items were based on social power and control over others, authority and the right to lead or command, and

finally wealth and material possessions. The mean, the standard deviation and the Cronbach's alphas averaged ($M = 3.7$, $SD = .698$, $\alpha = 0.71$). Openness-to-change value orientation items were; a varied life, filled with challenge, novelty, and change, an exciting life, stimulating experiences and curious, interested in everything, exploring. The mean, the standard deviation and the Cronbach's alphas averaged ($M = 4.17$, $SD = .781$, $\alpha = 0.86$). Traditionalism value orientation was measured with these statements; self-restraint or resistance to temptations, honoring and respecting parents and elders, and family security and safety for loved ones. The mean, the standard deviation and the Cronbach's alphas averaged ($M = 4.3$, $SD = .592$, $\alpha = 0.89$). finally, the general environmental concern of the respondents was assessed using statements adapted from a revised New Ecological Paradigm (NEP) scale (Dunlap, Liere, Mertig, & Jones, 2000) to examine respondents' general concern for the impact of humans activities on the natural environment using a five-point scale from very important to not important at all. Respondents expressed their concern for the environment by indicating their level of agreement with these statements; humans are severely abusing the environment, the earth is like a spaceship with limited room and resources, and if things continue on their present course, we will soon experience a major ecological catastrophe. The mean, the standard deviation and the Cronbach's alphas averaged ($M = 3.85$, $SD = .814$, $\alpha = 0.85$). The summary statistics of the variables' operationalization can be seen in table 1.

Table 1: Summary Statistics of the Variables' operationalization

	Variables	Operationalization
Dependent variable	Policy acceptability	Dummy: 1 = Accept proposal 0 = Reject proposal
Independent variables	Gender	1 = Female, 2 = Male
	Age	1= under 20, 2= 20-30, 3=31-40, 4= above 40
	Education	1= No educational qualification, 2= Completed high school, 3= Bachelor, 4= Postgraduate
	Residence	1= Major city, 2= Town, 3= Rural
	Income	1= >150\$, 2=150\$-300\$, 3=300\$-450\$, 4=<450\$
	Self-transcendent values	1= SDA, 2= DA, 3= Neutral, 4= A, 5= SA
	Self-enhancement values	1= SDA, 2= DA, 3= Neutral, 4= A, 5= SA
	Openness to change	1= SDA, 2= DA, 3= Neutral, 4= A, 5= SA
	Traditionalism	1= SDA, 2= DA, 3= Neutral, 4= A, 5= SA
	Environmental concern	1= SDA, 2= DA, 3= Neutral, 4= A, 5= SA

Notes: SDA means strongly disagree, DA means disagree, A means agree and SA means strongly agree.

3.4 Measures of the outcome variables

Finally, respondents were questioned to rate how much they would accept or reject statements measuring spatial planning policy acceptability by rating on a four-point scale from 'strongly accept' to 'strongly reject'.

The statements were framed as follows; the government should decide the specific land uses of the country such as the sites of new villages, roads, and farms, and penalize anyone who does not obey, the government should impose regulations concerning land conversion and protection of trees, and the government should control the development of land into the prime forests and farmlands. The mean, the standard deviation and the Cronbach's alpha averaged ($M = 4.17$, $SD = .758$, $\alpha = 0.90$). These measurements are modified from some of the earlier sustainable land use policy studies (Lambin et al., 2014).

3.5 Statistical analysis of the data set

This study employed binary logistic regression to determine whether spatial planning policy is acceptable in Somalia and the factors that affect the public acceptability. Since the binary logistic regression analyses require a binary outcome, the generated behavioral responses which were initially measured as a continuous variable was transferred to as a dummy variable. Strongly accept and somewhat accept were computed as “accept” and coded as ‘1’ while strongly reject and somewhat reject were computed as “reject” and coded as ‘0’. The binary outcome (y) equals one if the policy is accepted and zero if the policy is rejected. In this binary logistic regression model, whether the event (policy acceptability) occurs has a Bernoulli distribution. Thus to model this relationship, assume that the probability of policy acceptability is determined by a set of ‘ K ’ explanatory variables (attitudinal and socio-demographic variables) and their corresponding set of parameters or regression coefficients through a nonlinear link function into the bounded probability space $[0, 1]$, thus this logistic regression model is given:

$$y^* = \ln \left[\frac{P}{1-P} \right] = \alpha + \chi\beta + \varepsilon \tag{1}$$

Where χ refers to the set of explanatory variables, β denotes the estimated regression coefficients, ε is the error term, α is the constant or unknown parameters that can be estimated through the maximum likelihood estimation of generalized linear models. The greater the value of the β , the more the given variable contributes to the predicted variable.

Assuming that in the binary logistic regression model, the error term has the standard logistic distribution, the probability that respondent i accepts the policy is estimated using the logistic probability model:

$$E(y) = P = \frac{e^{\beta_0 + \chi\beta}}{1 + e^{\beta_0 + \chi\beta}} \tag{2}$$

This is called the cumulative distribution function of the logit model

Here let

$$Z = \beta_0 + \chi\beta + \varepsilon \tag{3}$$

Then the logistic regression function which is dependent on z is given as:

$$f(z) = \frac{z}{z+1} \tag{4}$$

Where $f(z) \in (0, 1)$ denotes the probability of an event “policy acceptability”. Typically, the cutoff value is 0.5.

4. Results

4.1 Descriptive results

This section presents the descriptive statistics of the key socio-demographic characteristics of our sample. Comparing the statistical differences of respondents' gender, male (39.2%) was slightly less than the female (60.8%). The age group ranged from below 20 to above 40 and the average age was approximately 30 years old. In terms of living areas, (67.1%) live in major cities, (25.5%) in towns, and (7.4%) in rural areas and in terms of educational attainment, (5.3%) stated they have no educational qualification, (48%) completed high school, (34.3%) bachelor degree, and (12.4%), postgraduate studies. The average personal income was just about \$250. This sample represents a regional population with a slightly higher response rate among young, educated females. However, no major statistical differences exist between the mainstream population and the sample mean across age as 75% of the Somali population is under the age of 30 (UNFPA, 2014.), thus, the sample can be representative of the entire country's population. The descriptive results of the demographic information are detailed in table 2.

Table 2: Socio-demographic details of the respondents

Variable	Category	N = 431	Percentage %
Gender	Female	169	60.8%
	Male	262	39.2%
Age group	Below 20	46	10.7%
	20-30	212	49.2%
	31-40	143	33.2%
	Above 40	30	7%
	No qualification	23	5.3%
Educational level	High school	250	58%
	Bachelor	148	34.3%
	Postgraduate	10	12.4%
Residential area	City	289	67.1%
	Town	110	25.5%
	Rural	32	7.4%
Personal income	<\$150	91	21.1%
	\$150-\$300	149	34.6%
	\$300-\$450	120	27.8%
	>\$450	71	16.5%

4.2 The effect of attitudinal variables on spatial planning policy acceptability

Binary logistic regression analyses revealed that several attitudinal variables play a significant role in predicting public acceptability of spatial planning policy. First, self-transcendent value orientation ($\beta = .531$, P

≤ 0.01), openness to change values ($\beta = .458, P \leq 0.05$), and greater environmental concern ($\beta = .373, P \leq 0.05$), are all positively associated with spatial planning policy acceptability. Self-enhancement or egoistic value orientation ($\beta = -.811, P \leq 0.05$), is on the other hand negatively associated with spatial planning policy acceptability. However, the regression analyses show that traditional value orientation is not an important predictor of spatial planning policy acceptability in our study. The results of binary logistic regression analysis describing the effect of attitudinal variables on spatial planning policy acceptability are presented in table 3.

4.3 The effect of socio-demographic variables on spatial planning acceptability

Binary logistic regression analyses show that except for gender, socio-demographic variables are not significant predictors of acceptability for spatial planning policy. However, being female is positively associated with the acceptability of spatial planning policy ($\beta = .541, P \leq 0.01$). The detailed results of the binary logistic regression analysis describing the effect of socio-demographic variables on spatial planning policy acceptability can be seen in table 3.

Table 3: Binary logistic regression results, β coefficients presented in the form of log-relative odd

Variables	B	S. E	Wald	Exp(B)	95% C.I	
					Lower	Upper
Attitudinal variables						
Self-enhancement	-.811*	.338	5.750	.444	.229	.862
Self-transcendent	.531**	.167	10.127	1.701	1.226	2.360
Traditionalism	.366	.268	1.858	1.441	.852	2.438
Openness to change	.458*	.183	6.254	1.581	1.104	2.263
Environmental concern	.373*	.188	3.931	1.452	1.004	2.100
Socio-demographic variables						
Female	.541**	.163	9.125	1.611	1.132	2.170
Age	.188	.277	.460	1.206	.702	2.074
Educational level	.077	.251	.095	1.081	.660	1.768
Personal income	.014	.225	.004	1.014	.652	1.578
Residential area	.184	.297	.385	1.202	.672	2.150
Constant	-2.565	2.074	1.529	.077		
Model summary (goodness of fit measures)			Log likelihood = 229.934			
			H-L test $\chi^2 = 14.827, df = 8, P = .063$			
			Observations = 431			
			Class. Occur. 85.7%			

Note: ***, ** and * represent significant at the 0.001, 0.01 and 0.05 level.

Dependent variable: Policy acceptability, dummy variable with 0=Reject, 1=Accept

5. Discussion

Sustainable land use management policies require citizens who are willing to accept policies and act in ways that mitigate unsustainable land use practices however, issues related to the sustainable use of land resources are not the priority for all people. Understanding public acceptability of land use policies such as spatial planning can help land use policymakers implement effective and acceptable policy measures. Employing binary logistic regression analysis, a new data set consisting of socio-demographic and attitudinal variables collected from a sample of Somali citizens was examined. In general, we found that several attitudinal variables play a significant role in predicting spatial planning policy acceptability. However, regarding the effect of socio-demographic variables, only gender was found to be an important predictor of spatial planning policy acceptability in our study.

The main findings of the empirical model that was tested are discussed in this section starting with attitudinal variables followed by key socio-demographic characteristics. First, we found that people with self-transcendent value orientations tend to accept and people with self-enhancement value orientations tend to reject spatial planning policy measures. These findings are broadly consistent with the notions of the theory of basic human values (Schwartz, 1992; Schwartz et al., 2001), and support previous empirical findings that self-transcendent values are positively associated and self-enhancement values are negatively associated with pro-environmental behaviors (Graham & Abrahamse, 2017). Also, similar findings have been reported by Nilsson et al. (2016) who found that altruistic value orientation is positively correlated with higher acceptability of environmental policy measures and that egoistic value orientation is negatively associated with the acceptability of environmental policy measures such as congestion charge in a Swedish context. Likewise, earlier studies on climate policy support reported that biospheric values are positively related to the support of climate policies such as carbon tax (Rhodes et al., 2017). Regarding possible reasons for the lower engagement of egoistic value orientation in pro-environmental behaviors such as the lower policy acceptability, some researchers provided valuable explanations. For instance, in line with cost saliency notions, Hansla, Gärling, and Biel (2013) stated that it may be due to concern for personal costs rather than lower concern for the environment. This justification is confirmed by some empirical observations of the previous studies which examined willingness to pay eco-labeled electricity (Hansla, 2011).

On the other hand, we found that openness to change value orientation has a positive effect on spatial planning policy acceptability while the effect of traditionalism value orientation is found to be negligible in predicting the acceptability of spatial planning policy in our study. This evidence confirms empirical findings reported by earlier studies in the context of pro-environmental behaviors (Dietz et al., 2005; Graham & Abrahamse, 2017), especially public acceptance of climate change policy measures (Nilsson & Biel, 2008).

In addition, greater concern for the environmental conditions was positively associated with the acceptability of spatial planning policy. This finding is in line with previous observations that people who are more concerned about climate change tend to support different types of climate policies (Rhodes et al., 2017).

Also, people who are concerned about runoff pollution expressed that they intend to support water quality policies, especially regulatory or command and control policy measures (Rissman, Kohl, & Wardropper, 2017). This means that people who think that land is in poor condition are more likely to accept spatial planning policy measures. In line with this, a previous study in the context of natural resource management suggests that people may support government policy measures when they think that the policy addresses an important issue (Lubell, 2003). Taken together, the findings of this study suggest that individuals with different levels of concern for the environmental conditions and different value orientations react differently to the same sustainable land use policy and therefore this knowledge should be taken into consideration when implementing new policy measures such as spatial planning.

Finally, individual socio-demographic variables were assessed to examine their effect on public acceptability of spatial planning policy. Previous studies have indicated that people who are young, educated, prosperous, and females often support policies addressing environmental issues (Elliott, Seldon, & Regens, 1997; Klineberg, McKeever, & Rothenbach, 1998). However, we didn't find a significant effect of these socio-demographic variables on public acceptability of spatial planning policy except gender. In this study, female respondents tend to accept the proposed policy relative to male respondents. Since our respondents are from a low-income country where issues such as cultural sensitivity are high and affluence is low, the inconsistency of the socio-demographic variables' effect may be caused by issues such as perceived costs, and social norms. Future research may explore why socio-demographic variables are not in a consistent fashion in different countries regarding their effect on public acceptability of government policies such as sustainable land use and climate change mitigation.

6. Conclusion

Sustainable land use policies depend on public acceptance to achieve their goals in securing sustainable land use practices. This study explored the public acceptability of spatial planning policy by means of survey data from a random sample of the Somali population. More precisely, the study examined how attitudinal variables such as self-transcendent, self-enhancement, openness to change, and traditional value orientations, and general environmental concern, as well as individual socio-demographic variables such as age, gender, educational attainment, personal income, and living area, determine public acceptability of spatial planning policy using a binary logit model. The aim was to better inform future policy implementation to avoid potential policy setbacks that previous policies might encounter in practice. In general, the majority of the respondents of our study expressed positive views and higher acceptability of the proposed spatial planning policy which is promising for future land use policymakers. Furthermore, several key attitudinal variables are found to be important predictors of the spatial planning policy acceptability.

These findings contribute to the increasing literature on the acceptability of sustainable land use management policy measures in general and spatial planning policies in particular. The results suggest that when implementing sustainable land use policies, policymakers should consider individual attitudinal factors

and prepare targeted proposals. Attitudinal factors such as self-transcendent versus self-enhancement, openness to change and general environmental concern have a significant effect on the acceptability of spatial planning policy, therefore; these factors should be carefully considered when implementing new policies. While other studies report that some of the individual characteristics such as income and gender have a significant effect on support for government policies, our study didn't find any evidence of such a relationship except gender. Given that most citizens are supportive of spatial planning policy; policy-makers might be encouraged to implement new policies to mitigate the current cycle of land clearing in the country. That being said, land use policymakers should be mindful that individual responses in actual policy implementation stages may differ from those of behavioral poles, therefore the high levels of spatial planning policy acceptability in this study may not certainly entail successful implementation of the policy.

Normally, this study faces some limitations. First, several other important attitudinal variables mentioned in behavioral theories other than the theory of basic human values are not considered in our study for the interest of the survey questionnaire simplicity. Also, our respondents are slightly dominated by young educated females living in urban areas which may affect the value of the research to generalize the findings to the whole population. Future research may target the residents of the countryside or even compare with the urban residents to absorb more generalizable results. Apart from these limitations, the results generated in this study are worth noting for future policymaking efforts.

References

- 1) Bayard, B., & Jolly, C. (2007). Environmental behavior structure and socio-economic conditions of hillside farmers: A multiple-group structural equation modeling approach. *Ecological Economics*, 62(3-4), 433-440. doi:10.1016/j.ecolecon.2006.07.004
- 2) Bolognesi, M., Vrieling, A., Rembold, F., & Gadain, H. (2015). Rapid mapping and impact estimation of illegal charcoal production in southern Somalia based on WorldView-1 imagery. *Energy for Sustainable Development*, 25, 40-49. doi:10.1016/j.esd.2014.12.008
- 3) Busse, M., & Siebert, R. (2018). Acceptance studies in the field of land use—A critical and systematic review to advance the conceptualization of acceptance and acceptability. *Land Use Policy*, 76(May), 235-245. doi:10.1016/j.landusepol.2018.05.016
- 4) Camba Sans, G. H., Aguiar, S., Vallejos, M., & Paruelo, J. M. (2018). Assessing the effectiveness of a land zoning policy in the Dry Chaco. The Case of Santiago del Estero, Argentina. *Land Use Policy*, 70(October 2017), 313-321. doi:10.1016/j.landusepol.2017.10.046
- 5) Dasgupta, S., & De Cian, E. (2018). The influence of institutions, governance, and public opinion on the environment: Synthesized findings from applied econometrics studies. *Energy Research and Social Science*, 43(May), 77-95. doi:10.1016/j.erss.2018.05.023
- 6) de groot, J., & Steg, L. (2008). Value Orientations to Explain Beliefs Related to Environmental Significant Behavior. *ENVIRONMENT AND BEHAVIOR*, 40(3), 330-354. doi:10.1177/0013916506297831

- 7) de Groot, J. I. M., & Schuitema, G. (2012). How to make the unpopular popular? Policy characteristics, social norms and the acceptability of environmental policies. *Environmental Science and Policy*, 19-20, 100-107. doi:10.1016/j.envsci.2012.03.004
- 8) De Groot, J. I. M., Steg, L., & Poortinga, W. (2013). Values, Perceived Risks and Benefits, and Acceptability of Nuclear Energy. *Risk Analysis*, 33(2), 307-317. doi:10.1111/j.1539-6924.2012.01845.x
- 9) Dean, A. J., Fielding, K. S., & Wilson, K. A. (2019). Building community support for coastal management — What types of messages are most effective? *Environmental Science and Policy*, 92(May 2018), 161-169. doi:10.1016/j.envsci.2018.11.026
- 10) Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annu. Rev. Environ. Resour.*, 30, 335-372.
- 11) Dunlap, R. E., Liere, K. D. V., Mertig, A. G., & Jones, R. E. (2000). Measuring Endorsement of the New Ecological Paradigm : A Revised NEP Scale. 56(3), 425-442.
- 12) Elliott, E., Seldon, B. J., & Regens, J. L. (1997). Political and economic determinants of individuals' support for environmental spending. *Journal of Environmental Management*, 51(1), 15-27. doi:10.1006/jema.1996.0129
- 13) Ford, R. M., Williams, K. J. H., Bishop, I. D., & Webb, T. (2009). A value basis for the social acceptability of clearfelling in Tasmania, Australia. *Landscape and Urban Planning*, 90(3-4), 196-206. doi:10.1016/j.landurbplan.2008.11.006
- 14) Garvill, A. M. N., & Jörgen. (2002). Value Structures behind Proenvironmental Behavior. *ENVIRONMENT AND BEHAVIOR*. doi:10.1177/001391602237244
- 15) Goulder, L. H., & Parry, I. W. H. (2008). Instrument choice in environmental policy. *Review of Environmental Economics and Policy*, 2(2), 152-174. doi:10.1093/reep/ren005
- 16) Graham, T., & Abrahamse, W. (2017). Communicating the climate impacts of meat consumption: The effect of values and message framing. *Global Environmental Change*, 44, 98-108. doi:10.1016/j.gloenvcha.2017.03.004
- 17) Groot, J. I. M. D., & Steg, L. (2007). VALUE ORIENTATIONS AND ENVIRONMENTAL BELIEFS IN FIVE COUNTRIES: Validity of an Instrument to Measure Egoistic, Altruistic and Biospheric Value Orientations Judith. *Journal of Cross-Cultural Psychology*. doi:10.1177/0022022107300278
- 18) Hansla, A. (2011). Value orientation and framing as determinants of stated willingness to pay for eco-labeled electricity. *Energy Efficiency*, 185-192. doi:10.1007/s12053-010-9096-0
- 19) Hansla, A., Gärling, T., & Biel, A. (2013). Attitude toward environmental policy measures related to value orientation. *Journal of Applied Social Psychology*, 43(3), 582-590. doi:10.1111/j.1559-1816.2013.01038.x
- 20) Hughes, L., & Lipsy, P. Y. (2013). The politics of energy. *Annual Review of Political Science*, 16.
- 21) Jacobsson, S., & Lauber, V. (2006). The politics and policy of energy system transformation—explaining the German diffusion of renewable energy technology. *Energy Policy*, 34(3), 256-276.
- 22) Jahn, D. (1998). Environmental performance and policy regimes: Explaining variations in 18 OECD-

countries. *Policy sciences*, 31(2), 107-131.

- 23) Joop de Boer *, C. T. H. J. B. I. (2007). Towards more sustainable food choices : Value priorities and motivational orientations. *Food Quality and Preference*, 18, 985-996. doi:10.1016/j.foodqual.2007.04.002
- 24) Karp, D. G. (1996). Values and their Effect on Pro-Environmental Behavior. *ENVIRONMENT AND BEHAVIOR*. doi:10.1177/0013916596281006
- 25) Kiage, L. M. (2013). Perspectives on the assumed causes of land degradation in the rangelands of Sub-Saharan Africa. *Progress in Physical Geography*, 37(5), 664-684. doi:10.1177/0309133313492543
- 26) Klineberg, S. L., McKeever, M., & Rothenbach, B. (1998). Demographic predictors of environmental concern: It does make a difference how it's measured. *Social Science Quarterly*, 734-753.
- 27) Lambin, E. F., Meyfroidt, P., Rueda, X., Blackman, A., Bo, J., Cerutti, P. O., . . . Wunder, S. (2014). Effectiveness and synergies of policy instruments for land use governance in tropical regions. *Global Environmental Change*, 28, 129-140. doi:10.1016/j.gloenvcha.2014.06.007
- 28) Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, 18(6), 503-520. doi:10.1108/EUM00000000006155
- 29) Liu, Y. (2018). Introduction to land use and rural sustainability in China. *Land Use Policy*, 74(December 2017), 1-4. doi:10.1016/j.landusepol.2018.01.032
- 30) Lubell, M. (2003). Collaborative institutions, belief-systems, and perceived policy effectiveness. *Political research quarterly*, 56(3), 309-323.
- 31) Nilsson, A., & Biel, A. (2008). Acceptance of Climate Change Policy measures: Role framing and value guidance. *European Environment*, 18(4), 203-215. doi:10.1002/eet.477
- 32) Nilsson, A., Hansla, A., Malmborg, J., Jakobsson, C., & Martinsson, J. (2016). Public acceptability towards environmental policy measures : Value-matching appeals. *Environmental Science and Policy*, 61, 176-184. doi:10.1016/j.envsci.2016.04.013
- 33) Nilsson, A., von Borgstede, C., & Biel, A. (2004). Willingness to accept climate change strategies: The effect of values and norms. *Journal of Environmental Psychology*, 24(3), 267-277. doi:10.1016/j.jenvp.2004.06.002
- 34) Oduori, S. M., Rembold, F., Abdulle, O. H., & Vargas, R. (2011). Assessment of charcoal driven deforestation rates in a fragile rangeland environment in North Eastern Somalia using very high resolution imagery. *Journal of Arid Environments*, 75(11), 1173-1181. doi:10.1016/j.jaridenv.2011.05.003
- 35) Omuto, C. T., Balint, Z., & Alim, M. S. (2011). A Framework for national assessment of land degradation in the drylands: A case study of somalia. *Land Degradation and Development*, 25(2), 105-119. doi:10.1002/ldr.1151
- 36) Pleger, L. E. (2017). Voters' acceptance of land use policy measures: A two-level analysis. *Land Use Policy*, 63, 501-513. doi:10.1016/j.landusepol.2017.02.001
- 37) Pleger, L. E., Lutz, P., & Sager, F. (2018). Public acceptance of incentive-based spatial planning policies:

- A framing experiment. *Land Use Policy*, 73(January), 225-238. doi:10.1016/j.landusepol.2018.01.022
- 38) Reinikainen, J., Sorvari, J., & Tikkanen, S. (2016). Finnish policy approach and measures for the promotion of sustainability in contaminated land management. *Journal of Environmental Management*, 184, 108-119. doi:10.1016/j.jenvman.2016.08.046
- 39) Rembold, F., Oduori, S. M., Gadain, H., & Toselli, P. (2013). Mapping charcoal driven forest degradation during the main period of al shabaab control in southern somalia. *Energy for Sustainable Development*, 17(5), 510-514. doi:10.1016/j.esd.2013.07.001
- 40) Rhodes, E., Axsen, J., & Jaccard, M. (2017). Exploring Citizen Support for Different Types of Climate Policy. *Ecological Economics*, 137, 56-69. doi:10.1016/j.ecolecon.2017.02.027
- 41) Rissman, A. R., Kohl, P. A., & Wardropper, C. B. (2017). Public support for carrot, stick, and no-government water quality policies. *Environmental Science and Policy*, 76(November 2016), 82-89. doi:10.1016/j.envsci.2017.04.012
- 42) Sallaba, F., Olin, S., Engström, K., Abdi, A. M., Boke-Olén, N., Lehsten, V., . . . Seaquist, J. W. (2017). Future supply and demand of net primary production in the Sahel. *Earth Syst. Dynam.*, 8(4), 1191-1221. doi:10.5194/esd-8-1191-2017
- 43) Sapat, A. (2004). Devolution and innovation: The adoption of state environmental policy innovations by administrative agencies. *Public Administration Review*, 64(2), 141-151.
- 44) Ščasný, M., Zvěřinová, I., Czajkowski, M., Kyselá, E., & Zagórska, K. (2017). Public acceptability of climate change mitigation policies: a discrete choice experiment. *Climate Policy*, 17(0), S111-S130. doi:10.1080/14693062.2016.1248888
- 45) Schultz, P. W., Gouveia, V. V., Cameron, L. D., Tankha, G., Schmuck, P., Franek, M., . . . Cameron, L. D. (2005). Values and their Relationship to Environmental Concern and Conservation Behavior. *Journal of Cross-Cultural Psychology*. doi:10.1177/0022022105275962
- 46) Schultz, P. W., & Zelezny, L. (2003). Reframing environmental messages to be congruent with American values. *Human ecology review*, 126-136.
- 47) Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25(C), 1-65. doi:10.1016/S0065-2601(08)60281-6
- 48) Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology*, 32(5), 519-542. doi:10.1177/0022022101032005001
- 49) Stankey, G. H., & Shindler, B. (2006). Formation of social acceptability judgments and their implications for management of rare and little-known species. *Conservation Biology*, 20(1), 28-37.
- 50) Suarez, A., Árias-Arévalo, P. A., & Martínez-Mera, E. (2018). Environmental sustainability in post-conflict countries: insights for rural Colombia. *Environment, Development and Sustainability*, 20(3), 997-1015. doi:10.1007/s10668-017-9925-9

- 51) Toke, D. (2005). Explaining wind power planning outcomes:: some findings from a study in England and Wales. *Energy Policy*, 33(12), 1527-1539.
- 52) UNFPA. (2014.). Population Estimation Survey 2014. Retrieved from
- 53) Van Gossum, P., Arts, B., & Verheyen, K. (2012). “Smart regulation”: Can policy instrument design solve forest policy aims of expansion and sustainability in Flanders and the Netherlands? *Forest Policy and Economics*, 16, 23-34.
- 54) Van Gossum, P., Ledene, L., Arts, B., De Vreese, R., Van Langenhove, G., & Verheyen, K. (2009). New environmental policy instruments to realize forest expansion in Flanders (northern Belgium): A base for smart regulation? *Land Use Policy*, 26(4), 935-946. doi:10.1016/j.landusepol.2008.11.005
- 55) Vedung, E., Rist, R. C., & Bemelmans-Videc, M.-L. (1998). Carrots, sticks & sermons: policy instruments and their evaluation: Transaction publishers.
- 56) Waaben Thulstrup, A., Habimana, D., Joshi, I., & Mumuli Oduori, S. (2018). Uncovering the challenges of domestic energy access in the context of weather and climate extremes in Somalia. *Weather and Climate Extremes*(September), 100185-100185. doi:10.1016/j.wace.2018.09.002
- 57) Williams, K. (2011). Relative acceptance of traditional and non-traditional rural land uses: Views of residents in two regions, southern Australia. *Landscape and Urban Planning*, 103(1), 55-63. doi:10.1016/j.landurbplan.2011.05.012
- 58) Williams, K. J. H. (2014). Public acceptance of plantation forestry: Implications for policy and practice in Australian rural landscape. *Land Use Policy*, 38, 346-354. doi:10.1016/j.landusepol.2013.11.023



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