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## **Participation of civil society in decisions to mitigate environmental degradation in post-conflict societies: evidence from Somalia**

Osman M. Jama <sup>a,b</sup>, Guijian Liu <sup>\*,a,c</sup>, Abdishakur W. Diriye <sup>a</sup>, Balal Yousaf <sup>c</sup>,  
Ibrahim Basiru <sup>a</sup> and Abdulkhakim M. Abdi <sup>d</sup>

<sup>a</sup>*School of Public Affairs, University of Science and Technology of China, Hefei, People's Republic of China;* <sup>b</sup>*Department of Public Administration, Faculty of Economics and Management Science, Mogadishu University, Mogadishu, Somalia;* <sup>c</sup>*School of Earth and Space Sciences, University of Science and Technology of China, Hefei, People's Republic of China;*

<sup>d</sup>*Centre for Environmental and Climate Research, Lund University, Lund, Sweden*

The question of the degree to which participation by civil society contributes to environmental decisions in post-conflict societies has received little attention. This study sheds light on the extent to which degrees of participation contribute to environmental decision-making in the Puntland State of Somalia using questionnaire surveys. We found that *active participation* has the highest contribution to environmental decisions. Our findings also indicated that the most pressing forms of environmental degradation in Puntland, as perceived by the respondents, are land degradation, drought related to the scarcity of rainfall, and deforestation. This study recommends “environmental cooperation” built into the peace-building process as a clear-cut concept to tackle both environmental degradation and conflicts. At the core of this concept is *active participation* and collaboration between civil society and the government as a means of mitigating environmental degradation in post-conflict Somalia. This will result in favorable environmental conditions and sustainable peace.

**Keywords:** Somalia; Puntland; civil society; environmental degradation; post-conflict

### **1. Introduction**

Principle 10 of the Rio Declaration on Environment and Development sets out three “Procedural Environmental Rights”, which are (1) access to information, (2) access to participation, and (3) access to environmental justice, as key mainstays of sound environmental decisions (Salamon, Sokolowski, and List 2003). With regards to these fundamental rights, greater civil society participation has been advocated both in the academic literature and policy discussions (Betsill and Elisabeth 2008; O’Faircheallaigh 2010).

In recent years, there has been an increase in developing countries putting forward policies allowing civil society participation in environmental policy-making. This increase has been the result of both civil societies’ request for full participation in the environmental decisions that impact their lives and government recognition of the importance of civil society involvement in the environmental policy-making process (Charnley and Engelbert 2005). For instance, there has been an increase in participatory

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\*Corresponding author. Email: [lgj@ustc.edu.cn](mailto:lgj@ustc.edu.cn)

environmental decision-making in some African countries as a result of dissatisfaction with “top-down” government methods in environmental governance (AfDB 2016). These increases are thought to be caused by two factors. The first is the failure of African states to prevent over-exploitation and ineffective utilization of natural resources, and the second is frustration over the ineffectiveness of government-run conservation projects. As a result, civil society participation has become an emerging matter of interest in Africa. Numerous African countries and regions have started initiatives to stimulate civil society participation in environmental issues (AfDB 2016). Increased participation in environmental decisions is particularly important in post-conflict countries such as Somalia where public institutions and rule of law have entirely broken down and environmental degradation has developed into a pressing state of affairs that needs to be mitigated (Menkhaus 2007, 2014).

Although civil society cannot fulfill all roles that government plays in post-conflict transitions, civil society organizations provide an important role in post-conflict contexts, both in conservation and environmental protection in the absence of effective state reach and in rebuilding the relationship between the state and broader society (Fagan 2006). Studies have shown that participation by civil society is one of the most vital issues that determines whether post conflict initiatives will be successful and sustainable (Francois 2017). For instance, while state officials or international leaders can be ignorant of the impact of the cultural context under which they are implementing a post-conflict initiative, participation by civil society may allow them to understand the cultural context of specific community attributes (Parver *et al.* 2008).

Empirical research has found that participation by civil society as a stakeholder in environmental issues leads to better environmental decision-making (Challies *et al.* 2017; Reed 2008; Newig and Fritsch 2009; Charnley and Engelbert 2005). Although some scholars point out that participation by civil society can, in certain conditions, lead to negative effects (Newig *et al.* 2018). For instance, Cooper and Elliott (2003) reported in the Philippines that there were cases where civil society members pursued their self-interest, which led to conflicts and opposition within the community. In Indonesia and Malaysia, participation based on face-to-face and interpersonal relations with government institutions caused conflict between civil society organizations in areas where projects were supposed to be implemented and government institutions that run the projects (Boyle 1998). Thus, some observers have argued that the success of participation would be evaluated by its capacity to improve environmental decisions and not by the participation itself (Beierle and Cayford 2002).

However, the question of the degree to which participation contributes to environmental decisions in post-conflict societies is surprisingly unanswered, or has received little attention (Beierle and Cayford 2002; Newig 2007). The situation in Somalia is particularly unexplored due to the ongoing 28-year conflict. With that in mind, the objective of this study is to explore the extent to which degrees of participation contribute to environmental decision-making in the Puntland State of Somalia.

The first step in examining civil society participation in the context of post-conflict environmental scenarios is describing exactly what types of civil society exist, who the participants are, and how the participation is performed. Thus, in the broadest sense, civil society has been defined as an aggregate of non-state actors unconstrained by government interference of any form (Salamon, Sokolowski, and List 2003; Gemmil and Bamidele-Izu 2002). According to the United Nations Commission on Sustainable Development, this definition includes non-governmental organizations (NGOs), community-based organizations (CBOs), faith-based organizations, environmental groups,

think tanks, workers and trade unions, academics, business associations, media, women's associations, and youth groups. On the other hand, participation in post-conflict settings is understood to be implemented in a three-dimensional way, where the public authorities or international organizations extend the decision-making process to a range of stakeholders or actors such as experts, representatives of organized groups or individual citizens. This formulates communication and collaboration where the direction of interaction is a one-way delivery of information and the power delegation of the participants to influence the environmental decision-making is limited (Aitken 2010).

This study examines the degrees to which civil society participation contributes to environmental decisions in post-conflict Somalia and perceptions of environmental degradation in Somalia. In particular, this study emphasizes how collaborative solving of environmental problems could aid the recovery process by providing an important opportunity to promote good governance. This is done by addressing lawlessness, repairing trust, improvement in the legitimacy of governing institutions, and simultaneously creating favorable environmental conditions and sustainable peace.

The remainder of this article is as follows: In the second section, we describe the theoretical background followed by the status of Somali civil society. In the third section, we report on the methodology, including hypotheses and statistical modeling. In the fourth section, the results are presented. In the fifth section, the results are discussed within a broader context and in relation to other studies. In the sixth section, the conclusion, implications and limitations are presented.

## **2. Theoretical background**

### ***2.1. Environmental peace-building***

A mounting body of literature on environmental conflict has examined the potential linkage between environmental degradation, resource scarcity, and conflict (Buchanan 2013; Farrell 2017), but arguably a significant restriction of this theory has been its inability to identify the existence of opportunities for cooperation between the actors in a coupled human-environment system (Conca and Dabelko 2002). An emergent alternative theory is that environmental degradation has the potential to lead environmental cooperation resulting in lasting peace (Conca and Wallace 2009; Ide 2017). The theory of environmental peace-building has put forward three strands of scholarship in which environmental cooperation may generate peace-building opportunities (Ogden 2018). The first concerns the prospect that environmental cooperation in places with environmental security can encourage common-pool resource management and conservation initiatives (Ogden 2018; Conca and Wallace 2009; Ide 2018; Conca and Dabelko 2002). Such initiatives can contribute to the prevention of conflicts that occur due to the over-exploitation of natural resources or livelihood insecurities due to environmental pressure (Ide 2017). The second is that collective environmental concerns can lead to a dialogue between conflicting interests, which can then spill over into different areas (Ogden 2018; Conca and Wallace 2009; Ide 2018; Conca and Dabelko 2002). For instance, the UN identifies environmental degradation as a risk factor for violent conflict, while environmental protection of common resources is recognized as a mechanism to build peace (Conca and Wallace 2009). The third is the notion that even conflicts where environmental degradation is not the root cause of the armed conflict, continuous environmental monitoring and environmental cooperation between the communities and governments can promote sustainable peace (Carius 2006; Conca and

Wallace 2009; Conca and Dabelko 2002; Ogden 2018). The majority of environmental cooperation practices have been observed in transboundary international conflicts such as Palestine and Israel (Ide 2017), Peru and Ecuador (Kakabadse, Caillaux, and Dumas 2016), Serbia and Croatia (Ruckstuhl 2010), India and Pakistan (Ali 2013), and Armenia and Azerbaijan (Carius 2006). However, there are some successful cases within individual countries where non-state actors, as representatives of the larger community, worked jointly with the government to manage shared natural resources and that cooperation between non-state actors and the government prevented the eruption of violent conflict. In Yemen, for instance, rival communities worked with non-state actors and established a proper cooperative mechanism to protect shared water resources, which mitigated disputes linked to water scarcity (Taher *et al.* 2012). Similar cases have been reported from Kenya (Adano *et al.* 2012), Ethiopia (Bogale and Korf 2007), Afghanistan, Liberia and DR Congo (Burt and Keiru 2011).

## 2.2. *The status of Somali civil society*

Before the collapse of the Somali state in 1991, it was questionable whether the notion of civil societies existed in the country, because community structures that were self-assured and autonomous from the state were rare (Paffenholz and Spurk 2006). During the tenure of Siad Barre (1969–1991), fully independent civil society organizations were forbidden and those that existed were under the patronage of the state (Harvey 1998). One of the earliest civil society organizations was created in the early 1980s as a response to the humanitarian crisis in the Ogaden region, which resulted from the Somali-Ethiopian War of 1977. By the late 1980s, there were only around 15 local NGOs in the entire country, which increased to over 320 NGOs by 1995 (UNDP 2001). This growth of civil society organizations followed the collapse of the Somali state and the subsequent famine of 1991–1992. With the disappearance of the state, a vibrant civil society emerged and the traditional concept of civil society was challenged and gradually sidelined by a different approach in the form of umbrellas of non-state actors (NSAs). These NSAs had categories such as non-governmental organizations, religious organizations, social and community organizations, environmental organizations, and professional associations (e.g. lawyers, journalists, teachers, etc.).

In the relatively stable regions of Puntland and Somaliland, a vibrant civil society emerged that filled the public service gap (UNDP 2001), and civic or community organizations were increasingly regarded as non-state actors (Menkhaus 2014). The protection, monitoring, advocacy, social cohesion, ecosystem service delivery and environmental awareness by civil society organizations such as African Development Solutions (ADESO) and Candlelight for Health, Education and Environment (CHEE) had been commonplace for protecting the environment. For instance, in Puntland, the advocacy work of ADESO reached a notable accomplishment after the state banned the export of charcoal in 2002, which was driving deforestation in the area (Oduori, Alim, and Gomes 2006). ADESO also introduced solar cooking technology to promote the use of parabolic solar cookers as part of its anti-charcoal campaign. On the other hand, CHEE was heavily involved in the rehabilitation of grazing and forestry resources in Somaliland. These results are due to both organizations efficiently mobilizing local community environmental awareness, collecting and disseminating information, policy consultation, development and implementation, assessment and monitoring, advocacy for environmental justice, and maintaining general public support

(Malinowski 2014; Gemmil and Bamidele-Izu 2002). Albeit civil society accomplished these social services in a voluntary capacity, their inclusion in the different peace-building, democratization and reconciliation processes has yielded positive results in both Puntland and Somaliland (UNDP 2014). The rising influence of civil society seems to be encouraged by the absence of strong central governance in Somalia, yet little is known about their access to environmental decision-making.

### 3. Methodology

#### 3.1. Description of the study area

This study was conducted in the Puntland State of Somalia, an autonomous region under the Federal Republic of Somalia (Figure 1). It lies in an arid area that borders the Gulf of Aden to the north, Somaliland to the west, Ethiopia to the southwest, and the Indian Ocean to the east. According to the latest (2017) report from the Puntland department of statistics<sup>1</sup> under the Ministry of Planning, and International Cooperation,

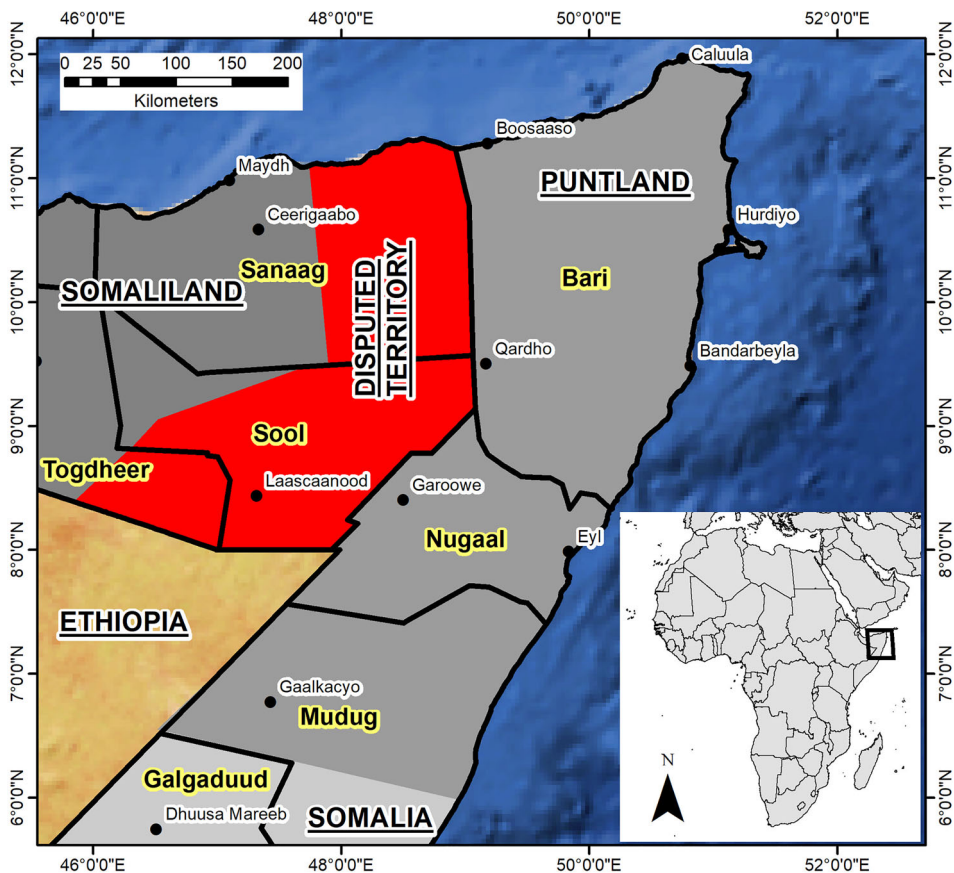


Figure 1. Map of the study area. The Puntland State of Somalia (medium grey) forms the “horn” portion of the Federal Republic of Somalia. The self-declared Republic of Somaliland (dark grey), which is internationally recognized as part of Somalia, is to the west of Puntland and there is a disputed territory (red) between these two Somali Sub-regions. The rest of Somalia (light grey) lies to the South. Colour online.

the population of Puntland is 4,334,633. Thirty-nine percent of the population comprises pastoral nomads, 38% are urban, 20% are rural, and 3% live in camps for internally displaced people (IDPs). The productivity of crops and pasture in Puntland is dependent on erratic rainfall that is under the influence of large-scale climatic teleconnections such as the El Niño-Southern Oscillation (Abdi *et al.* 2016) and the Indian Ocean Dipole (Marchant *et al.* 2007). The average annual temperature is 30°C, but can reach 47°C along the coastal zones, and average annual rainfall is around 180mm. Droughts occur every 2–3 years and are often followed by seasonal floods in the dry river valleys.

### 3.2. Data collection

The principal research tool was a survey questionnaire. The questionnaires contained three main sections. The first section was aimed at gathering the demographic characteristics of the respondents. The second section related to the perceptions of the respondents regarding their environment. In this section, different questioning techniques were used, such as Likert scale, polar questions and multiple response, to understand respondents' perceptions of environmental degradation, their environmental awareness, participation and influence in environmental decision-making, and their ideas on the entity responsible for tackling environmental degradation. These were supplemented by follow-up questions contingent on respondent answer. The third section related to the causal model containing four Likert scale subsections comprising a total of sixteen items based on a scale ranging from "strongly agree" to "strongly disagree."

A pilot study was deployed with a small number of recipients ( $n = 30$ ) before commencing the full data collection to enhance the clarity and reliability of the survey. The primary data collection was conducted using both online and printed questionnaires. Initial emails were sent to the target civil society members in order to introduce the research purpose, basic instructions of how to complete the online survey form, and the link to the online questionnaire which was written in clear and concise language that was easily understandable (see survey questionnaire in the [Supplementary material](#)). We chose an online survey as our main data gathering instrument considering its advantages such as time, cost, reduction in data entry error and accessibility as 68% of our target demographic, i.e. educated Somalis, use the Internet on a weekly basis (USAGM 2013). We also distributed paper-based survey questionnaires as an alternative to the online forms. Secondary data were collected through accessible online databases (i.e. Web of Science, Scopus, Google Scholar, and the University of Science and Technology's Online Library).

Before we conducted the survey, we calculated the sample size according to the number of variables and parameters in the survey questionnaire (Bruce and Chambers 2002; Loehlin 2004). We followed the approach by Wang *et al.* (2019) and computed a sample size of 640 based on our 4 variables and 16 parameters (see survey questionnaire in the [Supplementary material](#)). Between November and December 2018, we sent 640 invitations to civil society members under the umbrella of Puntland Non-State Actors Association (PUNSAA), asking them to participate in the study. PUNSAA was chosen as a sample source because it has been shown that civil society organizations who are members of umbrella associations are regularly active in government policy-making (EUSU 2012). We did not include traditional elders as civil society members, since our target respondents were younger, educated Somalis. Furthermore, there is doubt about traditional elders being a separate organized civil society group (Menkhaus 2003).



The members were given the choice to respond online, through an online questionnaire survey platform ([www.jotform.com](http://www.jotform.com)), or using printed questionnaires that were distributed in the field. We received a total of 289 responses, of which 267 were completed online and 21 were completed through using paper. The majority of the responses were from the Nugaal, Bari, and Mudug regions. So, to increase the response rate and encourage an equitable treatment of underrepresented civil society members we sent another round of reminder invitations (320) in January 2019 and we received 61 completed responses, of which 13 were paper responses and 48 were online responses. Altogether, we received 350 responses: 316 online and 34 on paper. Thirty-seven were discarded due to missing values and our final set was 313 complete responses to use for further analysis.

### 3.3. Statistical analysis

The variables included in the statistical analysis are provided in [Table 1](#). First, we used Pearson's product-moment correlation to check the presence of relationships between variables. Then, we used a stepwise regression analysis that consists of a forward component to measure the contribution of predictors, and a backward component to identify and drop the variable that has the least influence on the response. The objective of this analysis was to choose the combination that explains the most variance in the response.

Before running the regression, we checked the data for normality and assessed the variables for multicollinearity using the variance inflation factor (VIF). Since the sample size is relatively small, we built regression models for each independent variable to determine the predictor that contributes the most to the response variable. The variables in the regression analysis are defined as follows:

environmental decisions ( $Y$ ): A process of assessing how social, political, and governing systems affect the natural environment in order to create a win-win situation for environment and society (Welp, Kasemir, and Jaeger 2009).

information ( $X_1$ ): A passive one-way relationship whereby the government disseminates information on policy (OECD 2001).

consultation ( $X_2$ ): A limited participation whereby the government asks for, and obtains, citizen feedback on policy through discussions, comments, expression of public opinion, and surveys (OECD 2001).

active participation ( $X_3$ ): A two-way communication based on the principle of partnership, whereby organized citizens actively engage in the decision-making process

Table 1. Means, standard deviations (SD), and Pearson correlations ( $r$ ) among environmental decisions (ED), information (I), consultation (C), active participation (AP).

Variable	Mean	SD	ED	I	C	AP
Environmental decisions	1.881	0.557	1			
Information	2.927	0.66	0.146**	1		
Consultation	2.373	0.665	0.345**	0.314**	1	
Active Participation	2.321	0.567	0.509**	0.268**	0.372**	1

Note: \*\*Correlation is significant at the 0.01 level.

by proposing policy options and the responsibility for policy formulation and implementation rests under the government (OECD 2001). This variable signifies the involvement of civil society in the governance system, particularly in the environmental decision-making process, for the purpose of exerting influence in the final decisions or simply inclusiveness at its highest level.

The null hypothesis (H<sub>0</sub>) is that none of the independent variables significantly contribute to Y. The alternative hypothesis (H<sub>a</sub>) is that at least two of the independent variables significantly contribute to Y. Thus, the multiple linear regression is represented in Equation (1) as:

$$y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

where  $y$  is the response variable (environmental decisions);  $\beta_0$  is the intercept;  $\beta_1$  is the coefficient of first predictor  $X_1$  (information);  $\beta_2$  is the coefficient of second predictor  $X_2$  (consultation);  $\beta_3$  is the coefficient of third predictor  $X_3$  (active participation);  $\varepsilon$  is an error term.

Consolidating the multiple linear regression with our hypothesis yields:

$$H_0 = \beta_1 + \beta_2 + \beta_3 = 0$$

**Ha** = At least one paired combination of  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  does not equal to 0

## 4. Results

### 4.1. Respondent demography

As presented in Table 2, participants of the study were dominated by male respondents ( $n = 234$ , 74.8%) compared to female respondents ( $n = 79$ , 25.2%). The dominance of male respondents could be due to the fact that girls generally have fewer opportunities for education than boys in Somalia (UNICEF 2017); and this disparity remains as children get older. The age of the majority of respondents was between 18 and 50 years ( $n = 296$ , 94.5%). The respondents in the study were reasonably well-educated. Eighteen (5.7%) had attained education up to high school, 36 (11.5%) had a diploma, 139 (44.4%) had a bachelor degree, 113 (36.1%) had a master's degree, and 7 (2.2%) had a doctorate. Respondents were generally from the major cities of Puntland and all the sub-regions were represented: Mudug ( $n = 60$ , 19%), Nugaal ( $n = 96$ , 38%), Bari ( $n = 66$ , 21%), Sanaag ( $n = 36$ , 12%), Sool ( $n = 30$ , 10%), others ( $n = 25$ , 8%). All the participants in the study were members of civil society organizations. They were subdivided into community organizations (20.8%), NGOs (16.6%), business associations (14.1%), academia (12.1%), professional associations (10.9%), policy think tanks (9.6%), human rights groups (4.5%), women's associations (2.2%), faith-based organizations (1%), trade unions (0.6%), and others (7.7%).

### 4.2. Responses to key questions on environmental degradation

Overall awareness of the respondents to environmental degradation indicates 75% of male and 25% of female respondents are aware of degradation taking place in their environment (Figure 2). We did not find a major difference in views between male and female respondents concerning their awareness of environmental degradation,



Table 2. Demographics of the survey participants.

Variable	<i>N</i>	Percentage, %	Variable	<i>N</i>	Percentage, %
Gender			Age		
Male	234	74.8	18–30	146	46.6
Female	79	25.2	31–40	122	39
			41–50	28	8.5
			51–60	16	5.1
			61+	1	0.3
Education			Civil Society		
High School	18	5.5	Community organizations	65	20.8
Diploma	36	11.3	NGO	52	16.6
Bachelor degree	139	44.4	Business associations	44	14.1
Master's degree	113	36.1	Academia	38	12.1
Doctorate	7	2.2	Professional associations	34	10.9
			Policy think tanks	30	9.6
			Human rights groups	14	4.5
			Women's associations	7	2.2
			Faith-based organizations	3	1
			Trade unions	2	0.6
			Others	24	7.7
			Total	313	100

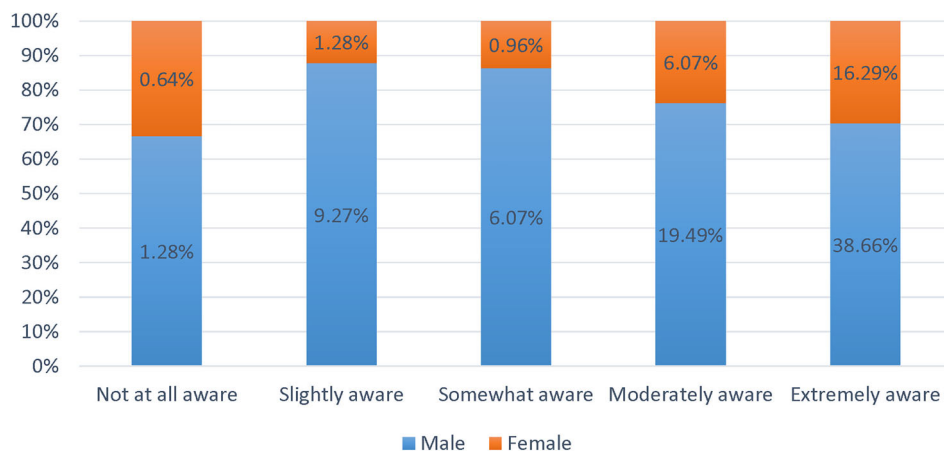


Figure 2. Level of environmental awareness amongst the survey participants. These figures are among the 75% of male and 25% of female respondents who are aware of environmental degradation.

since the total number of females in the study is lower than that of males. Out of the 75% of male respondents, 39% were extremely aware, 20% were moderately aware, 6% were somewhat aware, 9% were slightly aware and 1% of them were not aware of environmental degradation. Whereas for the 25% of female respondents, 16% were extremely aware, 6% were moderately aware, and 3% of the respondents were somewhat aware, slightly aware or not aware of environmental degradation.

The specific concerns of the respondents regarding the environment in Puntland are shown in Figure 3. The respondents ranked the most serious environmental concern in the state as land degradation (93.9%) followed by drought related to rainfall (81.6%), deforestation (81.3%), desertification (63.5%), water scarcity related to

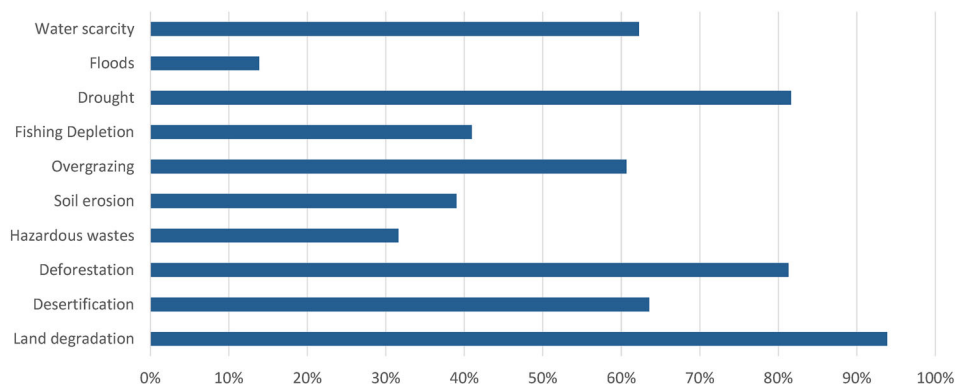


Figure 3. The most prominent forms of environmental degradation in Puntland as perceived by the survey respondents. Of these, land degradation (93.9%), drought related to rainfall (81.6%), and deforestation (81.3%) were the most pressing in the region.

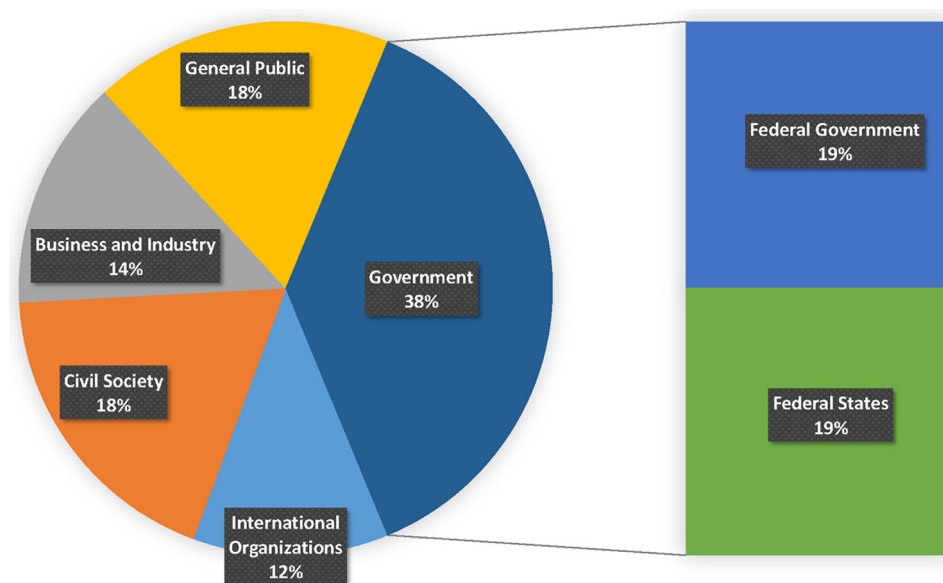


Figure 4. Respondent perceptions regarding the attribution of responsibility for tackling environmental degradation.

groundwater (62.3%), overgrazing (60.6%), depletion of fish stocks (41%), soil erosion (39%), hazardous waste disposal (31.6%), and floods (13.9%).

Regarding the responsibility for mitigating environmental degradation, 38% of the respondents identified state and federal governments as having the highest degree of responsibility (Figure 4). This was followed by civil society (18%), the general public (18%), business and industry (14%), and international organizations (12%).

Figure 5 presents the respondents' opinions regarding the influence of civil society in the environmental decision-making process. Overall, 51.1% of the respondents believe civil society is slightly influential, 30.7% not at all influential, 4.2% somewhat influential, while only 14% believe civil society is either extremely or very influential in environmental decisions in Puntland.

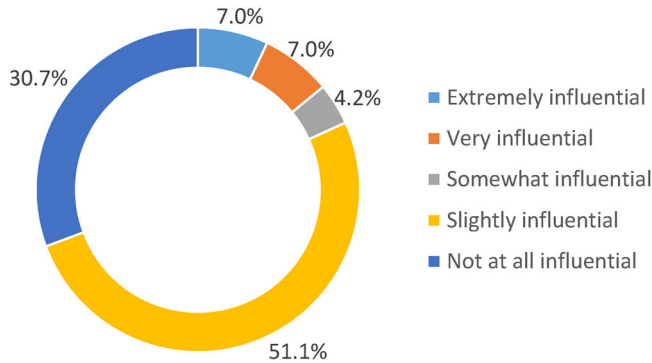


Figure 5. Perception of the respondents about the influence of civil society in environmental decisions.

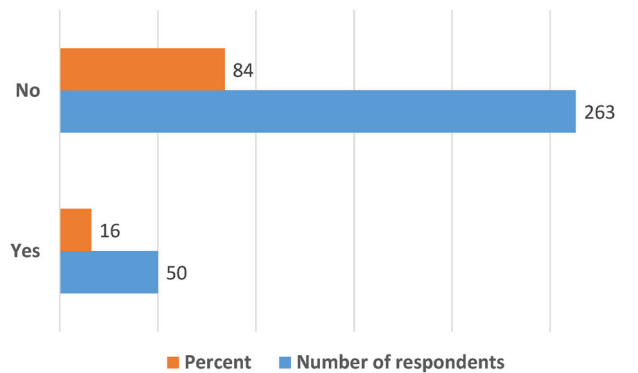


Figure 6. The participation of the respondents in environmental decision-making.

Respondents were also asked whether they have participated in an environmental decision-making process (Figure 6). We found a large difference in response, where 84% of the respondents indicated that they have never participated in an environmental decision-making process, while only 16% indicated that they have participated. Following up this question, respondents considered the causes of this inadequacy in participation as follows: 31% indicated that there are no government–citizen relationships in Puntland, 30% perceive that the government does not consider civil society input as important, 15% perceive that civil society is not capable of contributing to decisions, 13% perceive that there is an absence of adequate resources to influence decisions, and 10% said it is costly and delays the decision-making process (Figure 7).

#### 4.3. Descriptive statistics and multiple regression

The descriptive statistics for the selected variables are presented in Table 1. All the mean values of the variables were lower than the mid-point of 3, indicating that the respondents in the survey largely showed a negative perception towards civil society participation. This can be inferred through limited access to *information*, a low level of *consultation* and lack of *active participation* that may negatively affect the *environmental decisions*.

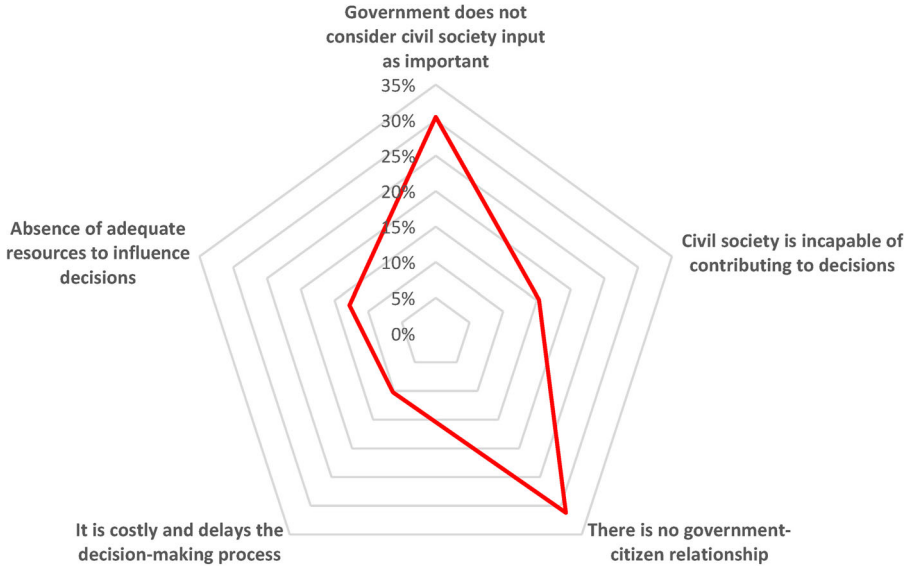


Figure 7. Perception of the respondents about the causes of civil society limited participation in environmental decision-making.

The Pearson correlations in Table 1 show that environmental decisions have a moderately positive correlation with both *consultation* ( $r=0.345$ ) and *active participation* ( $r=0.509$ ), whereas it has a weak positive correlation with *information* ( $r=0.146$ ). The correlations between all the variables show significant probability values ( $P < 0.05$ ). VIF values were below 0.6, which indicates that multicollinearity is not an issue in this study and further analysis can be applied.

In the first step of the forward regression we included *information* as an explanatory predictor in Model 1 ( $\beta_1 = 0.146$ ,  $P < 0.05$ ). The next explanatory variable was *consultation*, which was included in Model 2 and Model 3. It maintained a significant beta coefficient in Model 2 ( $\beta_2 = 0.332$ ,  $P < 0.001$ ), but decreased in magnitude in Model 3 ( $\beta_2 = 0.189$ ,  $P < 0.001$ ). The addition of the final variable, *active participation*, in Model 3 produced the highest  $\beta$  value ( $\beta_3 = 0.448$ ,  $P < 0.001$ ), but this altered the sign of our first predictor, *information*, and rendered it insignificant ( $\beta_1 = -0.33$ ,  $P > 0.05$ ). Thus, we eliminated *information* from our model.

Model 3 resulted in a coefficient of variation ( $R^2$ ) of 0.281, and was statistically significant ( $F$ -test = 41.7,  $P < 0.001$ ) (Table 3). This indicates that 28% of the variance in *environmental decisions* is explained by the model. The remaining 72% could be due to other factors that are not part of our analysis.

As shown in Table 4, the backward stepwise regression excluded *information* from the analysis due to its poor performance in the forward regression phase. Model 2 shows *consultation* ( $\beta_2 = 0.181$ ,  $P < 0.001$ ) and active participation ( $\beta_3 = 0.442$ ,  $P < 0.001$ ) as statistically significant. Therefore, we reject the null hypothesis and accept the alternative hypothesis. The final model in Equation (2) shows that the two most important predictor contributors for environmental decisions are consultation ( $X_2$ ) and active participation ( $X_3$ ):

$$y = 0.514 + 0.181 * X_2 + 0.442 * X_3 \quad (2)$$

Table 3. Step-wise forward regression analysis.

Variable	Model 1	Model 2	Model 3
Information	0.146*	0.42	-0.33
Consultation		0.332***	0.189***
Active participation			0.448***
F-value	6.758*	21.274***	41.722***
R <sup>2</sup>	0.018	0.115	0.281

Note: Dependent variable: environmental decisions.

\* $P \leq 0.05$ , \*\* $P \leq 0.01$ , \*\*\* $P \leq 0.001$ .

Table 4. Step-wise backward regression analysis.

Model	Unstandardized coefficients		Standardized coefficients		
	B	Std. err.	$\beta$	T	P
1. (Constant)	0.567	0.151		3.760	0.000
Information	-0.028	0.043	-0.033	-653	0.514
Consultation	0.158	0.045	0.189	3.547	0.000
Active Participation	0.440	0.052	0.448	8.530	0.000
2. (Constant)	0.514	0.127		4.045	0.000
Consultation	0.151	0.43	0.181	3.496	0.000
Active Participation	0.434	0.051	0.442	8.553	0.000

Note: Dependent variable: environmental decisions.

## 5. Discussion

### 5.1. Degrees of participation in environmental decisions

We evaluated the degrees of participation that exist in the study area in order to identify the ones that can have the most impact on the decisions to mitigate environmental degradation. The results indicated that information has the least contribution to environmental decisions and is inconsistent with previous studies (Langer, Decker, and Menrad 2017; Rollason *et al.* 2018; Tang, Wong, and Lau 2008). The possible reasons for this inconsistency can be explained as follows. First, participation in Somalia is often limited to the dissemination of information by means of holding workshops, which is a one-way type of communication where the government provides information without feedback. The participants in these workshops receive incentives if they participate. So, for the participants it becomes a means of earning income and for the government it is part of the process to legitimize their decisions. This form of participation is contrary to the fundamental principles of participation where governments hold participatory activities so that public input plays a valuable role in ensuring environmental decision-makers are aware of the full array of policy options (Richards, Allenby, and Compton 2001; Rowan-Robinson *et al.* 1996). In return, it eliminates potential conflicts that can hinder policy or project implementation. The “shadow participation” in which Somalia’s public authorities offer a quid pro quo to gain public acceptance has been deemed by researchers as “problematic and challenging,” (Armeni 2016, 416) and “makes normative and practical rationalization of meaningful decision-making more fragile” (Armeni 2016; Lee and Abbot 2003). Thus, we assume that the respondents are dissatisfied with this form of participation and a mixture of degrees of participation is needed, since information is considered the lowest degree of participation (Arnstein 1969; Collins and Ison 2009; Rollason *et al.* 2018). These are the probable reasons why information shows a low contribution to environmental decisions in our model.

Our results also revealed that consultation has a moderately positive contribution to environmental decisions. This is in line with previous research that found consultation of civil society in the early stages of the decision-making improves environmental decisions (Adomokai and Sheate 2004; Langer, Decker, and Menrad 2017; Momtaz and Gladstone 2008). Additionally, consultation passively changes the attitude of organized citizens towards the government, leading to public acceptance of decisions since it generates some level of confidence in the decision-making process. However, not all consultation methods have produced and solved complex environmental problems. Our results indicate that face-to-face consultation with civil society seems to have a positive influence on the quality of environmental decisions. This is consistent with Newig and Fritsch (2009) who addressed the environmental effectiveness of participatory and multi-level governance using a comparative meta-analysis of 47 case studies on environmental decision-making in North America and Europe.

It is plausible that respondents perceived active participation to have the highest contributions to environmental decisions, since this degree of participation promotes empowerment of local leadership and decision-making control. This is consistent with earlier findings (Arnstein 1969; O'Faircheallaigh 2010; Sinclair and Diduck 2017; Vanclay 2003) that active participation of civil society as a stakeholder can create a more equitable distribution of decision-making control by transforming the existing decision structure. This also generates the establishment of partnerships that could help public authorities monitor environmental policies and assist in the design, implementation and evaluation of environmental regulations. Contrary to Spyke (1999), we found that the structure of participation to be partially not coordinated, since information becomes insignificant when consultation and active participation are in the model. This can be explained within the context of post-conflict societies that access to information is not as important as issues of consultation and active participation. Thus, the imported one-size-fits-all approach to participation in environmental decision-making common in Western countries is inapplicable in this context.

### **5.2. *Level of environmental awareness***

We find a high level of environmental awareness among our participants (Figure 2). Our initial model included information on policy provided by the government in a passive one-way direction (Equation (1)). The stepwise regression analysis eliminated information as an insignificant and non-contributing variable to the overall model. This suggests that (1) the participants acquire information about the condition of their local environment from sources other than the government, or (2) that they were personally exposed to different forms of environmental degradation (Figure 3 and Supplementary material Figure S1). Previous studies in developing countries (Räthzel and Uzzell 2009) and in Somalia (Oduori, Alim, and Gomes 2006) have reported similar results. However, since our study targeted organized citizens we infer that the environmental awareness of civil society alone cannot be sufficient to evaluate general public awareness, but more inclusive grassroots awareness could be more meaningful, as this will involve members of society outside the core group that we sampled.

### **5.3. *Perceptions of environmental degradation***

We find that land degradation, deforestation, and drought are the most pressing environmental concerns in Somalia in general, and Puntland in particular (Figure 3), which is corroborated by previous research (Ogallo *et al.* 2018; Oduori, Alim, and Gomes



2006; Oduori *et al.* 2011; Rembold *et al.* 2013). As reported by previous studies in Somalia, this is the result of unsustainable practices, over-dependence on scarce resources and ineffective governance regulations. For instance, because of weak forest regulations Somalia has experienced widespread deforestation for the production of charcoal (Oduori *et al.* 2011). These unsustainable practices have triggered conflicts between clans that favor providing the tree foliage as fodder for their livestock and clans that trade in wood and for whom the trees are a lucrative business. This is perhaps why most respondents regarded environmental problems as an issue personally important to them (Supplementary material Figure S2).

Similar conflicts over resources have also occurred nearshore as overharvesting of fish stocks in unregulated fishing activities caused the destruction of foreign fishing boats by local fishermen (UNEP 2005). This echoes earlier findings that have been reported from post-conflict settings where security, humanitarian assistance, political reconciliation, and economic reconstruction are often considered as the most pressing priorities, whereas the mitigation of environmental degradation is often not integrated into the recovery process (Beevers 2012; Bruch *et al.* 2008; Suarez, Árias-Arévalo, and Martínez-Mera 2018). The post-conflict recovery process of Somalia could be undermined by these developments. In the short term, failure to address environmental degradation could exacerbate human suffering and escalate vulnerability to extreme weather events. In the long term, it may threaten the successful functioning of political, economic and societal institutions essential for durable peace (Conca and Wallace 2009).

Our respondents identify the tackling and mitigating of environmental degradation as a collective responsibility where both state and federal governments take the lead (Figure 4). This means that reversing environmental degradation in Somalia can be best handled when all actors who are part of the problem are also included as part of the solution. This is the notion of collaborative governance that gained momentum in global environmental governance after the adoption of Agenda 21 at the Rio Declaration in 1992.

#### **5.4. Influence and participation of civil society**

Our results show a less influential civil society with limited participation in the environmental decisions of the Puntland State of Somalia (Figures 6 and 7). The fact that 84% of our respondents have never participated in environmental decision-making processes indicates a major challenge to the already fragile and weak institutional setups that exist in the region. This also indicates that international agencies such as The World Bank and International Monetary Fund, and foreign donors who provide the bulk of the Somali government's revenue, and accommodate rebuilding the capacity of Somali public institutions, have neglected the full participation of civil society as a cornerstone of the decision-making process. Moreover, we asked our respondents a follow-up question about their perception towards the causes of the limited participation in Puntland and they indicated the two most important causes as (1) the government not considering public or civil society input as valuable and (2) lack of a meaningful government-citizen relationship. This is consistent with previous findings reported from former Soviet Union countries that had undergone similar periods of social and political upheaval (Carmin 2003). This means that the legacy gridlock approach of "decide, announce, and defend" decision-making process of the late President Mohamed Siyaad Barre is still dominant in Somalia.

## 6. Conclusions

This study explored the participation of civil society in decisions to mitigate environmental degradation in the post-conflict setting of the Puntland State of Somalia. Our results revealed that information contributes the least to environmental decisions, and consultation and active participation had moderate and high contributions, respectively. The respondents ranked the top three environmental problems in Puntland as land degradation, deforestation, and drought relating to the scarcity of rainfall. Most of the respondents identified both state and federal governments as having the highest responsibility for mitigating environmental degradation.

Generally speaking, the challenge of maintaining and improving the environment is undeniably one of the most pressing and demanding problems confronting post-conflict countries. But it is also worth noting that the situation in the Somali context is exacerbated by the failure of public authorities to provide basic fundamental measures to solve environmental degradation. Both the federal and state governments have failed to propose successful mitigation measures to control human activities that degrade the environment, and have failed to reform existing legislation and enact new laws that protect the environment.

On the other hand, there is no indication that the current participation of civil society would improve the quality of the decisions to mitigate environmental degradation in Puntland because of predetermined outcomes induced by “shadow participation”. This further spoils the meaning of participation that would later result in the impairment of a public institution’s credibility. Hence, to reach sustainable and meaningful environmental decisions, we propose a more collaborative bottom-up participation approach where the government legally institutionalizes civil society to actively participate in the environmental decision-making process.

Although the rate of recovery of a post-conflict country is dependent on the security situation, a clear-cut concept to tackle both environmental degradation and conflicts could be the incorporation of “environmental cooperation” into the peace-building process. This would enable the general public federal government, state government, civil society, philanthropists, environmental policy-making experts and international organizations to share the responsibilities for tackling environmental degradation and conserve the environment for the next generation.

This study provides an important exploratory insight into public perceptions towards environmental degradation and decision-making in post-conflict Somalia. We showed that participation of civil society in environmental decision-making in Somalia is a complex phenomenon. Our results indicate that effective environmental conservation in Somalia requires inclusive grassroots awareness to better inform the majority of the population. Importantly, the study highlighted the need to assess the role of the general public regardless of their levels of literacy in order to assess the full spectrum of environmental decision-making in Somalia. Thus, this study forms an important foundation for future research at the nexus of the environment, people, and public policy in post-conflict societies in general and Somalia in particular.

There were some challenges and limitations that need to be mentioned. One challenge was linked to undertaking research in a post-conflict setting. As such, there were multiple security concerns, particularly in the disputed areas between Somaliland and Puntland, as well as within Puntland itself. These concerns could have contributed to the low response rate of civil society members outside the major towns to the printed survey questionnaires. One limitation was that we used cross-sectional data that may bring a social

interest bias, since the associations among the variables have not been thoroughly tested. We aim to rectify this in future studies by applying a strictly experimental set-up that accounts for this. Another limitation was that our sample size is rather small and the respondents are fairly young and educated. Thus, we recommend that caution be taken when generalizing our findings. We collected our sample data from the organized citizens in the Puntland State of Somalia, so our results cannot represent the entire Somali population. That said, these limitations and challenges do not invalidate this study, but will form an important launch pad for more comprehensive studies for the entire country.

## Note

1. <http://pl.statistics.so/population-of-puntland/>

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## Supplemental data

Supplemental data for this article can be accessed here <https://doi.org/10.1080/09640568.2019.1685957>

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## ORCID

Osman M. Jama  <https://orcid.org/0000-0002-7345-2812>

Balal Yousaf  <https://orcid.org/0000-0003-2732-2176>

Abdulkhikim M. Abdi  <http://orcid.org/0000-0001-6486-8747>

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