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Thirsting for New Leaders?

Droughts and Demand for Women politicians

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QoG THE QUALITY OF GOVERNMENT INSTITUTE
Department of Political Science
University of Gothenburg
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Abstract

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Aksel Sundström
The Quality of Government Institute
Department of Political Science
University of Gothenburg
aksel.sundstrom@pol.gu.se

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This article shows that climate-related events, such as droughts, can increase public demand for women political leaders. Drawing on theories of gendered leadership perceptions, we argue that environmental crises heighten concerns about fairness and the allocation of scarce resources, increasing preferences for leaders perceived as more equitable and less prone to corruption. Using geocoded climate data linked to nationwide survey responses in South Africa (2005–2022), we demonstrate that drought conditions increase support for women leaders. Qualitative interviews and survey experiments further show that women are viewed as more trustworthy in distributing relief and less likely to misuse public funds. These perceptions extend to policy preferences: citizens are more willing to support investments in drought preparedness when women lead. Together, the findings demonstrate how climate-related events can reshape gendered political preferences, with implications for representation and governance under global warming.

Unlike male leaders who will serve themselves or use drought relief monies to feed their families and friends, women leaders will deliver services. Women will put in a lot of effort to support the neighborhood in difficult times, offer aid, and develop drought-resistance plans
- Interviewee, the Limpopo province

1. INTRODUCTION

There has been unprecedented improvement in the standing of women in formal politics across the African continent: women as local councilors or national legislators are no longer an anomaly (Arriola et al. 2021), reflecting rising public acceptance of female leaders (Bauer 2020). Yet such gains remain fragile, as resistance to women in decision-making persists (Harper et al. 2020). Because crises can reshape the standing of women in politics (O'Brien and Piscopo 2023; Blanton et al. 2019), it is urgent to understand whether these advances are resilient to external shocks. We focus on one such crisis—climate change—which is expected to increase the frequency and intensity of droughts. The gendered impacts of droughts and climate events are well documented, and the literature calls for greater involvement of women in decision-making to reduce vulnerability (Arora-Jonsson 2011), with emerging evidence that women's leadership can improve water governance outcomes (An et al. 2025). Less is known about how these climate-related events shape public attitudes toward women as leaders. This matters because if such events reduce public demand for women in politics, they may create vicious cycles in voter behavior and representation that undermine gender equality.

The overall aim of this article is to gain new theoretical and empirical insights into the linkages between climate-related events and preferences in public opinion toward women as leaders, focusing on droughts in South Africa, where responses to these events expose challenges in the allocation of public funds in a context marked by corruption. We ask: Do droughts increase the public demand for female politicians? If so, what perceptions and evaluations of political leaders help explain this pattern? Extending this argument, we also examine whether such gendered evaluations of leaders have implications for citizens' willingness to support investments in drought preparedness.

These questions speak to several literatures. Long-standing inquiry provides insights into how disasters shape social order and change (see Short 1984), and especially the gendered element of vulnerability and inequality in the wake of extreme weather events (Enarson 1998; Tierney 2007; Arcaya et al. 2020). Research highlights how such events have political repercussions, studying outcomes such as democratization (Burke and Leigh 2010; Bruckner and Ciccone 2011; Rahman et al. 2017), leader transition (Dell et al. 2012; Quiroz Flores and Smith 2013), violent conflicts (see Buhaug et al. 2021) and support or opposition to those in office (e.g., Gasper and Reeves 2011; Lazarev et al. 2014; Cooperman 2022; Birch 2024; Demirdogen and Olhan 2025). There is also work on how threatening events, such as conflicts and terrorism, increase people's demand for male leaders (Lawless 2004; Krook et al. 2010; Falk and Kenski 2006; Holman et al. 2011, 2016; Barnes and O'Brien 2018; Hadzic and Tavits 2021). Finally, a growing literature focuses on linkages between gender and climate change, investigating environmental concern (Bush and Clayton 2023), women's involvement in policies (Clayton et al. 2025) and theories on how disasters affect women's capacities to run for office (Brulé 2023). However, none of these research veins have addressed how climate-related disasters affect people's demand for women in politics.

We present a theoretical framework outlining how environmental crises can shift the evaluative criteria citizens use when assessing leaders—particularly toward concerns about fairness, integrity, and the allocation of scarce resources. This shift implies that droughts will increase public demand for women as political leaders.

We combine four studies with complementary methods, focusing on droughts in South Africa. The implications from our theory are first put to empirical test. In this deductive Study 1, we connect fine-grained climate data through geocodes to nationwide public opinion surveys (2005–2022) and show that droughts tend to increase demand for female leaders. Our findings are robust to a range of alternative estimations and remain stable when considering

(a) local variation in drought emergency declarations and (b) variation in the presence of locally elected women, using two new datasets we compiled for this purpose. In a second step, Study 2 uses interviews with people in a rural province recently experiencing droughts to inductively develop further theory. These accounts bring to the fore the issue of corruption in drought relief aid and its connection to leader gender. We use these insights to build expectations with an interesting puzzle: local male leaders should be seen as more efficient in accessing drought relief aid, but—because this hinges on perceptions of men's involvement in corrupt networks—this also suggests that women will be believed to be more equitable in distributing such relief and less prone to stealing funds. Third, in Study 3, a survey experiment with participants from the general public confirms the latter two expectations. Building on these insights, we argue that such perceptions should also shape citizens' willingness to entrust local leaders with public resources more broadly. We show in Study 4 that local councils led by women increase people's willingness to invest in drought preparedness, an issue identified in policy as vital to prevent future crises.

In short, we show that droughts and climate-related events can increase demand for women leaders by activating concerns about fairness and corruption in the allocation of public resources—and that these perceptions also shape citizens' willingness to support investments in disaster preparedness. As such, this article makes two main contributions. First, our argument expands scholarship on disasters and attitudes by proposing a new theoretical framework on climate-related events and demand for women in politics, with special relevance for corrupt settings. Second, by examining these expectations through a multi-method inquiry using original data, our findings provide comprehensive empirical insights into how public opinion about women and men as leaders is shaped by extreme weather-related events, and how these perceptions extend to support for disaster preparedness policies.

In all, these findings have high relevance, given that such calamities will likely increase in both frequency and magnitude in the years to come.

2. THEORY

Extreme weather in the Global South often comes with negative effects on communities that the literature describes as 'gendered.' Tierney (2007) reflects extensively on how such vulnerability has been discussed in early work on disasters. Detrimental income shocks in settings with high gender inequality tend to result in outcomes where the subordinate spouse and children bear the highest costs (Ahmed and Fajber 2009; Alam and Rahman 2014; Pearse 2017), which may reinforce existing patterns of exposure (Moreno and Shaw 2018).[1] This has motivated advocacy for greater inclusion of women in decision-making, as an increased presence of women leaders—through spending priorities that may benefit poorer segments of society—could cushion the effects of an increasingly volatile climate (UN 2022). Research on how extreme weather shapes gendered political outcomes remains limited and has primarily focused on changes in opportunities for political participation.[2] This article instead examines how climate-related extreme events may influence public demand for women leaders.

We build on the assumption that higher public demand for female leaders is conducive to women's political representation (Lovenduski and Norris 1993). Survey items capturing whether respondents view women as suitable for leadership—for example, in the World Values Survey (WVS)—are commonly used to measure variation in citizen demand

[1] Disasters harm women disproportionately across outcomes (Neumayer and Plümper 2007; Corno et al. 2020; Epstein et al. 2020).

[2] On the one hand, research points to how disasters can improve women's participation. Case studies note that some disasters resulted in community efforts, supporting women's leadership experience (Drolet et al. 2015; Dometita 2017), or how shock-induced gendered migration – where men leave for jobs elsewhere – creates new spaces for women's leadership (Branco 2009; Brulé 2023). A related argument suggests that wars give women leadership experiences that are beneficial in the long-term (Hadzic and Tavits 2021). On the other, a contrasting insight is that such opportunities are hampered by a livelihood reliance of natural resources, because these events tend to make women even more occupied with harvesting activities (Petros et al. 2017; Algur et al. 2021).

for women in politics (Clark and Kroska 2024). Understanding these attitudes is important because they are likely to shape voter behavior, including the selection of candidates on Election Day. Gender equality norms in regions such as Africa have become more widespread in recent decades but remain more malleable than in contexts where such norms are deeply institutionalized (Inglehart and Norris 2003), with substantial variation across countries (Sundström et al. 2017). Evidence from other regions, such as Latin America, suggests that attitudes toward women leaders may also face backlash under certain conditions (Morgan and Buice 2013). Against this backdrop, we develop a theory of how droughts may increase demand for women leaders.

A framework on disasters and public demand for female leaders

We build on insights from theories on public opinion and gender-related prejudice towards leaders. The well-established 'social role theory' (see Eagly et al. 2000; Eagly and Karau 2002) holds that people associate each gender with stereotypical expectations of what individuals from these groups are like. This reasoning relies on a distinction between communal and agentic characteristics. Toshkov and Cretti (2023) note that "women are thus seen as having strong interpersonal and communication skills and as being more empathetic, compassionate, honest and trustworthy", whereas people associate men with "agentic behaviors, including being more assertive and independent" (p. 298) (see also Piazza and Diaz 2020). As a result, there may be stereotyping where people project such traits on female and male elected leaders, because the sex of a leader functions as a cue for voters (Koch 2002). Male candidates and officeholders are generally associated with masculine attributes of decisiveness and strength, seen as more competent over male policy areas such as defense and policing, whereas female leaders are viewed as holding traits of kindness and being more competent on 'softer' areas, such as education, family, and women's issues (Huddy and

Terkildsen 1993; Dolan 2010; Dolan and Sanbonmatsu 2011; Dolan 2014).[3] As such, voters tend to attribute women leaders a higher level of competence in stereotypically feminine policy areas.[4] These expectations are also consistent with broader research on value orientations and moral intuitions. Such work documents gendered patterns in how individuals are perceived to prioritize altruism, equality, and care versus individualism and hierarchy, and in how female leaders are often viewed as more trustworthy and less prone to corruption (Barnes and Beaulieu 2018). These associations reinforce widely shared perceptions of women as more concerned with fairness and social responsibility, and of men as more oriented toward assertiveness and competition—particularly in contexts involving resource allocation and scarcity.

Our framework suggests that climate-related events bring certain traits among leaders to the fore, making them more demanded in the eyes of voters. More generally, we propose that different types of crises activate distinct evaluative criteria among citizens, shaping preferences for different leadership traits. Research on conflict and terrorism shows that security threats increase demand for leaders associated with strength and decisiveness. We extend this logic by arguing that environmental crises—particularly those involving resource scarcity and distribution—activate concerns about fairness and care, thereby shifting preferences toward leaders associated with these traits.

In crises involving security threats, people's gendered stereotypes could solidify and increase (Kreutzer 2023). Here, we rely on research proposing that shocks make demand for gendered leader attributes more pronounced (Lawless 2004; Krook et al. 2010). In the words of Barnes and O'Brien (2018, p. 357), threatful events can have "individuals look for

[3] Related, Inglehart (2008) suggest that those socialized where there was 'existential threats', during their upbringing rather than through single events, would be less likely to hold values of gender equality, e.g. demanding women leaders.

[4] We acknowledge the plausible heterogeneity in this regard across time and space. For instance, recent work by Gothreau and Laustsen (2025), suggest that issue competence stereotypes have likely shifted in the U.S. public.

'strong' leaders with masculine characteristics." Similarly, studies show how threats – in this discussion, mostly related to military conflict or terrorism – tend to lead to greater demand for male leaders (Falk and Kenski 2006; Holman et al. 2011, 2016; Hadzic and Tavits 2021). Because fear of violence is likely to be higher after such events, this activates perceptions of women leaders as less competent to handle crises that require masculine traits.

While droughts – which come with substantial risks to the wellbeing of those living in regions that suffer – may activate perceptions of an acute crises, we see these disasters as being of a different nature than, e.g., terrorist attacks. We propose that environmental disasters such as droughts may be a different type of crisis than threats that are connected to security or national borders' integrity, and may therefore trigger different psychological responses among citizens. In detail, droughts in the context of countries in Africa have at least three characteristics that matter in this regard. First, the scarcity and rising prices following droughts affect a certain sector, the domestic sphere of providing water and food, that is feminine-coded. Second, droughts put an extra burden on women, responsible for chores such as water collection, in contrast to other types of crises that affect security concerns for all citizens. Third, droughts are likely to trigger concerns of distribution to the poor in society, as they foremost harm those that are marginalized and lack livelihood buffers. Together, these features are likely to shift the evaluative criteria citizens use when assessing leaders—from strength and decisiveness toward fairness, care, and integrity in the allocation of scarce resources. This leads us to formulate the following expectation:

H1: *Droughts will increase people's demand for women as political leaders*

3. THE CASE

South Africa is highly exposed to drought and is likely to be severely affected by climate change: mean annual temperatures are expected to increase across both coastal and inland

regions, with drought spells becoming more frequent and severe (SADRI 2021). The country has experienced recurrent droughts for decades. Policy responses have largely centered on relief schemes that address immediate needs rather than long-term resilience (Bahta et al. 2016; Meza et al. 2021). Drought response is governed by the Disaster Management Act (Republic of South Africa 2002), a multilevel framework through which local authorities can apply for relief funds.

In recent years, droughts have affected multiple regions and led to large-scale water restrictions, including in major cities. These events have had national repercussions, including pressures on food security and increased reliance on imports (DAFF 2016; Baudoin et al. 2017). Droughts have also become highly politicized, in both rural and urban contexts. A prominent example is "Day Zero," referring to the peak of the Cape Town water crisis (2015–2020), which became closely associated with public debates over mismanagement in the water sector.

A key feature of drought governance in South Africa is the prevalence of corruption in relief allocation (Daniels 2023). Observers describe this as systemic, and evidence shows that the diversion of public funds disproportionately harms poorer communities (Corruption Watch 2020). High-profile cases, such as the Giyani water project in Limpopo, have reinforced public awareness of these dynamics (News24 2021). These patterns have also triggered protests across the country, reflecting widespread dissatisfaction with how drought relief is managed and distributed, including highway barricades in the Free State in 2022 (Stark 2022), demonstrations in rural Eastern Cape communities in 2020 (Majavu 2020), and protests over water shortages among township residents in the North West in 2016 (South African Government 2016).

South Africa has a relatively high share of women in political office. The proportion of female legislators has increased from around 30% in the early 2000s to about

45% today (IPU 2024), and women's representation in local councils has remained around 40% in recent elections (IEC 2024). Yet these gains coexist with persistent gender inequalities and widespread gender-based violence. Research documents public hostility toward women in leadership positions (Gouws 2008), and reports suggest that women politicians frequently face harassment, including online (ISD 2024).

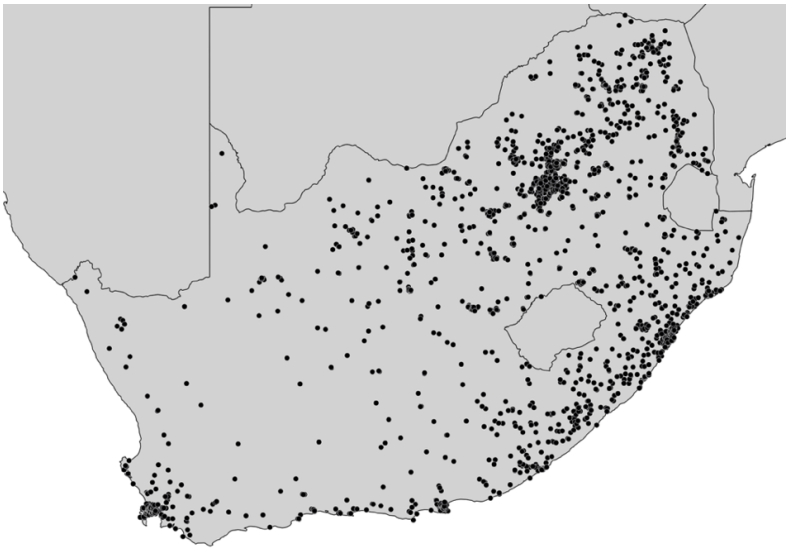
The country combines elected local councils with a system of traditional leaders who operate outside the formal democratic framework. While our argument primarily applies to elected representatives—where public opinion is most directly linked to political outcomes—traditional leaders also play an influential role in governance (De Kadt and Larreguy 2018). In our qualitative and experimental analyses, respondents are primarily prompted to consider elected local leaders.

4. STUDY 1: DEDUCTION AND OBSERVATIONAL TESTS

Our first study examines whether drought conditions are associated with increased public demand for women political leaders. We merge fine-grained climate data on temperature and precipitation with survey responses from rounds three, five, six, seven, and nine (2005–2022) of the Afrobarometer project.[5] The survey is stratified by subnational administrative units and urban–rural status and is designed to be representative of the voting-age population. Figure 1 displays the spatial distribution of respondents across South Africa.

[5] Rounds 4 and 8 does not contain the item of demand for female leaders.

Figure 1. Afrobarometer Clusters and Drought Condition Values



Notes: The figure maps Afrobarometer clusters of respondents 2005-2022 across South Africa

Dependent variable

Our dependent variable captures demand for female political leaders using a standard Afrobarometer item. Respondents are presented with two opposing statements: (1) that men make better political leaders than women and should be elected rather than women, and (2) that women should have the same chance of being elected to political office as men. Interviewers then ask which statement respondents agree with, and how strongly. Responses are coded on a five-point scale ranging from strong agreement with statement (1) to strong agreement with statement (2), with a neutral midpoint. We interpret higher values as greater demand for female leaders. This item is widely used to measure attitudes toward women in politics in Africa (Benstead 2018; Sundström and Stockemer 2022), and research suggests that such items may, if anything, underestimate bias against women leaders (Setzler 2019). Descriptive statistics are presented in Table 1.

Table 1. Summary Statistics

Variable	N	Mean	Std.dev	Min	Max
Age	9,578	39.02	15.25	18	95
Male	9,578	0.50	0.50	0	1
Level of education	9,578	4.52	1.72	0	9
Interviewer gender	9,578	1.34	0.48	1	2
Drought conditions	9,578	0.00	1.00	-3.21	6.27
Demand for Female Leaders	9,578	3.96	1.36	1	5

Notes: Respondents from AB rounds 3, 5, 6, 7 and 9 with precision code 1, 2, or 3, and for which the variables included in the baseline specification are non-missing.

Coordinates of respondents are not available in all survey rounds. We therefore use the location of the respondent's enumeration area (EA) as provided in the Afrobarometer data (BenYishay et al. 2019). Our main analysis focuses on respondents with precise geolocation, while Appendix A6 demonstrates that results are robust to alternative samples with varying levels of spatial precision.

Independent variable: drought conditions

We measure drought conditions using the Standardized Precipitation Evapotranspiration Index (SPEI), following von Uexkull et al. (2016). We use monthly SPEI data with a 0.5-degree spatial resolution from the Global SPEI database (Vicente-Serrano et al. 2010).[6] Our measure captures drought exposure during the main crop growing season in each location, weighted by local crop patterns and cropland area, following Ahlerup et al. (2024).[7] The

[6] It is constructed using data on monthly precipitation and potential evapotranspiration (PET) for each land pixel and accordingly capture variability both in precipitation and high temperatures. The SPEI is constructed in three steps. First, trends and variations in temperature are used to estimate PET. PET has relevance as high temperatures increase evapotranspiration. Second, monthly precipitation is set in relation to PET. Third, for each pixel, the obtained figure is standardized to have an average of 0 and a standard deviation of 1. The SPEI is positive if conditions are wet and negative if conditions are dry.

[7] We construct this in four steps, following Ahlerup et al. (2024). First, we use monthly data on SPEI and information on the months of the main-crop growing season at each location from Portmann et al. (2010) and Tollefsen et al. (2012) to calculate the main-crop growing season weighted SPEI during the 12-month period ending with the month the respondent was interviewed. Second, we use data on cropland area from Ramankutty et al. (2008) to calculate cropland area in each district and then the cropland and main-crop growing season weighted SPEI. Third, we use the additive inverse of obtained values so that higher values signal conditions that

resulting index is standardized to have mean zero and unit variance, with higher values indicating drier conditions. Drought conditions are measured for the location of the respondent's enumeration area during the 12 months preceding the interview. We therefore interpret this measure as capturing recent exposure to local drought conditions.

Control variables

We include controls for individual characteristics (age, gender, and education), interviewer gender, and features of the local environment. Interviewer gender is included to account for potential response bias in gender-related survey items, as well as the possibility that interviewer assignment correlates with local conditions. At the enumeration area level, we include indicators of infrastructure and service provision (e.g., electricity, piped water, health services, and markets). We also include geographic variables capturing accessibility and isolation, such as distances to cities, roads, borders, and water sources, as well as elevation and terrain variation. In addition, we control for agricultural conditions, including cropland share and the timing of the growing season.

Estimation strategy

We estimate the effect of drought conditions on demand for female leaders using variants of the following specification, primarily with ordinary least squares:

$$y_{i,ea,t} = \beta_1 \cdot \text{Drought conditions}_{ea,t} + \alpha_r + \delta_t + \phi \cdot t + \gamma X_i + \lambda X_{ea/d} + \epsilon_{i,ea,t}.$$

are more dry and lower values conditions that are more wet. Fourth, we standardize the values to have a 0 mean and a standard deviation of 1.

Here, $y_{i,ea,t}$ denotes the demand for female leaders for individual i in enumeration area ea at time t, and Drought conditions$_{ea,t}$ captures drought exposure in the respondent's location during the 12 months preceding the interview. The parameter of interest is β_1.

The inclusion of spatial and temporal fixed effects is central to our identification strategy. Grid cell fixed effects (α_r) absorb all time-invariant characteristics of local areas, such as geography, long-standing economic conditions, and persistent political or cultural differences. Time fixed effects (δ_t) account for aggregate shocks common to all locations, including national political developments and seasonal variation. In addition, we include a linear time trend to capture gradual, potentially non-discrete shifts in attitudes toward women leaders over the study period. This ensures that our estimates are not driven by slow-moving national trends in gender norms, providing a conservative specification. Together, these components ensure that the estimated effect of drought conditions is identified from within-location variation over time, reducing concerns that cross-sectional differences between areas drive the results.

X_i denotes a vector of individual-level controls, and $X_{ea/d}$ includes controls at the enumeration area and district level. Standard errors are clustered at the level of 0.1-degree grid cells to account for spatial correlation. Because enumeration areas vary across survey rounds and do not perfectly align over time, we assign observations to consistent spatial grid cells for clustering purposes.

4.1 Study 1 Results

Drought conditions have a positive and statistically significant effect on demand for female leaders. As shown in Table 2, higher levels of drought exposure are associated with greater agreement that women are suitable for political leadership. We present results from both OLS and ordered probit models, which yield consistent conclusions. These findings provide support for Hypothesis 1.

Further analysis indicates that the effect increases with the severity of drought conditions. Column 3 reports estimates using a binary indicator for drought exposure, while column 4 distinguishes between increasing levels of severity. The results show that more severe droughts are associated with larger increases in support for women leaders. In the most severe category, drought conditions are associated with an increase of approximately 0.5 points on the five-point scale (mean = 3.97).

A range of additional analyses, reported in Appendix Tables A2–A11, demonstrate that the main finding is robust across alternative specifications and subsamples. Similar patterns are observed when extending the analysis to other African countries, particularly under more severe drought conditions. Results using an alternative measure of droughts—capturing events with material and human costs—also point to a positive effect on demand for women leaders (Table A11).

Table 2. Drought Conditions and Demand for Female Leaders

	(1)	(2)	(3)	(4)
	OLS	*Ordered probit*	*OLS*	*OLS*
Drought conditions	0.115***	0.098***		
	(0.029)	(0.025)		
0 < Drought conditions			0.256***	
			(0.054)	
0 < Drought conditions < 1				0.198***
				(0.061)
1 < Drought conditions < 1.5				0.384***
				(0.101)
1.5 < Drought conditions				0.462***
				(0.090)
All control variables	Yes	Yes	Yes	Yes
N	9,578	9,578	9,679	9,679
R^2	0.09		0.09	0.09

Notes: The dependent variable is Demand for Female Leaders. The specifications in Columns 1, 3 and 4 are estimated with OLS, coefficients reported. The specification in Column 2 is estimated with ordered probit. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). Estimations include grid cell fixed effects, as well as month and year fixed effects. The full set of control variables included are presented in section 4.

Robustness to municipal drought declarations

We estimate models that control for whether a municipality declared a drought disaster, an indicator of severe conditions that also reflects political processes. While such declarations are endogenous, they capture situations in which drought conditions trigger formal government responses. To construct this measure, we compile a new dataset of municipal drought declarations from government gazettes archived online (*https://gazettes.africa*). This allows us to identify, at the municipality-month level, whether a drought was officially declared. We then create indicators for whether a respondent lived in a municipality that issued such a declaration in the past 1, 3, 6, or 12 months.[8] Re-estimating our baseline models with

[8] Analysis of intermediary outcomes suggest that living in a municipality with recent drought delarations is associated with substantive negative effects on access to fuel and food, as well as lower satisfaction with how goverments handle water services (see table A13).

these controls (Appendix Table A12) yields substantively similar results. This suggests that the positive effect of drought conditions on demand for women leaders is robust to accounting for variation in how authorities respond to drought events.

Robustness to exposure to women's local presence

We examine whether our main results are driven by exposure to female political leaders (Beaman et al. 2009). To do so, we construct a dataset of locally elected representatives by geocoding election results from 2001–2021 provided by the Electoral Commission. From this, we create a binary indicator capturing whether a respondent resides in a ward—a subdivision of a municipality—where the elected leader is a woman (1) or not (0).[9] Including this measure as a control does not affect our main results (Appendix Table A14, model 1). We also find no evidence of heterogeneous effects when interacting drought conditions with women's local presence. Results are similarly robust when using a continuous measure of the share of women councilors (model 2, A14). These findings indicate that the positive effect of drought conditions on demand for women leaders is not driven by respondents' prior exposure to female political representation.

5. STUDY 2: INDUCTIVE EXPECTATIONS FROM INTERVIEWS

We draw on qualitative material to inductively develop further expectations. Specifically, we use insights from interviews with rural residents in communities that have experienced droughts. Interviews were conducted in remote areas of the Limpopo province in northeastern South Africa, a region characterized by high levels of support for the ANC and documented

[9] In short, there were in the 2021 elections more than 4400 wards in South Africa (see *https://www.elections.org.za/pw/StatsData/List-Of-Current-Ward-Councillors*). We account for the changes in borders of wards over time when coding whether a respondent lives in a ward with a female member or not.

corruption in the water sector. At the time of data collection, no drought was ongoing. The study received IRB approval.

A team of locally trained enumerators conducted face-to-face interviews in the local language during spring 2022. The sampling strategy focused on villages plausibly eligible for drought relief efforts. In total, 50 individuals were interviewed, with an even gender distribution. The interviews explored themes related to our research questions, focusing on how droughts affect communities, what assistance residents seek from local representatives, and how leaders respond to such demands. Enumerators also probed perceptions of which types of leaders are more effective in accessing and distributing relief. Importantly, the issue of leader gender was introduced only at the end of the interviews, allowing respondents to develop their reasoning without being primed on this dimension. Interviews were fully transcribed and analyzed manually. Across interviews, respondents consistently emphasized issues related to how relief resources are accessed and distributed, as well as concerns about corruption and fairness. These themes guide the analysis below and inform the development of theoretical expectations.

5.1 Study 2 Qualitative insights

Respondents describe a wide range of negative effects of drought, including impacts on farming (crop failures, loss of cattle, fewer fishing opportunities), economic conditions (unemployment, rising food prices, and failed investments), and broader wellbeing (hunger, water scarcity, sanitation problems, stress, and longer travel to collect water). Quotations are annotated by respondent number and gender (F/M).

Approaching leaders for help

Interviewees explain how communities turn to local leaders when droughts strike, seeking assistance with basic needs such as boreholes, food parcels, water provision, or financial support:

> People do approach their local [decision-makers] to ask for relief funds ... They wouldn't demand much, so basically communities ask for food parcels, cash vouchers to help them (17, M)

> There are some specific actions that leaders are asked to do such as distributing forms to people so that they can fill and in that way the leaders will then get funds. [People] do approach them, and those in local positions will then go and approach those from the central authorities and ask for funds (21, F)

These accounts position local leaders as key intermediaries responsible for securing relief from central authorities (throughout, see the appendix B for even more illustrative quotes).

Events that make corruption salient

The interviews suggest that people's perceptions of leaders are shaped by their performance during droughts, particularly in relation to the provision of relief:

> You'll find people protesting in the streets demanding for such help … they'll think about protest as the only solution (31, M)

> Because we will be suffering and leaders won't be helping us, most people tend to turn their support against local and national authorities. This gives the impression that leaders do not care about them, which is true, and that they are stealing funds intended for drought relief, which is also true (36, F)

Respondents frequently describe how relief resources are diverted away from those in need, emphasizing nepotism and unequal distribution of resources:

> Nepotism … if you do not have a family member or friend who works in a position of authority or in the government, you will not be hired. The same is true for this drought relief grant; while you can ask or apply for it, someone who is not disadvantaged will receive it (40, M)

> The problem becomes when local leaders receive some funds from the central authorities and share it amongst themselves and their families without distributing it equally towards the community members (19, F)

Overall, interviewees highlight how drought conditions make concerns about corruption and fairness particularly salient in citizens' evaluations of political leaders.

Access to relief and the importance of contacts

Respondents consistently emphasize that access to drought relief depends on leaders' connections to central authorities, often linked to experience in office. For instance, some describe connections as a core expectation of leadership:

> The community chose these leaders in the hopes that they will use their connections to provide assistance quickly during natural disasters, when the community is most in need of assistance (35, F)

Others stress how experience in office facilitates access by building such networks:

> We know that [our local leader] has been in this leadership role for some time… he knows whom to approach, when and how. This ensures that we receive a response from the central authorities quickly (08, M)

Finally, respondents highlight that newcomers lack these ties, making access to relief more difficult:

> Newcomers have a harder time getting access to funding for drought relief than those with large networks and relationships with persons from the center. The only route available to leaders to acquire humanitarian funding is through connections (50, M)

Together, these accounts indicate that citizens view access to relief funds as contingent on personal networks and accumulated experience.

Access is not delivery

A recurring theme in the interviews is that the ability to secure relief funds does not guarantee that these resources are distributed to the community. Some respondents explicitly link access through networks to corrupt practices:

> The people with big network and connections with people from the central authority have got an upper hand … those who have been in power for a long they are corrupt, that's the problem. They access the funds but when it comes to releasing the funds to the people it becomes a problem. It now goes by favor, compared to newcomers (20, M)

Others emphasize how well-connected leaders prioritize relatives and close ties:

> …they know all the doors, meaning that they are now well connected with people from the center, which makes it easier for them to get access to relief funds unlike those who have just started … but in most cases, those who are well connected they mostly deliver to their relatives … and friends because in this world people don't love each other equally: some won't get help while some will (30, F)

Finally, some accounts describe outright diversion of funds:

> [Leaders with connections] don't actually deliver. They'll claim money for drought relief and keep it, or they'll give the community only a little percentage of what they got (33, M)

Across these accounts, a consistent pattern emerges: access to relief resources is often decoupled from equitable distribution, reinforcing concerns about favoritism and misuse.

Men as connected but corrupt

Without the enumerator mentioning the issue of gender, respondents frequently associate male leaders with stronger connections to central authorities. These accounts suggest that men are seen as better positioned to access relief funds through established networks:

> [Men] will be more effective at obtaining drought relief funds from central authorities because they have more connections than female leaders. Without connections, no leader can obtain drought relief funds without bribing central leaders, but it also requires connections to know whom to bribe (43, F)

> I mean they have big network which allow them to access many things faster than those with [no] network … men have the most connections with people from the central authorities which makes it easier for them to access funds (21, F)

At the same time, these connections are closely linked to perceptions of corruption. Respondents often describe male leaders as embedded in networks that facilitate not only access, but also the misuse of resources through practices of siphoning relief aid:

> Since men tend to have more connections than women do, they will use their networks to get access to funding for drought relief, even if they don't always obey the rules because connections are so important. Men are more dishonest than women; many women cannot bribe central authorities to gain access to monies for drought relief (33, M)

> Male leaders will be more effective because they have more connections and are corrupt; they will exploit these connections to gain access to monies for drought relief without following the correct processes and will not provide the services they promised to the community (48, F)

Taken together, these accounts portray male leaders as both capable of securing relief through their networks and prone to using those same networks for personal gain.

Women as outsiders and equitable distributors

In contrast, respondents frequently describe women leaders as less embedded in corrupt networks and as an alternative to existing leadership. Locally elected women are portrayed as more likely to act in the interest of the broader community:

> Unlike male leaders who will serve themselves or use drought relief monies to feed their families and friends, women leaders will deliver services. Women will put in a lot of effort to support the neighborhood in difficult times, offer aid, and develop drought-resistance plans (24, F)

> People are tired of men's leadership because they do not deliver and they are dishonest and corrupted leaders, maybe women leaders can do better (39, F)

Perceptions among interviewees are closely tied to expectations about how relief resources are distributed. They emphasize that women leaders are more likely to allocate aid fairly and avoid favoritism:

> Because men are corrupt and only think about themselves, women can help men lead during times of drought by checking the financial departments and possibly looking after any drought reliefs that may have been provided by the government. This will ensure that everything is distributed equally (38, F)

> Women in leadership positions can disperse monies for drought relief when they do so. When it comes to delivering drought help, they will also lessen corruption and nepotism. Even though these families are not their friends, they will start by giving the majority of the less fortunate ones money (50, M)

These accounts converge on the view that women leaders are perceived as more equitable and less prone to misuse resources, particularly in contexts where corruption is salient.

Direct comparisons between male and female leaders

When asked explicitly to compare male and female leaders, respondents expressed these distinctions in particularly stark terms:

Q: Do you think the desire to have male leaders will expand when disaster strikes?

A: Nah not at all, people will prefer female leaders, because female leaders are good at keeping money, unlike us men because our minds are easily influenced by pressures of society (03, M)

Q: If you think about male leaders in times of droughts: what will they do better than female leaders?

A: The only thing that male leaders can do better than female leaders is take money intended for drought assistance. They're worthless (37, M)

Beyond these direct comparisons, respondents frequently attributed broader moral qualities to women leaders, emphasizing honesty, compassion, and attentiveness to community needs:

…there will be a greater need for female leaders because, generally speaking, drought is associated with hunger … they will work harder and spend more sleepless nights … Men typically only care about money and nothing else, while women are more aware of hunger (41, F)

Women are parents... When there is shortage of water and food at home, women are first people to perceive it (49, F)

This suggest that support for women leaders in times of drought is rooted not only in expectations about corruption and distribution, but also in perceptions of women as more attentive to hardship and more responsive to community needs.

5.2 Further Theoretical Expectations

Building on these qualitative insights, we refine the mechanisms through which droughts may shape demand for women leaders. The interviews point to the central role of corruption and the allocation of relief resources in shaping how citizens evaluate political leaders in contexts of weak governance. We translate these insights, in dialogue with existing literature, into a set of testable expectations.

In settings where corruption is widespread—particularly in sectors such as water governance—droughts appear to heighten dissatisfaction with incumbent leadership and increase demand for alternatives. Prior research shows that women entering male-dominated political arenas are often perceived as "outsiders" capable of disrupting entrenched practices (Wiesenhomeier and Verge 2020). In contexts where men have historically dominated political office, women may therefore be viewed as a credible alternative to established elites, especially given widespread perceptions that women are more trustworthy and less involved in corrupt networks (Funk et al. 2019; Esarey and Schwindt-Bayer 2018). The interview evidence strongly reflects this logic, linking dissatisfaction with drought response to a desire for different types of leaders.

A key mechanism underlying these perceptions concerns access to relief resources. In drought-affected areas, local leaders are expected to secure emergency funds from central authorities (Bedran-Martins and Lemos 2017; Cooperman 2022). Access to such resources is often mediated by informal networks and bureaucratic navigation, where success depends on what can be understood as *contact capital*: knowledge of whom to approach, how to engage, and how to leverage relationships within the political system. In many contexts, such networks are shaped by homosocial dynamics, where access to influential ties is concentrated among men and reinforced through male-dominated political and social networks (Bjarnegård 2013, 2018). Consistent with this reasoning in the literature, respondents in our qualitative material frequently associate male leaders with stronger connections and greater ability to secure relief funds. This logic implies that male leaders are perceived as more efficient in accessing resources from central authorities. At the same time, however, these same networks are closely associated with corruption. Because access often relies on informal exchanges—such as favors, bribery, or political alignment—leaders embedded in these networks may also be seen as more likely to misuse resources. As reflected

in the interviews, male leaders are thus viewed as both more capable of securing relief and more prone to diverting it for personal or political gain.

This reasoning has contrasting implications for how women leaders are perceived. To the extent that women are seen as less embedded in these networks, they may be viewed as having less access to informal channels for securing funds. At the same time, this relative distance from corrupt networks underpins perceptions of women as more impartial and less likely to engage in favoritism or theft (Goetz 2007). As a result, women leaders are expected to distribute relief more equitably and to refrain from misusing public resources. Taken together, these mechanisms suggest that while male leaders may be perceived as more effective in accessing relief, women leaders are viewed as more trustworthy in managing and distributing these scarce resources. We therefore derive the following expectations:

H2: *Women local leaders are seen as less efficient in accessing drought relief funds from the central authorities*

H3: *Women local leaders are seen as more equitable in distributing drought relief funds across the community*

H4: *Women local leaders are seen as less likely to steal drought relief funds*

6. STUDY 3: EXPERIMENTAL TESTS

We designed a survey experiment to test H2–H4 using a between-subjects design that randomly assigns participants to one of two conditions. In both conditions, respondents receive information about increasing drought risks in South Africa and the role of local councils in applying for relief funds from central authorities. The treatment varies only the gender of the local council leader, described as either "a female representative" or "a male representative." Figure 2 illustrates the design.

Figure 2: Overview of Survey Experiment Design

Group 1 Female local council leader	Group 2 Male local council leader

This design allows us to estimate the causal effect of leader gender on perceptions of how relief funds are accessed and distributed. Because assignment is randomized, differences in outcomes can be interpreted as causal effects of leader gender. We do not include a condition without gender information, as respondents may implicitly assume a leader's gender; instead, we follow prior work comparing male and female leaders directly (e.g., Clayton et al. 2019; Kao et al. 2024).

The experiment is implemented through a vignette. First, respondents read a background text describing future drought risks and the possibility for municipalities to apply for disaster relief funds from national authorities. They are then asked to consider a scenario in which a municipality faces a severe drought and a local council leader seeks to obtain such funding. The only difference across conditions is the gender of the leader. We do not provide information on ethnicity or party affiliation, allowing us to isolate the effect of gender.

Figure 3: Information Prompt that Varies Council Leader Gender

Now, please consider a situation where a municipality is facing a severe drought.

The leader of the council in this locality are about to reach out to central authorities (national government) to ask for emergency relief to their local municipality.

If the leader is successful in reaching out to central authorities, the council will receive a significant amount of money. This council is led by a [male / female] representative.

After the vignette, respondents evaluate three statements capturing our outcomes of interest. The first measures perceived ability to access funds ("This representative will be successful in accessing relief fund money…"; *Access*). The second captures perceived fairness in distribution ("…will ensure that relief fund money is distributed fairly…"; *Distribution*). The third captures perceived corruption ("…will likely steal some of the relief fund money…"; *Corrupt*). Responses are recorded on a five-point scale from "strongly disagree" (1) to "strongly agree" (5).

The study was fielded in July 2025 on a sample of South African respondents recruited via YouGov. The sample is nationally representative with respect to gender, age, and province. The target sample size was determined through power calculations (Appendix C1), and the study received IRB approval (Appendix C2). Expectations were pre-registered prior to data collection (Appendix E).

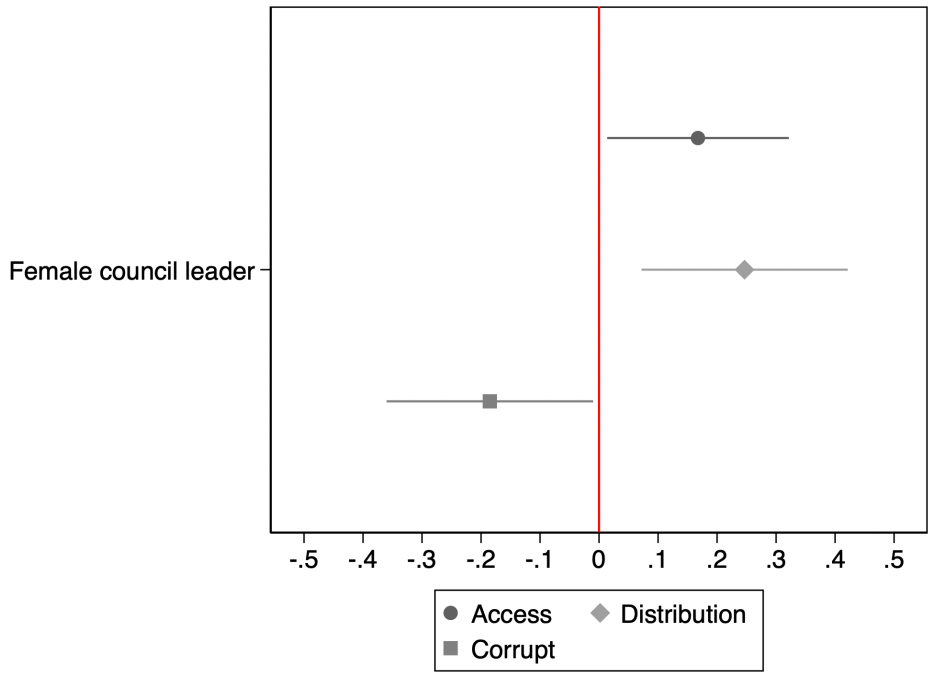
We focus on the 824 respondents who pass a manipulation check.[10] Balance tests show no systematic differences across treatment groups (Appendix Tables C1a–C1b). We estimate treatment effects by comparing group means and by fitting linear models with robust standard errors. Covariates (age, education, gender, income, birthplace) and geographic fixed effects are included to improve precision.

6.1 Study 3 Results

We examine whether exposure to a female (rather than male) council leader affects perceptions of access to, distribution of, and misuse of drought relief funds. Figure 4 presents the estimated treatment effects.

[10] This item assesses whether respondents can correctly recall the gender of the local leader being described in the information prompt. We drop 196 respondents through this approach. We also include results for the full sample that includes those that reasonably was not treated, see the appendix.

Figure 4: The effect of female leader treatment on attitudes to relief aid outcomes



Comment: Confidence intervals are set at the 95% level. The coefficient plot depicts results from OLS regression models with covariates and robust standard errors. Yougov panel participants in South Africa, sample passing the manipulation check (N=807).

Across outcomes, the treatment produces consistent differences in perceptions of leader behavior. Respondents assigned to the female leader condition rate the leader as more likely to distribute relief funds fairly (*Distribution*) and less likely to misuse funds (*Corrupt*). The magnitude of these effects is substantively meaningful: on average, respondents in the female condition are approximately 0.2 scale points more likely to agree that funds are distributed fairly and about 0.2 points less likely to agree that funds will be stolen, on five-point scales (see Appendix Table C2). Contrary to H2, respondents also view female leaders as slightly more—rather than less—effective in accessing relief funds (*Access*), with an effect of similar magnitude. Thus, while the results do not support H2, they provide clear support for H3 and H4.

These patterns are evident in simple difference-in-means tests and are confirmed in regression models. The findings are robust to including respondents who fail the

manipulation check (Appendix Table C3) and to a range of additional robustness and heterogeneity analyses (Appendix C4).

7. STUDY 4: IMPLICATIONS FOR INVESTMENT IN PREPAREDNESS

The preceding analyses show that droughts increase demand for women leaders and that women are perceived as more equitable and less prone to misuse relief funds. This raises an important follow-up question: do such gendered evaluations of leaders shape citizens' willingness to support longer-term investments in disaster preparedness?

Preparedness policies—such as investments in water infrastructure or drought resilience—are widely regarded as more effective in reducing long-term harm than reactive relief efforts (Healy and Malhotra 2009). Yet public support for such investments remains understudied (Gilens et al. 2024; Hartmann 2025), particularly in contexts where concerns about corruption may undermine trust in how public funds are managed. Building on our earlier findings, we expect that leaders perceived as more trustworthy and equitable will increase citizens' willingness to support allocating public resources to preparedness. We therefore examine whether leader gender affects willingness to invest in drought preparedness. If male leaders are perceived as more likely to misuse public funds, citizens may be less willing to support saving and allocating resources for future investments under their leadership. This leads to the following expectation:

H5: *Women local leaders increase people's willingness to let councils save public funds for investment in drought preparedness measures.*

To test this implication, we field an additional pre-registered survey experiment with South African respondents.[11] The design mirrors Study 3 in using a between-subjects framework

[11] We slightly rephrase H5 in the manuscript to align its wording with H2–H4. In the pre-analysis plan (Appendix E), H5 was registered as: "Respondents receiving an information treatment about a female council leader should

where participants are randomly assigned to evaluate either a female or a male local council leader. Participants first read a background text describing increasing drought risks and the possibility for municipalities to invest in preparedness measures. The vignette explains that such investments may include improvements in water infrastructure, support for drought-resistant agriculture, and other resilience-enhancing policies. It also emphasizes that these investments require saving public funds over time and involve trade-offs with other spending priorities. In the treatment, respondents are asked to consider a municipality deciding whether to allocate part of its budget to a preparedness fund. The gender of the council leader overseeing this decision is randomly varied ("woman" or "man"), with no additional information provided about party affiliation or other characteristics.

Figure 5: Information Prompt that Varies Council Leader Gender

> Please consider a situation where a municipality, like the one you are residing in, is faced with the choice of whether or not to invest in measures for drought preparedness.
>
> The council in this municipality is now debating a proposal to invest a part of the public budget into a fund to be used for preparedness to droughts.
>
> This council of decision-makers is led by a [woman/man].

After the vignette, respondents are asked: "How willing would you be to let this council save public funds to invest them in drought preparedness measures?" Responses are recorded on a five-point scale and reverse-coded so that higher values indicate greater willingness to invest in drought preparedness.[12] The study was conducted in July 2025 on a nationally representative sample of South African respondents recruited via YouGov, in a data collection

be more willing to let this council save public funds to invest them in drought preparedness measures." This change is purely stylistic and does not alter the substance of the hypothesis or the analytical strategy.

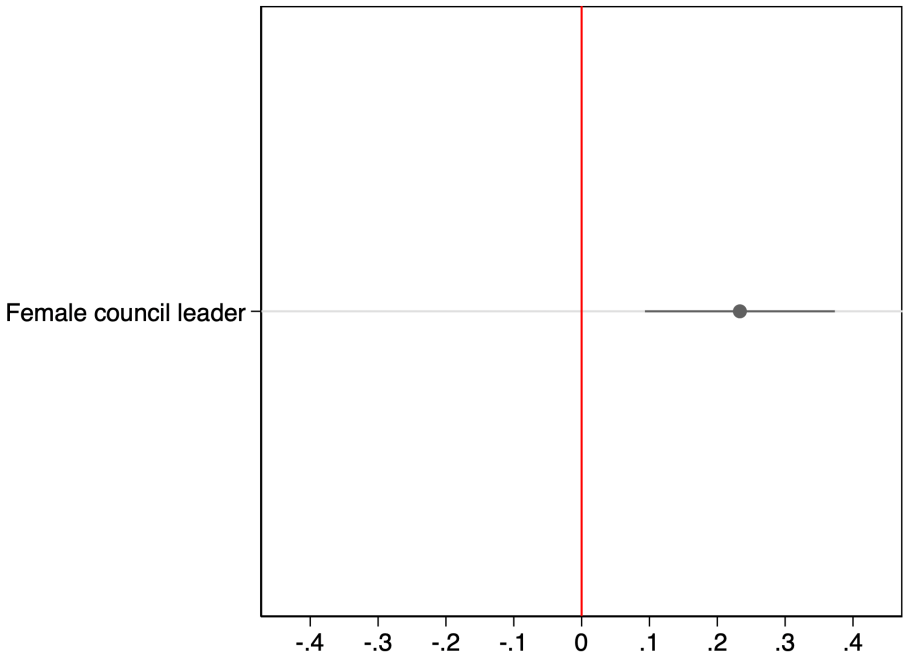
[12] The original response scale ranged from "very willing" (1) to "very unwilling" (5), with a neutral midpoint.

independent of Study 3. The target sample size (approximately 800 respondents) was determined through power calculations. Covariates were recorded prior to treatment, and the hypothesis and analytical strategy were pre-registered (Appendix E).

7.1 Study 4 Results

Figure 6 presents the estimated effect of leader gender on willingness to invest in drought preparedness.

Figure 6: Effect of female leader treatment on willingness to invest in drought preparedness



Comment: Confidence intervals are set at the 95% level. The coefficient plot depicts results from OLS regression models with covariates and robust standard errors. Yougov panel participants in South Africa, sample passing the manipulation check (N=710).

Consistent with H5, respondents exposed to a female (rather than male) local leader report greater willingness to support allocating public funds to preparedness measures. The magnitude of the effect is substantively meaningful: on average, respondents in the female leader condition score approximately 0.2 points higher on the five-point willingness scale (see Appendix Table D1). This pattern is robust to including or excluding respondents who fail the

manipulation check, and to alternative model specifications. Additional analyses exploring heterogeneity in the treatment effect are reported in Appendix D1. Taken together, these findings suggest that gendered evaluations of leaders extend beyond preferences over who should govern to shape support for how public resources are allocated. In particular, leaders perceived as more trustworthy and less prone to misuse funds appear to increase citizens' willingness to support long-term investments in disaster preparedness.

8. CONCLUSIONS

This article develops a framework to explain how climate-related events can increase public demand for women political leaders. Focusing on droughts in South Africa, we combine observational data, qualitative interviews, and survey experiments to show that exposure to drought conditions increases support for women leaders and to provide insights into the processes underlying this pattern. Our findings suggest that these effects are linked to perceptions of fairness and integrity in the allocation of public resources: women leaders are seen as more equitable in distributing relief and less likely to misuse funds. Extending these insights, we further show that leader gender shapes support for policy, as respondents are more willing to invest in drought preparedness when local councils are led by women.

More broadly, this article contributes to our understanding of how crises shape political preferences and gender dynamics in politics. While prior work shows that security-related threats, such as conflict and terrorism, tend to increase demand for leaders associated with masculine traits, we demonstrate that environmental crises can have different effects. In contexts characterized by resource scarcity and distributional concerns, such events appear to activate preferences for leaders perceived as more fair, compassionate, and trustworthy. By identifying how different types of crises shift the evaluative criteria citizens use when

assessing leaders, our framework contributes to a broader research agenda on how external shocks shape political attitudes and leadership preferences.

As such, the findings in this article engage with recent discussions on how crises affect the standing of women in politics (e.g., O'Brien and Piscopo 2023), as well as with work linking climate change, public opinion, and gender (Brulé 2023; Bush and Clayton 2023; Clayton et al. 2024). In showing that droughts affect the type of politician people prefer, our study also speaks to a broader literature on voter responses to extreme weather (see Cooperman 2022; Demirdogen and Olhan 2025; Birch 2024). By demonstrating that perceptions of political leadership shape willingness to support investments in disaster preparedness, we contribute a new perspective to emerging research on public opinion and adaptation policies (e.g., Gilens et al. 2024; Hartmann 2025). More broadly, our findings also speak to scholarship on women's political representation in Africa (see Bauer and Burnet 2013; Edgell 2018; Kao et al. 2024; Kroeger and Kang 2022; Muriaas et al. 2018; Tripp 2015), offering new insight into the demand-side dynamics that may sustain or hinder women's access to political office.

While the contribution we make advances our understanding of these processes, this research field remains nascent, and several limitations point to directions for future work. First, the survey item used in the observational analysis does not perfectly match standard measures employed in datasets such as the WVS or LAPOP. While we are confident that it captures meaningful variation in demand for women leaders, future studies should examine whether similar patterns hold using alternative instruments. Second, contrary to our expectations, women leaders are not perceived as less effective in accessing relief funds; if anything, they are seen as slightly more capable. One possible explanation is that women who attain leadership positions in male-dominated contexts are perceived as especially competent (Anzia and Berry 2011), though this warrants further investigation. Third, future research

would benefit from extending the focus from public opinion to political behavior, for example by examining whether drought exposure affects electoral outcomes and the representation of women at local and national levels.

In sum, this article provides new theoretical and empirical insights into how climate-related events—likely to become more frequent with global warming—shape public attitudes toward political leadership. By showing that such events can increase demand for women leaders and influence support for adaptation policies, our findings highlight how environmental change may have broader implications for political representation and governance. We encourage future research to build on this agenda using complementary approaches and in other regional contexts.

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Supplementary A. Extensions and Robustness Tests to Study 1

Table A1. Frequency of Demand Responses

Demand response	N	%
Agree strongly with "Men make better political leaders than wom should be elected rather than women"	974	10
Agree strongly with "Men make better political leaders than women, and should be elected rather than women"	998	10
Neutral category, agree with neither /both	234	2
Agree with "Women should have the same chance of being elected to political office as men"	2,556	27
Agree strongly with "Women should have the same chance of being elected to political office as men"	4,816	50

Notes: Afrobarometer, rounds 3, 5, 6, 7 and 9.

Extension and robustness

It seems that the change in attitudes to women leaders we observe is visible in subsamples of both women and men, yet somewhat stronger among the latter (see table A2). This table also documents that the effects we observe are primarily visible in subsamples of those in urban areas (compared to rural ones) and among more well-educated respondents, compared to those without a degree. Moreover, we can also establish that respondents in our main sample that experience drought conditions, also report an increased tendency to state that that they have gone without food the last year, without cooking fuel to prepare food and without medicine or medical treatment for them or their kin (table A3). While these trends do not provide clear insights in the mechanisms that is likely to cause the effect on demand for female leaders, they do highlight that our measure captures the experienced hardship from droughts.

To understand these findings further, we run several analyses that alter our baseline findings. When we exchange our measure of Drought Conditions with the simple measure of AI of SPEI (12 months) (model 1 in table A4), we see no association with our outcome variable. This speaks in favor of our indicator that we believe is more theoretically motivated. Column 2 in this table shows that the measure of AI of SPEI (12 months) that is weighted by the growing season of main crops has a positive and significant effect on our dependent variable.

A series of robustness tests show that our results are insensitive to various alternative specifications of our baseline model. First, we document that the effects we observe are also present when we study the margins between different scale steps of the survey item of demand for female leaders. We create four different dummy variables that in different ways capture attitudes in this question, by varying which response categories are included as 0 and as 1. The results in table A5, we see a positive effect from drought conditions on all of these alternative binary outcome measures, suggest that our main effects are not sensitive to this alteration. Second, we vary the level of precision in our geolocation of survey respondents. We estimate three models with alternative approaches: (i) including the precision code of respondents in rounds 3, 5, 6, 7 and 9 as a control, by inserting dummies for each precision code, (ii) focusing on a subsample of rounds 3, 5 and 6, where coordinates were assigned post-survey, and (iii) a model of respondents from rounds 3, 5, 6, 7 and 9, but only those with the most precise code of geolocation. Table A6 shows that effects are consistent across these approaches. Third, we show that the results are insensitive to excluding or including control variables. Table A7 shows that excluding our different spatial and temporal measures do not alter our main effect. We also provide results that document consistent effects across

specifications where we vary which individual-level controls are included or not. In a geographic extension, we then run these models on a sample of all countries included in the Afrobarometer surveys (see the table A9). While the main estimation on the full sample is not significant, we find small positive effects on demand for female leaders from our measure of drought conditions among women respondents (models 1-3). Estimations that include a measure of severity of droughts show somewhat larger effects, present both among men and women, albeit more clearly so among female respondents (see models 4-9). We also estimate models with spatial HAC standard errors (appendix table A10). We extend the analysis to use an alternative measure of droughts, as captured by droughts disasters in a region, using the geocoded GDIS dataset, a dataset that builds on the most widely used figures on reported disasters (Rosvold and Buhaug 2021). Because the apparent problem of regional bias in reporting of such disasters, we mainly consider this to be a complement. With this analysis, the focus is on the whole set of countries included in the Afrobarometer surveys and drought disaster is a binary measure. These analyses corroborate the main finding that droughts are associated with an increase in the demand for women leaders (appendix table A11). In detail, respondents that have had a drought disaster in the region they live in this year or the past year are, on average, some 0.3 scale-steps more positive towards women leaders.

Table A2. Subsamples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sample	Women	Men	Rural	Urban	Informal and primary education	Secondary education	Post-graduate
Drought conditions	0.090*	0.143***	0.064	0.133***	0.035	0.109**	0.227***
	(0.037)	(0.040)	(0.054)	(0.037)	(0.060)	(0.040)	(0.006)
All control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	4,809	4,769	3,163	6,415	1,811	5,768	1,999
R^2	0.10	0.10	0.16	0.09	0.22	0.11	0.18

Notes: The dependent variable is Demand for Female Leaders. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Table A3. Intermediary Outcomes

	(1)	(2)	(3)	(4)
Dependent variable:	Without food	Without cooking fuel	Without water	Current government handling of water services
Drought conditions	0.053*	0.095***	0.074**	-0.106**
	(0.022)	(0.026)	(0.027)	(0.034)
All control variables	Yes	Yes	Yes	Yes
N	7,991	7,928	7,998	4,599
R^2	0.15	0.19	0.16	0.16

Notes: Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

The dependent variables are ordinal variables. Without food: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough food to eat?" Without cooking fuel: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough fuel to cook your food?" Without water: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough clean water for home use?" Possible answers for all of these questions are: Never, Just once or twice, Several times, Many times, and Always. Analyses on these items are made on respondents in rounds 3, 5, 6, 7 and 9. Current government handling of water services: Based on the question: "How well or badly would you say the current government is handling the following matters … Providing water and sanitation services?" Possible answers for this question is: Very badly, Fairly badly, Fairly well, and Very well. This question was only asked in rounds 5 and 6.

Table A4. Alternative Indicators for Drought Conditions

	(1)	(2)
AI of SPEI-12	0.021	
	(0.036)	
AI of main-crop growing season weighted SPEI		0.258*
		(0.097)
All control variables	Yes	Yes
N	9,586	9,578
R^2	0.09	0.09

Notes: The dependent variable is Demand for Female Leaders. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in Section 4.

Table A5. Binary Indicators of Demand for Female Leaders

	(1)	(2)	(3)	(4)
Agrees *at least:*	*With category 2*	*With category 3*	*With category 4*	*With category 5*
Drought conditions	0.023***	0.024**	0.037***	0.031**
	(0.007)	(0.009)	(0.013)	(0.010)
All control variables	Yes	Yes	Yes	Yes
N	9,578	9,578	9,578	9,578
R^2	0.07	0.08	0.08	0.10

Notes: Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

The binary outcomes capture different versions of our item on Demand for Female Leaders. In Model 1, 1 is denoted by those whose responses to the item is coded as 2, 3, 4 and 5 (0 to those that are coded as "1"). In Model 2, 1 is denoted by those whose responses to the item is coded as 3, 4 and 5. In model 3, 1 is denoted by those whose responses to the item is coded as 4 and 5. In model 4, 1 is denoted by those whose responses to the item is coded as 5.

Precision codes

The post-survey geocoding introduces a level of uncertainty in locations. Following the AidData precision code structure, each level receives a code of precision (Strandow et al. 2011). The codes vary from "1," (the EA is given exact coordinates, to "6" (coordinates only refer to the country as a whole). The two most imprecise precision categories only account for some 1% of the sample in rounds 3–6). In rounds 7 and 9, all respondents receive the more exact location codes. In our main analysis, we include respondents who are geocoded in their locations with a code of precision of 1, 2, or 3. This corresponds to at least being correctly assigned to a second-order administrative division (district) (which is the case for about 93% of all respondents in rounds 3–7). One can view this as a trade-off, between precise coordinates and an unbiased draw of the sample (the latter would be at risk if we only include those with the most precise location codes, more likely to reside in well-known cities). Our main results are based on respondents with a precision code of 1, 2, or 3. But we show in table A5 how results with a sample of varying precision codes are roughly similar.

Table A6. Baseline Estimation with Varying Precision Codes

	(1)	(2)	(3)
Treatment	All observations and with precision code as control variable	Rounds 3–6	Precision code = 1
Drought conditions	0.116***	0.091**	0.120***
	(0.029)	(0.036)	(0.043)
All control variables	Yes	Yes	Yes
N	9,578	6,555	8,404
R^2	0.09	0.12	0.09

Notes: The dependent variable is Demand for Female Leaders. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

This table presents three models with different approaches: (a) controlling for the precision code assigned to respondents in rounds 3, 5, 6, 7 and 9, by including separate binary indicators for each precision code, (b) including only respondents in rounds 3–6 which were all assigned coordinates in post-survey geocoding, and (c) including respondents from all rounds (3–9), but only those with a precision code of 1.

Table A7. Baseline Estimation with Control Variables Omitted

	(1)	(2)	(3)	(4)
Controls omitted	Urban/rural	EA controls	Distances measures etc.	Temporal variables
Drought conditions	0.114***	0.096***	0.115***	0.156***
	(0.029)	(0.028)	(0.029)	(0.029)
All other control variables	Yes	Yes	Yes	Yes
N	9,578	10,268	9,578	9,578
R^2	0.09	0.09	0.09	0.09

Notes: The dependent variable is Demand for Female Leaders. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Each model omits one of the following: Model 1: urban/rural identifier from the Afrobarometer data. Model 2: The EA services/facilities coded by enumerators. Model 3: Altitude, variation in altitude, distance to city, border, coast, river, and road. Model 4: Year FE, Month FE.

Table A8. Baseline Estimation with Individual-Level Control Variables Omitted

	(1)	(2)	(3)	(4)
Controls omitted	w/o age	w/o gender	w/o education	w/o age, gender, education
Drought conditions	0.114***	0.115***	0.112***	0.111***
	(0.029)	(0.029)	(0.029)	(0.030)
All control variables	Yes	Yes	Yes	Yes
N	9,624	9,578	9,607	9,653
R^2	0.09	0.09	0.09	0.06

Notes: The dependent variable is Demand for Female Leaders. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Each model omits one of the following: Model 1: age. Model 2: gender. Model 3: education. Model 4 omits all individual-level controls (age, gender, education).

Table A9. Extended Analysis to all Countries in the Afrobarometer Survey

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All	*Men*	*Women*	*All*	*All*	*Men*	*Men*	*Women*	*Women*
Drought conditions	0.013	0.003	0.021*						
	(0.008)	(0.011)	(0.010)						
0 < Drought conditions				0.081***		0.013		0.094***	
				(0.017)		(0.020)		(0.020)	
0 < Drought conditions < 1					0.077***		0.008		0.051**
					(0.017)		(0.021)		(0.018)
1 < Drought conditions < 1.5					0.054		-0.004		0.032
					(0.036)		(0.045)		(0.042)
1.5 < Drought conditions					0.146***		0.088*		0.104**
					(0.035)		(0.041)		(0.039)
All control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	136,328	68,323	68,005	142,773	142,773	71,555	71,555	71,222	71,222
R^2	0.13	0.14	0.13	0.12	0.12	0.09	0.09	0.13	0.09

Notes: The dependent variable is Demand for Female Leaders. Analyses on this extended sample are made on respondents in rounds 3, 5, 6, and 7 (we do not have access to the geocoded version of round 9 for the full continent). Models include grid cell fixed effects. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Table A10. Spatial HAC Standard Errors

	(1)
	All
Drought conditions	0.058**
	(0.019)
All control variables	Yes
N	9,578
R^2	0.06

Notes: The dependent variable is Demand for Female Leaders. In parentheses are spatial HAC standard errors allowing for a spatial correlation within a 500 km radius of an EA cluster location and infinite serial correlation (using the *acreg* package in Stata, see *https://acregstata.weebly.com*). Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Table A11. Extended Analysis: Drought Disasters (GDIS) in Regions for the Whole of Africa

	(1) *All*	(2) *Men*	(3) *Women*
Drought disaster in $Region_{t,t-1}$	0.273***	0.311***	0.238***
	(0.052)	(0.069)	(0.070)
All control variables	Yes	Yes	Yes
N	136,502	68,411	68,091
R^2	0.11	0.10	0.10

Notes: The dependent variable is Demand for Female Leaders. Model includes grid cell fixed effects. Analyses are made on respondents in rounds 3, 5, 6, and 7 (we do not have access to the geocoded version of round 9 for the full continent). Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are similar to our baseline estimation.

The GDIS dataset (Rosvold and Buhaug 2021) extends the Emergency Events Database (EM-DAT), by geocoding disasters to subnational units. Drought Disaster in $Region_{t,t-1}$ is a binary indicator for whether a drought disaster was reported in the region during the year of the Afrobarometer survey or the year before.

Table A12. Robustness: Controlling for Drought Declarations

	(1)	(2)	(3)	(5)
Drought conditions, controlling for declaration, past month	0.116***			
	(0.029)			
Drought conditions, controlling for declaration, past 3 months		0.117***		
		(0.030)		
Drought conditions, controlling for declaration, past 6 months			0.117***	
			(0.030)	
Drought conditions, controlling for declaration, past 12 months				0.115***
				(0.030)
All control variables	Yes	Yes	Yes	Yes
N	9,578	9,578	9,578	9,578
R^2	0.09	0.09	0.09	0.09

Notes: The dependent variable is Demand for Female Leaders. Model includes grid cell fixed effects. South African AB sample, rounds three, five, six, seven and nine (the period 2005-2022). Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

Table A13. Drought Declarations and Intermediary Outcomes

Dependent variable:	(1) Without food	(2) Without cooking fuel	(3) Without medicine/ medical treatment	(5) Current government handling of water services
Drought declaration, past month	0.107	0.319*	0.269	-0.502***
	(0.100)	(0.128)	(0.150)	(0.133)
All control variables	Yes	Yes	Yes	Yes
N	8,024	7,960	8,021	4,603
R^2	0.11	0.17	0.26	0.16

Notes: The dependent variables are ordinal variables. Without food: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough food to eat?" Without cooking fuel: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough fuel to cook your food?" Without medicine/medical treatment: Based on the question: "Over the past year, how often, if ever, have you or anyone in your family gone without: Enough clean water for home use?" Possible answers for all of these questions are: Never, Just once or twice, Several times, Many times, and Always. Analyses on these items are made on respondents in rounds 3, 5, 6, 7 and 9. Current government handling of water services: Based on the question: "How well or badly would you say the current government is handling the following matters … Providing water and sanitation services?" Possible answers for this question is: Very badly, Fairly badly, Fairly well, and Very well. This question was only asked in rounds 5 and 6.

Model includes grid cell fixed effects. South African AB sample. Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables included are presented in section 4.

The four dependent variables behave the same (having effects of a comparable size, direction and level of significance), also when using measures drought declarations at the past 3 or 6 months (results available upon request).

Table A14. Exploration of Heterogeneity over Women's Local Presence

	(1)	(2)
Drought condition	0.119***	0.118***
	(0.030)	(0.030)
Woman ward councilor	0.018	
	(0.034)	
Share W. Mun. councilors		0.094
		(0.215)
All control variables	Yes	Yes
N	9,391	9,451
R^2	0.09	0.09

Notes: The dependent variable is Demand for Female Leaders. The control variable of interest in model 1 is measured as whether the ward elected a woman leader, at the time of the interview. The control variable of interest in mode 2l is measured as the share (%) of women in a respondent's municipality council, at the time of the interview. Models include grid cell fixed effects. South African AB sample, rounds three, five, six, seven and nine (the period 2005-2022). Estimated with OLS, coefficients reported. In parentheses are standard errors, clustered at the 0.1 degree grid cell level and robust to heteroscedasticity. Stars indicate significance levels at 5% (*), 1% (**), and .1% (***). The control variables are the same as in the baseline specification.

Supplementary B. Additional Quotes from Study 2

Appendix Bx: Quotes on the theme "Events that make corruption salient":

> You might discover that leaders did obtain funds for drought relief but did not want to distribute them to everyone. Instead, they offer it to their families, who may not require it much given that there are other families who are starving to death. Due of this, people often demonstrate against their leaders and damage government and leader property, including destroying schools and clinics (43, F)

Appendix B1: Quotes on the theme "Access to relief and the importance of contacts":

> People with big network and connections are much better at accessing droughts relief funds including those who comes from well-connected families (17, M)

> Those who have been in power are much better because they would know what to do when droughts strike. You might find out that someone has experienced droughts in their leading positions, and they had to deal with the situation and when droughts occurs again it becomes much easier for them as they already know the way. And those who have been in power are most likely to be known by those people from the central authorities (22, M)

> The majority of newcomers lack connections and experience getting things done. Yes, newcomers may be energetic or witty, but this leadership game requires connection (41, F)

> Long-time leaders have a better chance of getting access to cash for drought relief than new arrivals. Simply because they know the way and are connected with many people (25, M)

Appendix B2: Quotes on the theme "Access is not delivery":

> Once you become in power for a longer time you become known and connected, which makes it easier to access the funds … those with big networks and connections are much better accessing the relief funds but they deliver less towards the communities (19, F)

> Yes, leaders with connections or leaders who are well-known to everyone serve the community to protect their reputation. This doesn't mean, however, that these leaders don't steal or engage in corruption; rather, it just means that they are very skilled at playing their cards. They only give communities a portion of what they have and, while lying, assure people that more will come (43, F)

Appendix B3: Quotes on the theme "Men as connected but corrupt":

> Men will connect with their connections to learn how to obtain cash for drought relief because they have more connections than women leaders, and as I have mentioned previously, connection is the key. Due to the fact that the majority of men engage in corruption, fraud, and bribery, they can also be the most effective. Everyone has a price, and anyone can be purchased (47, F)

> Yes, men in local decision making are most likely to be connected, as they are mostly people who are involved in bribery and things which would mostly benefit themselves … although men can access some funds with their connections easily, they don't provide services towards people (17, M)

Appendix B3: Quotes on the theme "Women as outsiders and equitable distributors":

> Those who might have access to relief funds its men mostly. But the problem is after getting those funds, what do they do with the funds? Men have access to funds because of their connections but they deliver less. Women don't have much access to relief funds, but they deliver more (18, M)

> Men only think for themselves as a leader he would want to benefit all the things as one such as making a project alone knowing that he would benefit some cash … women can access funding better, manage the finances much better, distributing food parcels equally to one another (25, M)

I think that women can be good in managing the finances. They can make sure that everyone is being given some funds. For example, if people are being given money and they can make sure that the money is working on the right things which should be done when there's droughts (21 F)

Supplementary C. Details to Study 3

Appendix C1: Power Analysis for Survey Experiment

We conducted a priori power calculations to determine sample size, using *G* Power*.[13] Assuming a small effect size (d = 0.20), a power of 0.80, and a two-sided test (α = 0.05), the minimum sample size per treatment group should be 394 respondents. Thus, we designed our experiment such that the total sample amounts to at least 800 respondents.

[13] *https://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower*

Appendix C2: Ethics, Survey Experiment

We obtained ethical approval for this study (no. [redacted]). Respondents that participated in our survey did not run the risk of being exposed of any significant harm. They were asked questions about their political attitudes. We also asked about descriptive socio-demographic questions. These items should not be seen as intrusive. Answering them, we believe, poses a minimal risk of discomfort. We decided not to ask respondents about their income level, as not to put them at unease.

Appendix Figure C1: the Full Information Given as Background

Please read the following background carefully.

As you may know, South Africa will face more severe and frequent droughts the years to come. With droughts, localities across the nation will suffer and need relief from authorities.

A municipality facing droughts can apply to national government for a Municipal Disaster Grant. This relief fund intends to help those in need. It involves investment in water provision and help to households (such as food parcels, vouchers or financially, through cash handouts).

The municipal council in charge of such applications consists of locally elected members. These members can apply for Municipal Disaster Grants, whereby they can get significant funds from central authorities in the forms of money that they are responsible for allocating.

Appendix Table C1a: Summary Statistics

Variable	N	Mean	SD	Min	Max
Age	1051	36.84	13.49	18	80
Male	1051	0.52	0.50	0	1
Education	1051	2.39	0.68	1	3
Immigrant	1051	0.95	0.23	0	1
Income	1051	9.81	5.39	1	19

The sample reflects all respondents. In the main analysis 196 individuals who did not pick up the treatment were excluded.

Appendix Table C1b: Covariate Balance

Variable	Male treatment			Female treatment			Difference in Means
	N	Mean	SD	N	Mean	SD	
Age	514	37.18	13.36	496	36.90	13.62	0.28
Male	514	0.51	0.50	496	0.53	0.50	-0.02
Education	514	2.40	0.65	496	2.41	0.70	0.01
Immigrant	514	0.96	0.20	496	0.94	.24	0.02
Income	514	9.96	5.39	496	10.01	5.25	0.05

The sample reflects all respondents. In the main analysis 196 individuals who did not pick up the treatment were excluded.

Appendix C3: T-tests

In detail, the 377 participants receiving the female leader prompt (mean = 3.6, SD = 1.14) compared to the 447 participants in the group with information about a male leader (mean = 3.8, SD = 1.09) demonstrated a significant difference in beliefs that this representative would be successful in accessing relief fund money $t(822) = -2.22$, $p = .027$. Those in the female condition are less likely to agree that distribution would be fair. The 377 participants receiving information about a female leader (mean = 3.2, SD = 1.15) compared to the 447 participants in the male condition group (mean = 3.4, SD = 1.09) showed a clear difference in opinion to the question of the extent to which this representative would ensure that relief fund money are distributed fairly across different groups in the local community when there is a drought $t(822) = -2.93$, $p = .004$. Those in the female condition are more likely to agree that distribution would be fair. The 377 participants receiving the female leader prompt about a (mean = 3,3, SD = 1.28) compared to the 447 participants getting information about a male leader (mean = 3.0, SD = 1.24) demonstrated significantly different views in the question of whether the representative will likely steal some of the relief fund money when there is a drought $t(822) = 2.29$, $p = .022$. Those in the female condition are less likely to agree that the council leader will steal funds.

Appendix Table C2: Full Models of Survey Experiment

	Model C2a	Model C2b	Model C2c	Model C2d	Model C2e	Model C2f
	Access	*Access*	*Distribution*	*Distribution*	*Corrupt*	*Corrupt*
Female leader	0.173*	0.168*	0.268**	0.247**	-0.203*	-0.185*
	(0.078)	(0.078)	(0.091)	(0.009)	(0.060)	(0.089)
Controls	No	Yes	No	Yes	No	Yes
Constant	3.604***	3.130***	3.159***	3.305***	3.378***	2.629***
	(0.053)	(0.310)	(0.063)	(0.339)	(0.060)	(0.288)
N	824	807	824	807	824	807

Notes: OLS with robust standard errors. Analysis of respondents that passed the manipulation check. Controls included are, gender, age, education, immigrant, income and a dummy for province of residence. Analysis of respondents that passed the manipulation check. Controls included are, gender, age, education, immigrant and income. In parentheses are standard errors. Comment: *Access* captures attitudes to the statement "This representative will be successful in accessing relief fund money through contacts in the national government when there is a drought". *Distribution* captures attitudes to the statement "This representative will ensure that relief fund money are distributed fairly across different groups in the local community when there is a drought". *Corruption* captures attitudes to the statement "This representative will likely steal some of the relief fund money when there is a drought". Response options for these variables range from 'Disagree strongly' (1) to 'Agree strongly' (5). Reported coefficients with confidence intervals are set at the 95% level. Sample of Yougov panel participants in South Africa.
Stars indicate significance levels at 5% (*), 1% (**), and .1% (***).

Appendix Table C3: Full Models of Survey Experiment (full sample)

	Model C3a	Model C3b	Model C3c	Model C3d	Model C3e	Model C3f
	Access	*Access*	*Distribution*	*Distribution*	*Corrupt*	*Corrupt*
Female leader	0.114	0.111	0.225**	0.209**	-0.199*	-0.166*
	(0.069)	(0.070)	(0.081)	(0.080)	(0.079)	(0.089)
Controls	No	Yes	No	Yes	No	Yes
Constant	3.623***	3.166***	3.202***	3.541***	3.403***	2.625***
	(0.049)	(0.272)	(0.059)	(0.292)	(0.055)	(0.256)
N	1020	1000	1020	1000	1020	1000

Notes: OLS with robust standard errors. Analysis of all respondents, including those not passing the manipulation check. Controls included are, gender, age, education, immigrant, income and a dummy for province of residence. Analysis of respondents that passed the manipulation check. Controls included are, gender, age, education, immigrant and income. In parentheses are standard errors. Comment: *Access* captures attitudes to the statement "This representative will be successful in accessing relief fund money through contacts in the national government when there is a drought". *Distribution* captures attitudes to the statement "This representative will ensure that relief fund money are distributed fairly across different groups in the local community when there is a drought". *Corruption* captures attitudes to the statement "This representative will likely steal some of the relief fund money when there is a drought". Response options for these variables range from 'Disagree strongly' (1) to 'Agree strongly' (5). Reported coefficients with confidence intervals are set at the 95% level. Sample of Yougov panel participants in South Africa.

Stars indicate significance levels at 5% (*), 1% (**), and .1% (***).

Appendix C4: Robustness and Heterogeneity of the Effects on Drought Relief Outcomes

Robustness

We run versions of our baseline model with covariates, now with additional variables included. The results from our treatment remain significant in all three baseline specifications, also when we include additional variables, measuring (1) political affiliation (dummies denoting which political party the respondent state the most support of – alternatives being 'ANC', 'DA', 'EFF' or 'Other'), (2) Experience of drought (the question "Have you experienced a drought in the area where you live during the last 1-2 years – alternative being 'yes' and 'no'), and (3) worry over droughts (the question "In general, how worried are you about future droughts in South Africa?" – alternatives being 'very worried', 'somewhat worried', 'a little worried' and 'not worried at all'). Models not reported here because of manuscript length limitations.

Heterogeneity

We then explore heterogeneity, again with versions of our three baseline models, covariates included. We do not find any signs of moderation of effects when we look at specifications where we interact our treatment variable, in separate models, with either (1) the gender of respondents or (2) a dummy for ANC-supporters (where '0' denotes support for other parties). Models not reported here because of manuscript length limitations.

Supplementary D. Details to Study 4

Appendix Figure D1: the Full Information Given as Background in the Preparedness Experiment

Please read the following background carefully.

As you may know, South Africa will face **more severe and frequent droughts** in the years to come. As a consequence of droughts, localities across the nation will suffer from water shortages, risking leading to rising prices and unemployment that harms the wellbeing of people and the economy at large.

There are several ways a locality can make itself prepared to handle severe droughts. New investments in water management in a local area can include saving funds for better water trucks, helping farmers to plant drought resilient plants, or other preparedness measures.

Such investments could require that localities **save public funds for a time to make larger investments**.

Much of these investments are handled by locally elected decision-makers in charge of public funds.

These decision-makers are tasked to make priorities between different areas, trade-offs where spending of public funds in one area will mean less spending of public funds in another.

Appendix Table D1: Full Models of Survey Experiment on Preparedness

	Model D1a	Model D1b
	Willingness to invest in preparedness	*Willingness to invest in preparedness*
Female leader	0.209**	0.233***
	(0.067)	(0.071)
Controls	No	Yes
Constant	4.191***	4.712***
	(0.049)	(0.218)
N	725	710

Notes: OLS with robust standard errors. Analysis of respondents that passed the manipulation check. Controls included are, gender, age, education, immigrant, income and a dummy for province of residence. In parentheses are standard errors. Comment: *Willingness to invest in preparedness* is measured by the item: "How willing would you be to let this council save public funds to invest them in drought preparedness measures?" Respondents are asked to indicate their willingness to this statement, by choosing responses on a scale from (1) "Very willing" to (5), "Very unwilling", with a neutral midpoint (3, "Neither willing nor unwilling). Responses were reverse coded in the analysis to facilitate interpretation. Reported coefficients with confidence intervals are set at the 95% level. Sample of Yougov panel participants in South Africa.
Stars indicate significance levels at 5% (*), 1% (**), and .1% (***).

Appendix Table D2: Full Models of Survey Experiment on Preparedness (full sample)

	Model D2a	Model D2b
	Willingness to invest in preparedness	*Willingness to invest in preparedness*
Female leader	0.173**	0.152*
	(0.062)	(0.062)
Controls	No	Yes
Constant	4.181***	4.440***
	(0.046)	(0.212)
N	971	934

Notes: OLS with robust standard errors. Analysis of all respondents, including those not passing the manipulation check. Controls included are, gender, age, education, immigrant, income and a dummy for province of residence. In parentheses are standard errors. Comment: *Willingness to invest in preparedness* is measured by the item: "How willing would you be to let this council save public funds to invest them in drought preparedness measures?" Respondents are asked to indicate their willingness to this statement, by choosing responses on a scale from (1) "Very willing" to (5), "Very unwilling", with a neutral midpoint (3, "Neither willing nor unwilling). Responses were reverse coded in the analysis to facilitate interpretation. Reported coefficients with confidence intervals are set at the 95% level. Sample of Yougov panel participants in South Africa.
Stars indicate significance levels at 5% (*), 1% (**), and .1% (***).

Appendix D1: Robustness and Heterogeneity of the Effects on Preparedness

Robustness

We run versions of our baseline model with covariates, now with additional variables included. The results from our treatment remain significant also when we include additional variables, measuring (1) political affiliation (dummies denoting which political party the respondent state the most support of – alternatives being 'ANC', 'DA', 'EFF' or 'Other'), (2) Experience of drought (the question "Have you experienced a drought in the area where you live during the last 1-2 years – alternative being 'yes' and 'no'), and (3) worry over droughts (the question "In general, how worried are you about future droughts in South Africa?" – alternatives being 'very worried', 'somewhat worried', 'a little worried' and 'not worried at all'). Models not reported here because of manuscript length limitations.

Heterogeneity

We then explore heterogeneity, again with versions of our baseline model, covariates included. We do not find any signs of moderation of effects when we look at specifications where we interact our treatment variable, in separate models, with either (1) the gender of respondents or (2) a dummy for ANC-supporters (where '0' denotes support for other parties). Models not reported here because of manuscript length limitations.

Supplementary E. Pre-Analysis Plans for Survey Experiments

Pre-analysis: An experiment on leader gender and drought relief

Abstract
This pre-analysis plan outlines a factorial experiment on the topic of the handling of drought relief funds. The research design randomly assigns two versions of an information vignette to respondents. The two versions vary the gender of a council leader (male vs. female) in a described scenario on handling drought relief funds in local councils of South Africa. We have three outcome questions, focusing on the perceived likelihood of (a) access, (b) distribution, and theft (c). This PAP outlines our expectations and analytical strategy.

**IRB approved [no. redacted]*

Background

When droughts strike, there are specific processes in terms of the type of political leader that people ask for that is relevant in corrupt settings. In such contexts, droughts could make people ask for leaders that challenges the dishonest affairs of status quo. Research holds that female politicians that recently has made an entrance in contexts of male dominance are seen by citizens as 'outsiders', with the ability to disrupt how politics is conducted (Wiesenhomeier and Verge 2020). Because of discontent with establishment politics, where men have been in majority, women leaders can be seen as a preferred alternative because of gender stereotyping about trustworthiness (Funk et al. 2019) and experiences from corruption mainly by male officeholders. We believe this is important, as people might be highly dissatisfied with the response to drought disasters and ask for alternatives to those currently in power. There is a widespread idea of women as being 'clean' in a context of dirty politics (Esarey and Schwindt-Bayer 2018). We hold it as possible that women are seen as a substitute to current leaders – that are more likely to be male – which might be seen as corrupt and inept of helping communities when droughts strike.

A specific mechanism of relevance here is that people facing drought disasters often tend to rally to have local leaders to declare emergency, which could make central relief funds accessible (Bedran-Martins and Lemos 2017; Cooperman 2022). In such settings one can model the relationship between local leaders wishing to pull drought relief aid from central authorities. These resources (and emergency declarations) can be surrounded by red tape and bureaucratic hurdles and accessing them quickly is contingent on informal channels. In a corrupt context, the informal structures should be a process of bribery, favors, political alignment, family name recognition and other biases that can be (mis)used by the local leader. The chance of navigating this process is higher for local officeholders with a large amount of contact capital.[14] This reserve of contacts captures knowledge on whom in the central authority to interact with, experience of communication and the resources to facilitate such interaction through gifts, bribes, or social skills. In our framework, experience of officeholding should be beneficial for local leaders to hold contact capital. While this reasoning is stylized, we believe that citizens have a well-established idea on which type of local leader is suitable when droughts strike.

Expectations

In this setting, we suggest that citizens infer that male officeholders will be more efficient in pulling relief aid from the center. Men are likely seen as both (a) more ingrained in networks where they have the informal contacts required and (b) more prone to engage in corrupt exchanges to cut red tape and bypass formal rules. We therefore believe that people would see male local leaders, all things equal, as more efficient in getting their hands on such relief aid from central authorities in times of droughts.

This reasoning should have contrasting implications. This stems from the notion of women leaders as having less contact capital in corrupt settings. These beliefs of women leaders as less likely to engage in corruption could be rooted in experience – if people infer from observations that men in power are more involved in corrupt networks – or simply the prevalence of stereotyping,

[14] As such, this should be seen as very closely related to what Bjarnegård (2013) has theorized as homosocial capital, a part of political capital that can be used in highly clientelist settings to win elections and is reserved for members of the same sex.

where women are viewed as the 'fairer sex' (Goetz 2007).[15] Precisely because women leaders could be seen as being less ingrained in corrupt exchanges and informal practices, they should be perceived as more likely to distribute relief aid fairly, that is, not benefitting their own kin or their friends. Instead, we suggest that women local leaders are seen as distributing relief funds based on who is eligible, and in need, rather than patterns based on favoritism. They should also be seen as less likely to siphon resources to themselves. In sum, we therefore pose the following three hypotheses:

Hypotheses

H1: *Women local leaders are seen as less efficient in accessing drought relief funds from the central authorities*

H2: *Women local leaders are seen as more equitable in distributing drought relief funds across the community*

H3: *Women local leaders are seen as less likely to steal drought relief funds*

Case Selection

This experiment tests our expectations in the context of South Africa.

Research Design

We designed a between-group factorial experiment where two conditions are randomized across participants (Fig 1). Both groups receive information prompts about the future risks in South Africa regarding droughts and that a local elected council can apply for relief funds from central authorities to assist the local community. In the scenarios, what is varied is the council leader gender. The first group receives information that this local council leader is "a female representative". The second group receives information denoting that the leader is "a male representative". Figure 1 illustrates this design.

Figure 1: Overview of Survey Experiment Design

Group 1	Group 2
Female local council leader	Male local council leader

With this design, the purpose is to estimate the average causal effect of getting information of the gender of a leader on our outcomes of interest related to the handling of relief funds. We opted for comparing information about a female leader with information about a male leader instead of having a pure control group (where the gender of a leader would not be specified), because we then would not know what is in this control (that is, if people would deduce that such a leader, because of status quo, is male or not). We are informed by e.g. Clayton et al. (2019), also assuming that a control group without information of politicians' gender would be suboptimal if the purpose is to assess how the gender of such decision-makers affects people's attitudes.

We constructed a background text for everyone with information about how local representatives can ask central authorities for relief funds when droughts strike. First, all respondents were asked to read a background text. This section (appendix A1) conveyed that South Africa will face more severe droughts in the future, that localities suffering from such droughts will need relief from authorities, and that a municipality council of representatives can turn to national authorities to ask for Municipal Disasters Grants in the form of significant funds. Second, in the next section, we ask the participant to consider a scenario where a municipality is facing a severe drought. Figure 2 below is equivalent to what participants in the two groups viewed. The two vignettes depict a situation where a council leader is about to reach out to national authorities to ask for relief aid of a significant amount. We vary the gender of this council leader – "female" and "male" – over the two conditions, randomly assigned across participants.

[15] This reasoning relies on a literature that establish that voters generally see women politicians as being less involved in corrupt networks (see Bjarnegård 2013).

Figure 2: Information Prompt that Varies Council Leader Gender

> Now, please consider a situation where a municipality is facing a severe drought.
>
> The leader of the council in this locality is about to apply to central authorities (national government) to ask for emergency relief for their local municipality.
>
> If the leader is successful in applying to central authorities, the council will receive a significant amount of money. This council is led by a [male/female] representative.

Outcome measures

Post treatment, all respondents will be asked to state their attitude to a number of proposals. We presented three statements, which all are used as dependent variables: (a) "This representative will be able to access relief fund money through contacts in the national government when there is a drought." We denote this item as *Access*. (b) "If funds are accessed, this representative will ensure that relief fund money are distributed fairly across different groups in the local community when there is a drought." This item is denoted *Distribution*. (c) "If funds are accessed, this representative will likely steal some of the relief fund money when there is a drought." We denote this item as *Corrupt*. All items can be answered through five different options, ranging from "Strongly disagree" (1) to "Strongly agree" (5). We randomized the sequence of the latter two outcome questions in the survey flow, to account for possible order effects.

Sample and power calculation

We will run the study on an online sample, targeting residents in South Africa, using a commercial panel service. We conducted a priori power calculations to determine sample size, using G* Power. Assuming a small effect size ($d = 0.20$), a power of 0.80, and a two-sided test ($\alpha = 0.05$), the minimum sample size per treatment group should be 394 respondents. Thus, we designed our experiment such that the total sample amounts to at least 800 respondents.

Covariates

We recorded, prior to the information treatment, participants age (a numerical measure in years), education (a numerical measure in completed years), a binary indicator of gender (man or woman), a dummy of whether the person is born in South Africa (or not) and, finally, which political party the person is the most supportive of.[16] The survey company will provide information on respondents' area of residence.

Analytical Strategy

Main analysis

We will estimate three baseline models, with each of the survey items described as outcomes measures, using our binary treatment as the main independent variable. To estimate the average treatment effects, we will use a simple difference-in-means estimator, using OLS regression models with robust standard errors, and use the sociodemographic variables as controls, to increase precision. Besides our main analysis, we complement this with secondary analyses, described below.

Exploring Heterogeneous Effects by Respondent Gender

We will explore our main results by male and female respondents.

Exploring Heterogeneous Effects by Political Affiliation

We will explore our main results by our variable of political affiliation.

Exploring Robustness by Stated Drought Experience

[16] Response options were 'ANC'/ 'EFF'/ 'DA'/ 'Other'.

We will rerun our baseline models on respondents in the sample that state experience with droughts vs. those that does not. We measure this through a question measured post-treatment: "Have you experienced a drought during the last 1-2 years?" (Yes/ No). We will analyze a sample split based on the responses to this question.

Exploring Robustness by Worry of Drought
We will rerun our baseline models on respondents in the sample that state worry over droughts vs. those that does not. We measure this through a question measured post-treatment: "In general, how worried are you about future droughts in South Africa?" (response categories are 'Very worried', 'Somewhat Worried', 'A little worried' and 'Not worried at all'). We will create binary measures from this variable and explore nuances of this attitude.

Manipulation Check
We will rerun our baseline models on respondents in the sample that pass a treatment recall question. This item asks respondents: "In the scenario being described, a councilor was mentioned. What gender did this person have?" The possible answers given are 'male' and 'female'. Those selecting the gender present in the vignette in respective treatment are deemed as successfully receiving the manipulation.

Attention Check
We will rerun our baseline models on respondents in the sample that pass our attention check question. This item asks respondents to 'Select the number seventeen from the list of numbers below'. The respondents are given four alternatives of numerical answers, only one which is correct. Those selecting '17' are deemed as passing the check.

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Appendix A1: Instructions

As you may know, South Africa will face **more severe and frequent droughts** in the years to come. As a consequence of droughts, localities across the nation will suffer and need relief from authorities.

A municipality facing droughts can apply to national government for a Municipal Disaster Grant. This relief fund is **intended to help those in need**. It involves investment in water provision and assistance for households (such as food parcels, vouchers or financially, through cash handouts).

The municipal council in charge of such applications consists of locally elected members. These members can apply for Municipal Disaster Grants, whereby **they can get significant funds from central authorities** in the forms of money that they are responsible for allocating.

Pre-analysis: An experiment on women leaders and attitudes to disaster preparedness

Abstract
This pre-analysis plan outlines a factorial experiment on the topic of women leaders and citizens' attitudes towards drought disaster preparedness in South Africa. The research design randomly assigns two versions of an information vignette to respondents. The two versions vary the gender of a council leader (male vs. female) in a described scenario about investing in measures for drought preparedness. The outcome question probes stated willingness to let this council save public funds to invest them in drought preparedness measures. This PAP outlines our expectations and analytical strategy.

**IRB approved [no. redacted]*

Background

We are interested in testing an argument holding that receiving information about the gender of a council leader affects people's willingness to let this council save public funds to invest them in drought preparedness measures. Our reasoning is founded in works on gender and corruption, which is highly relevant for attitudes to drought preparedness in the context of South Africa.

Research holds that female politicians that recently has made an entrance in contexts of male dominance are seen by citizens as 'outsiders', with the ability to disrupt how politics is conducted (Wiesenhomeier and Verge 2020). Because of discontent with establishment politics, where men have been in majority, women leaders can be seen as a preferred alternative because of gender stereotyping about trustworthiness (Funk et al. 2019) and experiences from corruption mainly by male officeholders. We hold it as possible that women are seen as a substitute to current leaders – that are more likely to be male – which might be seen as corrupt and less reliable to keep funds meant for preparedness without theft. We suggest that this is important, as people might be highly dissatisfied with the response to drought disasters and ask for alternatives to those currently in power. There is a widespread idea of women as being 'clean' in a context of dirty politics (Esarey and Schwindt-Bayer 2018). Beliefs of women leaders as less likely to engage in corruption could be rooted in experience – if people infer from observations that men in power are more involved in corrupt networks – or simply the prevalence of stereotyping, where women are viewed as the 'fairer sex' (Goetz 2007).[17] Because women leaders could be seen as being less ingrained in corrupt exchanges and informal practices, they should be perceived as less likely to siphon these resources to themselves.

In this setting, we suggest that citizens infer that female local officeholders will be seen as more reliable in keeping public funds for future investments on preparedness as they are less prone to engage in corrupt exchanges.

Expectation

We test the following hypothesis:
H1: *Respondents receiving an information treatment about a female council leader should be more willing to let this council save public funds to invest them in drought preparedness measures*

Case Selection

This experiment tests our expectation in the context of South Africa.

Research Design

We designed a between-group factorial experiment where two conditions are randomized across participants (see Figure 1). In the scenarios, what is varied is the council leader gender. The first group receives information that this local council leader is "a female representative". The second group receives information denoting that the leader is "a male representative". Figure 1 illustrates this design.

[17] This reasoning relies on a literature that establish that voters generally see women politicians as being less involved in corrupt networks (see Bjarnegård 2013).

Figure 1: Overview of Survey Experiment Design

Group 1	Group 2
Female local council leader	Male local council leader

With this design, the purpose is to estimate the average causal effect of getting information of the gender of a leader on our outcome of interest related to investment in drought preparedness. We opted for comparing information about a female leader with information about a male leader instead of having a pure control group (where the gender of a leader would not be specified), because we then would not know what is in this control (that is, if people would deduce that such a leader, because of status quo, is male or not). We are informed by e.g. Clayton et al. (2019), also assuming that a control group without information of politicians' gender would be suboptimal if the purpose is to assess how the gender of such decision-makers affects people's attitudes.

We first constructed a background text for everyone with information about the possibility for local leaders to invest in drought preparedness. All respondents were asked to read this background text (after some questions about sociodemographic information, see the ensuing section 'Covariates'). The information section (see the text in appendix A1) conveyed that South Africa will face more severe droughts in the future and that localities can make themselves prepared to handle droughts through investments in water management. Examples of such investments are better water trucks, efforts to help farmers to plant drought resilient plants, or other preparedness measures. This text also mentions that investments could require that localities save public funds for a time to make larger investments and that they are handled by locally elected decision-makers in charge of public funds. Finally, it is noted that these decision-makers are tasked to make priorities between different areas, trade-offs where spending of public funds in one area will mean less spending of public funds in another.

Second, in the next section, we introduce the information treatment with the experimental manipulation. We ask the participant to consider a scenario where a municipality is facing the possibility of investing funds for drought preparedness. Figure 2 below is equivalent to what participants in the two groups viewed. The two versions of the vignette depict a situation where a council is debating a proposal to invest part of the public budget into a fund to be used for preparedness measures. We vary the gender of this council leader – "woman" and "man" – over the two conditions, randomly assigned across participants.

Figure 2: Information Prompt that Varies Council Leader Gender

> Please consider a situation where a municipality, like the one you are residing in, is faced with the choice of whether or not to invest in measures for drought preparedness.
>
> The council in this municipality is now debating a proposal to invest a part of the public budget into a fund to be used for preparedness to droughts.
>
> This council of decision-makers is led by a [woman/man].

Outcome measures

Post treatment, all respondents are presented with the question: "How willing would you be to let this council save public funds to invest them in drought preparedness measures?" Respondents are asked to indicate their willingness to this statement, by choosing responses on a scale from (1) "Very willing" to (5), "Very unwilling", with a neutral midpoint (3, "Neither willing nor unwilling).

Sample and power calculation

We will run the study on an online sample, targeting residents in South Africa, using a commercial panel service. We conducted a priori power calculations to determine sample size, using G* Power.

Assuming a small effect size (d = 0.20), a power of 0.80, and a two-sided test (α = 0.05), the minimum sample size per treatment group should be 394 respondents. Thus, we designed our experiment such that the total sample amounts to at least 800 respondents.

Covariates
We recorded, prior to the information treatment, participants age (a numerical measure in years), education (a numerical measure in completed years), a binary indicator of gender (man or woman), a dummy of whether the person is born in South Africa (or not) and, finally, which political party the person is the most supportive of.[18] The survey company will provide information on respondents' area of residence.

Analytical Strategy
Main analysis
We will estimate a baseline model, with our outcome question, using our binary treatment as the main independent variable. To estimate the average treatment effects, we will use a simple difference-in-means estimator, using OLS regression models with robust standard errors, and use the sociodemographic variables as controls, to increase precision. Besides our main analysis, we complement this with secondary analyses, described below.

Exploring Heterogeneous Effects by Respondent Gender
We will explore our main results by male and female respondents.

Exploring Heterogeneous Effects by Political Affiliation
We will explore our main results by our variable of political affiliation.

Exploring Robustness by Worry of Drought
We will rerun our baseline model on respondents in the sample that state worry over droughts vs. those that does not. We measure this through a question measured post-treatment: "In general, how worried are you about future droughts in South Africa?" (response categories are 'Very worried', 'Somewhat Worried', 'A little worried' and 'Not worried at all'). We will create binary measures from this variable and explore nuances of this attitude.

Exploring Robustness by Stated Drought Experience
We will rerun our baseline model on respondents in the sample that state experience with droughts vs. those that does not. We measure this through a question measured post-treatment: "Have you experienced a drought during the last 1-2 years?" (Yes/ No). We will analyze a sample split based on the responses to this question.

Manipulation Check
We will rerun our baseline model on respondents in the sample that pass a treatment recall question. This item asks respondents: "In the scenario being described, a council leader was mentioned. What gender was this person?" The possible answers given are 'yes' and 'no'. Those selecting the correct answer are deemed as successfully receiving the manipulation.

Attention Check
We will rerun our baseline models on respondents in the sample that pass our attention check question. This item asks respondents to 'Select the number seventeen from the list of numbers below'. The respondents are given four alternatives of numerical answers, only one which is correct. Those selecting '17' are deemed as passing the check.

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[18] Response options were 'ANC'/ 'EFF'/ 'DA'/ 'Other'.

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Appendix A1: Instructions

Please read the following background carefully.

As you may know, South Africa will face **more severe and frequent droughts** in the years to come. As a consequence of droughts, localities across the nation will suffer from water shortages, risking leading to rising prices and unemployment that harms the wellbeing of people and the economy at large.

There are several ways a locality can make itself prepared to handle severe droughts. New investments in water management in a local area can include saving funds for better water trucks, helping farmers to plant drought resilient plants, or other preparedness measures.

Such investments could require that localities **save public funds for a time to make larger investments**.

Much of these investments are handled by locally elected decision-makers in charge of public funds.

These decision-makers are tasked to make priorities between different areas, trade-offs where spending of public funds in one area will mean less spending of public funds in another.