

Science diplomacy from a climate security perspective

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ERC / REA Science Diplomacy Joint Seminar, European Commission, Brussels, 16 January 2020

Independent • International • Interdisciplinary

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CLIMSEC in a nutshell

- Title: Climate Variability and Security Threats
- Period: 2015-2020
- Funding: ERC CoG
- Aim: Assess indirect connections between climate variability and social conflict
- Scope: Global focus, contemporary era (and beyond)
- RQ: Does climate variability contribute to conflict risk?
 If so, how and under what conditions?



Powerful conceptions within policy

"Climate change is an **all-encompassing threat** to human health, to global food supply, and to peace and security"

- Kofi Annan, UN Sec.-Gen. (2006)

"It is not a coincidence that immediately prior to the civil war in Syria, the country experienced the worst drought on record"

- John Kerry, US Sec. of State (2014)

Climate change may "lead to greater competition for the earth's resources... [and] increased danger of **violent conflicts and wars**, within and between states"

- Norwegian Nobel Committee (2007)



(The other perspective)





In the beautiful Midwest, windchill temperatures are reaching minus 60 degrees, the coldest ever recorded. In coming days, expected to get even colder. People can't last outside even for minutes. What the hell is going on with Global Waming? Please come back fast, we need you!



What do the scientists say?

1."no systematic and direct causal relationship"

- Bernauer et al. (Env Res Letters 2012)
- 2."no connection or only weak evidence"
- Scheffran et al. (Science 2012)
- 3. "little, if any, consensus exists"
- Deligiannis (Glob Env Politics 2012)
- 4." only limited support"
- Gleditsch (J Peace Res 2012)
- 5."mostly inconclusive insights"
- Theisen et al. (Clim Change 2013)

6. "little robust evidence"

- Klomp & Bulte (Agr Econ 2013)
- 7."the link remains unproven"

- Solow (Nature 2013)

8. "inadequate scientific evidence"

- Zografos et al. (Glob Env Ch 2014)
- 9."research does not conclude"
- Adger et al. (IPCC AR5 2014)

10."there is still no consensus"

- Salehyan (Polit Geogr 2014)

II."mixed and varied evidence"

- Sakaguchi et al. (Current Clim. Change Rep 2017)
- 12."inconsistent associations are reported"
- Global Warming of $1.5^{\circ}C$ (IPCC Special Report 2018)

13. "the literature has not detected a robust and general effect"

- Koubi (Annual Rev Polit Sci 2019)
- 14."role of climate is judged to be small"
- Mach et al. (Nature 2019)



CLIMSEC findings I

CrossMark

Civil conflict sensitivity to growing-season drought Nina von Uexkull^{a,b,1}, Mihai Croicu^a, Hanne Fjelde^{a,b}, and Halvard Buhaug^b

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search community has failed to reach a consensus on the nature and significance of the relationship between climate variability and armed conflict. We argue that progress has been hampered by insufficient attention paid to the context in which droughts and other climatic extremes may increase the risk of violent mobilization. Addressing this shortcoming, this study presents an actor-oriented analysis of the drought-conflict relationship, focusing specifically on politically relevant ethnic groups and their sensitivity to growing-season drought under various political and socioeconic contexts. To this end, we draw on new conflict event data that cover Asia and Africa, 1989–2014, updated spatial ethnic settlement data, and remote sensing data on agricultural land use. Our procedure allows quantifying, for each ethnic group, drought conditions during the growing season of the locally dominant crop. A comprehensive set of multilevel mixed effects models that account pups' livelihood, economic and political vulnerabilities reveals that a drought under most conditions has little effect on the short-term risk that a group challenges the state by military means. How ever, for agriculturally dependent groups as well as politically excluded groups in very poor countries, a local drought is found to increase the likelibood of sustained violence. We interpret this as evidence of the redprocal relationship between drought and conflict, whereby each phenomenon makes a group more vulnerable to the other.

armed conflict | dimate variability | drought | ethnicity

2). Despite evidence provided by a few idiograp the conflict research community has yet to agr pattem consistent with a general causal climate-

sensitivity of that ecosystem to environmental chan coping capacity (9). The livelihoods of farming off nonirrigated lands are often identified as part

georeferenced event data

Climate-induced crop failure or loss of pasture may imply dramatic income loss, and limited material and human capital will aggravate the situation by narrowing the range of outside options. However, this process by itself does not explain how organized vio lent conflict might erupt or be sustained. Organizing unrest requires agency, a perception of common identity, and in the case of civil conflict, a belief that the government is to blame for the misery (16). Preexisting social structures, oftentimes in the form of ethnonational identities, constitute a key element necessary to solve the collective action problem for mobilization (17). In large parts of the developing world, particularly in Africa and Asia, ethnicity constitutes the predominant societal cleavage around which social identity and political preferences are formed and play out (18-20). Indeed, most con-temporary civil conflicts are fought along ethnic lines, and ethnic conflicts have increased markedly since the end of the Cold War (21). For these reasons, the conflict potential of economic hardships sidered especially high where these coincide with distinct ethr identities (22, 23)

Analytical Approach

Earlier quantitative comparative assessments of the climate variability-armed conflict link typically rely on country-averaged data or use arbitrarily defined grid cells as units of analysis (24-27). Despite their merit, both approaches have notable limitations; country-level data mask considerable within-country variation in environmental and political conditions and may miss localized phenomena, whereas disaggregated grid analyses typically require ere is increasing acceptance within policy and national sespatial overlap between the treatment (climatic anomaly) and the

here is increasing acceptance while provide the current of the second se constitute a significant threat to societal stability and peace (1,

 Despite evidence provided by a rew idiographic studies (5, 4), 	
the conflict research community has yet to agree on a statistical pattern consistent with a general causal climate-conflict connection	Understanding the conflict potential of drought dealing effectively with the sociatal implication change. Using new georeferenced ethnicity and for Asia and Africa since 1989, we present an aa analysis of growing-aeson drought and conflict among ethnic groups. Results from naive models previous research suggest that drought geneal impact. However, context-sensitive models accour groups' level of vulnerability reseal that drought
(5-7) One reason for the scientific conundrum may be the failure to puppely specify the socioexonomic and political context whith which climatic extremes can undermine social stability and increase conflict risk. Drawing on insights from theoretical and single-case empirical research, we propose a conditional model of climate-excutivy con- nections that explicitly considers the affected population's socioeco- nomic context. Specifically, we cannine how growing-second orought	
across the agricultural lands of spatially defined ethnic groups affects	ute to sustaining conflict, especially for agricul
the nsk that the groups engage in conflict against the state and the extent to which this effect is conditioned on the groups' livelihood vulnerability, political status, and economic development. In doing	pendent groups and politically excluded groups countries. These results suggest a reciprocal na interaction in which violent conflict and environm
so, our study provides the most appropriate large-scale test to date of dominant environmental security thinking (8).	constitute a vicious circle, each phenomenon in group's vulnerability to the other.
In brief, a group's vulnerability to climatic extremes can be con-	
sidered a function of its dependence on renewable resources, the	Author contributions: N.V.U, M.C., H.F., and H.B. designed research; N N.V.U, H.F., and H.B. wrote the paper; and M.C. created the dataset.
sensitivity of that ecosystem to environmental changes, and the group's	The authors declare no conflict of interest.
off popirginated lands are often identified as particularly unlearable	This article is a PNAS Direct Submission.
THE DEPENDENT PARTY AND ADD ADD ADD ADD ADD ADD ADD ADD ADD	

(10, 11). Central factors restricting coping capacity include a low level of socioeconomic development, a history of conflict, and Data deposition: The replication data reported in this paper are available from Pea limited access to economic and social capital that could facilitate alternate modes of livelihood (12, 13). In addition, societal groups that are excluded from political processes are much less likely to be

This article contains supporting information online at www.pnas.o

pensation programs in the wake of disaster (14, 15). ww.pnas.org/cgi/doi/10.1073/pnas.1607542113

on the receiving end of government-sponsored relief aid and com-

ental shock v.U. analyzed data reely available online through the PNAS open access optio

of climate

onflict data

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PNAS November 1, 2016 vol. 113 no. 44 12391-12396

"These results suggest a reciprocal nature-society interaction in which violent conflict and environmental shock constitute a vicious circle, each phenomenon increasing the group's vulnerability to the other"



Fig. 1. Agricultural dependence by ethnic group and density of conflict events



CLIMSEC findings II

ANALYSIS

https://doi.org/10.1038/s41586-019-1300-6

Climate as a risk factor for armed conflict

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Research findings on the relationship between climate and conflict are diverse and contested. Here we assess the current understanding of the relationship between climate and conflict, based on the structured judgments of experts from diverse disciplines. These experts agree that climate has affected organized armed conflict within countries. However, other drivers, such as low socioeconomic development and low capabilities of the state, are judged to be substantially nore influential, and the mechanisms of climate-conflict linkages remain a key uncertainty. Intensifying climate change is estimated to increase future risks of conflict

search designs, datasets and methods has resulted in diver- and extreme events, such as droughts and floods). gent findings and stark questions about legitimate approaches to sciento date and have repeatedly triggered dissenting perspectives^{1,3-6,9-22}. Even syntheses have failed to clarify areas of agreement and reasons for nt^{2,4,5,8,9,12,13,23-26}. There are important uncertainties about of the risks of continuing greenhouse gas emissions.

Expert elicitation is a well-vetted method for documenting the judgments of experts about available evidence²⁹ (Methods). For societally relevant topics with divergent evidence, experimental comparisons of structured elicitation and group-panel assessment have suggested that sampled stakeholders were used to inform the protect. individual elicitation paired with collective assessment can better reveal the state of knowledge than either approach in isolation³⁰⁻³². Here, Interviews and a subsequent 2-day group deliberation (Methods). The we develop a synoptic assessment of the relationship between climate and conflict.

The assessment approach and expert group

Data Fig. 1). Previous crosscutting analyses of climate and conflict Data Figs. 2-4) and the origins of these judgments in the scientific have combined individual-level violence (for example, suicide or domestic violence) through to war between countries24.9. However, drivers of suicide fundamentally differ from drivers of world wars. To and limitations of our current understanding and the reasons for enable a focused evaluation, the social scale of violence is constrained disagreement. to organized armed conflict within countries (that is, state-based armed

esearch over the past decade has established that climate vari- the effects of climate, climate-related variability, hazards, trends and ability and climate change may influence the risk of violent change are all included (for example, related to temperature, precipi-K ability and climate change may influence on the or name taking modes of variability, such as the El Nino Southern Oscillation, taking and climate change modes of variability, such as the El Nino Southern Oscillation,

The authors of this manuscript consist of 3 assessment facilitators tific inference^{1,2-9}. Previous analyses, many from authors of this paper, and a group of 11 climate and conflict experts. The group of 11 experts have both asserted and refuted a substantial role for climate in conflicts is a sample of the most experienced and highly cited scholars on the topic, spanning relevant social science disciplines (especially political science, economics, geography and environmental sciences), epistemo logical approaches and diverse previous conclusions about climate and when and how climate has caused conflict to date, and under future conflict (Methods). The selection of the expert group was done based scenarios^{8,21,27,28}. The lack of clarity on current knowledge limits informed on expertise necessary to resolve scientific disagreement about the management of the risks of conflict to states and human security, and contribution of climate to conflict risks globally and in conflict-prone regions, which requires consideration of comparative and crosscutting analyses and replicable empirical research. For climate and conflict overall, however, the scope of relevant expertise in scholarship, practice and policy is vast. Semi-structured interviews with purposively

The expert group participated in 6-8-h individual expert-elicitation interview and deliberation protocols were collectively developed by the authors and then administered by the assessment facilitators. In total, 950 transcript pages from the interviews and deliberation were iteratively analysed and distilled. The results presented here include

Our focus is organized armed conflict within countries (Extended subjective probabilistic judgments documented individually (Extended literature (Supplementary Information). The approach establishes a foundation for assessing-across the full academic field-the strengths

This assessment approach complements existing crosscutting conflict, non-state armed conflict and one-stded violence against civil-tans)³³. These forms of violent conflict may affect or be affected by flict^{12,8,17,23,25-27}. The methods here go beyond previous syntheses conflict in neighbouring areas or external intervention. In evaluating by (1) systematically characterizing judgments not only about

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11 JULY 2019 | VOL 571 | NATURE | 193

"These experts agree that climate has affected organized armed conflict within countries. However, other drivers [..] are judged to be substantially more influential"



Fig. 3. Expert assessment of factors that drive conflict risk

Mach et al. 2019. Climate as a risk factor for armed conflict. Nature 571: 193–197.

CLIMSEC findings III



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Construction of the International Street Str

"Consistent with theory, we find that [the climate-economy-conflict] relationship is most prominent among recently downgraded groups, especially in the context of agricultural dependence and low local level of development"



Fig. 1. Marginal effect of weather-induced income shock on civil conflict risk

Science diplomacy

- Three dimensions of science diplomacy (AAAS, Royal Society):
 - a) "Science in diplomacy" Science can provide advice to inform and support foreign policy objectives
 - b) "Diplomacy for science" Diplomacy can facilitate international scientific cooperation
 - c) "Science for diplomacy" Scientific cooperation can improve international relations



Science–policy interaction in CLIMSEC

- Direct
 - Joint seminars
 - Policy briefs
 - Reviews (incl. IPCC)
- Indirect
 - Scientific publications
 - Op-eds
 - Social media



Lessons learned

- Interacting with policy actors is important and rewarding, but also challenging!
- Challenge: How to navigate a polarized and contentious field that (seemingly) is little receptive to cautious and nuanced messages?
 - a) Keep shut about null-findings to avoid 'damaging the cause'?
 - b) Communicate modest results and risk being rendered irrelevant (or labeled a denialist)?
 - c) Emphasize upper-bound risk and contribute to sensationalism?
- My experience: Policy actors now more receptive to nuanced messages (although firm beliefs and myths among interest groups with a clear agenda remain a barrier)
 - Climate security thinking in policy circules gradually converging with science
- Gov't review of IPCC AR6 will be interesting...



Thank you for your patience



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Financial support is acknowledged from the European Research Council via grant 648291