

Project Summary

Climate Change, Resource Reallocation and Great Power Competition

Minerva Research Initiative Proposal: Topic II-Resource Competition, Social Cohesion, and Strategic Climate Resilience

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Research Problem How will climate-induced resource reallocations influence relations among the world's great powers? Will they become more conflictual or cooperative? In this project, we aim to address these questions by building and testing a model of great power politics that combines a modified contest function with the findings from the most recent climate models. To understand what climate change may mean for national security, we need to understand more deeply the connections between environmental change and changes in a country's interests, wealth, and military capabilities. Thus, we directly respond to a question raised in Topic 2: *How does climate change portend to reshape great power and other levels of competition around the availability of resources?*

Proposed Methods Our project brings together a team of economists, political scientists, and ecologists to develop an integrated approach to studying the co-evolution of environmental change and political and economic competition between countries. Our proposal consists of three parts. First, we will develop a modified contest model of the strategic calculations that climate changes are likely to entail and estimate the extent to which the individual pursuit of national interest in this space will drive the great powers toward greater resource cooperation or conflict. This will be a multi-actor strategic model quantitatively calibrated with environmental, economic, and political data. Using the model, we will be able to explain current behavior and forecast the likelihood of future conflict. Second, we will synthesize the latest research on the regional effects of a warming climate and identify the changes to politically and economically salient resources for the great powers. In so doing, we will calibrate our theory and draw out its implications empirically through mapping the reallocation of strategic resources and its implications for resource prices. Third, we will provide initial tests of our theory using case studies that describe how great powers are responding to environmental shocks.

Basic Research Contribution This study seeks to make a fundamental contribution at the frontiers of social and environmental science that is expected to have a broad impact on how we conceptualize and quantify the links between the environment and geopolitics. This differentiates our work from, on the one hand, recent empirical studies which only make use of current natural resource trade volumes instead of future price trajectories, and which do not include any assessment from climate models or forecasts about future consumption, and, on the other, from theoretical work in political science and economics which has not to date brought together climate and conflict models in a rigorous way.

Anticipated Outcome of the Research This project will lead to fundamental advances in understanding the relationship between climate science and international security studies. We anticipate a number of academic and policy-related publications and perhaps a book. We also plan to offer briefings to public officials, thinktanks, and university seminars.

Broader Implications for National Defense We believe this study has significant national security implications. While significant diplomatic effort is being exerted to keep global average climate change under the 1.5 degree Celsius (above pre-industrial levels) benchmark set by the Paris Agreement, the United States must look to the environmental future and understand the implications of climate-induced resource redistribution for its national interest. An understanding of the connections between climate change and international resource competition is crucial to strategic planning and preparedness for the next decade and beyond, as already stated by senior DoD leaders, including U.S. Secretary of Defense Lloyd Austin.

Total Funds Requested We are requesting \$1,328,362.92 for the three-year period.