

THE IMPLICATIONS OF GLOBAL CLIMATIC CHANGES FOR INTERNATIONAL SECURITY

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Abstract. Global climatic changes caused by growing concentrations of atmospheric trace gases have the potential to alter international relationships, economies, behavior, and security. While there is debate about the extent to which environmental problems alone can lead to conflict, it is widely acknowledged that resource constraints can act as roots leading to economic pressures and tensions, or as triggers to conflict when other pressures and tensions exist between states. Recent widespread attention to the issue of global environmental problems, particularly climatic change, is leading to a re-examination and expansion of the traditional narrow definition of "international security". This paper discusses likely paths to international frictions and tensions and the responses that might be most appropriate to minimize the adverse consequences of climatic change for international security.

Introduction

Over the last few decades, there has been growing concern over the international implications of large-scale environmental problems. Recently, this attention has focused on the possibility of major climatic changes caused by growing atmospheric concentrations of carbon dioxide and other trace gases. Given the extent and severity of the possible climatic changes, we must begin to ask how such changes will affect international relationships, economics, behavior, and security.** There is debate about the extent to which resource constraints or environmental problems *alone* can lead to conflict, but it is widely acknowledged that resources can act as roots leading to economic pressures and tensions or as triggers to conflict when other pressures and tensions exist between states. This paper discusses the most likely paths for such effects and what responses might be appropriate to minimize the adverse consequences for international stability and tensions.

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** Threats to security can be defined to include actions that (1) threaten to drastically and quickly degrade the quality of life for the inhabitants of a state, or (2) threaten to significantly narrow the range of policy choices available to governments or non-governmental entities (Ullman, 1983). Climatic changes that lead to the deterioration of environmental quality or limit access to resources fall into both categories.

Precise information on the regional impacts of climatic changes is unlikely to be available soon. Rather than waiting for such information, a more valuable approach would be to identify the greatest susceptibilities to existing climatic variability on the assumption that those vulnerabilities are likely candidates for further analysis. Three areas are likely to affect national and international relationships, behavior, and policy: agricultural productivity, the availability and quality of freshwater resources, and access to strategic minerals (Budyko, 1977; Roberts and Lansford, 1979; Gustafson, 1981; Wilson, 1983; Tiekell, 1986). Agricultural productivity fluctuates with the weather, and the level of international trade is large. Water resources are sensitive to both floods and droughts and are limited in many regions due to natural variability or high societal demand. Certain mineral resources, including oil and gas, are found in significant amounts in regions constrained by climatic conditions and the importance of these resources to particular nations and alliances warrants attention. By looking at past climatic experience we can begin to understand the extent of future vulnerabilities.

Any analogies linking past climatic variability with international political effects are necessarily imperfect. One problem is that the links between political behavior and climatic conditions are often tenuous, given the many other relevant factors that affect such behavior. A further complication is that the magnitude and severity of future climatic changes is likely to be considerably greater than past climatic variability.

An alternative approach is to wait for more research and more detailed regional information on the environmental and economic impacts of climatic changes before taking preventative actions. This approach has two serious flaws. First, the complexity of modeling climatic behavior means that the necessary research will be slow and difficult. Unless actions begin soon to reduce the emissions of carbon dioxide and other gases, the earth will be irreversibly committed to substantial warming. Second, any international agreement to prevent major climatic changes may be complicated by a desire of certain actors (alliances, nations, sub-national groups, corporations) to capitalize on perceived regional advantages. Those actors who believe – rightly or wrongly – that they will benefit from a warmer earth will have no direct incentive to cooperate in any international agreement to prevent climatic change.

These problems are discussed below in the context of three issues that play a role in international affairs: (1) agricultural productivity and the lopsided nature of present international grain production and trade; (2) water availability and the importance of shared international freshwater resources; and (3) access to strategic northern energy minerals such as oil and gas, and the increasing difficulty of developing the remaining remote resources.

Agricultural Productivity and Trade

Threats to the basic food supplies of a country are cause for frictions and tensions

