

# Natural Disasters and their Impact on Cooperation Against a Common Enemy\*

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## Abstract

We develop a simple game theoretic model to study the impact of a natural disaster on the coordination of defensive efforts by a target state ( $G$ ) and an ally ( $A$ ) in relation to the choice to stage an attack by a terrorist ( $T$ ), to examine how the realization of a natural disaster can impact strategic choices in such a setting. We focus on “long term impacts” in which a natural disaster increases costs of defensive efforts for  $G$ . When costs for  $G$  are higher in this way, the optimal choice by  $A$  to provide assistance or not and the ultimate optimal choice by  $T$  to attack or not could be altered. For all possible parameter values, a unique Subgame Perfect Nash Equilibrium for the specified sequential move game is identified. A comparative statics analysis is conducted to determine how the natural disaster could alter the equilibrium outcome with respect to: (i) whether  $A$  chooses to provide assistance or not and (ii) whether  $T$  chooses to stage an attack or not. We show that for a natural disaster of sufficiently small magnitude, we could realize counter-intuitive outcomes in which a natural disaster leads to: (i)  $A$  not providing assistance which otherwise would have been provided and (ii)  $T$  not staging an attack which otherwise would have been staged. That is, after a natural disaster occurs, it could be that (i) the ally of a potential terrorist attack is *less likely* to provide defensive support and (ii) a terrorist attack is *less likely* to be launched.