

COLLECTIVE ACTION PROBLEMS IN PLANETARY DEFENSE

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Planetary defense is an increasingly common talking point in international politics. While many nations have expressed their nominal willingness to collaborate in addressing the threats posted by near-earth objects (“NEOs”) and other planetary risks, few nations have taken steps to commit themselves to national or international planetary defense policies. Without widespread commitment, such initiatives run the risk of being too poorly funded or coordinated to succeed.

One major source of resistance to international planetary defense collaboration involves the cooperative and competitive dynamics of multinational action. Various collective action problems face national and international actors in their efforts to collaborate in preempting planetary threats. One famous example of a collective action problem is the “tragedy of the commons,” in which many parties have a common interest in cooperating but each party has a greater incentive to exploit the efforts of the collective. Although there is precedent in international law for global cooperation in responding to planetary threats, making these commitments effective will require international bodies addressing the competitive dynamics between nations with a common interest in planetary defense.

Collective action problems are common when dealing with anthropogenic planetary risks. Economist and Nobel Prize laureate Thomas Schelling explored the cooperative dynamics of international attempts at environmental reform. If this problem faces us when confronting planetary dangers that have already begun, how much more so when considering planetary risks that, at least as of now, remain far in the future.

Not all space-related planetary risks involve NEOs. Other sources of risk to human life take less conspicuous forms. In 2022, the World Economic Forum reported that satellites are being launched into orbit at unprecedented rates, and that the current growth of “mega-constellations” of satellites threatens to result in various increased risks to human activity, including increased diffusion of space debris and increased levels of atmospheric alumina capable of increasing the harmful effects of solar radiation.

This article examines the cooperative dynamics of planetary defense. The article begins by considering the major types of collective action problems facing international collaboration planetary defense, focusing on the “free rider problem” as a major challenge to the success of planetary defense initiatives. For example, all

countries have an interest in minimizing costs devoted to international initiatives. Moreover, collaborating to reduce the risk of satellite-related debris requires international transparency that may conflict with parties' interest in keeping confidential information related to national security or economic policy

This article will then analyze the legal and economic aspects of these cooperation problems, and will consider various possible strategies for avoiding cooperative challenges and increasing collective buy-in. Noteworthy solutions worth considering include the use of treaties as pre-commitment devices, which parties agree to undertake in order to limit their future options and commit themselves to pre-established lines of conduct. Additional considerations include the use of principles from the behavioral economics movement, such as the use of opt-in versus opt-out policies and other tactics to reduce the effects of cognitive biases by governmental decision makers.