

# Legal Issues in Planetary Defense

## -Introduction for the SMPAG discussion

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Knowledge for Tomorrow



# Overview

- **Legal questions:**
  - Decision-making structure
  - Obligations and cost
  - Liability
  - Kinetic impactor and the nuclear option
- **How to proceed**
  - Tasks of the new legal group
  - Extended tasks of the new legal group



# Decision-making structure

- In the case of an emergency in which IAWN and SMPAG advise UN that a deflection mission is the best option, then:
  - What is the appropriate decision-making structure?
  - At what level in the UN do the national representatives have the power to authorize a deflection mission?
  - Is authorization needed for self-defense?
  - Is authorization needed for a nation/nations acting to defense of others?
- What laws might govern participation of private entities or NGOs?



# Obligations and cost

- Responsibility to protect. Obligation to act?
- Do we need a treaty regulating who pays for a deflection campaign?
- How should the country/countries in the impact corridor be involved in funding the deflection campaign?
- Can a deflection mission go ahead without the consensus of all the affected countries?



# Liability

- Who is liable for damage caused by:
  - Complete mission failure.
  - Partial mission failure. (Possible damage to a different area/country than the original).
  - The impacting body breaking up as a result of a deflection attempt.
  - Spacecraft debris falling back to Earth.
- If it is only possible to **move** the impact point to a different area of Earth with a deflection mission:
  - Would it be legal to do so, in the case in which it would reduce the overall damage?
  - Would an agreement with the countries possibly affected by the redirected impacting body about compensation be enough to authorize such a mission? Should the decision to act depend on an unanimous or majority agreement of all countries possibly affected?



# Kinetic impactor and the nuclear option

- Do we need to change any laws or international space treaties to be able to:
  - Deflect a cosmic body and/or break it apart?
  - Use the nuclear option in an emergency?
  - Use the nuclear option in a test mission?
- How can we ensure that countries won't be able to use any nuclear option exceptions for NEOs as a front for military purpose?
- Should it be a requirement that the use of any nuclear device in an emergency situation or for deflection test purposes be mandated by the UN?
- If a country or a group of countries uses the nuclear option without an international consensus in place, what might the legal consequences be?
- What rules should govern storage/acquisition of nuclear material meant for a deflection mission?



# How to proceed

- Similar questions have been discussed numerous times, e.g.
  - “Legal Aspects of NEO Threat Response and Related Institutional Issues” by Secure World Foundation (2010)
  - “International Legal Consideration of Cosmic Hazards and Planetary Defense” chapter by Fabio Tronchetti in the book “Handbook of Cosmic Hazards and Planetary Defense” (2015).
- What we need now is **not another paper on the problem** and how previous treaties don't deal with planetary defense, **but ideas focused on changing space treaties to solve the problems.**





# Quote from “Legal Aspects of NEO Threat Response and Related Institutional Issues” by Secure World Foundation (2010)

## Recommendation #7.

- “A working group should be instituted by COPUOS, notably by the Legal Subcommittee in close consultation with the Scientific-Technical Subcommittee, to further investigate, discuss and develop the recommendations ##1-6 offered by the present Report, as well as the various options available in this regard.
- Such a working group would furthermore be recommended to consult closely with the various space agencies and non-governmental expert bodies involved to ensure input will come from all relevant perspectives. It should work fundamentally in an interdisciplinary mode, since the precise facts need to be known and understood as much as possible in order to elaborate realistic proposals.”





## SMPAG legal sub-group tasks, should include:

- Formulation of relevant legal questions requiring clarification.
- Formulate what agreements we would like to see added to space treaties, e.g.:
  - “Countries waive any liability claims against operators carrying out a deflection mission with exceptions for misconduct.”
  - “Countries have the right to self-defense against potential cosmic impactors unless it cause significant harm to another country and no agreements with that country could be reached.”
  - “The nuclear options should be allowed in certain cases.” Should authorization by the UN Security Council/General Assembly be required?

The list can then be send to the proper organization (COPUOS Legal Subcommittee?) for further work.



## SMPAG legal sub-group extended tasks or tasks for the Legal Subcommittee:

- To what extent do existing treaties cover the issues?
- To what extent could amendments to existing treaties cover the issues?
- To what extent do we need a completely new legislation to cover the issues?
- Are there any legal overlap with other cosmic hazards, such as space weather, for us to share the burden of creating new legislation with?
- Draft the legislation
- Suggest how we can proceed to get the legislation implemented.

At what point should the hand-over to the Legal Subcommittee be?

