


Developing a Planetary Defense Decisionmaker Guide

or:

Planetary Defenses Are Better Than Ever!



Base Image: TriStar Pictures

 WOULD YOU LIKE TO KNOW MORE?

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The Need for a Concise Yet Comprehensive Reference

- Planetary Defense is a complex topic touching on many disciplines.
- Especially in case of a short-notice impact threat, decisionmakers around the globe will need to get smart on the topic quickly to save lives and protect property:
 - Local, regional, and national government officials
 - Company leaders
 - Business owners
 - Emergency managers
 - Media representatives
 - ...
- However, only very few leaders have immediate access to trusted Planetary Defense subject-matter experts.
- Thousands of scientific papers and other publications cover the topic, but few non-experts have time or interest to immerse themselves in the literature.
- This motivated drafting an easily-accessible one-stop resource.

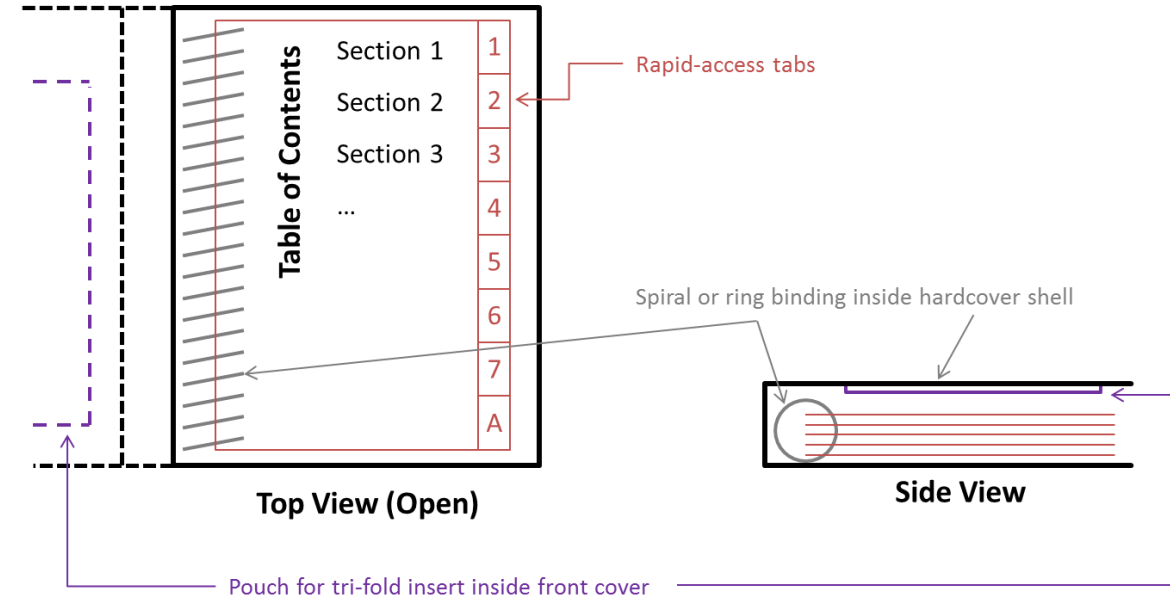


Design Requirements for Information Structure, Content, Style, Layout, Process, Dissemination

- **Logical flow of topics for start-to-finish readers**
- **Easy access to specific topics of interest**
- **Self-contained chapters**
- **Focusing on the information that someone without PD expertise needs to make decisions in a PD emergency, and to support general preparedness ahead of time**
- **Offering multiple levels of detail to accommodate differing information requirements**
- **Comprehensible by an “educated layperson” but not dumbed down**
- **Suitable for reading on a screen, printing out, or professional print production**
- **Updated every few years to incorporate new insights**
- **Available online for free download from a trusted website**
- **Hardcopies disseminated to the most relevant stakeholders ahead of need**

Structuring the Information

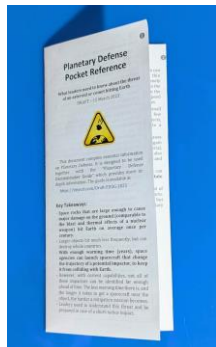
- Two separate, but mutually-supporting documents
- Main Guide with three levels of detail:
 - Stand-alone executive summary (~10 pages)
 - Seven main chapters (see next slide)
 - Appendix augmenting content in main chapters
 - Plus an extensive reference section with URLs enabling quick follow-up and verification



■ Pocket Reference

- Two pages, tri-fold layout
- Captures most important points
- Also works as attention-getter

This block contains five thumbnail images of report pages. From left to right: 'The Threat' (text-heavy), 'Planetary Defense Pocket Reference' (a small reference card with a hazard symbol), 'Response Options and Timelines' (a table or flowchart), 'Terrestrial Preparedness' (text-heavy), and 'Inferring the Public' (text-heavy).



Key Content

Chapter 1: What Are the Odds?

- Summarizes probabilities for various categories of impactors, with tie-ins to "What Would Happen" chapter and the discussion of decisionmaking under uncertainty in "Who Decides" chapter.

Chapter 2: What Would Happen?

- Provides an overview of impact consequences by impactor type and size, illustrated with historical examples.

Chapter 3: What Are the Timelines Involved?

- Discusses possible timelines, from no-notice to decades, emphasizing how detection capabilities and associated uncertainties drive timelines, and how timelines drive response options.

Chapter 4: What Can Be Done Now to Reduce the Risk?

- Outlines options for space surveillance, research and testing of deflection methods, and other related topics.

Chapter 5: What Are the Options Once a Catastrophic Impact Is Likely?

- Elaborates on key advantages and disadvantages of the main deflection options (impactor, gravity tractor, ion beam, nuclear), and also discusses emergency response measures on Earth.

Chapter 6: Who Decides, and How?

- Describes which stakeholders are involved and what the associated processes are. Also discusses issues regarding competing national interests and summarizes applicable legal frameworks.

Chapter 7: How to Inform the Public?

- Summarizes best practices in risk communication as applied to Planetary Defense, illustrated by key lessons learned from past disasters.

Supporting Existing Planetary Defense Efforts

- **The PDDG can directly support the 2023 U.S. National Preparedness Strategy and Action Plan for Near-Earth Object Hazards and Planetary Defense.**
 - Goal 4.1: “engage and inform foreign governments”
- **The PDDG can also directly support the 2023 NASA Planetary Defense Strategy and Action Plan.**
 - Goal 5.3: “develop and share informational material for different audiences”
 - Goal 8.2: “enhance leadership messaging of planetary defense”
- **The PDDG can further augment the outreach, public information, and risk mitigation activities of national and international organizations engaged in Planetary Defense.**

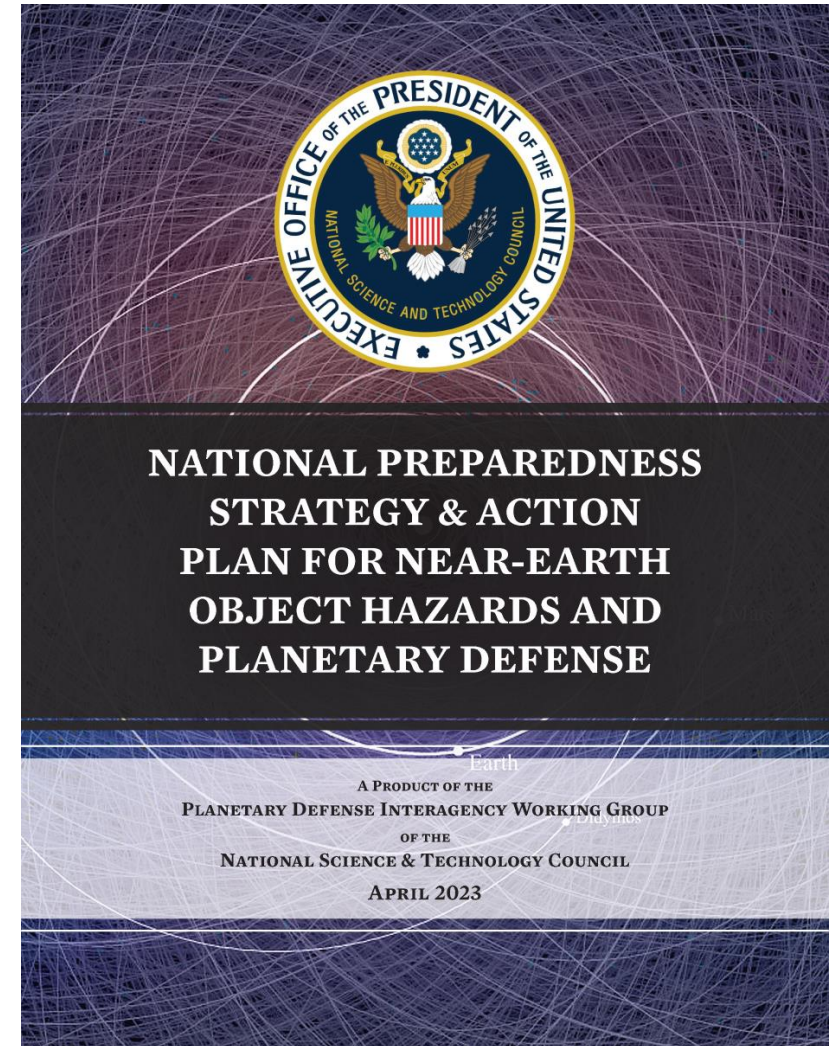


Image: U.S. Government

The Current Draft and Next Steps

- **The current draft is still available via the PDC 2023 website:**
 - **Guide:** <https://tinyurl.com/Draft-PDDG-2023>
 - **Pocket Reference:** <https://tinyurl.com/Draft-PDPR-2023>
- **Please send any comments to josburg@rand.org**
- **Looking for insights on:**
 - The need for this kind of resource
 - Concept & format
 - Content details and updates
 - Approach to verification and validation
 - Dissemination strategy
- **Looking for opportunities to field-test the next version at Planetary Defense exercises etc.**

