

7th IAA Planetary Defense Conference

26-30 April 2021, Online Event

Hosted by UNOOSA in collaboration with ESA



Session 10a: Disaster Management

Chairs: L. A. Lewis

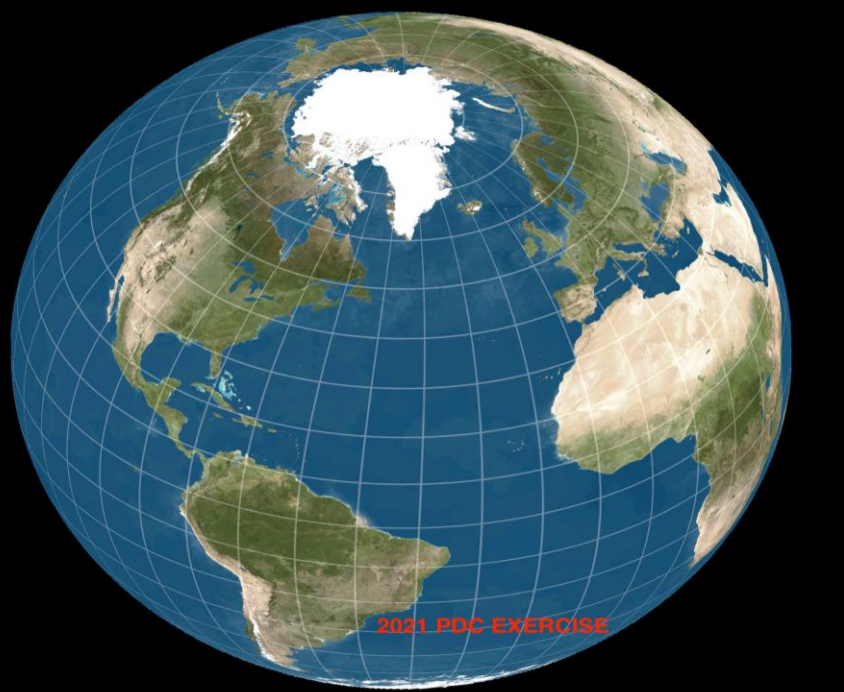
Presenters: D. Chandola | J.Lim | A. Marwah | A. Pegetti

KEY ASPECTS OF DISASTER MANAGEMENT

7th IAA Planetary Defence Conference

Deepak Chandra Chandola

PMP[®], M Tech, PGDM, BEng, AME, CEng, AMIE, MRAS, AMIMechE, SFC[™]



Objective of The Presentation

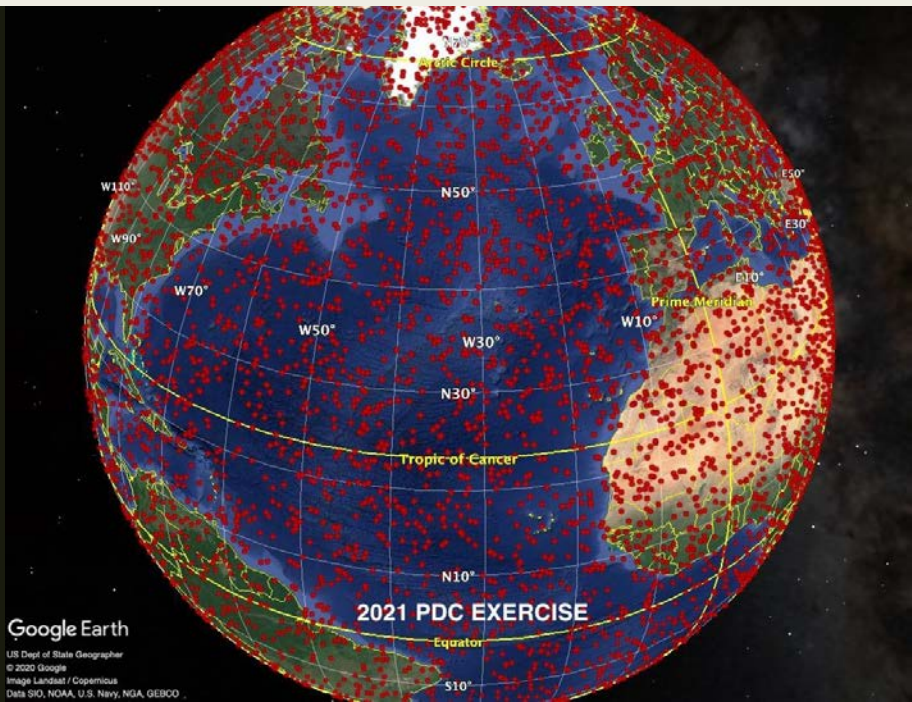


Review
Disaster
Management

Establish
Framework

Identify Key
Aspects

Review
Associated
Factors



A person in silhouette stands on a mountain ridge, looking out over a vast mountain range under a hazy, golden sky. The scene is framed by a white L-shaped border.

**WHY
WE NEED
DISASTER MANAGEMENT**

Effects of Disaster

Financial

Damage to Infrastructure

Every disastrous event brings huge damages and have significant impact on infrastructure

Social

Loss of Lives

Disaster causes loss of millions of lives

Mental

Fear Factor

People always live in fear and unable to enjoy the livelihood



Need of Disaster Management Framework

How will we respond promptly and efficiently during disaster

What to Do? Response & Recovery

- Identify response and prepare related policies and procedures.
- Establish systematic and proactive process to identify action plan.



How to Do? Preparedness

- Prepare and equipped with clear and precise guidelines.
- Be ready for all possibilities to encounter the worst disaster.



Not Again! Prevention & Mitigation

- Identify main cause to and mitigate to minimize recurrences.
- It better to prevent any disaster rather than act on it.



We human are responsible for most of disasters but there are Some other reasons as well !



Reason



Reasons

Man-Made

Natural


NEO



Responsibility

Reasons



A person is silhouetted against a sunset sky, standing on a mountain peak and looking out over a valley. The scene is framed by a white L-shaped border. The text "ESTABLISH DISASTER MANAGEMENT FRAMEWORK" is overlaid in white, bold, sans-serif font.

**ESTABLISH DISASTER
MANAGEMENT
FRAMEWORK**

Stakeholders



Government Leadership

Government Ministers and Policy makers

Leadership team is responsible to take the lead in adopting, implementing and enforcing policy and procedure related to Disaster Management.



Business Leaders

Corporate leaders, Managers and NGOs

Corporate leaders, managers and NGOs are responsible for ensuring that all of their directly and indirectly reporting employees, associated groups understand and contribute in effective compliance of disaster management framework.



Every Citizen

Senior citizens, working professional, Students

Each citizen is responsible to ensure that their acts do not harm to our planet in any mean. Each of them must comply with disaster management framework.





STAGE
1

R

Review Existing
Framework



STAGE
2

I

Identify Gaps



STAGE
3

R

Review Other
Possibilities



STAGE
4

F

Finalize Framework





KEY ASPECT

OF

DISASTER MANAGEMENT

Key Aspects of Disaster Management

Prevention and Mitigation

- Try to prevent disasters
- Identify root cause and mitigate

Preparedness

- Utilize previous experience
- Prepare for worst scenario

Response

- Effective & verified response
- Psychological & Physiological

Recovery

- Quick recovery procedures
- Involvement local societies



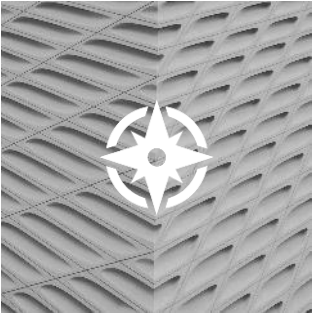
A person is silhouetted against a bright, hazy sky, standing on a hillside and looking out over a vast mountain range. The scene is captured during the golden hour, with the sun low on the horizon, creating a warm, atmospheric glow. The person's shadow is cast on the ground in front of them. The overall mood is contemplative and serene.

REVIEW

ASSOCIATED FACTORS OF

DISASTER MANAGEMENT

Associated Factors of Disaster Management



Resilience & Agile

Able to accept changes and adopt new methodologies



Learning

Modern tools like AI, AR, Machine Learning, Data Science



Collaboration

Collaborate with governments, private organization and people



Sustainable

Ensure sustainable solutions are in place to minimise long term impact



Futuristic

Able to think and visualise unforeseen circumstance



Disaster Management

- We all are responsible for our planet at individual level, organizational level and national level.
- *Governments alone wont be able to tackle this mammoth size issue and it can only be curb with collaboration among people, societies, business organizations and government functionaries.*



Conclusion



Questions

?

?

Answers

?



Disaster Management



Research Papers

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Feel Free to Contact

Thank You

 Deepak Chandra Chandola

 +971 55-777-2640

 Deepak.Chandola@outlook.com

 deepakchandrachandola




7th IAA Planetary Defence Conference 2021

*The Decision to Act – A Human Rights Based
Approach to Disaster Management and Response*

JONATHAN LIM - PROJECT CO-LEAD - *JUS AD ASTRA*





Introduction – Jus Ad Astra

Created in January 2020

To analyze, debate, and advance the intersection between international human rights law and international space law.

Clarifying human rights values and principles applicable to human activities across outer space, for the benefit of humanity.



What are Human Rights?

Human Rights Principles:

1. Universality
2. Indivisibility
3. Interdependence
4. Equality and non-discrimination
5. Participation and inclusion
6. Accountability





International Human Rights Instruments

International Bill of Rights:

1. Universal Declaration of Human Rights (UDHR)
2. International Covenant on Civil and Political Rights (ICCPR) and optional protocol
3. International Covenant on Economic, Social and Cultural Rights (ICESCR) and optional protocol

Human Rights Based Approach

1. All programs concerning development cooperation and technical assistance should prioritize the realization of human rights;
2. That human rights instruments should guide all development cooperation and programming; and
3. That development cooperation should contribute to duty bearer's capacity to meet obligations of rights-holders.





Humanitarian Assistance and Disaster Relief (HADR)

- Balancing state sovereignty versus the need for humanitarian assistance
- Humanity, neutrality, and impartiality
- Civil-Military Coordination
- Human Right to Humanitarian Assistance (HRA)



Right to Life (RTL)

- Article 3 of the UDHR
- Duty to Protect Life and Prevent Harms
- Humanitarian context – Safety, access to essential elements for survival





Right to Water (RTW)

- Sufficient, safe, acceptable, physically accessible and affordable water
- UN Resolution 64/292
- Availability, quality, accessibility



Associated Economic, Social, and Cultural Rights

- Right to Education (RHE)
- Right to Own Property (ROP)
- Right to Work (RTW)





Benefits of a Human Rights-Based Approach

- Advancing a baseline level of safety, wellbeing and dignity.
- Protects vulnerable groups from abuse and discrimination.
- Provides a universal standard that holds authorities accountable.



Recommendations

1. Ensure that human rights principles are integrated into disaster management and response.
2. Identify measures to ensure affected communities are fully consulted.
3. Establish mechanism for monitoring, analyzing, and reporting on human rights.
4. Complement existing guidelines on humanitarian standards in situations of natural disaster.
5. Promote access to justice.



The End



INFO@JUSADASTRA.ORG



WWW.JUSADASTRA.ORG



PREVENTION, MITIGATION AND PREPAREDNESS FOR DISASTERS: ROLE OF UN COPUOS IN DISASTER MITIGATION AND INDIAN PROGRESS

Prepared by:

Akanksha Marwah
Assistant Professor, DME

Aditya Grover
Advocate, Delhi High Court

Our Objectives



- To know what are NEOs and their impact
- Disaster Management Approaches
- Approaches to deal with NEO impact
- Current developments
- Legal and Policy related issues
- Way Forward



What are Near Earth Objects?

- NEOs are the asteroids or comets orbiting the Earth
- Found generally in region between Mars and Jupiter and beyond **Neptune's** orbit in outer region of Solar system
- Lesser probabilities of occurrence but greater impact if happens

The NEO Threat

- **Earth's** atmosphere can deal with impacts from objects below 40 m diameter. Only dust or debris reaches the surface of the earth which is unable to cause any big explosion
- If they are less than two km in diameter: Destroy a large city or small country
- If they are more than two km in diameter: Global catastrophe
- If more than five km in diameter: Extinction of the inhabitants



Planetary Defense

- Encompasses capabilities and activities associated with detecting the possibility of potential asteroid or comet impacts with Earth, providing warning, and preventing such impacts or mitigating their consequences.

Elements of Planetary Defense

Detection

Deflection

Global Collaboration

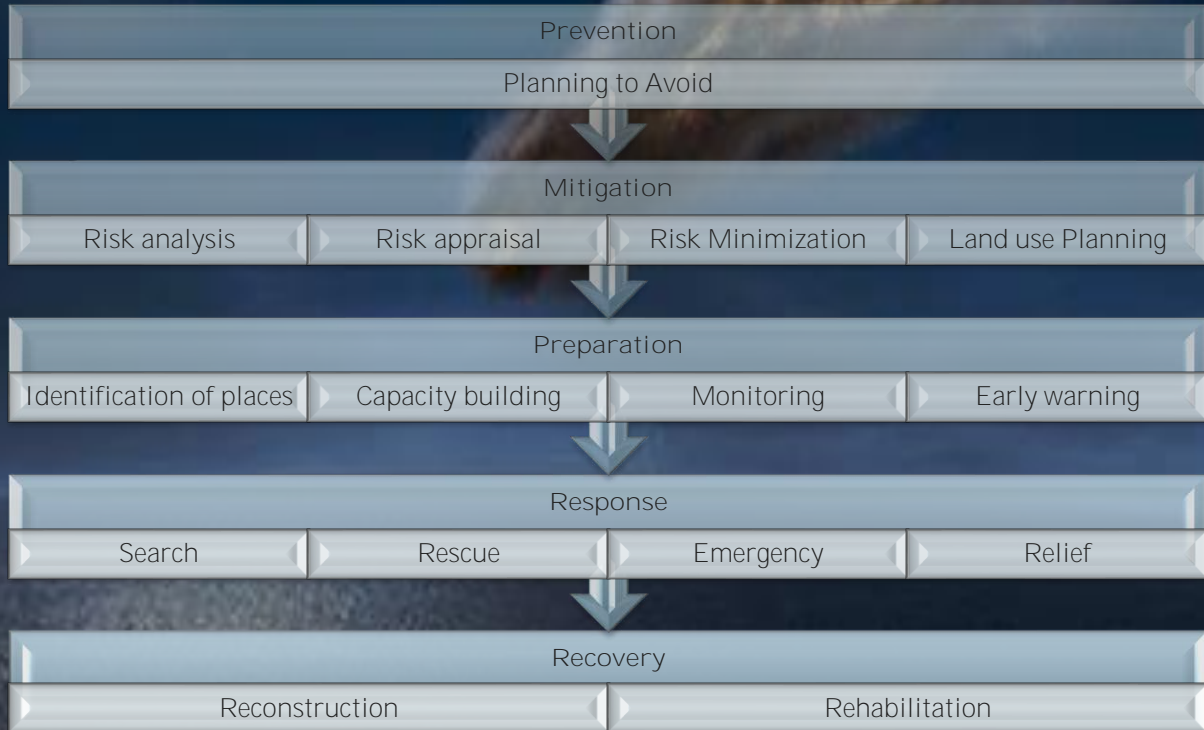
Outreach and Education

Evacuation and Recovery

Traditional Disaster Management System



Key elements in each stage



Where do we stand?

Earth-oriented Disasters	Threats from Outer-Space
Sufficient awareness	Lesser awareness due to limited discussion
Plans and Policies	Limited plans and policies
Available technology	Technology in the stage of development

Planetary Defense: Present day

- US rolled out directive in January 2021
- International Asteroid Warning Network and the Space Mission Planning Advisory Group (SMPAG) have agreed on criteria and thresholds for impact-response actions
- Projects such as International Asteroid Discovery Project conducted to bring awareness
- Coordination centres such as Near Earth Object Coordination Centre for computing earth impact

Planetary Defense: ESA

- ESA contributing to NASA-funded Asteroid Impact and Deflection Assessment
- Double Asteroid Redirection Test by NASA and Hera Mission by ESA
- Near-Earth Objects Dynamic Site (NEODyS) system, developed by the University of Pisa in Italy
- NEOShield and NEOShield 2 programs by EU
- Flyeye Telescope by ESA

Planetary Defense

How much is India equipped?

- No current plan to deal with NEO impact
- ISRO has initiated studies on Near Earth Objects and deflection strategies for Near Earth Asteroids
- ISRO Space Situational Awareness (SSA) Control Centre: for monitoring and protecting space assets
- Network for space object Tracking and Analysis (NETRA) established
- Memorandum of Understanding (MoU) between Indian Space Research Organization (ISRO) and Indian Institute of Astrophysics (IIA)

Legal and Policy Matters

- *Rationale*: devastating impact on the world
- *Reason*: World as a community
- We have come from *res nullis* to *res communis* and have accepted the concept of ‘**community rights**’
- *Need*: holistic approach
- *Moral and legal duty*: towards under-developed, undeveloped and developing nations
- Sharing of responsibilities

Way Forward



Communication

- Amongst the masses
- With the government
- With specialized agencies

Cooperation

- Globally
- Inter-government

Coordination

- Amongst the agencies

Collaboration

- Nations
- Governments
- Agencies



What do we need?

- Communication of relevant knowledge
- Capacity building
- Periodic assessment and mock drills
- Dialogue and cooperation in the community: global, national and regional
- Collaboration amongst government and specialised agencies
- Promotion of academic, scientific and research entities
- Creation of specialised committee under UN COPUOS

A dramatic night sky scene featuring a bright meteor streaking from the top right towards the center. The meteor's tail is thick and textured, glowing with orange and yellow light. In the upper left corner, a bright, circular moon is visible against the dark blue sky. Below the horizon line, the dark, rippling surface of a body of water is visible, reflecting the ambient light. The overall mood is serene and awe-inspiring.

Thank you



UNITED NATIONS
Office for Outer Space Affairs



7th IAA Planetary Defense Conference

IAA-PDC-21-10-04

COMMUNICATION PROTOCOL ON PHO FOR DISASTER
MANAGEMENT BY LEGITIMATE BRAZILIAN INSTITUTIONS

Instituto Tecnológico de Aeronautica
Ana Lucia Pegetti
Glaysse Ferreira Perroni da Silva
Mischel Carmen Neyra Belderrain

Agenda

- Objective
- Introduction
- International collaboration networks for Planetary Defense
- Impact warning communication protocols
- Proposal for an impact warning communication protocol to Brazil
- Final considerations
- References

Objective

In case of a hypothetical necessity of being communicated of an impact warning, which would be a possible path to be followed for the Brazilian government to address the necessary actions in a reasonable time?

- Conduct a literature review to investigate existing and eligible mechanisms and entities for the exchange of information on the risks of the impact of PHO / NEO disaster risk management, using international networks of technical and scientific cooperation already established.
- Based on this information, suggest an initial communication protocol for Brazilian government, taking advantage of the existing proceedings and infrastructure for natural disasters already established in Brazil.

Introduction

- UNCOPUOUS has sponsored activity to build international capacity, dialogue, and coordination, resulting in the formation in 2014, of an International Asteroid Warning Network (IAWN) and a Space Mission Planning Advisory Group (SMPAG)
- Established as a result of the United Nations-endorsed recommendations, and represent important mechanisms at the global level for strengthening coordination in the area of planetary defense.
- In January 2016, NASA reorganized its Near-Earth Object Observations Program and established a Planetary Defense Coordination Office (PDCO)
- The PDCO coordinates efforts with the space agencies of other nations as a member of the multinational IAWN and SMPAG, under the endorsement of the UNCOPUOUS.

International collaboration networks for Planetary Defense

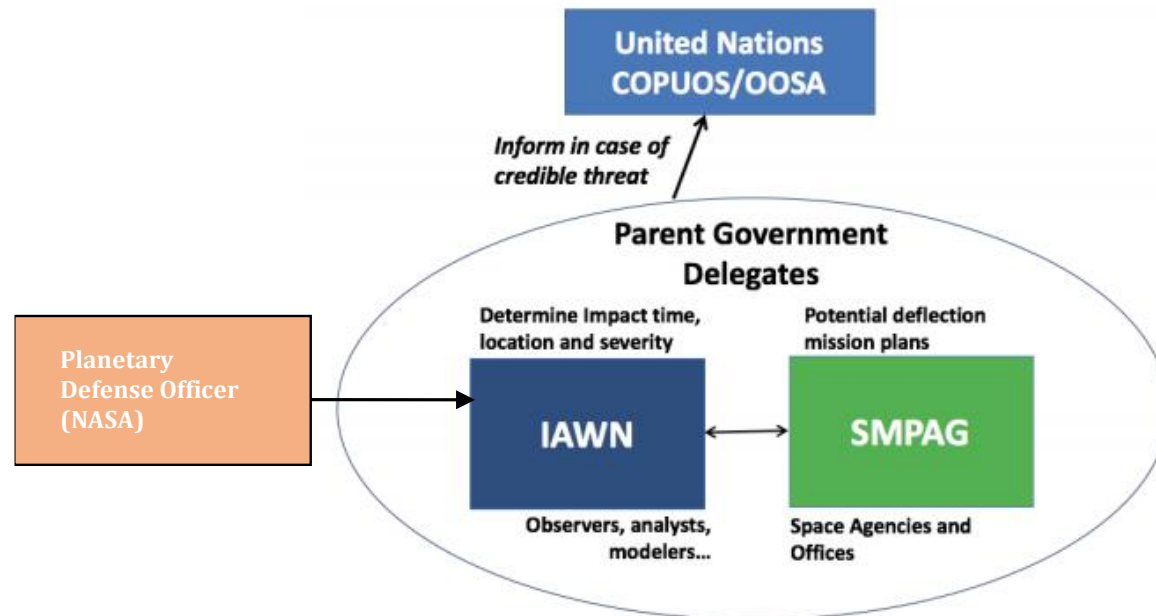
- International partnerships in the space area represent a growing trend
- International cooperation is an effective way of mitigating the risks of conflict in space
- In this sense, Brazil has relevant space cooperation agreements with countries on all continents, specifically, with eleven countries on cooperation for the peaceful uses of outer space.
- Brazil don not have specific partnerships for matters related to planetary defense, and it's not a member of IAWN or SMPAG (until this presentation).

Impact warning communication protocols

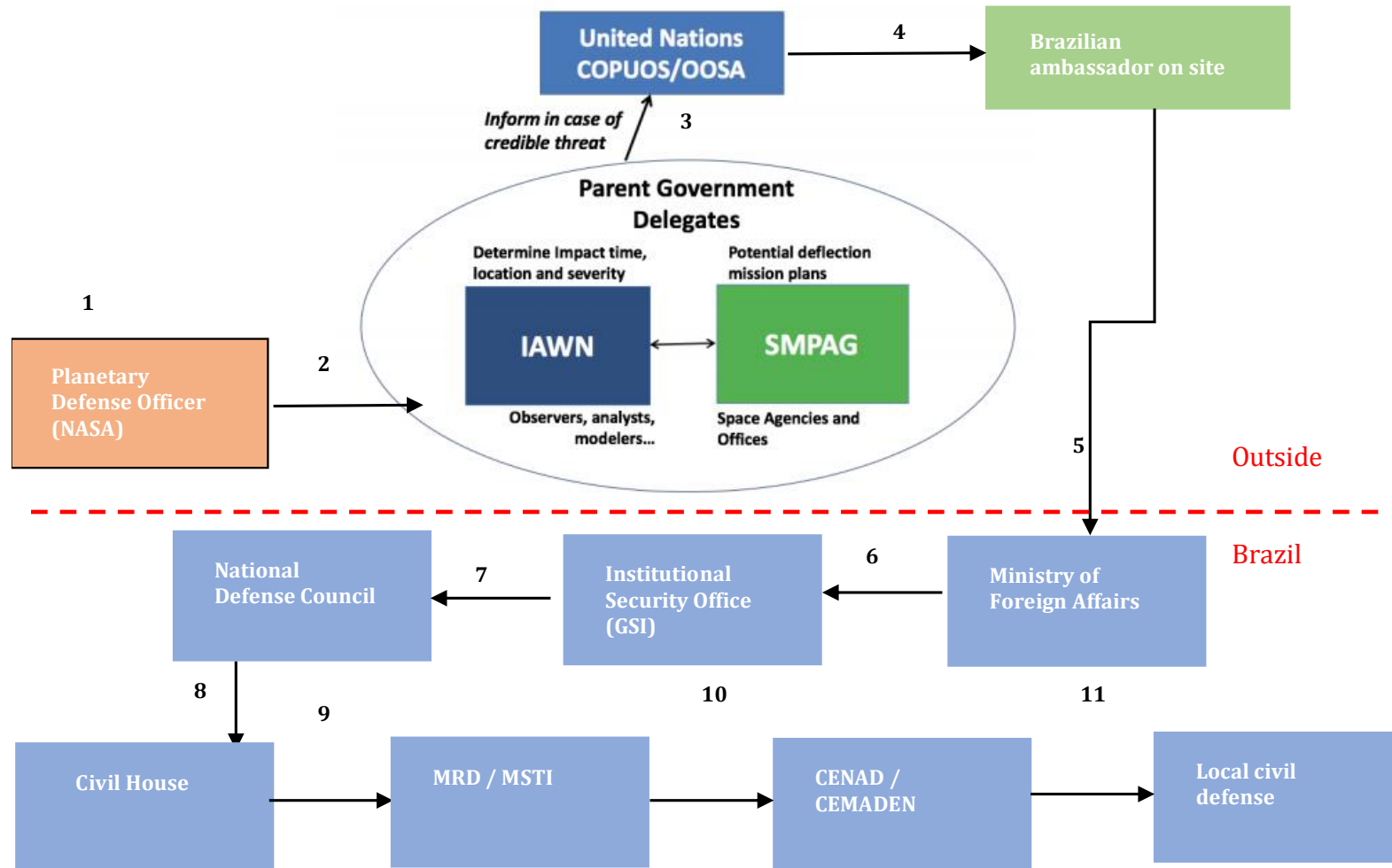
- Be provided with timely and accurate reporting of a very close approach or predicted impact of a naturally occurring NEO or PHO
- Countries and organizations that integrate technological networks like IAWN and SMPG, recognize the importance of being adequately prepared for communications of possible threats to governments, media or population.
- There are several guidelines for the establishment of communication protocols in case of threat of impact of NEOs
- These guides provided important ideas in relation to possible actors, internal and external, that would need to be involved in case of the need to warn any government regarding a threat carried out by a NEO or PHO

Impact warning communication protocols

- NASA: Notification and Communications Regarding Potential Near-Earth Object Threats. NASA Policy Directive NPD 8740.1.
- ESA: Near-Earth Object Information Plan - Distribution of information for a credible asteroid impact threat.
- SMPAG: Space Mission Planning Advisory Group (2018). SMPAG 5.5 – Planetary Defense Action Plan (draft).



Proposal for an impact warning communication protocol to Brazil



Final considerations

- Present a model for communicating as a starting point for the discussion on the establishment of a protocol on PHO for disaster management by legitimate Brazilian institutions
- Define possible points of contact between international bodies and Brazilian institutions so that they could, in a timely manner, make decisions and take preventive actions to mitigate the possible damage caused by the impact of a PHO

Need for technicality of several other stakeholders, specialists and representatives of specific areas of knowledge such as Law, International Law, International Relations, Public Security, Public Policies, among others, which would be fundamental for the elaboration of a feasible, detailed, realistic communication protocol and that, in fact, meets or directs the mechanisms already established by competent bodies in the response to disasters of any nature.

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Q&A

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Break

Up next: PANEL - RELIABLE COMMUNICATION AND DEALING WITH MISINFORMATION

