

# Planetary defense in the context of the R2P doctrine

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## ABSTRACT

**Key words:** R2P, planetary defense, international cooperation, asteroid collision, collective responsibility

Near Earth Objects (NEO) are solar system bodies whose orbit brings them into proximity with Earth. According to the United Nations Office for Outer Space Affairs (UNOOSA), there are over 18,000 NEOs including both insignificantly small objects and objects capable of causing significant damage to life and property on our planet. However, there is not a single approach for dealing with NEOs and no mechanism at the global level designed to respond to a NEO threat. Since state parties to the Outer Space Treaty shall carry on activities in the exploration and use of outer space in accordance with international law, a space mission to deflect an asteroid away from Earth impact raises important legal questions with regard to the international/national decision making during an actual impact threat.

Currently, there are two possible options discussed by the international scientific community – a unilateral mission (in light of the U.S. technological advantages not considered as unrealistic), and an international mission coordinated by an international agency.

However, specific nature of outer space reflected by the principles of international space law (the non-appropriation principle, the concept of outer space as the "province of all mankind", the principle of cooperation and mutual assistance) does effectively limit states in their use of outer space. Prof. Marchisio argues that the OST in essence sets outer space aside as an extra-jurisdictional territory and no state can exercise any sovereign rights over it.

In this context, a rationale behind the Responsibility to Protect doctrine may be relevant. Particularly important are references to state's responsibility to protect its population and notion of collective responsibility of states to protect human lives. *Thus*, the paper seeks to analyse planetary defense in the context of the R2P doctrine.

Given the limited applicability of the R2P concept to particular situations (genocide, war crimes, ethnic cleansing and crimes against humanity), a NEO-impact threat is not a "*responsibility to protect*" case. However, the author is focused on the implications of the R2P for the traditional concept of sovereignty as well as the non-intervention principle. In particular, the author analyses legal implications of key pillars of the R2P doctrine, namely, *sovereignty as responsibility* and *collective responsibility of the international community* for planetary defense. In this context, both the R2P doctrine developed by the ICISS and the R2P endorsed by heads of states and governments at the 2005 UN Summit are analysed.

## 1 INTRODUCTION

Near Earth Objects (NEO) are solar system bodies whose orbit brings them into proximity with Earth. According to the United Nations Office for Outer Space Affairs (UNOSA), there are over 18,000 NEOs including both small objects and objects capable of causing significant damage to life and property on our planet.<sup>1</sup> However, there is no mechanism at the global level designed to respond to potentially hazardous NEOs.

A space mission to deflect an asteroid off a course for Earth is to be governed by international space

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<sup>1</sup> Near-Earth Objects and Planetary Defence. UNOOSA, 2019  
<[http://www.unoosa.org/documents/pdf/smpag/st\\_space\\_073E.pdf](http://www.unoosa.org/documents/pdf/smpag/st_space_073E.pdf)> accessed 12.4.2019.

law consisting of international treaties and customs. Nonetheless, there are many issues that current space law is not fully equipped to address, including issues of planetary defense. The Outer Space Treaty, a treaty that forms the basis of international space law, stipulates that state parties shall carry on activities in the exploration and use of outer space in accordance with international law.<sup>2</sup> In this context, an essential dilemma posed on planetary defense is how should the international community respond to a threat of an asteroid collision, while complying with international law?

If there is a NEO threat, states are likely to claim their inherent right/obligation to protect their territory and their population. However, specific nature of outer space reflected by the principles of international space law including *the non-appropriation principle, the concept of outer space as the province of all mankind*, does effectively limit states in their use of outer space.<sup>3</sup> In fact, most of the NEO impact scenarios anticipate multiple states situated in the risk corridor. Thus, a unilateral planetary defense mission raises important legal questions. Should states situated in the risk corridor be involved in the decisions and process of the planetary defense mission authorization? Should also states located beyond the risk corridor be involved since they may be threatened in case of a failed planetary defense mission? Given the international space law principles, one may suggest that any planetary defense mission should be approved and carried out by the international community. Such an implicit responsibility of the international community to protect populations from a NEO impact would be based on the very same principle as the R2P doctrine, endorsed during the 2005 World Summit.

It is worth mentioning that only a few states have necessary capabilities and technologies to carry out a unilateral planetary defense mission. Since there is no explicit and legally binding obligation under international law to assist other states, the R2P doctrine provides a vital example of a positive obligation of the international community to protect populations. In this context, both the R2P doctrine and planetary defense imply a collective responsibility of the international community to protect human lives and to prevent our planet from irreversible damage and devastation of unthinkable proportions.<sup>4</sup> Given the number of issues requiring clarification and relevant legal questions regarding planetary defense, a space mission to deflect an asteroid away from Earth impact is surrounded with uncertainties.

## 2 PLANETARY DEFENSE

Recognition of the hazard to life and property from impacts of comets and asteroids having potentially global consequences, biological as well as geological can be traced back to 1980s.<sup>5</sup> A perception of threat has been significantly affected by the discovery that an impact by a 10-km asteroid was associated with the Cretaceous-Paleogene (K-Pg) mass extinction 66 million years ago.<sup>6</sup>

According to NASA, planetary defense is the term encompassing all the capabilities needed to detect and warn of potential asteroid or comet impacts with Earth, and then either prevent them or mitigate their possible effects.<sup>7</sup> In particular, planetary defense aims at detecting and verifying NEO threat and moving threatening NEOs to non-threatening orbits.

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<sup>2</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. 8843 UNTS (entry into force 10.10.1967) Article III.

<sup>3</sup> *Ibid.* Article I.-II.

<sup>4</sup> In 2013, a small 18-meter object performed a shallow entry into the atmosphere and exploded 23 km above the city of Chelyabinsk in Russia. It exploded with the force of 30 atomic bombs injuring more than 1,000 people. More Nahum Melamed and Avishai Melamed, *Planetary Defense Against Asteroid Strikes: Risks, Options, and Costs*. Center for Space Policy and Strategy, 2018. <[https://aerospace.org/sites/default/files/2018-05/NEO-Defense\\_0.pdf](https://aerospace.org/sites/default/files/2018-05/NEO-Defense_0.pdf)> accessed 12.4.2019.

<sup>5</sup> Morrison David, *The cosmic impact hazard* in Schmidt (ed) *Planetary Defense – Global Collaboration for Defending Earth from Asteroids and Comets*, Springer, 2019, p. 17.

<sup>6</sup> *Ibid.*

<sup>7</sup> Planetary Defense, NASA <<https://www.nasa.gov/planetarydefense/faq>> accessed 12.4.2019.

NEOs, solar system bodies whose orbit brings them into proximity with Earth, are traditionally classified as meteoroids, asteroids, or comets depending on size and composition. According to the United Nations Office for Outer Space Affairs (UNOOSA), there are over 18,000 NEOs including both insignificantly small objects and objects capable of causing significant damage to life and property on our planet. Nearly 2,000 objects are classified as PHOs – potentially hazardous objects. These objects are fairly large (more than 140 metres in size) and capable of causing devastation on a regional scale with possible global consequences.<sup>8</sup> Moreover, the discovery rate of NEOs is continually on the rise.<sup>9</sup>

Currently there are two possible approaches to planetary defense – a unilateral mission (in light of the U.S. technological advantages the option not considered as unrealistic), and an international mission coordinated (and ideally carried out) by the international community.<sup>10</sup>

A unilateral planetary defense mission constitutes a realistic option only for a few states – space faring states – due to technical complexity of such a mission. In this context, the United States has adopted the National Near-Earth Object Preparedness Strategy and Action Plan to effectively manage the risks associated with NEOs. Although the U.S. acknowledges that international cooperation is the most effective way to manage NEO impact risks, the U.S. Strategy and Action Plan seeks to prepare the U.S. to act independently through all phases that may occur during an impact scenario.<sup>11</sup>

With regard to an international mission coordinated by the international community, only little progress has been made. In 1995, UNOOSA organized the United Nations International Conference on Near-Earth Objects, one of the first opportunities to discuss the phenomenon of NEOs at a truly international level.<sup>12</sup> The conference succeeded in raising the awareness of member states to the potential threat from NEOs and emphasized the need to estimate probabilities of potential NEO impacts.<sup>13</sup> These debates resulted in the recommendations to improve the international coordination of activities relating to NEOs and subsequent establishment of the Action Team on Near-Earth Objects (Action Team 14) by COPUOS in 2001.<sup>14</sup> The team was mandated to structure and organize ongoing efforts in the field of NEOs; identify gaps in the ongoing efforts; and propose steps for improvement in the field of international collaboration and coordination between specialized bodies.<sup>15</sup> In 2014, the new entities were established - the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG).<sup>16</sup>

The Space Mission Planning Advisory Group (SMPAG) is a forum where options and implementation plans for initiating and executing space mission response activities are explored. In particular, SMPAG's work plan items seek to determine criteria and thresholds for response actions to the threat of impacts, consider mitigation mission types and technologies, and map threat scenarios to mission types.<sup>17</sup> The International Asteroid Warning Network (IAWN) is a partnership of space agencies and

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<sup>8</sup> UNOOSA (n 1).

<sup>9</sup> UNOOSA (n 1) p 15.

<sup>10</sup> Melamed and Melamed (n 4).

<sup>11</sup> The National Near-Earth Object Preparedness Strategy and Action Plan. National Science and Technology Council, 2018 <<https://www.whitehouse.gov/wp-content/uploads/2018/06/National-Near-Earth-Object-Preparedness-Strategy-and-Action-Plan-23-pages-1MB.pdf>> accessed 12.4.2019.

<sup>12</sup> *Ibid.*

<sup>13</sup> Melamed and Melamed (n 4).

<sup>14</sup> United Nations. (2001). Report of the Committee on the Peaceful Uses of Outer Space. General Assembly Official Records, General Assembly 56th Session, A/56/20.

<sup>15</sup> United Nations. (2002). Improve the international coordination of activities related to near-Earth objects. STSC Conference Room Papers, STSC 39th session, A/AC.105/C.

<[http://www.unoosa.org/pdf/oosa/Reports/limited/pdf/AC105\\_C1\\_2002\\_CRP13Rev1E.pdf](http://www.unoosa.org/pdf/oosa/Reports/limited/pdf/AC105_C1_2002_CRP13Rev1E.pdf)> accessed 12.4.2019.

<sup>16</sup> Kofler Romana, *Near-Earth Objects and the United Nations*, in Schmidt (ed) *Planetary Defense – Global Collaboration for Defending Earth from Asteroids and Comets*, Springer, 2019, pp. 142-144.

<sup>17</sup> Terms of Reference for the Space Mission Planning Advisory Group, SMPAG <<https://www.cosmos.esa.int/web/smpag/terms-of-reference-v0>> accessed 12.4.2019.

scientific institutions dealing with Solar System observation. It endeavours to discover, monitor, and physically characterize the potentially hazardous NEO population and to coordinate campaigns for the observation of potentially hazardous objects.<sup>18</sup>

The decision to respond is likely to be made at the onset of the threat when the NEO has significantly high initial orbital uncertainty.<sup>19</sup> In light of the orbital parameters being better measured, the uncertainties are expected to be reduced. This constantly evolving nature of a threat makes discussions relating to a planetary defence mission very challenging. In this context, a unilateral planetary defense mission will likely intervene in the affairs of other states, especially those being located in the impact corridor. In contrast, an international mission would reflect the spirit of the Outer Space Treaty, particularly its Article I. stipulating that “the exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries”.<sup>20</sup> Although there were various attempts to enhance international cooperation, especially at the UN level, no coordinated global mechanism designed to prevent Earth from potentially hazardous objects has been established.

### 3 PLANETARY DEFENSE IN THE CONTEXT OF EXISTING FRAMEWORK OF INTERNATIONAL LAW

Since state parties to the Outer Space Treaty shall carry on activities in the exploration and use of outer space in accordance with international law,<sup>21</sup> any planetary defense mission will have to comply with norms of international law, in particular international space law. In other words, as long as the deflection of an asteroid is carried out in outer space, the space mission must comply with international law, regardless the number of countries located in the hypothetical impact corridor.

The principles of international law enshrined in the UN Charter together with the non-binding Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of United Nations<sup>22</sup> imply the right of every state to protect its territory and population. It is worth mentioning that the right to life in particular international human rights conventions (European Human Rights Convention) has been interpreted as a positive obligation of contracting parties to ensure the right to life of those under their jurisdiction, which includes the duty to take appropriate steps to safeguard human lives.<sup>23</sup> Particularly relevant may be the International Law Commission’s Articles on the protection of persons in the event of disasters. The ILC also entails a positive obligation on states to take the necessary and appropriate measures to prevent harm from impending disasters.<sup>24</sup> The positive obligation of states to protect its populations lies also in the core of the R2P doctrine. All these norms or principles have in common a moral appeal and build on humanitarianism. However, these norms and principles do primarily address situation within the jurisdiction of states.

As soon as the right and obligation to protect a territory and populations is invoked within the jurisdiction of a particular state, state sovereignty is a sufficient legal basis for such an action. However, international law sets out the permissible limits especially when the right to protect is exercised

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<sup>18</sup> History and functions of the IWAN, IWAN <<http://www.iawn.net/about.shtml>> accessed 12.4.2019.

<sup>19</sup> Melamed and Melamed (n 4).

<sup>20</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (n 2) Article I.

<sup>21</sup> *Ibid*, Article III.

<sup>22</sup> Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of United Nations, (UN General Assembly Resolution 2625, 1970).

<sup>23</sup> *Özel and Others v. Turkey*, European Court of Human Rights (2015), *Budayeva and others v. Russia*, European Court of Human Rights (2008), *Ledyayeva, Dobrokhotova, Zolotareva and Romashina v. Russia*, European Court of Human Rights (2006), *Fadeyeva v. Russia*, European Court of Human Rights (2005).

<sup>24</sup> Report of the International Law Commission on the Work of Its Sixty-Eighth Session, UN GAOR, 71st Session, UN Doc. A/71/10 <<http://legal.un.org/ilc/reports/2016/>> accessed 12.4.2019.

beyond national jurisdiction.<sup>25</sup> Beyond national jurisdictions, states are limited by the interests of other sovereign states (principle of non-intervention).

In outer space, states are limited by the inherently cosmopolitan nature of outer space expressed in Article I. of the Outer Space Treaty declaring that “the exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries” and “exploration and use of outer space shall be a province of all humankind”. By the same token, outer space cannot be nationally appropriated either by claim of sovereignty, by means of use or occupation, or by any other means. Under international customary law, outer space is a *res communis omnium*.<sup>26</sup>

With regard to a unilateral planetary defense mission, it is unclear whether the right to protect may be exercised beyond state’s jurisdiction. In the context of international space law, any unilateral space mission is hypothetically conflicting with the interests of other states. Professor Marchisio argues that when exercise of jurisdiction impinges upon the interests of other States, the overlapping claims to jurisdiction have to be coordinated.<sup>27</sup> An international mission coordinated by the international community raises legal questions as to the decision-making process, since the Outer Space Treaty defines neither “interests and benefits of all states” nor “province of all mankind”.

#### 4 RATIONALE BEHIND R2P

Sovereign states are regarded as equal, regardless of comparative size or wealthy. Enshrined in Article 2(1) of the UN Charter, sovereign equality of states has been understood as a concept providing order, stability and predictability in international relations. Internally, the sovereignty is translated into the capacity to make authoritative decisions with regard to the people and resources within the territory. Externally, states are only required to comply with their international obligations and to respect every other state’s sovereignty.<sup>28</sup> Under Article 2(7) of the UN Charter, states are obliged to not intervene in the internal affairs of a sovereign states (principle of non-intervention).<sup>29</sup> However, atrocities in the 1990s in the Balkans and Rwanda were committed inside the borders and the world was ill-prepared to act, and paralyzed by disagreement over the limits of sovereignty. Failure of the international community to prevent these atrocities together with the controversy surrounding the NATO’s Operation Allied Force in Kosovo, have triggered a substantial debate on how to halt gross and systematic violations of human rights with grave humanitarian consequences.

In order to resolve the conflict between the principles of non-intervention and state sovereignty and the responsibility of the international community to respond to massive human rights violations, the UN Secretary-General Kofi Annan, underlined that “the member states of the United Nations should have been able to find common ground in upholding the principles of the Charter, and acting in defence of our common humanity”.<sup>30</sup>

According to Kofi Annan, the twentieth century has revealed the core challenge to the international community. Thus, it is necessary to recognize that strictly traditional notions of sovereignty can no longer do justice to the aspirations of peoples everywhere to attain their fundamental freedoms. He

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<sup>25</sup> Marchisio Sergio, National Jurisdiction for Regulating Space Activities of Governmental and Non-Governmental Entities, during Activities of States in Outer Space in Light of New Developments: Meeting International Responsibilities and Establishing National Legal and Policy Frameworks, United Nations/Thailand Workshop on Space Law held in 2010 <<http://www.unoosa.org/pdf/pres/2010/SLW2010/02-02.pdf> > accessed 12.4.2019.

<sup>26</sup> Ogunbanwo, Ogunbola O., *International Law and Outer Space Activities*. Springer, 1975, pages 77-79.

<sup>27</sup> Marchisio Sergio (n 24).

<sup>28</sup> Hannum Hurst, Shelton Dinah L, Anaya James, Celorio Rosa, *International Human Rights: Problems of Law, Policy, and Practice*, Wolters Kluwer, 2018. page 1128.

<sup>29</sup> Responsibility to Protect, Report of the International Commission on Intervention and State Sovereignty, 2011, p.12 <<http://responsibilitytoprotect.org/ICISS%20Report.pdf>> accessed 12.4.2019.

<sup>30</sup> *Ibid.*

added: “it is clear that sovereignty alone is not the only obstacle to effective action in human rights or humanitarian crises. No less significant are the ways in which the Member States of the United Nations define their national interest in any given crisis.”<sup>31</sup>

In response to the challenges highlighted by Kofi Annan, Canada established the International Commission on Intervention and State Sovereignty (ICISS). Its report entitled *Responsibility to Protect* has developed earlier ideas about the state’s primary responsibility to protect its own population and the role of the international community when it fails to do so.<sup>32</sup> At the 2005 UN World Summit meeting, states committed to the principle of the responsibility to protect by including it into the outcome document,<sup>33</sup> later adopted as a General Assembly resolution.<sup>34</sup> In 2009, the UN Secretary-General Ban Ki-moon released the report “Implementing the Responsibility to Protect,” outlining three principles, or “pillars,” of R2P.<sup>35</sup>

The Responsibility to Protect doctrine, in its form endorsed by the UN World Summit in 2005, stipulates three pillars of responsibility: “Every state has the Responsibility to Protect its population (Pillar One), the wider international community has the responsibility to encourage and assist individual states in meeting that responsibility (Pillar Two) and if a state is manifestly failing to protect its populations, the international community must be prepared to take appropriate collective action, in a timely and decisive manner and in accordance with the UN Charter (Pillar Three).<sup>36</sup>

However, it is worth mentioning that the R2P doctrine adopted at the 2005 UN World Summit omitted some of the aspects proposed initially by the ICISS.<sup>37</sup> In considering the *just cause* principle - what kind of harm is sufficient to trigger international responsibility (Pillar Three), the Commission did not intend to limit the scope of R2P to the protection of populations from genocide, war crimes, ethnic cleansing and crimes against humanity. The Commission argued that the responsibility of the international community should be activated in two broad sets of circumstances, namely in order to halt or avert: large scale loss of life and large scale “ethnic cleansing”.<sup>38</sup> The threshold criteria developed by the Commission explicitly included overwhelming natural or environmental catastrophes, where the state concerned is either unwilling or unable to cope, or call for assistance, and significant loss of life is occurring or threatened. In other words, exceptions to the principle of non-intervention should be limited, however “trigger” conditions should not cover only man-made conscience-shocking situations.<sup>39</sup>

The R2P doctrine, endorsed by the UN, applies only to the four specified violations of genocide, war crimes, ethnic cleansing, and crimes against humanity. However, not only mass atrocities may ‘shock the conscience of mankind’. Especially naturally occurring hazards do expose populations to significant

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<sup>31</sup> Secretary-General Presents his Annual Report to General Assembly, Press Release SG/SM/7136, GA/9596 <<https://www.un.org/press/en/1999/19990920.sgs7136.html>> accessed 12.4.2019.

<sup>32</sup> Bellamy Alex J., *The Three Pillars of the Responsibility to Protect*, page 42 <<http://www.cries.org/wp-content/uploads/2015/09/006-bellamy.pdf>> accessed 12.4.2019.

<sup>33</sup> 2005 World Summit Outcome. Resolution adopted by the General Assembly on 16 September 2005, A/RES/60/1.

<sup>34</sup> The responsibility to protect. Resolution adopted by the General Assembly on 14 September 2009, RES/63/308.

<sup>35</sup> Stark Alex, *Introduction* in Weiss Thomas G., Thakur Ramesh, O’Connell Mary Ellen, Aidan Hehir, Bellamy Alex J., Chandler David, Shanahan Rodger, Gerber Rachel, Williams Abiodun, Evans Gareth, *The Responsibility to Protect: challenges & opportunities in light of the Libyan intervention*, page 4 <<https://www.files.ethz.ch/isn/181082/R2P.pdf>> accessed 12.4.2019.

<sup>36</sup> Ban Ki-moon. Responsibility to Protect: Timely and Decisive Response, Report of the Secretary-General, A/66/874-S/2012/578.

<sup>37</sup> About Responsibility to Protect. The Office on Genocide Prevention and the Responsibility to Protect <<https://www.un.org/en/genocideprevention/about-responsibility-to-protect.shtml>> accessed 12.4.2019.

<sup>38</sup> ICISS (n 28) p.32.

<sup>39</sup> *Ibid.*

risks.<sup>40</sup> Moral purpose of protecting civilians behind the R2P raises the question of whether the R2P should be analogically applicable to naturally occurring hazards when human, physical, economic or environmental damage from an event, or series of events, overwhelms a community's capacity to cope with it. The rationale behind the R2P implies the responsibility to react to situations of compelling need for human protection not necessarily limited to man-made conscience-shocking situations.<sup>41</sup>

Nonetheless, there is a tendency to interpret the R2P doctrine as narrow as possible. In reaction to the cyclone disaster in Myanmar in 2008,<sup>42</sup> where many affected people were provided with almost no relief assistance by the country's military regime, Bernard Kouchner, the co-founder of Médecins Sans Frontières and Médecins du Monde and former French Minister of Foreign Affairs, proposed that the UN Security Council invoke the "R2P" to authorise the delivery of aid without the consent of the Myanmar government.<sup>43</sup> Given the limited scope of the R2P endorsed by the UN, there was no *prima facie* case for arguing that the regime's failure to provide full access to humanitarian organizations triggers the Responsibility to Protect principle. In this context, Edward Luck, Special Adviser to the Secretary-General, said: "*We must focus our efforts on implementing these principles in these four cases, as there is no agreement among the Member States on applying them to other situations, no matter how disturbing and regrettable the circumstances.*"<sup>44</sup> The French proposal was opposed by Russia and China, arguing that as it was the domestic affair of a sovereign state to decide how to assist its own people.<sup>45</sup> It is worth mentioning that China contended that the situation in Myanmar was a natural disaster and not a matter of international peace and security, which places the crisis outside the remit of the Security Council, and there are other UN avenues more appropriate for coordinating the delivery of international assistance.<sup>46</sup> Unfortunately, French proposal's criticism reflected concerns about the potential for the R2P scope to be broadened as well as a serious risk of diluting R2P's capacity to mobilize international consensus in the cases where it is really needed.<sup>47</sup> Linking the R2P and the humanitarian crisis following Cyclone Nargis is generally considered to be a misapplication of the principle.<sup>48</sup>

## 5 PLANETARY DEFENSE IN THE CONTEXT OF THE R2P DOCTRINE

In 1999, UN Secretary-General Kofi Annan challenged Member States to resolve the conflict between the principles of non-interference regarding state-sovereignty and the responsibility to the international community to respond to massive human rights violations and ethnic cleansing. In the context of planetary defense, it is time to resolve the conflict between the *res communis omnium* character of outer space and the responsibility of the international community to defend Earth.

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<sup>40</sup> Global risk report 2019. World Economic Forum <<https://www.weforum.org/reports/the-global-risks-report-2019>> accessed 12.4.2019.

<sup>41</sup> Thakur Ramesh, *To Invoke or Not Invoke R2P in Burma*, The Hindu, 2008 <<http://www.hindu.com/2008/05/20/stories/2008052054140800.htm>> accessed 12.4.2019; Axworthy Lloyd and Rock, Allan, R2P: A New and Unfinished Agenda. *Global Responsibility to Protect*, 1(1), 2009, p. 54-69. (2009).

<sup>42</sup> Cyclone Nargis was the worst natural disaster to occur in Myanmar and the most devastating cyclone in South-east Asia since 1991. More: Tripartite Core Group, Post Nargis Joint Assessment <[https://documents.wfp.org/stellent/groups/public/documents/ena/wfp189113.pdf?\\_ga=2.160000116.850207109.1554395413-19485899.1503699372](https://documents.wfp.org/stellent/groups/public/documents/ena/wfp189113.pdf?_ga=2.160000116.850207109.1554395413-19485899.1503699372)> accessed 12.4.2019.

<sup>43</sup> Cyclone Nargis and the Responsibility to Protect Myanmar/Burma Briefing No. 2, 2008, page 4 <[https://r2pasiapacific.org/files/582/briefing\\_no2\\_cyclonenargis\\_r2p\\_myanmar.pdf](https://r2pasiapacific.org/files/582/briefing_no2_cyclonenargis_r2p_myanmar.pdf)> accessed 12.4.2019.

<sup>44</sup> *Ibid.* page 8.

<sup>45</sup> Ozerdem Alpaslan, *The 'responsibility to protect' in natural disasters: another excuse for interventionism? Nargis Cyclone, Myanmar*, *Conflict, Security & Development*, 10:5, page 702.

<sup>46</sup> Cyclone Nargis and the Responsibility to Protect Myanmar/Burma (n 42), page 9.

<sup>47</sup> Evans Gareth, *The Responsibility to Protect in Environmental Emergencies*. *Proceedings of the Annual Meeting of the American Society of International Law*, Vol. 103, 2009, pages 31-32.

<sup>48</sup> Abiodun Williams. *The Responsibility to Protect and Peace-making* in Weiss Thomas G., Thakur Ramesh, O'Connell Mary Ellen, Aidan Hehir, Bellamy Alex J., Chandler David, Shanahan Rodger, Gerber Rachel, Williams Abiodun, Evans Gareth, *The Responsibility to Protect: challenges & opportunities in light of the Libyan intervention*, page 32 <<https://www.files.ethz.ch/isn/181082/R2P.pdf>> accessed 12.4.2019.

Given the limited scope of the R2P endorsed by the UN, there is no *prima facie* case for arguing that the NEO threat triggers the Responsibility to Protect. However, the ICISS's report *The Responsibility to Protect* can serve as a source of inspiration for development of mechanisms at the international level for increased coordination in the area of planetary defence. Overwhelming natural or environmental catastrophes, where the state concerned is either unwilling or unable to cope and significant loss of life is occurring or threatened, are explicitly mentioned by the ICISS as examples of types of conscience-shocking situations sufficient to trigger the R2P.<sup>49</sup> Given the rationale behind the R2P, the concept should be viewed from the perspective of the population in need of protection, rather than from the perspective of a state's right to intervene.

### 5.1 A unilateral planetary mission

According to Nahum Melamed and Avishai Melamed, there are two primary schools of thought on how to undertake a planetary defense mission in the United States. One option would be for the U.S. to deal with the threat on its own.<sup>50</sup> National perspective in relation to planetary defense is emphasised also in the U.S. National Near-Earth Object Preparedness Strategy and Action Plan seeking to prepare the U.S. to act independently through all phases that may occur during an impact scenario to protect and preserve America's interests.<sup>51</sup>

With regard to a unilateral planetary defense mission, the first pillar of R2P may be relevant. It is likely that a state carrying out a unilateral planetary defense mission would seek to invoke the inherent responsibility to protect its populations. The first pillar "Sovereignty as Responsibility" assumes that the primary responsibility for the protection of its people lies with the state itself. The ICISS's report acknowledges that sovereignty implies a dual responsibility: externally – to respect the sovereignty of other states, and internally, to respect the dignity and basic rights of all the people within the state.<sup>52</sup>

However, against the background of the international law principles, particularly the principle of non-intervention, states are significantly limited in meeting their responsibility to protect if a threat is located beyond national jurisdiction. Even more challenging is the situation when a threat is located beyond the limits of any national jurisdiction - in Arctic and Antarctic, high seas, or outer space.<sup>53</sup> Outer space is a *res communis omnium*, cannot be appropriated by claims of sovereignty and exploration and use of outer space should be carried out for the benefit and in the interests of all countries. On Earth states are traditionally limited by the interests of others sovereign states, in outer space states are equally limited by the inherently cosmopolitan nature of outer space.

While the idea that *sovereignty entails a responsibility* strengthens the ability of states to protect their populations within their borders, it constitutes an equally significant limitation in relation to areas beyond national borders. Moreover, since the third pillar of the R2P assumes responsibility of the international community, territorial limitation of the applicability of the first pillar should be implied.

### 5.2 An international mission

The R2P doctrine builds on the idea that the security of the community and individuals, not only the state, must be priorities for national and international policies. In the context of planetary defense, the role of the third pillar "Responsibility of International Community" may be twofold: i) it effectively addresses limitations of a unilateral mission, and ii) it provides a background for the discussion about responsibility of the international community to respond to a NEO impact threat and to protect planet

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<sup>49</sup> ICISS (n 28) p.32-33.

<sup>50</sup> Melamed and Melamed (n 4).

<sup>51</sup> The National Near-Earth Object Preparedness Strategy and Action Plan (n 11) page.

<sup>52</sup> ICISS (n 28) p.8.

<sup>53</sup> Beyond National Jurisdiction: Outer Space. American Society of International Law <<https://www.asil.org/topics/signaturetopics/BNJ/outerspace>> accessed 12.4.2019.



Earth.

*Res communis omnium* character of outer space constitutes a significant limitation of the right to protect (responsibility to protect) populations from a NEO impact threat. While state sovereignty exercised beyond national borders should not intervene in the internal affairs of other states, it is generally accepted that there must be limited exceptions to the non-intervention rule for certain kinds of emergencies as envisaged by the R2P doctrine. At the 2005 World Summit, the world leaders acknowledged that in conscience-shocking situations the international community can interfere with internal affairs of a state when it is unable or unwilling to protect its population. In fact, the third pillar (the international community must be prepared to take appropriate collective action) does effectively constitute an infringement on sovereignty. By the same token, responsibility of the international community should not be limited by the *res communis omnium* character of outer space. In other words, when a state is unable to protect its population from a threat of an asteroid collision, a planetary defense mission should be carried out by the international community. In some circumstances and only as a last resort, the R2P doctrine implies infringement on state's sovereignty. By the same token, it is legitimate to assume that the R2P principles would be applicable also beyond national jurisdictions – in outer space.

Most of the states do not have necessary capabilities and technologies to carry out a unilateral planetary defense mission and, thus, are unable to protect their populations from a NEO impact threat. Since there is no explicit and legally binding obligation under international law to assist other states, the R2P doctrine, in particular its third pillar, provides a vital example to assume a positive obligation of the international community to protect populations from a threat of an asteroid collision. According to the ICISS, where a population is suffering serious harm and the state in question is unable to halt or avert it, the principle of non-intervention yields to the international responsibility to protect.<sup>54</sup>

With regard to the R2P, any involvement in a crisis should take place with a UN mandate to confer legitimacy. The ICISS argues that the international responsibility to protect populations at risk and the responsibility to react includes military intervention within a state, to carry out that human protection. Since the primary responsibility for the maintenance of international peace and security has been conferred upon the Security Council, the role of the Security Council becomes of paramount importance.<sup>55</sup> A planetary defense mission is a different case. Since no force is to be used, the Security Council is not necessarily the first port of call, because it is not clear whether planetary defense should be subsumed under “the international peace and security”.<sup>56</sup> Moreover, it is questionable whether the Security Council is authorized to identify the interests of all countries for the purposes of the exploration and use of outer space. Thus, the United Nations General Assembly, formed by all the member states of the United Nations, may be the only organ implicitly authorized to endorse an international planetary defense mission carried out beyond national jurisdictions.

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