DISCUSSION

Supra-Earth affairs

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The United Nations briefly considered the issue of extra-terrestrial intelligence at the 32nd session of the General Assembly in 1977. As a result, the Office of Outer Space Affairs was tasked to prepare a document on issues related to ‘messages to extra-terrestrial civilizations’, but this area has not been followed through in more recent times. This discussion paper describes the United Nations’ activities in the field of near-Earth objects in some detail, and suggests that this might be used as a model of how Member States could proceed with dealing with this issue in case the existence of extra-terrestrial life/intelligence is established.

Keywords: search for extra-terrestrial intelligence; near-Earth objects; international cooperation in the peaceful uses of outer space

1. Debate in the United Nations general assembly on extra-terrestrial life

At the 32nd session of the United Nations General Assembly (1977), Sir Eric M. Gairy, the Prime Minister and Minister for External Affairs of Grenada, made a statement on the new international economic order as it related to Third World countries. He touched on human rights, wars and conflicts, UFOs, and man and planet Earth. He concluded by recommending the following:

— the United Nations to set up an agency/department to study UFOs;
— the United Nations should take a legitimate interest in this subject;
— the United Nations to be the forum for open discussion and adoption of relevant resolutions; and
— the establishment of a small ad hoc committee to study the problem and report to the General Assembly.

As a result of this, in the course of the 20th session of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), held in Vienna, from 20 June 1977 to 1 July 1977, the question of extra-terrestrial civilizations

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was raised several times. The Chairman, in his opening statement, asked, in view of the tremendous impact any contact with extra-terrestrial civilization would have on our planet, if the Committee could continue to ignore this possible development, and it should not at least give preliminary consideration to the matter. The representative of Czechoslovakia mentioned experiments conducted in the USSR, the United States of America and Canada to detect radio signals from extra-terrestrial intelligence and asked the question as to what future steps should be taken in this field. The representative of Austria and the Chairman of the Scientific and Technical Subcommittee, in their statements, listed the search for extra-terrestrial civilizations among challenges for the future and possible future tasks for the Committee. The representative of Indonesia, in his closing statement, proposed that the Committee take up the question of the search for extra-terrestrial civilizations and that it assign the task to the Scientific and Technical Subcommittee.

As a result of these events, the Office for Outer Space Affairs was tasked to prepare a report, entitled ‘Messages to extraterrestrial civilizations’ (A/AC.105/206).

Following a debate on the details of the report, the COPUOS meeting posed the following questions:

— Would works of art represent humanity better than samples of scientific knowledge?
— Should messages be composed under the sponsorship of an international body, such as the United Nations, if they are to represent mankind?
— Should a register of messages to extra-terrestrial civilizations be established and maintained?
— Should the preparation of messages be done directly by the United Nations as an activity which would unify nations?

In parallel with these developments, in the same year, the message on the two Voyager spacecraft launched in August and September 1977 carried the first work of art towards the edges of the Solar System. The artwork carried the following message:

As the Secretary-General of the United Nations, an Organization of 147 Member States who represent almost all of the human inhabitants of the planet Earth, I send greetings on behalf of the people of our planet.

We step out of our Solar System into the universe seeking only peace and friendship; to teach if we are called upon; to be taught if we are fortunate.

We know full well that our planet and all its inhabitants are but a small part of this immense universe that surrounds us, and it is with humility and hope that we take this step.

([1], p. 8)

This was the first United Nations message sent into interstellar space. After this discourse in COPUOS, the topic fell by the wayside as there was no further pursuit of the subject matter in the General Assembly, particularly with the non-re-election of Sir Eric M. Gairy.

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2. Further pursuit of the issue of extra-terrestrial intelligence/life: the neo parallel

If the issue of extra-terrestrial intelligence/life and its impact on society needs to be pursued in the United Nations system, there has to be a sustained way by which it can be debated without reliance on a single individual or Member State. In this regard, there are lessons that could be learned from the current debate going on at the United Nations with respect to near-Earth objects (NEOs).

(a) UNISPACE III Vienna Declaration

Owing to the interest and concern of several Member States over the threats of NEOS to the Earth and humanity, this topic was included in the Action Plan of the UNISPACE III Vienna declaration [2]. It was addressed in the following paragraph:

Advancing scientific knowledge of space and protecting the space environment.

Action should be taken to improve the international coordination of activities related to near-Earth objects, harmonizing the worldwide efforts directed at identification, follow-up observation and orbit prediction, while at the same time giving consideration to developing a common strategy that would include future activities related to near-Earth objects.

([3], pp. 6–19)

In the pursuit of this Action Plan, Action Team 14 was created, which was chaired by the United Kingdom and, subsequently in 2010, by Mexico. This Action Team later brought the subject matter to the Working Group of the whole of the Scientific and Technical Subcommittee of COPUOS in 2004.

(b) Near-Earth objects in the report of the 41st session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space

As a result of discussions, the Working Group of the 41st session of the Scientific and Technical Subcommittee [4] adopted the following:

18. The Working Group agreed that, starting with its 42nd session, in 2005, it would consider an item on near-Earth objects according to the following multi-year work plan:

Year 2005

Reports by international organizations, regional bodies and others active in the field of near-Earth object research, including in terms of detection and follow-up activity, in particular, reports and presentations from the International Council for Science (ICSU) (on its multidisciplinary activity on near-Earth objects involving the International Astronomical Union, the Committee on Space Research (COSPAR) and other scientific unions), as well as from the Organisation for Economic Cooperation and Development, on the work they undertake in 2004. Other organizations playing a significant role in the field of near-Earth object research could also be asked to make presentations.

Update the work programme for later years as required.

Year 2006

Reports from Member States and international organizations on their near-Earth object activities, including missions, search and follow-up, as well as plans for future activity.
Establishment of a working group to consider the way forward and, specifically, the possible need for further activity to be carried out nationally, regionally or through international cooperation. Such consideration of cooperation should be taken together with the prospects for harmonization and avenues for broader collaboration.

Update the work programme for the third year as necessary and consider the need for intersessional work.

([4], p. 38)

In 2006, as agreed, a Working Group was formed, which was chaired by the United Kingdom. Further developments can be encapsulated in the ensuing sections. Apart from the work carried out in the Scientific and Technical Subcommittee, the Association of Space Explorers (ASE) led its own initiative to study the threat posed by NEOs.

3. Near-Earth objects in the report of the 46th session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space

In its report in 2009 [5], the Scientific and Technical Subcommittee adopted the following:

140. ... interest in asteroids was largely fuelled by their scientific value as remnant debris from the inner Solar System formation process, the potentially devastating consequences of such objects colliding with Earth and the possession of a wide range of natural resources.

141. ... early detection and precision tracking were the most effective tools for the management of threats posed by near-Earth objects. ... a number of international teams in various countries were currently searching for, investigating and cataloguing near-Earth objects and that new partnerships were emerging among national space agencies and research institutions to enhance those efforts.

142. ... a number of institutions were investigating possibilities for mitigating the threats posed by near-Earth objects. ... any measures to mitigate such threats would require coordinated international efforts, as well as increased knowledge of the properties of near-Earth objects.

143. ... the ASE International Panel on Asteroid Threat Mitigation had prepared a report on the theme ‘Asteroid threats: a call for a global response.

([5], p. 22)

At the same session, the Working Group on NEOs presented a draft recommendation for international response to the threats of NEO impact to the Scientific and Technical Subcommittee [6].

4. Draft recommendation for international response to the near-Earth object impact threat

Some of the significant sections of the draft recommendations are highlighted below.

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(a) Policy statement

The Working Group recommended that the NEO hazard should be recognized as a global issue that could be addressed effectively only through international cooperation and coordination. In this respect, the United Nations has a vital role to play in informing the process of developing the required policy.

Furthermore, the Working Group emphasized that given early warning that a possible impact is predicted, and knowing that a deflection capability exists to prevent this impact from occurring, it is recognized that humankind cannot avoid responsibility for the outcome of either action or inaction. Since there is a real possibility that mitigating measures, such as deflection, could be used and because the process of deflection intrinsically results in a potential but temporary increase of risk to populations not otherwise at risk in the process of eliminating the risk to all, the United Nations would be the most appropriate body to call on to facilitate the global effort to evaluate trade-offs and arrive at decisions on what actions to implement collectively.

(b) Monitoring and oversight

The Working Group further proposed that COPUOS should recommend that appropriate organs of the United Nations establish and mandate an entity to be responsible for monitoring the NEO impact risk and overseeing the corresponding NEO threat response. They further specified that such an entity should ensure the accomplishment of functions, described as follows:

— consideration of recommended criteria and thresholds for action (e.g. notification of a significant impact risk, initiation of observation and/or deflection campaign);
— consideration of decision and event timelines for NEOs identified for preliminary deflection-campaign analysis;
— consideration of the recommended process for deflection-campaign operational responsibility;
— identification, in cooperation with Member States, of methods to engage designated national/international disaster-response entities and to exploit existing functions and infrastructures;
— development and maintenance of detailed procedures for the consideration of impact-threat scenarios and agreement on the criteria and thresholds that will guide the choice and implementation of an appropriate response by the international community to a specific impact threat, from the initial identification of a potential for impact to the criteria requiring action by the international community to mount a deflection mission;
— communication of the procedures to the international community through the relevant United Nations organizations; and
— coordination of the relevant actors involved in the implementation of the procedures.

(c) Deflection-campaign planning and operations

The Working Group also urged that an inter-agency body should be established by appropriate institutions of the international community, composed
of spacefaring nations, who have responsibilities as follows:

— recommendation of generic decision and event timelines for NEOs that have the potential to impact the Earth;
— determination of specific decision and event timelines for NEOs that exceed an established threshold;
— recommendation of operational responsibility for both generic and specific deflection campaigns;
— recommendation of policies regarding criteria and thresholds to initiate a deflection campaign;
— assessment of alternative deflection concepts based on feasibility and technical maturity; and
— development of specific information required to support deflection-campaign planning efforts.

5. Taking it to the next level

The ASE, which had led its own initiative to study the threats of NEOs, conducted several meetings, culminating in a report that was adopted by the Association and its Panel on Asteroid Threat Mitigation, entitled ‘Asteroid threats: a call for global response’ [7].

The ASE report suggests that a global, coordinated response by the United Nations to the NEO impact hazard should ensure that three logical, necessary functions are performed:

1. Information gathering, analysis, and warning. An Information, Analysis and Warning Network should be established.

2. Mission planning and operations. A Mission Planning and Operations ‘Group’, drawing on the expertise of the spacefaring nations, should be established and mandated to outline the most probable options for NEO deflection missions.

An oversight mechanism is envisioned to fall under the purview of the United Nations Security Council (figure 1). This mechanism is still a proposal and has not been accepted either by the Scientific and Technical Subcommittee, COPUOS, or the Fourth Committee of the General Assembly of the United Nations.

6. Conclusion

Rapid developments in the detection of extra-solar planets augur well for those hoping to detect planets that would provide the right ecosystems for life. The continued search for extra-terrestrial communication, by several entities, sustains the hope that someday humankind will receive signals from extra-terrestrials. When we do, we should have in place a coordinated response that takes into account all the sensitivities related to the subject. The United Nations forums are a ready-made mechanism for such coordination. To make this happen, the champions of this subject must engage a wider audience, especially Member States of COPUOS, which would allow the subject to be included in the agenda of COPUOS and from this platform take it further to the General Assembly. The path through which the NEO issue was navigated is one that could provide a suitable example for the strategy and action to be taken by Member States.

References