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**Topic I: The Environment and Space Activity**

A major issue that impacts the environment as well as the safety of astronauts and space objects is space debris. Over 500,000 pieces are monitored as they orbit earth and have the velocity to impair satellites or other space objects. Debris can be natural (meteors which usually orbit the sun) or manmade materials, which usually orbit the earth. The major cause of artificial space debris is caused by manmade space crafts breaking apart or partially breaking, leaving floating pieces of debris. The majority of space debris is located on the LEO (lower earth orbit, 160-2000km above the earths surface), which is mostly used for monitoring, surveillance and communication. The advantage of this is that it can be easier to monitor which objects have been launched. The disadvantage is that due to the proximity of this orbit to earth, there is a risk of the debris falling into earth’s atmosphere and causing damage to the ground of the planet. Debris smaller than 10 cm is usually too small to track so theoretically there are infinite pieces of space debris. Despite their small size, they can still be damaging to space objects due to their velocity. The International Space Treaty states that states should avoid harmful contamination of space and celestial bodies however in some cases it is unavoidable, such as when meteors crash into satellites and cause breakage. Steps have been taken to prevent the harmful effects of space debris. The Liability Convention of 1972 states that countries are liable for all damages that their space objects cause. This includes damage to property, injury or loss of life. NASA has its Automatic Collision Avoidance technology. The best way to eliminate space debris is to have a tracking system implemented, training for preventative measures and to find a way to clean up existing debris.

Black carbon is released into the earth’s atmosphere during many launches of space crafts. Its particles absorb the sunlight and increase the overall temperature, a similar effect to greenhouse gases. With the increased amount of space activity, an increase in black carbon emissions could cause significant damage to the ozone layer and greatly increase global temperatures. The Republic of the Congo has signed agreements for causes such as Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetland and they are in full support of any preventative measures of the reduction of black carbon and space debris.

**Topic II: Militarization of Space**

The militarization of space has been a possibility since the 1950’s during the cold war. Although there are currently no active weapons in space, Russia, USA and China have come close with their ASAT technologies, or anti satellite technology, which is made with the purpose to destroy or destabilize satellites. An arms race in space is already in the process of being prevented by the various treaties that are in place. The creation of the Treaty on Principles Governing the Activities of States in the

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(also known as the Outer Space Treaty) was made in 1967 to implicate international space laws. The treaty states that no government can claim a celestial resource and that they are “common heritage of mankind”. The treaty clearly and strictly prohibits the usage of nuclear weapons or weapons of mass destruction. However, after the 2000 Prevention of Outer Space Arms Race resolution passage, there was concern by the UN that space was moving towards militarization. This created a lack of cooperation between nations. The Republic of the Congo is strongly opposed to such a war on the grounds that the likely hood of their 2 major trading partners, USA and China, being on opposing sides of the war will create a conflict with their trading, thus hurting the Congolese economy.

Wars on earth’s surface are governed by international humanitarian law in order to protect victims and bystanders. However, incorporating this law into space in the event of a space war could be difficult due to the distance of space. Weapons launched from space will be much more powerful than those on earth and will likely have a wider target range since they are launched from such a distance. Also, having the access to space will give access to attack any country. If the war were to occur in orbit, there would be astronomical amounts of debris created that will cause more harm to other ships and even to earth if they reach it. The Republic of the Congo will have little to no defense in such a case as their weaponry is ground battle and their defenses are not advanced to the level of a space war. The Republic of the Congo complies with the agreements of the 1971 ITSO Agreement Relating to the International Telecommunications Satellite Organizations and the 1992 ITU International Telecommunication Constitution and Convention so they are in support of global agreement in the best interests of maintaining peace in space.

Serious preventative measures need to be taken against space militarization. The best course of action would be to make some updated treaties since this issue hasn’t been properly agreed upon since 2000. Space militarization could have very detrimental affects to mankind, space and the environment.

**Topic III: Space Commercialization**

Space travel should be available to all but in this current day and age, it is only accessible to certain countries such as Russia, USA, China, and other countries that have the economy and resources to allow them to explore space. In the near future, it is possible that space exploration will become more accessible to smaller countries and developing countries. The importance for the Republic of the Congo to have a footprint in outer space is because it improves health, development of the country and disaster prevention.

The resources required for rockets should continue the way that they are by exporting and importing materials from country to country. Adding regulations to this system to equalize or to regulate the resources between countries can be very harmful to smaller economies. The Republic of the Congo’s major trading partners of crude petroleum and other oils include China, USA, Italy and Australia. The natural resources of The Republic of the Congo and other developing countries are the basis of sustaining their economy and economic growth and being tampered with could have detrimental affects to these areas.

The Republic of the Congo is interested in space travel as a means of development of technology and resources, rather than for commercial or tourism purposes. Although they themselves do not have the resources to get to space, the Foundation for Space Development plans on helping all African citizens understand and someday be able to explore space. The organization is based in South Africa and wishes to educate youth from all over Africa about space. Their mission is to create space security for the entire continent of Africa for the uses of healthy development, disaster detection and communication. Many African countries have a severe lack of health resources and doctors available to them. The Satellite African eHealth Validation program created by the European Space Agency provides telemedical services through satellites by connecting remote areas to Sub-Saharan Africa that has better medical facilities. The UN Regional Centre for Mapping of Resources for Development uses satellite observation to monitor crops, water conditions and disaster warnings. This program hopes to create a brighter future for African children by being able to educate them about space and have them participate in their programs. In essence, their mission is to help the continent of Africa with all of its nations develop with the help of space exploration and satellite technologies.

The imbalance of space technology can be solved by South Africa leading by example. Larger countries with more resources should create committees and missions to include their smaller neighbouring or allied countries in their space affairs. Another one similar to this is the SERVIR program, a collaboration of NASA and USAID whose mission is to provide satellite technology to developing countries to improve their environmental decision-making. Programs like these will eventually allow all of mankind to have access to space.

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