

Environmental ethics in outer space - Long term sustainability of the human species

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Abstract

This project integrates environmental ethics in the emerging field of astrobioethics, to obtain an ethical foundation for long term sustainability of the human species beyond Earth. Becoming a multiplanetary species represents a permanent alteration of human life, from an environment we developed from to one where we will be foreigners. I argue that we need to exceed from asking *what* we can do and *how* we can do it, to how we *should* do it. Consider this question: What kind of psychological and social being will a human be that has no relation to or experience of other forms of life, or solely of an artificially introduced environment? The question of what we want to bring along and what we want to leave behind gets a significantly different meaning when we change our vocabulary from expedition and exploration to settlement and exploitation. I argue that we need to define what sustainability is in outer space.

1. Introduction

The dominant discourse on space settlement is currently narrated as a continuation of the exploiting, economically driven definition of progress. Contemporary environmental philosophy argues for the Western cosmology's conception of humans as somewhat separated from and superior to the natural environment, as the major contributor to the current environmental crisis, through its fostering of an ethic lacking the resources to state why environmental harmful behaviour is wrong [1]. Environmental philosophy, as numerous natural sciences, argue for the physical and psychological relationship dependency of humans to a natural environment. If we embark on this adventure armed with the same ethic, I argue that long term human survival beyond Earth is unlikely. I propose that we must base our expansion on ethics that acknowledges the limitations, risks and pitfalls of pure anthropocentrism, and includes a more ecocentric

understanding of ourselves and the environments that would be housing us, and thus a guideline for behavior for the benefit of all life and non-life.

2. Rationale

I argue for three specific reasons why spreading Earth-life in the universe is both a necessity and a desire from a human perspective. The first is an acknowledgement of life's *conatus*, the second is for long term survival, and the third is for the cosmic value of life as potentially something exceptional. Progress is linked to *conatus* and thus not easily tamed. The definition of progress however is in our power to redefine. An alteration in the ethical foundation is hoped to positively affect also our treatment of Earth, as arguably should be of priority, but due to the fact that these plans are, if possible, going to be executed simply due to existing interests such as SpaceX, this project focuses on the destination in order to bring critical questions to the table in time. By basing my research on the *Sustainability Solution* to the Fermi Paradox [2] which implies that a civilization must stay within the carrying capacity of its ecosystem to obtain long term survival, I argue that sustainability of a supporting ecosystem is a prerequisite, and that the source to obtain it lies in a reconstruction of the Western ethic of dualism and human superiority.

3. Main themes

The project consists of five correlating main themes:

1. *Ethics concerning how we should relate to extraterrestrial environments.* Settling beyond Earth will entail compromises between human interests and the need for a supporting ecosystem, versus the new environment. I argue for a need to remember critical aspects of past Earth colonization and exploitation, and acknowledge both that we will be intruders, and our limitations in analyzing possible risks for both the new world and for ourselves. By which principles should we relate to possible indigenous life and non-

life on that world? How can we fulfill our own *conatus* in a way that does not threaten either new environments or ourselves? Which efforts and impacts of terraforming can be ethically justified in order to secure human well-being?

2. Which value-system will apply in space. The hierarchy-based value system with utility for humans as the pinnacle, born from our current Western ethics is, as demonstrated over the last centuries, unsustainable. In a less hospitable environment than our home planet, a direct transfer of current values are unlikely to function for both the human inhabitants and the environment. Think of Mars One's worm experiments for Mars agriculture [3], how valuable would not a worm be on Mars in the early days of settlement? So which values will these future humans be guided by?

3. Ethics concerning human physical, psychological and technological adaptation. Settling beyond Earth is currently narrated as an expedition, however an expedition is a relatively short term event under extreme conditions, not sustainable or desirable for the participants in the long run. As a first step, living under expedition conditions will be necessary, but as an expedition is about survival, a permanent relocation is about improving life, thriving, developing and defining new goals and dreams. How will this future human think, feel and behave? What physical and psychological environment will he or she live in? Will he or she have pets?

4. What the socio-political system among humans at an extraterrestrial body could be and its relation to Earth. An initial Mars-settlement is likely to have some socio-political relation to organs on Earth, currently guided by the arguably outdated Outer Space and Moon Treaties. As our extraterrestrial settlements grow, the questions of socio-political and economic structures are more questionable to be directed from Earth. Haqq-Misra's call for liberating Mars presents many of the decisions in need of settling, preferably in advance of settlement [4]. What collective humanity will these humans be part of? Is 'colonization' the concept we want to apply, or should we rethink our past methods for expansion?

5. Ethics concerning our universal role and legacy as an intelligent species. If we are to spread in the Universe, I argue that it should be in our interest to consider our universal role and legacy. Whether we take on the role as guardians of life, as discussed by

Chon-Torres [5], I argue that our one ability which sets us apart from other life on Earth, our reflexive self-consciousness, is followed by a responsibility, exactly because it enables us to comprehend, reflect, and thus make choices. What values do we want to represent as an intelligent species?

4. Method and components

The project will visualize the complex correlation of the physical and psychological relationship between human beings and the natural environment, by merging social sciences such as environmental philosophy, ecopsychology, geo- and bioethics and astrobioethics in a framework of natural sciences such as evolutionary biology- and psychology, ecology, astrophysics, geology and astrobiology. Ethical implications of past events in the history of humanity as well as both the iconic imagined and the actually planned future scenarios are analyzed, in order to reach an ethical foundation coinciding with the Sustainability Solution. The project will thus take the overall shape of a qualitative thought experiment of normative futurology.

5. Conclusion

In order to secure our own survival, acknowledgement of our *conatus*, and improve our universal legacy, I argue that an alteration of our current ethic is needed as we intend to expand beyond Earth. This entails defining what is sustainable in outer space, and constructing an ethic that merges sustainability with our desires to take on a new role in the name of humanity. To reach such goals we need to think, comprehend and act in accordance with the scope of the dream, and evolve that dream accordingly through a process of feedback learning. As we physically expand our known world, so must our ethical perspectives grow accordingly.

References

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