

The Space Option

Science-fiction author Arthur C. Clarke could not have been more perceptive in 1968 when he wrote:

The challenge of the great spaces between the worlds is a stupendous one, but if we fail to meet it, the story of our race will be drawing to a close. Humanity will have turned its back upon the still untrodden heights and will be descending again the long slope that stretches, across a thousand million years of time, down to the shores of the primeval sea [1].

Human activities on our planet have reached the point where we are now forced to consider seriously the viability of our civilization and the survival of the human species. In the early years of the 21st century, it has become acutely obvious that an expanding human population on a finite planet is having major impacts on global concerns such as climate change, the environment, energy, food production, economics and politics. Indeed, perhaps even the near term sustainability of human society as we know it may soon be in question unless immediate and effective corrective measures are taken. To address these issues, humanity will implement either the most innovative or the most repressive solutions imaginable.

Most people alive today instinctively assume that humanity's fate in the years ahead will be decided and enacted here on planet Earth. As our global problems seem to multiply exponentially, most would also agree: *Earth problems must have Earth solutions.*

Space visionaries and pioneers such as Krafft Ehrlicke and Gerald O'Neill recognized long ago the current dire eventuality, and they and their followers have developed both the scientific rationale and the technological capability to address the impending human dilemma. This has led to a concept called the Space Option.

In 1970 Krafft Ehrlicke wrote:

While civilization is more than a high material living standard, it is nevertheless based on material abundance. It does not thrive on abject poverty nor in an atmosphere of resignation and hopelessness. It needs vigor as well as vision. Therefore the end objectives of solar system exploration are social objectives in the sense that they relate to, or are dictated by, present and future human needs [2].

The Space Option is an evolutionary plan to meet the basic and anticipated needs of humanity through the utilization of near-Earth resources—*not for the in-situ support of science or exploration*—but rather to

apply these resources and/or their products for use on Earth at a conspicuous level. Most significantly, the harnessing of energy from space would replace humanity's dependence on the continued use of fossil fuels, which are environmentally problematic, and, likewise, on the widespread use of nuclear fuels, which have grave environmental and political consequences. Unfortunately, it appears that alternative and renewable terrestrial energy resources, while both desirable and necessary, are not without their own environmental and societal issues and cannot be deployed on a scale sufficient to meet the growing needs and demands of our present and future populations.

Unlimited amounts of clean solar energy from space, on the other hand, would substantially contribute to the restoration of the environment while avoiding the environmental and political consequences associated with the continued use of fossil fuels and nuclear power. Having an inexhaustible supply of clean energy and other natural resources would not only perpetuate the lifestyle of the developed nations, but would continue to provide the basic means for further stimulating the economies of the developing countries.

If implemented in time and with sufficient commitment, the reward would be a prosperous and dynamic planetary civilization living in a healthy environment, as well as the creation of an infrastructure in space upon which the expansion of the human species throughout the solar system and beyond could be realistically anticipated. Of all the options currently available to humanity at this critical moment in its history, the Space Option represents the most optimistic scenario for insuring humanity's long-term sustainability and ultimate survival—the crucial first step toward meeting the challenge that Clarke stated.

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References

Unedited references as provided by the author.

1. Arthur C. Clarke, *The Promise of Space*, Penguin Books, 1968.
2. Krafft A. Ehrlicke, *In-Depth Exploration of the Solar System and Its Utilization for the Benefit of Earth* (1970) *Annals of the New York Academy of Sciences* 187.