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Man has explored other planets, yet settling and inhibiting is the next goal of mankind. For decades, scientists have been interested in this mission. They have explored the possibilities and presented the theories of how mankind would be able to live on other planets. A group scientist from different government agencies, universities and technology industry, have stated that a manned trip to MARS led by NASA will be possible by the 2030s. The need for a human to be able to live on other planets is due to the risk of extinction on Earth because of environmental conditions. As humankind, as well as other species, have begun to experience global warming and extreme climate change, the government and scientists and governments are searching for other means to survive (Pabila). One of the possible solutions is to find another planet where life is possible. Till now, scientists have not found any other planet in space where human life is possible. It is an understood fact that for settling on Mars or any other planet, it will be important to learn how to develop suitable conditions for human life. Comparing all the planets, Mars seems the most suitable fit for this kind of mission. The ongoing researches to develop suitable conditions to make life sustainable is mainly focused on three habitation features including pliability, intellect, and sovereignty. This researches aim to establish smart and advanced habitats that will be able to respond and adapt to deviations and emergencies, yet can maintain the safety of the people inside.

           Instead of considering the tough conditions as challenges, with appropriate strategies and ample technology, it is possible to start human life on Mars. In this way, Mars can be the next place in our solar system to sustain human life.

           The temperature at Mars is lower than Earth as it is farther from the Sun as compared to Earth. The atmosphere of Mars is not as thick as the atmosphere of Earth and also it receives lesser heat from the Sun. Thus, at noon one would be able to experience a cold day of winter. While at night the temperature can drop lesser four times the temperature of Antarctica. However, this temperature condition is much better than other planets. With special habitats and modified clothing, which will be able to keep residents warm, it is possible to live on Mars.

           Scientists have found evidence of water on the soil and in the atmosphere of Mars. With advanced technology, the extraction of water may be possible. Water is most essential for any form of life and without it, life cannot be sustained. A specific type of salt that contains perchlorate is found on Mars in abundance. This salt absorbs the water molecules and the astronauts can find a way to extract it. Nasa scientists with help of an infrared telescope have confirmed that once the land of Mars contained more water quantity than the Arctic Ocean. It has been discovered that the polar caps of Mars still contains some of it (*Can We Survive on Mars?*). The extraction of water trapped within ice seems critical and decisive for the survival of life on Mars, however, the discovery of flowing water suggests that it may be an easier process. For this purpose, current NASA is working on an excavator machine known as RASSOR (Regolith Advanced Surface Systems Operations Robot) which is designed to extract water, fuel, ice from the soil.

To survive on another planet without no food resource yet can be hard but now with technological advancement has made growing plants without sunlight possible, Mars’s natural resources may be sufficient to grow food. The plants grown can be then used to produce oxygen for humans. In this way, humans will become less dependent on artificial oxygen and other breathing devices. One of the scientists claims that a bank of photosynthetic organisms like green algae can also be utilized for this purpose.

Plants require carbon dioxide to grow and there is plenty of it present in Mars’ atmosphere. Also, the soil contains the chemical on which the growth of the plant depends. However, not all soil of Mars is the same, so depending upon the landing site, fertilization may be required. The human waste of habitants of Mars can be utilized as nutrients for the plants. In addition to water, nutrients and carbon dioxide, other factors like temperature need to be controlled too.

Nasa and Systems & Material Research Corporation (SMRC) are working together to develop a 3d printer which can convert starch, protein, and fats into shapes and microjet in nutrient and flavors. According to David J Irvin, director of SMRC, it will contain 25 to 50 basic food substances which also includes bread and pastries.

The human explorers on Mars will have to sort out a way to deal with the enhanced radiation level present on its surface. Certain measures will be required for ensuring that the exposure level to the radiations is lessened if there are any attempts to take over Mars. Mars provides raw materials like regolith, which cover the land surface, can potentially be used as a substitute for concrete. It can be used to build the underground caves where the habitants can stay to avoid the radiation. Many long-term and short-term solutions have been presented by scientists to deal with such issues.

The mass loss due to lower peak temperatures is more insignificant on Mars as compared to the earth. The surviving particles help in the preservation of organic material. The cometary resultant particles should be improved on Mars due to the lesser probable entry velocities. A higher survival rate of extraterrestrial organics is suggested by the larger surviving particles, lower peak temperatures and cometary material (Wilson and Genge).

Man’s wish to expand its reach into the universe and settle on another planet now seems to be fulfilled. Elon Musk announced that SpaceX aims to design rockets, landers and such other devices to help humans land on Mars. He wishes to build a colony where around one million people will be able to reside. The scientist is putting massive struggle into realizing the dream of living on Mars. From recent technological advances, it is safe to say that soon this concept will turn into reality.

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