Colonization of Mars

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***Abstract*—**Since Many Scientists In The World Are Thinking Of Colonization Of Mars, I Have An Idea That Rather Than Finding Suitable Conditions For Survival, We Can Create The Conditions Required For Survival.

***Keywords*—** Colonization, Mars, Survival Conditions.

I. Introduction

MARS Colonization Has Become A Major Space Expedition From Past Years. The Main Concept Is To Create A Natural Ozone Layer Barrier On Mars And Increase The Oxygen Levels.

A. Sun

The Sun Is The Star At The Centre Of The Solar System. It Is Almost Perfectly Spherical And Consists Of Hot Plasma Interwoven With Magnetic Fields .

Sun Is The Main Important Theme Of This Concept Has Its Our Source Of Energy , In This Project The Main Concept Of Idea Is Very Simple ,Here We Will Be Placing Solar Shields In The Atmosphere Of Mars Which Will Concentrate The Sun Rays Onto The Planet's Surface Thereby Causing Heating Up The Gases In The Atmosphere.

Important Chemical/Gases

Carbon-Dioxide, Nitrogen, Ammonia. Methane

B. Mars Atmosphere

Mars Lost Its Magnetosphere 4 Billion Years Ago, So The Solar Wind Interacts Directly With The Martian Ionosphere, Lowering The Atmospheric Density By Stripping Away Atoms From The Outer Layer. Both Mars Global Surveyor And Mars Express Have Detected Ionised Atmospheric Particles Trailing Off Into Space Behind Mars, And This Atmospheric Loss Will Be Studied By The Upcoming MAVEN Orbiter. Compared To Earth, The Atmosphere Of Mars Is Quite Rarefied. Atmospheric Pressure On The Surface Today Ranges From A Low Of 30 Pa (0.030 Kpa) On Olympus Mons To Over 1,155 Pa (1.155 Kpa) In Hellas Planitia, With A Mean Pressure At The Surface Level Of 600 Pa (0.60 Kpa). The Highest Atmospheric Density On Mars Is Equal To The Density Found 35 Km Above The Earth's Surface. The Resulting Mean Surface Pressure Is Only 0.6% Of That Of The Earth (101.3 Kpa). The Scale Height Of The Atmosphere Is About 10.8 Km,Which Is Higher Than Earth's (6 Km) Because The Surface Gravity Of Mars Is Only About 38% Of Earth's, An Effect Offset By Both The Lower Temperature And 50% Higher Average Molecular Weight Of The Atmosphere Of Mars. The Atmosphere Of Mars Consists Of About 96% Carbon Dioxide, 1.93% Argon And 1.89% Nitrogen Along With Traces Of Oxygen And Water.

Fig. 1 A Look At The Mars Atmosphere Over The Martian Surface. Source : Viking Orbiter Raw Image Archive On CD-ROM

C. Carbon-Dioxide

The Main Component Of The Atmosphere Of Mars Is Carbon Dioxide (CO_2) At 95.9%. Each Pole Is In Continual Darkness During Its Hemisphere's Winter, And The Surface Gets So Cold That As Much As 25% Of The Atmospheric CO_2 Condenses At The Polar Caps Into Solid CO_2 Ice (Dry Ice). When The Pole Is Again Exposed To Sunlight During Summer, The CO_2 Icesublimates Back Into The Atmosphere. This Process Leads To A Significant Annual Variation In The Atmospheric Pressure And Atmospheric Composition Around The Martian Poles.

D. Argon

The Atmosphere Of Mars Is Enriched Considerably With The Noble Gas Argon, In Comparison To The Atmosphere Of The Other Planets Within The Solar System. Unlike Carbon Dioxide, The Argon Content Of The Atmosphere Does Not

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Condense, And Hence The Total Amount Of Argon In The Mars Atmosphere Is Constant. However, The Relative Concentration At Any Given Location Can Change As Carbon Dioxide Moves In And Out Of The Atmosphere. Recent Satellite Data Shows An Increase In Atmospheric Argon Over The Southern Pole During Its Autumn, Which Dissipates The Following Spring.

E. Water

Some Aspects Of The Martian Atmosphere Vary Significantly. As Carbon Dioxide Sublimates Back Into The Atmosphere During The Martian Summer, It Leaves Traces Of Water. Seasonal Winds Sweep Off The Poles At Speeds Approaching 400 Kilometres Per Hour (250 Mph) And Transport Large Amounts Of Dust And Water Vapor Giving Rise To Earth-Like Frost And Large Cirrus Clouds. These Clouds Of Water-Ice Were Photographed By The Opportunity Rover In 2004. NASA Scientists Working On The Phoenix Mars Mission Confirmed On July 31, 2008 That They Had Indeed Found Subsurface Water Ice At Mars's Northern Polar Region. Further Analysis By The Phoenix Lander Will Confirm Whether The Water Was Ever Liquid And If It Contains Organic Materials Necessary For Life.

F. Methane

Methane Has Been Detected In The Martian Atmosphere With A Mole Fraction Of About 30 Ppb It Occurs In Extended Plumes, And The Profiles Imply That The Methane Was Released From Discrete Regions. In Northern Midsummer, The Principal Plume Contained 19,000 Metric Tons Of Methane, With An Estimated Source Strength Of 0.6 Kilogram Per Second The Profiles Suggest That There May Be Two Local Source Regions, The First Centered Near 30°N 260°W And The Second Near 0°N 310°W. It Is Estimated That Mars Must Produce 270 Ton/Year Of Methane.

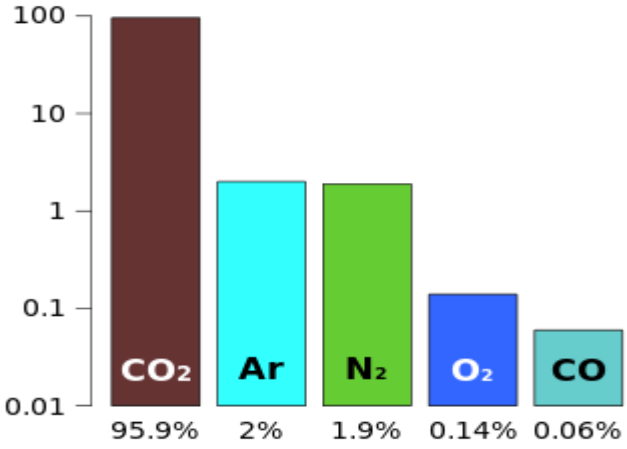

Fig. 3 Composition Of Gases In Mars Atmosphere
Source : Http://Photojournal.Jpl.Nasa.Gov/Catalog/Pia16460

G. Ozone

As Reported By The European Space Agency (ESA) On September 29, 2013, A New Comparison Of Spacecraft Data With Computer Models Explains How Global Atmospheric Circulation Creates A Layer Of Ozone Above Mars's Southern Pole In Winter. Ozone Was Most Likely Difficult To Detect On Mars Because Its Concentration Is Typically 300 Times Lower Than On Earth, Although It Varies Greatly With Location And Time.

II. Possible Future

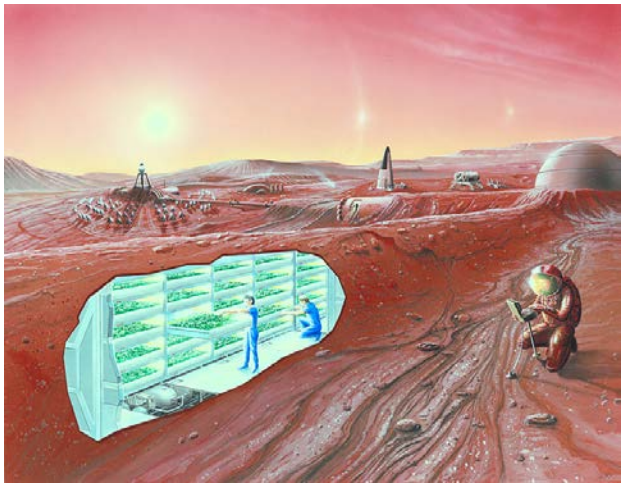

Fig. 2 An Artist's Impression of Mars Settlement With Cutaway View.
Source : ttp://Www.Nasa.Gov/Centers/Ames/Multimedia/Images /2005/Futureexploration.Html

We Have Excess Of Nitrogen, Ammonia, Methane In Our Atmosphere Which Cause Green House Effect. First, We Will Store These Excess Gases In Storage Tanks And Deploy Them Into The Atmosphere Of Mars Thereby Forming A Gaseous Composition.

The Solar Shields Come Into The Picture Now. We Deploy Them Around Mars And Let Them Concentrate The Sun Rays To Increase The Temperature Of The Atmosphere.

When The Temperature Increases, Gases Heat Up And Chemical Reactions Start To Take Place. Carbon- Dioxide, Nitrogen Compounds, Ammonia Etc Disintegrate Into Different Elements.

The Oxygen Molecules Form And React Together To Form Ozone Molecule. Hence Ozone Layer Is Formed In The Atmosphere. In This Way, Natural Formation Of Zone Layer Takes Place Thereby Increasing Oxygen Levels In The Atmosphere.

The Carbon And Nitrogen Elements Mix Into The Soil Of Mars Surface And Nitrification Of Soil Takes Place. This Makes The Soil Fertile And Brings It Back To Life.

The Ice Deposits In The Mars Soil In The Poles Evaporate Into Steam Due To Heating Up Of Mars Surface Via Solar Shields. The Ozone Layer Helps In Condensation Of Steam Into Liquid Water And Leads To Rainfall. This Will Help In Productivity Of Trees, Plants And The Flora Content Of Mars Can Increase.

Hence The Geological Balance Is Restored And We Will Be Restoring Life Back To Mar.

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