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HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
Near Term Strategies for Lunar Surface Infrastructure (1)

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LUNAR RESEARCH BASE DESIGN FOR SUSTAINABLE HUMAN EXPLORATION OF THE SOLAR SYSTEM

Abstract

The paper gives an insight into a Lunar-research-base designing concepts. The base will open new vistas for expanding human influence outside earth.This moon research settlement will be used for further expansion of our scope to other planets.Peary crater on the Northern side of moon is chosen as the settlement-area. The crater will provide partial fortification from solar winds and space debris. The primary energy source for powering the research base will be solar energy. Centrifuging the labs and residential facilities using high powered motors and APU will solve micro gravity problems. Oxygen and inert gas mixture will craft artificial atmosphere for settlement area. Significant pressurization will be done. Residential dome-shaped chamber have layers of steel as support material, lead lunar-soil covering to curb cancer causing high-frequency-radiation from space. The materials to be used in manufacturing the settlement will be capable enough to hold down the complete structure, rotating labs and residential facilities. Sewage system will filter out necessary substances like water and biogas. Water production will be from recycling various waste materials and lunar-ice. Vegetation for O2-CO2-equilibrium nutritional needs of researchers is fashioned using Organic polymer light emitting diodes as plant-growth-enhancer, Increase gas density pressure to resist plant drying, sawdust cotton as soil substitute while induced gravity helps proper root and shoot growth direction . The variety of crops cultivated is planned according to nutritional needs and extra would be fulfilled by readymade supplements. Solenoids producing high intensity magnetic field deflects stream of energetic particles emanating from solar winds. Transportation will be done by Hybrid Chemical and Magneto-plasma system in coordination with electric-solar-powered vehicles. Vehicles will have advanced navigation technologies for movement on the moon with predefined destination coordinates. The labs, rooms and residential facilities, solar panels will be in form of modules carried from the earth and then assembled on moon. The payload will be launched to LEO by chemical rockets and then it docks on to orbital transfer vehicle which carries it to Lower Moon orbit from where a descend vehicle is used for landing.It will also have the privilege of launch pads for interplanetary Missions. The base would be an extended research location in space to carry out independent experiments for comprehensive period of time which are economically viable.

#KEYWORDS: * Operational in: 2 years * Settlement Endurance: 50 years * Accommodation: Min.100 researchers * Minimum net cost * Feasible Interplanetary Missions