

CONTENTS

Acknowledgments

Introduction 1

Aim of the project
Structure of the project and main problems dealt with
General facts

Chapter 1. Population design 5

Introduction
Feasibility analysis of population self-sustainment
Population composition and statistics
Population growth models
Conclusions
References

Chapter 2. Project management design 25

Introduction
Planning for the lunar extraction facility
Settlement Development Plan
Conclusions
References

Chapter 3. Nutrient requirements and water management 33

Introduction
Nutrient and oxygen requirements
Water consumption computation
Water quality and monitoring
Conclusions
References

**Chapter 4. Radiation passive shield analysis and designs for orbital
space stations 51**

An overview of the chapter
Introduction
Source classification (based on source geometry)
Statement of the general shield model

Shield for pointwise sources

Conclusions

ANNEX 1. Details upon types and sources of radiation in space

ANNEX 2. Calculus details

ANNEX 3. Axial and transversal sections

Conclusions **81**