Colony parameters:

* Gravity: determines cost of sending freighters from colony, from minor space body (1) to large planet (6)
* Distance: determines time/cost of sending colony ship and freighters to/from, from adjacent to terraforming body (1) to across solar system (6)
* Hostility: determines cost/success chance of initial colony and upkeep, from reasonable temperature/radiation/hazards (1) to very dangerous (6)
* Resources: resource types that colony can produce
* Potential: quantity/quality of resource extraction, based on body size and resources available

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Gravity | Distance | Hostility | Resources | Potential |
| Mercury | 3 | 4 | 6 | Minerals | 5 |
| Venus | 4 | 3 | 1 (relatively safe upper atmosphere | GHG (CO2) | 5 |
| Luna | 3 | 2 | 2 | Minerals | 3 |
| Phobos | 1 | 1 | 2 | Water/minerals | 1 |
| Deimos | 1 | 1 | 2 | Water/minerals | 1 |
| Asteroid Belt | 1 | 2 | 2 | Water/minerals | 2 |
| Jupiter | 6 | 4 | 5 | Inert (hydrogen/nitrogen) | 6 |
| Ganymede | 3 | 5 | 3 | Water/minerals | 4 |
| Europa | 3 | 5 | 3 | Water | 6 |
| Io | 3 | 5 | 4 | Minerals | 5 |
| Callisto | 3 | 5 | 3 | Water/minerals | 4 |
| Titan | 3 | 6 | 4 | Inert (nitrogen) Organics (methane) | 6 |
| Outer Gas Giants | 5 | 6 | 6 | Inert/Water/organics | 6 |

Create actual departments like US federal government for ministries next

Hydrogen is not actually an inert gas, Jupiter still has some nitrogen though

Maybe add volatiles? Volatiles evaporate easily and are good for thickening the atmosphere, like nitrogen – ammonia is a good source of nitrogen

15 psi air pressure is optimal, like Earth

Pressures suit required below 2.8 psi – note that using CO2 as the main source of pressure could be dangerous due to an optimal atmosphere having <1% CO2 – could mitigate with photosynthesis

Mars has 0.15 psi but has enough CO2 ice to make it ~6.5 psi

Solar winds – relatively quickly reduce the quantity of any non-GHG gas to the magnetic field level

Can make artificial magnetic field with superconducting ring around the planet – blocks atmosphere removal and lots of radiation, and would protect an ozone layer that would further block radiation

General Mars terraforming strategy:

Land, build infrastructure and life support with internal farming and power generation

Build infrastructure to get to space more easily, like space elevator, helping with imports and selling commodities for funding

Generate magnetic field, which would be a very large and power-intensive project requiring science not known at the start of the game – alternatively use lots of energy and core mining to stimulate the planet’s natural magnetic field, which is generally more costly and time-consuming but less prone to randomly shutting down in the future (imagine the effects of sabotage on the global magnetic field)

Increase atmosphere density and heat up ice caps to release gas into atmosphere

Release plants to convert atmospheric CO2 to oxygen, which will reduce GHG and reduce temperature – need to both introduce GHG’s and convert them to oxygen while using other heating strategies – plants require lots of water

Use mix of imported and ice cap water to form oceans, which require heat to exist

Eventually reach a habitable state once planet is mostly covered in plants and oceans

All throughout, build income generation methods and move more people in for the terraforming effort while making new scientific discoveries, managing political factions, and running things day-to-day. Also need to terraform the soil over time, generally releasing microbes that focus on changing the soil rather than creating oxygen – this would be possible even before a magnetic field exists and would facilitate later spread of vegetation

Along with minerals for construction, a Mars colony would need substantial imports of water and inerts/volatiles – would likely benefit most from Phobos/Deimos/Asteroid belt colonies early on for water/minerals, eventually going to gas giants for inerts and Europa for lots of water

Could go to Venus for Titan for GHG/organics, depending on your heating strategy – excess CO2 is probably fine early game but needs to be addressed by the end

Power generation is essential, especially for space elevator and magnetic field infrastructure – things like focusing on discovering fusion power in the early game would make these much easier

Rushing into releasing plants and water and oxygen into the atmosphere would be counterproductive without a magnetic field

Landing on a magnetic field would be a massive advantage for this reason, as you could quickly jump into later-stage terraforming efforts

Ministries:

SFA:

Ministry of Geography

Ministry of Trade

Ministry of Religion

Ministry of War

Prosecutor

Ministry of Transportation

Ministry of Production

Ministry of Construction

Second Earth: (examples from Chinese government)

Ministry (division?) of Science

* + Research, alien affairs, surveys, education
    - Education, science and technology, culture and tourism

Ministry of Extraplanetary Affairs (and finance?)

* + advertising, lobbying, colonies, space stations, finance
    - foreign affairs, civil affairs(?), finance, space program, commerce, bank

Ministry of Energy

* + Power plants, substations, moholes, heat/magnetic field generators(?)

Ministry of Security

* + Auditor, security forces, combat
    - National defense, public security, state security, justice, audit office

Ministry of Transportation

* + Ground shipping, space shipping, roads/railroad equivalents, space elevator
    - Transport

Ministry of Industry and Agriculture

* + Mining, resource conversion/gathering, farming
    - Industry and information technology, natural resources, water resources

Ministry of Development

* + Planetary construction/upgrades
    - National development and reform (?), housing and urban-rural development

Ministry of Environment and Welfare

* + Medical care, distribution of food/water/consumer goods, manual tile modification, spreading vegetation
    - Human resources and social security, ethnic affairs commission, ecology and environment, health commission, emergency management

Possible modifications:

* Integrate propaganda, politics, ideas, etc. into auditor
* Integrate terrain affairs into auditor
* Combine transportation and energy into planetary infrastructure, separate from “finance and terrain affairs” and “space”

New iteration:

* Division of Science
* Division of Finance (?) and Terran Affairs
* Division of Planetary Infrastructure
* Division of Space
* Division of Security
* Division of Industry and Agriculture
* Division of Development
* Division of Health and Environment

Undefined:

* Propaganda

test