October 2013

MARS 4 EARTH

Thinking to Mars
for the benefit of the Earth
to create a sustainable world

15th European Interparliamentary Space Conference (EISC)
Belgium
Brussels 2013

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" No-one in Europe could live without satellites even if they don't realise it. Space is useful in our daily lives. So we're not really just star-gazing, exploring space improves our daily lives on earth."

Jean Jacques Dordain, ESA DG, Euronews 14.11.2012

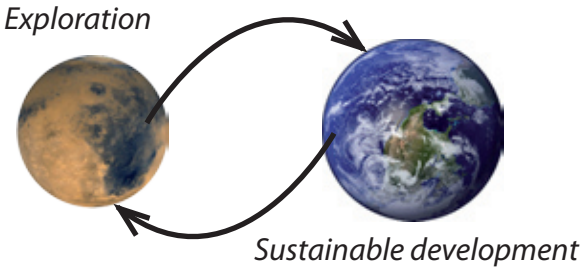
• MISSION STATEMENT •

A program to foster public awarness and innovation by developping synergies between space exploration development for sustainable through the prism of a Mars manned mission's requirement

A Project like MARS 4 EARTH adresses both and strengthen each other

• BACKGROUND •

Sustainable development challenges in Europe :



Sustainable development is a critical issue for Europe, the continent has high level living conditions objectives but faces new challenges (economical, environmental and social)

- Health : ageing population and healthcare system
- Maintain water quality level and management among applications needs
- Energy efficient systems / infrastructure and green oriented production solutions
- Ensure access to farther and farther non renewable energies

In Europe space applications are focused on welfare improvement & public benefit.
In the U.S space exploration & manned space flight are associated with New frontiers

Space exploration's benefits are more focused on scientific, prestige and socio economic. Public opinion and tax payers do not see direct benefit of space exploration.

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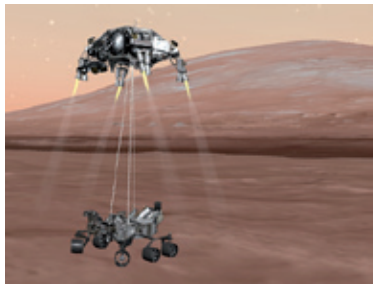
• BACKGROUND •

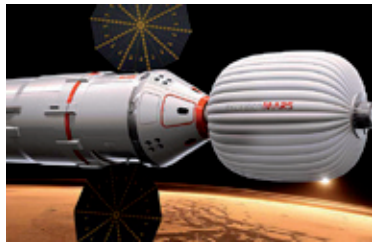
According to ISECG road map sending a human being on Mars is the ultimate goal of manned space flight



Manned mission to Mars requirement's can answer these sustainable needs :

There is an opportunity to highlight space technologies' contribution to sustainable development since both are rulled under the same rationale of innovation, efficiency, eco friendly. i.e :

- Management and maintenance of crew heath
- Efficient, reliable and compact energy generation and storage
- Efficient water and consumables management with a re-cycling/ re-use factor approaching 100%
- Robotics requirements for tele operations, assembly, repairs and In Situ Ressources Utilization



A public interest for space exploration can be use to promote sustainable development :

Strong and powerful enthusiasm is not limited to Apollo's decade but remains intact as of today :

- Curiosity Rover,
- MarsOne,
- Inspiration Mars
- Chris Hadfield's flight on board the ISS

• MARS 4 EARTH's RATIONALE •

The manned mission requirements to Mars can embody public opinion interest without needing a formal committment of ESA to carry such mission in in a short term period.

It is in ESA's best interest to anchor its farthest ship en route to the farthest shore with Earth related matters to create synergies

• MARS 4 EARTH's CONTENT•

The four pillars of action

Mars Academy & Challenge: Foster youth interest through student space challenges to develop green and on the edge technologies

Martionaut friendly Awards: promote non space industry spin-in products that have both applications through Marsionaut Awards attribution

4

Mars in your daily life: applications and PR program oriented to wide categories of citizen non familiar with space matters

Down to Earth: Encourage space industry spin-off effort

THE GREEN MARTIAN CHALLENGES & THE GREEN MARS ACADEMY :

Goal : Stimulate students to martian mission requirements with student competition or summer schools

Level of action : College and Universtities
Implementation within ESA policy : Esa Education programs

Applicability : Now

MARS IN YOUR DAILY LIFE :

Goal : Foster public opinion awarness of synergies by providing direct connection to space matters.
Level of action : Target categories of citizen non familiar with space Partnerships to with sport brands, smart devices designers. Sport event planners cooperation to create a Marsathon.
Staying fit exercizes campain inspired from astronaut. Name ExoMars competition.
Implementation within ESA policy : ESA Public Relations Bureau
Applicability : Now / Short term

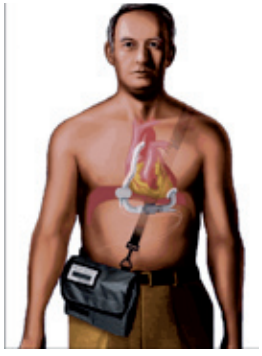
MARTIONAUT FRIENDLY AWARDS, A TECHNOLOGY SPIN-IN EFFORT :

Goal : Promote non space industry spin-in products that have both applications through Marsionaut Awards attribution

Level of action : Reward products from companies which were not developed but from which sprecifications are close or met space exploration requirements in term of design, efficiency.
Implementation within ESA policy : ESA Technology Transfert Office
Applicability : Short term

DOWN TO EARTH, A TECHNOLOGY SPIN-OFF EFFORT :

Goal : Accelerate space industry technologies spin-off products which have been designed for space use but which have a Earth based applications.
Level of action : Improve current practice within ESA, develop partnerships
Implementation within ESA policy : ESA Technology Transfert Office
Applicability : Short term / Long term



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Thank you for your attention

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