

SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES,
CONCEPTS AND TECHNOLOGIES (D3)

Novel Concepts and Technologies for the Exploration and Utilization of Space (2)

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ACTUAL PROBLEMS OF MANKIND: APPROACHES FOR THEIR SOLVING

Abstract

The mankind is to resist to the natural adversities all the time. At least, there are two dangers, which are the most catastrophic ones for modern action. First is a danger of destructive comet bombardments of the Earth. Second is resources exhaustion and natural living condition degradation on the Earth. In the first case, the problem is unequivocal one and opportunity of application of various ways of direct effect on asteroids is considered with the purpose to change the parameters of their orbits. The second problem is a many-sided one and the ways of its solving are not so obvious. There is an assumption that the problem will not be only weakened, but also be solved. A less optimistic view on the problem shows that the Earth replaceable energy sources will not solve the problem. On the background of these doubts, the suggestions to address to such irreproachable ecological energy source, as the Sun, have a specific attractiveness. It means the further extension of idea, offered by P.E. Glaser. This suggestion receives the definiteness if to orientate on the planetary sources of the raw materials, represented by asteroids (5 per cent of them consist of metal) and appropriate space industrial technologies at its realization. Transition to the planetary resources allows not only start solving a power problem, but also to create "a carbon-free economy" in prospect and release the Earth nature from the pernicious effect of especially "dirty" industries at the same time. The asteroid presences attract the attention as the object of purposeful effect both in case of defense and in case their use as extraterrestrial sources of the raw materials. At full technological concurrence of the effect procedures on asteroids, the hopes for financing a defensive complex, that will not be ever used, are probably rather illusive. It is probably more real to achieve a financial maintenance of the complex for provision of more essential and even extreme needs of mankind in resources at presence of good will. Therefore, the future belongs probably to the uniform complex, which will solve both problems. But the high responsibility for the action consequences in the planetary space determines, first of all, the defense problem solving priority for the uniform complex. The results of studies showed that a necessary forced effect on asteroid would be done with the help of series of consecutive undermining of the special explosive nuclear means near the asteroid surface and use of the asteroid material like a working medium, creating the impulse. Therefore, the Earth nuclear resources are unique real strategic means to realize the operations in the planetary space. The use of already accumulated nuclear concentrates for the current needs are an equivalent to "burning of bridges" and the last hopes with them on maintenance of civilization sustainable development. At last, it is necessary to agree the real joint actions.