POSSIBILITY OF A MOON BASED TERRESTRIAL DEFENCE SYSTEM FOR THE EARTH.

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Introduction: Though alien attacks are remote possibilities, collision of our mother earth with some comet, meteorite or asteroid remains a grave threat to our civilization. As per some theories, extinction of dinosaurs from earth was also due to these phenomena and hence such a possibility cannot be fully ignored. This paper looks into the possibility, advantages and challenges of utilizing moon as a base for safeguarding earth from such collision possibilities.

Challenges in Defence against collision of comets & asteroids: The first challenge is spotting the comets or asteroid which is really going to collide with earth at a safer distance and as early as possible so that proper action can be taken. Second challenge is to take action with no damage to our environment. Third challenge is to destroy the comet or asteroid at such a distance that the debris shall not cover our earth and shall not affect ourselves.

Possible role of moon as a base for a terrestrial defence system against comets & asteroids: The moon offers an optimal alternative to solve the above challenges. Its distance from earth is approx. 3,84,403 km. which is sufficient enough to spot a comet or asteroid which is going to strike us much earlier through a telescopic observatory established on moon. Observation from moon will be much clearer due to nil atmospheric effects. The absence of environment on moon can make the use of very high intensity Particle Beam Weapons (using hydrogen atom) or Laser Directed Energy Weapons quite possible to destroy the heavenly body completely at a much safer distance than it is possible to do it from earth. Even missile based systems can work better on moon due to low gravity (and hence fuel saving). Also, nuclear denotation near moon to kill an approaching comet is much safer. Possibility of the debris affecting us is much less if the moon based system is established and used. In fact a combination of PBWs, LDEWs and missiles can ensure safeguarding against all types of terrestrial threats. Also, operation from moon is not as difficult as it is from mars or any other satellite or planet.

Limitations of such a scheme: Though the scheme of safeguarding earth from moon based terrestrial defence system is quite attractive, some people may oppose it who wish to colonize moon and make it another place for mankind. The finding of vast amount of ice on moon provides a remote possibility of creation of suitable atmosphere there for creation of a new civilization. But even this approach does not rule out the role of moon for defence of earth completely. Some fine tuning can make both the possibilities work well together. Earth will still remain our base planet and safeguarding it our main priority. Once a civilization on moon comes up, we can look for a similar scheme to safeguard it as well.

Challenges ahead in realizing such system: First challenges are the political ones i.e. getting the world convinced. Then landing on earth and establishing such a base will be difficult as no one has performed such physical and long work on moon surface. The locking of moon's face with earth due to which we always see the same side of the moon is going to offer both an advantage and a challenge. Advantage is that we only have to establish a base on the opposite side of the one facing us to keep a watch and kill something truly going to be dangerous for us. But the challenge is that we do not know much about the opposite side. However, proper direction to missiles can always be given and hence the challenges can be met by putting base on our side as well. Possibility of alien bases on the moon poses a remote challenge though not proven. All three options like - Building complete system on earth and taking it to moon, taking components on moon and assemble them there or build components and system there itself using materials available there seem to have their own challenges, though middle option seems feasible.

Conclusion: Moon is a suitable base for a defence system against comets and asteroids aiming to collide with earth. However, there are a number of challenges ahead in realizing such a base.

Further studies required in this area: A study about what can be done and built on moon and what to be done on earth is needed. Moon has got a lot of resources but utilization of those resources is still quite a difficult challenge. Reliability of such a defence system is another issue. Maintenance of this system on moon may become a difficult and costly problem. Proper cost benefit analysis including reliable data received through further explorations of the moon can be helpful.

References:

[1] Kobres B. (Fall 1987) *Whole Earth Review,* pp. 70–73.