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Planetary Defence India: Capability, future requirements, and Deflection Strategy for 2019 PDC.

Muna Kumar Singh⁽¹⁾, Nallaperumal R⁽²⁾, and D P Sudhakar⁽³⁾

⁽¹⁾⁽²⁾*ISRO Propulsion Complex, Indian Space Research Organization,, Mahendragiri,
Tirunelveli, India, Pin-627133,+91 463728 1257,
munnaksng@gmail.com⁽¹⁾,
nallaperumal.r@iprc.gov.in⁽²⁾, dpsudhakar@iprc.gov.in⁽³⁾*

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ABSTRACT

ISRO (Indian Space Research organization) is the key agency working for space sector in India. Currently ISRO is engaged in range of space activities. From sending orbiter mission to mars to future human spaceflight mission. Various Nations are continually tracking comets and asteroids, deploying space missions to visit NEO(Near earth objects) objects and study them closely, and planning to deflect any object found perilous to Earth. India's prehistory is dotted with numerous meteors impacting on land at various times and places and leading to enormous devastation. The huge meteorites that impacted at Lonar in Maharashtra (2 km wide), Ramgarh in Rajasthan (4 km wide), and Dhala in Madhya Pradesh (11 km wide) could have unleashed energy of the order of several megatons of TNT. February 27, 2015 a meteor exploded over five districts of Kerala – Kozhikode, Malappuram, Palakkad, and Thrissur, to finally fall at several locations in the Ernakulum district. India is short of any dedicated planetary defence programme. There is no official strategy, guidelines and mission dedicated to NEO deflection.

In this paper the current capability requirements for 2019 PDC deflection is studied. Paper reviews the strategy, capacity and resource allocation of USA and RUSSIA for NEO study, mapping and deflection. Based on that, ISRO's current capability and future requirements in earth and space based systems for NEO mapping is estimated. Deflection techniques for 2019PDC like Nuclear Stand-Off Schemes and Kinetic-Impact schemes is proposed considering the current defence capability of India.
