Small Satellite Technology(SST)'s possible role in Medical Disaster Management (MDM)

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ABSTRACT

Small Satellite Technology is developing fast for detection & management of 'Physical' disasters, e. g. floods, droughts, earthquakes etc Medical 'Disasters', e. g vector borne outbreaks of malaria & dengue, however, require additional, very specific capabilities of Small Satellite Technology to detect 'post-monsoon' pools of stagnant water. One may also consider 'tracking' sewage effluents related to Cholera outbreaks.

Similarly, emission of nano-particles of anthropogenic origin such as power plant stack-emission, agricultural-brush fires, lethal gas escape (Bhopal), can cause severe respiratory emergencies. This may also include nano-particles of biogenic origin, e. g. viruses, cell fragments , etc. Development of small-satellite based sensors, perhaps based on aerosol techniques, to detect nano-particles, should be considered.

Traditional Space (Satellite) Technology, for Medical applications, is almost entirely devoted to Telemedicine & Communication. These require elaborate ground facilities e. g. on site X-ray machines, sophisticated upload and downlink electronics, which are generally not available in a 'disaster zone'. Furthermore, such 'traditional' satellites are complicated systems requiring advance planning and substantial investment. Small satellites e. g. 'space drones' or 'space doves' which may offer (sub-)meters resolution, dedicated to medical monitoring can be more effective in Medical Disaster Management. Of course, this may require further development in 'Medical-Sensors', data management and appropriate software.

In this presentation we will examine some details of Medical Disaster Management which could challenge the current Small Satellite Technology. This may give impetus to further R & D in Small Satellite Technology for it to become an essential component of 'Medical Disaster Management'.