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OVERCOMING GEOPOLITICAL CHALLENGES FOR COLLABORATIVE PRIVATE SPACEFLIGHT  
VENTURE IN PAKISTAN – VISION AND CHALLENGES

**Abstract**

Space industry in Pakistan started during early 1960's with collaboration between NASA and SUPARCO for researching the upper atmosphere of Indian Ocean for NASA's manned missions. That particular initiative paved the way for government owned space research program. Human capital is a key in building a sustained program in space; it's a journey from inspire, innovate and discover. Recognizable human capital is wasted by developing countries, like Pakistan, by not being utilized to its full potential.

As with other developing nations, small satellites are seen as a unique opportunity in Pakistan. Advanced low cost technologies and change of philosophies of higher, but still reasonable, risk have resulted in development of small satellites not only from private companies but especially from academia. This has in turn given an opportunity for unique business players in space industry, from launch providers to the sensors/systems specially manufactured for these categories of small/nano satellites.

With developing small satellites come regulatory and legal issues as well. Users of space have to react in a responsible manner to make room for others to utilize space for economic benefits. Issues like space debris and frequency allocation in discussed in this paper.

Geo-political realities (political, technical, and financial) can challenge true progress in spaceflight for a developing nation. One of the ways to cross it is by collaborating with other nations and develops rather regional expertise in spaceflight. Collaboration can be seen in various ways, like human capital, infrastructure and existing industry (suppliers), and in some cases it's a challenge in itself.

All of these aspects will be discussed in this paper to come with a vision and strategy for a developing nation like Pakistan for pursuing space program in private sector.