

# Indian space research: Questions from the laypersons



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Reports have been pouring in, setting off expectations over Chandrayaan-3's touchdown on Moon on Aug. 23, 2023. We praise our scientists' hard work and perseverance, wishing them success. While there are thrills of anticipation over our space research, there are likely questions expressing opposition too.

While the technology for removing blocks from the septic tanks and drianages has not been promoted, while there are yet to be in place proper instruments and machineries for safely evacuating children trapped in the borewells, where is the need for and what is the use of landing on moon? Memes revolving around this question will get floating in social media. Questions like this are resounding in the minds of the ordinary citizens who may ask why all this trouble is taken to go all the way to moon while no proper research useful to the people's day-day-life is undertaken.

Of course, there's logic and reason in this question. Yet eyebrows may be raised over such questions hurled at the space research organization. Such questions sub-textually create an impression that space research is an unwanted thing.

### **Questions posed to ISRO**

The Indian Space Research Organization was set up in 1969 when we, as a nation knit together, were struggling to develop in all sectors. India has since been progressing in space research step-by-step. It was only in 1975 that ISRO launched India's first satellite named Aryabhata. Later, it acquired the skill of launching at the same time over 100 satellites in the space and orbiting Moon and Mars. Now it is set to touch down on Moon. Down the line it will send man to space.

Way back in 1970-80, even villages boasted television sets, thanks to ISRO's programs – SITE, STEP. ISRO's technologies have reached out to the people and proved useful to them. Yet in the modern times, there are still technologies yet to be fully designed in order to fulfil the needs of the people. We can call into question such technologies.

Why are weather updates not clear?

\* Moderate to heavy rains are expected within three days in regions including Chennai and Tiruvallur.

\*Excessive drizzle is expected between 3 and 4 in the afternoon in the Velachery area.

Could you make out the difference between these two news items? Which of the two is more useful? On the basis of the first news, holiday can be declared for the schools. But in fact, it is the second news which is more accurate and useful. It is only such very clear weather updates which make the normal life hassle-free. If it is very clearly predicted that it may rain at particular

time, no one will run the risk of going out and getting caught in the rain. Office-goers and vendors can easily avoid going out.

Are predictions of the second kind possible? They are now possible in the countries which do not boast such research organizations as ISRO.

But why are they not possible in our country? Why are the data and diagrams that predict weather conditions such as cloud density not made accurate? Apart from being useful to normal life, these weather data and diagrams will help mitigate the intensity of natural disasters and damage, thereby safeguarding the economy of the country.

### **Will Indian GPS be available?**

Nowadays it is quite common to use the Google Map while transiting from one place to another. It is the Global Positioning System (GPS) which accurately says where one stays and how far a place is away. The GPS, the US government's entity, sells this software to several countries. Even our ISRO has such a location-finding system known as Navic. But why is it not so useful to the ordinary people planning to transit to a nearby place?

### **What have we done in basic science?**

The fulcrum of space research is basic science research. For instance, the basic scientific research answers the questions if Big Bang happened and how Black Hole forms.

ISRO's Chandrayaan-I program (2008) answered categorically 'yes', replying to the question if there is water on Moon. Taking into account that it was our first spacecraft sent to Moon and that the purpose was properly fulfilled, the Chandrayaan-I could be considered as successful.

Next came the 'Mangalyaan' in 2013 to explore the Mars. Its purpose was to explore the diameter of the Mars captured by the

orbiter. Another purpose was to find out through exclusive equipment whether there were methane and carbon-di-oxide in the atmosphere of the Mars.

The defects in the equipment employed to fulfil the second purpose were detected only two years after the launch of the 'Mangalyaan.' So, one important purpose of the project was not fulfilled. Besides, the number of articles written out of the data from the project is very limited.

Despite several such problems, how is it acceptable that ISRO seeks publicity, saying that it has executed the 'Mangalyaan' project just at the 10 per cent material cost of the total cost of the NASA? In fact, the main purpose of the project was not to visit the Mars at a cheap cost.

As the main objective of the project was to find out the existence of gases in the atmosphere of the Mars, how could the project be considered successful, glossing over the fact that there were defects in the equipment used for the project?

ISRO must educate the people on how it answers the basic questions of science through its projects. The media, for its part, must analyse the plus and minus points of all ISRO projects.

At the same, it is condemnable to caricature or mock the scientists, imagining that the success of the Chandrayaan will spell the success of those ideologically placed at the other end of the political spectrum.

All said and done, to whom must the question be posed why the technology for cleaning the drainages choked with human waste has not been perfected and propagated.

Yet, the mission of ISRO is to serve the people only through space research. So, the above question cannot be hurled at it. However, the Indian universities, research organizations, education policy organizations, institutions earmarking funds for scientific

research and government-related agencies must answer the question.

This question must be posed to the government, which must realize that all kinds of research are necessary for the people, and the political leaders as well.

Translated by V. Mariappan.