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Dr Tobias Scholz on India's Space Policy

Expert in focus: Dr Tobias Scholz

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Let's begin with your interest in India. Obviously, the country is now constantly in the headlines, but you have been curious about Indian affairs long before the current momentum. Could you give us a bit of a personal overview of how you came to study the country?

My India journey started in 2015 when I did an exchange semester at the University of Pune. Back then I was studying political science and history, and was initially just curious. But what fascinated me when I was in India was that I saw a country – again in 2015 – that had just got a new government at a time when you could see how fast things were changing. And I could see that India's significance would grow as a country itself, but also for Germany and Europe in the future.

This is something that I realised was relevant in every sort of respect: the speed at which infrastructure was built; the kind of spirit that my fellow Indian students had at the university; and, of course, the economic and the demographic developments that I was witnessing. So, when I came back to Germany after my exchange semester, I was struck by how little India, the country that would soon be the most populous country in the world, was discussed. I remained interested and started working on the topic in my studies, did several internships, and was still just checking out what options there might be for someone working on India.

Eventually, I thought about doing a PhD and realised, again, that there are so many researchers and experts in Europe who are working on the United States (US) and on China, but very few who work on India. I identified this huge gap, and as a political scientist who believed in the importance of more India expertise, I decided to do a PhD on India, and to become a researcher who can focus on Indian foreign and security policy.

Even today, one thing that I find fascinating is that, while India has become a closer partner to Europe, it is still a country in which politics, society, and economics work very differently. Explaining how India thinks about itself and the world to European and German audiences is an exercise that I believe remains an important part of my work.

And now you're doing exactly that at SWP; your latest publication is on India's space policy, filling in the gaps in the German and European space. But I did want to ask why you chose space specifically.

Well, I think there was initially one reason for me that is a bit meta. If you are trying to explain India in Germany and Europe as a political scientist, you are often dealing with terms like “strategic autonomy” or “multi-alignment”, for example with respect to India's partnerships, with Russia on the one hand and the United States on the other. But what I really like about projects like the one I just completed on India's space policy is that you can really dive deep into a specific policy domain and look at India's interests. And this is important to me, because what I, among other things, want to understand is how India is changing, and what kind of role a changing India has in the international order – and will have internationally in the future. I think we can only understand this by exploring India's different capacities.

In this example, one might ask, what kind of satellites does India have? What kind of rockets does India launch into space? What does India's research landscape look like? And how well

prepared are India's universities to produce top-notch students to advance one of the major space programmes in the world?

I chose space, as opposed to other subjects, because it is a policy domain in which so many different interests are affected. You have abundant economic interests and emerging startups in this field. Space also intersects with industries like tourism, as we can see in the US now. Space also clearly affects our security interests, as much of the space infrastructure is directly under threat when rivalries escalate. It has been a question of status since the Soviet Union launched its satellite Sputnik during the Cold War. And it is also about India's regional ambitions, as it tries to show its neighbours that it has a strong space programme, and that its partners in the region can benefit from it.

Maybe you can also walk us through the inception of India's space programme; how Prime Minister Jawaharlal Nehru conceived of it, and maybe you could also describe the differences from the other space programmes of its time.

What is fascinating about the history of India's space programme is that, even though it only received more strategic recognition in many European capitals in recent years, India's work on space dates back to the late 1950s.

One person was particularly important here, namely Vikram Sarabhai, a researcher with very good personal relations with the Indian Prime Minister Jawaharlal Nehru. He would ultimately convince the Indian leadership that the country needed its own space programme. Sarabhai argued that India does not need a space programme to compete in the Cold War as a large military power; instead, he argued that space could aid India in its development efforts. He was convinced that satellites could stream education programmes to the villages, and that schoolchildren who live far from good educational institutions could benefit from such tele-education. So there was a great normative interest in the emergence of an Indian space programme. And so, security and economic interests followed suit. But I think we should not underestimate that there was certainly also this normative aspect that mattered a lot.

Right. I think this is an interesting point and maybe we are jumping ahead a little bit, but the space programme itself also has these economic and developmental foundations. I see this thread running through your work, whereby conflicts slowly shape the programme towards a more military use. Could you talk a little bit about the conflicts that have shaped India's space programme and what the policymakers of the time learned from them?

There are a couple of conflicts that really stand out when we look at why space matters to India's security. And I want to point out that the first of these events was certainly the Kargil War of 1999, where Pakistan and India clashed at their border. In the Kargil report – published after the conflict – military leaders argued that if India had had better capacity through satellite surveillance and its own GPS system, it would have been better equipped to fight a war against Pakistan.

India, at that point, was also unhappy with the United States, and accused Washington of neglecting to support or to provide India with a comprehensive GPS service. In India, the

prevailing notion was that, if you wanted to be able to compete with Pakistan and win a war against Pakistan, then you had to develop technologies on your own; hence you could not rely on external powers' technological capabilities. This is a thread that runs through India's entire security thinking, and its space programme.

Subsequent events also served to prove to India the importance of space. There was, of course, the Doklam crisis of 2017, and then the Galwan crisis of 2020. Again, one could see that, if India had had better monitoring of its own borders, then it might have been able to foresee some of the events that unfolded and hence react earlier to counter its rivals.

There is this very contentious relationship with the US that defines the Indian space industry. But in some ways, which you describe at length in the study, the Indian industry is competing with the burgeoning private sector of the US, but it is also dependent on it, while it is striving for indigenous technology and technological sovereignty. Can you describe this push-and-pull and how the actors perceive it on the ground?

I would argue that the partnership with the US is the most consequential one for India. There are voices in India that view the US as a partner very critically, and these voices have gained ground since Donald Trump began his second tenure as US President. But what stands out across the political spectrum is that the United States is the key partner country that can give India what it needs to be successful in areas where India does not have sovereign capabilities itself. And again, here what stands out is the Galwan crisis, where the US was able to provide India with satellite imaging of the infrastructure that China had built up across the Line of Actual Control.

US companies continue to support Indian rocket launches, even military-grade ones, as well as satellites. It is US companies that invest in Indian startups so that they can be successful. India liberalised its space economy massively in 2024, allowing up to 100% foreign direct investment in most sectors of the space industry. No matter where you look, it is the US – either the US government or US companies – that make the most of points of converging interest; much more than other countries. I would add that the European Space Agency (ESA), the Japan Aerospace Exploration Agency (JAXA), the German Aerospace Center (DLR), and the *Centre national d'études spatiales* (CNES) do play a role – and increasingly so – but the US is the one partner that India cannot afford to lose right now.

We will return to the influence of the US, but perhaps to understand it better, we can talk about the institutional structure of India's space industry. How it sits, for example, under the Prime Minister's Office (PMO), the influence that it has and these dual civil and military tracks. Maybe you can talk a bit about these different organisations that report to it, and how some fear that there is a danger of redundancy. So, maybe the question is, how would you describe this institutional structure, flowing from the PMO all the way down to the private sector?

So, I think the most important thing to understand about India's space programme is that it is, and always has been, under the direct authority of the Prime Minister; the Department of Space

falls directly under the Prime Minister's Office. It is hence also a place where Indian prime ministers can act more directly than in many other policy areas. And what has characterised India's space programme for a long time was that it was gated within the structures of the state – gated inside the bureaucracy and in state-owned companies.

And what we have seen since 2019–2020 is a development where the government, for the first time in the history of the programme, has tried to open up India's space programme to become more of a network between state and private actors. The government is also focused on supporting the startup ecosystem, an effort led by agencies like IN-SPACe and NSIL.

As for the decisions the government has made, these point directly to some of the dual structures, or to the structures that still remain a bit ambiguous. For one, there is only one agency within the space sector which, on the one hand, has to be a promoter of the industry itself, but which also fulfils some regulatory functions for the state. And in that sense, it has interests that may align on many occasions, but they may also not align on others.

Would you then say that the private sector in India is taking the cue from the government? Is it beholden to the government, and is it able to compete on a level playing field with, say, US companies which have far deeper backing; how does the private sector decide how it's going to move forward? Another thing that I found quite interesting is the absence of unicorns in India's space industry, so maybe you can also touch on this.

So, there are a couple of points here. First of all, a startup can only be successful if there is a market for its product. And one problem for Indian companies is that many areas of the space economy are dominated by efficient and low-cost American companies. When I was talking to different stakeholders in India, one thing they mentioned was that, while India does have a cost-efficient programme – as evidenced by the Chandrayaan-3 mission and the Mangalyaan mission – it is hard to compete against SpaceX, which now uses reusable and hence very cost-efficient rockets. Similarly, India has not started to focus on launching its own satellite mega-constellations, even though this area is becoming increasingly important. But there are, again, American space companies that are already leading in this segment, and it is very difficult for Indian companies to develop something on their own that could compete.

In addition, to succeed, these Indian companies would need investment. By whom? There are very few countries from which investments are flowing into India. Of course, it is a question of why European companies, or European investors, should invest in Indian startups if Europe currently has its own space programme – the same goes for American companies and American investors. So, India has to identify its unique selling points, what differentiates India as an investment, research, development, and production hub for space – and then promote these areas more. It does have an opportunity, especially because there are cities like Bengaluru, Chennai, and Hyderabad, which stand out as technology cities. But it is not quite clear, as it was in the services industry, in terms of what India's niche should be in space.

Let's then talk about a case where India is leading, and that is, as you mentioned, Chandrayaan-3. Because until that point, India is catching up, but after the success

of this mission, it becomes a nation that has achieved a particular goal in space first: it successfully lands near the lunar south pole. When you were on the ground in India, did this come up a lot? Is it part of the mythos of India's national story, in the same way that Shubhanshu Shukla, the first Indian astronaut to visit the International Space Station (ISS), is?

I think what you can really see in India right now is the enthusiasm for the programme, the political will, and the pride of many who are working in this field – but also among the wider population – that space is really an area in which India is among the very few countries making great achievements. Yet, those who are working on the technical side of things also know that the challenges India has to take on in the upcoming years are very different from the ones in the past. It is one thing to develop the Chandrayaan missions in a very cost-efficient manner, to operate those, and another to move to a potential mission in the future, where India starts crewed flights into space, because this involves much higher risks: human lives. If human lives are at stake, the risk of failure carries much more of a cost for India than it has in past missions.

And I think there is certainly a very narrow road that India is operating on right now. On the one hand, it really wants to keep spirits high after initial successes, and it wants to promote an image of India's space programme as one that is in the top tier. But on the other hand, it has to be realistic – especially regarding its internal operations – and ensure that it is not overpromising, so that in the end, it does not set goals that it cannot meet.

...and it's also portraying itself as a benevolent hegemon in its immediate neighbourhood. Maybe you can elaborate on the example of the South Asia satellite, and how its neighbours perceive it. That is to say, what is it that India actually offers to its partners?

So, the South Asia satellite is actually an example that I really like, because I think, especially for a European audience, this is something very new to read about. India, at the moment, while it projects itself as a major power in the international system, is under pressure to also be a regional one. Most of its neighbours have doubts about India as a hegemon, but India tries to establish a stronger zone of influence. And India did this in 2014–2015 by proposing a South Asian Association for Regional Cooperation (SAARC) satellite. What it wanted to do is to offer a satellite mostly for communication services; Pakistan, its rival within SAARC, rejected it.

And one could, of course, say that one satellite, if you look at it objectively, is actually just one among thousands of satellites in orbit. But for India, this was not merely one satellite, but a symbol, a gesture, especially by Prime Minister Narendra Modi, as a gift to its neighbours. The Prime Minister assembled all the leaders of the SAARC countries for a video meeting, during which they launched and celebrated the South Asia satellite, intending to portray a community that works together. And this was again very important for the Prime Minister and his government: to show that this happens under India's guidance, and to show that India here is the leading power. And I think this is something that partners of India also have to understand: there is always an ambition for India to lead, to be the country that is in charge of projects and to be seen in this role.

In its engagement – not only with its neighbourhood, but also with global actors – India employs a certain strategy where it always wants to be involved in the drafting of certain regulations, and it promotes the idea that there should be a level playing field. For example, on satellites in low Earth orbit, because it could get quite crowded and the players that are left behind could potentially lose out. So, in its relationship vis-à-vis the EU, it rejects the EU's proposed International Code of Conduct for Outer Space Activities because it was not involved in its drafting. And at the same time, it would align with China or Russia on something like the proposed treaty on the Prevention of an Arms Race in Outer Space. And then it also joins the Artemis Accords. How do you square this and do you view this as a coherent position?

I think when you look at India's behaviour in multilateral contexts, one cannot necessarily make the most sense of India's diplomacy by just looking at the political statements. Instead, one has to look at the core interests of Indian diplomacy and some of the normative perspectives that are connected to those. The most important one, I find, is that India is worried about losing sovereignty in multilateral contexts. It does not want to subscribe to something that will make Indian diplomats lose sovereignty, or that would give away sovereignty to an international organisation or institution. This is rule number one, and it partially stems from the fact that India was a colonised country. India has an “allergy” to any impulse by another country or international institution which could take away power from it.

Rule number two is that India fears that there are some countries that take away India's options by just creating realities for themselves. And this is why India, at least on paper, argues for a new space treaty. It does so out of the fear that countries like the United States and China could create realities in space without India, for example, being able to also crowd space with its own satellites.

And then rule number three is that Indian diplomats are also very pragmatic. Sometimes, they see that it is possible for India to not have a position that is fixated on one specific political goal, but that, by agreeing to some statement where it does not lose sovereignty, India could gain bilateral credit. And the Artemis Accords, which are a US-created framework, are a perfect example. The Artemis Accords were developed basically unilaterally by the United States; this is usually not the type of agreement India would sign off on, because it would always like to be seen as a co-creator of an international document. But my only way to make sense of India's accession to the Artemis Accords is that India wanted to gain credit bilaterally. The Indian Ambassador to the United States, Taranjit Sandhu, signed the Artemis Accords while the Prime Minister was travelling to the United States on a bilateral visit, where many different things were on the table, which to me shows that India can be pragmatic when bilateral benefits are at stake.

And so maybe let's bring this also back to the EU. In my reading of your work, I saw it as largely secondary in the narrative of the paper. Of course, your mandate, so to speak, is to advise German policymakers, though you allude to some of the instances of cooperation between India and the EU historically, as well as France

and the US. I would thus like to know what you think is the scope for future cooperation, and what Europe offers that the US and China do not.

Well, space is one area in which Europe has decades of experience. One thing that makes thinking about cooperation complex is that you have various actors. The European Union is one such actor, with its own space division under the European External Action Service. The Security and Defence Partnership between the EU and India, concluded in January 2026, emphasises that space should become a priority of cooperation. This sends a signal to EU Member States that their space programmes, especially in Germany and France, should cooperate more with India. It also sends a signal to other EU countries which do not necessarily have their own space programme, but which have industries that are investing in space.

But then there is also the ESA, which includes the United Kingdom as one of its member states. The ESA has the largest capacity in Europe as an actor, and many avenues for cooperation on a bilateral level. And one would, of course, have to consider the future of the ISS, which is probably going to be retired in 2030. The ESA has a long-standing cooperation with the ISS and hence will need to think about whom to cooperate with after the ISS is retired. And India is a very interesting partner here, because India is currently developing its own space station, the Bharatiya Antariksh Station (BAS). This should be one project that Europeans are looking at, to see how they can treat the BAS as an opportunity for future cooperation.

And maybe to close off on the substance, and piggyback off the BAS mention: I want to hear a little bit about how you see the future of the Indian space industry, because there are some milestones that are coming up. You have the Gaganyaan mission, which is targeted for 2027, BAS for 2035 – an avenue for cooperation with the EU as well – and then you also have the crewed moon landing by 2040. So there's this great momentum that also echoes perhaps this idea of development that was integral to the space programme as conceived in the beginning. How do you see this momentum?

If I had the chance to give one recommendation to policymakers who are thinking about the Europe–India partnership in space, it is to reflect more on the tension between strategic autonomy and the need for cooperation. Because there is a tendency, in both partners at the moment, to argue that you do not need the world – that cooperation is more of a risk in times of geopolitical and geoeconomic upheavals, and that you have to do everything on your own.

And from my work, I would argue that we should not underestimate the power of two partners with ambitious goals and quite compatible strengths, coming together to think about how they can make the best use of their capabilities through cooperation. I think there are legitimate reasons for both the EU and India to make their economies more resilient and to focus on maximising economic growth and employment. I am also convinced that rethinking cooperation would in the long run strengthen the competitiveness of both the EU and India.

Dr Scholz, thank you for your time.

About the interviewee

Dr Tobias Scholz is the South Asia researcher at the German Institute for International and Security Affairs (SWP) in Berlin. His research focuses on India's foreign policy, South Asian security dynamics, as well as on Germany and EU-India relations. Tobias previously worked and studied in Germany, India, the UK, the US, as well as in Singapore.