

INDIAN CONSTITUTION HAS A VISION FOR CULTIVATING SCIENTIFIC TEMPER IN CITIZENS

PURSUIT OF KNOWLEDGE IS POSSIBLE THROUGH SCIENTIFIC BENT OF MIND AND HUMANIST APPROACH

Entries 64 to 68 of the Union List cover institutions for scientific education, research coordination, crime detection, geological and meteorological surveys, and other national scientific services. These constitutional entries give Parliament the authority to legislate and fund scientific institutions deemed “of national importance.” But this design also has implications for how science is governed, and for whom. The centralisation of scientific authority often sidelines local realities, alternative knowledges, and democratic contestation. The Constitution’s centralist design, while administratively coherent, creates a dynamic where scientific legitimacy flows downward—from elite institutions to public recipients—rather than being co-produced with affected communities. The Schedule VII framework also reveals a telling silence: while it authorises the creation of scientific institutions, it says nothing about public accountability, civic participation, or regional inclusion in scientific governance.

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What does it mean for a democracy to entrust its citizens with the duty to cultivate “scientific temper”—even as it offers them little say in how science is governed? This quiet paradox lies buried in the folds of the Indian Constitution. There is no grand clause on public access to knowledge, no procedural guarantee for civic participation in scientific decisions, no constitutional architecture that invites the public into the making of science. Buried deep within the aspirational grammar of Part IV and the lexicon of Part IVA lies a set of powerful commitments. These commitments, especially Articles 51A(h), 19(1)(a), and parts of Schedule VII, signal the Constitution’s implicit vision of science not merely as an instrument of national development but as a democratic ethic. This essay follows those traces. It asks: what kind of science does our democracy enable? Whose voices does it exclude? And what would it mean to imagine science as a constitutional practice shaped in the crucible of democratic life? The Indian Constitution envisions science as a normative practice. It is a vision tied intimately and securely to public life: something to be fostered, protected, and critiqued within democratic institutions through civic participation. Yet, this vision remains fragmented, proceduralised, and vulnerable to distortion when filtered through the realities of state power, regulatory systems, and political crises. The question, then, staring us right in the face is not whether the State has promoted science—but what kind of science, and in whose name. Take for instance Article 51A(h). It declares a fundamental duty of every citizen “to develop the scientific temper, humanism and the spirit of inquiry and reform.” But how should this clause be read in light of democratic practice and contemporary crises of public trust? What happens when this scientific temper becomes a state-imposed virtue rather than a civic commitment cultivated through dialogue, dissent, and reflexivity? This article works towards answering these questions by arguing that the Indian constitution offers both normative guidance and democratic tools for imagining a more accountable, participatory science. But it also reveals important silences—gaps that, if left unaddressed, risk enabling the very forms of exclusion, centralisation, and misinformation. In what follows, we move through the Constitution’s dispersed references to scientific temper—from civic duties to institutional arrangements—and place them in conversation with contemporary concerns about expertise, trust, and public knowledge. The goal is not to discover a hidden science policy within the Constitution, but to reflect on what the Constitution might still have to offer in reimagining science as a democratic and constitutional practice. Among the most distinctive clauses in the Indian Constitution is Article 51A(h). Introduced by the 42nd Amendment in 1976, this provision calls upon every citizen “to develop the scientific temper, humanism and the spirit of inquiry and reform.” Although it is non-justiciable, its normative significance is nonetheless profound. It is one of the few constitutional articulations globally that frames science not just as knowledge, but as a civic ethic. It invites us to imagine science as a democratic virtue, going beyond deeming it squarely a domain of experts or a tool of development. The idea of “scientific temper” in the Indian public discourse has rarely been democratic in practice. It has instead been wielded as a moralising discourse by the State and scientific elites—used to dismiss public doubts and consolidate technocratic authority. The constitutional intent behind



Article 51A(h), however, is more radical. It does not ask citizens to obey science; it asks them to cultivate inquiry, to reform what exists, and to pursue humanism through knowledge. Article 51A(h) could be read not as a directive to accept State-sanctioned science, but as a constitutional defence of critical questioning. Its emphasis on inquiry and reform places it squarely within the traditions of public reason and deliberative democracy. When scientific temper is defined as an elite, exclusionary epistemic norm, it delegitimises forms of reasoning grounded in lived experience, cultural memory, or historical harm. A constitutional democracy ought to treat such forms of knowledge not as obstacles but as resources—especially when negotiating public health, risk, and technological interventions. Thus, Article 51A(h) is not just a duty to be “rational,” but a demand to construct science democratically, with humility, reflexivity, and openness to dissent. We, the people of India, must reclaim Article 51A(h) from state instrumentalisation and read it as a civic resource. In doing this, we return it to its rightful place: not as a tool to silence doubt, but as an invitation to build a society where science is not just accepted, but shared, debated, and shaped by all, thus staying true to its true ethos. If Article 51A(h) defines a citizen’s duty toward science, then Article 19(1)(a) offers a right that reinforces any democratic relationship with knowledge: freedom of speech and expression. However, this right is complicated by the conditions of our time. In an era marked by post-truth politics, digital echo chambers, and algorithmic manipulation, freedom of expression has become entangled with the regulation of knowledge, the construction of truth, and the contested lines between scientific information and misinformation. Misinformation often emerges in response to institutional opacity, shifting scientific guidelines, and authoritarian messaging. The state’s invocation of “scientific facts” to quell dissent or deny alternative understandings often bypasses the very processes of explanation, transparency, and accountability that foster trust. In such a landscape, misinformation becomes a symptom of broken epistemic relationships and a political category, weaponised to delegitimise public scepticism. The problem does not just concern policing facts; it concerns the politics of epistemic authority. Publics do not reject science wholesale, but they often resist the forms through which science is communicated and imposed—particularly when those forms obscure uncertainty, suppress dialogue, or silence alternatives. Rather than viewing misinformation only as a

threat to democracy, it can also be seen as a mirror held up to the deficits of institutional communication. A constitutional democracy committed to both truth and dissent must therefore foster conditions for public reasoning. Article 19(1)(a), in this sense, protects the right not just to speak, but to ask, to doubt, and to imagine differently. If Article 51A(h) demands a scientific temper, Article 19 demands that scientific authority remain accountable to public scrutiny. Together, they suggest that constitutional democracy does not flourish when science is protected from critique, but when it is exposed to democratic engagement, challenged in good faith, and rearticulated in forms that the people can recognise as their own. While Articles 51A(h) and 19(1)(a) reveal the normative and political dimensions of science in a democracy, the Constitution also embeds science into the material structure of governance. The clearest articulation of this is found in Schedule VII, particularly the Union List, where scientific institutions, technical education, standards of research, and national surveys are assigned as central government responsibilities, thereby making science a foundational infrastructure of the modern Indian state. Entries 64 to 68 of the Union List cover institutions for scientific education, research coordination, crime detection, geological and meteorological surveys, and other national scientific services. These constitutional entries give Parliament the authority to legislate and fund scientific institutions deemed “of national importance.” But this design also has implications for how science is governed, and for whom. The centralisation of scientific authority often sidelines local realities, alternative knowledges, and democratic contestation. The Constitution’s centralist design, while administratively coherent, creates a dynamic where scientific legitimacy flows downward—from elite institutions to public recipients—rather than being co-produced with affected communities. The Schedule VII framework also reveals a telling silence: while it authorises the creation of scientific institutions, it says nothing about public accountability, civic participation, or regional inclusion in scientific governance. Such an absence is not trivial. The result is a regulatory culture where decisions are made in technocratic enclosures—framed as “evidence-based” but often opaque, unaccountable, and politically insulated. This is particularly visible in how global health standards, such as those of the WHO, are internalised without sufficient domestic deliberation. Schedule VII provides the constitutional logic for such absorption—it places science within the domain of cen-

tralised coordination, often producing epistemic disjunctures. Thus, the Constitution’s infrastructural treatment of science invites both admiration and critique. It recognises science as vital to nation-building, but also institutionalises its control, leaving little room for public negotiation. Schedule VII becomes more than a technical list—it becomes a map of epistemic power, showing how science is made central, and how the people are peripheralised. What is needed, then, is a constitutional reimagining: one that treats science not just as infrastructure to be built, but as a shared space of democratic meaning-making, subject to the same demands of equity, transparency, and accountability that animate the rest of constitutional governance. What would it mean to take the Indian Constitution’s commitment to democracy in all earnestness when it comes to science? It would not be simply about expanding Article 51A(h) or refining Schedule VII. It, instead, would require a deeper normative shift—one that reimagines science itself as a site of democratic action, not merely administrative function or expert management. The Indian Constitution, in all its visionary character, treats science as a domain external to democratic deliberation. It frames scientific temper as a duty of citizens, not a responsibility of the State to cultivate dialogically. Scientific institutions are centralised, resourced, and protected, without embedding them in participatory mechanisms that would make them accountable to the social worlds they affect. This design might ensure efficiency, but it also creates a political configuration where the people are expected to trust science, even when science does not appear to trust the people. As such, the Indian Constitution needs to be imagined not as a blueprint, but as a point of departure. Article 19 protects the right to speak—even if that speech questions scientific consensus. Article 51A(h) urges inquiry and reform—not compliance. And the Preamble’s invocation of justice, liberty, equality, and fraternity demands that science serve not just growth, but democratic inclusion. If we read these provisions together, we begin to see the existence of a latent constitutional imagination that supports not the technocratic management of science, but its democratic reinvention. Such a reading invites us to think of constitutional democracy as a space where knowledge is not decreed from above but built in conversation—with all its tensions, uncertainties, and conflicts. That, perhaps, is what Article 51A(h) really calls for: not belief in science, but a scientific politics worthy of a constitutional

democracy. Let us return to the two central questions that animate this essay: what does the Indian constitution tell us about science, and why should that matter today? The Constitution appears to offer no comprehensive vision of a relationship between science and society, no detailed roadmap for public engagement, and no substantive rights around the governance of knowledge. But, it does offer powerful clues—dispersed throughout fundamental duties, freedoms, institutional structures, and symbolic language—which suggest that science is a constitutional concern. If democracy is not just procedural but substantive—if it is about inclusion, recognition, and reason—then science must be brought within its fold. It must be subject to contestation, made legible to those it affects, and developed with an awareness of the social worlds it seeks to transform. Article 51A(h) ought to be read not as an obligation to obey science, but as a call to collectively shape it, and Article 19(1)(a) to be read as the freedom to dissent from scientific orthodoxy when such orthodoxy is used to delegitimise lived experience—whether such orthodoxy flows from the scientific establishment or the state that weaponises it. The absence of participatory rights in scientific governance is a constitutional blind spot, and this blind spot demands redress if democracy is to be made meaningful in the epistemic domain. The Indian constitution, much like science itself, is an evolving project. It once reflected the ambitions of a newly independent nation that saw in science a path to modernity, sovereignty, and progress. Today, the democratic challenge is not merely about promoting science, but about democratising it—to make it responsive, situated, and accountable. We, as citizens, must ensure that scientific temper is not merely a “tool” of the state, but a shared civic capacity—built in dialogue, expressed in doubt, and sustained in trust. This is the constitutional future for scientific reason: one where science is not separate from society, but constituted through it—as a collective inheritance, a democratic responsibility, and a site of ongoing negotiation.

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