

T. N. Seshan (1932–2019)

Tirunellai Narayana Iyer Seshan, who died aged 86 in Chennai on 10 November 2019, is widely known and rightly remembered for the reforms he instituted and oversaw in our electoral system over the six years from December 1990 as the tenth Chief Election Commissioner of India. But, not known as much as they ought to be, particularly to the readers of this journal, are the innovations and reforms he brought about, instituted or chaperoned in the administration of the science or technology-driven departments and agencies of the central government that he served in.

Lest those enduring contributions be forgotten in time, this brief tribute has been written by those who had an opportunity to serve with Seshan – not under him – in Indian Space Research Organisation (ISRO) and whom he thought worthy of consulting even after he moved from the Department of Space (DoS) to other very senior positions of influence and administrative responsibility in the service of the Government of India.

After earning a Master's degree in public administration in 1968 at Harvard University on an Edward S. Mason Fellowship, Seshan was appointed on his return in 1969 as secretary to the Atomic Energy Commission. To make clear, that is secretary of a Committee, not Secretary to the Government of India, Department of Atomic Energy – who is also Chairman of the Atomic Energy Commission who was, at that time, Vikram A. Sarabhai. Seshan held Sarabhai in great esteem, both as a person and as an administrator.

Inducted from the Department of Atomic Energy into the Department of Space by Satish Dhawan initially in the cadre-grade of 'Director', Seshan served as Joint Secretary in the DoS from 1972 to 1976. In 1976, he returned to Tamil Nadu for a brief period, after which he was appointed Member (Personnel) of the Oil and Natural Gas Commission, a technology-driven agency at the heart of our energy security.

After two years with the ONGC, Seshan returned in 1980 to DoS, his second love, he would say – as its additional secretary, until he moved in 1985 on promotion to the Ministry of Environment and Forests as its Secretary. Serving in that latter post till 1988, Seshan

was largely responsible for drafting the Environment Protection Act, very many of the provisions of which require their implementation to be science-informed.

The four freedoms

Seshan learnt of the expression 'four freedoms', possibly while at Harvard, from a speech made famous by its broadcast on 6 January 1941 by (then) President Roosevelt of the United States, who reminded listening Americans that they enjoyed as their entitlement four freedoms: The freedom of speech and expression; freedom from want; freedom from fear and the freedom to worship any God.



Also while at Harvard, he was likely introduced to this quote from American political theorist, philosopher and revolutionary, Thomas Paine (1777): 'Those who expect to reap the blessings of freedom must, like men, undergo the fatigue of supporting it.'

Seshan was fond of reciting that quote in its popular aphoristic version: 'Eternal vigilance is the price of liberty.'

Seshan's 'four freedoms' were the functional ones he secured in four administrative domains: Financial powers and their delegation; personnel policy and practice; purchase of goods and services, and the execution of civil works.

With diligence and the fatigue of punctiliousness, Seshan applied his favourite aphorism to formulating – and protecting from creeping encroachment – the principles, practices and procedures of scientific agencies to actualize the 'free from needlessly inelastic rules' intent expressed in government's Resolu-

tions constituting the Atomic Energy and Space Commissions (1958 and 1972 respectively), so that scientists are recruited, rewarded, enabled and facilitated to give of their best.

However, securing freedom from 'needlessly inelastic rules' does not confer license – as Seshan never missed an occasion to warn – to the wielder of those rules to twist or change them to sanitize a questionable decision or transaction. That would be a sure way to 'invite seepage of the sewage of corruption into the pristine streams of administration'. It meant, rather, an assessment of general rules – usually promulgated by the Ministries of Finance or Personnel for compliance by secretariat departments – for their appositeness to the rapid execution of the mandates and programmes of ISRO, and adopting only those which did suit.

That crucial empowerment – of *not* adopting a rule if it did not suit – was earned, enabled and exercised by constructing a close alignment of detailed budgetary allocations, and numbers of required technical personnel (not posts), with investments in R&D infrastructure, engineering development activity and mission goals.

Those alignments were accomplished by the Systems Planning and Analysis Group (SPAG) at ISRO headquarters under the direction of Dhawan, in his role as Chairman of ISRO Council – of which Council Seshan was Member-Secretary.

Financial powers and their delegation

The financial powers of DoS were codified by Seshan, with inputs from the SPAG, in a 'Book of Financial Powers'. The provisions of that tract are the pith-and-substance of the financial administration of the DoS, and of ISRO and its programmes.

That book allows, 'alone of all departments of Government', as Seshan often noted, *sequential* down-delegation of the authority to spend – with auditable proprieties – the monies allocated to the Directors of ISRO's Centres, and further downwards, within the Centres themselves, to the several techno-managerial foci-of-execution of ISRO's programmes.

The alignments among money flows, personnel assignments and expected technical accomplishment, were regularly analysed by the SPAG and reviewed by ISRO Council. Reviewed also were the systems and processes for budget and spending-rate management, and for ensuring rectitude in financial transactions.

Perhaps unique amongst scientific departments, Seshan ensured that DoS never over- or under-spent its budget allocations; the spending-rate was sensibly steady and uniform through the financial year. And that in a period of quite recent history when there was a separate, tight foreign exchange allocation for each department.

These systems and processes of financial administration, designed for purpose, were nevertheless faithful to the norms of financial propriety. Rarely, if ever, did the Comptroller and Auditor General of India – that feared C&AG – find it necessary to record a paragraph on the accounts of the (then) DoS that warranted the scrutiny of the Public Accounts Committee of Parliament.

Personnel policy

Readers of this journal who are scientists or engineers in mission agencies like ISRO, or in those with a federal structure like the CSIR network, are most likely to have been recruited directly by these agencies and not through the Union Public Service Commission (UPSC). They are also likely to have been the beneficiaries of being promoted through a scheme known as ‘flexible complementing’; that is, their assessed-merit promotion to a higher grade was not contingent on the existence of a vacant post in that higher grade.

Also, particularly merited administrative staff in these agencies when review-selected to fill a vacant higher administrative post may have earned that reward earlier than a senior-in-service colleague.

Owed to Seshan are such transparent policies and codified norms in scientific agencies that motivate their personnel by recognizing and rewarding merit; and which are seen to be fair *by even those who experience disappointment* in the progression of their careers.

Procurement procedures

Imagine the thought running through the mind of a future ISRO Gaganaut, as he

reaches out to a switch in his lonely capsule to begin his return to his loved ones, when he realizes that switch was bought as the ‘lowest quotation’! He can relax. That switch was procured through the ISRO procurement procedure, designed by Seshan to serve the exacting technical requirements and quality standards of ISRO’s projects. Also, that purchase was likely executed by a purchase officer integral to the team building that capsule, and so knew the stakes.

Not that the Purchase Division under Seshan did not have a function. It had a critical one. Direct import by ISRO of many items of equipment from foreign companies was contingent on those companies securing export licenses from their governments. For many items, those companies were unique sources. Such sensitive items could not be publicly tendered for. The C&AG, for his part, understood those constraints – all the more reason for particular care in maintaining rectitude. In negotiations with even single suppliers, Seshan used his skills of bluff-and-pretend to secure for ISRO the best deal.

It was Dhawan’s policy to enable ISRO’s programmes to catalyse, support and harness to the maximum India’s then-adolescent industrial capabilities – particularly those resident in small and medium enterprises in the private sector, to which ISRO-developed technology was transferred. That policy was implemented through audit-compliant procedures enshrined in manuals that one of us worked on with Seshan in excruciating detail. A senior engineer in ISRO headquarters told us recently: ‘we are still using those manuals in ISRO’.

Execution of civil works

This activity presents an administrative dilemma. Civil construction is notorious for being prone to corrupt practices in tendering and contracting, and shoddy execution. Centralization of selection, nomination and supervision of civil contractors can minimize the number of attractive loci for engaging in corrupt practices, and the opportunities to serve them. Centralization also makes it easier to ensure that necessary technical standards in construction contracts are complied with.

But both those advantages accrue at the cost of significant mission-delaying slowness.

Seshan resolved that dilemma thus: Contracts for, and administrative supervision of new construction of technical facilities and buildings were centralized in the Civil Engineering Division (CED) of DoS. Powers to augment, alter, repair and maintain existing buildings and technical facilities were delegated to the Centres of ISRO.

Admiring the quality of ISRO’s civil works, visiting heads of several other scientific agencies would request that their technical buildings be constructed by the CED of the DoS. Seshan resisted. ‘Sure way to reduce CED to a PWD’, he would prophecy. He gave-in most reluctantly only when Dhawan asked it of Seshan in the former’s fictional ‘personal capacity’.

Seshan’s own office was bare of any embellishment, much less of decoration. It was perhaps Seshan’s silent, yet visibly apparent, statement to business visitors to his office (he discouraged any others) that they had been admitted to a forbidding sanctum of purity in administrative thought and deed. But that functional silence spoke rather loudly also to the architectural styles of ISRO’s buildings. None of them that were designed and constructed in his time can be identified as examples for students of architecture.

Spreading the four freedoms

The National Remote Sensing Agency (NRSA) was created as an ‘Autonomous Society’ by Arcot Ramachandran, the then Secretary of the Department of Science and Technology (DST). It was transferred by decision of then Prime Minister Indira Gandhi from the DST to the DoS in order to consolidate the remote-sensing based architecture of the later-conceived National Natural Resources Management System (NNRMS), whose administering authority was formally notified by the Cabinet Secretariat as the Department of Space.

Seshan, collaborating with one of us, spent a lot of time re-shaping the administration of the transferred NRSA compatible in the four freedoms with that of the rest of DoS, while still retaining the legal personality of NRSA as an ‘Autonomous Society’.

When he moved to the ONGC, Seshan introduced ‘flexible complementing’ in the personnel policies of the scientific cadre of the ONGC. He arranged to

confer the 'four freedoms' also upon the Ministry of Environment when he was appointed its Secretary.

Seshan lamented privately to us later that some scientific departments – which had benefited from his support to them when they introduced the scheme of 'flexible complementing' – had 'debauched' it by resorting to the easy, and safe, route of time-bound promotion.

'Safe' because, after all, going merely by the calendar absolves laboratory-directors of their professional responsibility to make hard judgements of differential merit that will inevitably manifest amongst scientific personnel in their supervisory charge.

'Safe' also because it obviates the need to display the quality of integrity to stand by that professional judgement if challenged, *in extremis*, in a court of law.

The administrative legacy of Seshan

Seshan devised, chaperoned or advocated, the principles, functional practices and implementing procedures that embodied administrative innovation and flexibility-with-propriety.

Those administrative innovations merit a monograph-length tract that ought to be compulsory course material at the Lal Bahadur Shastri National Academy of Administration in Mussoorie, where officers of the Indian Administrative Service (IAS) are trained. All the more so now, as those officers will be required to administer during their careers many of government's regulatory functions – several mandated by legislation – that are, or have to be, science-informed. Also because so many aspects of Government's active involvement in the

economy are science and technology-driven – which involvement will not only endure, but is set to increase.

Agile and flexible administrative tools that are specially designed and wielded, so that they serve and support – not hinder or hamstring – the achievement of scientific and technological activities, require administrators of un-impeachable integrity in the 'Seshan' class. With the passing of Tirunellai Narayana Iyer Seshan, that species is perilously close to extinction.

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