



Comments on Demand for Grants (DFGs) by Ministry of Science and Technology in the Union Budget (FY 2024-25)

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Executive Summary

This document presents the analysis of the Demand for Grants (DFGs) presented by the Ministry of Science and Technology for the fiscal year (FY2024-25). The findings show an overall trend of declining research expenditure and under-utilisation of research budgets by the Ministry's various departments. Since this year's interim budget was not accompanied by the publication of the outcome-output framework, this analysis only studies major budgetary trends, instead of a detailed study of the budget and its outcomes. The document offers select recommendations on the budgets proposed by the Department of Space, Department of Biotechnology, and Department of Science and Technology.

This document has been formatted to be read conveniently on screens with landscape aspect ratios. Please print only if absolutely necessary.

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Major Budgetary Trends

- 1) **Despite a slight increase in the Budget for 2024-25, the Government's allocation for R&D within concerned ministries and departments remains disproportionately low relative to the total budget.**
 - a) The spending on R&D relative to the total budgetary spend of the Union Government had been on the decline except for FY 2021-22 (Figure 1).
 - b) The spending for R&D as a proportion of the total budget is anticipated to surpass the figures of the last two fiscal years, albeit still notably lower than the recent peak observed in 2018-19.
 - c) It is important to highlight that actual spending frequently deviates from the budgetary estimates.
 - d) For the calculation of total spending on R&D, the major heads that have been used are enumerated in Table 1 (Appendix).
 - e) Some departments and ministries have clearly demarcated the spending on research and development. For example, the Department of Atomic Energy uses 2 different heads - Atomic

Energy Research, Capital Outlay on Atomic Energy Research. But it is difficult to delineate the same from the expenditure estimates of the Ministry of Environment Forest and Climate Change. **Better accounting classification would help analysis in the future.**

f) **R&D spending needs to be prioritised.**

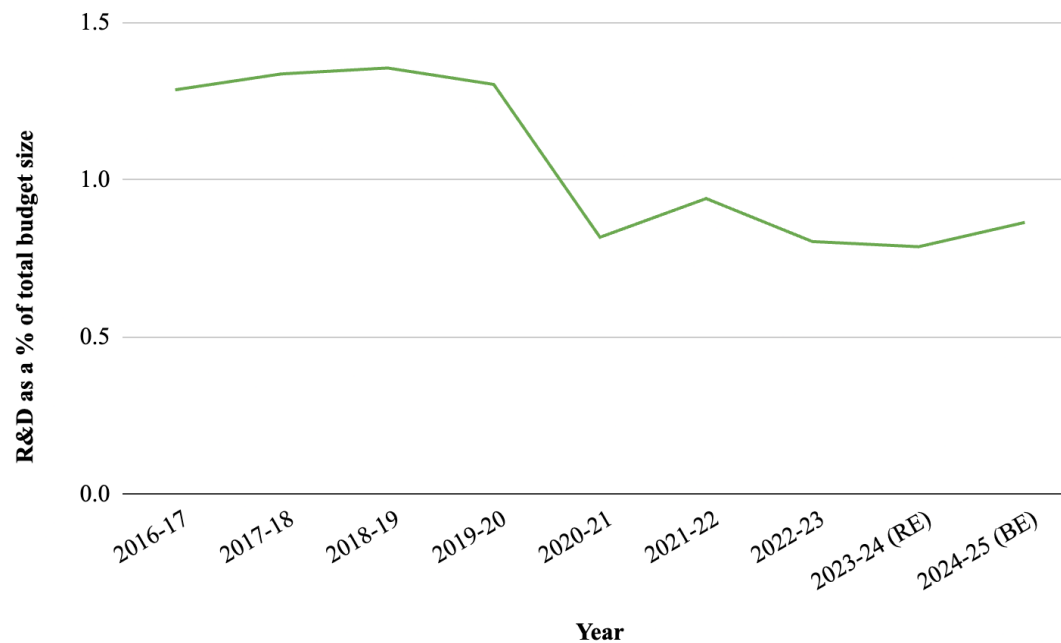


Figure 1: The ratio of R&D budget estimates to the grand total budget expressed in Percentage

2) The Revised Estimates for FY 2023-24 reveal significant deviations from the Budget Estimates in four out of the seven departments/ministries. It is an improvement compared to FY 2022-23, during which six departments/ministries exhibited such discrepancies.

- a) In FY 2023-24, the **revised estimates for four ministries/departments were lower** than the budget estimates. The divergence of revised estimates from budget estimates has increased further for both the Department of Biotechnology and the Department of Science and Technology.
- b) **Lower revised estimates can imply insufficient delivery compared to the initial budgetary promise and indicate weaker capacities to estimate requirements. The reason for this must be analysed, and the demand for grants must be scrutinised.**
- c) The gap between revised and budgetary estimates has decreased for the Department of Space and the Ministry of Earth Sciences. This is a positive trend.
- d) The revised estimates for **three ministries/departments** are slightly higher than the budgetary estimates. **Higher revised**

estimates might reflect weaker capacities to estimate requirements or ad hoc expenditures. The reason for the higher revised estimates needs to be analysed.

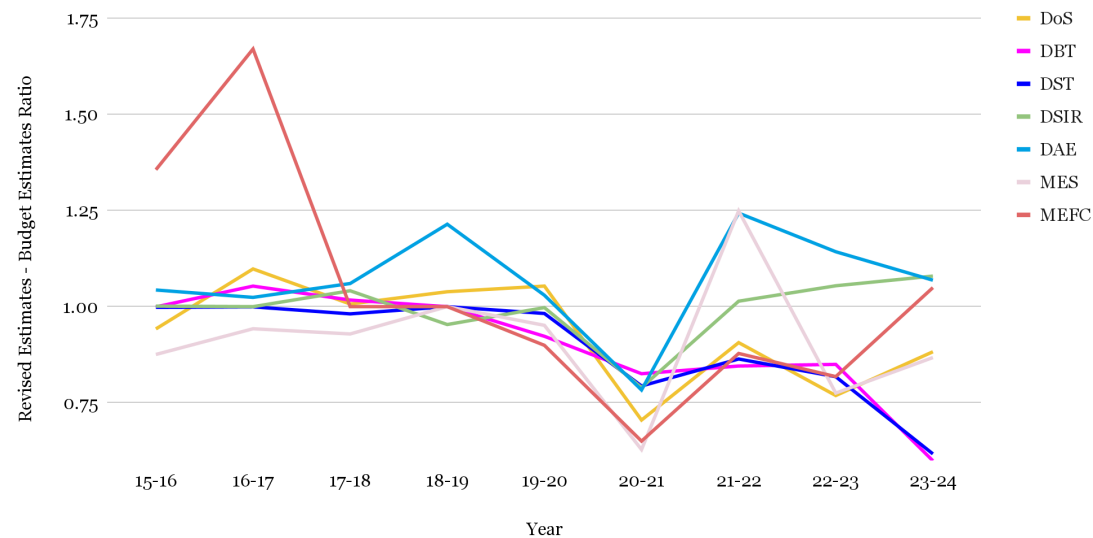


Figure 2: Revised Estimates (RE) diverge significantly from the Budget Estimates (BE) for 6 out of 7 departments/ministries

3) Further, the Actuals are lower than the Revised Estimates for the past several years.

- a) **For FY 2022-23, the actual expenditures for all the concerned ministries and departments were less than the revised estimates. (Figure 3)**
- b) The gap between the actual expenditure and the revised estimates increased for six of the seven departments/ministries (FY 2022-23)
- c) For the **Ministry of Earth Sciences**, the **actual spending is 24% lower** than revised estimates.
- d) **The reason for lower actual expenditures needs to be analysed and scrutinised while considering the demand for grants for the upcoming fiscal year.**

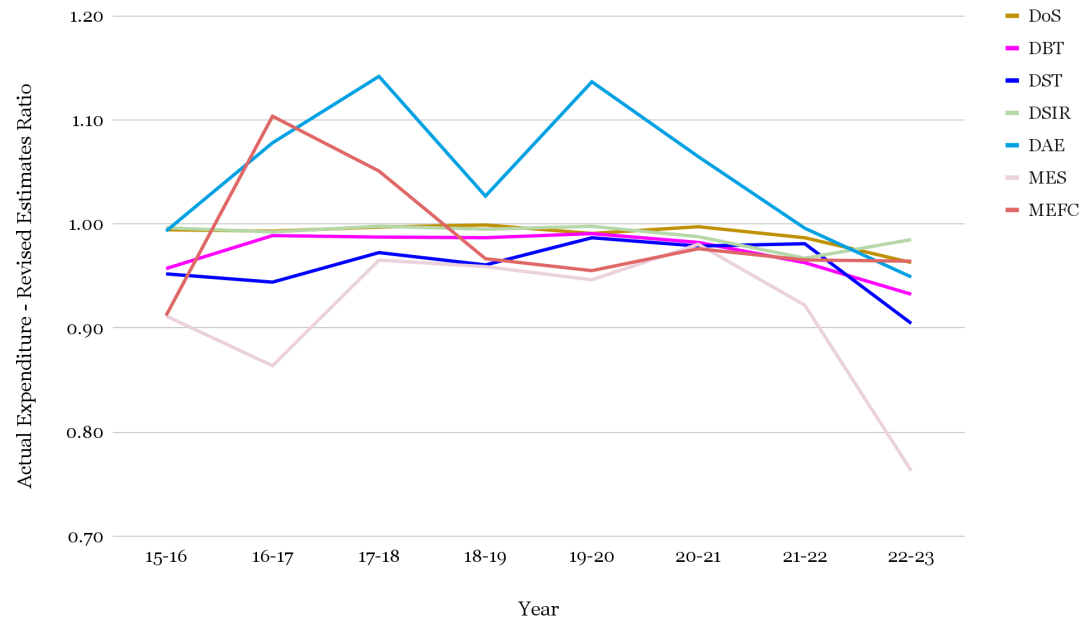


Figure 3: Actual Expenditure to Revised Estimates ratio

4) The actual capital expenditure for many of the concerned departments and ministries has been minimal.

- a) The ratio of capital to revenue expenditure for 5 of the seven departments/ministries has been lower than 6% (ratio < 0.06). Low capital expenditure might imply a lesser focus on building laboratories, R&D infrastructure etc.
- b) The capital expenditure for the Department of Biotechnology, as per the Union Budget documents, has been 0 for the last 12 years. This might be an accounting issue.
- c) The actual capital expenditure for the Department of Space and Department of Atomic energy had increased significantly in FY 21-22 but has dipped again.

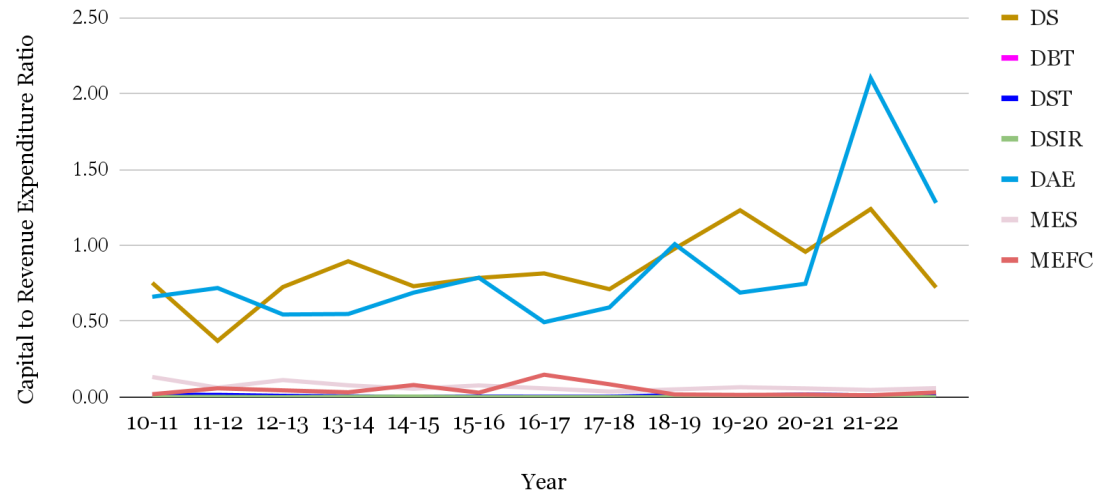


Figure 4: Ratio of Capital to Revenue Expenditure

DFG for Department of Space

1. The Department of Space regularly returns large sums of money back to the government due to underutilization of funds. Budget 2023-24 had allocated INR 12,543.91 crore for the Department of Space. It ended up using only INR 11,070.07 crore for 2023-24 (as per Revised Estimates). It may be useful to study this underutilisation to plan better for the Demand for Grants.
2. Space Technology only used INR 8,181.01 crore (against INR 9,440.66 crore budgeted).
 - This was despite significant developments this year - most number of launches in a year, testing of various technologies for human spaceflight, launch of missions like Chandrayaan 3 and Aditya L1.
 - This will be balanced by handing over technology for SSLV. We will be seeing the launch of PSLV supplied by industry. There will also be the start of funding for the development of NGLV and the continued support for human rating the LVM3.
 - There is worry about the delay in the development of electric propulsion system on-board communication satellites that had the potential to increase the life-span of the satellite upto 10-15 years.

- While the focus is on the human spaceflight programme, we need to continue the upkeep of our satellites of national importance as well. This is the fleet of remote sensing, communications, meteorological, and navigation (PNT) satellites. There has been a tendency to prioritise human spaceflight and commercial launches over these launches.
 - ISRO must also consider developing a separate launch pad for operations related to NGLV and human spaceflight programmes.
 - There are concerns regarding the IRNSS satellites. Besides technological upgrades, replacements also have to be ready. We suggest the need to study how quickly we can replace these satellites in orbit in case they were attacked as an act of war.
3. Space Applications has managed to do a better estimation of its budget needs given the lower difference between budget and revised estimates.
- It is noteworthy that India has released its first remote sensing satellites since 1986.
 - We suggest that efforts be made to carry data from Indian private companies as well as data related to services like disaster monitoring and management, search and rescue, etc.
4. Space Science sees an increase in capital expenditure while reducing revenue expenditure.

- This does not make sense. Since there are more than required scientific spacecrafts to operate with no new additions this year, we expected the opposite of the above trend.
 - The Space Science budget is presently 10% of the Space Applications budget.
 - We suggest that the Space Science budget be at least equal to if not more than the Space Applications budget. Only this will justify the expenditure of researching and developing space technologies.
5. Autonomous Bodies all show healthy growth in demand for budget.
- There have been recent studies that an increase in the re-entry of spacecraft because of an increase in the number of satellites is causing changes in the atmosphere of Earth. We suggest that NARL study these phenomena. The appropriate budget may be allocated for the same.
 - PRL budget is moving up in a positive trend. We suggest considering opening more PRL campuses to try to attract scientific talent from other parts of the country.
6. NewSpace India Limited (NSIL)
- We suggest that NSIL be also used to procure goods and services from NGPEs. Thus far it has been limited to commercialising

ISRO products and providing the services to NGPEs. It may be provided with an additional budget to procure such services.

Department of Biotechnology

1. In 2022-23, the Department of Biotechnology (DBT), used only 72% of its estimated budget allocation on Centrally Sponsored Schemes/Projects. This underutilisation may indicate tedious bureaucratic processes for approving disbursements, lack of capacity to evaluate projects or clear utilisation certificates, lack of prioritisation for science funding by the Ministry of Finance or inadequate planning or implementation strategy for the requested funds by the Ministry of Science and Technology.

Department of Science and Technology

1. DST has consistently under-utilised their allocation, using only 61% of their allocation for Centrally Sponsored Schemes/Projects in FY2022-23. [Actual Exp: INR 1790.65 crores and Budget Estimate: INR 2894.55 crores] This underutilisation may indicate tedious bureaucratic processes for approving disbursements, lack of capacity to evaluate projects or clear utilisation certificates, lack of prioritisation for science funding by the Ministry of Finance

or inadequate planning or implementation strategy for the requested funds by the Ministry of Science and Technology.

2. The allocation for SERB has continued, despite it being subsumed under the NRF. It is unclear if this allocation will remain separate subsequent to the notification of the Anusandhan NRF Act or the allocation to NRF is to be increased to INR 2800 crores.

3. The budget allocated for other scientific research for FY 2023-24 was revised from down to 4738.04 crores, following the overall trend of reducing research expenditure.



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