PRS

Union Budget 2021-22

Analysis of expenditure by Ministries

March 2021

PRS Legislative Research

March, 2021

Institute for Policy Research Studies
3rd Floor, Gandharva Mahavidyalaya
212, Deen Dayal Upadhyaya Marg
New Delhi – 110 002
Tel: (011) 4343-4035, 2323-4801
www.prsindia.org

Contributors:

Mandira Kala
Prachee Mishra
Aditya Kumar
Manish Kanadje
Prachi Kaur
Saket Surya
Shruti Gupta
Suyash Tiwari

Table of Contents

Overview

The central government's expenditure is authorised through the Union Budget by the Parliament every year. The Constitution requires all expenditure (other than charged expenditure) to be submitted to Lok Sabha in the form of Ministry-wise Demand for Grants. These Demand for Grants are referred to the respective Departmentally Related Standing Committees for detailed examination. They are then discussed in the House and approved. After Lok Sabha authorises these demands, an Appropriation Bill is introduced and passed to permit this expenditure out of the Consolidated Fund of India.

This document contains a short analysis of the Union Budget, and a close look at the allocations made by 15 ministries, which account for 54% of the total expenditure by the centre. Further, we analyse the allocation trends over the years, and the extent of their utilisation. We also examine the implementation of various schemes and policies and their resulting outcomes. Note that due to the impact of COVID-19, 2020-21 was not a standard year with respect to the performance of the economy and government finances. In this note, we have compared the budget estimates of 2021-22 with the actual expenditure for 2019-20 (in terms of compounded annual growth rate or CAGR).

The Union Budget 2021-22 which was presented on February 1, 2021 proposes an expenditure of Rs 34,83,236 (net of devolution of taxes to states) for the year. This amount will be funded through receipts (other than borrowings) of Rs 19,76,424 crore and borrowings of Rs 15,06,812 crore. Fiscal deficit is budgeted at 6.8% of GDP as compared to 4.6% in 2019-20. The target for revenue deficit is 5.1% of the GDP, higher than the actual revenue deficit of 3.3% in 2019-20.

Devolution to states from centre's tax revenue is estimated to be Rs 6,65,563 crore in 2021-22, which is marginally higher than the devolution of Rs 6,50,678 crore in 2019-20. In 2020-21, the devolution to states reduced by 30% from an estimate of Rs 7,84,181 crore at the budgeted stage to Rs 5,49,959 crore at the revised stage. This would adversely impact the expenditure by states, especially for those where the taxes devolved from the centre form a significant share of the revenue.

Besides the overall financial outlay, the budget also provides details of tax proposals in the Finance Bill. The budget proposes to limit tax-free income from provident funds at Rs 2.5 lakh. Other proposals include: (i) extension of certain temporary tax incentives up to the financial year 2021-22, (ii) levy of a new agriculture and infrastructure development cess on petrol, diesel, and imports of certain items, and (iii) a reduction in the time limit specified for reopening income tax assessments from six years to three years.

Allocations to the top 15 schemes account for 12% of the total expenditure. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has the highest allocation at Rs 73,000 crore. This is followed by the allocation to the PM-KISAN scheme (income support to farmers) at Rs 65,000 crore.

The issues discussed in the analysis of each ministry include the following:

- Defence: The Ministry of Defence has been allocated Rs 4,78,196 crore. This constitutes 13.7% of the central government's budget and 2.1% of India's estimated GDP for 2021-22. However, the share of defence budget as a proportion of total government expenditure has decreased. The actual expenditure on defence by the three armed forces has also been lower (by 12% to 36%) than the amount projected by the three services. Expenditure on salaries forms the largest portion of the defence budget (30%), followed by expenditure on capital outlay (27%) and pensions (24%).

- Consumer Affairs, Food and Public Distribution: The Ministry has two departments: (i) Food and Public Distribution, which has been allocated Rs 2,42,836 crore (99% of the Ministry's allocation), and (ii) Consumer Affairs, which has been allocated Rs 2,974 crore. This year the allocation for food subsidy to Food Corporation of India (FCI) has been increased significantly (64% annual increase over 2019-20) to enable the FCI to clear its dues (loans it had taken from the NSSF).

- Railways: Railways' revenue for 2021-22 is estimated at Rs 2,17,460 crore, which is an annual increase of 12% from the actual expenditure of 2019-20. Revenue expenditure by Railways is projected at Rs 2,10,899 crore which is an annual increase of 10% from the actual expenditure for 2019-20. The Operating Ratio is estimated to be 96.2%. Due to the impact of COVID-19, the freight traffic volume in 2020-21 is estimated to decline by 7%, and consequently, Railways' own revenue is estimated to decline by 35% from the budget estimate

- Home Affairs: The Ministry of Home Affairs has been allocated Rs 1,66,547 crore. Since 2019, expenditure of the Ministry also includes grants to the newly formed Union Territories (UTs) of Jammu and Kashmir, and Ladakh. 62% of the Ministry's expenditure is on police (includes the central armed police forces and Delhi Police), and 32% is on grants made to UTs.

- Rural Development: Expenditure by the Ministry of Rural Development is estimated at Rs 1,33,690 crore. This Ministry administers some large schemes such as MGNREGS, PMAY-G (rural housing) and PMGSY (rural roads). About 56% of the Ministry's allocation is towards MGNREGS. In 2021-22, allocation towards MGNREGS is estimated to increase at an annual rate of 1% compared to actual expenditure in 2019-20, while that for PMGSY is estimated to be increase by 3%.
- Agriculture: The Ministry has been allocated Rs 1,31,531 crore in 2021-22, which is a 14% annual increase from the actual expenditure for 2019-20. 49% of the allocation to the Ministry in 2021-22 is for the PM-KISAN scheme. All other programmes of the Ministry, including interest subsidy and crop insurance, have been allocated Rs 66,531 crore in 2021-22, a 12% annual increase over 2019-20.
- Road Transport and Highways: Allocation to this Ministry is estimated at Rs 1,18,101 crore, an annual increase of 23% over the actual expenditure for 2019-20. Between 2014 and 2019, the share of borrowings in the investment on road sector has grown from 6% to 43%, while the share of both budgetary support and private investment has decreased from 57% to 44% and from 37% to 13% respectively.
- Education: In 2021-22, the Ministry has been allocated Rs 93,224 crore, which is an annual increase of 2% from the actual expenditure in 2019-20. Allocation to the Department of School Education and Literacy is estimated at Rs 54,874 crore (59% of the Ministry's total allocation). The Department of Higher Education has been allocated Rs 38,351 crore. The allocation constitutes 2.67% of the central government's estimated expenditure for 2021-22. The National Education Policy, 2020 recommends increasing public investment on education to 6% of GDP.
- Health: In 2021-22, the Ministry's estimated expenditure is Rs 73,932 crore, which is an annual increase of 7% over the actual expenditure in 2019-20. In addition, Rs 35,000 crore is provided in the Finance Ministry's Demands towards COVID-19 vaccination. The Ministry is expected to have an additional spending of Rs 15,817 crore at the revised stage in 2020-21, of which, Rs 14,217 crore will be spent for COVID-19 emergency response, health system preparedness package, and COVID-19 vaccination.
- Jal Shakti: The Ministry estimates an expenditure of Rs 69,053 crore in 2021-22, which is a 64% annual increase over the actual expenditure in 2019-20. The Jal Jeevan Mission, which aims to provide adequate and safe drinking water to the rural population, has been allocated Rs 50,011 crore in 2021-22 (123% annual increase over 2019-20). The 15th Finance Commission also recommends that 60% (Rs 1,42,084 crore) of the total grants for rural local bodies be spent on drinking water and sanitation during 2021-26.
- Telecommunications: The Department of Telecommunications has been allocated Rs 58,737 crore, which is a 44% annual increase over the actual expenditure in 2019-20. This increase is to provide for the revival plan for BSNL and MTNL. The non-tax revenue for 2021-22 from communication services is projected at Rs 53,987 crore, an annual decrease of 12% over 2019-20.
- Housing and Urban Affairs: Expenditure by the Ministry is estimated at Rs 54,581 crore. Majority of this expenditure is on metro projects (Rs 23,500 crore). Allocation towards urban housing (PMAY-Urban) is estimated at Rs 8,000 crore which is an 8% annual increase from 2019-20. The Smart Cities Mission has been allocated Rs 6,450 crore, which is a 42% annual increase over 2019-20.
- Petroleum and Natural Gas: The Ministry has been allocated Rs 15,944 crore, which is an annual decrease of 39% over the actual expenditure for 2019-20. About 88% of the Ministry's budget is towards LPG subsidy. No funds have been allocated for kerosene subsidy. The share of total cess as a percentage of total duty has increased from 56% in April, 2017 to 96% in February, 2021 in case of petrol.
- Science and Technology: The Ministry has been allocated Rs 14,794 crore, which is an annual increase of 8% over 2019-20. Almost all expenditure under the Ministry is revenue expenditure (99.7% on average). In 2020-21, all departments saw a cut in the allocation at the revised stage compared to budget estimates (20% on aggregate). India's expenditure on research and development has been declining since 2004-05.
- Environment: The Ministry has been allocated Rs 2,870 crore, which is an annual increase of 6% over the actual expenditure in 2019-20. 27% of the allocation is estimated to be on centrally sponsored schemes on environment, forests and wildlife such as National Mission for Green India and Integrated Development of Wildlife Habitats.

Budget at a Glance 2021-22

Budget Highlights

- **Expenditure:** The government proposes to spend Rs 34,83,236 crore in 2021-22. As per the revised estimates, the government spent Rs 34,50,305 crore in 2020-21, 13% higher than the budget estimate.
- **Receipts:** The receipts (other than borrowings) are expected to be Rs 19,76,424 crore in 2021-22, which is 23% higher than the revised estimates of 2020-21. In 2020-21, revised estimates for receipts were 29% lower than budget estimates. Given the impact due to COVID-19, it is useful to see the growth from 20219-20, an annual average of 6.2%.
- **GDP growth**: Nominal GDP is expected to grow at of 14.4% (i.e., real growth plus inflation) in 2021-22.
- **Deficits:** Revenue deficit is targeted at 5.1% of GDP in 2021-22, which is lower than the revised estimate of 7.5% in 2020-21 (3.3% in 2019-20). Fiscal deficit is targeted at 6.8% of GDP in 2021-22, down from the revised estimate of 9.5% in 2020-21 (4.6% in 2019-20). The government aims to steadily reduce fiscal deficit to 4.5% of GDP by 2025-26.
- **Ministry allocations:** Among the top 13 ministries with the highest allocations, the highest annual increase over 2019-20 is observed in the Ministry of Jal Shakti (64%), followed by the Ministry of Consumer Affairs, Food and Public Distribution (48%) and the Ministry of Communications (31%).

Main tax proposals in the Finance Bill

- No changes in income tax rates for individuals and corporations.
- **Limit on tax-free Income from provident funds**: Tax exemption on the interest income on the employees' contributions to provident funds will be limited up to Rs 2.5 lakh.
- **Extensions on tax incentives by a year upto the end of fiscal 2021-22**. This includes tax deduction upto Rs 1.5 lakh on interest on housing loan, and tax holiday for affordable housing projects, profits of startups, and investing capital gains in start-ups.
- **Agriculture and Infrastructure Development Cess:** The cess will be levied on some imported items including gold, silver, alcoholic beverages, coal, and cotton, and basic customs duty will be reduced by an equal amount. The cess will be levied on petrol and diesel at the rate of Rs 2.5 and Rs 4 per litre respectively, with equivalent cuts in excise duty. As the cess is not part of the divisible pool of revenue shared with states, their revenue receipts will be adversely affected.
- **Changes in customs duty:** The duty has been increased on some items such as cotton, silk, some auto and mobile parts.
- **"Mini-budget" announcements made earlier:** The safe harbour threshold for real estate transactions above the circle rate increased from 10% to 20%. Encashment of leave travel concession will be exempt from tax if the amount is used for purchasing certain goods.
- **Reduction in time for income tax proceedings**: Time limit for the re-opening of income tax assessment will be reduced from 6 years presently to 3 years.
- **Exemption from audit**: Businesses which carry 95% of their transactions digitally and whose turnover is less than five crore rupees, are exempted from keeping audited accounts. The threshold will be increased to Rs 10 crore.

Non-Tax proposals in the Finance Bill

- **There are some items that may not meet the Money Bill definition**. These are listed below.
- **LIC Act, 1956** amended to create a board of directors, issue shares, reduce government shareholding upto 51% of equity (minimum 75% in the first five years), cap voting rights at 5% to shareholders other than central government.
- **Securities Contracts (Regulations) Act, 1956** amended to allow pooled investment fund which collects money from investors. They may borrow money or issue debt securities. Consequential amendments made in SARFAESI Act, 2002 and in the Recovery of Debts due to Banks and Financial Institutions Act, 1993.
- **SEBI Act, 1992** amended to require registration by Alternative Investment Trusts and Business Trusts.

Policy Highlights

- **Legislative Changes**: A Securities Markets Code will be introduced to consolidate four Acts including the SEBI Act, 1992 and the Government Securities Act, 2007. The Insurance Act, 1938 will be amended to increase the permissible FDI limits in insurance companies from 49% to 74%, and allow foreign ownership and control with safeguards. The Companies Act, 2013 will be amended to revise the definition of small companies by increasing threshold for paid up capital (from Rs 50 lakh to Rs 2 crore) and annual turnover (from Rs 2 crore to Rs 20 crore). Certain offences under the Limited Liability Partnership Act, 2008 will be decriminalised. The Deposit Insurance and Credit Guarantee Corporation Act, 1961 will be amended to ensure that depositors get time-bound and easy access to their deposits to the extent of their insurance cover. The minimum loan size for NBFCs to be eligible for debt recovery under the SARFAESI Act, 2002 will be reduced from Rs 50 lakh to Rs 20 lakh.
- **Disinvestment**: Disinvestment of Air India, IDBI Bank, and Pawan Hans will be completed in 2021-22. Legislative amendments will be introduced to privatise two public sector banks and a General Insurance company. The IPO for LIC will also be completed in 2021-22. The government has approved a strategic disinvestment policy under which CPSEs will be maintained only in four sectors, with the rest being privatised. States will be incentivised to disinvest their public sector companies. A Special Purpose Vehicle will be used to monetise government owned land.
- **Finance:** An Asset Reconstruction Company Limited and Asset Management Company will be set up to consolidate and take over existing stressed debt, and manage and dispose assets. An institutional framework will be created for the corporate bond market to instil confidence among participants and enhance liquidity of secondary markets. An investor charter will be introduced for financial investors across all products.
- **Corporate Affairs:** Alternate methods of debt resolution and special frameworks for MSMEs will be introduced. A Conciliation Mechanism will be set up for quick resolution of contractual disputes.
- **Commerce and Industry:** Seven textile parks will be established over three years to create infrastructure and increase exports. Incorporation of one-person companies will be encouraged by regulatory changes such as removal of restrictions on paid up capital and turnover, and NRIs will be allowed to establish such companies.
- **Labour and Employment:** A portal to collect information on gig workers, and construction workers, among others will be launched to help frame schemes on health, housing, insurance, and others for migrant unorganised workers. The Apprenticeship Act will be amended to enhance apprenticeship opportunities.
- **Health and Nutrition**: PM Atma Nirbhar Swasth Bharat Yojana will be launched to develop capacity of health systems, strengthen national institutions, and create institutions to detect and cure new and emerging diseases. Mission Poshan 2.0 will be launched after merging Supplementary Nutrition Programme and the Poshan Abhiyan to strengthen nutrition outcomes. The National Nursing and Midwifery Commission Bill will be introduced.
- **Education:** Legislation to set-up a Higher Education Commission of India will be introduced, having vehicles for standard-setting, accreditation, regulation, and funding. A grant to create formal umbrella structures for institutes of higher education in nine cities will be created. More than 15,000 schools will be strengthened to include all components of the National Education Policy and subsequently mentor other schools to achieve ideals of Policy.
- **Infrastructure and Real Estate:** A Bill to establish a Development Financial Institution for infrastructure financing will be introduced. The DFI will be used to establish a lending portfolio of at least five lakh crore rupees for financing infrastructure projects. A National Monetisation Pipeline of potential infrastructure assets such as dedicated freight corridor assets of the railways will be launched. Debt financing of real estate and infrastructure investment trusts by foreign portfolio investors will be enabled to ease access of finance in the infrastructure and real estate sectors.
- **Transport:** Economic corridors to augment road infrastructure are being planned in Tamil Nadu, Kerala, West Bengal, and Assam. A scheme to enable private sector to finance, acquire, operate and maintain buses in public transport services will be launched. New technologies including MetroLite and MetroNeo will be used to develop metro rail systems in Tier-1 and Tier-2 cities. Seven projects for major ports will be offered on public-private partnership mode in 2021-22. A voluntary vehicle scrapping policy to phase out old and unfit vehicles was also announced.
- **Energy:** A reforms-based scheme to provide assistance to power distribution companies for infrastructure creation will be launched to address concerns over viability. A framework to provide choice to consumers

among distribution companies will be launched. Ujjwala scheme will be extended to cover one crore more beneficiaries. An independent gas transport system operator will be set up to coordinate booking of common carrier capacity in all natural-gas pipelines. A Hydrogen Energy Mission to generate hydrogen from green power sources will be launched.

- **Agriculture and allied sectors:** Operation Green Scheme, currently applicable to tomatoes, onions, and potatoes, will be enlarged to include 22 perishable products. The Agriculture Infrastructure Fund will be made available to APMCs to improve infrastructure facilities.
- **Water and Sanitation**: The Jal Jeevan Mission (Urban) will be implemented to enable universal water supply and liquid waste management in urban areas. The Urban Swachh Bharat Mission 2.0 will focus on sludge and waste water management, and on ensuring a reduction in single-use plastic and air pollution.
- **Science and Technology:** A scheme to provide financial incentives for digital modes of payments has been proposed. The Deep Ocean Mission will be launched, covering explorations and conservation of bio-diversity.
- **Social Justice**: To facilitate credit flow for SCs, STs, and women, margin money requirement under Stand-Up India scheme will be reduced from 25% to 15%. 750 Eklavya model residential schools will be established in tribal areas.

Budget estimates of 2021-22 as compared to actuals for 2019-20

The Finance Minister, Ms. Nirmala Sitharaman, introduced Budget 2021-22 on February 1, 2021, amidst the COVID-19 pandemic. 2020-21 was a non-standard year with respect to the performance of the economy and government finances. In this note, the budget estimates for 2021-22 have been compared to the actual expenditure for 2019-20.

- **Total Expenditure:** The government is estimated to spend Rs 34,83,236 crore during 2021-22 which is an annual increase of 14% over 2019-20. Out of the total expenditure, revenue expenditure is estimated to be Rs 29,29,000 crore (12% annual increase over 2019-20) and capital expenditure is estimated to be Rs 5,54,236 crore (29% annual increase over 2019-20).
- **Total Receipts:** The government receipts (excluding borrowings) are estimated to be Rs 19,76,424 crore, annual increase of 6% over 2019-20. Borrowings are estimated at Rs 15,06,812 crore (27% annual increase over 2019-20).
- **Transfer to states:** The central government will transfer Rs 13,88,502 crore to states and union territories in 2021-22 (annual increase of 10% over 2019-20). This includes devolution of (i) Rs 6,65,563 crore to states, out of the centre's share of taxes (increase of 1%), and (ii) Rs 7,22,939 crore in the form of grants and loans (increase of 21%). In 2020-21, while devolution to states fell by 30% at the revised stage (compared to budget estimates), grants were higher by 26%.
- **Deficits:** Revenue deficit is targeted at 5.1% of GDP, and fiscal deficit is targeted at 6.8% of GDP in 2021-22. The target for primary deficit (which is fiscal deficit excluding interest payments) is 3.1% of GDP. In 2020-21, as per the revised estimate, revenue deficit is 7.5% of GDP, and fiscal deficit is 9.5% of GDP.
- **GDP growth estimate:** The nominal GDP is estimated to grow at a rate of 14.4% in 2021-22. In Budget 2020-21, GDP was estimated to grow at 10%, which was revised to -13%.

Table 1: Budget at a Glance 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Revenue Expenditure	23,50,604	26,30,145	30,11,142	29,29,000	12%
Capital Expenditure	3,35,726	4,12,085	4,39,163	5,54,236	29%
of which:					
Capital outlay	3,11,312	3,80,322	3,32,247	5,13,862	29%
Loans	24,414	31,763	1,06,916	40,374	29%
Total Expenditure	26,86,330	30,42,230	34,50,305	34,83,236	14%
Revenue Receipts	16,84,059	20,20,926	15,55,153	17,88,424	3%
Capital Receipts	68,620	2,24,967	46,497	1,88,000	66%
of which:					
Recoveries of Loans	18,316	14,967	14,497	13,000	-16%
Other receipts (including disinvestments)	50,304	2,10,000	32,000	1,75,000	87%
Total Receipts (without borrowings)	17,52,679	22,45,893	16,01,650	19,76,424	6%
Revenue Deficit	6,66,545	6,09,219	14,55,989	11,40,576	31%
% of GDP	3.3%	2.7%	7.5%	5.1%	
Fiscal Deficit	9,33,651	7,96,337	18,48,655	15,06,812	27%
% of GDP	4.6%	3.5%	9.5%	6.8%	
Primary Deficit	3,21,581	88,134	11,55,755	6,97,111	47%
% of GDP	1.6%	0.4%	5.9%	3.1%	

Notes: Budgeted estimates (BE) are budget allocations announced at the beginning of each financial year. Revised Estimates (RE) are estimates of projected amounts of receipts and expenditure until the end of the financial year. Actual amounts are audited accounts of expenditure and receipts in a year. Change from Actuals 2019-20 to BE 2021-22 represents the compounded annual growth rate (CAGR) for the period.
Sources: Budget at a Glance, Union Budget Documents 2021-22; PRS.

- Expenses which bring a change to the government's assets or liabilities (such as construction of roads or recovery of loans) are capital expenses, and all other expenses are revenue expenses (such as payment of salaries or interest payments).
- In 2021-22, **capital expenditure** is estimated at Rs 5,54,236 crore (annual increase of 29% over 2019-20). **Revenue expenditure** is estimated to be Rs 29,29,000 crore (annual increase of 12% over 2019-20). In 2020-21, total expenditure was 13% higher than the budget estimate, with revenue expenditure increasing by 15% and capital expenditure by 7%.
- In 2019-20, capital outlay formed 12% of the total expenditure of the central government. This is estimated to increase to 15% of the total expenditure in 2021-22.
- In 2021-22, disinvestment is estimated at Rs 1,75,000 crore which is 3.5 times higher than the actual disinvestment in 2019-20. The highest disinvestment achieved over the last few years was in 2017-18, of Rs 1,00,045 crore.

Receipts Highlights for 2021-22

- **Total receipts (including borrowings)** in 2021-22 are estimated to be Rs 34,83,236 crore and net receipts (excluding borrowings) are estimated at Rs 19,76,424 crore. Receipts (without borrowings) are estimated to record an annual increase of 6% over 2019-20.
- **Gross tax revenue** is estimated at Rs 22,17,029 crore (annual increase of 5% over 2019-20). Net tax revenue of the central government (excluding states' share in taxes) is estimated to be Rs 15,45,397 crore in 2021-22.
- **Devolution to states** from centre's tax revenue is estimated to be Rs 6,65,563 crore in 2021-22, marginally higher than the devolution of Rs 6,50,678 crore in 2019-20.
- **Non-tax revenue** is expected to be Rs 2,43,028 crore in 2021-22 an annual decrease of 14% over the actuals for 2019-20.
- **Capital receipts** (without borrowings) are estimated to record an annual increase of 66% over 2019-20. This is on account of disinvestments, which are expected to be Rs 1,75,000 crore in 2021-22, as compared to Rs 50,304 crore in 2019-20. **Borrowings** are expected to be Rs 15,06,812 crore in 2021-22 (annual increase of 27% over 2019-20). Borrowings in 2021-22 are estimated to be lower than the revised estimate for 2020-21 (of Rs 18,48,655 crore) by 19%.

Table 2: Break up of central government receipts in 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Gross Tax Revenue	20,10,059	24,23,020	19,00,280	22,17,059	5%
of which:					
Corporation Tax	5,56,876	6,81,000	4,46,000	5,47,000	-1%
Taxes on Income	4,92,654	6,38,000	4,59,000	5,61,000	7%
Goods and Services Tax	5,98,750	6,90,500	5,15,100	6,30,000	3%
Customs	1,09,283	1,38,000	1,12,000	1,36,000	12%
Union Excise Duties	2,40,615	2.67,000	3,61,000	3,35,000	18%
Service Tax	6,029	1,020	1,400	1,000	-59%
A. Centre's Net Tax Revenue	**13,56,902**	**16,35,909**	**13,44,501**	**15,45,397**	7%
Devolution to States	**6,50,678**	**7,84,181**	**5,49,959**	**6,65,563**	1%
B. Non Tax Revenue	**3,27,157**	**3,85,017**	**2,10,653**	**2,43,028**	-14%
of which:					
Interest Receipts	12,349	11,042	14,005	11,541	-3%
Dividend and Profits	1,86,132	1,55,396	96,544	1,03,538	-25%
Other Non-Tax Revenue	1,28,675	2,18,580	1,00,105	1,27,949	-0.3%
C. Capital Receipts (without borrowings)	**68,620**	**2,24,967**	**46,497**	**1,88,000**	66%
of which:					
Disinvestment	50,304	2,10,000	32,000	1,75,000	87%
Receipts (without borrowings) (A+B+C)	**17,52,679**	**22,45,893**	**16,01,651**	**19,76,424**	6%
Borrowings	**9,33,651**	**7,96,337**	**18,48,655**	**15,06,812**	27%
Total Receipts (including borrowings)	**26,86,330**	**30,42,230**	**34,50,306**	**34,83,236**	14%

Sources: Receipts Budget, Union Budget Documents 2021-22; PRS.

- **Indirect taxes:** The total indirect tax collections are estimated to be Rs 11,02,000 crore in 2021-22. Of this, the government has estimated to raise Rs 6,30,000 crore from GST. Out of the total tax collections under GST, 84% is expected to come from central GST (Rs 5,30,000 crore), and 16% (Rs 1,00,000 crore) from the GST compensation cess.
- **Union Excise Duties:** Revenue from Union Excise Duties is estimated at Rs 3,35,000 crore (annual increase of 18% over 2019-20). In 2020-21, the revised estimate for revenue from excise duties was higher than the budget estimate by 35% due to revenue from duty on petrol and diesel.
- **Corporation tax:** The collections from taxes on companies are expected to be Rs 5,47,000 crore in 2021-22, marginally lower (1%) than 2019-20. In 2020-21, as per revised estimates, revenue from corporation

tax was Rs 4,46,000 crore, 35% lower than the budget estimate. Among all direct taxes revenue from corporation tax declined the most.

- **Income tax**: The collections from income tax are expected to record an annual increase of 7% in 2021-22 to Rs 5,61,000 crore. In 2020-21, the revised estimate for revenue from income tax was 28% lower than the budget estimate.
- **Non-tax receipts:** Non-tax revenue consists of interest receipts on loans given by the centre, dividends and profits, external grants, and receipts from general, economic, and social services, among others. Non-tax revenue is expected to decrease by 14% over 2019-20 to Rs 2,43,028 crore. The decline is due to a 40% fall in the dividend received from the Reserve Bank of India, nationalised banks and other financial institutions owned by the government.
- **Disinvestment target:** The disinvestment target for 2021-22 is Rs 1,75,000 crore. This target is 3.5 times higher than the disinvestment of Rs 50,304 crore in 2019-20.

Expenditure Highlights for 2020-21

- **Total expenditure** in 2021-22 is expected to be Rs 34,83,236 crore, which is 1% higher than the revised estimate of 2020-21. Expenditure in 2021-22 has increased at an annual rate of 14% over 2019-20. Out of this, (i) Rs 10,51,703 crore is proposed to be spent on central sector schemes (18% annual increase over 2019-20), and (ii) Rs 3,81,305 crore is proposed to be spent on centrally sponsored schemes (11% annual increase over 2019-20).
- The government is expected to spend Rs 8,09,701 crore on interest payments in 2021-22, which is 17% higher than the revised estimate of 2020-21. It makes up 23% of the government's estimated expenditure in 2021-22. Expenditure on pensions in 2021-22 is expected to be Rs 1,89,328 crore.

Table 3: Break up of central government expenditure in 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Central Expenditure					
Establishment Expenditure of Centre	5,70,244	6,09,585	5,98,672	6,09,014	3%
Central Sector Schemes/ Projects	7,57,091	8,31,825	12,63,690	10,51,703	18%
Other Expenditure	7,27,025	8,87,574	8,26,536	10,11,887	18%
Centrally Sponsored Schemes and other transfers					
Centrally Sponsored Schemes	3,09,553	3,39,895	3,87,900	3,81,305	11%
Finance Commission Grants	1,23,710	1,49,925	1,82,352	2,20,843	34%
of which:					
Rural Local Bodies	59,361	69,925	60,750	44,901	-13%
Urban Local Bodies	25,098	30,000	25,000	22,114	-6%
Grants-in-aid	10,938	20,000	22,262	35,376	80%
Post Devolution Revenue Deficit Grants	28,314	30,000	74,340	1,18,452	105%
Other Grants	1,98,707	2,23,427	1,91,155	2,08,484	2%
Total Expenditure	**26,86,330**	**30,42,230**	**34,50,305**	**34,83,236**	**14%**

Sources: Budget at a Glance, Union Budget Documents 2021-22; PRS.

Expenditure on Subsidies: In 2021-22, the total expenditure on subsidies is estimated to be Rs 3,69,899 crore, an annual increase of 19% over 2019-20. This is largely due to a higher allocation to food subsidy. Details are given below (Table 4):

- **Food subsidy:** Allocation to food subsidy is estimated at Rs 2,42,836 crore in 2021-22, a 49% annual increase as compared to 2019-20. In 2020-21 budget, Rs 1,15,570 crore was allocated to food subsidy. However, the revised estimate is 266% higher than the budgeted estimate at Rs 4,22,618 crore. According to the budget speech, additional allocation has been made in the 2021-22 budget to clear the pending food subsidy dues of the Food Corporation of India.
- **Fertiliser subsidy:** Expenditure on fertiliser subsidy is estimated at Rs 79,530 crore in 2021-22, a 1% annual decrease as compared to 2019-20. In 2020-21, the revised allocation to fertiliser subsidy is 88% higher than the budgeted allocation.
- **Petroleum subsidy:** Allocation to petroleum subsidy decreased at an annual rate of 40% from 2019-20 to 2021-22. The allocation in 2021-22 is 64% lower than the 2020-21 revised estimate at Rs 14,073 crore. Petroleum subsidy consists of subsidy on LPG and kerosene. In 2021-22, the LPG subsidy is estimated to decrease to Rs 14,073 crore (from Rs 36,072 crore in 2020-21) and no allocation has been made for the kerosene subsidy (as compared to Rs 2,982 crore in 2020-21).
- **Other subsidies:** The government also provides certain other subsidies such as interest subsidies on loans given under various government schemes and subsidies for procurement of agricultural produce other than paddy and wheat. In 2021-22, the expenditure on these other subsidies is estimated to be Rs 33,460 crore, a 1% annual decrease over 2019-20.

Table 4: Subsidies in 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Food subsidy	1,08,688	1,15,570	4,22,618	2,42,836	49%
Fertiliser subsidy	81,124	71,309	1,33,947	79,530	-1%
Petroleum subsidy	38,529	40,915	39,055	14,073	-40%
Other subsidies	33,963	34,315	53,116	33,460	-1%
Total	**2,62,304**	**2,62,109**	**6,48,736**	**3,69,899**	**19%**

Sources: Expenditure Profile, Union Budget 2020-21; PRS.

Expenditure by Ministries: The ministries with the 13 highest allocations account for 53% of the total budgeted expenditure in 2021-22. Of these, the Ministry of Defence has the highest allocation in 2021-22 at Rs 4,78,196 crore (14% of the total budgeted expenditure of the government). Other Ministries with high allocation include: (i) Consumer Affairs, Food and Public Distribution, (ii) Home Affairs, (iii) Rural Development, and (iv) Agriculture and Farmers' Welfare. Table 5 shows the expenditure on Ministries with the 13 highest allocations for 2021-22 and the annual growth estimated over 2019-20.

Table 5: Ministry-wise expenditure in 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Defence	4,52,996	4,71,378	4,84,736	4,78,196	3%
Consumer Affairs, Food and Public Distribution	1,17,096	1,24,535	4,50,687	2,56,948	48%
Home Affairs	1,34,978	1,67,250	1,49,388	1,66,547	11%
Rural Development	1,23,622	1,22,398	1,98,629	1,33,690	4%
Agriculture and Farmers' Welfare	1,01,775	1,42,762	1,24,520	1,31,531	14%
Road Transport and Highways	78,249	91,823	1,01,823	1,18,101	23%
Railways	69,972	72,216	1,11,234	1,10,055	25%
Education	89,437	99,312	85,089	93,224	2%
Chemicals and Fertilisers	82,063	71,897	1,35,559	80,715	-1%
Communications	43,939	81,957	61,060	75,265	31%
Health and Family Welfare	64,258	67,112	82,928	73,932	7%
Jal Shakti	25,683	30,478	24,286	69,053	64%
Housing and Urban Affairs	42,054	50,040	46,791	54,581	14%
Other Ministries	12,60,209	14,49,071	13,93,577	16,41,398	14%
Total Expenditure	**26,86,330**	**30,42,230**	**34,50,305**	**34,83,236**	**14%**

Note: Expenditure is net of recoveries such as fines, and ticket sales.
Sources: Expenditure Budget, Union Budget 2021-22; PRS.

- **Ministry of Consumer Affairs, Food and Public Distribution:** Allocation to the Ministry in 2021-22 saw an annual increase of 48% over 2019-20 due to a higher allocation for food subsidy. Due to the same reason, the Ministry's revised allocation for 2020-21 has also been increased, by Rs 3,26,151 crore (262%) from the budgeted allocation for the year.

- **Ministry of Railways:** Allocation to the Ministry of Railways in 2021-22 is Rs 1,10,055 crore, an annual increase of 25% over 2019-20. 2020-21 RE includes Rs 79,398 crore allocated through a special loan to: (i) bridge the resource gap of Indian Railways caused due to COVID-19 in 2020-21, and (ii) clear its pension dues for the year 2019-20.

- **Ministry of Health and Family Welfare:** Allocation to the Ministry of Health and Family Welfare in 2021-22 is Rs 73,932 crore, an annual increase of 7% over 2019-20. In 2020-21, the Ministry was allocated Rs 67,112 crore at the budgeted stage, which has been increased by 24% to Rs 82,928 crore at the revised stage. This increase is primarily due to an allocation of Rs 11,757 crore for the COVID-19 Emergency Response and Health System Preparedness Package.

- **Ministry of Jal Shakti:** Allocation to the Ministry increased to Rs 69,053 crore in 2021-22, which is 184% higher than the revised estimate of 2020-21. This increase is primarily due to a higher allocation for the Jal Jeevan Mission (earlier known as the National Rural Drinking Water Mission), which accounts for 72% of the allocation to the Ministry.

Expenditure on Major Schemes

Table 6: Scheme-wise allocation in 2021-22 (Rs crore)

	Actuals 2019-20	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
MGNREGS	71,687	61,500	1,11,500	73,000	1%
PM-KISAN	48,714	75,000	65,000	65,000	16%
Jal Jeevan Mission*	10,030	11,500	11,000	50,011	123%
National Health Mission	35,155	34,115	35,554	37,130	3%
National Education Mission	33,654	39,161	28,244	34,300	1%
Pradhan Mantri Awas Yojana	24,964	27,500	40,500	27,500	5%
Integrated Child Development Services	22,032	28,557	20,038	24,114#	5%
Pradhan Mantri Fasal Bima Yojana	12,639	15,695	15,307	16,000	13%
Pradhan Mantri Gram Sadak Yojana	14,017	19,500	13,706	15,000	3%
National Livelihood Mission	9,755	10,005	10,005	14,473	22%
AMRUT and Smart Cities Mission	9,599	13,750	9,850	13,750	20%
Green Revolution	9,895	13,320	10,474	13,408	16%
Swachh Bharat Mission	9,469	12,294	7,000	12,294	14%
Pradhan Mantri Krishi Sinchai Yojana	8,200	11,127	7,954	11,588	19%
Mid-Day Meal Programme	9,699	11,000	12,900	11,500	9%

Note: *Earlier known as the National Rural Drinking Water Mission. #Umbrella ICDS scheme till 2020-21 and sum of its individual schemes in 2021-22. Sources: Expenditure Profile, Union Budget 2021-22; PRS.

- Among schemes, the MGNREGS has the highest allocation in 2021-22 at Rs 73,000 crore. Allocation to the scheme has seen an annual increase of 1% over 2019-20. However, in 2020-21, allocation to the scheme has been increased by Rs 50,000 crore (81%) from the budgeted stage to the revised stage, following the announcement made under the Aatmanirbhar Bharat Economic Package in May 2020.
- The PM-KISAN scheme (income support to farmers) has the second highest allocation in 2021-22 at Rs 65,000 crore, an annual increase of 16% over 2019-20. In 2020-21, allocation to the scheme has decreased by 13% from Rs 75,000 crore at the budgeted stage to Rs 65,000 crore at the revised stage.
- Allocation to the Jal Jeevan Mission (earlier known as the National Rural Drinking Water Mission) has increased by 355% over the revised estimate of 2020-21 to Rs 50,011 crore.

COVID-19 vaccination: The central government has allocated Rs 35,000 crore to the Ministry of Finance for COVID-19 vaccination in 2021-22. This allocation has been made for providing financial assistance to states to meet their expenditure on COVID-19 vaccination.

Expenditure on Scheduled Caste and Scheduled Tribe sub-plans and schemes for welfare of women, children and NER

- Programmes for the welfare of women and children have been allocated Rs 2,39,039 crore in 2021-22, a decrease of 17% over the revised estimate of 2020-21. These allocations include programmes under all the ministries.
- The sub-plans for Scheduled Castes and Scheduled Tribes have been allocated a total of Rs 2,06,201 crore in 2021-22, which is a 51% increase over the revised estimate of 2020-21.

Table 7: Allocations for women, children, SCs, STs and NER (Rs crore)

	Budgeted 2020-21	Revised 2020-21	Budgeted 2021-22	% change (RE 2020-21 to BE 2021-22)
Welfare of Women	1,43,462	2,07,261	1,53,326	-26.0%
Welfare of Children	96,042	80,462	85,713	6.5%
Scheduled Castes	83,257	82,708	1,26,259	52.7%
Scheduled Tribes	53,653	53,304	79,942	50.0%
North Eastern Region (NER)	60,112	51,271	68,020	32.7%

Sources: Expenditure Profile, Union Budget 2021-22; PRS.

Deficits, Debt and FRBM

The Fiscal Responsibility and Budget Management (FRBM) Act, 2003 requires the central government to progressively reduce its outstanding debt, revenue deficit and fiscal deficit. The central government gives three-year rolling targets for these indicators when it presents the Union Budget each year. The government was supposed to achieve fiscal deficit of 3% of GDP by March 31, 2021. In Budget 2020-21, the fiscal deficit target was relaxed to 3.5% (as permitted by the FRBM Act) and it was estimated that fiscal deficit of 3.1% will be achieved by 2022-23. In 2021-22, the government has not provided target for the next three years, and will amend the FRBM Act to accommodate the higher fiscal deficit.

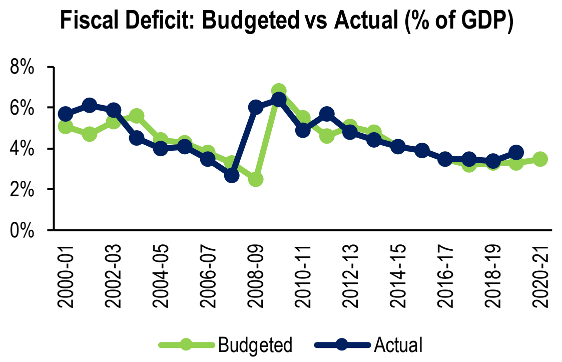
Fiscal deficit is an indicator of borrowings by the government for financing its expenditure. The estimated fiscal deficit for 2021-22 is 6.8% of GDP. For 2020-21, fiscal deficit is estimated at 9.5% of GDP, higher than the budget estimate of 3.5%. This was primarily due to higher spending, and lower revenue collection due to COVID-19. The government intends to reach fiscal deficit of 4.5% by 2025-26.

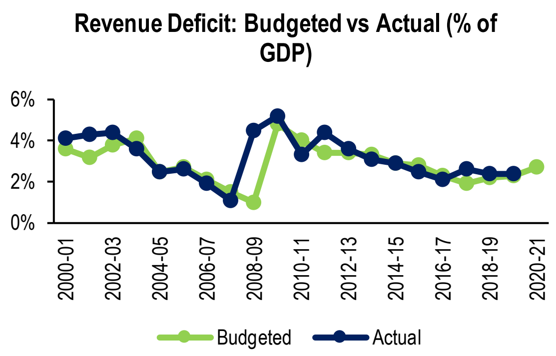
Table 8: Deficits (as % of GDP)

	Actuals 2019-20	Revised 2020-21	Budgeted 2021-22
Fiscal Deficit	4.6%	9.5%	6.8%
Revenue Deficit	3.3%	7.5%	5.1%

Sources: Union Budget 2021-22; PRS.

Note that in 2019-20 and 2020-21, the government showed certain expenditure carried out by public sector entities (such as the Food Corporation of India) as extra-budgetary resources, which was not included in the fiscal deficit calculation. In 2020-21, extra-budgetary resources were estimated at 0.9% of GDP. Extra-budgetary resources for 2020-21 were revised downwards to 0.6% of GDP. In 2021-22, extra-budgetary resources are estimated to be 0.1% of GDP as the government has accounted for most of the extra-budgetary resources in the budget.





Sources: Medium Term Fiscal Policy Statement, Union Budget (multiple years); PRS.

- **Revenue deficit** is the excess of revenue expenditure over revenue receipts. Such a deficit implies the government's need to borrow funds to meet expenses which may not provide future returns. The estimated revenue deficit for 2021-22 is 5.1% of GDP. In 2020-21, revenue deficit was 7.5%, higher than the budget estimate of 2.7%.
- **Outstanding debt** is the accumulation of borrowings over the years. A higher debt implies that the government has a higher loan repayment obligation over the years. Outstanding debt of the government decreased from 66.7% of GDP in 2004-05 to 48% of GDP in 2018-19. The revised estimate of outstanding debt for 2019-20 was 48%. However, the Medium-Term Fiscal Policy Statement has not given the estimate of outstanding debt for 2021-22, or revised estimate for 2020-21. High borrowings in the current year (indicated by fiscal deficit) and increase in outstanding debt leads to high interest cost. In 2021-22, interest payments are estimated to be 15% higher than the interest obligations in 2019-20. Interest payment is estimated at 45% of revenue receipts in 2021-22, up from 36% in 2019-20.

Recommendations by the 15th Finance Commission: The 15th Finance Commission for 2021-26 suggested a path for fiscal consolidation for the centre by reducing fiscal deficit to 4% of GDP, and outstanding liabilities to 56.6% by 2025-26. For details on recommendations of the Commission see the Annexure

Table 9: Suggested path for fiscal consolidation (as % of GDP)

	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Fiscal Deficit	7.4%	6.0%	5.5%	5.0%	4.5%	4.0%
Revenue Deficit	5.9%	4.9%	4.5%	3.9%	3.3%	2.8%
Outstanding liabilities	62.9%	61.0%	61.0%	60.1%	58.6%	56.6%

Sources: Report of the 15th Finance Commission for 2021-26; PRS.

Annexure: Recommendations of the 15th Finance Commission for 2021-26

The 15th Finance Commission (Chair: Mr. N. K. Singh) has submitted two reports. The first report, consisting of recommendations for the financial year 2020-21, was tabled in Parliament in February 2020. The final report with recommendations for the 2021-26 period was tabled in Parliament on February 1, 2021. Key recommendations of the Commission include:

- **Devolution Criteria**: The criteria for distribution of central taxes among states for 2021-26 period is same as that for 2020-21. The Commission has used 2011 population data for determining the share of states during its entire award period. To reward efforts made by states in controlling their population, the Commission has used the Demographic Performance criterion. States with a lower fertility ratio will be scored higher on this criterion.
- **Grants-in-aid**: The Commission has recommended grants from the centre to states and local bodies worth Rs 10.3 lakh crore for the 2021-26 period. These include: (i) revenue deficit grants to 17 states, (ii) grants to urban and rural local bodies, (iii) disaster management grants, (iv) grants for eight sectors including health, education, and agriculture, and (v) certain state-specific grants (see Table 11).
- **Funding of defence and internal security**: A dedicated non-lapsable fund called the Modernisation Fund for Defence and Internal Security (MFDIS) will be constituted to primarily bridge the gap between budgetary requirements and allocation for capital outlay in defence and internal security. The fund will have an estimated corpus of Rs 2,38,354 crore over the five years (2021-26). Of this, Rs 1,53,354 crore will be transferred from the Consolidated Fund of India. Rest of the amount will be generated from measures such as disinvestment of defence PSUs and monetisation of defence lands.
- **Fiscal consolidation**: The Commission suggested that the Centre bring down fiscal deficit to 4% of GDP by 2025-26. It recommended the fiscal deficit limit (as % of GSDP) for states to be: (i) 4% in 2021-22, (ii) 3.5% in 2022-23, and (iii) 3% during 2023-26. Extra annual borrowing worth 0.5% of GSDP will be allowed to states during 2021-25 for undertaking power sector reforms.
- The Commission observed that the recommended path for fiscal deficit for the Centre and states will result in a reduction of total liabilities of: (i) the Centre from 62.9% of GDP in 2020-21 to 56.6% in 2025-26, and (ii) the states on aggregate from 33.1% of GDP in 2020-21 to 32.5% by 2025-26. It recommended forming a high-powered inter-governmental group to: (i) review the fiscal responsibility legislation (FRBM Act), (ii) recommend a new fiscal responsibility framework and oversee its implementation.

Table 10: Criteria for devolution

Criteria	14th FC 2015-20	15th FC 2020-21	15th FC 2021-26
Income Distance	50.0	45.0	45.0
Area	15.0	15.0	15.0
Population (1971)	17.5	-	-
Population (2011)#	10.0	15.0	15.0
Demographic Performance	-	12.5	12.5
Forest Cover	7.5	-	-
Forest and Ecology	-	10.0	10.0
Tax and fiscal efforts*	-	2.5	2.5
Total	**100**	**100**	**100**

Note: #14th FC used the term "demographic change" which was defined as Population in 2011. *The report for 2020-21 used the term "tax effort", however, there is no difference in the definition of the criteria.

Sources: Reports of the 14th and 15th Finance Commissions; PRS.

Table 11: Grants for 2021-26 (five years) (Rs crore)

Grants	Amount
Revenue deficit grants	2,94,514
Local governments grants	4,36,361
Disaster management grants	1,22,601
Sector-specific grants	1,29,987
Health	31,755
School Education	4,800
Higher Education	6,143
Implementation of agricultural reforms	45,000
Maintenance of PMGSY roads	27,539
Judiciary	10,425
Statistics	1,175
Aspirational districts and blocks	3,150
State-specific grants	49,599
Total	**10,33,062**

Source: Report of the 15th Finance Commission; PRS.

Demand for Grants: Defence

The Ministry of Defence frames policies on defence and security-related matters, and ensures its implementation by the defence services (i.e. Army, Navy and Air Force). In addition, it is responsible for production establishments such as ordnance factories and defence public sector undertakings, research and development organisations, and ancillary services that assist the defence services, such as the Armed Forces Medical Services.

This note analyses budgetary allocation and expenditure trends of the Ministry. The note also discusses certain issues such as large pension expenditure, lower capital outlay, and high import dependence for defence procurement.

Overview of finances

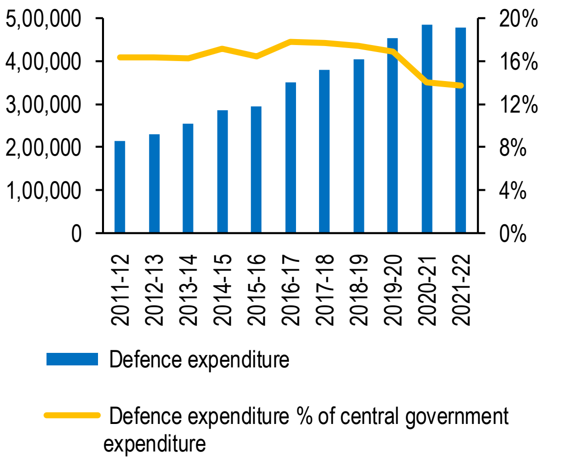
In 2021-22, the Ministry of Defence has been allocated Rs 4,78,196 crore. This includes expenditure on salaries of armed forces and civilians, pensions, modernisation of armed forces, production establishments, maintenance, and research and development organisations.

The allocation to the Ministry of Defence is the highest (14%) among all ministries of the central government.

Defence budget has decreased as a proportion of total government expenditure

In the last decade (2011-12 to 2021-22), the budget of the Ministry of Defence has grown at an annual average rate of 8.4%, while total government expenditure has grown at 10.3%.

Figure 1: Budget of Ministry of Defence (2011-12 to 2021-22) (in Rs crore)



Note: Figures for 2021-22 are Budget Estimates and for 2020-21 are Revised Estimates.
Sources: Union Budget Documents 2011-2022; PRS.

During this period, defence expenditure as a proportion of central government expenditure decreased from 16.4%, to 13.7%. The year-wise budget of the Ministry is shown in Figure 1.

Defence expenditure as a percentage of GDP declined from 2.4% in 2011-12 to 2.1% in 2021-22. The Standing Committee on Defence (2018) had recommended that the Ministry of Defence should be allocated a fixed budget of about 3% of GDP to ensure adequate preparedness of the armed forces.[1]

India is the 3rd largest military spender

According to the Stockholm International Peace Research Institute (SIPRI), India was the third-largest defence spender in absolute terms in 2019 (after USA and China).[2] USA spent more than India on defence, both in absolute terms, and as a percentage of GDP. China spent lower in terms of percentage of GDP, but its absolute expenditure on defence was 3.7 times that of India.

Table 1 compares India's defence expenditure with the seven largest spenders in absolute terms and as a percentage of GDP.

Table 1: International comparison of defence expenditure (2019)

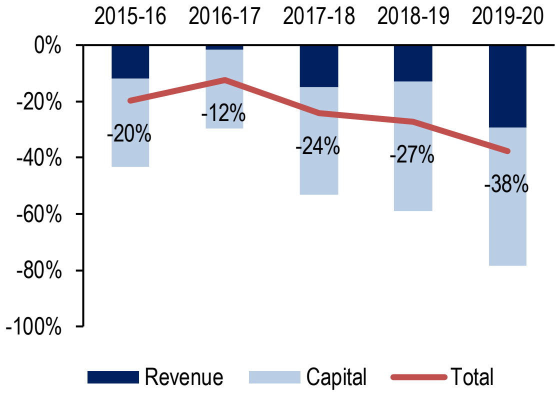
Country	Expenditure (in USD billion)	Expenditure (as % of GDP)
USA	731.75	3.4%
China	261.08	1.9%
India	71.13	2.4%
Russia	65.10	3.9%
Saudi Arabia	61.87	8.0%
France	50.12	1.9%
UK	48.65	1.7%
Pakistan	10.26	4.0%

Sources: "SIPRI Military Expenditure Database", Stockholm International Peace Research Institute, 2019; PRS.

Actual expenditure has been less than the projected amount by the defence forces

The expenditure on defence by the three armed forces has been significantly lower than the amount projected by the three services, with the shortfall ranging from 12% to 36%. For instance, in 2015-16, while the forces projected a required expenditure of Rs 3,63,270 crore, the actual expenditure during the year was Rs 2,10,637 crore (a shortfall of 20%). Figure 2 shows the difference (shortfall) between the amounts projected by the three forces and the actual expenditure between 2015-16 and 2019-20. The average shortfall for revenue expenditure was 14% while for capital expenditure it was 38%. Note that since 2016-17, the budget allocation for capital expenditure has been fully utilised.

Figure 2: Shortfall between amount projected by the armed forces and actual expenditure (2015-16 to 2019-20) (in Rs crore)



Note: Calculation for 2019-20 is based on expenditure up to December 2019.
Sources: 7th Report, Capital Outlay on Defence Services, Procurement Policy and Defence Planning, Standing Committee on Defence, March 2020; PRS.

Growth of 3% over Budget 2019-20

The allocation for the Ministry of Defence is estimated to grow at an annual average rate of 3% in 2021-22 over 2019-20. This is lower than the growth in overall central government expenditure of 14%. Similarly, growth in capital outlay for defence was 10% in 2021-22 (over 2019-20), while growth in total capital expenditure of the central government was 29%. Capital outlay for defence includes expenditure on construction work, machinery, and equipment such as tanks, naval vessels, and aircrafts.

Between 2011-12 and 2021-22, capital outlay for defence grew at an annual average rate of 7%, while overall capital expenditure of the central government grew at 13%. The share of capital outlay for defence in total government capital expenditure decreased from 41% to 23% in this period.

Composition of defence budget

The share of capital outlay has also decreased within the defence budget. It fell from 30% in 2011-12 to 22% in 2018-19. During this time, the share of pensions increased from 18% to 26%. This trend has reversed since 2019-20, as discussed below.

In 2021-22, expenditure on salaries and pensions forms the largest portion of the defence budget (Rs 2,58,628 crore, 54% of the defence budget). Capital outlay of Rs 1,28,150 crore, forms 27% of the defence budget. The remaining allocation is towards stores (maintenance of equipment), border roads, research, and administrative expenses.

Table 2: Defence budget allocation (Rs crore)

Major Head	Actuals 2019-20	RE 2020-21	BE 2021-22	Change (annualised) 2019-20 to 2021-22
Salaries	1,35,771	1,35,787	1,42,778	3%
Capital outlay	1,06,483	1,31,510	1,28,150	10%
Pensions	1,17,810	1,25,000	1,15,850	-1%
Stores	42,907	49,660	44,861	2%
Other expenses	50,026	42,780	46,557	-4%
Total	**4,52,996**	**4,84,736**	**4,78,196**	**3%**

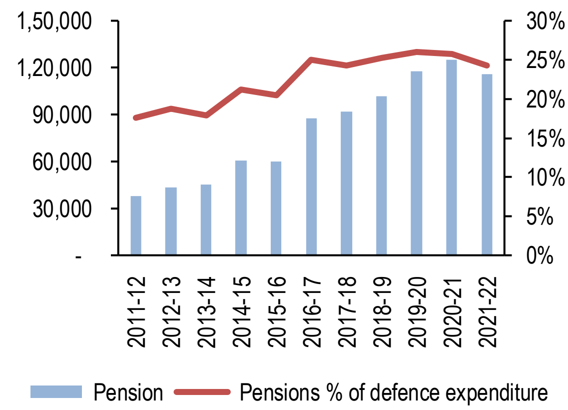
Note: Salaries, pensions and capital outlay are of the three services. Salaries include salary for civilians, auxiliary forces, Rashtriya Rifles, Jammu and Kashmir Light Infantry and Coast Guard. Pensions include rewards. Capital outlay includes capital expenses on border roads and coast guard. Stores includes ammunition, repairs and spares. Others include administration expenses, expense on research and development and housing. RE is revised estimate and BE is budget estimate.
Sources: Expenditure Budget, Union Budget 2021-22; PRS.

Expenditure is estimated to record an annual average increase of 3% over 2019-20. The increase is highest for capital outlay, which is expected to grow at 10%. Allocation for salaries increased by 3% and allocation for pension decreased by 1%.

Share of pensions

Defence pensions provides for pensionary charges for retired Defence personnel of the three services (including civilian employees) and employees of Ordnance Factories. It covers payment of service pension, gratuity, family and disability pension, commuted value of pension and leave encashment. Expenditure on defence pensions has grown at an average annual rate of 12% in the last 10 years. This is higher than the average annual growth rate of the defence budget (8.4%). The share of pension in the defence budget has increased from 18% to 26% (in 2019-20), before declining to 24%.

Figure 3: Expenditure on pensions (2011-12 to 2021-22) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates and 2021-22 are Budget Estimates.
Sources: Union Budget 2011-22; PRS.

In 2020-21, the budget estimate for pension (Rs 1.34 lakh crore), was revised down to Rs 1.25 lakh crore (5% decline). This allocation has been further reduced for 2021-22 to Rs 1.16 lakh crore.

In November 2015, One Rank One Pension (OROP) was implemented for armed forces personnel. This implies that a uniform pension will be paid for defence personnel retiring at the same rank, irrespective of their date of retirement. Until November 2020, Rs 42,740 crore had been disbursed to 20 lakh pensioners on account of implementation of OROP.[3]

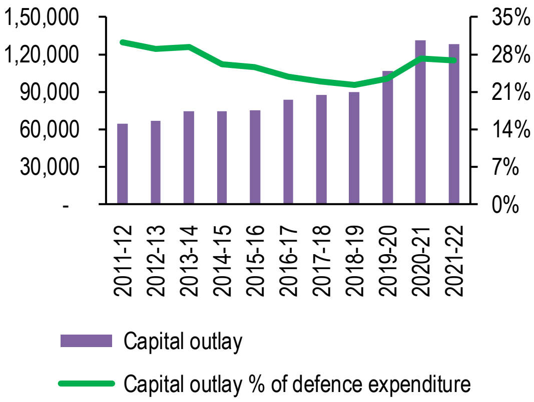
The Standing Committee on Defence (2019) noted that the defence pension liabilities will continue to increase exponentially every year due to increase in number of retirees, amount of dearness relief, gratuity, and other retirement benefits.[4]

The share of funds spent on pensions is bound to rise since approximately 60,000 personnel retire every year.[5] This reduces the funds available for modernisation of the armed forces. Some suggestions to reduce the pension bill include introducing a different pension scheme or assured jobs on early retirement.

Share of capital outlay

Capital outlay for defence includes expenditure on construction work, machinery, and equipment such as tanks, naval vessels, and aircrafts. Over the last 10 years, the share of the defence budget spent on capital outlay has declined. The share was highest during 2011-12 at 30% of the total defence budget, which fell to 22% in 2018-19 (the lowest), and recovered to 27% (in 2020-21).

Figure 4: Capital outlay as percentage of defence expenditure (2011-12 to 2021-22) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates and 2021-22 are Budget Estimates.
Sources: Union Budgets 2011-2022; PRS.

The share of capital outlay increased from 24% in 2019-20 to 27% in 2020-21 (revised estimates). Expenditure in 2020-21 of Rs 1,31,510 crore was also higher than the budget estimates of 2020-21 by almost Rs 25,000 crore (23% increase). This was due to additional spending of Rs 20,000 crore on naval fleet, aircrafts, and other equipment for the Navy and the Air Force. In 2021-22, capital outlay has been budgeted at Rs 1,28,150 crore (27% of the budget of the Ministry).

Committed liabilities

Note that capital acquisition of the armed forces consists of two components: (i) committed liabilities, and (ii) new schemes. Committed liabilities are payments anticipated during a financial year in respect of contracts concluded in previous years (as acquisition is a complex process involving long gestation periods). New schemes include new projects which are at various stages of approval and are likely to be implemented in future.

The budget allocation for capital acquisition which should cover both committed liabilities and new schemes does not cover all committed liabilities.[6] Inadequate allocation for committed liabilities could lead to default on contractual obligations.

Table 3: Committed liabilities and modernisation budget (2016-17 to 2019-20) (in Rs crore)

Year	Committed liabilities	Budget allocation	Shortfall (in %)
2016-17	73,553	62,619	15%
2017-18	91,382	68,965	25%
2018-19	1,10,044	73,883	33%
2019-20	1,13,667	80,959	29%

Sources: 3rd Report, Capital Outlay on Defence Services, Procurement Policy and Defence Planning, Standing Committee on Defence, December 2019; PRS.

The Standing Committee examining the Demand for Grants 2020-21 reports that the Ministry did not supply information regarding committed liabilities and new schemes separately. Therefore, there is no information in Table 3 for 2020-21.[11]

Non-lapsable fund for modernisation

The Report of the 15th Finance Commission for 2021-26 studied the issue of whether a separate mechanism for funding of defence and internal security should be set up.[7] The Commission recommended setting up a dedicated, non-lapsable Modernisation Fund for Defence and Internal Security to bridge the gap between projected budgetary requirements and budget allocation.[8]

The Commission recommended an allocation of Rs 1.5 lakh crore to the Fund over a period of five years (2021-26) by allocating 1% of the gross revenue receipts of the central government for this purpose. The Fund may also contain disinvestment proceeds of the defence public sector enterprises, and funds collected through monetisation of surplus defence land (to be used only for defence expenditure). The Commission expects the fund to collect Rs 2.38 lakh crore over the 2021-26 period. A similar recommendation to create a Non-Lapsable Capital Fund Account for defence modernisation was made by the Standing Committee on Defence (2017).[9] At the time, the Ministry of Finance had objected to the creation of such a fund on various grounds. It had held that though the fund is non-lapsable, it would not be available to the Ministry of Defence automatically, as it would require Parliament's sanction.[10] The Finance Minister had maintained that the present mechanism of authorisation of budget on an annual basis is working well.[11]

Analysis of the three-armed forces

This section analyses the budget of the three-armed forces, as well as issues related to their operational preparedness and modernisation.

In 2021-22, the total allocation to the three forces (including pensions) is Rs 4,51,704 crore, 94% of the total defence budget. The rest of the allocation is towards research and development and defence services ordnance factories. 61% of the defence budget is allocated for the Army, 20% for the Air Force, and 14% for the Navy. Table 4 details the defence budget allocation amongst the three forces.

Table 4: Budget of defence services (in Rs crore)

Major Head	Actuals 2019-20	Revised 2020-21	Budgeted 2021-22	Share of Budget
Army	2,76,050	2,92,964	2,90,073	61%
Navy	61,819	71,761	67,553	14%
Air Force	87,220	97,559	94,078	20%
Other	27,908	22,452	26,492	6%
Total expenditure	**4,52,996**	**4,84,736**	**4,78,196**	-

Note: Expenditure for Army includes expense on Border Roads Organisation, and Jammu and Kashmir Light Infantry. Expenditure for Navy includes expense on Coast Guard Organisation.
Sources: Expenditure Budget, Union Budget 2021-22; PRS.

Composition of service budgets

Air Force and Navy are more capital intensive than the Army. But across all three branches, the ratio of capital to revenue expenditure is falling, with the share of pensions and salary increasing.

Army

The Army is the largest of the three forces, both in terms of its budget as well as the number of personnel. An amount of Rs 2,90,073 crore has been allocated for the Army in 2021-22. This includes Rs 2,11,614 crore for salaries and pensions which is 73% of the Army's budget. Note that as of July 2017, the Army has a sanctioned strength of 12.6 lakh personnel.[12] Significant expenditure on salaries and pensions, leaves only 11% of the Army's budget (Rs 30,637 crore) for modernisation. Table 5 provides the composition of the Army's budget for 2021-22.

Compared to the revised estimate for 2020-21, the allocation for pension has decreased (by Rs 8387 crore) and the allocation for modernisation has increased (by Rs 4,568 crore) in 2021-22.

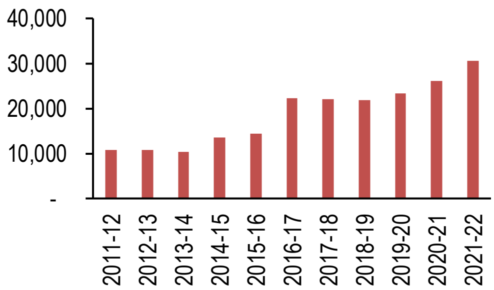
Table 5: Composition of Army Budget (2021-22) (in Rs crore)

Head	Amount allocated	% of service budget
Salaries	1,11,693	39%
Pensions	99,921	34%
Modernisation	30,637	11%
Maintenance	20,332	7%
Others	27,490	9%
Total	**2,90,073**	100%

Sources: Union Budget 2021-22; PRS.
Note: Salaries include salary for civilians, auxiliary forces, Rashtriya Rifles, Jammu and Kashmir Light Infantry. Modernisation funds for the Army is calculated from the following heads of the capital outlay: (i) Aircraft and Aeroengine, (ii) Heavy and Medium Vehicles, (iii) Other Equipment, (iv) Rolling Stock, and (v) Rashtriya Rifles.

Modernisation involves acquisition of state-of-the-art technologies and weapons systems to upgrade and augment defence capabilities of the forces. Figure 5 shows the expenditure on modernisation of the Army over the last 10 years. Funds for modernisation of the Army have grown at an annual average rate of 11% between 2011-12 and 2021-22. In 2021-22, modernisation spending for the Army is estimated to grow at an annual rate of 15% over 2019-20.

Figure 5: Expenditure on modernisation of Army (in Rs crore)



Notes: Figures for 2020-21 are Revised Estimates and for 2021-22 are Budget Estimates.
Sources: Union Budgets 2011-22; PRS.

The Standing Committee on Defence (2018) has noted that modern armed forces should have one-third of its equipment in the vintage category, one-third in the current category, and one-third in the state-of-the-art category.[12]

However, the current position of the Indian Army is that 68% of its equipment is in the vintage category, 24% in the current category, and only 8% in the state-of-the-art category.[10] Further, the Committee noted that the Indian Army has a significant shortage of weapons and ammunition. According to the Committee, these shortages have persisted since adequate attention was lacking both in terms of policy and budget for modernisation. Such a situation could impact Army preparedness in the context of a two-front war.[12]

Navy

The Navy has been allocated Rs 67,553 crore (including pensions) in 2021-22. Modernisation comprises 46% (Rs 31,031 crore) of the budget of the Navy. Table 6 below provides the composition of the Navy's budget for 2021-22.

Table 6: Composition of Navy Budget (2021-22) (in Rs crore)

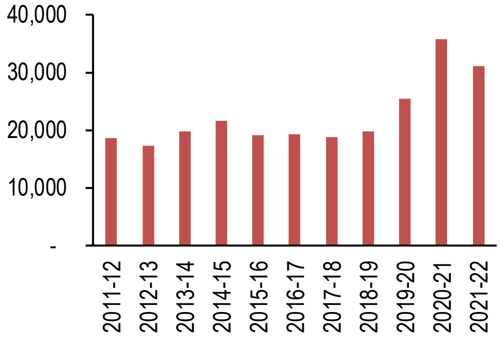
Head	Amount allocated	% of service budget
Modernisation	31,031	46%
Salaries	13,121	19%
Maintenance	7,610	11%
Pensions	5,694	8%
Others	10,097	15%
Total	**67,553**	**100%**

Note: Salaries include salary for civilians and coast guard. Modernisation funds for the Navy is calculated from the following heads of the capital outlay: (i) Aircraft and Aeroengine, (ii) Heavy and Medium Vehicles, (iii) Other Equipment, (iv) Joint Staff, (v) Naval Fleet, and (viii) Naval Dockyards and Projects.
Sources: Union Budget 2021-22; PRS.

Modernisation spending for the Navy as a percentage of total defence budget has declined from 8.7% in 2015-16 to 4.9% in 2018-19. The Standing Committee on Defence (2018) has stated that this could lead to a delay in induction of critical capabilities and resultant cost-overruns.[12]

Modernisation spending for the Navy has since recovered to 6.5% in 2021-22. Figure 6 shows the expenditure on modernisation of the Navy over the last 10 years. Expenditure on modernisation has grown at an annual average rate of 5% between 2011-12 and 2021-22. In 2021-22, though modernisation spending is estimated to grow at an annual rate of 10% over 2019-20, it is lower than the spending in 2020-21 (as per the revised estimates).

Figure 6: Expenditure on modernisation of Navy (in Rs crore)



Notes: Figures for 2020-21 are Revised Estimates and for 2021-22 are Budget Estimates.
Sources: Union Budgets 2011-22; PRS.

Air Force

The Indian Air Force (IAF) has been allocated Rs 94,078 crore for the year 2021-22 (including pensions for retired personnel). Modernisation comprises 52% (Rs 48,870 crore) of the total budget of the IAF.

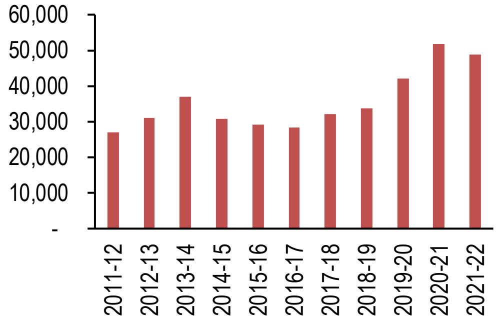
Table 7: Composition of Air Force Budget (2021-22) (in Rs Crore)

Head	Amount allocated	% of service budget
Modernisation	48,870	52%
Salaries	17,964	19%
Pensions	10,211	11%
Maintenance	9,429	10%
Others	7,605	8%
Total	**94,078**	**100%**

Note: Note: Salaries include salary for civilians. Modernisation funds for the Air Force is calculated from the following heads of the capital outlay: (i) Aircraft and Aeroengine, (ii) Heavy and Medium Vehicles, and (iii) Other Equipment.
Source: Union Budget 2021-22; PRS.

Figure 7 shows the expenditure on modernisation of the IAF over the last 10 years. Funds for modernisation have grown at an annual average rate of 6% between 2011-12 and 2021-22. In 2021-22, spending on modernisation is estimated to grow at an annual rate of 8% over 2019-20. The spending is 6% lower than the revised estimates for 2020-21.

Figure 7: Expenditure on modernisation of IAF (in Rs crore)



Notes: Figures for 2020-21 are Revised Estimates and for 2021-22 are Budget Estimates.
Sources: Union Budgets 2011-22; PRS.

The CAG has raised issues in relation to the capital acquisition process of the IAF.[13] In its report (2019), the CAG examined 11 contracts of capital acquisition signed between 2012-13 and 2017-18, with a total value of approximately Rs 95,000 crore. It found that the current acquisition system was unlikely to support the operational preparedness of the IAF and recommended that the Ministry of Defence undertake structural reforms of the entire acquisition process.[13]

The Estimates Committee (2018) has noted that there should be 70% serviceability of aircrafts since aircrafts have to undergo standard maintenance checks.[14] However, as of November 2015, the serviceability of aircrafts was 60%. Serviceability measures the number of aircrafts that are mission capable at a point in time.

Issues in defence procurement

Defence procurement refers to the acquisition of defence equipment, systems and platforms which is undertaken by the Ministry of Defence, and the three armed forces. The Ministry released the Defence Procurement Procedure (DPP), 2016 in March 2016 which lays down detailed guidelines regulating defence procurement in India.[15] This was replaced by the Defence Acquisition Policy, 2020, released in September 2020.[16]

Procurement of defence hardware is a long process, involving large number of stakeholders. Coordination issues between these stakeholders sometimes results in delays.[14] For example, in the case of procurement of equipment for the air force, the CAG found that it took three to five years to just sign the contract, and another three to five years to complete the delivery.[13] There was a need to remove procedural bottlenecks, simplify procedures, hasten defence acquisition, and ensure greater participation from the industry.[17]

The defence procurement executive is currently in the Ministry of Defence.[18] An Expert Committee on Defence Procurement (2015) observed that a procurement organisation needs to have specialised knowledge of various fields including technology, commercial negotiations, cost estimations, and financial structures.[18] Therefore, it recommended the creation of a separate defence procurement executive, with specialist wings and personnel, outside the formal structure of the Ministry of Defence. This executive would spearhead the procurement process, with the Ministry of Defence and Service Headquarters. Note that countries such as France and the United Kingdom have independent agencies responsible for defence procurement.[18]

High dependence on imports

According to the Stockholm International Peace Research Institute, between 2015-19, India was the second largest importer of major arms, after Saudi Arabia, accounting for 9% of global imports.[19] The Estimates Committee (2018) had stated that dependence on foreign suppliers for military hardware not only results in huge expenditure on imports, but makes national security vulnerable as suppliers may not provide weapons during emergency situations.[14] Table 8 notes the total procurement from foreign and Indian vendors during 2014-15 to 2019-20. For 2020-21, the Ministry has targeted domestic procurement of Rs 52,000 crore.[20]

Table 8: Total procurement from foreign and Indian vendors (2014-15 to 2019-20) (Rs crore)

Year	Total procurement	Foreign vendors	Indian vendors	% Foreign vendors
2014-15	65,860	25,981	39,879	39.4%
2015-16	62,342	23,192	39,150	37.2%
2016-17	69,150	27,278	41,872	39.4%
2017-18	72,732	29,035	43,697	39.9%
2018-19	75,921	36,957	38,964	48.7%
2019-20*	67,287	31,058	36,228	46.2%

Note: *Data for 2019-20 is up to December 31, 2019.
Sources: 7th Report, Capital Outlay on Defence Services, Procurement Policy and Defence Planning, Standing Committee on Defence, March 2020; PRS.

The Estimates Committee (2018) has observed that the indigenisation level in the defence sector is increasing at a very slow rate. It further stated that nothing concrete has been done for the implementation of the strategic partnership model, which envisaged a key role for private players in building platforms such as submarines and fighter jets in India.[14] The Committee also noted the high dependence on external content by Defence Public Sector Undertakings (DPSUs). For example, the import content for platforms manufactured by Hindustan Aeronautics Limited (in terms of value of the platform), ranged between 40% to 60%.[14]

Indigenisation and growth of the defence sector

Import embargo

In August 2020, the Ministry of Defence published a list of 101 items for which there will be an embargo (ban) on import.[20] The list includes weapon systems, such as artillery guns, and anti-submarine rocket launchers, and equipment such as high-power radar and upgrade systems. The ban on each item will apply as per the deadline specified. For 67 items, the ban came into effect from December 2020. The Ministry expects the ban on imports to give a push to self-reliance in the defence sector by boosting the domestic industry. It estimates that the embargo will result in domestic contracts of nearly four lakh crore rupees within the next five to seven years. Between April 2015 and August 2020, Rs 3.5 lakh crore worth of these items was procured.[20]

Draft Defence Production and Export Promotion Policy

In August 2020, the Ministry released the Draft Defence Production and Export Promotion Policy to boost the defence production capabilities, reduce dependence on imports, and promote exports for self-reliance in the defence industry.[21]

The domestic defence industry (including aerospace and naval shipbuilding) is currently estimated to be about Rs 80,000 crore. The Policy aims to achieve a turnover of Rs 1.75 lakh crore in aerospace and defence goods and services by 2025 (including exports of Rs 35,000 crore).

Currently, the procurement from the domestic industry is nearly Rs 70,000 crore (60% of overall defence procurement). The Policy aims to double this to Rs 1,40,000 crore by 2025. It proposes creating a distinct head for domestic capital procurement in the defence budget, and increasing allocation for domestic capital procurement by a minimum of 15% per year for the next five years.

Defence Acquisition Procedure, 2020

The Defence Acquisition Procedure (DAP) governs the acquisition of weapons and equipment for India's defence forces.[16] The DPP 2016 specified two modes of capital acquisition: (i) buy, and (ii) buy and make. The DAP has introduced 'leasing' as a new mode of acquisition. Leasing substitutes initial capital outlays with periodical rental payments. It is preferred in situations where: (i) procurement is not feasible due to time constraint, or (ii) the asset is required only for a specific time. 'Make' refers to manufacturing portion of the contract. Other key features of the DAP are discussed below.

Increase in indigenous content

Table 9 shows the categories of capital acquisition in the DPP 2016 and DAP for the Buy, and Buy and Make modes. The DAP has enhanced the indigenous content (IC) requirement in various categories of procurement. IC is the percent of cost of indigenous content in base contract cost.

Categories of acquisition provided in DAP are: (i) Buy (Indian-IDDM) refers to the procurement of products from an Indian vendor that have been indigenously designed, developed and manufactured; (ii) Buy (Indian) refers to the procurement of products from an Indian vendor; (iii) Buy and Make (Indian) refers to an initial procurement of equipment from an Indian vendor in a tie-up with a foreign vendor, followed by indigenous production involving transfer of technology; (iv) Buy (Global-Manufacture in India) refers to a purchase from a foreign vendor where the 50% IC value can be achieved in 'Make' through an Indian subsidiary of the vendor; and (v) Buy (Global) refers to outright purchase of equipment from foreign or Indian vendors.

Table 9: Indigenous content requirement for different categories of acquisition

Category	DPP-2016	DAP-2020
Buy (Indian-IDDM)	40% or more	50% or more
Buy (Indian)	40% or more	50% or more (for indigenous design)
Buy and Make (Indian)	50% or more of 'Make' part	50% or more of 'Make' part
Buy and Make	Not specified	Category not present
Buy (Global-Manufacture in India)	Category not present	50% or more
Buy (Global)	Not specified	30% or more (for Indian vendor)

Note: Buy and Make category refers to an initial procurement of equipment from a foreign vendor, followed by transfer of technology.
Sources: DPP-2016, DAP-2020; PRS.

Procurement from DRDO, DPSUs

The DAP adds a separate mechanism for acquisition of systems designed by the Defence Research and Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs), and Ordnance Factory Boards (OFBs). Based on operational requirements, the procuring agency will identify equipment which can be designed and developed by DRDO, DPSUs, or OFBs. Such cases would then be categorised under Buy (Indian-IDDM) for subsequent procurement. This is expected to enhance domestic development capabilities.

Changes to acquisition procedure

The acquisition process starts with a request for information and formulation of requirements before the project is cleared. Thereafter, contractors submit bids which are evaluated and field tested (trials) before the contract is awarded. The DAP seeks to: (i) formulate service quality requirements using verifiable parameters, in a standardised format, and (ii) provide for single stage clearance for acquisitions of up to Rs 500 crore. The DAP will also rationalise trial and testing procedures to ensure transparency and avoid duplication of trials.

Project Management Unit

A Project Management Unit (PMU) has been mandated to support contract management. It was announced as part of the Aatmanirbhar Bharat reforms.[22] The PMU will facilitate provision of consultancy support during the acquisition process. This is expected to ensure a time bound procurement process and enable faster decision making.

Increase in FDI limit

In September 2020, the limit for foreign direct investment under the automatic route was increased from 49% to 74%.[23] FDI beyond 74% is permitted with government approval which may be given where FDI is likely to result in access to modern technology.[24] Domestic companies can benefit from enhanced access to capital and state of the art technology. This change was announced as part of the Aatmanirbhar Bharat Abhiyaan.[22]

---

[11] "40th Report: Demands for Grants (2018-19) General Defence Budget, Border Roads Organisation, Indian Coast Guard, Military Engineer Services, Directorate General Defence Estates, Defence Public Sector Undertakings, Welfare of Ex-Servicemen, Defence Pensions, Ex-Servicemen Contributory Health Scheme", Standing Committee on Defence, Lok Sabha, March 12, 2018, http://164.100.47.193/lsscommittee/Defence/16_Defence_40.pdf

[2] "SIPRI Military Expenditure Database", Stockholm International Peace Research Institute, https://www.sipri.org/sites/default/files/Data%20for%20all%20countries%20from%201988%E2%80%932018%20as%20a%20share%20of%20GDP%20%28pdf%29.pdf.

[3] "Five years of historic decision to implement OROP", Press Information Bureau, Ministry of Defence, November 6, 2020.

[4] "1st Report: Demands for Grants (2019-20) General Defence Budget, Border Roads Organisation, Indian Coast Guard, Military Engineer Services, Directorate General Defence Estates, Defence Public Sector Undertakings, Welfare of Ex-Servicemen, Defence Pensions, Ex-Servicemen Contributory Health Scheme", Standing Committee on Defence, December 2019, http://164.100.47.193/lsscommittee/Defence/17_Defence_1.pdf.

[5] "46th Report: Demands for Grants (2018-19) General Defence Budget, Border Roads Organisation, Indian Coast Guard, Military Engineer Services, Directorate General Defence Estates, Defence Public Sector Undertakings, Welfare of Ex-Servicemen, Defence Pensions, Ex-Servicemen Contributory Health Scheme", Standing Committee on Defence, January 2019, http://164.100.47.193/lsscommittee/Defence/16_Defence_46.pdf

[6] 3rd Report, Capital Outlay on Defence Services, Procurement Policy and Defence Planning, Standing Committee on Defence, December 2019, http://164.100.47.193/lsscommittee/Defence/17_Defence_3.pdf.

[7] Notification S.O. 2691(E), Ministry of Finance, July 29, 2019, http://finance.cg.gov.in/15%20Finance%20Commission/GoI%20Notification/29-07-2019.pdf.

[8] Chapter 11, Report of the 15th Finance Commission for 2021-26, https://fincomindia.nic.in/WriteReadData/html_en_files/fincom15/Reports/XVFC%20VOL%20I%20Main%20Report.pdf.

[9] "32nd Report: Creation of Non-Lapsable Capital Fund Account, Instead of the Present System", Standing Committee on Defence, Lok Sabha, August 4, 2017, http://164.100.47.193/lsscommittee/Defence/16_Defence_32.pdf

[10] "48th Report: Action Taken by the Government on the Observations/Recommendations contained in the Fortieth Report (16th Lok Sabha) on 'Demands for Grants of the year 2018-19 on Capital Outlay on Defence Services, Procurement Policy and Defence Planning", Standing Committee on Defence, Lok Sabha, January 7, 2019, http://164.100.47.193/lsscommittee/Defence/16_Defence_48.pdf

[11] 7th Report, Capital Outlay on Defence Services, Procurement Policy and Defence Planning, Standing Committee on Defence, March 2020, http://164.100.47.193/lsscommittee/Defence/17_Defence_7.pdf.

[12] "41st Report: Demands for Grants (2018-19) Army, Navy, Air Force", Standing Committee on Defence, March 12, 2018, http://164.100.47.193/lsscommittee/Defence/16_Defence_41.pdf

[13] "Report No. 3 of 2019: Performance Audit Report of the Comptroller and Auditor General of Indian on Capital Acquisition in Indian Air Force", Comptroller and Auditor General, February 13, 2019.

[14] "29th Report: Preparedness of Armed Forces- Defence Production and Procurement", Committee on Estimates, July 25, 2018, http://164.100.47.193/lsscommittee/Estimates/16_Estimates_29.pdf.

[15] Defence Procurement Procedure 2016, Ministry of Defence, March 28, 2016, https://mod.gov.in/dod/sites/default/files/Updatedver230818.pdf

[16] Defence Acquisition Policy, 2020, Ministry of Finance, September 28, 2020, https://www.mod.gov.in/dod/sites/default/files/DAP2030new.pdf.

[17] "Raksha Mantri Shri Rajnath Singh approves a Committee to review Defence Procurement Procedure to strengthen 'Make in India'", Press Information Bureau, Ministry of Defence, August 17, 2019.

[18] "Committee of Experts for Amendments to DPP 2013 Including Formulation of Policy Framework", Ministry of Defence, July 2015, https://mod.gov.in/sites/default/files/Reportddp.pdf.

[19] SIPRI Yearbook 2020, Armaments, Disarmament and International Security, https://www.sipri.org/sites/default/files/2020-06/yb20_summary_en_v2.pdf.

[20] "MoD's big push to Atmanirbhar Bharat initiative; Import embargo on 101 items beyond given timelines to boost indigenisation of defence production", Press Information Bureau, Ministry of Defence, August 9, 2020.

[21] Draft Defence Production and Export Promotion Policy (DPEPP), 2020, https://www.makeinindiadefence.gov.in/admin/webroot/writereaddata/upload/recentactivity/Draft_DPEPP_03.08.2020.pdf.

[22] "Presentation of details of 4th Tranche announced by Union Finance & Corporate Affairs Minister Smt. Nirmala Sitharaman under Aatmanirbhar Bharat Abhiyaan to support Indian economy in fight against COVID-19", May 16, 2020, https://static.pib.gov.in/WriteReadData/userfiles/AatmaNirbhar%20Bharat%20Full%20Presentation%20Part%204%2016-5-2020.pdf.

[23] Press Note No. 4 (2020 Series), Ministry of Commerce and Industry, https://dipp.gov.in/sites/default/files/pn4-2020_0.PDF.

[24] "FDI in Defence Sector", Press Information Bureau, Ministry of Defence, September 14, 2020.

Demand for Grants: Food and Public Distribution

The Ministry of Consumer Affairs, Food and Public Distribution has two Departments: (i) Food and Public Distribution, and (ii) Consumer Affairs. Allocation to the Ministry accounts for 7% of the budget of the central government in 2021-22.[1]

Department of Consumer Affairs is responsible for spreading awareness among consumers about their rights, protecting their interests, implementing standards, and preventing black marketing.[2] In 2021-22, the Department has been allocated Rs 2,974 crore, a 24% annual increase over 2019-20.[3]

Department of Food and Public Distribution is responsible for ensuring food security through procurement, storage, and distribution of foodgrains, and for regulating the sugar sector.[4] In 2021-22, the Department has been allocated Rs 2,42,836 crore (99% of the Ministry's allocation).[5] This is an annual increase of 48% over 2019-20 expenditure.

Table 1: Allocation to the Ministry (in Rs crore)

Department	2019-20 Actuals	2020-21 Revised	2021-22 Budgeted	% change (annualised) in 2021-22 over 2019-20
Food & Public Distribution	1,15,173	4,38,649	2,53,974	48%
Consumer Affairs	1,923	12,038	2,974	24%
Total	**1,17,096**	**4,50,687**	**2,56,948**	**48%**

Sources: Expenditure Budget, Union Budget 2021-22; PRS.

This note examines the allocation to the Department of Food and Public Distribution. It also discusses the broad issues in the sector and key observations and recommendations made in this regard.

Overview of Finances

Food subsidy is the largest expenditure by the Department of Food and Public Distribution. 96% of the Department's allocation in 2021-22 is towards food subsidy (see Table 10 in the Annexure for more details). The subsidy is provided to the Food Corporation of India (FCI) and states for procuring foodgrains from farmers at government notified prices and selling them at lower subsidised prices (known as Central Issue Prices), under the National Food Security Act, 2013. The Act mandates coverage of 75% of the population in rural areas and 50% in urban areas, and covers 81 crore persons.[6,7]

The subsidy also covers the storage cost incurred by FCI in maintaining buffer stocks in order to ensure food security in the country. Table 2 shows the expenditure on food subsidy during 2011-21.

Table 2: Expenditure on food subsidy (Rs crore)

Year	Allocation	Expenditure	% utilisation
2011-12	60,573	72,822	120%
2012-13	75,000	85,000	113%
2013-14	90,000	92,000	102%
2014-15	1,15,000	1,17,671	102%
2015-16	1,24,419	1,39,419	112%
2016-17	1,34,835	1,10,173	82%
2017-18	1,45,339	1,00,282	69%
2018-19	1,69,323	1,01,327	60%
2019-20	1,84,220	1,08,688	59%
2020-21	1,15,570	4,22,618#	366%
2021-22	2,42,836*	-	-

Note: *Budget estimate; #Revised estimate.
Sources: Expenditure Budget, Union Budgets (2011-21); PRS.

The Department was allocated Rs 1,84,220 crore for food subsidy in 2019-20. However, only 59% of the allocation was utilised as the food subsidy provided to FCI decreased from Rs 1,51,000 crore (budget estimate) to Rs 75,000 crore. As directed by the Ministry of Finance, the Department deferred the payment of food subsidy due to FCI, resulting in an underspending of Rs 76,000 crore.[8] Due to such deferment, more so since 2016-17, the food subsidy paid to FCI has been much lower than the amount allocated in the budget for this purpose. As a result, the food subsidy payment due to FCI increased over the years, from Rs 50,037 crore at the end of 2015-16 to Rs 2,43,779 crore at the end of 2019-20.[9]

In the meanwhile, the government provided loans to FCI from the National Small Savings Fund (NSSF) to meet its operational requirements. NSSF loans worth Rs 2,54,600 crore were outstanding with FCI at the end of 2019-20.[10] In her 2021-22 budget speech, the Finance Minister announced that the government will discontinue the NSSF loans given to FCI and accordingly make budget provisions in 2020-21 and 2021-22.[11] It estimates the NSSF loans outstanding with FCI to reduce to Rs 63,712 crore by the end of 2021-22.[12] Thus, the government has significantly increased the allocation for food subsidy to FCI to clear its dues, which in turn will be used by FCI to repay the NSSF loans. In 2020-21, the allocation has increased from Rs 77,983 crore (budget estimate) to Rs 3,44,077 crore (revised estimate). In 2021-22, Rs 2,02,616 crore has been allocated, a 64% annual increase over 2019-20.

Note that the increase seen in allocation in 2020-21 is also on account of the additional expenditure incurred by FCI in providing free foodgrains to poor under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY).[13] The scheme was announced in March 2020 as a part of the COVID-19 relief package for the poor. Under the scheme, five kg of wheat or rice and one kg of pulses were provided for free every month to persons from poor families during the period April-November 2020. All beneficiaries under the National Food Security Act, 2013 were eligible for these benefits in addition to their existing foodgrain entitlements.

The cost of providing free foodgrains under the scheme PMGKAY was borne by the Department in 2020, which is estimated to be nearly Rs 1,34,030 crore.[14] This expenditure was in the form of: (i) food subsidy to FCI, (ii) food subsidy to states, and (iii) assistance to states for intra-state movement of foodgrains and margin of fair price shop dealers.

In May 2020, the government extended the benefits provided under PMGKAY to migrants (who were not eligible for the benefits otherwise) for a period of two months in 2020 under the Aatmanirbhar Bharat Economic Package.[15] This scheme's cost for the Department is estimated to be Rs 989 crore.[16]

Components of food subsidy

Expenditure on food subsidy can be classified under the following three heads (break-up in Table 3):

- **Subsidy to FCI:** The Food Corporation of India (FCI) receives subsidy for procuring foodgrains from farmers at government notified prices and selling them at lower subsidised prices. It also receives subsidy for the storage cost incurred in maintaining buffer stocks.
- **Subsidy to states:** Under the decentralised procurement scheme, states may choose to undertake the operations of procurement, storage, and distribution on behalf of FCI, for which they are provided with subsidy.
- **Sugar subsidy:** Sugar subsidy is provided for giving one kg of sugar per month at subsidised rates to families covered under the Antyodaya Anna Yojana (i.e., poorest of the poor families).

In 2021-22, subsidy to FCI and states form 83% and 16% of the allocation for food subsidy, respectively.

Table 3: Break-up of food subsidy (in Rs crore)

Subsidy	2019-20 Actuals	2020-21 Revised	2021-22 Budgeted	% change (annualised) in 2021-22 over 2019-20
Subsidy to FCI	75,000	3,44,077	2,02,616	64%
Subsidy to states (decentralised procurement)	33,508	78,338	40,000	9%
Sugar subsidy	180	203	220	11%
Total	**1,08,688**	**4,22,618**	**2,42,836**	**49%**

Sources: Expenditure Budget, Union Budget 2021-22; PRS.

Issues in the Sector

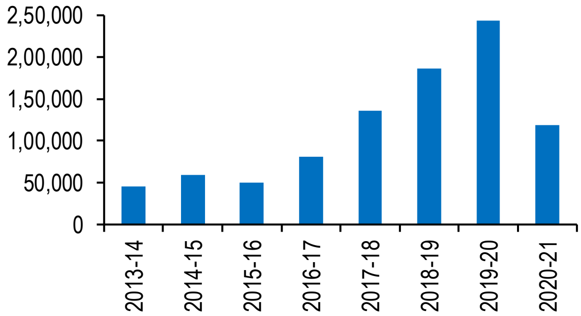
FCI and state agencies procure foodgrains from farmers at the government notified Minimum Support Prices (MSPs). These foodgrains are provided to the economically weaker sections at subsidised prices through fair price shops under the Public Distribution System (PDS). The central and state governments provide subsidised foodgrains to beneficiaries under the National Food Security Act, 2013 as well as certain other welfare schemes such as the Mid-Day Meal scheme. In this section, we examine some issues relating to the: (i) pending dues of FCI, (ii) provision of food subsidy, (iii) PDS, and (iv) sugarcane dues to farmers.

Pending dues of FCI

The central government provides food subsidy to FCI as reimbursement of the loss it incurs in its procurement, storage, and distribution operations. During the period 2016-20, although the Department used to receive sufficient allocation for payment to FCI, due to budget cuts made during the year, the actual amount paid to FCI was much lower. The CAG (2019) observed that when the food subsidy budget is not sufficient to clear FCI's dues, such dues are carried over to the next year.[17] Due to such carryovers every year, payment due to FCI for food subsidy increased from Rs 50,037 crore at the end of 2015-16 to Rs 2.44 lakh crore at the end of 2019-20.

In 2020-21, the allocation for food subsidy to FCI has been increased by 359% over 2019-20 to Rs 3.44 lakh crore (revised estimate). In comparison, the subsidy cost incurred by FCI in 2020-21 has also increased significantly due to the additional benefits provided under the COVID-19 relief packages. The cost incurred by FCI in 2020-21 is estimated to be Rs 2.19 lakh crore, 65% higher over 2019-20. Thus, there is a surplus allocation of Rs 1.25 lakh crore in 2020-21 for clearing the dues of FCI. This would reduce FCI's outstanding dues from Rs 2.44 lakh crore to Rs 1.19 lakh crore by the end of 2020-21.

Figure 1: Food subsidy dues of FCI outstanding at the end of the year during 2013-21 (Rs crore)



Sources: Food Corporation of India; PRS.

In 2021-22, Rs 2.03 lakh crore has been allocated for food subsidy to FCI. Assuming that the subsidy cost incurred by FCI in 2021-22 is the same as that in 2019-20 (Rs 1.33 lakh crore), this allocation would further reduce the outstanding subsidy dues of FCI to Rs 48,703 crore by the end of 2021-22.

Due to the delay in clearing dues by the Department, FCI borrows money for its operational requirements. When FCI uses such borrowings to fill the resource gap, the Department has to provide additional funds in subsequent years for payment of interest on these borrowings. The CAG observed that the central government has adopted this off-budget method of financing the subsidy dues, thereby deferring the payment to FCI.[17] This understates a particular fiscal year's expenditure by keeping deferred expenditure off-budget for that year, and prevents transparent depiction of fiscal indicators. For instance, if the central government had cleared all the subsidy dues of FCI in the year 2019-20 itself, its fiscal deficit (borrowings) for 2019-20 would have increased from 4.6% of GDP to 5.8% of GDP.

Provision of food subsidy

The Targeted Public Distribution System (TPDS), through which foodgrains are distributed at subsidised prices, seeks to provide food security to people below the poverty line. Over the years, the spending on food subsidy has increased and the ratio of people below the poverty line has decreased from 54.9% in 1973-74 to 21.9% in 2011-12 (Table 4).

Table 4: Poverty ratio and no. of poor persons

Year	Poverty ratio (in %)	No. of Poor (in crore)
1973-74	54.9%	32.1
1977-78	51.3%	32.9
1983-84	44.5%	32.3
1987-88	38.9%	30.7
1993-94	36.0%	32.0
2004-05	27.5%	30.2
2011-12	21.9%	26.9

Note: Figures from 1973-74 to 2004-05 have been computed using the Lakdawala methodology, and figures for 2011-12 have been computed using the Tendulkar methodology.
Sources: Planning Commission; PRS.

The proportion of undernourished persons reduced from 18.6% in 2000-02 to 14% in 2017-19 (Table 5). However, due to population growth, the number of undernourished persons has not reduced much (from 20 crore in 2000-02 to 18.9 crore in 2017-19).

Table 5: Undernourishment in India (2000-2019)

Year	Proportion of population undernourished (in %)	Number of undernourished persons (in crore)
2000-02	18.6%	20.0
2003-05	22.2%	25.1
2008-10	16.4%	20.0
2013-15	15.3%	19.8
2017-19	14%	18.9

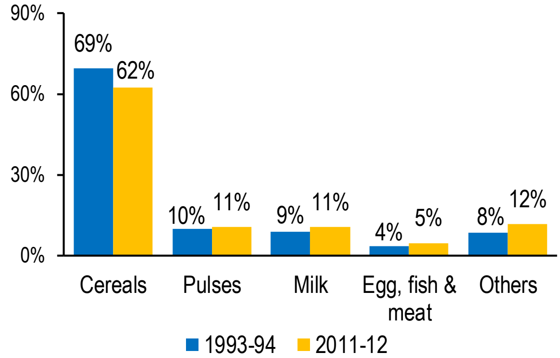
Sources: Food and Agriculture Organisation, 2020; PRS.

Nutritional balance: The National Food Security Act, 2013 guarantees five kg of foodgrains per person per month to entitled beneficiaries at subsidised prices. Further, Antyodaya Anna Yojana households, which constitute the poorest of the poor, are entitled to 35 kg per household per month at subsidised prices. Presently, the food items provided by the central government for distribution under PDS are mainly rice, wheat, and sugar.[18]

As shown in Figure 2 and Figure 3, there has been a change in the pattern of nutritional intake among people in both rural and urban areas (details given in Table 6 and Table 7 in the Annexure).

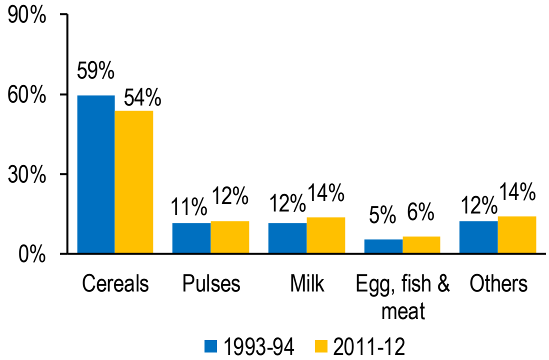
Although cereals or foodgrains contain only 10% protein, their share as a percentage of the total protein intake has been over 50% in both rural and urban areas.[19] However, other food items such as meat and pulses contain more than 20% protein but contribute to only 15% of the total protein intake.

Figure 2: Protein intake (%) in rural areas



Sources: Nutritional Intake in India (2011-12), NSSO; PRS.

Figure 3: Protein intake (%) in urban areas



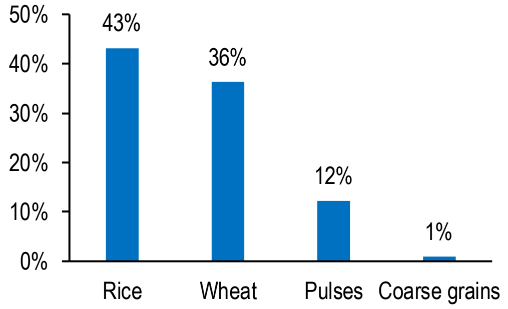
Sources: Nutritional Intake in India (2011-12), NSSO; PRS.

The share of cereals in calorie intake has reduced by 10% in rural areas and 7% in urban areas, whereas that of milk, eggs, fish, and meat has increased (see Table 12 in the Annexure). This indicates a reduced preference for rice and wheat, and an increase in preference towards other protein-rich food items. The National Food Security Act, 2013 requires the central and state governments to undertake steps to diversify commodities distributed under PDS.[20]

Imbalance in farm production: MSP is the assured price announced by the central government at which foodgrains are procured from farmers by the central and state governments and their agencies, for the central pool of foodgrains. The central pool is used for providing foodgrains under PDS and other welfare schemes, and also kept as reserve in the form of buffer stock. While MSPs are annually announced for 23 crops, public procurement is limited to a few crops such as paddy (rice), wheat, and, to a limited extent, pulses (Figure 4).

The Economic Survey 2019-20 observed that the regular increase in MSP is seen by farmers as a signal to opt for crops which have an assured procurement system (for example, rice and wheat).[21] Thus, MSP incentivises farmers to grow crops which are procured by the government. As wheat and rice are major foodgrains provided under the PDS, the focus of procurement is on these crops. This skews the production of crops in favour of wheat and paddy (particularly in states where procurement levels are high), and does not offer an incentive for farmers to produce other items such as pulses.[22] Further, this puts pressure on the water table as these crops are water-intensive (also applicable to sugarcane which has assured purchase by private sugar mills).[23] Note that the National Food Security Act, 2013 requires the central and state governments to undertake steps to diversify commodities distributed under PDS.

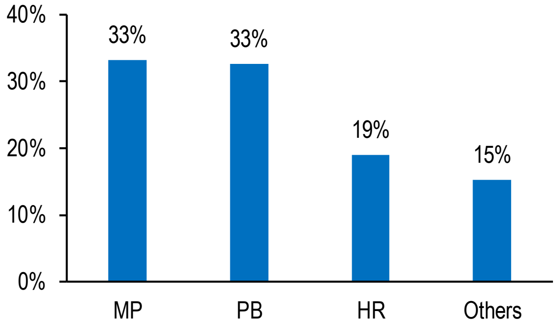
Figure 4: Percentage of crop production procured at MSP in crop year 2019-20



Sources: Unstarred Question No. 331, Lok Sabha, September 15, 2020; PRS.

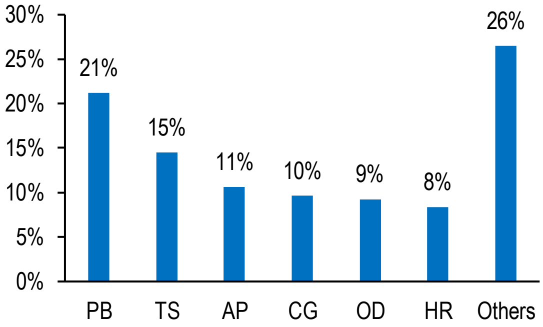
The procurement of foodgrains is largely concentrated in a few states. Three states (Madhya Pradesh, Punjab, and Haryana) producing 46% of the wheat in the country account for 85% of its procurement. Six states (Punjab, Telangana, Andhra Pradesh, Chhattisgarh, Odisha, and Haryana) with 40% of the production of rice have 74% share in procurement. The National Food Security Act, 2013 requires the central, state, and local governments to strive to progressively realise certain objectives for advancing food and nutritional security. One of these objectives involves geographical diversification of the procurement operations.

Figure 5: 85% wheat procurement is from three states (2019-20)



Sources: Department of Food and Public Distribution; PRS.

Figure 6: 76% of the rice procured comes from six states (2019-20)



Sources: Department of Food and Public Distribution; PRS.

As procurement of wheat and paddy is done at MSP (which is often above market prices), their stocks have grown over the years. At the end of 2019-20, the stock of these foodgrains was 19% more than the offtake in that year (see Table 10 in the Annexure).

Revision of central issue price (CIP)

Under the National Food Security Act, 2013, food subsidy is given to beneficiaries at the CIP, which was last revised in 2002. Table 13 shows the CIP for wheat and rice for various beneficiaries.

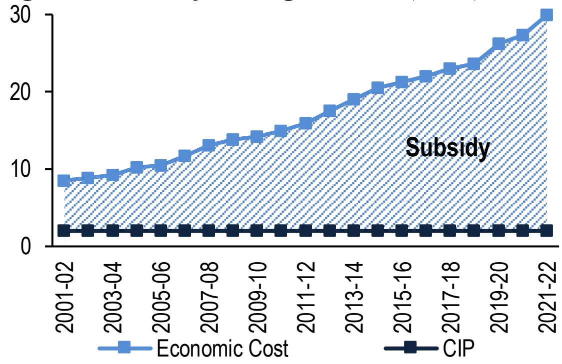
Table 6: Central Issue Price (Rs per kg)

Foodgrain	AAY	BPL	APL
Rice	3.00	5.65	7.95
Wheat	2.00	4.15	6.10

Note: AAY – Antyodaya Anna Yojana, BPL – Below Poverty Line, APL – Above Poverty Line.
Sources: Department of Food and Public Distribution; PRS.

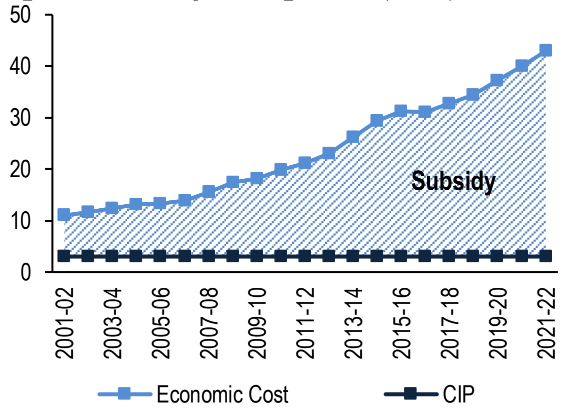
In comparison to the CIP, the economic cost (including procurement, stocking, distribution) for wheat is Rs 30 per kg and for rice is Rs 43 per kg as of February 2021.[9] Food subsidy is calculated as the difference between the economic cost of procuring foodgrains, and their CIP. While the economic cost for rice has increased from Rs 11 per kg in 2001-02 to Rs 43 per kg in 2021-22 (Figure 7), and of wheat from Rs 9 per kg to Rs 30 per kg over the same period (Figure 8), their CIPs have not been revised. This has led to an increasing gap between the economic cost and CIP, leading to an increase in expenditure on food subsidy.

Figure 7: Subsidy on a kg of wheat (in Rs)



Sources: Food Corporation of India; PRS.

Figure 8: Subsidy on a kg of rice (in Rs)



Sources: Food Corporation of India; PRS.

The Standing Committee on Food, Consumer Affairs and Public Distribution (2016-17) noted that the reasons for increase in food subsidy include: (i) increase in the procurement cost of foodgrains, (ii) non-revision of the Central Issue Prices since 2002, and (iii) implementation of the National Food Security Act, 2013 in all states.[24] In 2018-19, the Ministry had stated that increasing the CIP could be one of the measures to bridge the gap between the funds it requires, and the funds it is finally allocated.

Delivery of food subsidy

Leakages in PDS: Leakages refer to foodgrains not reaching the intended beneficiaries. Note that recent data on leakage is not publicly available. The latest available data is for 2011. According to the 2011 data, leakages in PDS were estimated to be 46.7% (see Table 12 in the Annexure).[25,26]

Leakages may be of three types: (i) pilferage or damage during transportation of foodgrains, (ii) diversion to non-beneficiaries at fair price shops through issue of ghost cards, and (iii) exclusion of people entitled to foodgrains but who are not on the beneficiary list.[27,28] Studies have shown that targeting mechanisms such as TPDS are prone to large exclusion and inclusion errors.[29]

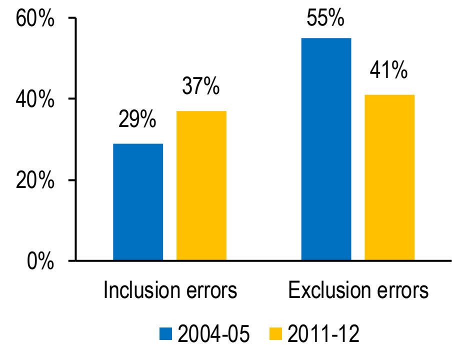
Exclusion errors occur when entitled beneficiaries do not get foodgrains. It refers to the percentage of poor households that are entitled to but do not have PDS cards. Exclusion errors had declined from 55% in 2004-05 to 41% in 2011-12 (Figure 9).

Inclusion errors occur when those that are ineligible get undue benefits. Inclusion errors had increased from 29% in 2004-05 to 37% in 2011-12.

Declining exclusion errors and increasing inclusion errors are due to two reasons. First, increase in the coverage of TPDS has reduced the proportion of poor who do not have access to PDS cards. Second, despite a decline in poverty rate, non-poor are still identified as poor by the government thus allowing them to continue using their PDS cards.[30]

Note that under the National Food Security Act, 2013, states are responsible for the identification of beneficiaries. In 2016, the Comptroller and Auditor General of India (CAG) found that this process had not been completed by the states, and 49% of the beneficiaries were yet to be identified by states.[31]

Figure 9: Inclusion and exclusion errors (%)



Sources: Evaluation study on the role of PDS in shaping households and nutritional security in India, NITI Aayog, December 2016; PRS.

Alternative subsidy systems: Over the years, several solutions have been suggested to plug leakages, including: (i) Direct Benefit Transfer (DBT) in lieu of food subsidy, and (ii) end-to-end computerisation of the PDS operations.[25]

The National Food Security Act, 2013 requires the central and state governments to progressively reform TPDS by taking various measures, including introduction of schemes such as cash transfer or food coupon.[20] Various experts and bodies have also suggested replacing TPDS with a DBT system.[32,33] Advantages and disadvantages of these two methods of delivering benefits have been discussed below.

- **TPDS:** TPDS assures beneficiaries that they would receive foodgrains, and insulates them against inflation and price volatility. Further, foodgrains are delivered through fair price shops in villages, which are easy to access.[34,35]

However, high leakages have been witnessed in the system, both during transportation and distribution. These include pilferage and errors of inclusion and exclusion from the beneficiary list. In addition, it has also been argued that the distribution of only wheat and rice may cause an imbalance in the nutritional intake of beneficiaries.[20] Beneficiaries have also reported receiving poor quality foodgrains under TPDS.

- **DBT:** DBT or cash transfers seek to increase the choices available with a beneficiary, and provide direct financial assistance. It has been argued that the costs of DBT may be lesser than TPDS, owing to lesser costs incurred on transportation and storage of foodgrains.[36,37]

  On the other hand, it has been argued that the cash received through DBT may be spent on non-food items. Further, such a system may expose beneficiaries to inflation. In this regard, one may need to consider the low penetration and access to banking in rural areas.[38]

In 2015, the Department released two notifications: the Cash Transfer of Food Subsidy Rules and the Food Security (Assistance to State Governments) Rules.[39,40] As per these notifications, the central government offers two choices to states and union territories for reforming their respective PDS machinery: (i) replacing the existing TPDS with a DBT system, or (ii) Fair Price Shop automation, which involves installation of Point of Sale devices, for authentication of the beneficiaries and electronic capturing of transactions. As of January 2021, the DBT system is under implementation in the union territories of Chandigarh and Puducherry.[41]

As of February 2021, 4.94 lakh (91%) Fair Price Shops have been automated across the country.[42] Details regarding the status of computerisation of PDS are given in Table 14 in the Annexure.

Table 7: Illustration: subsidy given on rice (2015)

1. CIP	Rs 3 per kg
2. MSP	Rs 20 per kg
3. Subsidy (3=2-1)	Rs 17 per kg
4. Cost to government (Subsidy + Costs on procurement, storage, and distribution)	Rs 27 per kg
5. Cash subsidy to beneficiaries	Rs 22 per kg
6. Government saving (6=4-5)	Rs 5 per kg
7. Increase in beneficiary benefit (7=5-3)	Rs 5 per kg

Sources: High-Level Committee Report on Restructuring of FCI, January 2015; PRS.

The High-Level Committee on Restructuring of FCI (2015) had suggested that switching to DBT for food subsidy would reduce the food subsidy bill of the government by more than Rs 30,000 crore.[25] While making this recommendation, the Committee illustrated this by taking the case of subsidy given on rice (Table 8). It assumed that the government would transfer Rs 22 for per kg rice to a beneficiary.

Aadhaar: The High-Level Committee (2015) had also recommended the introduction of biometric authentication and Aadhaar to plug leakages in PDS. Such transfers could be linked to Jan Dhan account, and be indexed to inflation.[25] As of February 2021, 128.3 crore Aadhaar cards have been generated.[43]

In February 2017, the Ministry made it mandatory for beneficiaries under the National Food Security Act, 2013 to use Aadhaar as proof of identification for receiving foodgrains (deadline for linking Aadhaar with ration cards extended to March 31, 2021).[44,45] This aims to facilitate the removal of bogus ration cards, check leakages, and ensure better delivery of foodgrains.[25,46,47]

Note that beneficiaries may face issues with Aadhaar authentication while availing PDS benefits. According to the data submitted by UIDAI to the Supreme Court in *Justice K. S. Puttaswamy vs Union of India*, the Aadhaar authentication failure rate (across all purposes) was 8.5% for iris scans and 6% for fingerprints.[48] In its judgement, the Court held that services cannot be denied to beneficiaries due to Aadhaar authentication failure.

As of March 2020, while 100% ration cards had been digitised, the seeding of these cards with Aadhaar was at 90%.[49] As of February 12, 2021, more than 70% of the transactions on Point of Sale devices are done using biometric authentication.[42] Further, between 2013 and 2020, nearly 4.4 crore ration cards were deleted due to detection of bogus, ghost, and duplicate cards during Aadhaar seeding.[42]

Current challenges in PDS

Storage: The Department allocates funds for the construction of godowns and silos to increase the storage capacity of FCI and state agencies. In 2021-22, Rs 60 crore has been allocated for this purpose, whereas this was Rs 63 crore in 2019-20 and Rs 44 crore in 2020-21 (revised estimate).

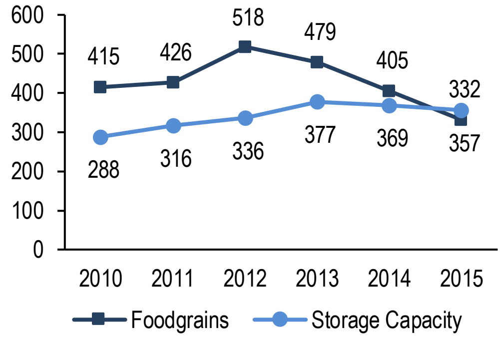
As of December 31, 2020, the total storage capacity in the country was 819 lakh tonnes, against 530 lakh tonnes of foodgrain stock.[50] Of the total capacity, 699 lakh tonnes was covered storage and 150 lakh tonnes (18%) was CAP (cover and plinth) storage.

In 2021-22, out of the Rs 60 crore allocation for creation of storage capacity, Rs 45 crore has been allocated for the north-eastern region. The Standing Committee on Food, Consumer Affairs and Public Distribution (2020) noted that FCI could not achieve the targets set for construction of godowns in 2019-20.[49] In the north-eastern region, against the target of 25,000 tonnes of storage, only 10% of the target was achieved. In other states, no new godown was constructed, whereas the target was 2,240 tonnes.

The Committee observed that FCI faces various issues in construction of godowns in the north-eastern region such as difficult terrain, frequent bandhs, and difficulty in acquisition of land. The Committee recommended that the Department should coordinate with the state governments to resolve these issues. It further recommended that a roadmap should be chalked out by the government for creating mini-godowns across the country.

In 2016, the CAG observed that, until 2014, the foodgrain stock in the central pool was higher than the FCI's storage capacity (Figure 2).[31] It noted that in 2015, the foodgrain stock in the central pool became lower than the storage capacity due to an increase in decentralised procurement by states.

Figure 2: Stock and capacity of FCI (in lakh tonnes)



Sources: CAG; PRS.

Under the decentralised procurement system, the state governments and their agencies undertake procurement, storage, and distribution of foodgrains on behalf of FCI. The expenditure incurred by them is reimbursed by the central government in the form of food subsidy. The Standing Committee (2020) observed that the decentralised procurement system reduces FCI's handling and transportation cost and increases the efficiency of procurement.[49] As of March 2020, 17 states had adopted the decentralised procurement system. The Committee recommended that more states should be encouraged to adopt the decentralised procurement system.[49] FCI should create necessary infrastructure for procurement of foodgrains in coordination with state governments.

Fair Price Shops: Fair Price Shops are licensed ration shops which provide foodgrains and kerosene under the public distribution system. They may also sell certain other goods in some states. It has been observed by various experts and the Ministry that the margins on which the Fair Price Shops operate are low.[51] Further, in the absence of economic viability, there may be cases where the dealer resorts to unfair practices. In order to make these shops viable, some states have taken steps such as:

- Chhattisgarh provided interest-free seed capital of Rs 75,000 to each fair price shop for 20 years. It also increased the commission on foodgrains from Rs 8/ quintal to Rs 30/ quintal.
- States such as Assam and Delhi have permitted the sale of non-PDS items at these fair price shops. Such items include oil, potatoes, onion, tea, and mobile recharge coupons.

Sugarcane dues

The Department is also responsible for formulation of policies and regulations for the sugar sector. In 2021-22, Rs 4,337 crore has been allocated for providing assistance to sugar mills through various measures, an annual increase of 10% over 2019-20 (Table 8). These measures include: (i) direct assistance to mills for clearing the sugarcane dues of farmers, (ii) reimbursing the mills for maintaining buffer stock, (iii) facilitating export of sugar, and (iv) improving their ethanol production capacity.

Table 8: Assistance to sugar mills (in Rs crore)

	2019-20 Actuals	2020-21 Revised	2021-22 Budgeted	% change (annualised) in 2021-22 over 2019-20
For facilitating export of sugar	551	350	2,000	91%
Direct assistance for clearing dues	2,155	5,073	1,200	-25%
For maintaining buffer stock	530	650	650	11%
For ethanol production	50	150	300	145%
Other measures	310	594	187	-22%
Total	**3,595**	**6,818**	**4,337**	**10%**

Sources: Expenditure Budget, Union Budget 2021-22; PRS.

The assistance is being provided with the aim of improving the liquidity of sugar mills in order to facilitate payment of sugarcane dues of farmers.[52,53] Note that as of January 31, 2021, payment of Rs 19,260 crore is pending with sugar mills as dues for 2019-20 and previous years.[54] State-wise details of the dues are given in Table 16 in the Annexure.

These sugarcane dues accumulate due to delay in payments to farmers for their produce. In years of surplus production, the sugar prices fall impacting the sale of sugar and liquidity of mills.[55] As a result, mills are unable to pay farmers leading to delay in payments and accumulation of dues. Note that sugar mills are obligated to purchase sugarcane from all farmers within their specified area at a price fixed by the government. Conversely, farmers are bound to sell to the respective mills.

Rationalisation of sugarcane pricing has been recommended as one of the steps for improving the efficiency of the sugar industry. The central government fixes the Fair and Remunerative Price (FRP) for sugarcane, which is the minimum price that must be paid by sugar mills to farmers.[56] The FRP is fixed based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). It is recommended taking into consideration: (i) the cost of production, (ii) rate of recovery of sugar, (iii) availability of sugar to consumers at a fair price, (iv) returns to farmers from alternative crops and the general trend of prices of agricultural commodities, (v) realisation from sale of by-products, and (vi) reasonable margins for farmers on account of risks and profits.

State governments can also intervene in sugarcane pricing by announcing a State Advised Price (SAP). SAPs are usually much higher than the FRP. This creates a distortion in the industry as SAP is neither linked to sugar recovery nor it takes into account domestic and global prices and other relevant parameters. As a result, when sugar prices are low, mill owners are unable to pay farmers resulting in delayed payment and accumulation of dues. The CACP (2018) recommended that the FRP must be implemented in all states and the announcement of SAP by states should be stopped immediately.[56] In case state governments decide to continue with SAP, the difference between SAP and FRP should be paid by the state governments directly to farmers.

[1] Ministry-wise Summary of Budget Provisions, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sumsbe.pdf.

[2] About DCA, Department of Consumer Affairs, https://consumeraffairs.nic.in/about-us/about-dca.

[3] Department of Consumer Affairs, Expenditure Budget, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe14.pdf.

[4] Introduction, Department of Food and Public Distribution, https://dfpd.gov.in/index.htm.

[5] Department of Food and Public Distribution, Expenditure Budget, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe15.pdf.

[6] The National Food Security Act, 2013, Ministry of Consumer Affairs, Food and Public Distribution, http://www.egazette.nic.in/WriteReadData/2013/E_29_2013_429.pdf.

[7] Lok Sabha Unstarred Question No. 1192, Ministry of Consumer Affairs, Food and Public Distribution, February 9, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU1192.pdf.

[8] Lok Sabha Unstarred Question No. 47, Ministry of Consumer Affairs, Food and Public Distribution, February 2, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU47.pdf.

[9] Subsidy Position of FCI, Food Corporation of India, as of February 13, 2021, https://fci.gov.in/finances.php?view=109.

[10] Statement of Extra Budgetary Resources, Expenditure Profile, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/stat27.pdf.

[11] Budget Speech, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

[12] National Small Savings Fund, Receipt Budget, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/rec/annex11.pdf.

[13] "Finance Minister announces Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona Virus", Press Information Bureau, Ministry of Finance, March 26, 2020.

[14] "Estimated cost for distribution of foodgrains and pulses under Pradhan Mantri Garib Kalyan Ann Yojana during April – November 2020 is around Rs 1,48,938 crore", Press Information Bureau, Ministry of Consumer Affairs, Food and Public Distribution, July 1, 2020.

[15] "Cabinet approves AtmaNirbhar Bharat Package for allocation of foodgrains to the migrants / stranded migrants", Press Information Bureau, Cabinet, May 20, 2020.

[16] Agriculture and Food Management, Chapter 7, Volume II, Economic Survey 2020-21, January 2021, https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap07_vol2.pdf.

[17] Report no. 20 of 2018: 'Compliance of the Fiscal Responsibility and Budget Management Act, 2003 for the year 2016-17', Comptroller and Auditor General of India, January 2019, https://www.cag.gov.in/sites/default/files/audit_report_files/Report_No_20_of_2018_Compliance_of_the_Fiscal_Responsibility_and_Budget_Management_Act_2003_Department_of_Economic_Affairs_Minis.pdf.

[18] Public Distribution System, Department of Food and Public Distribution, https://dfpd.gov.in/public-distribution.htm.

[19] "Nutritional Intake in India 2011-12, NSS 68th Round, National Sample Survey Office, Ministry of Statistics and Programme Implementation, October 2014, http://mospi.nic.in/sites/default/files/publication_reports/nss_report_560_19dec14.pdf.

[20] The National Food Security Act, 2013, Ministry of Consumer Affairs, Food and Public Distribution, http://www.egazette.nic.in/WriteReadData/2013/E_29_2013_429.pdf.

[21] Chapter 4, Volume I, Economic Survey 2019-20, January 2020, https://www.indiabudget.gov.in/budget2020-21/economicsurvey/doc/vol1chapter/echap04_vol1.pdf.

[22] Prices, Agriculture and Food Management, Chapter 5, Volume II, Economic Survey 2015-16, January 2016, http://unionbudget.nic.in/budget2016-2017/es2015-16/echapvol2-05.pdf.

[23] Agriculture and Food Management, Chapter 7, Volume II, Economic Survey 2018-19, January 2019, https://www.indiabudget.gov.in/budget2019-20/economicsurvey/doc/vol2chapter/echap07_vol2.pdf.

[24] Report no. 15, Standing Committee on Food, Consumer Affairs and Public Distribution: 'Demands for Grants (2017-18), Department of Food and Public Distribution', Lok Sabha, March 2017, http://164.100.47.193/lsscommittee/Food,%20Consumer%20Affairs%20&%20Public%20Distribution/16_Food_Consumer_Affairs_And_Public_Distribution_15.pdf.

[25] Report of the High Level Committee on Reorienting the Role and Restructuring of Food Corporation of India, January 2015, http://www.fci.gov.in/app2/webroot/upload/News/Report%20of%20the%20High%20Level%20Committee%20on%20Reorienting%20the%20Role%20and%20Restructuring%20of%20FCI_English_1.pdf.

[26] Third Report of the Standing Committee on Food, Consumer Affairs and Public Distribution: Demands for Grants 2015-16, Department of Food and Public Distribution, http://164.100.47.193/lsscommittee/Food,%20Consumer%20Affairs%20&%20Public%20Distribution/16_Food_Consumer_Affairs_And_Public_Distribution_3.pdf.

[27] The Case for Direct Cash Transfers to the Poor, Economic and Political Weekly, April 2008, http://www.epw.in/system/files/pdf/2008_43/15/The_Case_for_Direct_Cash_Transfers_to_the_Poor.pdf.

[28] Performance Evaluation of Targeted Public Distribution System, Planning Commission of India, March 2005, http://planningcommission.nic.in/reports/peoreport/peo/peo_tpds.pdf.

[29] Report of the Expert Group to advise the Ministry of Rural Development in the methodology for conducting the Below Poverty Line (BPL) Census for 11th Five Year Plan, August 2009, http://rural.nic.in/sites/downloads/circular/ReportofExpertGroupChaired-Dr.N.C.Saxena.pdf.

[30] Evaluation Study on the Role of Public Distribution System in shaping household and nutritional security in India, NITI Aayog, December 2016,

http://niti.gov.in/writereaddata/files/document_publication/Final%20PDS%20Report-new.pdf.

[31] Report no. 54 of 2015: 'Audit on the Preparedness for Implementation of National Food Security Act, 2013 for the year ended March, 2015', Comptroller and Auditor General of India, April 2016, https://cag.gov.in/uploads/download_audit_report/2016/Union_Civil_National_Food_Security_Report_54_of_2015.pdf.

[32] Prices, Agriculture and Food Management, Chapter 5, Volume I, Economic Survey 2015-16, January 2016, http://unionbudget.nic.in/budget2016-2017/es2015-16/echapvol2-05.pdf.

[33] Working Paper 294, "Leakages from Public Distribution System", January 2015, ICRIER, http://icrier.org/pdf/Working_Paper_294.pdf.

[34] Revival of the Public Distribution System: Evidence and Explanations, The Economic and Political Weekly, November 5, 2011, http://www.epw.in/system/files/pdf/2011_46/44-45/Revival_of_the_Public_Distribution_System_Evidence_and_Explanations.pdf.

[35] The Case for Direct Cash Transfers to the Poor, Economic and Political Weekly, April 2008, http://www.epw.in/system/files/pdf/2008_43/15/The_Case_for_Direct_Cash_Transfers_to_the_Poor.pdf.

[36] Revival of the Public Distribution System: Evidence and Explanations, The Economic and Political Weekly, November 5, 2011, http://www.epw.in/system/files/pdf/2011_46/44-45/Revival_of_the_Public_Distribution_System_Evidence_and_Explanations.pdf.

[37] The Case for Direct Cash Transfers to the Poor, Economic and Political Weekly, April 2008, http://www.epw.in/system/files/pdf/2008_43/15/The_Case_for_Direct_Cash_Transfers_to_the_Poor.pdf.

[38] Report of the Internal Working Group on Branch Authorisation Policy, Reserve Bank of India, September 2016, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/IWG99F12F147B6E4F8DBEE8CEBB8F09F103.PDF.

[39] The Cash Transfer of Food Subsidy Rules, 2015, Ministry of Consumer Affairs, Food and Public Distribution, September 3, 2015, http://dfpd.nic.in/writereaddata/Portal/News/32_1_cash.pdf.

[40] The Food Security (Assistance to States) Rules, 2015, Ministry of Consumer Affairs, Food and Public Distribution, August 17, 2015, http://dfpd.nic.in/fgAvAHcAcgBpAHQAZQByAGUAYQBkAGQAYQB0AGEALwBQAG8AcgB0AGEAbAAvAE0AYQBnAGEAegBpAG4AZQAvAEQAbwBjAHUAbQBlAG4AdAAvAA==/1_135_1_Food-Security.pdf.

[41] Foodgrain Bulletin, Department of Food and Public Distribution, January 2021, https://dfpd.gov.in/writereaddata/Portal/Magazine/FoodgrainBulletinforJanuary2021Bilingual.pdf.

[42] Rajya Sabha Unstarred Question No. 1358, Ministry of Consumer Affairs, Food and Public Distribution, February 12, 2021, https://pqars.nic.in/annex/253/AU1358.pdf.

[43] Aadhaar Dashboard, Unique Identification Authority of India, as of February 18, 2021, https://uidai.gov.in/aadhaar_dashboard/.

[44] S.O. 371 (E), Gazette of India, Ministry of Consumer Affairs, Food and Public Distribution, February 8, 2017, http://egazette.nic.in/WriteReadData/2017/174131.pdf.

[45] Rajya Sabha Unstarred Question No. 1370, Ministry of Consumer Affairs, Food and Public Distribution, February 12, 2021, https://pqars.nic.in/annex/253/AU1370.pdf.

[46] Lok Sabha Unstarred Question No. 844, Ministry of Consumer Affairs, Food and Public Distribution, February 7, 2017, http://164.100.47.190/loksabhaquestions/annex/11/AU844.pdf.

[47] "Envisioning a role for Aadhaar in the Public Distribution System", Unique Identification Authority of India, Planning Commission, June 2010, http://uidai.gov.in/UID_PDF/Working_Papers/Circulated_Aadhaar_PDS_Note.pdf.

[48] Justice K. S. Puttaswamy (Retd.) and Anr. vs Union of India and Ors., W. P. (C.) No. 494 of 2012.

[49] Report no. 3, Standing Committee on Food, Consumer Affairs and Public Distribution: 'Demand for Grants (2020-21), Department of Food and Public Distribution', Lok Sabha, March 2020, http://164.100.47.193/lsscommittee/Food,%20Consumer%20Affairs%20&%20Public%20Distribution/17_Food_Consumer_Affairs_And_Public_Distribution_3.pdf.

[50] Lok Sabha Unstarred Question No. 1343, Ministry of Consumer Affairs, Food and Public Distribution, February 9, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU1343.pdf.

[51] Newsletter of the Department of Food and Public Distribution, Jan-March, 2015, http://dfpd.nic.in/writereaddata/images/pdf/Final_English_version_of_newsletter_May_29_2015.pdf.

[52] "Cabinet approves comprehensive policy to deal with excess sugar production in the country", Press Information Bureau, Cabinet Committee on Economic Affairs, September 26, 2018.

[53] "Cabinet approves soft loan to sugar mills to facilitate payment of cane dues of the farmers for the current sugar season", Press Information Bureau, Cabinet Committee on Economic Affairs, February 28, 2019.

[54] Lok Sabha Starred Question No. 113, Ministry of Consumer Affairs, Food and Public Distribution, February 9, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AS113.pdf.

[55] Report of the Committee on the Regulation of Sugar Sector in India: The Way Forward, October 2012, http://eac.gov.in/reports/rep_sugar1210.pdf.

[56] Report on Price Policy for Sugarcane, 2019-20 season, Commission for Agricultural Costs and Prices, Ministry of Agriculture and Farmers' Welfare, August 2017, https://cacp.dacnet.nic.in/ViewReports.aspx?Input=2&PageId=41&KeyId=622.

Annexure

Table 9: Allocation to major heads of expenditure under the Department in 2021-22 (Rs crore)

	2019-20 Actuals	2020-21 Budgeted	2020-21 Revised	2021-22 Budgeted	% change (annualised) in 2021-22 over 2019-20
Food subsidy	1,08,688	1,15,570	4,22,618	2,42,836	49%
Subsidy to Food Corporation of India (FCI)	75,000	77,983	3,44,077	2,02,616	64%
Subsidy to states (decentralised procurement)	33,508	37,337	78,338	40,000	9%
Sugar subsidy payable under PDS	180	250	203	220	11%
Assistance to state agencies for intra-state movement of foodgrains and for margin of fair price shops' dealers	1,679	3,983	8,000	4,000	54%
Investment in equity capital of FCI	1,000	1,000	1,000	2,500	58%
Scheme for defraying expenditure on transport and marketing of sugar exports, including handling and processing	551	200	350	2,000	91%
Assistance to sugar mills for the seasons 2017-18 to 2019-20	2,155	700	5,073	1,200	-25%
Scheme for creation and maintenance of buffer stock of sugar	530	200	650	650	11%
Financial assistance to sugar mills for enhancement and augmentation of ethanol production capacity	50	50	150	300	145%
Schemes for development of sugar industries	210	172	176	187	-6%
Scheme for extending soft loan to sugar mills	100	120	418	-	-
Department	**1,15,173**	**1,22,235**	**4,38,649**	**2,53,974**	**48%**

Sources: Demand no. 15, Department of Food and Public Distribution, Expenditure Budget, Union Budget 2021-22; PRS.

Table 10: Share of calorie intake from different food groups (%)

	Cereals	Pulses, nuts, & oilseeds	Vegetables & fruits	Meats, eggs, & fish	Milk & milk products	Miscellaneous
			Rural			
1993-94	71.0	4.9	2.0	0.7	6.2	15.2
1999-00	67.6	5.5	2.0	0.8	6.2	17.9
2004-05	67.5	5.0	2.2	0.8	6.4	18.1
2009-10	64.2	4.5	1.8	0.7	6.8	22.0
2011-12	61.1	5.2	1.9	0.8	7.1	23.9
			Urban			
1993-94	58.5	6.1	3.3	1.0	8.0	23.1
1999-00	55.1	6.9	2.9	1.1	8.2	25.8
2004-05	56.1	6.7	3.2	1.1	8.6	24.3
2009-10	55.0	5.9	2.6	1.0	9.4	26.1
2011-12	51.6	6.4	2.6	1.1	9.1	29.2

Sources: Table T18, Nutritional Intake in India, 2011-12, NSSO; PRS.

Table 11: Share of protein intake (%)

Year	Cereals	Pulses	Milk and milk products	Egg, fish, and meat	Other food
			Rural		
1993-94	69.4	9.8	8.8	3.7	8.4
1999-00	67.4	10.9	9.2	4.0	8.4
2004-05	66.4	9.5	9.3	4.0	10.8
2009-10	64.9	9.1	10.0	4.0	12.0
2011-12	62.5	10.6	10.6	4.7	11.7
			Urban		
1993-94	59.4	11.5	11.7	5.3	12.1
1999-00	57.0	13.1	12.4	6.0	11.5
2004-05	56.2	11.0	12.3	5.5	15.0
2009-10	56.4	11.3	13.8	5.6	13.0
2011-12	53.7	12.4	13.6	6.4	13.9

Sources: Table T21, Nutritional Intake in India, 2011-12, NSSO; PRS.

Table 12: Leakages in PDS for wheat and rice (in lakh tonnes)

State/ UT	Total consumption from PDS	Offtake (2011-12)	Leakage	% Leakage
Andhra Pradesh	36.1	40.7	4.6	11.3%
Arunachal Pradesh	0.8	1.0	0.2	20.0%
Assam	9.5	24.4	14.9	61.1%
Bihar	11.3	36.2	24.9	68.8%
Chhattisgarh	16.7	16.7	0.0	0.0%
Goa	0.4	0.8	0.4	50.0%
Gujarat	4.4	15.7	11.3	72.0%
Haryana	2.2	7.3	5.1	69.9%
Himachal Pradesh	4.9	6.3	1.4	22.2%
Jammu and Kashmir	8.8	9.1	0.3	3.3%
Jharkhand	3.1	12.4	9.3	75.0%
Karnataka	16.2	30.1	13.9	46.2%
Kerala	11.4	20.1	8.7	43.3%
Madhya Pradesh	15.5	30.7	15.2	49.5%
Maharashtra	19.3	42.7	23.4	54.8%
Manipur	0.0	2.0	2.0	100.0%
Meghalaya	0.8	2.5	1.7	68.0%
Mizoram	0.9	1.1	0.2	18.2%
Nagaland	0.1	2.0	1.9	95.0%
Odisha	15.4	24.4	9.0	36.9%
Punjab	3.4	8.7	5.3	60.9%
Rajasthan	10.1	29.8	19.7	66.1%
Sikkim	N/A	N/A	-	-
Tamil Nadu	39.5	45	5.5	12.2%
Tripura	2.7	3.3	0.6	18.2%
Uttar Pradesh	43.2	82.9	39.7	47.9%
Uttarakhand	4.6	6.6	2.0	30.3%
West Bengal	13.4	43.9	30.5	69.5%
Total	**295.5**	**554.5**	**259**	**46.7%**

Note: Data from National Sample Survey 2011-12. Sources: Table 1, Working Paper 294, "Leakages from Public Distribution System", ICRIER, January 2015; PRS.

Table 13: Procurement, offtake, and stocks of foodgrains (in million tonnes)

Year	Procurement			Offtake			% Offtake	Stocks		
	Rice	Wheat	Total	Rice	Wheat	Total		Rice	Wheat	Total
2004-05	24.7	16.8	41.5	23.2	18.3	41.5	100%	13.3	4.1	18
2005-06	27.6	14.8	42.4	25.1	17.2	42.3	100%	13.7	2	16.6
2006-07	25.1	9.2	34.3	25.1	11.7	36.8	107%	13.2	4.7	17.9
2007-08	28.7	11.1	39.8	25.2	12.2	37.4	94%	13.8	5.8	19.8
2008-09	34.1	22.7	56.8	24.6	14.9	39.5	70%	21.6	13.4	35.6
2009-10	32	25.4	57.4	27.4	22.4	49.8	87%	26.7	16.1	43.3
2010-11	34.2	22.5	56.7	29.9	23.1	53	93%	28.8	15.4	44.3
2011-12	35	28.3	63.3	32.1	24.3	56.4	89%	33.4	20	53.4
2012-13	34	38.2	72.2	32.6	33.2	65.8	91%	35.5	24.2	59.8
2013-14	31.9	25.1	57	29.2	30.6	59.8	105%	30.6	17.8	49.5
2014-15	31.6	28	59.6	30.7	25.2	55.9	94%	23.8	17.2	41.3
2015-16	34.1	28.1	62.2	31.8	31.8	63.6	102%	28.8	14.5	43.6
2016-17	36.5	23.6	60.1	32.8	29.1	61.9	103%	29.8	8.1	38.1
2017-18	37.6	30.6	68.2	35	25.3	60.3	88%	30	13.2	43.3
2018-19	42.7	35	77.7	34.4	31.5	65.9	85%	37.7	34.9	72.7
2019-20	46.1	34.1	80.2	35	27.2	62.2	78%	49.2	24.7	74

Sources: Database on Indian Economy, Reserve Bank of India, as of February 18, 2021; PRS.

Table 14: Status of end-to-end computerisation of PDS operations (March 2020)

State/ UT	Digitisation of Ration Cards	Aadhaar Seeding with Ration Cards	Online Allocation of Foodgrains	Computerisation of Supply Chain	% of Fair Price Shops with Operational ePoS
Andhra Pradesh	100%	100%	Implemented	Implemented	100%
Arunachal Pradesh	100%	57%	Implemented	-	1%
Assam	100%	0%	Implemented	Implemented	0%
Bihar	100%	76%	Implemented	Implemented	96%
Chhattisgarh	100%	98%	Implemented	Implemented	97%
Goa	100%	98%	Implemented	Implemented	100%
Gujarat	100%	100%	Implemented	Implemented	100%
Haryana	100%	100%	Implemented	Implemented	100%
Himachal Pradesh	100%	100%	Implemented	Implemented	100%
Jharkhand	100%	95%	Implemented	Implemented	100%
Karnataka	100%	100%	Implemented	Implemented	99%
Kerala	100%	100%	Implemented	Implemented	100%
Madhya Pradesh	100%	90%	Implemented	Implemented	100%
Maharashtra	100%	99%	Implemented	Implemented	100%
Manipur	100%	82%	Implemented	-	12%
Meghalaya	100%	0%	Implemented	Implemented	0%
Mizoram	100%	93%	Implemented	-	0%
Nagaland	100%	70%	Implemented	-	23%
Odisha	100%	99%	Implemented	Implemented	100%
Punjab	100%	100%	Implemented	Implemented	100%
Rajasthan	100%	97%	Implemented	Implemented	100%
Sikkim	100%	91%	Implemented	Implemented	99%
Tamil Nadu	100%	100%	Implemented	Implemented	100%
Telangana	100%	99%	Implemented	Implemented	100%
Tripura	100%	100%	Implemented	Implemented	100%
Uttar Pradesh	100%	100%	Implemented	Implemented	100%
Uttarakhand	100%	94%	Implemented	Implemented	65%
West Bengal	100%	80%	Implemented	Implemented	92%
Andaman and Nicobar Islands	100%	98%	Implemented	Implemented	96%
Chandigarh	100%	99%	Direct Benefit	Direct Benefit	NA
Dadra and Nagar Haveli	100%	100%	Implemented	Implemented	100%
Daman and Diu	100%	100%	Implemented	Implemented	100%
Delhi	100%	100%	Implemented	Implemented	0%
Jammu and Kashmir (including Ladakh)	100%	84%	Implemented	-	100%
Lakshadweep	100%	100%	Implemented	NA	100%
Puducherry	100%	100%	Direct Benefit	Direct Benefit	NA
Total	**100%**	**90%**	**34**	**28**	**89%**

Sources: Report no. 3, Standing Committee on Food, Consumer Affairs and Public Distribution, Lok Sabha, March 13, 2020; PRS.

Table 15: Minimum Support Prices for paddy and wheat during 2011-21 (in Rs/quintal)

Year	Paddy (common)	% increase over last year	Wheat	% increase over last year
2011-12	1,080	8.0%	1,285	14.7%
2012-13	1,250	15.7%	1,350	5.1%
2013-14	1,310	4.8%	1,400	3.7%
2014-15	1,360	3.8%	1,450	3.6%
2015-16	1,410	3.7%	1,525	5.2%
2016-17	1,470	4.3%	1,625	6.6%
2017-18	1,550	5.4%	1,735	6.8%
2018-19	1,750	12.9%	1,840	6.1%
2019-20	1,815	3.7%	1,925	4.6%
2020-21	1,868	2.9%	1,975	2.6%

Sources: Commission for Agricultural Costs and Prices, Ministry of Agriculture and Farmers' Welfare; PRS.

Table 16: Sugarcane dues as of January 31, 2021 (Rs crore)

State	2017-18	2018-19	2019-20	2020-21	Total Arrears
Andhra Pradesh	-	37	44	91	171
Bihar	0	58	85	411	554
Chhattisgarh	2	6	-	55	63
Goa	-	2	-	-	2
Gujarat	2	-	0	1,044	1,046
Haryana	-	-	4	670	674
Karnataka	-	11	49	3,585	3,645
Madhya Pradesh	-	-	-	257	257
Maharashtra	27	118	0	2,030	2,176
Odisha	-	-	-	22	22
Punjab	-	-	137	576	713
Tamil Nadu	61	74	30	56	221
Telangana	-	-	12	114	126
Uttar Pradesh	34	-	1,406	7,555	8,995
Uttarakhand	75	105	-	416	596
Total	**200**	**410**	**1,766**	**16,883**	**19,260**

Sources: Lok Sabha Starred Question No. 113, February 9, 2021; PRS.

Demand for Grants: Railways

The Railways finances were presented on February 1, 2021, by the Finance Minister Ms. Nirmala Sitharaman along with the Union Budget 2021-22. The Ministry of Railways manages the administration of Indian Railways and policy formation through the Railway Board. Indian Railways is a commercial undertaking of the central government.[1]

Expenditure of Railways is financed through: (i) its internal resources (freight and passenger revenue, and leasing of railway land), (ii) budgetary support from the central government, and (iii) extra-budgetary resources (primarily borrowings but also includes institutional financing, public-private partnerships, and foreign direct investment). Railways' working expenses (salaries, staff amenities, pension, asset maintenance) are met through its internal resources. Capital expenditure (such as procurement of wagons, station redevelopment) is financed through extra-budgetary resources, the budgetary support from the central government, and internal resources.

This note looks at the proposed expenditure of the Ministry of Railways for the year 2021-22, its finances over the last few years, and issues with the same.

Highlights

- **Revenue**: Railways' revenue for 2021-22 is estimated at Rs 2,17,460 crore which is an annual increase of 12% over 2019-20.
- **Traffic revenue**: Total revenue from traffic for 2021-22 is estimated to be Rs 2,17,110 crore, an annual increase of 12% over 2019-20. In 2021-22, revenue from both freight and passenger traffic is expected to grow at an annual rate of 10% over 2019-20. In 2020-21, revenue from freight and passenger traffic is estimated to be 16% and 75% less than the budget estimates, respectively.
- **Expenditure**: The total revenue expenditure by Railways for 2021-22 is projected to be Rs 2,10,899 crore, an annual increase of 10% over 2019-20. In 2020-21, revenue expenditure is estimated to be 34% lower than the budget estimate. In 2021-22, capital expenditure is projected at Rs 2,15,058 crore, an annual increase of 21% over 2019-20. In 2020-21, capital expenditure is estimated to be 0.4% higher than the budget estimates.
- **Operating Ratio**: In 2021-22, the Railways' Operating Ratio is estimated to be 96.2%. This is marginally better than the operating ratio of 98.4% in 2019-20.

2021-22 Budget announcements[2]

Key announcements and proposals related to Railways made in Budget 2021-22 include:

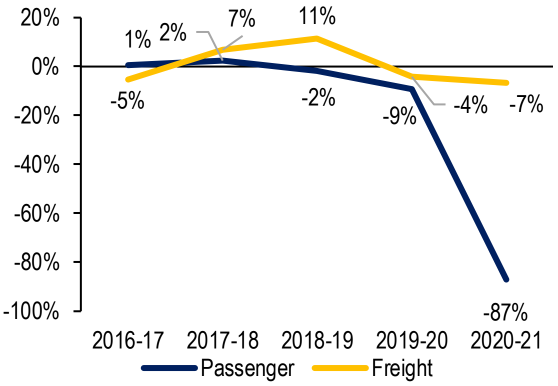
- National Rail Plan 2030 has been prepared for infrastructure development. Under the plan, following dedicated freight corridors projects will be undertaken: (i) East Coast Corridor from Kharagpur to Vijaywada, (ii) East-West Corridor from Bhusaval to Kharagpur to Dankuni, and (iii) North-South Corridor from Itarsi to Vijaywada.
- Railways will monetise dedicated freight corridor assets for operation and maintenance.
- High-density network and highly utilised network routes will be provided with an indigenously developed automatic train protection system that eliminates train collision due to human error.
- Coaches with enhanced facilities will be introduced on the tourist routes to provide a better experience.

Finances in 2020-21: Impact of COVID[3]

More than 90% of internal revenue of Railways comes from the core business of running freight and passenger trains. In 2020-21, passenger traffic volume is estimated to decline by 87% over the previous year (Figure 1), as against an increase of 1% estimated at the budget stage. During the initial phase of the national lockdown (March-April 2020), passenger services of Railways were completely suspended.[4] Services have since resumed to some extent with provisioning of special trains, however, are yet to return to the pre-COVID level.

Freight services continued during the lockdown. However, due to a decline in the economic activities during April-June 2020, the demand for freight services may also have been impacted. In 2020-21, the freight traffic volume is estimated to decline by 7% as compared to the previous year (2019-20), as against an increase of 3% estimated at the budget stage. Consequently, in 2020-21, Railways' own revenue is estimated to be 35% less than the budget estimate (Table 1). A similar decline is estimated in revenue expenditure (34%). This has helped the operating ratio to remain at a level similar to the budget estimate (97% at the revised stage as against 96.3% at the budget stage). Operating ratio is a measure of operational efficiency. It is the ratio of the working expenditure (day-to-day operational expenses of Railways) to the revenue earned from the traffic.

Figure 1: Growth in traffic volume (year-on-year)



Note: Number for 2020-21 is as per revised estimates. Traffic volume taken in terms of: (i) NTKM-Net Tonne Kilometre (One NTKM is the net weight of goods carried for a kilometre) for freight, and (ii) PKM –Passenger Kilometre (One PKM is when a passenger is carried for a kilometre) for passenger services; Source: Expenditure Profile; Union Budget Documents; PRS.

Table 1: Finances in 2020-21 (Rs crore)

Particular	BE	RE	% change From BE to RE
1. Internal Revenue	2,25,913	1,46,609	-35%
Gross Traffic Receipts	2,25,613	1,46,309	-35%
Freight revenue	*1,47,000*	*1,24,184*	*-16%*
Passenger revenue	*61,000*	*15,000*	*-75%*
2. Budgetary Support	70,250	29,250	-58%
3. Extra Budgetary Resources	83,292	1,28,567	54%
4. Special Loan from the central government*	0	79,398	-
Total Receipts (1+2+3+4)	**3,79,455**	**3,83,824**	**1%**
5. Revenue Expenditure	2,19,413	1,43,809	-34%
Ordinary Working Expenses	1,62,753	1,40,786	-13%
Pension Fund	53,160	523	-99%
6. Capital Expenditure	1,61,042	1,61,692	0%
7. Appropriation of Special Loan*	0	79,398	-
Total Expenditure (5+6+7)	**3,80,455**	**3,84,899**	**1%**
Operating Ratio	**96.3%**	**97.0%**	-

Note: *Special Loan from the general revenue of the central government has been provided for COVID-19 related resource gap in 2020-21 and to liquidate adverse balance in Public Account in 2019-20 to Pension Fund.
Source: Expenditure Profile; Union Budget 2021-22; PRS.

However, most of the decrease in revenue expenditure is due to less than required appropriation to the pension fund. Against the budget estimate of Rs 53,160 crore, the appropriation to the pension fund is estimated to be Rs 523 crore at the revised stage (99% less). If appropriation were to be as per the requirement, the operating ratio will worsen to 131.5%.[5]

In 2019-20 also, appropriation to the pension fund was 60% less than the budget estimate (Rs 20,708 crore as against the budget estimate of Rs 50,000 crore). The operating ratio in 2019-20 was 98.4%. If appropriation to the pension fund were to be as per the requirement, the operating ratio in 2019-20 will be 114.2%.[5]

Usually, Railways runs only a marginal revenue surplus. Hence, it finances most of its capital expenditure from: (i) budgetary support provided by the central government, and (ii) extra budgetary resources. In 2020-21, while capital expenditure target has not seen any notable change from the budget to the revised stage, the budgetary support by the central government is estimated to decline by 58%. As a result, the dependency on extra budgetary resources for financing capital expenditure will increase further. Extra budgetary resources are estimated to be 54% higher than the budget estimate.

The Standing Committee on Railways (2020) had observed that the allocation for capital expenditure at the budget stage in 2020-21 (Rs 1,61,042 crore) was about 18% less than the demand (Rs 1,97,295 crore).[6] It further observed that these funds may not be adequate for enforcing the ambitious investment plan of Railways as well as expeditious completion of pending projects.[6]

As per the revised estimates, in 2020-21, Railways will receive a special loan of Rs 79,398 crore from the central government to: (i) meet the resource gap due to COVID-19 in 2020-21, and (ii) meet pension fund obligations for 2019-20.[5]

Overview of Finances[3]

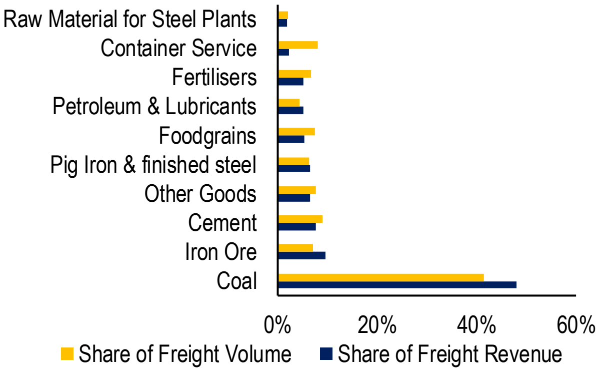
Railways' Revenue

Internal Resources

Railways earns its internal revenue primarily from passenger and freight traffic. In 2019-20 (latest actuals), freight and passenger traffic contributed to about 65% and 29% of the internal revenue, respectively. In 2021-22, Railways expects to earn 63% of its internal revenue from freight and 28% from passenger traffic. The remaining 9% will be earned from other miscellaneous sources such as parcel service, coaching receipts, and sale of platform tickets. For details, please see Table 10 in the Annexure.

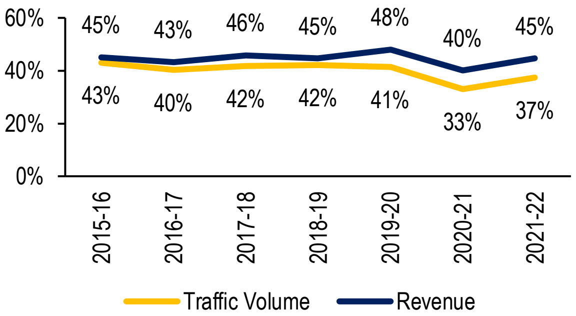
Freight traffic: In 2019-20, Railways generated most of its freight revenue from the transportation of coal (48%), followed by iron ore (10%), and cement (8%) (see Figure 2). Railways mostly transports bulk freight, and the freight basket has mostly been limited to raw materials for certain industries such as power plants, and the iron and steel plants. In 2021-22, Railways expects to earn Rs 1,37,810 crore from goods traffic, an annual increase of 10% over 2019-20.

Figure 2: Share in freight volume and revenue in 2019-20 (in %)



Source: Expenditure Profile, Union Budget 2021-22; PRS.

Figure 3: Share of coal in Railways' freight



Sources: Expenditure Profile, Union Budget Documents; PRS.

While the share of coal in freight volume has been slowly coming down (from 43% in 2015-16 to 37% in 2021-22), its contribution to revenue has remained consistent (45% in 2015-16 as well as 2021-22). This may be indicative of an increasing dependency on coal for revenue as compared to other items in the freight basket.

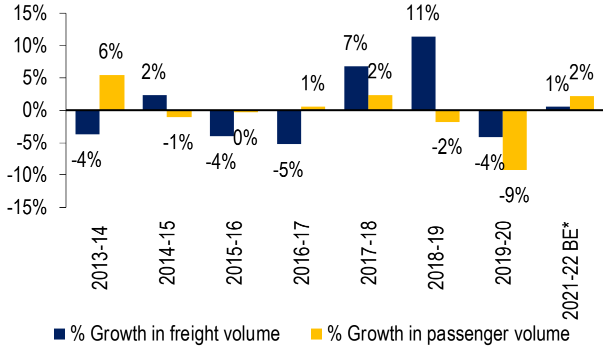
Passenger traffic and revenue: Passenger traffic is broadly divided into two categories: suburban and non-suburban traffic. Suburban trains are passenger trains that cover short distances of up to 150 km and help move passengers within cities and suburbs. Majority of the passenger revenue (94.4% in 2019-20) comes from the non-suburban traffic (or the long-distance trains).

In 2021-22, Railways expects to earn Rs 61,000 crore from passenger traffic, an annual increase of 10% over 2019-20. In 2021-22, passenger traffic is estimated to grow at an annual rate of 2% over 2019-20. Note that due to the prevalence of COVID-19, there may be uncertainties in the return of passenger traffic volume to its normal level in 2021-22, this could impact these estimates.

Challenges in raising revenue

Over the last few years, there has been a decline in the growth of both rail-based freight and passenger traffic (see Figure 4). This affects Railways' earnings from its core business of running freight and passenger trains. In 2021-22, Railways estimates a decline in some of its key revenue earning traffic. For example, coal traffic is estimated to register an annual decrease of 5% over 2019-20. Overall freight traffic is estimated to have an annual increase of only 1% over 2019-20.

Figure 4: Volume growth for freight and passenger (year-on-year)



Note: *The growth rate for 2021-22 BE is compounded annual growth rate over 2019-20. The figure for 2020-21 is not shown as it was a non-standard year.

Sources: Expenditure Profile, Union Budget Documents; PRS.

Railways is also steadily losing freight traffic share to other modes of transport. The share of Railways in total freight traffic has declined from 89% in 1950-51 to 30% in 2011-12.[7] During the same period, the share of roads on total freight traffic increased from 11% to 61%. As per the draft National Rail Plan 2030, the share of Railways in total freight traffic stood at 27% in 2020.[8]

NITI Aayog (2018) had highlighted shortfall in carrying capacity and lack of price competitiveness as some of the reasons for the decline in freight share.[9] It further observed that since passenger and freight traffic run on the same tracks, India has not been able to increase speed or capacity in a significant manner when compared to global benchmarks.[9] Note that various dedicated freight corridors have been planned by Railways for improvement in facilities for freight.

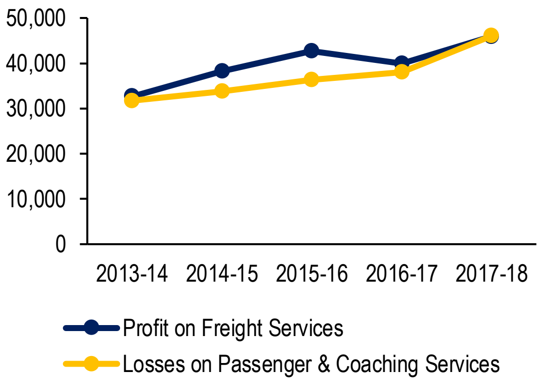
The freight basket is also limited to a few commodities, most of which are bulk in nature (see Figure 5). For example, in 2019-20, coal contributed to about 48% of freight revenue. Therefore, any shift in transport patterns of any of these bulk commodities (coal, cement, iron ore) could affect Railways' finances significantly.[10]

Freight cross-subsidises passenger traffic

In 2017-18, passenger and other coaching services incurred losses of Rs 46,025 crore, whereas freight operations made a profit of Rs 45,923 crore.[10] Hence, all of the profit earned from freight operations was utilised to compensate for the loss from passenger and other coaching services. The total passenger revenue during this period was Rs 48,643 crore. This implies that losses in the passenger business were about 94.6% of its revenue. Therefore, in 2017-18, for every one rupee earned from its passenger business, Indian Railways ended up spending Rs 1.95. As of 2017-18, except AC third tier and AC chair car services, all other classes of passenger services registered operational losses (Table 2).

NITI Aayog (2016) noted that such cross-subsidisation has resulted in high freight tariffs.[11] It also observed (2018) that high freight tariffs are one of the reasons for a sub-optimal share of Railways in freight.[9]

Figure 5: Losses on Passenger and Other Coaching Services vis-a-vis Profit on Freight Services (Rs crore)



Source: CAG; PRS.

Table 2: Operational profit/loss of various classes of passenger services (in Rs crore)

Class	2014-15	2015-16	2016-17	2017-18
AC-1st Class	-127	-176	-139	-165
1st Class	-70	-58	-53	-35
AC 2 Tier	-496	-463	-559	-604
AC 3 Tier	**882**	**898**	**1,041**	**739**
AC Chair car	-142	-6	**118**	**98**
Sleeper Class	-8,510	-8,301	-9,313	-11,003
Second class	-7,642	-8,570	-10,025	-11,524
Ordinary Class	-11,674	-13,238	-14,648	-16,568
EMU suburban services	-4,679	-5,125	-5,324	-6,184

Source: CAG; PRS.

Losses in passenger services are primarily caused due to: (i) passenger fares being lower than the costs, and (ii) concessions to various categories of passengers (senior citizens, National award winners etc.).[11] Railways classifies these provisions as social service obligations. The Committee on Restructuring Railways (2015) had observed that several decisions on the Indian Railways such as increase in fares, introduction of new trains, and provision of halts are not taken based on commercial considerations.[12]

The Standing Committee on Railways (2020) had recommended that both freight and passenger fares should be rationalised prudently.[6] It observed that any fare increase needs to take into account the competition from other transport modes.[6] The Committee recommended that the social service obligations of Railways should be revisited.[6]

Budgetary support from central government

The central government supports Railways in the expansion of its network and investments. Until recently, this budgetary support from the central government used to be the primary source of funds for capital expenditure for Railways. However, since 2015-16, an increasingly higher proportion of the capital expenditure is being met through extra budgetary resources. In 2019-20, 53% of the capital expenditure was met through extra-budgetary resources. In 2021-22, the gross budgetary support from the central government is proposed at Rs 1,07,300 crore. This is an annual increase of 26% over 2019-20 (Rs 67,842 crore).

Extra Budgetary Resources

Extra Budgetary Resources include market borrowings such as financing from banks, institutional financing, and external investments. External investments in Railways could be in the form of public-private partnerships (PPPs), joint ventures, or market financing by attracting private investors to potentially buy bonds or equity shares in Railways. Railways mostly borrows funds through the Indian Railways Finance Corporation (IRFC). IRFC borrows funds from the market (through taxable and tax-free bond issuances, term loans from banks and financial institutions), and then follows a leasing model to finance the rolling stock assets and project assets of Indian Railways.

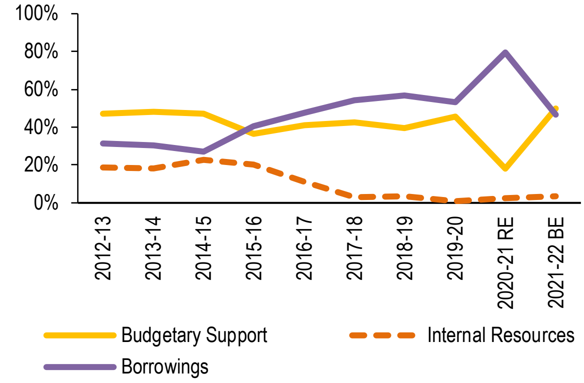
In the past few years, borrowings have increased sharply to bridge the gap between the available resources and expenditure. In 2021-22, Rs 1,00,258 crore is estimated to be raised through extra-budgetary resources, which is an annual increase of 13% over 2019-20. The Committee on Restructuring Railways (2015) had observed that increased reliance on borrowings could further exacerbate the financial situation of Railways.[12]

Table 3: Capital Expenditure (in Rs crore)

	2019-20 Actuals	2020-21 Revised	2021-22 Budget	CAGR (19-20 to 21-22)
Gross Budgetary Support	67,842	29,250	1,07,300	26%
Internal Resources	1,321	3,875	7,500	138%
Extra Budgetary Resources	78,902	83,292	1,28,567	13%
Total	**1,48,064**	**1,61,692**	**2,15,058**	**21%**

Sources: Expenditure Profile, Union Budget 2021-22; PRS.

Figure 6: Source of funds - capital expenditure

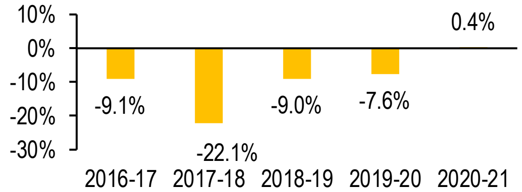


Note: RE – Revised Estimates, BE – Budget Estimates.
Sources: Expenditure Profile, Union Budget 2021-22; PRS.

Capital Expenditure

The total proposed capital expenditure for 2021-22 is Rs 2,15,058 crore. This is an annual increase of 21% over 2019-20. Majority of the capital expenditure will be financed through the budgetary support from the central government (50%) followed by extra budgetary resources (47%). For the first time since 2015-16, the budgetary support from the central government will be higher than the borrowings. Railways will fund only 3% of this capital expenditure from its own resources. Railways' capability to fund its capital expenditure from its own revenue stream has been declining (Figure 6). Over the last few years, actual capital expenditure has been considerably less than the budget estimates (Figure 7).

Figure 7: Capital Expenditure - % change from budget estimates to actuals



Source: Expenditure Profile; Union Budget Documents; PRS.

Debt repayment

Railways pays lease charges to IRFC. The lease charges have a principal and interest component. The principal component of the lease charges forms part of the capital expenditure of Railways. In 2021-22, allocation towards payment of principal component of lease charges is Rs 19,459 crore (9% of the total capital expenditure), an annual increase of 36% over 2019-20 (Rs 10,462 crore).

CAG (2020) had observed that ideally, the principal component of lease charges should be paid from the Capital Fund.[10] Capital Fund is a dedicated fund of Railways to repay the principal component of market borrowing and financing works of capital nature.[6] However, no allocation has been made to this fund since 2015-16.

The Ministry of Railways noted that appropriation to the Capital Fund is made from net revenue after meeting obligatory revenue expenditure.[6] The Ministry further observed that no appropriation is being made to the Capital Fund due to inadequate internal resources.[6] Hence, gross budgetary support provided by the central government has been used to pay the principal component of lease charges. CAG (2020) observed that utilisation of gross budgetary support for repayment of lease charges is not a healthy trend as it deprives Railways of additional investments in capital works.[10] CAG (2019) had observed that if obligations towards IRFC have to be met from budgetary support, the government might as well borrow directly from the market, as the cost of borrowings would be lower.[10]

Future Capital Expenditure Requirements

The Ministry of Railways has prepared the National Rail Plan 2030 for augmenting its infrastructure during the 2021-51 period.[8] The draft of the National Rail Plan 2030 (NRP), released in December 2020, noted that Railways could be left with a financing gap of over two lakh crore rupees for its capital expenditure projects in next five years.[8] This relates to the funding gap for projects under the annual work plan of Railways and the National Infrastructure Pipeline prior to the National Rail Plan.[8] The National Infrastructure Pipeline is a plan of infrastructure projects worth Rs 102 lakh crore between 2019-20 and 2024-25. It includes projects worth Rs 13.7 lakh crore for Railways pertaining to track infrastructure, terminal infrastructure, rolling stock, and urban public transport (Table 4). The draft National Rail Plan envisages an additional capital expenditure worth Rs 5.8 lakh crore during the 2021-26 period (Table 5).[8] However, note that there may be some overlap in projects envisaged under the National Rail Plan and the National Infrastructure Pipeline.[8]

Table 4: Capital Expenditure Requirement for Railways under the National Infrastructure Pipeline (in Rs crore)

Year	Amount
2019-20	1,33,387
2020-21	2,62,465
2021-22	3,08,800
2022-23	2,73,831
2023-24	2,21,209
2024-25	1,67,870
Total	**13,67,563**

Source: Draft National Rail Plan, Ministry of Railways; PRS.

The draft National Rail Plan estimates that on average, funds available with Indian Railways for capital expenditure over the next five years will be: (i) about Rs 60,000 crore per annum as gross budgetary support, (ii) about Rs 7,000 crore per annum from internal resources, and (iii) a maximum of Rs 1,30,000 crore per annum from extra budgetary resources.[8] It noted that it would be challenging to fund the projects envisaged under the National Rail Plan from internal resources due to persistently high operating ratio.[8]

Table 5: Cost of National Rail Plan (in Rs lakh crore)

Head	2021 -26	2026 -31	2031 -41	2041 -51	Total
Dedicated Freight Corridors	-	1.5	0.5	0.3	2.3
High Speed Rail Corridors	-	5.1	2.9	7.0	15.0
Network improvements	1.3	0.7	2.2	1.8	6.0
Flyovers and Bypasses	0.8	-	-	-	0.8
Terminals	0.6	0.2	0.1	0.04	0.9
Rolling Stock	3.1	1.7	3.6	4.8	13.2
Total	**5.8**	**9.2**	**9.3**	**13.9**	**38.2**

Source: Draft National Rail Plan, Ministry of Railways; PRS.

Revenue Expenditure

In 2021-22, Indian Railways is estimated to spend a significant portion of its money on staff (45% of its working expenditure), followed by expenses on pension fund (26%), and fuel (13%). In 2021-22, the total revenue expenditure by Railways is estimated at Rs 2,10,899 crore which is an annual increase of 10% over 2019-20.

Staff wages and pension

Staff wages and pension constitute about 70% of the Railways' estimated revenue expenditure in 2021-22. For 2021-22, the expenditure on staff is estimated at Rs 93,676 crore, which is an annual increase of 4% over 2019-20. The Committee on Restructuring Railways (2015) had observed that the Railways' expenditure on staff is extremely high and unmanageable.[12] It also sees a significant jump every few years due to revisions by the Pay Commission.

Allocation to the Pension Fund is estimated at Rs 53,300 crore, which is an annual increase of 6.4% over 2018-19. As discussed earlier, appropriation to the pension fund was much less than required in 2019-20 and 2020-21 (60% and 99% less than the budget estimate, respectively). The Standing Committee on Railways (2017) had observed that the pension bill may increase further in the next few years, as about 40% of the Railways staff was above the age of 50 years in 2016-17.[13]

The Standing Committee on Railways (2020) noted that the new pension scheme implemented in 2004 to reduce the pension bill will show results only around 2034-35.[6] The Committee recommended that feasibility of bearing a part of pension liabilities from the general revenue of the central government till 2034-35 should be explored.[6]

Further, employee costs (including pensions) reduces Railways' ability to generate a surplus and allocate resources towards operations.[12] The Committee on Restructuring Railways (2015) had recommended that Railways should rationalise its manpower, and make the organisation more business-oriented, amenable to private participation while retaining an optimal level of functional specialisation within.[12] Railways has taken steps to enhance private participation in the operation of passenger train services. For instance, proposals have been invited for private participation in the operation of passenger train services over 109 origin-destination pairs of routes through the introduction of 151 trains.[14] The private entity will be responsible for financing, procuring, operating, and maintaining these trains.

Lease Charges

The interest component of lease charges forms part of the revenue expenditure of Railways. In 2021-22, Rs 15,648 crore is estimated to be spent on the interest component of lease charges, which is an annual increase of 23% over 2019-20 (Rs 10,391 crore).

Fuel and electricity

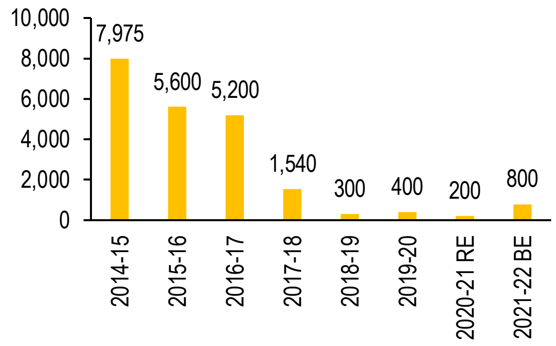
In 2021-22, the expense on fuel and electricity is estimated to be Rs 26,085 crore, an annual decrease of 9% over 2019-20 (Rs 31,573 crore).

Appropriation to Funds

Depreciation Reserve Fund (DRF)

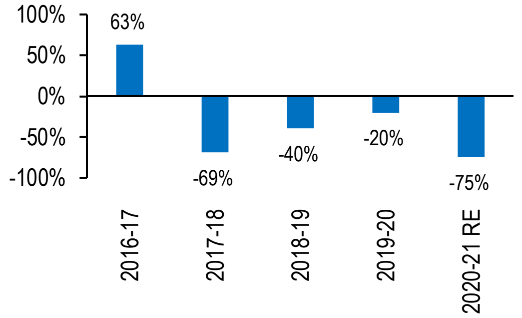
Appropriation to the DRF is intended to finance the costs of new assets replacing old ones.[6] In 2021-22, appropriation to DRF is estimated at Rs 800 crore. In the last few years, appropriation to DRF has declined (Figure 8). In recent years, appropriation has also been less than the budget estimates (Figure 9). As per CAG (2020), at the end of 2018-19, the value of over-aged assets pending for replacement using this fund was estimated to be Rs 96,403 crore.[10] CAG (2020) observed that provision to DRF for replacement and renewal of assets has been inadequate.[10]

Figure 8: Appropriation to DRF (in Rs crore)



Source: Expenditure Profile; Union Budget Documents; PRS.

Figure 9: Appropriation to DRF- % change from budget estimates to actuals



Source: Expenditure Profile; Union Budget Documents; PRS.

The Ministry of Railways observed that the decline in appropriation to DRF is due to major part of renewal and replacement works having safety implications being financed through Rashtriya Rail Sanraksha Kosh (RRSK).[6] RRSK was created in 2017-18 to finance critical safety-related works of renewal, replacement, and augmentation of assets.[6] The fund has a corpus of one lakh crore rupees over five years (partially funded by the central government). Railways is required to allocate Rs 5,000 crore annually to RRSK during these five years.[6] The Ministry observed that RRSK will not continue beyond 2021-22.[6] Beyond 2021-22, all renewal and replacement works will be financed from DRF.[6] This could lead to an increase in appropriation to DRF in the coming years.

Rashtriya Rail Sanraksha Kosh (RRSK)

In 2021-22, Railways has allocated Rs 5,000 crore towards RRSK. However, the actual appropriation to RRSK has been less than the requirement in all three years between 2018-19 and 2020-21.

Table 6: Appropriation to RRSK (in Rs crore)

Year	Budget	Actual	% change (Budget to Actual)
2018-19	5,000	3,024	-40%
2019-20	5,000	201	-96%
2020-21 RE	5,000	2,000	-60%
2021-22 BE	5,000	-	-

Note: RE: Revised Estimates, BE: Budget Estimates.
Sources: Expenditure Profile; Union Budget Documents; PRS.

The Ministry of Railways mentioned that the desired level of appropriation to RRSK has not been made due to adverse resource position.[6] The Standing Committee on Railways (2020) observed that the purpose of RRSK is gradually being eroded due to non-appropriation of required funds from internal resources of Railways.[6]

Expenditure on Safety

The expenditure on safety includes revenue expenditure such as repairs and maintenance of tracks and wagons. It also includes capital expenditure such as track renewals, bridge works, creating level crossings, and road over bridges and under bridges (Table 7). In 2021-22, Railways estimates to spend Rs 78,716 crore towards safety, an annual increase of 6.6% over 2019-20. In 2021-22, the capital expenditure towards safety-related works is estimated to register an annual increase of 18.4% over 2019-20.

Table 7: Expenditure on Safety (in Rs crore)

	2019-20 Actuals	2020-21 Revised	2021-22 Budget	CAGR (19-20 to 21-22)
Revenue	48,194	43,933	49,206	1.0%
Capital	21,047	26,094	29,510	18.4%
Total	**69,241**	**70,027**	**78,716**	**6.6%**

Sources: Expenditure Profile, Union Budget 2021-22; PRS.

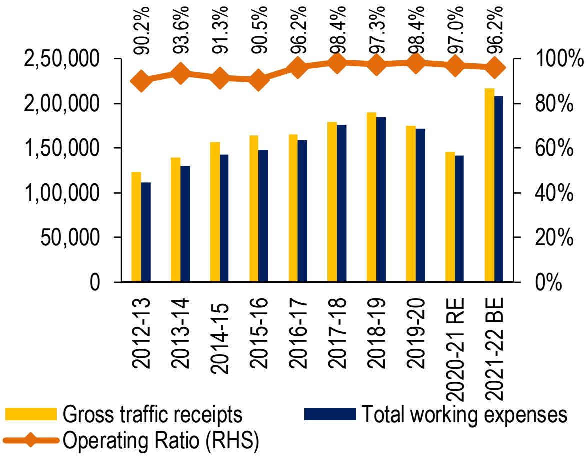
Revenue Surplus and Operating Ratio

Railways' surplus is calculated as the difference between its total internal revenue and its revenue expenditure (this includes working expenses and appropriation to pension and depreciation funds). Operating Ratio is the ratio of the working expenditure (expenses arising from day-to-day operations of Railways) to the revenue earned from traffic. Therefore, a higher ratio indicates a poorer ability to generate a surplus that can be used for capital investments such as laying new lines or deploying more coaches. The CAG (2019) noted that in 2017-18, the decline in revenue surplus led to a decline in appropriation to the various funds managed by Railways from its internal resources.[10] As mentioned earlier, a similar trend has been seen in 2019-20 and 2020-21 where appropriation to the pension fund, DRF, and RRSK was reduced.

In the last decade, Railways has been struggling to generate a higher surplus. Consequently, the Operating Ratio has consistently been higher than 90% for more than a decade. In 2021-22, Railways expects to generate a surplus of Rs 6,561 crore. This is an annual increase of 103% over 2019-20 (Rs 1,389 crore). In 2019-20, the operating ratio worsened to 98.4% as compared to the estimated ratio of 95%. The CAG (2020) had noted that if certain advances for 2019-20 were not included in receipts for 2018-19, the operating ratio for 2018-

19 would have been 101.77%.[10] If appropriation to the pension fund were to be as per the requirement, the operating ratio for 2019-20 and 2020-21 will be 114.2% and 131.5%, respectively.[5]

Figure 10: Operating Ratio (in Rs crore)



Sources: Expenditure Profile, Union Budget Documents; PRS.

Network expansion and modernisation

Railways has not been able to meet some key physical targets for expansion and modernisation in recent years. It has missed its budget targets in all three years between 2017-18 and 2019-20 for: (i) construction of new lines, and (ii) gauge conversion (Table 8). In 2018-19 and 2019-20, Railways also missed targets for electrification of railway lines.

Note that Railways aims to achieve 100% electrification of all broad gauge routes by 2023.[6] As per revised estimates for 2020-21, the achievement will be less than the budget target on almost all the indicators listed in Table 8. While examining the progress of construction of new lines, the Standing Committee on Railways (2020) had observed that revision in allocation towards capital expenditure requires reworking of priorities and rescheduling of activities, which leads to tardy progress in the construction of new lines.[6]

Table 8: Physical targets- Underachievement

Indicator	17-18	18-19	19-20	20-21 RE
Construction of new lines (Route Kms)	-49%	-52%	-28%	-40%
Gauge conversion (Route Kms)	-50%	-40%	-32%	-33%
Doubling of lines (Route Kms)	-45%	20%	-45%	-26%
Wagons (vehicle units)	-48%	-20%	-24%	-17%
Track renewals (Route Kms)	12%	7%	15%	-20%
Electrification (Route Kms)	2%	-12%	-37%	0%

Note: RE: Revised Estimates.
Source: Expenditure Profile; Union Budget Documents; PRS.

[1] "Evolution – About Indian Railways", Ministry of Railways, last accessed on February 2, 2021, http://www.indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,261.

[2] Budget Speech 2021-22, February 1, 2021, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

[3] Overview of Receipts and Expenditure, https://www.indiabudget.gov.in/doc/eb/railstat1.pdf; Railway Expenditure, https://www.indiabudget.gov.in/doc/eb/railstat2.pdf, Investment: Part A Financials (Budget + IEBR), Investment: Part B Physical Targets, Investment: Part C Revenue Earning Traffic Performance Targets, https://www.indiabudget.gov.in/doc/eb/railstat4.pdf, Railway Budget at a Glance, Expenditure Profile, Union Budget 2021-22.

[4] "Cancellation of all train Services by Indian Railways in the wake of COVID-19", Press Information Bureau, Ministry of Railways, March 22, 2020.

[5] Notes on Overview of Receipts and Expenditure- Railways, Expenditure Profile, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/railstat1.pdf .

[6] "3rd Report: Demand for Grants (2020-21) - Ministry of Railways", Standing Committee on Railways, 2020-21, http://164.100.47.193/lsscommittee/Railways/17_Railways_3.pdf.

[7] "India Transport Report: Moving India to 2032: Volume II, National Transport Development Policy Committee 2013, June 17, 2014. http://planningcommission.gov.in/sectors/index.php?sectors=National%20Transport%20Development%20Policy%20Committee%20(NTDPC).

[8] The Draft National Rail Plan, Ministry of Railways, December 2020, http://indianrailways.gov.in/NRP-%20Draft%20Final%20Report%20with%20annexures.pdf.

[9] "Strategy for New India @75", NITI Aayog, November 2018, https://niti.gov.in/writereaddata/files/Strategy_for_New_India.pdf.

[10] Report No. 8 of 2020: Railways Finances, Financial Audit, For the year ended March 2019, Report of the Comptroller and Auditor General of India, July 20, 2020, https://cag.gov.in/uploads/download_audit_report/2020/Report%20No.%208%20of%202020_English-05f75b32f3ecdc0.39910555.pdf.

[11] "Reviewing the Impact of "Social Service Obligations" by Indian Railways", NITI Aayog, http://niti.gov.in/writereaddata/files/document_publication/Social-Costs.pdf.

[12] Report of the Committee for Mobilization of Resources for Major Railway Projects and Restructuring of Railway Ministry and Railway Board, Ministry of Railways, June 2015, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/HLSRC/FINAL_FILE_Final.pdf.

[13] "13th Report: Demands for Grants (2017-18)", Standing Committee on Railways, March 10, 2017, http://164.100.47.193/lsscommittee/Railways/16_Railways_13.pdf.

[14] "Ministry of Railways invites Request for Qualifications (RFQ) for private participation for operation of passenger train services over 109 Origin Destination (OD) pairs of routes", Press Information Bureau, Ministry of Railways, July 1, 2020.

Annexure

Appendix I: Railways Budget 2021-22 Summary

Table 9: Railways Receipts and Expenditure for 2021-22 (in Rs crore)

		Actuals 2019-20	2020-21 Budget	2020-21 Revised	% Change (20-21 BE to 20-21 RE)	2021-22 Budget	CAGR (19-20 to 21-22 BE)
	Receipts						
1	Passenger	50,669	61,000	15,000	-75%	61,000	10%
2	Freight	113,488	147,000	124,184	-16%	137,810	10%
3	Other traffic sources	10,200	17,613	7,125	-60%	18,300	34%
4	**Gross Traffic Receipts (1+2+3)**	**174,357**	**225,613**	**146,309**	**-35%**	**217,110**	12%
5	Miscellaneous	338	300	300	0%	350	2%
6	**Total Internal Revenue (4+5)**	**174,695**	**225,913**	**146,609**	**-35%**	**217,460**	12%
	Expenditure						
7	Ordinary Working Expenses	150,211	162,753	140,786	-13%	154,399	1%
8	Appropriation to Pension Fund	20,708	53,160	523	-99%	53,300	60%
9	Appropriation to Depreciation Reserve Fund	400	800	200	-75%	800	41%
10	**Total Working Expenditure (7+8+9)**	**171,319**	**216,713**	**141,509**	-35%	**208,499**	10%
11	Miscellaneous	1,786	2,700	2,300	-15%	2,400	16%
12	**Total Revenue Expenditure (10+11)**	**173,105**	**219,413**	**143,809**	-34%	**210,899**	10%
13	**Net Surplus (6-12)**	**1,590**	**6,500**	**2,800**	-57%	**6,561**	**103%**
14	Appropriation to Development Fund	1,389	1,500	800	-47%	1,561	**6%**
15	Appropriation to Capital Fund	-	-	-	-	-	
16	Appropriation to Debt Service Fund						
17	Appropriation to Railway Safety Fund	-	-	-		-	
18	Appropriation to Rashtriya Rail Sanraksha Kosh	201	5,000	2,000	-60%	5,000	399%
19	**Operating Ratio**	**98.4%**	**96.3%**	**97.0%**		**96.2%**	

Note: RE – Revised Estimate, BE – Budget Estimate.
Source: Expenditure Profile; Union Budget 2021-22; PRS.

Explanatory Notes

Performance parameters

1. 'Net Surplus' represents the excess of revenue receipts over revenue expenditure (Railways' internal revenue and expenditure).

2. 'Operating Ratio' is the ratio of operating expenses to receipts. A lower ratio indicates a higher surplus availability for investments.

Railway Funds

3. Depreciation Reserve Fund – Finances the cost of new assets replacing old assets including the cost of any improved features. Appropriation to this fund is made on the recommendations of the Railway Convention Committee (RCC).

4. Pension Fund – Finances all pension payments to retired Railway staff.

5. Rashtriya Rail Sanraksha Kosh - Finances critical safety-related works of renewal, replacement and augmentation of assets.

Appendix II: Details of freight and passenger traffic

Table 10: Freight traffic details (NTKM in millions; Earnings in Rs crore)

	2019-20		2020-21 Revised		2021-22 Budget		CAGR (19-20 to 21-22 BE)		% share in 2021-22 BE	
Commodity	**NTKM**	**Earning**	**NTKM**	**Earning**	**NTKM**	**Earning**	**NTKM**	**Earning**	**NTKM**	**Earning**
Coal	293,051	54,427	218,020	49,776	267,019	61,485	-5%	6%	37%	45%
Iron Ore	50,321	10,966	57,991	12,990	59,508	14,072	9%	13%	8%	10%
Cement	63,933	8,745	64,630	9,482	67,440	10,794	3%	11%	9%	8%
Other Goods	53,631	7,389	60,407	7,946	59,064	8,942	5%	10%	8%	6%
Foodgrains	52,641	6,154	74,344	9,397	64,860	8,866	11%	20%	9%	6%
Pig Iron & finished steel	45,029	7,287	41,693	6,863	47,070	8,772	2%	10%	7%	6%
Fertilisers	47,162	5,808	49,720	6,618	49,305	7,358	2%	13%	7%	5%
Container Service	56,686	2,554	50,837	5,447	56,032	6,518	-1%	60%	8%	5%
Petroleum & Lubricants	30,774	5,928	30,330	5,803	29,992	6,088	-1%	1%	4%	4%
Miscellaneous earnings	-	2,016	-	7,979	-	2,518	-	12%	0%	2%
Raw Material for Steel Plants	14,437	2,216	12,520	1,882	14,661	2,397	1%	4%	2%	2%
Total	**707,665**	**113,488**	**660,492**	**124,184**	**714,951**	**137,810**	**1%**	**10%**	**-**	**-**

Notes: NTKM – Net Tonne Kilometre (One NTKM is the net weight of goods carried for a kilometre); RE – Revised Estimates; BE – Budget Estimates.
Source: Expenditure Profile; Union Budget 2021-22; PRS.

Table 11: Passenger traffic details (PKM in millions; Earnings in Rs crore)

	2019-20		2020-21 Revised		2021-22 Budget		CAGR (2019-20 to 2021-22 BE)	
	PKM	**Earning**	**PKM**	**Earning**	**PKM**	**Earning**	**PKM**	**Earning**
Total Suburban	**137,130**	**2,843**	**17,189**	**345**	**157,435**	**3,746**	**7%**	**15%**
Non-Suburban								
AC First class	1,696	453	481	230	1,860	581	5%	13%
AC Sleeper	22,771	3,779	5,257	1,561	24,137	4,879	3%	14%
AC 3 Tier	95,593	12,370	23,518	5,444	91,149	12,778	-2%	2%
Executive Class	617	180	42	22	520	277	-8%	24%
AC Chair Car	10,669	1,754	1,456	428	10,537	2,023	-1%	7%
First Class (M&E)	20	13			27	21	16%	26%
First Class (ordinary)	330	16	2	0	378	21	7%	16%
Sleeper Class (M&E)	267,629	13,552	56,836	5,149	304,243	18,596	7%	17%
Sleeper Class (ordinary)	1,849	90	1	0	972	55	-27%	-22%
Second Class (M&E)	383,858	12,563	30,518	1,787	365,063	13,957	-2%	5%
Second Class (Ordinary)	128,576	3,057	817	34	142,806	4,066	5%	15%
Total Non-Suburban	**913,608**	**47,826**	**118,928**	**14,655**	**941,692**	**57,254**	**2%**	**9%**
Total	**1,050,738**	**50,669**	**136,117**	**15,000**	**1,099,127**	**61,000**	**2%**	**10%**

Notes: PKM – Passenger Kilometre (One PKM is when a passenger is carried for a kilometre); RE – Revised Estimates; BE – Budget Estimates.
Source: Expenditure Profile; Union Budget 2021-22; PRS

Demand for Grants: Home Affairs

The Ministry of Home Affairs is responsible for matters concerning internal security, centre-state relations, central armed police forces, border management, and disaster management. In addition, the Ministry makes certain grants to eight Union Territories (UTs). The Ministry was also the nodal authority for managing the COVID-19 pandemic.[1,2,3,4,5]

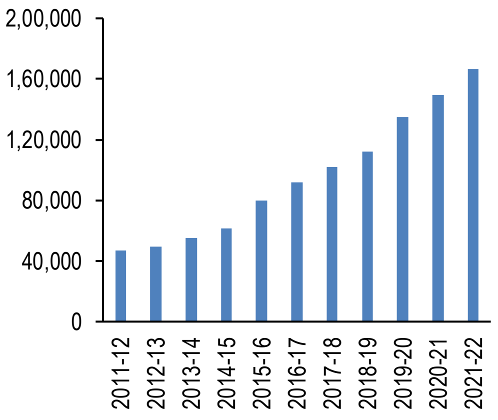
In this note we analyse the expenditure trends and budget proposals of the Ministry for 2021-22, and discuss some issues across the sectors administered by the Ministry.

Overview of Finances

The Ministry has been allocated Rs 1,66,547 crore in Union Budget 2021-22. This is an 11% annualised increase from the actual expenditure in 2019-20. The budget for the Ministry constitutes 4.8% of the total expenditure budget of the central government in 2021-22 and is the third highest allocation.[6]

Figure 1 shows the expenditure of the Ministry between 2011 to 2021. Since 2019, expenditure of the Ministry also includes grants to the newly formed UTs of Jammu and Kashmir, and Ladakh. The average annual growth rate in the expenditure over the last ten years has been 13.5%.

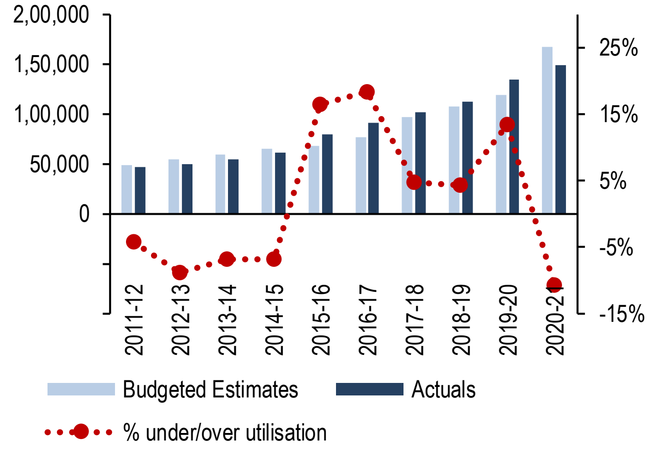
Figure 1: Expenditure of the Ministry of Home Affairs (2011-22) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates and for 2021-22 are Budget Estimates.
Sources: Union Budget 2011-12 to 2021-22; PRS.

Figure 2 shows the budget allocation and actual expenditure between 2011-12 and 2021-22, and the percentage of utilisation of funds. Revised estimates for expenditure in 2020-21 were 10.7% lower than budgeted expenditure. This is the first estimate since 2015-16, where expenditure of the Ministry has been lower than the budgeted estimates.

Figure 2: Budget estimates v/s actual expenditure (2011-21) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates.
Sources: Union Budget 2011-22; PRS.

Of the Ministry's total budget for 2021-22, (i) 62% of the expenditure is on police, (ii) 32% is on grants made to all UTs, and (iii) 6% is on miscellaneous items such as disaster management, rehabilitation of refugees and migrants, census, and Cabinet. Table 1 shows the allocations to these three heads.

Table 1: Ministry of Home Affairs budget estimates (2021-22) (in Rs crore)

Major Head	2019-20 Actuals	2020-21 Revised	2021-22 Budgeted	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Police	1,02,027	92,849	1,03,803	1%
UTs	15,128	51,282	53,026	87%
Others	17,822	5,257	9,718	-26%
Total	**1,34,978**	**1,49,388**	**1,66,547**	**11%**

Note: BE – Budget Estimates. Other expenditure within the Ministry includes disaster management and administrative matters.
Sources: Union Budget 2021-22; PRS.

Police: Expenditure on police includes allocation towards the Central Armed Police Forces, the Intelligence Bureau, and the Delhi Police. For 2021-22, Rs 1,03,803 crore has been allocated towards police. This is an increase of 1% over the actual expenditure on police in 2019-20.

Grants and loans to Union Territories: In 2021-22, Rs 53,026 crore has been allocated for grants and loans for the administration of UTs. This is 87% higher than the actual expenditure for 2019-20 (Rs 1,03,803 crore). This is primarily because of the allocation to the new UTs of Jammu and Kashmir, and Ladakh (post reorganisation of the state in 2019). Allocation to these two UTs is 69% of the total amount allocated to all the UTs. Allocations under this head include grants to five UTs without legislatures (Andaman and Nicobar Islands, Chandigarh, Dadra and Nagar Haveli and Daman and Diu, Lakshadweep, and Ladakh), and three UTs with legislatures (Delhi, Puducherry, and Jammu and Kashmir). Allocation towards each of the UTs is detailed in the Annexure.

Other items: Other items include disaster management, rehabilitation of refugees and migrants, and administrative matters (relating to the census, the secretariat and Cabinet). In 2021-22, these items have been allocated Rs 9,718 crore. This is 26% lower than the actual expenditure in 2019-20. Further, the allocation for 2021-22 is 85% higher than the revised estimates for 2020-21 (Rs 5,257 crore). This is primarily due to an increase in allocation towards conducting the Census of India 2021 from Rs 755 crore in 2020-21 (as per the revised estimates) to Rs 3,768 crore in 2021-22.

Managing the COVID-19 pandemic

Key measures taken by the Ministry of Home Affairs to manage the COVID-19 pandemic include:

- The National Disaster Management Authority (which is under the Ministry) imposed a 21-day national lockdown in March 24, 2020 to contain the spread of COVID-19. All inter-state movement except those categorised as essential services were stopped. The lockdown has been extended twelve times, with the latest extension till February 28, 2021.[5] Gradual relaxations on movement and services have been introduced in the extended lockdowns. The Ministry has stated that the capacity and health infrastructure such as availability of ICU beds and ventilators have been ramped up during the lockdown. The Standing Committee on Home Affairs (2021) observed that the sudden imposition of the lockdown had severe social and economic impact.[1]
- The Ministry constituted 11 Empowered Groups on different aspects of COVID-19 management in March, 2020. These included: (i) medical emergency planning, (ii) augmenting human resource and capacity building, and (iii) technology and data management.[4]
- Inter-Ministerial central teams were established in West Bengal, Maharashtra, Madhya Pradesh and Rajasthan to examine issues including: (i) supply of essential commodities, (ii) preparedness of health infrastructure, and (iii) conditions of relief camps.[2]
- The Ministry allowed states to spend up to 50% of the funds in State Disaster Response Funds to contain COVID-19. The permission applies towards expenditure on: (i) quarantine, sample collection and screening facilities, and (ii) procurement of essential equipment/labs for COVID-19.[3]

Analysis of key areas of expenditure

Police

In 2021-22, Rs 1,03,803 crore has been budgeted for police expenditure. This includes allocations to various police organisations, including: (i) the Central Armed Police Forces, primarily responsible for border protection and internal security, (ii) the Delhi Police, responsible for maintenance of law and order in the national capital territory, and (iii) the Intelligence Bureau, which is the nodal agency for collection of domestic intelligence. Besides these, funds are also allocated for modernisation of police, development of police, and border infrastructure.

The budget for police is estimated to increase by 1% in 2021-22 over the revised estimates of 2020-21.

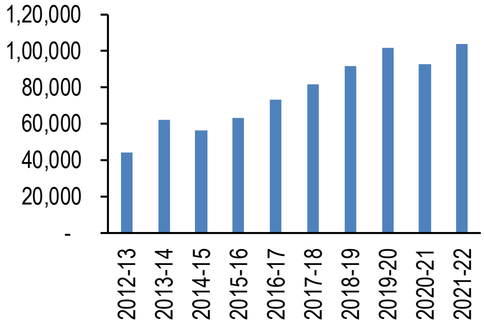
Table 2: Major expenditure items towards police (in Rs crore)

Department	2019-20 Actual	2020-21 Revised	2021-22 Budget	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Central Armed Police Forces	75,672	73,590	77,838	1%
Delhi Police*	8,424	8,242	7,909	-3%
Police Infrastructure	4,063	1,816	3,612	-6%
Modernisation of police	4,637	1,864	2,803	-22%
Intelligence Bureau	2,388	2,434	2,839	9%
Border Infrastructure	2,156	1,495	2,130	-0.6%
Others**	4,688	3,408	6,672	19%
Total	**1,02,028**	**1,03,202**	**1,03,803**	**0.9%**

Notes: *Includes expenditure on traffic management and communication network, upgradation of infrastructure and training, and induction of technology.
** Others includes schemes for safety of women, education and research, criminology and forensic science, Land Port Authority of India, and India Reserve Battalion.
BE – Budget Estimates.
Sources: Union Budget 2021-22; PRS.

Figure 3 shows the trend in police expenditure over the last ten years (2012-22). Expenditure on police has increased at an average annual rate of 9%.

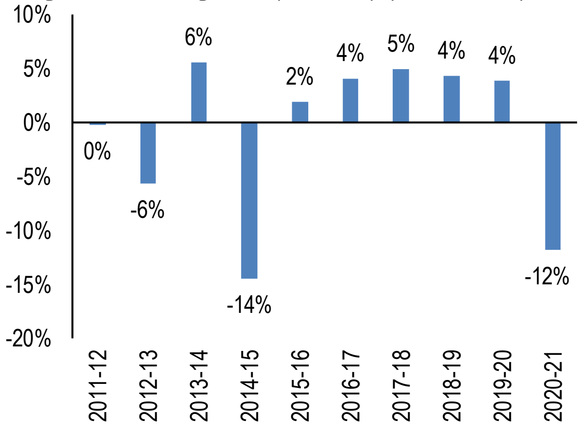
Figure 3: Expenditure on police (2012-22) (in Rs crore)



Note: Revised Estimates used for 2020-21 and Budget Estimates for 2021-22. Actuals used for all other years.
Sources: Union Budgets 2011-21; PRS.

Figure 4 shows the difference between the budget estimates and actuals expenditure for Police in percentage from 2011-22. Since 2015-16, the Ministry has been overspending on police than the estimates at the budget stage. However, in 2020-21, revised estimates were 12% lower than the budgeted estimates.

Figure 4: Budget estimates v/s actual expenditure on police (2011-21) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates.
Sources: Union Budgets 2011-22; PRS.

Central Armed Police Forces

The Ministry is responsible for the Central Armed Police Forces which is composed of seven forces: (i) Central Reserve Police Force (CRPF) which assists in internal security and law and order, (ii) Central Industrial Security Force (CISF) which protects vital installations (like airports) and Public Sector Undertakings, (iii) National Security Guards (NSG) which is a special counter-terrorism force, and (iv) four border guarding forces, namely Border Security Force (BSF), Indo-Tibetan Border Police (ITBP), Sashastra Seema Bal (SSB) and Assam Rifles (AR). Table 9 in the Annexure discusses expenditure on each of the CAPFs in the past ten years.

The CAPFs are estimated to receive a total allocation of Rs 77,838 crore in 2021-22. This accounts for 75% of the expenditure on police. The highest expenditure is towards the CRPF which will receive 34% (Rs 26,198 crore) of the total allocation for CAPF. This is an increase from the 2020-21 revised expenditure (Rs 24,788 crore) and the actual expenditure in 2019-20 (Rs 25,133 crore). The second highest expenditure is towards the Border Security Force which has been allocated 27% of the budget, i.e., Rs 20,730 crore. The allocation is an increase from the 2020-21 allocation (Rs 19,378 crore) and the actual expenditure in 2019-20 (Rs 20,254 crore).

Vacancies and delayed recruitment

As of January 2020, 10% of sanctioned posts were vacant in the CAPFs. The seven CAPFs had a total of 1,05,486 vacancies.[7] 26% of total vacancies are from the BSF and 24% are from the CRPF. Table 3 shows the percentage of vacancies as of January 2020.

Table 3: Vacancies in CAPFs (as of January 2020)

CAPFs	Sanctioned Strength	Actual Strength	% of vacancies
CRPF	3,24,340	2,99,410	8%
BSF	2,65,173	2,37,750	10%
CISF	1,62,541	1,41,650	13%
SSB	97,244	78,809	19%
ITBP	89,567	82,631	8%
AR	66,408	60,524	9%
NSG	10,844	9,857	9%
Total	**10,16,117**	**9,10,631**	**10%**

Note: CRPF- Central Reserve Police Force; BSF- Border Security Force; CISF-Central Industrial Security Force; SSB-Sashastra Seema Bal; ITBP-Indo Tibetan Border Police; AR-Assam Rifles; NSG-National Security Guard.
Sources: "Data of Police Organizations", Bureau of Police Research and Development, 2020; PRS.

The Standing Committee on Home Affairs (2019) noted that continued vacancies were observed in the Central Armed Police Forces.[8,9] Further vacancies for doctors, cooks and other staff were not being filled in a timely manner which impacts service and living conditions for personnel. The Standing Committee (2018) observed that there was a lack of foresight, planning, and estimation of future vacancies, leading to delay in recruitment.[10] Delays in recruitment lead to a failure to regularise training cycle by forces.[8] It has recommended the Ministry to proactively identify vacancies and report the same to recruitment agencies in a time-bound manner.

Service and living conditions

The Standing Committee on Home Affairs (2018, 2019) has highlighted shortfall in housing, poor quality of food, and lack of access to clean drinking water among the issues in living conditions for CAPFs.[8,9,10]

The Standing Committee (2019) while discussing the housing shortage for the four border-guarding CAPFs noted that 39% of the 2.7 lakh sanctioned houses were available. Another 2019 report also stated that only 12% of houses sanctioned for CRPF were available.[8] Within the available housing, there is a further shortage of housing for non-gazetted officers. The government states that this is primarily due to difficulty in land acquisition and limited executive power at the local level. Housing shortage has also been highlighted as an issue for other CAPFs.[9]

The issue of food quality has also been highlighted. In case of border-guarding CAPFs, the Standing Committee (2019) has observed that it is difficult to ensure a regular supply of nutritious food due to postings in remote areas. However, it has recommended to ensure routine inspection of quality and supply of food.[8] For other CAPFs, the Committee recommends establishing location specific systems of procurement and provision of food. It further suggested implementing inbuilt quality checks through external food inspections.[9]

Access to clean drinking water for border-guarding forces is also a challenge. The government estimates that 82% of ITBP, 78% SSB, 43% of AR, and 16% of BSF out-posts have not been provided with potable water. The Committee has recommended the Ministry to take requisite steps and for the forces to ensure inspections to ensure continued access to water for personnel.[9,10]

Training and management

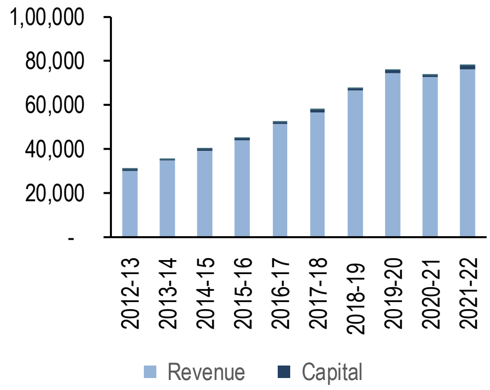
All CAPFs have set up training institutes to meet their training requirements and imparting professional skills on specialised topics. The Estimates Committee (2020) recommended that the contents of training should include latest technologies such as IT and cyber security alongside conventional training.[11]

In terms of organisational management, the Standing Committee (2019) highlighted the issue of stagnation in promotion among personnel of the CAPFs. For example, in the ITBP, a constable gets promoted to head constable in 12-13 years, against the required period of five years.[10] In the case of CISF, the same promotion takes 22 years.[12] In this context, the Standing Committee (2018) recommended that cadre review of the CAPFs must be expedited to ensure that promotions take place in a timely manner.[12]

Modernisation of CAPFs

Figure 5 shows the distribution between revenue and capital expenditure for the seven CAPFs between 2012-13 and 2021-22. Capital expenditure is allocation for procurement of machinery and equipment, and motor vehicles, whereas revenue expenditure is on items such as salaries, arms and ammunition, and clothing. Note that the capital component does not include funds for construction.

Figure 5: Revenue vs Capital expenditure for CAPFs (2012-22) (in Rs crore)



Note: Figures for 2020-21 are Revised Estimates and for 2021-22 are Budget Estimates. Figures for all other years are actuals.
Sources: Union Budget 2012-22; PRS.

The average capital expenditure between 2012-13 and 2021-22 was 2% of the total expenditure on CAPFs. Between 2013-18, the actual capital expenditure was Rs 726 crore out of a budgeted amount of Rs 1,128 crore.[11]

The Estimates Committee (2018) stated that the procurement process under the Modernisation Plan was cumbersome and time-consuming.[13] It recommended that bottlenecks in procurement should be identified and corrective action taken. Further, it stated that the Ministry and CAPFs should hold negotiations with ordnance factories and manufacturers in public or private sector to ensure uninterrupted supply of equipment.[13]

The 15th Finance Commission has recommended establishing the Modernisation Fund for Defence and Internal Security to bridge the gap between budgetary requirements and allocation for capital outlay in defence and internal security. The fund will have an estimated corpus of Rs 2.4 lakh crore over 2021-26.[14]

Mobility and connectivity in border areas

Mobility of border guarding forces has been identified as an issue affecting their operational efficiency.[10] There is a shortage of 4,210 km of road at the Indo-Pakistan and Indo-Bangladesh border where BSF personnel are located. There is also a lack of adequate all-weather roads in remote areas where personnel from the Assam Rifles are posted.[10] The Standing Committee on Home Affairs (2019) has also noted that there is no provision for mobile connectivity in many border outposts, and had recommended that the Ministry provide optical fibre cable connectivity and expand telecom connectivity.

Table 4 shows the expenditure towards border infrastructure and management. This includes allocations for maintenance of border works, border check posts and out posts, and capital outlays for various items including barbed wire fencing, construction of roads, and hi-tech surveillance on Indo-Bangladesh and Indo-Pakistan borders. For 2021-22, Rs 2,130 crore has been budgeted for border infrastructure and management. Further, note that, the revised estimates in 2020-21 (Rs 1,495 crore) were 31% lower than the actual expenditure in 2019-20.

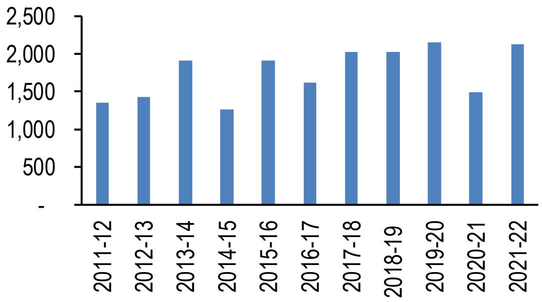
Table 4: Expenditure related to border infrastructure and management (in Rs crore)

Department	2019-20 Actuals	2020-21 Revised	2021-22 Budget	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Maintenance and Border Check post	217	206	209	-2%
Capital Outlay	1,939	1,289	1,921	-0.5%
Total	2,156	1,495	2,130	-1%

Sources: Union Budget 2021-22; PRS.

Figure 6 shows the total expenditure on border infrastructure and management between 2011 and 2021. The expenditure has increased at an annual average growth rate of 5% during this period.

Figure 6: Expenditure on border infrastructure and management (2011-21) (in Rs crore)



Sources: Union Budgets 2011-22; PRS.
Note: Revised Estimates used for 2020-21 and Budget Estimates used for 2021-22. Figures for all other years are actuals.

Delhi Police

An amount of Rs 7,909 crore has been allocated to the Delhi Police in the 2021-22 budget. This is an annualised decrease of 3.1% compared to the actual expenditure for 2019-20.

Quality of investigation

The number of solved and unsolved cases of the Delhi Police between 2015-2018 is in Table 5.

Table 5: Number of cases reported to and solved by the Delhi Police (2015-2018)

Year	Cumulative Cases reported	Cumulative Cases solved	% of cases unsolved
2015	1,91,377	52,091	73%
2016	2,09,519	55,957	73%
2017	2,33,580	81,219	65%
2018 (up to July, 2018)	1,25,668	37,390	70%

Sources: Starred Question No. 227, Rajya Sabha, Ministry of Home Affairs, August 8, 2018; PRS.

The Standing Committee on Home Affairs in its report on the functioning of Delhi Police (2014), had recommended that investigation should be separated from law-and-order duties. This is primarily because police personnel were found to be overburdened by multi-faceted tasks including administration and personal security. Further, the Committee suggested that since investigation requires legal expertise, the training module of Delhi Police must include advanced courses on law and jurisprudence.[15]

The Committee also observed that extraneous pressure on investigating agencies was impacting quality of investigations and causing delays in resolution of cases.[15]

Vacancies

As of January 2020, 11% of the total sanctioned posts in the Delhi Police were vacant.[16] The vacancies between 2015-20 are given in Table 6.

Table 6: Vacancies in Delhi Police (2015-20)

Year	Sanctioned strength	Actual strength	% of vacancies
2015	82,242	77,083	**6%**
2016	82,224	76,348	**7%**
2017	84,417	82,979	**2%**
2018	86,531	74,712	**14%**
2019	91,963	82,190	**11%**
2020	91,962	82,195	**11%**

Sources: "Data of Police Organizations", Bureau of Police Research and Development, 2015-20; PRS.

The Standing Committee on Home Affairs (2014) stated that steps should be taken to assess the actual requirement of police strength to improve the police-population ratio.[15] It recommended that the Delhi Police may take the assistance of the Bureau of Police Research and Development to improve the operational efficiency of the organisation.

Corruption and transparency

The Standing Committee on Home Affairs (2014) stated that public perception and anecdotal evidence pointed towards widespread corruption and rent-seeking within the Delhi Police.[15] The Committee recommended several measures including: (i) establishing proactive vigilance squads and strict follow up actions to investigations, (ii) prompt enquiry into complaints of corruption, and (iii) mandatory filing of returns for assets by officers of every rank.

The central government has stated that vigilance units of the Delhi Police strictly monitor police personnel and are empowered to take suo-moto action. Helplines to complain or inform about instances of bribery or corruption have also been established by the Ministry in 2014.[17]

Intelligence Bureau

The Intelligence Bureau (IB) is responsible for the collection of intelligence within India, and is the primary agency for counter-intelligence. An amount of Rs 2,839 crore has been allocated to the IB in 2021-22, which is 9% higher than the actual expenditure in 2019-20 (Rs 2,388 crore).

Multi Agency Centre

The government set up a Group of Ministers (GoM) in 2000, to comprehensively review the national security framework.[18] The GoM recommended that the Ministry of Home Affairs should put in place arrangements for intelligence sharing, in which the IB would play the lead role, along with representatives of the state and central police forces.[18] Based on these recommendations, the Multi Agency Centre was set up in the IB, for collating and sharing intelligence with all other security agencies.[18] Further, Subsidiary Multi Agency Centres have been set up at the state-level to ensure better coordination between intelligence agencies.[18]

The Standing Committee on Home Affairs (2017) observed that state agencies have made lower contribution in the overall inputs received by the Multi Agency Centre.[18] It recommended that the Ministry should hold consultations with states to find out the reasons for this low level of contribution. Further, the Committee recommended that there should be a mechanism to perform validity checks on information obtained from other agencies, before it is shared with the Multi Agency Centre.[18]

Modernisation of Police Forces

For 2021-22, the central government has made allocations towards four items related to modernisation of police force. These are: (i) Modernisation of State Police Forces Scheme; (ii) the Crime and Criminal Tracking Network and Systems (CCTNS) scheme; (iii) Security Related Expenditure (SRE) scheme; and (iv) Special Infrastructure Scheme (SIS) for Left Wing Areas.

The Modernisation of State Police Forces Scheme is a centrally sponsored scheme. The cost-sharing pattern between centre and states is: (i) 90:10 for north-eastern and Himalayan states, and (ii) 60:40 for all other states.[19]

Rs 2,803 crore has been allocated for the modernisation of police forces in 2021-22, which is 22% lower than the actual expenditure for 2019-20. Revised estimates for 2020-21 are 40% lower than the actual expenditure for 2019-20.

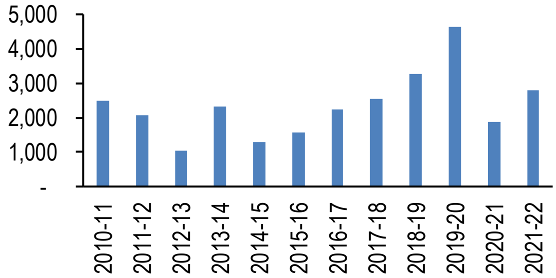
Table 7: Expenditure related to modernisation of police (in Rs crore)

Major Head	19-20 Actuals	20-21 Revised	21-22 Budget	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
SRE and SIS for LWE areas	3,707	1,757	2,135	-24%
Modernisation of State Police Forces and CCTNS	930	107	669	-15%
Total	4,637	1,864	2,803	-22%

Sources: Union Budget 2021-22; PRS.
BE – Budget Estimates, RE – Revised Estimates.

Figure 7 shows the expenditure on modernisation of police forces between 2010-22.

Figure 7: Expenditure on modernisation of police scheme (in Rs crore) (2010-22)



Sources: Union Budgets 2010-22; PRS.
Notes: Revised Estimates used for 2020-21 and Budget Estimates used for 2021-22. Actuals used for all other years.

The expenditure has increased at an average annual rate of 3% in this period.

Shortage of infrastructure

Funds from the modernisation scheme are utilised for improving police infrastructure through construction of police stations, and provision of modern weaponry, surveillance, and communication equipment. Other objectives under the scheme include upgradation of training infrastructure, police housing, and computerisation of records.[11]

The Comptroller and Auditor General (CAG) has highlighted lapses in the implementation of the modernisation scheme in various states. For instance, in case of Jharkhand, a 2020 CAG report found that shortage of modern weapons increased between 2013-2018.[20] Further, distribution of arms and ammunitions in the field was not uniform and impacted performance. Resource mapping was also found to be inadequate. For instance, 91% of communication sets used by the police were found to be analogue, which were susceptible to interception.[20]

An audit of Karnataka for the period 2012-17, found shortages of weapons ranging between 37% and 72% for various types of arms. The audit also found that, as of March 2017, all communication sets available with the Karnataka police were obsolete.[21]

In the case of Maharashtra, an audit was carried out for the period 2011-12 to 2016-17.[22] The CAG found a shortage of 45% for modern weaponry in the state. Further, only 8% of the planned construction work under the scheme (including police stations), was completed between 2011-16.[22]

The Standing Committee (2020) noted that there was under-utilisation of funds and recommended measures to improve capacity of implementing agencies. The Committee has also highlighted that a major share of funds earmarked for the purpose of modernisation of police forces went towards improving infrastructure. It recommends allocating more funds for enabling mandatory training of police forces to develop people friendly attitudes, and for maintaining equipment bought for further use.[23] The importance of training with efforts for modernisation has also been iterated by the CAG in its reports.[20,21]

Disaster management

The Ministry of Home Affairs is the nodal ministry for handling all disasters other than drought, which is handled by the Ministry of Agriculture.[24] Disaster management includes capacity building, mitigation, and response to natural calamities and man-made disasters. Allocation towards various items is shown in Table 8.

Currently, centre and state governments share costs for disaster management initiatives. The cost-sharing pattern between centre and states is: (i) 90:10 for north-eastern and Himalayan states, and (ii) 75:25 for all other states. State disaster management funds have a corpus of Rs 1.6 lakh crore (centre's share is Rs 1.2 lakh crore. In 2021, the 15th Finance Commission (2021) recommended retaining this pattern.[14]

Table 8: Expenditure on major items related to disaster management (in Rs crore)

Department	19-20 Actuals	20-21 Revised	21-22 Budget	Change (Annualised) Actuals 2019-20 - BE 2021-22)
National Disaster Response Force	934	1,033	1,209	14%
Disaster management infrastructure	146	106	72	-30%
National Cyclone Risk Mitigation Project	225	99	296	15%
Other schemes	128	122	113	-6%
Total	**1,433**	**1,360**	**1,691**	**9%**

Note: BE – Budget Estimates. Sources: Union Budget 2021-22; PRS.

National Disaster Response Force

The National Disaster Response Force (NDRF) is a specialised force that is responsible for disaster response and relief. For 2021-22, the budget estimate for the NDRF is Rs 1,209 crore, which is 14% higher than the actual expenditure for 2019-20.

The Standing Committee on Home Affairs (2018) noted that there was a standard operating procedure for deployment of NDRF during a disaster, according to which, states can requisition for forces.[28] However, states may be unable to make optimal assessments of the requirements which could lead to competing demands for mobilisation of forces in disaster-stricken areas. The Committee therefore recommended that the National Disaster Management Authority make an independent assessment of the number of battalions required to be deployed. This would ensure rational assessment of needs and optimal prepositioning of NDRF.[28]

The 15th Finance Commission (2021) has recommended sub-dividing allocations to the NDRF encompassing the complete disaster management cycle: (i) response and relief, recovery and reconstruction, (ii) preparedness and capacity building. It recommends ensuring flexibility for re-allocation within these sub-windows. The Commission further recommends providing central assistance to states on a graded cost-sharing pattern. States must contribute: (i) 10% of assistance for grants of up to Rs 250 crore, (ii) 20% of assistance for grants between Rs 250-500 crore, and (iii) 25% of assistance for grants of more than Rs 500 crore.[14]

National Cyclone Risk Mitigation Project

The National Cyclone Risk Mitigation Project (NCRMP) was launched by the Ministry of Home Affairs with the aim of minimising vulnerability in states and UTs that are prone to cyclone hazards. Key objectives of the project include: (i) improving early warning dissemination systems, and (ii) construction and maintenance of cyclone shelters.

For 2021-22, a budgetary allocation of Rs 296 crore has been made to this project. This is a 15% increase from the actual expenditure for 2019-20.

The Standing Committee (2018), noted that forecasting the rapid intensification of cyclones (as in the case of cyclone Ockhi), is an area of concern. It stated that the rapid intensification of cyclones is no longer a rare phenomenon due to global warming, and recommended that the existing capacity for advanced cyclone warning needs to be bolstered.[28]

The Standing Committee (2020) further said that commissioning of early-warning dissemination systems in states including Odisha and Andhra Pradesh may increase pre-cyclone preparedness.[21] However, even for projects commissioned in 2015, construction had not begun, which may have adverse impacts during the cyclonic season.[23]

National Disaster Response Fund

The Disaster Management Act, 2005, mandates the creation of a National Disaster Response Fund and State Disaster Response Funds.

Relief assistance is provided to states from the National Disaster Response Fund in case of severe natural calamities, where the State Disaster Response Fund is insufficient to cover the required expenditure.[25]

Allocations to the National Disaster Response Fund are made by the Ministry of Finance, though it is administratively controlled by the Ministry of Home Affairs.[25] For the year 2021-22, a budgetary allocation of Rs 1,209 crore has been made to the fund, which is a 38% decrease from the actual expenditure in 2019-20 (Rs 934 crore).

The National Disaster Response Fund is financed through the National Calamity Contingency Duty (NCCD) imposed on specified goods under central excise and customs.[26]

In order to receive assistance from the NDRF, state governments must submit a memorandum indicating the damage and requirement of funds.[27] On receipt of the memorandum, an Inter-Ministerial Central Team (IMCT) is constituted which will submit a report after an on-the-spot assessment of the damage. Thereafter, a High-Level Committee approves the amount of relief to be released from the NDRF.

The Standing Committee on Home Affairs (2018) noted that there was significant difference between funds sought by state governments and amounts approved by the High-Level Committee.[28] In most cases the shortfall was more than 70%, and in some cases more than 95%. According to the Committee, a reason for this shortfall could be that by the time the IMCT reaches the disaster-affected area, the signs of disaster are on the verge of diminishing. Therefore, it recommended that the IMCT should make a preliminary visit to the disaster affected areas, within one week of the disaster. Further, a joint preliminary damage assessment should be done with the state governments concerned.[28]

[1] "229th Report: Management of COVID-19 Pandemic and Related Issues", Department related Standing Committee on Home Affairs, February 2, 2021, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/143/229_2021_2_15.pdf.

[2] "Central Government constitutes 6 Inter-Ministerial Central Teams to make assessment of situation and augment State efforts to fight and contain spread of COVID-19 effectively", Press Information Bureau, Ministry of Home Affairs, April 20, 2020.

[3] "Items and norms of assistance under State Disaster Response Fund (SDRF) for containment measures of COVID-19", Ministry of Home Affairs, September 23, 2020, https://www.mha.gov.in/sites/default/files/MHALetterdt23092020.pdf.

[4] "Constitution of the Empowered Groups under the Disaster Management Act, 2005", Ministry of Home Affairs, 2020, https://mha.gov.in/sites/default/files/MHA%20Order%20on%20%20Disaster%20Management%20Act%202005.pdf.

[5] Order No. 40-3/2020-DM-I(A), Ministry of Home Affairs, January 29, 2021, https://www.mha.gov.in/sites/default/files/MHAorderdt_27012021.pdf.

[6] Demands No. 48-58, Ministry of Home Affairs, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/allsbe.pdf.

[7] Data on Police Organisations, 2020, Bureau of Police Research and Development, Ministry of Home Affairs, October, 2020, https://bprd.nic.in/WriteReadData/userfiles/file/202101011201011648364DOPO01012020.pdf.

[8] "220th Report: Action Taken by Government on the Recommendations/Observations Contained in the Two Hundred Fifteenth Report on Working Conditions in Non-Border Guarding Central Armed Police Forces (Central Industrial Security Force, Central Reserve Police Force and National Security Guard), Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, December 11, 2019, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/122/220_2020_9_12.pdf.

[9] 221st Report: Action Taken by Government on the Recommendations/Observations Contained in the Two Hundred Fourteenth Report on Working Conditions in Border Guarding Forces (Assam Rifles, Sashastra Seema Bal, Indo-Tibetan Border Police and Border Security Force), Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, December 11, 2019, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/122/221_2020_12_16.pdf.

10 "214th Report: Working Conditions in Border Guarding Forces (Assam Rifles, Sashastra Seema Bal, Indo-Tibetan Border Police and Border Security Force)", Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/107/214_2018_12_15.pdf.

11 "2nd Report: Action taken by the Government on the recommendations contained in Twenty-Eight Report (Sixteenth Lok Sabha) of the Committee on Estimates", Lok Sabha, 2020, http://164.100.47.193/lsscommittee/Estimates/17_Estimates_2.pdf.

12 "215th Report: Working Conditions in Non-Border Guarding Central Armed Police Forces (Central Industrial Security Force, Central Reserve Police Force, and National Security Guard)", Department-Related Standing Committee on Home Affairs, Rajya Sabha, December 12, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/107/215_2018_12_15.pdf.

13 "28th Report: Central Armed Police Forces and Internal Security Challenges- Evaluation and Response Mechanism",Committee on Estimates, Lok Sabha, March 16, 2018, http://164.100.47.193/lsscommittee/Estimates/16_Estimates_28.pf

14 Report for 2021-26, 15th Finance Commission, February, 2021, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/Reports/XVFC%20Complete_Report.pdf.

15 "176th Report: The Functioning of Delhi Police", Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, February 19, 2014, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/15/176_2016_6_17.pdf.

16 Data on Police Organisations, 2020, Bureau of Police Research and Development, Ministry of Home Affairs, October, 2020, https://bprd.nic.in/WriteReadData/userfiles/file/202101011201011648364DOPO01012020.pdf.

17 "184th Report: Action Taken by Government on the recommendations/observations contained in the 176th Report on the Functioning of Delhi Police", Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, December 12, 2015, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/15/189_2018_7_15.pdf.

18 "203rd Report: Border Security: Capacity Building and Institutions", Department-Related Parliamentary Standing Committee on Home Affairs, Rajya Sabha, April 11, 2017, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/15/203_2017_4_11.pdf.

19 Unstarred Question No. 1017, Ministry of Home Affairs, Rajya Sabha, February 10, 2021, https://pqars.nic.in/annex/253/AU1017.pdf.

20 Audit Report on General, Social and Economic Sectors for year ending in March, 2018, CAG, 2020, https://cag.gov.in/uploads/download_audit_report/2017/Report%202%20of%202020%20GSES%202017-18,%20Jharkhand,%20Eng-05f6c7ef871cbb3.88824404.pdf.

21 Audit Report (General and Social Sector) for the year ended March 2017 for Karnataka, Comptroller and Auditor General, https://cag.gov.in/sites/default/files/audit_report_files/Report_No_2_of_2018_-_General_and_Social_Sector_Government_of_Karnataka.pdf.

22 Audit Report (General and Social Sector) for the year ended March 2016 for Maharashtra, Comptroller and Auditor General, https://cag.gov.in/sites/default/files/audit_report_files/Report_No.4_of_2017_%E2%80%93_General_and_Social_Sector_Government_of_Maharashtra.pdf.

23 "224th Report: Demand for Grants", Ministry of Home Affairs, Standing Committee on Home Affairs, March, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/122/224_2020_3_15.pdf.

24 Report of the Fourteenth Finance Commission, 2014, http://www.thehinducentre.com//multimedia/archive/02321/14th_Finance_Commi_2321247a.pdf.

25 "Operational Guidelines for Constitution and Administration of the National Disaster Response Fund", Ministry of Home Affairs, September 28, 2010, http://doe.gov.in/sites/default/files/Guidelines%20for%20National%20Disaster%20Response%20Fund%20%28NDRF%29.pdf.

26 "71st Report: Central Assistance for Disaster Management and Relief", Standing Committee on Finance, Lok Sabha, http://164.100.47.193/lsscommittee/Finance/16_Finance_71.pdf.

27 National Disaster Management Plan, Government of India,2016, https://ndma.gov.in/images/policyplan/dmplan/National%20Disaster%20Management%20Plan%20May%202016.pdf.

28 "211th Report: The Cyclone Ockhi- Its Impact on Fishermen and damage caused by it", Department-Related Parliamentary Standing Committee on Home Affairs, April 2, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/101/211_2018_7_11.pdf.

Annexure

Table 9: Expenditure on grants to Union Territories (in Rs crore)

	2019-20 Actuals	2020-21 Revised	2021-22 Budget	% change BE 21-22 /RE 20-21	% of total allocation
Jammu and Kashmir	-	30,757	30,757	0%	58%
Ladakh	-	5,958	5,958	0%	11%
Andaman and Nicobar	4,949	4,825	5,317	10%	10%
Chandigarh	4,144	4,155	4,661	12%	9%
Puducherry	1,601	1,703	1,730	2%	3%
Lakshadweep	1,297	1,350	1,441	7%	3%
Dadra and Nagar Haveli and Daman and Diu	2,115	1,419	2,204	55%	4%
Delhi	1,022	1,116	958	-14%	2%
Total	**15,128**	**51,282**	**53,026**	**3%**	

Sources: Union Budget 2021-22; PRS. Note: BE – Budget Estimates, RE – Revised Estimates.

Table 10: Expenditure of the Central Armed Police Forces (in Rs crore)

Department	2012-13	2013-14	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
CRPF	9,983	11,124	14,327	16,804	18,560	21,974	25,133	24,788	26,198
BSF	9,095	10,294	12,996	14,909	16,019	18,652	20,254	19,378	20,730
CISF	3,798	4,301	3,773	6,563	7,614	9,115	10,421	10,677	10,342
ITBP	2,506	3,051	5,662	4,641	5,078	5,699	6,625	6,150	6,567
AR	2,901	3,276	3,848	4,724	5,031	5,694	5,632	5,580	6,161
SSB	2,179	2,719	3,417	4,045	4,641	5,420	6,382	5,950	6,480
NSG	500	498	569	697	968	1,007	1,113	955	1,235
Departmental Accounting	58.4	66.18	77.6	91.7	95	110	111	112	126
Total	**31,020**	**35,329**	**44,668**	**52,474**	**58,006**	**67,670**	**75,671**	**73,590**	**77,838**

Sources: Union Budget 2012-21; PRS.
Notes: Revised Estimates used for 2020-21 and Budgeted Estimates used for 2021-22; Actuals used for all other years.
CRPF: Central Reserve Police Force; BSF: Border Security Force; CISF: Central Industrial Security Force; AR: Assam Rifles; ITBP: Indo Tibetan Police Force; SSB: Sashastra Seema Bal; NSG: National Security Guard.

Table 11: Vacancies in CAPFs (2012-20) (in lakhs)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Sanctioned strength	8.9	9.1	9.3	9.5	9.7	11.5	10.8	11	10.1
Actual strength	7.6	8.3	8.7	8.9	9	9.9	10	10	9.1
% of vacancies	14%	9%	6%	7%	7%	14%	7%	9%	10%

Sources: "Data of Police Organizations", Bureau of Police Research and Development, 2012-20; PRS.
Note: Figures for each year are as of January 1 of that year.

Table 12: State-wise releases from NDRF in 2020-21 (as of November, 2020) (in Rs crore)

State	Releases from NDRF	% of total releases
West Bengal	1000	62%
Odisha	500	31%
Rajasthan	69	4%
Manipur	27	2%
Meghalaya	17	1%
Tripura	13	1%
Total	1624	

Sources: Allocation and Release of Funds from SDRF/ NDRF during 2021-22, Disaster Management Division, Ministry of Home Affairs; PRS

Demand for Grants: Rural Development

The Ministry of Rural Development is responsible for the development of and welfare activities in rural areas. It aims at increasing livelihood opportunities, providing social safety nets, and improving infrastructure for growth. The Ministry has two departments: (i) rural development, and (ii) land resources. This note presents the budgetary allocations to the Ministry for 2021-22, and analyses various issues related to the schemes implemented by it.

Allocation in Union Budget 2021-22

The Ministry of Rural Development has the fourth highest allocation across Ministries in 2021-22, at Rs 1,33,690 crore.[1] Table 1 gives the trend in budgetary allocation towards the Ministry over the past three years.

Table 1: Budgetary allocation to the Ministry of Rural Development (Rs crore)

Department	Actuals 19-20	RE 20-21	BE 21-22	Annualised change (Actuals 19-20 to BE 21-22)
Rural Development	1,22,098	1,97,377	1,31,519	4%
Land Resources	1,524	1,252	2,170	19%
Total	**1,23,622**	**1,98,629**	**1,33,690**	**4%**

Note: BE is budget estimate and RE is revised estimate.
Sources: Demands for Grants 2021-22, Ministry of Rural Development; PRS.

In 2021-22, the Department of Rural Development has been allocated Rs 1,31,519 crore, accounting for 98% of the Ministry's allocation. This is a 4% annual increase over the actual expenditure in 2019-20.

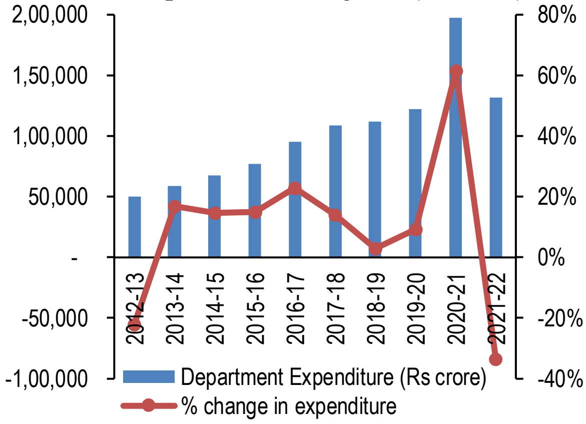
On the other hand, the Department of Land Resources has an allocation of Rs 2,170 crore, which is a 19% annual increase over the actual expenditure in 2019-20. In 2020-21, the Department was allocated Rs 2,251 crore, which decreased by Rs 999 crore (44%) at the revised estimates stage.

Department of Rural Development

The **Department of Rural Development** under the Ministry is responsible for implementation of schemes targeted at poverty reduction, provision of basic services, employment generation, rural infrastructure, and habitation development.

In the past 10 years, the expenditure of the Department has seen an annual growth of 11.3%. In 2020-21, the Department was allocated Rs 1,20,147 crore, which increased by Rs 77,229 crore (64%) at the revised estimates stage. This was due to increased expenditure on schemes such as MGNREGS and the National Social Assistance Programme, to combat the effects of the Covid-19 pandemic. Thus, in 2021-22 the estimated expenditure is 33% less than the revised estimates for 2020-21.

Figure 1: Expenditure by the Department of Rural Development over the years (Rs crore)



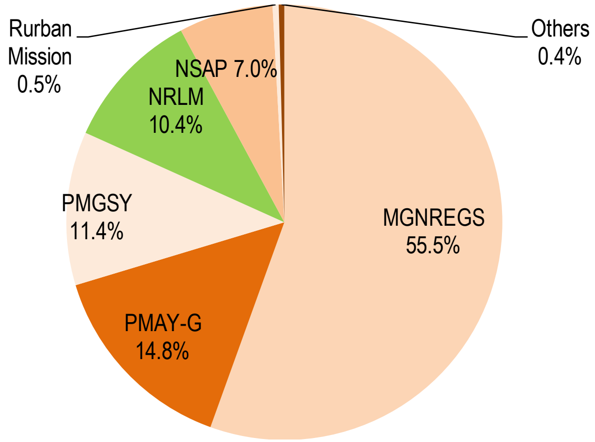
Note: Values for 2020-21 and 2021-22 are revised estimates and budget estimates respectively.
Sources: Union Budgets 2012-13 to 2021-22; PRS.

The Standing Committee on Rural Development (2020-21) noted that the allocation for the Department has not increased substantially over the past few years.[2] It highlighted that the dearth of funds might be an obstacle to the progress of the schemes under the Department and recommended the Department to seek increased fund allocation.[2]

Major schemes under the Department

In 2021- 22, 56% of the Department's expenditure is estimated to be on the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). This is followed by the rural component of Pradhan Mantri Awaas Yojana – Gramin (PMAY-G) (15%), and Pradhan Mantri Gram Sadak Yojana (PMGSY) (11%). Figure 2 shows the composition of expenditure of the Department.

Figure 2: Top expenditure heads in 2021-22, as a percentage of total departmental allocation



Note: MGNREGS is Mahatma Gandhi National Rural Employment Scheme, PMAY-G is Pradhan Mantri Awaas Yojana – Gramin, PMGSY is Pradhan Mantri Gram Sadak Yojana, NRML is National Rural Livelihood Mission, NSAP is National Social Assistance Program, Others include Rurban Mission, and projects like socio-economic and caste survey.
Sources: Demands for Grants 2021-22, Department of Rural Development: PRS.

Table 2 represents the budgetary allocation for major schemes under the Department of Rural Development.

Table 2: Allocation to various schemes under the Department of Rural Development (Rs crore)

Scheme	Actuals 19-20	RE 20-21	BE 21-22	Annualised change (Actuals 19-20 to BE 21-22)
MGNREGS	71,687	1,11,500	73,000	1%
PMAY-G	18,116	19,500	19,500	4%
PMGSY	14,017	13,706	15,000	3%
NRLM	9,022	9,210	13,678	23%
NSAP	8,692	42,617	9,200	3%
Rurban Mission	304	372	600	41%
Others	259	471	541	44%
Total	**1,22,098**	**1,97,377**	**1,31,519**	**4%**

Note: BE is budget estimate and RE is revised estimate. Others include projects like management support to rural development programs, socio-economic and caste census survey and centre's expenditure.
Sources: Demands for Grants 2021-22, Department of Rural Development, Ministry of Rural Development; PRS.

- MGNREGS continues to account for more than half of the Department's budget. The funds allocated to it saw a marginal 1% annualised increase over the actual expenditure in 2019-20.
- Funds allocated to the National Rural Livelihood Mission (NRLM) has seen an annualised increase of 23% over the actual expenditure in 2019-20.

Financial allocations comparing outcomes

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

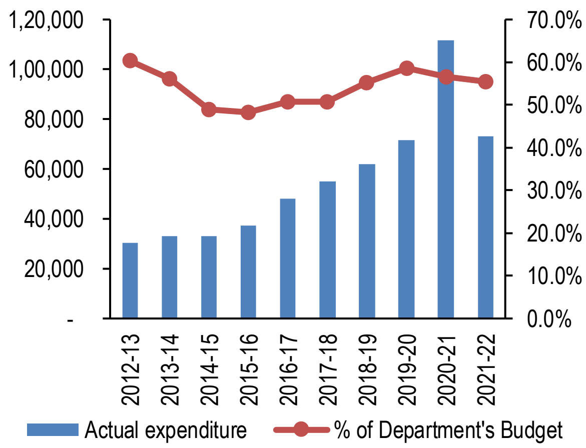
MGNREGS seeks to provide guaranteed 100 days of wage employment per year to every rural household whose adult members volunteer to do unskilled manual work.[3]

The Mahatma Gandhi National Rural Employment Guarantee Act, 2005 specifies a list of works that can be undertaken to generate employment. These are related to water conservation, land development, construction, and agriculture, among others. The scheme at present covers all districts of the country with the exception of those with 100% urban population.[4]

In 2021-22, the scheme has been allocated Rs 73,000 crore. The budget allocation for the scheme was increased by Rs 40,000 crore in 2020-21 (under the Atmanirbhar Bharat package) to address the need for more work during the Covid-19 pandemic including for returning migrant workers during the lockdown.[5]

Budgeted versus actual expenditure: Figure 3 shows the expenditure on the scheme from 2012-13 to 2021-22.

Figure 3: Expenditure on MGNREGS over the years (Rs crore)



Note: Values for 2020-21 are revised estimates and values for 2021-22 are budgeted estimates.
Sources: Union Budgets from 2012-13 to 2021-220-21; PRS.

The actual expenditure on the scheme from 2015-16 to 2019-20 has been higher than the budget estimates for the year. However, in 2020-21, the revised estimate is 81% higher than the budgeted estimate to provide for employment initiatives during the Covid-19 pandemic. Table 3 shows the trends in allocation and actual expenditure on MGNREGS over the past nine years.

Table 3: Budgeted versus actual expenditure on MGNREGS (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2012-13	33,000	30,273	92%
2013-14	33,000	32,992	100%
2014-15	34,000	32,977	97%
2015-16	34,699	37,341	108%
2016-17	38,500	48,215	125%
2017-18	48,000	55,166	115%
2018-19	55,000	61,815	112%
2019-20	60,000	71,687	119%
2020-21	61,500	1,11,500	181%
2021-22	73,000	-	-

Note: The 'actuals' figure for 2020-21 is the revised estimate.
Sources: Union Budgets from 2012-13 to 2021-22; PRS.

Demand for work: MGNREGS is a demand driven scheme. From 2015-16 to 2019-20, the average demand from registered households was 42% (in the range of 40% to 43%). However, in 2020-21, the demand for work under the scheme increased to 51% of the registered households. The share of households that were provided employment as compared to the ones demanding employment, reduced slightly from 90% in 2015-16 to 87% in 2020-21.[6]

Employment provided: The scheme guarantees 100 days of employment. However, from 2016-17 to 2020-21, the average number of days of employment has been 47 days, with a maximum of 51 days of employment in 2018-19. As MGNREGS is a demand driven scheme, this could be either due to lower demand for such work (signalling sufficient opportunities to obtain work in the open market) or not providing employment when demanded.

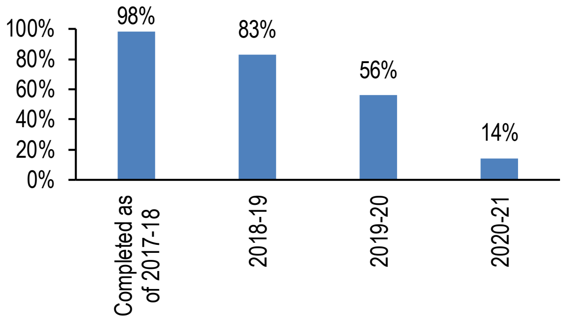
Table 4: Average days of employment provided per household

Year	Employment days / household
2016-17	46
2017-18	46
2018-19	51
2019-20	48
2020-21	46

Sources: MGNREGS MIS Report 2018-19; PRS.

Work Completed: The scheme also aims to create durable assets to improve rural livelihood through the work done while providing employment. As indicated in figure 4, the percentage of work completed under the scheme has been falling for the last four years. In 2020-21 (as of February 2021) percentage of work completed was at 14%.

Figure 4: Percentage of work completed (in %)



Sources: MGNREGS MIS Report (as on February 8, 2021); PRS.

Delayed payments: MGNREGS stipulates that wage payments must be made within 15 days of the date of closure of the muster roll.[4] Delays in payments are calculated from the 16th day onwards. Table 5 shows the percentage of delayed payments out of the total payments over the past six years. It also indicates the number of days by which payments were delayed. As shown in the table, the proportion of delayed payments has reduced from 63% in 2015-16 to 2% in 2020-21. The Economic Survey 2018-19, stated that the implementation of direct benefit transfers has helped in reducing delays in payments.[7]

Table 5: Trends in delayed payment of wages under MGNREGS (in %)

Year	% Delayed Payment	Composition of delayed payments (%)			
		>90 days	61-90	31-60	15-30
2015-16	63.1%	9.5%	8.1%	19.0%	26.5%
2016-17	56.6%	14.2%	8.4%	15.9%	18.1%
2017-18	15.5%	1.8%	0.9%	3.6%	9.2%
2018-19	10.5%	1.9%	0.7%	2.0%	5.8%
2019-20	6.2%	1.8%	0.7%	1.1%	2.6%
2020-21	2.0%	0.3%	0.2%	0.4%	1.1%

Sources: MGNREGS MIS Report, Delayed Payments (as on February 8, 2021; PRS.

Unemployment allowance: Currently under MGNREGS, unemployment allowance (if employment is not provided by the state government within 15 days of application) is paid from state government funds.[3] A CAG report (2013) on the scheme states that this puts an additional burden on the states.[8] It suggested that the Ministry of Rural Development should consider partial reimbursement of unemployment allowance.[8]

Further, the Standing Committee on Rural Development (2020) noted that in the financial year 2019-20, only four states had paid unemployment allowances to the tune of Rs 12,000 (in total).[2] It expressed doubts on whether all other job seekers were provided jobs in the stipulated time and noted this as states not providing the unemployment allowance.[2] It recommended that the Department of Rural Development devise measures to oversee the implementation of the provision of unemployment allowance.[2]

Indexing of minimum wage rate: The minimum wage rate under the scheme is fixed by the central government on the basis of the Consumer Price Index-Agricultural Labourers (CPI-AL). If this is not available, the minimum wage rate fixed by the states for agricultural labourers is considered.[9] The Standing Committee on Rural Development (2020) noted that the wage rate under MGNREGS is much less than the minimum wages fixed by states.[2] Further, the agricultural labourers receive wages higher than the MGNREGS workers. The Committee noted that this may be discouraging labourers from enrolling under MGNREGS and migrating to cities for work.[2] It recommended increasing the minimum wages under MGNREGS periodically after taking inflation into account.[2]

The Committee on Alignment of MGNREGS wages under the Ministry of Rural Development (2017) also noted that the type of work done by agricultural labourers and MGNREGS workers is different.[10] Thus, there should be difference in their minimum wages. It also noted that the Consumer Price Index-Rural was more recent and provided for higher expenditure on education and medical care compared to CPI-AL.[10] It recommended using CPI-Rural instead of the existing CPI-AL for revising MGNREGS wages.[10]

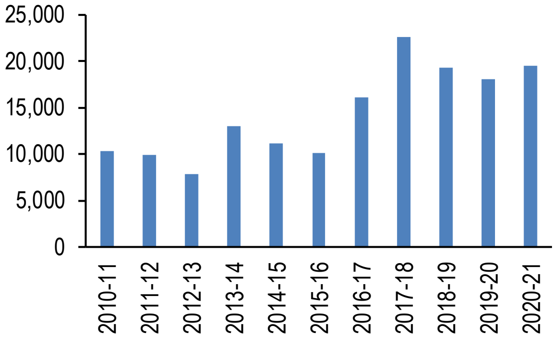
Further, every state has its defined Schedule of Rates for defining work output and calculating wages, thus the wage can be different for every state. The Standing Committee on Rural Development (2020) noted the existing disparity in MGNREGS wages in various states.[2] The Committee on Alignment of MGNREGS (2017) noted that this variation is not desirable for a programme where wage component is fully funded by the centre. It recommended convergence on Schedule of Rates across states to avoid variation.[10]

Pradhan Mantri Awaas Yojana- Gramin

Pradhan Mantri Awaas Yojana- Gramin (PMAY-G) has the second highest allocation in the Department's budget in 2021-22. The funds allocated to the scheme (Rs 19,500 crore) comprise 15% of the Department's finances.

In the past eleven years, the expenditure on the scheme has seen an average annual growth of 7%.

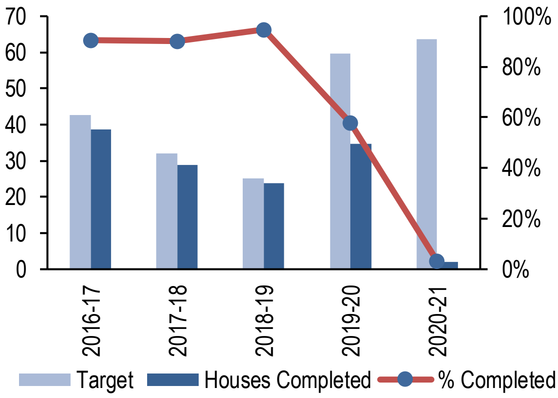
Figure 5: Expenditure on PMAY-G over the years (Rs crore)



Note: Value for 2020-21 is revised estimate.
Sources: Union Budgets from 2010-11 to 2021-22; PRS.

Target construction of houses: Figure 6 shows the number of houses completed compared to the target construction in the last five years. The construction rate has been lower than the target for all these years. However, the construction rate declined substantially in 2019-20 and 2020-21. Till October 2020, the completion rate for 2020-21 was at 3%. This may be due to the inability to carry out construction due to the lockdown enforced due to the Covid-19 pandemic.

Figure 6: Construction performance of Pradhan Mantri Awaas Yojana (no. of houses in lakhs)



Note: Data for 2020-21 is as of October 30, 2020.
Sources: Awaassoft (MIS), PMAY-G; PRS.

The Standing Committee on Rural Development (2020) noted the slow pace of progress under the scheme.[2] It observed that one of the biggest hurdles for the timely completion of houses, is delay in the release of instalments under PMAY-G to beneficiaries. It recommended the Department of Rural Development to streamline the method for the timely release of instalments and explore ways to ensure that construction of houses is completed within the targeted time frame.[2]

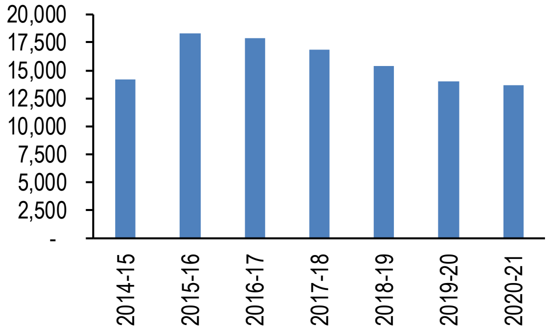
Increase in financial assistance under PMAY-G: Under PMAY-G, financial assistance of Rs 1,20,000 in plain areas and Rs 1,30,000 in hilly areas is provided to rural BPL households for construction of a dwelling unit. The Standing Committee on Rural Development (2019) noted that the financial assistance provided is not proportionate with the rising inflationary cost of the construction, material and other aspects of house building.[11] Further, Standing Committee on Rural Development (2020-21) noted the disparity in assistance for constructing a house in rural and urban areas (assistance of about Rs 2,50,000 per house).[2] It noted that there are several logistical issues in rural areas that may not be there in urban areas. It recommended the Ministry to increase the assistance provided by them under the PMAY-G scheme and bring parity between the per-unit assistance in rural and urban areas.[2,11]

Pradhan Mantri Gram Sadak Yojana

Pradhan Mantri Gram Sadak Yojana (PMGSY) seeks to provide all-weather road connectivity to all eligible unconnected habitations, existing in the core network in rural areas of the country. The scheme has been allocated Rs 15,000 crore in 2021-22, accounting for 11.4% of the Department's budget.

As Figure 7 indicates, the expenditure on the scheme has been decreasing since 2015-16.

Figure 7: Expenditure on PMGSY over the years (Rs crore)



Note: Value for 2020-21 is the revised estimates.
Sources: Union Budgets from 2014-15 to 2021-22; PRS.

Underutilisation of funds: Table 6 shows the trends in allocation and actual estimates of expenditure on PMGSY. Since 2017-18, there has been significant underutilisation of funds.

Table 6: Budgeted versus actual expenditure on PMGSY (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2014-15	14,391	14,188	99%
2015-16	14,291	18,290	128%
2016-17	19,000	17,923	94%
2017-18	19,000	16,862	89%
2018-19	19,000	15,414	81%
2019-20	19,000	14,017	74%
2020-21	19,500	13,706	70%
2021-22	15,000	-	-

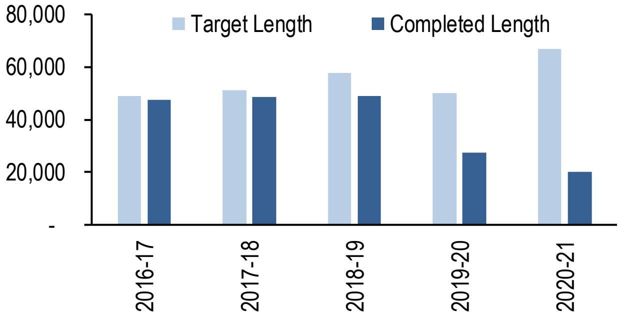
Note: The 'Actuals' figure for 2020-21 is the revised estimate.
Sources: Union Budgets from 2014-15 to 2021-22; PRS.

Slow pace of work: The Standing Committee on Rural Development (2020-21) noted that the pace of work under the scheme has been slow, especially in hilly states like Uttarakhand.[2] It noted that the delay in approval of Detailed Project Reports is the main cause for the slow pace of the scheme. It recommended that the Department of Rural Development ensure timely preparation and approval of Detailed Project Reports and increase the pace of completion of projects.[2]

Difference between targets and achievements:

Figures 8 and 9 give details of length of roads constructed and habitations connected in the last five years, under the scheme.

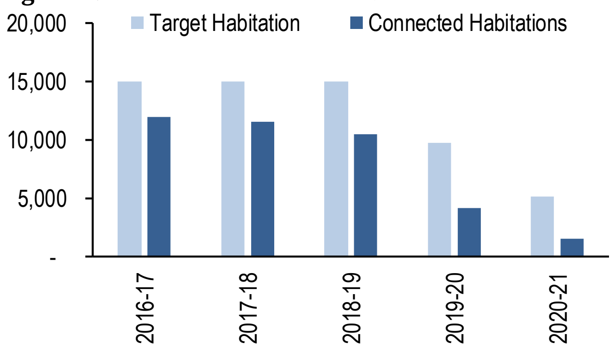
Figure 8: Length of road constructed under PMGSY (in km)



Note: Data for 2020-21 is as of February 4, 2021.
Sources: Pradhan Mantri Gram Sadak Yojana Online Management, Monitoring and Accounting System (OMMAS), Ministry of Rural Development; PRS.

Since 2016-17, the Ministry has not been able to achieve its targets for both the number of habitations to be connected and the road length to be constructed. Between April 2020 and Feb 2021, only 30% of the targets for roads to be constructed and target habitations to be connected were completed. While slow pace of construction in 2020-21 could be attributed to the Covid-19 induced lockdown, note that the rate of construction was low in 2019-20 as well (54% of target length was completed and 43% of target habitations were connected).

Figure 9: Habitations connected under PMGSY



Note: Data for 2020-21 is as of February 4, 2021.
Sources: Pradhan Mantri Gram Sadak Yojana Online Management, Monitoring and Accounting System (OMMAS), Ministry of Rural Development; PRS.

Maintenance of roads: For ensuring sustainability of roads built under PMGSY, each contractor has to provide for: (i) defect liability for five years, and (ii) paid routine maintenance after completion of work. The Standing Committee on Rural Development (2020-21) noted that the upkeep and maintenance of roads has been poor. It recommended the Ministry to ensure stricter norm compliance and hold the contractors and agencies accountable for their negligence.[2]

National Social Assistance Program

National Social Assistance Program (NSAP) is a welfare program comprising of sub-schemes aimed at providing public assistance to citizens in case of unemployment, old age, sickness, and any form of disability. The major schemes include Indira Gandhi National Old Age Pension Scheme, Indira Gandhi National Widow Pension Scheme, and Indira Gandhi National Disability Pension Scheme.

In 2021-22, the scheme has been allocated Rs 9,200 crore (7% of the Department's finances), which is a 4% annualised increase over the actual expenditure in 2019-20. The expenditure on the scheme was increased substantially in 2020-21, owing to Rs 30,957 crore spent on direct benefit transfers to women account holders of Pradhan Mantri Jan Dhan Yojana (Rs. 500 for three months).[12] This was an initiative under the PM Garib Kalyan Package to combat the economic effects of the Covid-19 pandemic.

Table 7 shows the budget estimates and actual expenditure under the scheme from 2014-15 to 2020-21. It can be noted that the allocation towards the scheme has been similar since 2014-15.

Table 7: Expenditure under NSAP (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2014-15	10,635	7,087	67%
2015-16	9,082	8,616	95%
2016-17	9,500	8,854	93%
2017-18	9,500	8,694	92%
2018-19	9,975	8,418	84%
2019-20	9,200	8,692	94%
2020-21	9,197	42,617	463%
2021-22	9,200	-	-

Note: The 'Actuals' figure for 2020-21 is the revised estimate.
Sources: Union Budgets from 2014-15 to 2021-22; PRS.

Increase of assistance amount: The Standing Committee on Rural Development (2020-21) noted that the assistance amount (ranging from Rs 200 to Rs 500 per month) under the different components of the scheme is inadequate.[2] It recommended the Department of Rural Development to increase the assistance amounts under the scheme.[2]

National Rural Livelihoods Mission

National Rural Livelihoods Mission (NRLM) aims to reduce poverty through promotion of diversified and gainful self-employment and skilled wage employment opportunities. In 2021-22, the funds allocated to the scheme (Rs 13,678 crore) comprise 10.4% of the Department's finances.

Table 8 shows the actual expenditure by states under the scheme from 2012-13 to 2019-20.

Table 8: Expenditure under NRLM (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2012-13	3,915	2,195	56%
2013-14	4,000	2,022	51%
2014-15	4,000	1,413	35%
2015-16	2,505	2,514	100%
2016-17	3,000	3,157	105%
2017-18	4,500	4,327	96%
2018-19	5,750	5,783	101%
2019-20	9,024	9,022	100%
2020-21	9,210	9,210	100%
2021-22	13,678	-	-

Note: From 2015-16, allocation to start-up village entrepreneurship program has also been included.
Sources: Union Budgets from 2012-13 to 2021-22; PRS.

Department of Land Resources

The **Department of Land Resources** aims to increase productivity of degraded land through the process of integrated watershed management. It also aims to develop an integrated land information management system to improve real-time information on land, and to optimise use of land resources.

The Department of Land Resources implements two key schemes: (i) Integrated Watershed Development Component of Pradhan Mantri Krishi Sinchai Yojana (WDC-PMKSY), and (ii) Digital India Land Records Modernisation Programme (DILRMP).

In 2021-22, the Department was allocated Rs 2,170 crore, which is a 19% annualised increase over the actual expenditure in 2019-20.

Table 9: Budgetary allocation to the Department of Land Resources (Rs crore)

Major Heads	Actuals 19-20	Revised 20-21	Budgeted 21-22	Annualised change (Actuals 19-20 to BE 21-22)
WDC - PMKSY	1,467	1,000	2,000	17%
DILRMP	44	238	150	85%
Secretariat	13	14	20	28%
Total	**1,524**	**1,252**	**2,170**	19%

Note: WDC - Watershed Development Component PMKSY is Pradhan Mantri Krishi Sinchai Yojana. DILRMP is Digital India Land Records Modernisation Programme. BE is budget estimate and RE is revised estimate.
Sources: Demands for Grants 2021-22, Department of Land Resources, Ministry of Rural Development; PRS.

Watershed Development Component of Pradhan Mantri Krishi Sinchai Yojana

The Integrated Watershed Management Programme aims to develop rain fed portions of net cultivated area and culturable wastelands.[13] In 2015, it was subsumed as one of the components of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).

The activities under Watershed Development Component are drainage line treatment, soil and moisture conservation, rain water harvesting, and afforestation, among others.

The scheme received the highest allocation of Rs 2,000 crore (92%) under the Department's budget. Table 10 shows the actual expenditure under the scheme from 2015-16 to 2020-21. Note that there is under-utilisation of the budgeted amounts for the last five years.

Table 10: Expenditure under WDC-PMKSY (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2015-16	1,530	1,527	100%
2016-17	1,550	1,510	97%
2017-18	2,150	1,671	78%
2018-19	2,251	1,786	79%
2019-20	2,066	1,467	71%
2020-21	2,000	1,000	50%
2021-22	2,000	-	-

Note: The 'Actuals' figure for 2020-21 is revised estimate.
Sources: Union Budgets from 2015-16 to 2021-22; PRS.

Completion of projects: The Standing Committee on Rural Development (2020-21) noted the slow pace of completion of projects under the scheme.[2] As of November 2020, of the 8,214 sanctioned projects, 4,486 (55%) projects have been reported completed.[14] The Committee recommended accelerating the pace of project completion.[2]

Digital India Land Records Modernisation Programme (DILRMP)

DILRMP is a part of the Digital India initiative.[15] The scheme was changed into a Central Sector Scheme in April 2016.[16] With this change, the scheme is now implemented by the central government with 100% of the grants coming from the centre.

The major components of the programme include: (i) computerisation of all existing land records, (ii) digitisation of maps, (iii) survey/re-survey, and updating of all settlement records, and (iv) computerisation of registration and its integration with the land records maintenance system.

In 2021-22, the programme has been allocated Rs 150 crore, which is an 85% annualised increase over the actual expenditure in 2019-20. Table 11 shows the trends in allocation and actual expenditure on the programme over the past six years. Note that there is significant underspending across all the years except 2020-21.

Table 11: Budgeted versus actual expenditure on DILRMP (Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2015-16	90	40	44%
2016-17	150	139	93%
2017-18	150	93	62%
2018-19	250	68	27%
2019-20	150	44	29%
2020-21	239	238	100%
2021-22	150	-	-

Note: The 'utilised' figure for 2020-21 is the revised estimate.
Sources: Union Budgets 2015-16 to 2021-22; PRS.

Progress of components under DILRMP: DILRMP is currently being implemented in all states, but with differential progress.[17]

Land records have been computerised for 91% of the villages.[17] However, the mutation records (recording the transfer of ownership) have been computerised for only 71% of the villages.[17] This means that the remaining 27% of the villages do not have updated records with the current data on ownership. If the intent of digitising records is to have easy access to correct data, real time updating of property records becomes essential.

Further, real time updation of Record of Right (RoR) and maps has been done for only 30% of the villages.[17] The RoR is the primary record that shows how rights on land are derived for the land owner, and records the property's transactions from time to time. 30 states/ UTs have started issuing digitally signed RoRs.[17]

Slow pace of work: The Standing Committee on Rural Development (2020-21) noted that the work under the programme is being completed at a slow pace.[2] It recommended the Ministry to ensure expeditious completion of modernisation of land records in all states.[2]

[1] Demand No. 86, Department of Rural Development, Ministry of Rural Development, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe86.pdf; Demand No. 87, Department of Land Resources, Ministry of Rural Development, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe87.pdf.

[2] "Standing Committee on Rural Development, Demand for Grants 2020-21, Department of Rural Development, Ministry of Rural Development", http://164.100.47.193/lsscommittee/Rural%20Development/17_Rural_Development_4.pdf.

[3] The National Rural Employment Guarantee Act, 2005 https://nrega.nic.in/amendments_2005_2018.pdf.

[4] Mahatma Gandhi National Rural Employment Guarantee Act, 2005, Operational Guideline 2013, https://nrega.nic.in/Circular_Archive/archive/Operational_guidelines_4thEdition_eng_2013.pdf.

[5] 15th Finance Commission Report, Volume III, February 1, 2021, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/Reports/XVFC%20Complete_Report.pdf

[6] MNREGA MIS Report, 2015-16 to 2021-22, Ministry of Rural Development, http://mnregaweb4.nic.in/netnrega/MISreport4.aspx.

[7] Effective use of technology for welfare schemes – Case of MGNREGS. Economic Survey 2018-19, Volume I. https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap10_Vol1.pdf.

[8] "Report No. 6, Performance Audit of Mahatma Gandhi National Rural Employment Guarantee Scheme", Comptroller and Auditor General of India, 2013, http://www.cag.gov.in/sites/default/files/audit_report_files/Union_Performance_Civil_Ministry_Rural_Development_6_2013.pdf.

[9] The National Rural Employment Guarantee Act, 2005, https://nrega.nic.in/amendments_2005_2018.pdf.

[10] "Report of the Committee on Alignment of MGNREGA Wages with Minimum Agricultural Wages." July, 2017. Ministry of Rural Development, MGNREGA Division. http://www.im4change.org/siteadmin/tinymce/uploaded/Draft%20report%20of%20Nagesh%20Singh%20Committee%20July%202017.pdf.

[11] "Standing Committee on Rural Development, 2019-20, Department of Land Resources, Ministry of Rural Development" http://164.100.47.193/lsscommittee/Rural%20Development/17_Rural_Development_3.pdf.

[12] "Direct cash transfer to women PMJDY account holders under PM Garib Kalyan Package for the month of April 2020 in the light of COVID-19 pandemic", Ministry of Rural Development, April 3, 2020.

[13] Programme Details, Watershed Development Component Of Pradhan Mantri Krishi Sinchai Yojana (WDC-PMKSY), Department Of Land Resources, Ministry of Rural Development https://dolr.gov.in/programme-schemes/pmksy/watershed-development-component-pradhan-mantri-krishi-sinchai-yojana-wdc-pmksy.

[14] Unstarred Question no. 1587, Ministry of Agriculture and Farmer Welfare, September 2020, http://164.100.24.220/loksabhaquestions/annex/174/AU1587.pdf.

[15] Digital India Land Records Modernization Program, Department of Land Resources, Ministry of Rural Development, http://nlrmp.nic.in/faces/common/home.xhtml.

[16] "Rationalization of Centrally Sponsored Scheme DILRMP as Central Sector Scheme", Department of Land Resources, Ministry of Rural Development, September 22, 2016. http://dolr.nic.in/dolr/downloads/PDFs/DILRMP%20Clarifications%202016-09-22.pdf.

[17] "Digital India Land Records Modernization Programme – MIS, last accessed on February 11, 2021, http://dilrmp.gov.in/#.

Demand for Grants: Agriculture and Farmers' Welfare

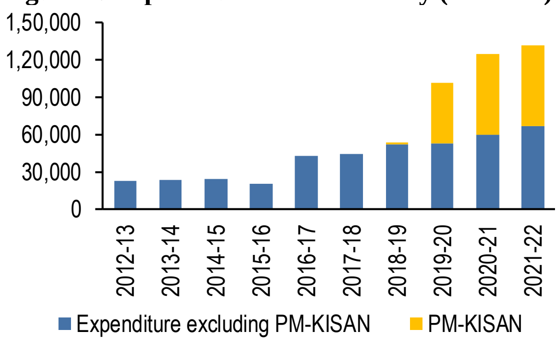
The Ministry of Agriculture and Farmers' Welfare has two Departments: (i) Agriculture, Cooperation and Farmers' Welfare, which implements policies and programmes related to crop husbandry and manages agriculture inputs, and (ii) Agricultural Research and Education, which coordinates and promotes agricultural research and education. This note examines the budget allocations to the two Departments of the Ministry and their expenditure, and discusses issues in the agriculture sector.

Overview of Finances

The Ministry has been allocated Rs 1,31,531 crore in 2021-22, a 14% annual increase over 2019-20.[1] Allocation to the Ministry accounts for 4% of the government's budget. The Ministry had estimated an expenditure of Rs 1,42,762 crore in 2020-21, which has been reduced by 13% to Rs 1,24,520 crore at the revised stage.[2] This includes a cut of Rs 10,000 crore in the proposed expenditure on the PM-KISAN scheme (income support scheme for farmers), due to coverage of lower beneficiaries than initially estimated.[3] In 2020-21 and 2021-22, PM-KISAN is estimated to cost Rs 65,000 crore.

49% of the allocation to the Ministry in 2021-22 is for the PM-KISAN scheme. All other programmes of the Ministry, including interest subsidy and crop insurance, have been allocated Rs 66,531 crore in 2021-22, a 12% annual increase over 2019-20.

Figure 1: Expenditure of the Ministry (Rs crore)



Note: Revised estimate in 2020-21; Budget estimate in 2021-22.
Sources: Expenditure Budget, Union Budgets (2014-22); PRS.

Before PM-KISAN, the Ministry's expenditure saw a large increase in 2016-17 due to the interest subsidy provided on short-term credit to farmers. The subsidy, earlier provided by the Ministry of Finance, is being provided by the Ministry of Agriculture and Farmers' Welfare since 2016-17.

Policy Proposals in the Budget Speech

In her 2021-22 budget speech, the Finance Minister made the following proposals regarding agriculture:

- An Agriculture and Infrastructure Development Cess will be levied on certain goods for financing agriculture infrastructure and other development activities. These goods include certain imports such as cotton, coal, gold, silver, and alcoholic beverages, and petrol and diesel.
- The Agriculture Infrastructure Fund will be made available to the Agriculture Produce Market Committees (APMCs) for augmenting their infrastructure facilities. 1,000 more mandis will be integrated with the electronic National Agriculture Market (e-NAM).
- The Operation Green Scheme, which presently provides a subsidy on the storage and transportation of tomatoes, onions, and potatoes, will be extended to cover 22 perishable products to boost value addition and exports.

Departments: The Department of Agriculture, Cooperation and Farmers' Welfare has received 94% of the allocation to the Ministry in 2021-22, while 6% has been allocated to the Department of Agricultural Research and Education (Table 1).

Table 1: Allocation to the Ministry (in Rs crore)

Department	2019-20 Actuals	2020-21 Revised	2021-22 Budget	% change (annualised) in 2021-22 over 2019-20
Agriculture, Cooperation and Farmers' Welfare	94,252	1,16,758	1,23,018	14%
Agricultural Research and Education	7,523	7,762	8,514	6%
Ministry	**1,01,775**	**1,24,520**	**1,31,531**	**14%**

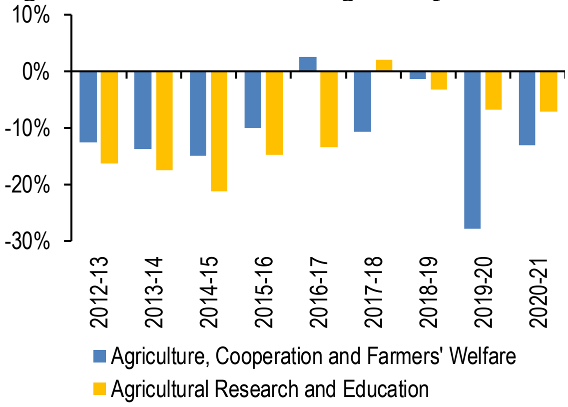
Sources: Expenditure Budget, Union Budget 2021-22; PRS.

The Department of Agriculture, Cooperation and Farmers' Welfare has been allocated Rs 1,23,018 crore in 2021-22, which is a 14% annual increase over 2019-20. 76% of the Ministry's budget is proposed to be spent on three schemes under this Department: the income support scheme, i.e., PM-KISAN (49%), interest subsidy on short-term credit to farmers (15%), and the crop insurance scheme, i.e., Pradhan Mantri Fasal Bima Yojana (12%).

The Department of Agricultural Research and Education has been allocated Rs 8,514 crore in 2021-22, a 6% annual increase over 2019-20.[4] Allocation to the Indian Council of Agricultural Research (ICAR) accounts for 63% of the Department's allocation in 2021-22. See Table 8 and in the Annexure for more details.

Allocation vs actual expenditure: Expenditure of both the Departments has been lower than their budget allocations in almost all years during the period 2012-21 (Figure 2). The Ministry spent 27% less than its budget allocation in 2019-20, primarily due to an underspending of Rs 26,286 crore (35%) in PM-KISAN (owing to coverage of lower beneficiaries than targeted). Further, the Standing Committee on Agriculture (2016) noted that a slow pace of fund utilisation in the first half of the financial year results in a cut in allocation for the rest of the year, which leads to underspending.[5]

Figure 2: Deviation from budgeted expenditure



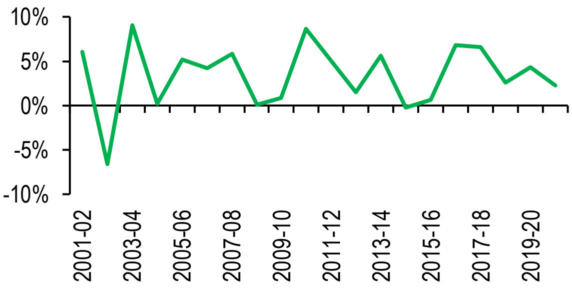
Note: Figures for 2020-21 are revised estimates.
Sources: Expenditure Budget, Union Budgets (2012-22); PRS.

Issues in the sector

Growth of the agriculture sector

Growth of the sector comprising of agriculture and allied activities has been volatile over the years (Figure 3). In 2020-21, the sector is estimated to grow at 2.3%, as compared to 4.3% in 2019-20.

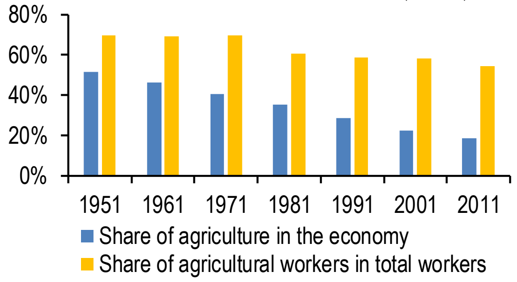
Figure 3: Growth of agriculture sector (in %)



Sources: Central Statistics Office (CSO), MOSPI; PRS.

The contribution of the agriculture sector in the economy has significantly decreased from 51% in 1951 to 19% in 2011, and further to 14.8% in 2019-20.[6] Meanwhile, the share of workers who are dependent on agriculture has decreased at a lower rate from 70% in 1951 to 55% in 2011. This implies that the average income of these workers grew at a slower pace than that of workers in other sectors. The Committee on Doubling Farmers' Income (Chair: Mr. Ashok Dalwai, 2017) observed that one way of significantly improving income of farmers is by shifting the agricultural workforce to more productive employment in non-farm sectors.[7]

Figure 4: Share of agriculture in the economy and in the total number of workers (in %)



Sources: Agricultural Statistics at a Glance 2019, Ministry of Agriculture and Farmers' Welfare; CSO, MOSPI; PRS.

Income support to farmers

The PM-KISAN scheme was launched in February 2019 to provide income support of Rs 6,000 per year (disbursed in three instalments of Rs 2,000) to farmer families with the aim of supplementing their financial needs in procuring inputs for appropriate crop health and yields.[8]

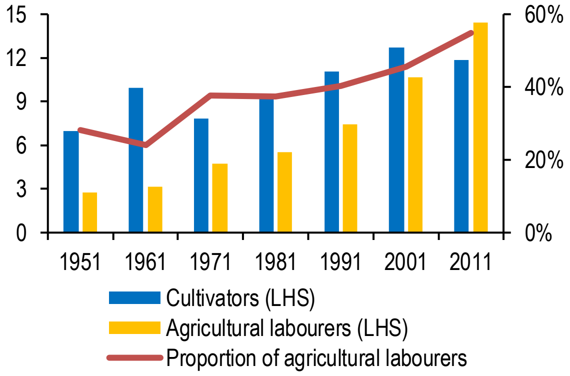
Earlier, only small and marginal landholder farmer families, i.e., families with total cultivable landholding of up to two hectares, were eligible for the scheme. In May 2019, the Union Cabinet approved the extension of the scheme to all farmer families irrespective of their size of landholdings. With this increase in coverage, expenditure on the scheme was estimated to increase from the budget allocation of Rs 75,000 crore to Rs 87,218 crore in 2019-20.[9] However, in 2019-20, the Ministry spent Rs 48,714 crore on the scheme, 35% lower than the budget allocation. For 2020-21, the allocation has been cut down from the budget estimate of Rs 75,000 crore to Rs 65,000 crore (revised estimate).

Implementation: Initially, the scheme was expected to cover 12.5 crore beneficiaries.[9] With the increase in coverage, this was revised to 14.5 crore beneficiaries.[9] Till January 2021, 10.75 crore beneficiaries have been covered (received at least one instalment) under the scheme.[10] However, the coverage under different instalments vary. In 2020-21, 10.5 crore beneficiaries have received the first instalment (Apr-Jul), 10.2 crore beneficiaries have received the second instalment (Aug-Nov), and 9.5 crore beneficiaries have received the third instalment (Dec-Mar), till February 10, 2021.[11]

The Standing Committee on Agriculture (2020) noted that the scheme is facing the following issues in implementation: (i) non-availability of proper land records in some states, (ii) slow identification of beneficiaries and delay in the uploading of data by states, (iii) issues with the matching of demographic data between the PM-KISAN database and Aadhaar data, (iv) incorrect bank accounts, and (v) poor internet connectivity in rural areas hampering the uploading of data.[12] The Committee recommended that the government should hold regular consultation with states to resolve issues and take corrective steps.

Land as an eligibility criterion: Farmer families owning cultivable landholding are eligible for receiving income support under the scheme. The beneficiaries are identified by states based on their land records. The scheme does not cover landless agricultural labourers who form 55% of the agricultural workers in the country (Figure 5).[13] Agricultural workers include cultivators and labourers working in the agriculture sector. The share of landless agricultural labourers in total agricultural workers has increased over the years from 28% in 1951 to 55% in 2011. The Standing Committee (2020) noted that tenant farmers, who are a significant part of landless farmers in many states, do not receive the income support benefits.[12] It recommended the government to examine this issue in coordination with states so that landless farmers can also receive benefits under the scheme.

Figure 5: Breakup of agricultural workers into cultivators and agricultural labourers (in crore)



Sources: Agricultural Statistics at a Glance 2019, Ministry of Agriculture and Farmers' Welfare; PRS.

Agricultural credit

Agriculture credit is provided to farmers at a subsidised cost through interest subsidy.[14] An interest subsidy of two percent is provided to farmers on their short-term crop loans of up to three lakh rupees. An additional interest subsidy of three percent is provided to farmers repaying their loan on time, i.e., within a year.

In 2021-22, Rs 19,468 crore has been allocated for interest subsidy, which is 2% lower than the 2020-21 revised estimate (Rs 19,832 crore). However, a significant difference has been observed in the last few years between the estimates presented in the budget (even the revised estimate) and the actual expenditure at the end of the year (Table 2).

Table 2: Comparison of the estimates with the actual expenditure on interest subsidy (Rs crore)

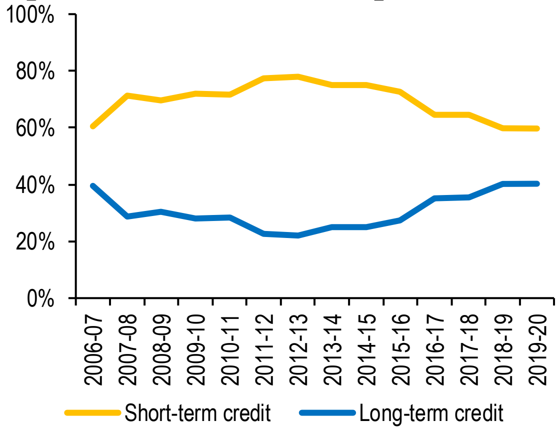
Year	Budgeted	Revised	Actuals	% shortfall
2016-17	15,000	13,619	13,397	-11%
2017-18	15,000	14,750	13,046	-13%
2018-19	15,000	14,987	11,496	-23%
2019-20	18,000	17,863	16,219	-10%
2020-21	21,175	19,832	-	-6%

Sources: Expenditure Budget, Union Budgets (2016-21); PRS.

Short-term vs long-term loans: In 2015, the Committee on Medium-term Path on Financial Inclusion under the Reserve Bank of India (RBI) observed that the interest subsidy provided for short-term crop loans discriminates against long-term loans.[15] Short-term crop loans are used for pre-harvest activities such as weeding, harvesting, sorting, and transporting. Long-term loans are taken to invest in agricultural machinery and equipment, or irrigation system. The Committee observed that the scheme does not incentivise long-term capital formation in agriculture, which is essential to boost productivity in the sector.

Over the past few decades, the trend of short-term and long-term agricultural credit has reversed. In 1990-91, a majority of the agricultural credit were long-term loans, whereas short-term loans were only about a quarter of the total credit.[16] In 2019-20, the share of long-term loans in total agricultural credit was at 40% (Figure 6).[17] A lower share of long-term agricultural credit implies that farmers are taking more loans for recurring expenditure rather than to fund long-term investments.

Figure 6: Share of short and long-term credit



Sources: Reports of the Standing Committee on Agriculture (2020) and the RBI Working Group on Agriculture Credit; PRS.

The Committee on Doubling Farmers' Income (2017) recommended that the central and state governments should provide interest subsidy on long-term or investment credit taken by farmers, particularly small and marginal farmers.[18] In May 2020, under the Aatmanirbhar Bharat Economic Package, the central government announced the setting up of an Agriculture Infrastructure Fund of one lakh crore rupees for financing farm-gate infrastructure.[19] Under the scheme, the government will provide an interest subsidy of 3% on loans of up to two crore rupees issued under the Fund.

Land ownership: The 2015 RBI Committee on Financial Inclusion observed that the owner of the land is often not the cultivator, even in the case of small and marginal holdings. For example, a landowner may get the benefit of subsidised credit at times and may be the moneylender to his cultivator.[20] The Committee recommended that agricultural credit must flow to the actual cultivator for which substantial reform is necessary.[20] Further, it stated that the subsidised credit increases the probability of misuse. The Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households (2016) also recommended the transfer of benefits to farmers directly, instead of subsidy and waivers.[21]

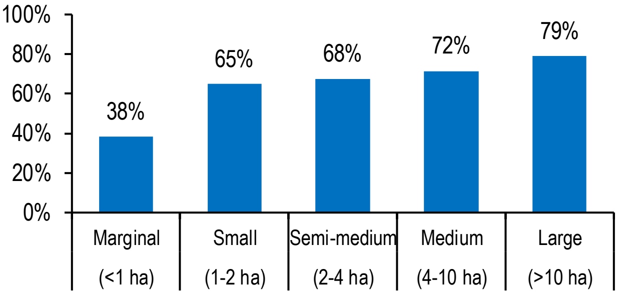
Access to agricultural credit is linked to formal land titles. An Internal Working Group of the RBI constituted to review Agricultural Credit (2019) noted that the absence of a proper land leasing framework and a lack of land records restricted access to institutional credit.[22] It recommended the central government to encourage states to digitise and update land records in a time-bound manner.

The 2015 RBI Committee on Financial Inclusion recommended that credit eligibility certificates, which would act as tenancy or lease certificates, should be issued to tenant farmers.[15] These certificates would enable landless tenant cultivators to obtain agricultural credit.

Small and marginal farmers: Farmers with landholdings of less than a hectare primarily borrow from informal sources of credit such as moneylenders, whereas those with landholdings of two or more hectares primarily borrow from banks (Figure 7).[15] Informal sources of credit are typically offered at higher rates of interests, and may not have proper documentation.

Note that 68% of the agricultural landholdings in the country belong to the marginal (less than one hectare) category.[23] Another 18% belong to the small category (between one to two hectare). Further, the share of the marginal category in total agricultural landholdings has been increasing over the years, from 51% in 1970-71 to 68% in 2015-16. The RBI Internal Working Group on Agricultural Credit (2019) noted that only 41% of the small and marginal farmers have been covered by banks.[22]

Figure 7: Share of borrowings from institutional sources across various landholders (2012-13)



Sources: Committee on Medium-term Path on Financial Inclusion (2015), Reserve Bank of India; PRS.

Crop insurance

Crop insurance is provided to farmers under the Pradhan Mantri Fasal Bima Yojana (PMFBY).[24] All farmers, including sharecroppers and tenant farmers, who are growing notified crops in notified areas are eligible under the scheme. In 2021-22, the scheme has been allocated Rs 16,000 crore, a 5% increase over the 2020-21 revised estimate. Issues faced in providing crop insurance include:

Awareness about crop insurance: The Economic Survey 2017-18 noted that the share of agricultural households getting their crops insured was low.[25] Among households cultivating major crops, such as rice and wheat, less than 5% of them got their crops insured. Lack of awareness about crop insurance among farmers is a major reason for not getting their crops insured. Lack of awareness about the government's crop insurance programmes is another reason for not getting their crops insured.

Coverage of farmers: During the period 2016-19, the scheme covered 36-40% of the farmers.[26] Note that before Kharif season 2020, enrolment was mandatory for farmers with loans and optional for others. To address the demand of farmers, the scheme has been made voluntary for all farmers.[27]

Assessment of losses: The Standing Committee on Agriculture (2017) observed that states are not readily accepting and adopting the technologies used for assessing yield loss.[28] The Committee recommended the Ministry to pursue states to adopt technology aids and satellite imagery for crop cutting experiments. Under the revised guidelines of the scheme, the government has proposed a two-step process of using weather and satellite indicators for an early assessment of yield loss.[27]

Further, based on the increased efficiency seen in the implementation of the scheme in some states, the government has proposed the use of smart sampling technique through satellite data by all states for conducting crop cutting experiments.[27]

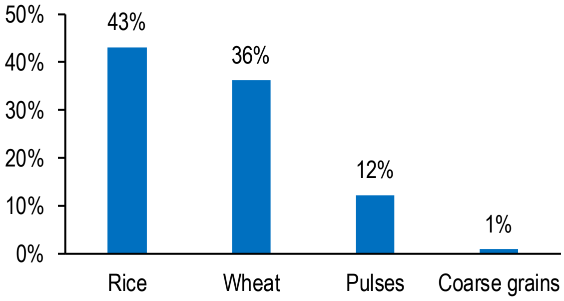
Grievance redressal: The Standing Committee on Agriculture (2019) observed that farmers are facing issues in lodging complaints with the insurance companies due to the absence of local offices of the companies at the district and block-level.[26] It recommended that the Ministry should ensure the availability of a common helpline number for lodging of complaints. Under the revised scheme guidelines, states have to constitute grievance redressal committees at the district and state level.[29]

Minimum Support Prices (MSPs)

MSP is the assured price announced by the central government at which foodgrains are procured from farmers by the central and state governments and their agencies, for the central pool of foodgrains.[30] The central pool is used for providing foodgrains under the Public Distribution System and other welfare schemes at subsidised prices and also kept as reserve in the form of buffer stock. The cost of procuring from farmers at MSP and distributing under PDS at subsidised prices is borne by the Department of Food and Public Distribution. However, the MSPs for all crops are decided by the Ministry of Agriculture and Farmers' Welfare.

MSPs are notified based on the recommendations of the Commission for Agricultural Costs and Prices, an attached office of the Ministry of Agriculture and Farmers' Welfare.[31] While MSPs are annually announced for 23 crops, public procurement is limited to a few crops such as paddy, wheat, and, to a limited extent, pulses.

Figure 8: Percentage of crop production procured at MSP in crop year 2019-20



Sources: Unstarred Question No. 331, Lok Sabha, September 15, 2020; PRS.

The foodgrain procurement is largely concentrated in a few states. Three states (Madhya Pradesh, Punjab, and Haryana) producing 46% of the wheat in the country account for 85% of its procurement. For rice, six states (Punjab, Telangana, Andhra Pradesh, Chhattisgarh, Odisha, and Haryana) with 40% production have a 74% share in procurement.

According to the central government's procurement policy, the objective of public procurement is to ensure that farmers get remunerative prices for their produce and do not have to resort to distress sale.[32] If farmers get a better price in comparison to MSP, they are free to sell their produce in the open market. The Economic Survey 2019-20 observed that the regular increase in MSP is seen by farmers as a signal to opt for crops which have an assured procurement system (for example, rice and wheat).[33] It also noted that this indicates market prices do not offer remunerative options for farmers, and MSP has, in effect, become the maximum price that the farmers are able to realise.

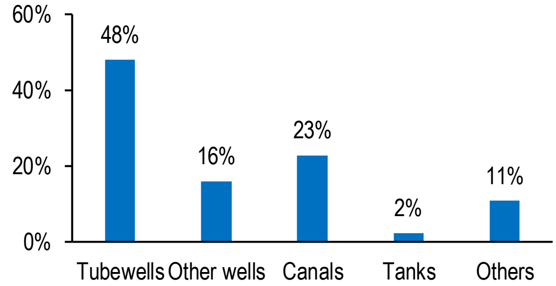
Thus, MSP incentivises farmers to grow crops which are procured by the government. As wheat and rice are major food grains provided under the PDS, the focus of procurement is on these crops. This skews the production of crops in favour of wheat and paddy (particularly in states where procurement levels are high) and does not offer an incentive for farmers to produce other items such as pulses. Further, this puts pressure on the water table as these crops are water-intensive crops.

In a report to measure the efficacy of MSPs, NITI Aayog (2016) found that a low proportion of farmers (10%) were aware of MSPs before the sowing season.[34] 62% of the farmers were informed of MSPs after sowing their crops. The pricing policy of MSPs would be effective only if farmers are aware of it at the time of deciding what crops to grow. NITI Aayog recommended that the awareness level of farmers regarding MSPs must be increased and the mediums of dissemination of this information must be strengthened. Other issues with the implementation of the MSP regime include long distances to the procurement centres, increasing transportation cost for farmers, irregular hours of the procurement centres, lack of covered storage godowns and inadequate storage capacity, and delays in the payment of MSPs to farmers.

Irrigation

As of 2016-17, 49% of the country's net sown area was under irrigation.[35] The remaining agricultural area in the country depends on rainfall. Major irrigation sources for agriculture include tubewells (48%) and other wells (16%), and canals (23%).

Figure 9: Sources of irrigation (2016-17)



Sources: Land Use Statistics at a Glance (2016-17), Ministry of Agriculture and Farmers' Welfare; PRS.

Sources such as canals and tubewells use the flood irrigation technique, where water is allowed to flow in the field and seep into the soil.[36] This results in wastage of water since excess water seeps into the soil or flows off the surface without being utilised. It has been recommended that farmers move from flood irrigation to micro-irrigation systems (drip or sprinkler irrigation systems) to conserve water.[37]

The Pradhan Mantri Krishi Sinchai Yojana was launched in 2015 to increase the coverage of the area under irrigation.[38] The Ministry implements the 'Per Drop More Crop' component under the scheme to increase water efficiency through micro-irrigation and other interventions. During the period 2013-21, 60.3 lakh hectares of area has been covered under micro-irrigation (Table 3).[39]

Table 3: Area covered under micro-irrigation in lakh hectares (as of February 12, 2021)

Year	Target	Achievement	Achievement %
2013-14	6.6	4.3	66%
2014-15	5.7	4.3	74%
2015-16	5.0	5.7	115%
2016-17	8.0	8.4	105%
2017-18	12.0	10.5	87%
2018-19	16.0	11.6	72%
2019-20	14.0	11.7	84%
2020-21	0.0	3.7	-
Total	**67.3**	**60.3**	**90%**

Sources: Pradhan Mantri Krishi Sinchai Yojana website; PRS.

Shortfall in funds: In 2021-22, the scheme has been allocated Rs 4,000 crore, which is 56% higher than the 2020-21 revised estimate. Though the budget allocation to the scheme seems higher than the previous year, it is usually cut down at the revised stage, resulting in a lower expenditure than the allocation (Table 4). Allocation to the scheme for 2020-21 has been revised down by 36% from Rs 4,000 crore to Rs 2,563 crore (revised estimate).

Table 4: Comparison of the allocation to the scheme with its actual expenditure (in Rs crore)

Year	Allocation*	Expenditure	% shortfall
2015-16	1,800	1,556	14%
2016-17	2,340	1,991	15%
2017-18	3,400	2,819	17%
2018-19	4,000	2,918	27%
2019-20	3,500	2,700	23%
2020-21	4,000	2,563#	36%

Note: *Budget estimate; #Revised estimate used as expenditure.
Sources: Expenditure Budget, Union Budgets (2015-21); PRS.

Soil health and fertilisers

While the Ministry of Chemicals and Fertilisers is responsible for monitoring the production, distribution, and prices of fertilisers, the Ministry of Agriculture and Farmers' Welfare is responsible for the promotion of balanced use of fertilisers.[40] Balanced use refers to the use of a proper combination of various nutrients and other micro-nutrients. Three major nutrients are primarily used: Nitrogen (N), Phosphatic (P), and Potassic (K).

The government subsidises fertilisers through: (i) subsidy for urea (containing N fertiliser), and (ii) nutrient-based subsidy for P and K fertilisers. The fertiliser subsidy is provided to the fertiliser manufacturers and importers so that farmers can directly buy them at affordable or subsidised prices.

In 2021-22, Rs 79,530 crore has been allocated to the Department of Fertilisers for fertiliser subsidy, an annual decrease of 1% over 2019-20 (Table 5).

Table 5: Fertiliser subsidy allocation (Rs crore)

Subsidy	2019-20 Actuals	2020-21 Revised	2021-22 Budgeted	% change (annualised) in 2021-22 over 2019-20
Urea	54,755	94,957	58,768	3.6%
Nutrient based	26,369	38,990	20,762	-11.3%
Total	**81,124**	**1,33,947**	**79,530**	**-1.0%**

Sources: Expenditure Budget, Union Budget 2021-22; PRS.

In November 2020, under the Aatmanirbhar Bharat Economic Package, the government announced an additional allocation of Rs 65,000 crore in 2020-21 for fertiliser subsidy.[41] As a result, the allocation for 2020-21 has increased from Rs 71,309 crore at the budgeted stage to Rs 1,33,947 crore at the revised stage. Note that in March 2020, the Standing Committee on Chemicals and Fertilisers had recommended that the Ministry should be provided a one-time allocation to clear off all the pending fertiliser subsidy dues owed to companies, as the 2020-21 budget allocation is insufficient for this purpose.[42] The Committee observed that as of February 2020, the Ministry owed Rs 43,483 crore as dues to companies, which could not be paid in previous years due to insufficient budget allocation.

The Standing Committee (2020) observed that many fertiliser manufacturing plants are operating with very old technology and systems, and not at their highest efficiency.[43] The government bears the cost of their inefficiency in the form of higher subsidy. The Committee recommended that the companies should be set free to manufacture and sell fertilisers as per their own system. A farmer should have the choice to buy from various brands of fertilisers while getting the subsidy directly in his bank account. This will push manufacturers to produce and sell their fertilisers in the most cost-effective manner and push the inefficient ones out. It recommended that the government should set out a clear and firm roadmap for switching to a direct subsidy system, where the manufacturing and importing of fertilisers is set free to market forces.

Prices of urea are controlled by the government, whereas that of P and K fertilisers are market-driven.[40] This has led to lower prices of urea (N) over the years, whereas the market prices of P and K fertilisers have remained higher. This is one of the reasons for imbalanced use of nutrients as urea is used more than other fertilisers.[40] While the ratio recommended for use of the N, P, and K fertilisers is 4:2:1, the ratio was 6.3:2.5:1 in 2018-19.[44] Table 9 in the Annexure shows their consumption trend.

Overuse of fertilisers could lead to an imbalance of nutrients in the soil and deteriorate its quality. The Standing Committee on Agriculture (2015) observed that use of fertilisers in the country was not based on scientific analysis of soil due to near absence of soil testing facilities, low awareness, and over-reliance on urea.[45]

Soil Health Cards: In order to provide farmers with information regarding the quality of their soil, the Soil Health Card scheme was launched in 2015.[46] Under the scheme, farmers are issued soil health cards, which contain information such as nutrient status of soil and recommended dose of nutrients to be provided to improve its fertility.

In 2021-22, Rs 315 crore has been allocated for the National Project on Soil Health and Fertility, a 41% increase over the 2020-21 revised estimate. During the first cycle (2015-17) of the scheme, 10.74 crore soil health cards were provided as per the target.[47] During the second cycle (2017-19), 11.87 crore soil health cards were provided against the target of 12.54 crore cards. During the period 2019-21, 18.9 lakh soil health cards have been distributed under the Model Village Programme (82% of the target).

Rashtriya Krishi Vikas Yojana

The umbrella scheme was initiated in 2007 for ensuring holistic development of agriculture and allied sectors by allowing states to choose their own development activities as per district and state agriculture plans.[48] With the aim of making farming a remunerative economic activity, the Ministry provides financial assistance to states to spend on sub-schemes such as: (i) pre-harvest and post-harvest infrastructure, (ii) value addition using agri-business models, and (iii) projects based on local and national priorities.

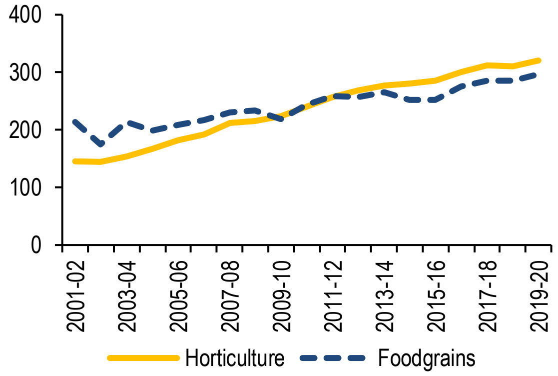
In 2021-22, Rs 3,712 crore has been allocated to the scheme, a 46% increase over the revised estimate of 2020-21. The Standing Committee on Agriculture (2017) observed that the allocations for the scheme are not utilised optimally and timely.[49] This is due to a delay in the approval of projects and funds by states and consequent slow pace of implementation, causing a reduction in the release of funds. For instance, in 2020-21, Rs 3,700 crore was allocated to the scheme, which has been cut by 31% at the revised stage to Rs 2,551 crore.

The Standing Committee on Agriculture (2020) noted that the scheme's allocation gets cut at the revised stage as states are not able to timely submit their utilisation certificates, due to the delays in completion of infrastructure projects.[12] It recommended that there is a need to increase the time period for submission of utilisation certificates for schemes involving infrastructure projects.

Horticulture

Between 2001-02 and 2019-20, the production of horticulture crops increased from 146 million tonnes to 320 million tonnes (Figure 10).[50] This implies that the horticulture production increased at an average rate of 4.5%. Production of food grains increased at a rate of 1.9% during the same period.

Figure 10: Comparison of horticulture and food grain production during 2001-20 (million tonne)



Sources: Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare; PRS.

In 2019-20, fruits and vegetables are estimated to contribute to 31% and 60% of the total horticultural production, respectively.[51] The National Mission on Horticulture seeks to promote horticulture by providing availability of quality inputs such as planting material, and post-harvest interventions such as reduction in losses and access to markets. In 2021-22, the scheme has been allocated Rs 2,385 crore, 48% more than the 2020-21 revised estimate. However, over the past few years, the actual expenditure on the scheme has been lower than the allocation made in the budget (Table 6).

Table 6: Comparison of the allocation to the scheme with its actual expenditure (in Rs crore)

Year	Allocation*	Expenditure	% shortfall
2016-17	1,620	1,493	8%
2017-18	2,320	2,027	13%
2018-19	2,536	1,997	21%
2019-20	2,225	1,331	40%
2020-21	2,300	1,610#	30%

Note: *Budget estimate; #Revised estimate used as expenditure.
Sources: Expenditure Budget, Union Budgets (2016-21); PRS.

Agricultural Marketing

The Integrated Scheme on Agriculture Marketing includes sub-schemes such as: (i) agriculture marketing infrastructure, to create storage capacity and farmer consumer markets, (ii) market research and information network, (iii) strengthening of Agmark grading facilities, (iv) agro-business development to provide market linkages to farmers, and (v) e-NAM (National Agriculture Market), which is a national electronic market platform on which farmers can sell their produce.

In 2021-22, the scheme has been allocated Rs 410 crore. This is 17% higher than the 2020-21 revised estimate. However, the allocation for 2020-21 has been revised down by 29%, from Rs 490 crore to Rs 350 crore. Till January 24, 2021, 1,000 mandis across 18 states and three union territories have been integrated with e-NAM.[52]

Regulation: Agriculture markets in most states are regulated by the Agriculture Produce Marketing Committees (APMCs) established by the state governments. APMCs were set up to ensure fair trade between buyers and sellers for effective price discovery of farmers' produce.[53] APMCs can: (i) regulate the trade of farmers' produce by providing licenses to buyers, commission agents, and private markets, (ii) levy market fees or any other charges on trade, and (iii) provide necessary infrastructure within their markets to facilitate the trade.

The Standing Committee on Agriculture (2019) observed that the APMC laws are not implemented in their true sense and need urgent reforms.[53] Issues identified by the Committee include: (i) most APMCs have a limited number of traders operating, which leads to cartelization and reduces competition, and (ii) undue deductions in the form of commission charges and market fees.[53] Traders, commission agents, and other functionaries organise themselves into associations, which do not allow easy entry of new persons into market yards, stifling competition.[54] The Acts are highly restrictive in promotion of multiple channels of marketing and competition in the system.[53]

Parliament enacted three laws in September 2020: (i) the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020, (ii) the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020, and (iii) the Essential Commodities (Amendment) Act, 2020.[55,56,57] These laws collectively seek to (i) facilitate barrier-free trade of farmers' produce outside the markets notified under the various state APMC laws, (ii) define a framework for contract farming, and (iii) impose stock limits on agricultural produce only if there is a sharp increase in retail prices. The three laws together aim to increase opportunities for farmers to enter into sale contracts, increase the availability of buyers, and permit buyers to purchase bulk produce. However, following protests against the laws, in January 2021, the Supreme Court stayed their implementation until further orders.[58]

Marketing infrastructure: The Standing Committee on Agriculture (2019) noted that the availability of a transparent, easily accessible, and efficient marketing platform is a pre-requisite to ensure remunerative prices for farmers.[53] Most farmers lack access to government procurement facilities and APMC markets.[53] Small and marginal farmers (who hold 86% of the agricultural landholdings in the country) face various issues in selling their produce in APMC markets such as inadequate marketable surplus, long-distance to the nearest APMC markets, and lack of transportation facilities.[53] The average area served by an APMC market is 496 sq. km., much higher than the 80 sq. km. recommended by the National Commission on Farmers (Chair: Dr. M. S. Swaminathan) in 2006.[53]

The Standing Committee (2019) noted that Gramin Haats (small rural markets) can emerge as a viable alternative for agricultural marketing if they are provided with adequate infrastructure facilities.[53] It recommended that the Gramin Agricultural Markets scheme (which aims to improve infrastructure and civic facilities in 22,000 Gramin Haats across India) should be made a fully funded central scheme and scaled to ensure the presence of a Haat in each panchayat of the country.[53]

The central government has proposed development of basic infrastructure in Gramin Haats through the MGNREGS and of marketing infrastructure through the Agri-Market Infrastructure Fund.[59] The Fund will be set up by NABARD to provide Rs 1,000 crore to states at a concessional interest rate for development of marketing infrastructure in Gramin Haats. In the 2021-22 budget, the government has proposed that the Agriculture Infrastructure Fund will be made available to APMCs for augmenting infrastructure facilities.[60] It has also proposed the levy of an Agriculture and Infrastructure Development Cess, which will be used to generate funds for financing agricultural infrastructure and other development activities. It will be levied on petrol, diesel, and imports such as cotton, coal, gold, silver, and alcoholic beverages.

Agricultural Research

The Indian Council of Agricultural Research (ICAR) has been allocated Rs 5,322 crore for the year 2021-22, which is 7% higher than the revised estimate of 2020-21. The allocation is primarily for salaries, pensions, administrative expenses, and different schemes under ICAR. The Standing Committee on Agriculture (2019) noted that almost 75% of the allocation to the Department of Agricultural Research and Education is incurred on items such as salaries and pensions, and only 25% is available for research activities.[61]

15th Finance Commission's grants for agricultural reforms

The 15th Finance Commission, in its report for the period 2021-26, has recommended a total of Rs 45,000 crore as performance-based grants for states implementing agricultural reforms. It has identified four areas (with equal weightage) where states need to carry out reforms to be eligible for their share under these performance-based grants. These four areas are:

Land leasing: States are required to create legal provisions for liberalisation and recognition of agricultural land lease. The instances of leasing of agricultural land are rising but since these agreements are largely informal, the tenant is not recognised by the law. They are also not eligible for benefits under various government schemes. The 15th Finance Commission has recommended states to amend their land-related laws (on the lines of NITI Aayog's Model Agricultural Land Leasing Act, 2016) to allow short-term and long-term lease of agricultural land for agricultural purpose, agro-industry, logistics for agricultural trade, and supply chains.

Sustainable and efficient water use: States are required to maintain and augment groundwater stock and check the fall in the water table. Despite groundwater levels falling at an alarming rate, agricultural policies encourage profligate use of water and the sector uses about 90% of the total water used in the country. The 15th Finance Commission has recommended three measures which states can adopt to reduce water use in agriculture: (i) replacing free/ subsidised power supply with direct benefit transfers to facilitate judicious use of water and a shift from water-guzzling crops, (ii) encouraging new technologies, such as drip, sprinkler, and sensor-based irrigation, for efficient use, and (iii) conserving and harvesting rainwater to increase the availability of water.

Export promotion: States are required to increase exports in the agriculture sector. India exports 7% of its domestic production. Despite being the second-highest agricultural producer in the world, India's share in the global market is just 2.5%. An Expert Group constituted by the 15th Finance Commission has recommended various measures to increase agricultural exports, including: (i) focusing on certain crop value chains with high export potential, (ii) supporting these value chains through a cluster approach and preparing comprehensive plans to develop these clusters, and (iii) reducing logistics' cost to make exports more competitive.

Contribution towards Aatmanirbhar Bharat: States are required to increase the production of oilseeds, pulses, and wood and wood products. These grants aim to make India self-reliant in the production of these commodities where there is a sizeable deficit. The Green Revolution, focusing on wheat and rice, created a strong disadvantage for production of pulses and oilseeds. The per capita domestic availability of pulses declined from 69 gm per person per day in 1961 to less than 55 gm in recent years, leading to under-nutrition and malnutrition. More than 60% of the domestic demand for vegetable oil is met from imports, valued at Rs 69,000 crore. Similarly, 40% of the non-fuel timber requirement is met from imported wood and wood products, valued at Rs 42,000 crore.

The Committee recommended that more funds should be provided to the Department to promote agricultural research and education. It also recommended the Department to work towards attracting Corporate Social Responsibility (CSR) funds for investment in agricultural research.

Research under crop sciences and animal sciences has been allocated Rs 968 crore and Rs 462 crore in 2021-22, respectively. Observing that vegetable oils, pulses, cashew are among the major import commodities between 2011 and 2016, the Standing Committee on Agriculture (2017) recommended that there is a need for enhancing the production of these commodities.[62] It also recommended the government to allocate additional funds to ICAR for this purpose. It also noted that the production of animal vaccines is inadequate in the country. It recommended that adequate resources and manpower must be devoted to ICAR for the development of animal vaccines.

International comparison: The Committee on Doubling Farmers' Income (Chair: Mr. Ashok Dalwai, 2017) observed that the expenditure on agricultural research in India has remained around 0.3-0.4% of the agriculture GDP since 2001 (except in 2011 when it was 0.52% because of higher plan allocations by the government).[63]

The Committee observed that this is substantively lower in comparison to many developed countries, and also vis-à-vis comparable developing economies. The share of agricultural research in agriculture GDP is much higher in Brazil (1.8%), Mexico (1.05%), Malaysia (0.99%), and China (0.62%).

It observed that in the high-income countries, the share stands at 3.01%. The Committee recommended that expenditure on agricultural research should be increased to up to one percent of agriculture GDP.

[1] Ministry-wise Summary of Budget Provisions, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sumsbe.pdf.

[2] Demand No. 1, Department of Agriculture, Cooperation and Farmers' Welfare, Expenditure Budget, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe1.pdf.

[3] Uncorrected Verbatim Debates, Rajya Sabha, February 12, 2021, http://164.100.47.7/newdebate/253/12022021/Fullday.pdf.

[4] Demand No. 2, Department of Agricultural Research and Education, Expenditure Budget, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe2.pdf.

[5] Report no. 25, Standing Committee on Agriculture: 'Demand for Grants (2016-17), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, May 2016, http://164.100.47.193/lsscommittee/Agriculture/16_Agriculture_25.pdf.

[6] "Press Note on First Revised Estimates of National Income for 2019-20", Ministry of Statistics and Programme Implementation, January 29, 2021, https://www.mospi.gov.in/documents/213904//416359//PressNote_FRE%202019-20%20-%20Website1611922195016.pdf//5efc1a5e-1e8f-29ec-4f34-d58ebd438ea3.

[7] "Status of Farmers' Income: Strategies for Accelerated Growth", Report of the Committee on Doubling Farmers'

Income, Ministry of Agriculture and Farmers Welfare, August 2017, http://farmer.gov.in/imagedefault/DFI/DFI%20Volume%202.pdf.

[8] Operational Guidelines of "Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)", Ministry of Agriculture and Farmers Welfare, http://agricoop.gov.in/sites/default/files/operational_GuidePM.pdf.

[9] "PM-KISAN Scheme extension to include all eligible farmer families irrespective of the size of landholdings", Press Information Bureau, Cabinet, May 31, 2019.

[10] Rajya Sabha Starred Question No. 60, Ministry of Agriculture and Farmers' Welfare, February 5, 2021, https://pqars.nic.in/annex/253/AS60.pdf.

[11] PM-KISAN scheme dashboard, Ministry of Agriculture and Farmers' Welfare, as on February 10, 2021, https://pmkisan.gov.in/.

[12] Report no. 9, Standing Committee on Agriculture: 'Demand for Grants (2020-21), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, March 2020, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_9.pdf.

[13] "March of Agriculture since Independence and Growth Trends", Report of the Committee on Doubling Farmers' Income, Ministry of Agriculture and Farmers Welfare, August 2017, http://farmer.gov.in/imagedefault/DFI/DFI%20Volume%201.pdf.

[14] "Cabinet approves Interest Subvention to banks on short-Term crop loans to farmers", Press Information Bureau, Ministry of Agriculture and Farmers' Welfare, June 14, 2017.

[15] Report of the Committee on Medium-term Path on Financial Inclusion, Reserve Bank of India, December 2015, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/FFIRA27F4530706A41A0BC394D01CB4892CC.PDF.

[16] Report of the Internal Working Group to Revisit the Existing Priority Sector Lending Guidelines, Reserve Bank of India, March 2, 2015, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/PSGRE020315.pdf.

[17] Report no. 19, Standing Committee on Agriculture: Action taken by the government on the report: 'Demand for Grants (2020-21), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, February 2021, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_19.pdf.

[18] "Input Management for Resource Use Efficiency and Total Factor Productivity", Report of the Committee on Doubling Farmers' Income, Volume 7, Ministry of Agriculture and Farmers' Welfare, March 2018, https://farmer.gov.in/imagedefault/DFI/DFI%20Volume%207.pdf.

[19] "Setting up of Agriculture Infrastructure Fund", Press Information Bureau, Ministry of Agriculture and Farmers' Welfare, September 18, 2020.

[20] Report of the Committee on Medium-term Path on Financial Inclusion, Reserve Bank of India, December 2015, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/FFIRA27F4530706A41A0BC394D01CB4892CC.PDF.

[21] Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households, Reserve Bank of India, January 2016, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/CFS070114RFL.pdf.

[22] Report of the Internal Working Group to Review Agricultural Credit, Reserve Bank of India, September 2019, https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/WGREPORT101A17FBDC144237BD114BF2D01FF9C9.PDF.

[23] Agriculture Census 2015-16 (provisional), Ministry of Agriculture and Farmers Welfare, September 2018, https://agcensus.nic.in/document/agcen1516/T1_ac_2015_16.pdf.

[24] "Pradhan Mantri Fasal Bima Yojana (PMFBY), Ministry of Agriculture, http://agricoop.nic.in/imagedefault/whatsnew/sch_eng.pdf; "Cabinet approves New Crop Insurance Scheme – Pradhan Mantri Fasal Bima Yojana", Press Information Bureau, Ministry of Agriculture, January 13, 2016.

[25] Agriculture and Food Management, Economic Survey 2017-18, January 2018, https://mofapp.nic.in/economicsurvey/economicsurvey/pdf/099-119_Chapter_07_Economic_Survey_2017-18.pdf.

[26] Report no. 6, Standing Committee on Agriculture: 'Demand for Grants (2019-20), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, December 2019, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_6.pdf.

[27] Lok Sabha Unstarred Question No. 97, Ministry of Agriculture and Farmers' Welfare, February 2, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU97.pdf.

[28] Report no. 35, Standing Committee on Agriculture: 'Demand for Grants (2017-18), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, March 2017, http://164.100.47.193/lsscommittee/Agriculture/16_Agriculture_35.pdf.

[29] Report no. 17, Standing Committee on Agriculture: Action taken by the government on the report: 'Demand for Grants (2019-20), Department of Agriculture, Cooperation and Farmers' Welfare', Lok Sabha, February 2021, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_17.pdf.

[30] The National Food Security Act, 2013, India Code, Ministry of Law and Justice, as on September 16, 2020, https://www.indiacode.nic.in/bitstream/123456789/2113/1/201320.pdf.

[31] Commission for Agricultural Costs and Prices, Ministry of Agriculture and Farmers' Welfare, https://cacp.dacnet.nic.in/content.aspx?pid=32.

[32] Procurement policy, Department of Food and Public Distribution, https://dfpd.gov.in/Procurement-Policy.htm.

[33] Economic Survey 2019-20, Chapter 4, Volume 1, January 2020, https://www.indiabudget.gov.in/budget2020-21/economicsurvey/doc/vol1chapter/echap04_vol1.pdf.

[34] Evaluation Report on Efficacy of Minimum Support Prices (MSPs), NITI Aayog, January 2016, http://www.niti.gov.in/writereaddata/files/document_publication/MSP-report.pdf.

[35] Land Use Statistics at a Glance, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare, as on February 1, 2021, https://eands.dacnet.nic.in/LUS_2016-17/final%20lus%202007-08%20to%202016-17.xls.

[36] "Agriculture: More from less", Economic Survey 2015-16, http://unionbudget.nic.in/es2015-16/echapvol1-04.pdf.

[37] Natural Resource Management, State of Indian Agriculture 2015-16, Ministry of Agriculture and Farmers' Welfare, May 2016, http://agricoop.nic.in/imagedefault/state_agri_1516.pdf.

[38] State of Indian Agriculture 2015-16, Ministry of Agriculture and Farmers Welfare, http://eands.dacnet.nic.in/PDF/State_of_Indian_Agriculture,2015-16.pdf.

[39] Website of the Pradhan Mantri Krishi Sinchai Yojana, Ministry of Agriculture and Farmers' Welfare, as on February 12, 2021, https://pmksy.gov.in/mis/frmDashboard.aspx.

[40] Report no. 43, Standing Committee on Chemicals and Fertilisers: 'Demand for Grants (2018-19), Department of Fertilisers', Lok Sabha, March 2018, http://164.100.47.193/lsscommittee/Chemicals%20&%20Fertilizers/16_Chemicals_And_Fertilizers_43.pdf.

[41] "Presentation of details under Aatmanirbhar Bharat Package 3.0 to support Indian economy in fight against COVID-19 as announced by Union Finance & Corporate Affairs Minister Smt.

Nirmala Sitharaman", Press Information Bureau, Ministry of Finance, November 12, 2020, https://static.pib.gov.in/WriteReadData/userfiles/MOF.pdf.

[42] Report no. 7, Standing Committee on Chemicals and Fertilisers: 'Demand for Grants (2020-21), Department of Fertilisers', Lok Sabha, March 2020, http://164.100.47.193/lsscommittee/Chemicals%20&%20Fertilizers/17_Chemicals_And_Fertilizers_7.pdf.

[43] Report no. 5, Standing Committee on Chemicals and Fertilisers: 'Study of System of Fertiliser Subsidy', Lok Sabha, March 2020, http://164.100.47.193/lsscommittee/Chemicals%20&%20Fertilizers/17_Chemicals_And_Fertilizers_5.pdf.

[44] Agricultural Statistics at a Glance 2019, Ministry of Agriculture and Farmers' Welfare, March 2020, https://eands.dacnet.nic.in/PDF/At%20a%20Glance%202019%20Eng.pdf.

[45] Report no. 29, Standing Committee on Agriculture: 'Impact of Chemical Fertilizers and Pesticides on Agriculture and allied sectors in the country', August 2016, http://164.100.47.134/lsscommittee/Agriculture/16_Agriculture_29.pdf.

[46] "Soil health card Scheme Completes 5 years on 19-2-2020", Press Information Bureau, Ministry of Agriculture and Farmers' Welfare, February 17, 2020.

[47] Website of the Soil Health Card scheme, Ministry of Agriculture and Farmers' Welfare, as on February 12, 2021, https://www.soilhealth.dac.gov.in/.

[48] Revised guidelines, Rashtriya Krishi Vikas Yojana, Department of Agriculture, Cooperation and Farmers' Welfare, https://rkvy.nic.in/static/download/pdf/RKVY_14th_Fin._Comm.pdf.

[49] Report no. 35, Standing Committee on Agriculture: 'Demand for Grants (2017-18), Department of Agriculture, Cooperation and Farmers'
Welfare', Lok Sabha, March 2017, http://164.100.47.193/lsscommittee/Agriculture/16_Agriculture_35.pdf.

[50] Horticulture Statistics at a Glance 2017, Ministry of Agriculture and Farmers' Welfare, http://agricoop.gov.in/sites/default/files/Horticulture%20At%20a%20Glance%202017%20for%20net%20uplod%20%282%29.pdf.

[51] Second Advance Estimates of Horticultural Production in 2019-20, Ministry of Agriculture and Farmers' Welfare, http://agricoop.nic.in/sites/default/files/2019-20%282nd%20Advance%20Estimates%29%20%281%29.pdf.

[52] Lok Sabha Starred Question No. 20, Ministry of Agriculture and Farmers' Welfare, February 2, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AS20.pdf.

[53] Report No. 62, Standing Committee on Agriculture (2018-19): 'Agriculture Marketing and Role of Weekly Gramin Haats', Lok Sabha, January 3, 2019, http://164.100.47.193/lsscommittee/Agriculture/16_Agriculture_62.pdf.

[54] Report of Committee of State Ministers, In-charge of Agriculture Marketing to Promote Reforms, January 2013, https://dmi.gov.in/Documents/stminprreform.pdf.

[55] The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020, Gazette of India, Ministry of Agriculture and Farmers' Welfare, September 27, 2020, http://www.egazette.nic.in/WriteReadData/2020/222039.pdf.

[56] The Essential Commodities (Amendment) Act, 2020, Gazette of India, Ministry of Consumer Affairs, Food and Public Distribution, September 27, 2020, http://www.egazette.nic.in/WriteReadData/2020/222038.pdf.

[57] The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020, Gazette of India, Ministry of Agriculture and Farmers' Welfare, September 27, 2020, http://www.egazette.nic.in/WriteReadData/2020/222040.pdf.

[58] Order dated January 12, 2021, Rakesh Vaishnav vs Union of India, W.P.(C) No. 1118/2020, Supreme Court of India, https://main.sci.gov.in/supremecourt/2020/21097/21097_2020_31_19_25372_Order_12-Jan-2021.pdf.

[59] Report No. 8, Standing Committee on Agriculture (2019-20): Action taken by the government on the report 'Agriculture Marketing and Role of Weekly Gramin Haats', Lok Sabha, December 12, 2019, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_8.pdf.

[60] Budget Speech, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

[61] Report no. 3, Standing Committee on Agriculture: 'Demand for Grants (2019-20), Department of Agricultural Research and Education', Lok Sabha, December 2019, http://164.100.47.193/lsscommittee/Agriculture/17_Agriculture_3.pdf.

[62] Report no. 36, Standing Committee on Agriculture: 'Demand for Grants (2017-18), Department of Agricultural Research and Education', Lok Sabha, March 2017, http://164.100.47.193/lsscommittee/Agriculture/16_Agriculture_36.pdf.

[63] "Science for Doubling Farmers' Income", Report of the Committee on Doubling Farmers' Income, Ministry of Agriculture and Farmers Welfare, February 2018, http://farmer.gov.in/imagedefault/DFI/DFI%20Vol-12A.pdf.

Annexure

Allocation to major expenditure heads under the Departments

Table 7: Allocation under the Department of Agriculture, Cooperation and Farmers' Welfare (Rs crore)

	2019-20 Actuals	2020-21 Budgeted	2020-21 Revised	% change in RE 2020-21 over BE 2020-21	2021-22 Budgeted	% change (annualised) in BE 2021-22 over 2019-20
PM-KISAN	48,714	75,000	65,000	-13%	65,000	16%
Interest subsidy for short-term credit to farmers	16,219	21,175	19,832	-6%	19,468	10%
Pradhan Mantri Fasal Bima Yojana	12,639	15,695	15,307	-2%	16,000	13%
Pradhan Mantri Krishi Sinchai Yojana (Per Drop More Crop)	2,700	4,000	2,563	-36%	4,000	22%
Market Intervention Scheme and Price Support Scheme (MIS-PSS) *	2,005	2,000	996	-50%	1,501	-13%
Agriculture Infrastructure Fund	-	-	208	-	900	-
Formation and Promotion of 10,000 Farmer Producer Organisations	-	500	250	-50%	700	-
Green Revolution	9,895	13,320	10,474	-21%	13,408	16%
Rashtriya Krishi Vikas Yojana	3,085	3,700	2,551	-31%	3,712	10%
National Mission on Horticulture	1,331	2,300	1,610	-30%	2,385	34%
National Food Security Mission	1,769	2,100	1,864	-11%	2,096	9%
Department	**94,252**	**1,34,400**	**1,16,758**	**-13%**	**1,23,018**	**14%**

*for procurement of pulses and oilseeds

Sources: Demand no. 1, Expenditure Budget, Union Budget 2021-22; PRS.

Table 8: Allocation under the Department of Agricultural Research and Education (Rs crore)

	2019-20 Actuals	2020-21 Budgeted	2020-21 Revised	% change in RE 2020-21 over BE 2020-21	2021-22 Budgeted	% change (annualised) in BE 2021-22 over 2019-20
ICAR headquarters	4,869	5,138	4,997	-3%	5,322	5%
Crop sciences	859	965	836	-13%	968	6%
Agricultural education	688	740	530	-28%	613	-6%
Central agricultural universities	459	460	429	-7%	471	1%
Animal sciences	452	486	420	-14%	462	1%
Department	**7,523**	**8,363**	**7,762**	**-7%**	**8,514**	**6%**

Sources: Demand no. 2, Expenditure Budget, Union Budget 2021-22; PRS.

Consumption of Fertilisers

Table 9: Consumption of fertilisers in terms of N, P, and K nutrients (in lakh tonnes)

Year	Urea (N)	Phosphatic (P)	Potassic (K)	Total (N+P+K)
2006-07	137.7	55.4	23.3	216.5
2007-08	144.2	55.1	26.4	225.7
2008-09	150.9	65.1	33.1	249.1
2009-10	155.8	72.7	36.3	264.9
2010-11	165.6	80.5	35.1	281.2
2011-12	173.0	79.1	25.8	277.9
2012-13	168.2	66.5	20.6	255.4
2013-14	167.5	56.3	21.0	244.8
2014-15	169.4	60.9	25.3	255.8
2015-16	173.7	69.8	24.0	267.5
2016-17	167.4	67.1	25.1	259.5
2017-18	169.6	68.5	27.8	265.9
2018-19	176.3	69.7	27.8	273.8

Sources: Agricultural Statistics at a Glance 2019, Ministry of Agriculture and Farmers' Welfare; PRS.

Demand for Grants: Road Transport and Highways

The Ministry of Road Transport and Highways formulates and administers policies for road transport, and transport research. It is also involved with the construction and maintenance of the National Highways (NHs) through the National Highways Authority of India (NHAI), and the National Highways and Infrastructure Development Corporation Limited (NHIDCL). It also deals with matters relating to road transport such as implementation of central legislation including the Motor Vehicles Act, 1988.

This note looks at the proposed expenditure of the Ministry for the year 2021-22, its finances over the last few years, and issues with the same.

Allocations in Union Budget 2021-22

Fund allocation[1]

The total expenditure on the Ministry of Road Transport and Highways for 2021-22 is estimated at Rs 1,18,101 crore. This is an annual increase of 23% over the actual expenditure for 2019-20.

In 2021-22, capital expenditure is estimated at Rs 1,08,230 crore while revenue expenditure is estimated at Rs 9,871 crore. Note that in 2014-15, the ratio between revenue and capital expenditure was 50:50. In 2015-16, this ratio changed, with the Ministry spending more funds on capital expenditureIn 2021-22, 90% of the Ministry's spending is estimated to be on capital expenditure.

Table 1: Budget allocations for the Ministry of Road Transport and Highways (in Rs crore)

	2019-20 Actual	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Revenue	9,875	9,770	9,871	0%
Capital	68,374	92,053	1,08,230	26%
Total	**78,249**	**1,01,823**	**1,18,101**	**23%**

Note: BE – Budget Estimate; RE – Revised Estimate.
Sources: Demands for Grants 2021-22, Ministry of Road Transport and Highways; PRS.

Overview of Finances

Utilisation of funds

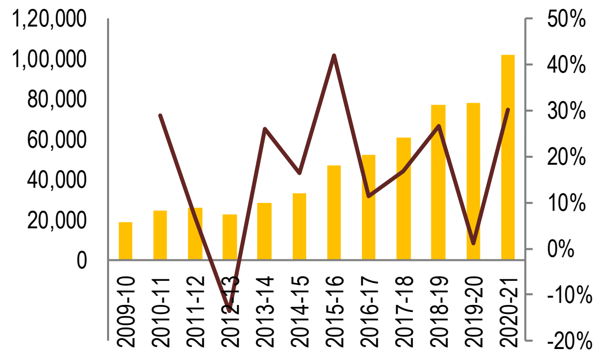
In the past few years, the expenditure of the Ministry has seen a significant increase, with the maximum year-on-year increase at 42% seen in 2015-16.

***Policy announcements in the Budget Speech*[2]**

In her budget speech, the Finance Minister made the following announcements regarding the roads sector:

- A National Monetisation Pipeline of potential brownfield infrastructure assets will be launched. An Asset Monetisation dashboard will also be created for tracking the progress and to provide visibility to investors.
- National Highways Authority of India has sponsored one InvIT that will attract international and domestic institutional investors. Five operational roads with an estimated enterprise value of Rs 5,000 crore are being transferred to the NHAI InvIT. Core infrastructure assets that will be rolled out under the Asset Monetisation Programme will include NHAI Operational Toll Roads.
- By March 2022, another 8,500 km of highways will be awarded and an additional 11,000 km of national highway corridors will be completed.
- New economic corridors to augment road infrastructure are being planned in Assam, Kerala, Tamil Nadu, and West Bengal.

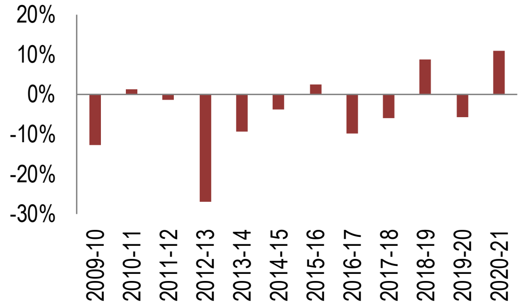
Figure 1: Actual expenditure by the Ministry (in Rs crore)



Note: Figures for 2020-21 are revised estimates.
Sources: Ministry of Road Transport and Highways budget documents 2009-21; PRS.

However, typically the actual expenditure by the Ministry has been lower than the budget estimates (see Figure 2). As per the revised estimates of 2020-21, the Ministry is expected to exceed its budgeted expenditure by 11%. Before this, the Ministry had exceeded its budgeted expenditure by 9% in 2018-19. This was largely due to additional expenditure incurred on capital outlay towards roads and bridges.

Figure 2: Difference between Actual and Budgeted expenditure (in %)



Note: The number for 2020-21 compares the budget estimates with the revised estimates.
Sources: Ministry of Road Transport and Highways budget documents 2009-21; PRS.

Expenditure of the central government

In 2021-22, of the total expenditure, the highest allocation is towards roads and bridges at Rs 60,261 crore (51%).[1] This is followed by allocation towards NHAI at Rs 57,350 crore (48.6%).[1]

Table 2: Expenditure heads for the Ministry of Road Transport and Highways (in Rs crore)

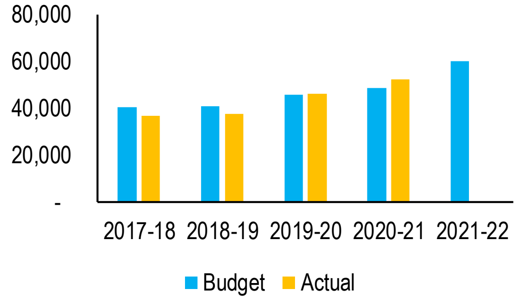
Major head	2019-20 Actual	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Roads and bridges	46,305	52,376	60,261	14%
NHAI	31,691	49,050	57,350	35%
Road transport and safety	148	231	336	51%
Others	138	167	154	6%
Total	**78,249**	**1,01,823**	**1,18,101**	**23%**

Note: BE – Budget Estimate; RE – Revised Estimate.
Total for 2019-20 includes actual recoveries of Rs 33 crore.
Sources: Demands for Grants 2021-22, Ministry of Road Transport and Highways; PRS.

Roads and bridges: Expenditure under roads and bridges includes development of NHs, projects related to expressways, increasing the number of lanes under various projects, and development of road connectivity in left-wing extremism affected areas. In 2021-22, the allocation towards roads and bridges is Rs 60,261 crore. This is an annual increase of 14% over 2019-20.

Note that in 2017 and 2018, the actual allocation towards roads and bridges was lower than the budget estimate for that year by 9% and 8% respectively. However, as per the revised estimates of 2020-21, the allocation towards roads and bridges is estimated to exceed the budget estimate by 7%.

Figure 3: Budget vs actual allocation towards roads and bridges (in Rs crore)

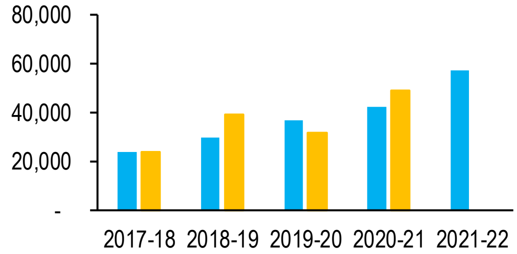


Note: Actual figures for 2020-21 are revised estimates.
Sources: Ministry of Road Transport and Highways budget documents 2009-21; PRS.

NHAI: The central government develops and maintains NHs through the NHAI. In 2021-22, NHAI has been allocated Rs 57,350 crore, which is an annual increase of 35% over 2019-20. Of the budgeted amount, 61% (Rs 34,700 crore) will be provided from the Central Road and Infrastructure Fund, 22% (Rs 12,650 crore) will be provided from the Permanent Bridge Fees Fund, and the remaining 17% (Rs 10,000 crore) will come from the monetisation of the National Highways.[1]

Note that the allocation towards NHAI has almost doubled from 2017-18 to 2020-21 (revised estimates). While the actual allocation in 2019-20 fell short of the budgeted estimate by 14%, the revised estimates for 2020-21 expect a 15% increase in the allocation from the budgeted stage.

Figure 4: Budget vs actual allocation towards NHAI (in Rs crore)



Note: Actual figures for 2020-21 are revised estimates.
Sources: Ministry of Road Transport and Highways budget documents 2009-21; PRS.

Expenditure on the NHAI includes funding towards the umbrella highway scheme, Bharatmala Pariyojana. This scheme seeks to optimise the efficiency of freight and passenger movement by bridging critical infrastructure gaps. It also aims to increase the number of districts with NH linkages from 300 to 550.[3] Under Phase I of Bharatmala Pariyojana, 34,800 km of roads will be developed over a period of five years. Phase I will also subsume 10,000 km of balance roadworks under the National Highway Development Programme. The estimated cost of Phase I is Rs 5,35,000 crore, spread over five years.

Till January 2021, road projects with an aggregate length of about 13,521 km, and costing Rs 3.45 lakh crore have been approved under Bharatmala Pariyojana Phase-I.[4] Of this, road length of 3,758 km has already been completed.[5]

As announced in the Budget Speech 2021-22, by March 2022, another 8,500 km of NH projects will be awarded and an additional 11,000 km of national highway corridors will be constructed.[2]

Funds managed by the Ministry

The Ministry manages its expenditure through various funds. Their details are provided below.

Central Road and Infrastructure Fund (CRIF): A majority of the Ministry's expenditure is managed through transfers from the CRIF. A portion of the cess collected on motor spirit and high-speed diesel is earmarked for the development of NHs and SHs, and the amount is transferred to the non-lapsable CRIF. This amount is eventually released to the NHAI, and to the state/UT governments for the development of road infrastructure (and other infrastructure projects such as railways) in the country.[1]

For 2021-22, the transfer from CRIF towards the Ministry is estimated at Rs 79,147 crore.[1] This is a 20% annual increase from the actual transfer in 2019-20 (Rs 54,539 crore).

Permanent Bridge Fees Fund (PBFF): Funds transferred to the PBFF relate to the revenue collected by the government through: (i) fees levied for the use of certain permanent bridges on NHs by motor vehicles, (ii) toll on NHs, and (iii) revenue share received on some PPP projects. These funds are then released to the NHAI for the development of NHs entrusted to it.[1]

For 2021-22, the transfer to PBFF is estimated at Rs 12,670 crore. This is a 9% annual increase from the actual transfer in 2019-20 (Rs 10,610 crore).

National Investment Fund (NIF): The NIF was created in 2005, and is credited with proceeds from disinvestments of public sector enterprises. The Ministry finances the Special Accelerated Road Development Programme in North East (SARDP-NE) with funds from the NIF.

For 2021-22, the transfer to NIF is estimated at Rs 7,500 crore. This is an 11% annual increase from the actual transfer in 2019-20 (Rs 6,070 crore).

National Highways Fund: In August 2016, the Union Cabinet had authorised NHAI to monetise certain public funded NH projects.[6] Such monetisation includes transferring operations and maintenance of stretches of NHs to private contractors on a long-term basis. In 2021-22, Rs 10,000 crore is estimated to be generated through such monetisation. This is a 41% annual increase from the actual monetisation amount in 2019-20 (Rs 5,000 crore).

Table 3: Summary of transfers from funds (in Rs crore)

Funds	2019-20 Actual	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
CRIF	54,539	69,622	79,147	20%
PBFF	10,610	11,518	12,670	9%
National Highways Fund	5,000	10,250	10,000	41%
National Investment Fund	6,070	3,000	7,500	11%

Note: BE – Budget Estimate; RE – Revised Estimate.
Sources: Demands for Grants 2021-22, Ministry of Road Transport and Highways; PRS.

Issues to consider

India has about 64 lakh km of road length, second only to the United States which has about 66 lakh km of road length.[7] This road length includes National Highways (NHs), Expressways, State Highways (SHs), district roads, PWD roads, and project roads. In India, road infrastructure is used to transport over 60% of total goods and 85% of total passenger traffic.[8] NHs comprise about 2% of the road network but carry about 40% of the total road traffic.[9] The Economic Survey (2020) also noted that road transport is the dominant mode of transportation in the country.[7] The entire transport sector contributed to about 4.6% of the GVA in 2018-19, of which road transport contributed about 67%.[7]

The table below shows the details on road construction in India. As per the Economic Survey 2020-21, the decline in the construction of road per day in 2020-21 is mostly due to the shock of COVID-19.

Table 4: Road construction in India

Year	Award of NHs/ Road projects	Construction of NHs/ Road projects	Road construction per day (in km)
2014–15	7,972	4,410	12
2015–16	10,098	6,061	17
2016–17	15,948	8,231	23
2017-18	17,054	9,829	27
2018-19	5,494	10,855	30
2019-20	8,900	10,200	28
2020-21	5,100	4,000	22

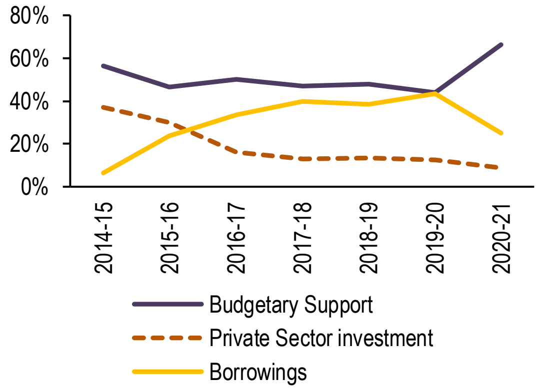
Note: Data for 2020-21 is as on September 30, 2020.
Sources: Economic Survey 2020-21; PRS.

However, the roads sector has been facing several constraints such as: (i) lack of equity with developers, (ii) higher cost of financing, (iii) shortfall in funds for maintenance, (iv) unavailability of land for the expansion of NHs, (v) significant increase in land acquisition cost, and (vi) bottlenecks and checkpoints on NHs which could adversely impact benefits of GST.[10] The Standing Committee on Transport (2020) had also highlighted NHAI's increasing debt which could lead to severe financial issues in the future.[11] We discuss some of these issues below.

Issues with financing

The figure below highlights the total investment in the roads sector, as highlighted by the Economic Survey 2020-21.[7] The total investment in road sector has grown at a CAGR of 27% from 2014-15 to 2019-20. The share of borrowings in this investment has grown from 6% in 2014-15 to 43% in 2019-20. During the same time period the share of both budgetary support and private investment in the total investment has decreased from 57% to 44% and from 37% to 13% respectively.

Figure 5: Investment in road sector



Note: Figures for 2020-21 are up to September 30, 2020.
Sources: Economic Survey 2020-21; PRS.

Budgetary support from central government

The Standing Committee on Transport (2020) noted that increasing the gross budgetary support to the Ministry while the private sector investment is declining may not be a sustainable growth plan.[11] The Committee had made similar observations in 2016 and 2018 and had suggested that the government should devise ways to mobilise funds from other sources and establish appropriate financial institutions and models to encourage the return of private investment to the road sector.[12,13]

The Committee (2016) had also noted that while the Ministry of Road Transport and Highways invests in the construction of roads, it does not have its own source of revenue other than budgetary support from the central government. It recommended that the RBI and Ministry of Finance may help the Ministry of Road Transport to set up its own dedicated financial institutions to generate funds for development of the road sector. It also recommended that the Ministry should monitor toll collection and channel any surplus funds towards stressed projects.

The Ministry expects to raise Rs 86,182 crore up to 2024-25 to fund projects under the National Infrastructure Pipeline, by monetising its assets under the Toll-Operate-Transfer (TOT) model.[11] The Standing Committee (2020) had observed that this might be a challenge for the Ministry since it has planned to raise Rs 10,000 crore in 2019-20 by monetising assets under various models including TOT but could raise only Rs 5,000 crore.[11] In 2021-22, the Ministry plans to raise Rs 10,000 crore through such monetisation.

In 2019-20, the actual capital outlay fell short of the budget estimates by 4%. Most of this shortage was due to shortage in budgetary support towards capital outlay (14% shortage).

Borrowings

In 2021-22, NHAI estimates to borrow Rs 65,000 crore towards capital outlay. This amount is about Rs 10,000 crore lower than the actual borrowings for 2019-20 (reduction of 7% annualised over two years). Note that this borrowing is in addition to the Rs 57,350 crore of budgetary support.

The Standing Committee on Transport (2020) had noted that NHAI's debt has been increasing and as of March 2020, the amount of debt NHAI had to repay was more than twice the annual budgetary allocation of the Ministry for 2020-21.[11] The debt servicing cost of NHAI was estimated to rise to Rs 34,846 crore by 2021-22.[11]

In its Annual Report (2018), NHAI had noted that with the debt obligations increasing due to deferment of debt repayment, exposure of financial institutions that lend to the roads sector has increased significantly, reaching defined exposure norms for the sector.[9]

The Comptroller and Auditor General of India (2016) had also noted several procedural inefficiencies with NHAI.[14] For example, NHAI could not realise toll on certain projects due to delays in approvals, toll operations, and other procedural lapses. NHAI did not adhere to the Ministry's guidelines on maintenance of project wise balance sheet and cash flow.[14] Inefficient bidding processes for engaging toll collection agencies also led to the loss of revenue.[14]

The Committee on Public Undertakings (2017) had also noted several issues in the financial performance of NHAI such as: (i) insufficiency of funds, (ii) gap between the funds allocated to the Ministry, and released to NHAI, and (iii) under-utilisation of funds.[15] For example, funds that are left unspent at the end of a financial year is shown as 'opening balance' at the beginning of the next financial year. This opening balance was Rs 2,672 crore and Rs 6,740 crore for the years 2015-16 and 2016-17 respectively.[15] This showed NHAI's inability to optimally utilise available funds.

The Standing Committee on Transport (2020) had recommended that the Ministry should constitute an Advisory Committee to look into the increasing debt of NHAI, and the efficacy of the measures undertaken by the Ministry and NHAI to monetise their assets.[11] Further, the Ministry may increase toll charges across the country and postpone certain projects, as the present financial health of NHAI is not sustainable in the long run and may create bigger issues in the roads sector in the future.

Committees have also suggested more due diligence on the part of NHAI. The Standing Committee on Transport (2019) recommended that NHAI should compare its project cost estimates with the actual costs incurred on road projects.[16] If there is a substantial difference between the bid price offered by the concessionaire and the project cost estimates made by the government, NHAI should review its cost estimation methodologies. The Committee (2019) also suggested that the NHAI or central government should appoint a credit rating agency to assess the financial strength of private players and their ability to meet debt repayment obligations.[16]

Private financing and contracts

In its Annual Report (2018), NHAI had noted that the recent economic slowdown has led to lower revenue realisation than expected. Several developers had significantly leveraged their balance sheets in anticipation of high revenue, and with lower revenue realisation they face issues with debt servicing.[9] This also adds stress on the existing road infrastructure loan portfolios of financial institutions.

It has been noted that private financing for the roads sector is a challenge.[9,17] Several PPP road projects have not been able to attract bids.[17] The major highway developers in the country are also facing financial capacity constraints. Further, there is a lack of debt products that are aligned with the revenue stream profile of highway projects (long-term projects where toll collection can begin only after the entire project is completed). This makes financing of such projects difficult, and has resulted in some projects getting stalled at the construction stage. This also discourages prospective bidders.[17]

The Committee on Revisiting & Revitalizing the PPP model of Infrastructure Development (Chair: Dr. Vijay Kelkar) had looked at issues with PPP projects in India, in November 2015.[18] It had recommended setting up an independent regulator for the roads sector to help bring in and regulate private players in the sector. It had also noted that service delivery (such as constructing roads) to citizens is the government's responsibility and should not be evaded through PPPs.

NHAI has also noted that financing of large infrastructure projects is based on revenue streams spread over 20 to 30 years.[9] If the debt for such projects spans over 10 to 15 years, it leads to sustainability issues and an asset liability mismatch.[9] The Kelkar Committee (2015) had also observed that since infrastructure projects span over 20-30 years, a private developer may lose bargaining power because of abrupt changes in the economic or policy environment. It recommended that the private sector must be protected against such loss of bargaining power. This could be ensured by amending the terms of the concession agreement to allow for renegotiations.

In order to resolve languishing projects the Ministry has taken some steps which include: (i) implementing an exit policy which allows private developers to take out their entire equity and exit operational Build-Operate-Transfer (BOT) projects two years from the start of operations irrespective of date of award; (ii) providing rationalised compensation to concessionaires for languishing NH projects in BOT mode for delays not attributable to concessionaires; and (iii) a one-time fund infusion by NHAI which enables revival and physical completion of languishing BOT projects that have achieved at least 50% physical progress, on a case to case basis, among others.[19]

Non-performing assets: The Standing Committee on Transport (2016) had observed that several long-term loans disbursed for the road sector are turning into non-performing assets (NPAs).[12] Project bids are often made without proper study, and projects are awarded in a hurry. This results in stalling of projects, and concessionaires leave mid-way.

Banks and other infrastructure lending institutions have also been reluctant to finance the highways sector.[12] This has led to difficulties in debt servicing, putting additional stress on the road infrastructure portfolios. Besides increasing the cost of the project, delays also make it difficult to obtain additional debt.[12]

The Standing Committee on Transport (2016) recommended that banks should take due diligence while disbursing loans to concessionaires. It also suggested that the bank NPAs (related to the roads sector) may be supported by government allocation. Banks could be empowered to recover the bad debts. Further, in light of huge NPAs lying with a single bank, the Standing Committee (2019) recommended that guidelines prescribing a limit up to which a bank can lend to a single borrower be framed to minimise the risk involved in lending.[19]

The Standing Committee on Transport (2019) also suggested that NHAI should revisit the financial requirements for bidders to ensure their eligibility for the bidding process.[19] While the onus of the feasibility of the bids made by the concessionaire lies mainly with the banks, NHAI should exercise due diligence while awarding projects to concessionaire with poor performance history.

Project delays and increase in project costs

The Committee on Public Undertakings (2017) had noted that from 1995, till June 2016, out of the total 388 projects completed, only 55 projects were completed on or before time.[15] Delays in the completion of the projects were mainly attributed to: (i) the long time taken in land acquisition, and obtaining environment and forest clearances, (ii) poor performance of concessionaires due to economic slowdown, (iii) cash flow problems, and (iv) law and order issues.[15] The Ministry has also noted that recently projects have also been halted due to NCLT proceedings against the developer.[20]

Such delays increase project costs, eventually making certain projects unviable. As of December 2019, 773 NH projects with a total length of 28,432 km and costing Rs 2.72 lakh crore were delayed.[21]

The Standing Committee on Transport (2015) had recommended that a coordination mechanism at the central level with the Ministries of Finance, Environment and Forest and Defence will help speed up the process of clearances.[17] The Standing Committee (2016) had also suggested that the Ministry of Road Transport and Highways should obtain all these clearances before awarding the projects to concessionaires.

Increase in land acquisition costs

From January 1, 2015, the compensation for land acquired by NHAI is determined as per the Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013. The Committee on Public Undertakings (2017) had noted that due to higher compensation under the 2013 Act, the expenditure by the Ministry of Road Transport on land acquisition increased from Rs 9,097 crore in 2014-15 to Rs 21,933 crore in 2015-16.[15] In 2017-18, NHAI spent more funds on land acquisition (41% of the expenses) as compared to project expenditure (39%).[9] The Standing Committee on Transport (2020) noted that the average rate of land acquisition has increased significantly from about Rs 0.92 Crore/Ha in 2013-14 to Rs 3.13 crore per Ha in 2019- 20 (an increase of 240%).

The Committee on Public Undertakings (2017) also observed that farmers who were entitled to lesser compensation under the older law, have been approaching courts for increased compensation.[15] This has further delayed the land acquisition process and added to the cost of projects.

Investment in maintenance of roads

In 2021-22 the Ministry has allocated Rs 2,680 crore towards the maintenance of roads and highways (including toll bridges). This is an annual increase of 26% over the actual expenditure on maintenance in 2019-20. However, note that in 2019-20, the actual expenditure on maintenance was 47% less than the budget estimate.

The amount allocated towards maintenance, Rs 2,680 crore, is about 2% of the ministry's budget. This is for a total NH length of about 1.36 lakh km (as of December 2020).[22] In comparison, in 2020-21 the US government seeks to allocate $23.74 billion (about Rs 1.7 lakh crore, which is 51% of its total budget on highways) towards its National Highway Performance Program, to improve the condition and performance of their National Highway System (roughly 3.5 lakh km of length).[23]

The National Transport Development Policy Committee (2014) had noted that the amount spent on maintenance of roads is low.[24] This results in roads with potholes, weak bridges, and poor pavements, and has safety consequences. Further, maintenance is carried out only when required, as opposed to being a part of preventive measures.[24]

The Standing Committee on Transport (2018, 2020) had also raised concerns that the entire amount allocated towards maintenance does not get fully utilised as well.[11,13] Over the years, the Standing Committee has repeatedly noted that the entire length of NHs in the country cannot be maintained with this amount. NITI Aayog (2018) has noted that the amount allocated for maintenance is about 40% of the amount required.[25]

Maintenance of roads should be given top priority as it increases the life span of roads. The Standing Committee (2020) has recommended that the budget for maintenance of NHs should be increased.[11] NITI Aayog has suggested that 10% of the Ministry's annual budget should be earmarked for maintenance.[25] The Standing Committee (2015) has suggested that an effective monitoring mechanism for repair and maintenance of roads should be put in place.[17] Further, there should be penalties for contractors and engineers in case of poor quality repair, maintenance, and construction.

Investment in road safety

In 2021-22, the Ministry has allocated Rs 336 crore towards road transport and safety. This is an annual increase of 51% over the actual expenditure on maintenance in 2019-20. However, note that in 2019-20, the actual expenditure on maintenance was 47% less than the budget estimate.

The allocation towards safety provides for various things such as road safety programmes, setting up of facilities on NHs, for extending relief to accident victims, strengthening of public transport, research and development, and training.

The amount allocated towards road safety in 2021-22 is about 0.3% of the Ministry's total budget. In comparison, in 2019 the US federal government spent about $2.7 billion on its Highway Safety Improvement Programme (6% of its total expenditure on highways).[25] The Standing Committee on Transport (2020) suggested that the Ministry may seek higher fund allocation towards road safety, and driver training programmes.

In 2019, there were 4,49,002 road accidents in India, which killed about 1.5 lakh people and injured about 4.5 lakh people.[26] As per the World Road Statistics, 2018, India ranks first in the number of road accident deaths (among 199 countries reported), followed by China and the US. As per the WHO Global Report on Road Safety 2018, about 11% of the accident-related deaths in the world occur in India.[25]

In 2019, Parliament passed the Motor Vehicles (Amendment) Bill, 2019 which seeks to address various issues around road safety. It increases the penalties for various offences under the Act, and provides for a Motor Vehicle Accident Fund which would be used for the treatment of persons injured in road accidents. It also provides for a National Road Safety Board, which would advise the central and state governments on all aspects of road safety and traffic management. The Ministry has notified several Rules to implement provisions of the Act, such as: (i) protection of Good Samaritans, (ii) conditions for states to levy higher penalties than those in the Act, and (iii) amendments to obtaining driving licenses, among others.[22]

Connectivity in remote areas

The Ministry also allocates funds towards the development of highways in areas with poor connectivity. Some of these projects include the Special Accelerated Road Development Programme in North East (SARDP-NE), Externally Aided Projects and Roads Projects in Left-Wing Extremism Affected Areas.

In 2021-22, Rs 9,590 crore has been allocated towards the SARDP-NE project, which includes Rs 2,090 from gross budgetary support. This is a 27% annual increase from the actual expenditure in 2019-20. The Standing Committee on Transport has repeatedly (2018, 2020) noted underutilisation of funds and under-achievement of targets in SARDP-NE.[11,13] The Standing Committee (2020) noted that projects in the north eastern region face a significant delay of almost a decade in completion. This causes inconvenience to the commuters, and also adds to the project cost.[11] The Committee noted that the issues causing such delays are specific to the region and suggested that the Ministry consider these when projecting timelines and expenditure for projects in this region.

[1] Notes on Demands for Grants 2021-22 Demand no 85, Ministry of Road Transport and Highways, https://www.indiabudget.gov.in/doc/eb/sbe85.pdf.

[2] Budget Speech 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf. .

[3] Lok Sabha Unstarred question no. 1129, Ministry of Road Transport and Highways, December 21, 2017.

[4] Lok Sabha Starred Question No. 42, Ministry of Road Transport and Highways, February 4, 2021.

[5] Rajya Sabha Unstarred Question No. 1563, Ministry of Road Transport and Highways, December 2, 2019.

[6] "Cabinet authorized National Highways Authority of India to monetize public funded national highway projects", Press Information Bureau , Cabinet Committee on Economic Affairs (CCEA), August 3, 2016, http://pib.nic.in/newsite/PrintRelease.aspx?relid=148306.

[7] Volume 2, Economic Survey 2020-21, January 29, 2021, https://www.indiabudget.gov.in/economicsurvey/.

[8] Basic Road Statistics of India 2016-17, Ministry of Road Transport and Highways, http://morth.nic.in/showfile.asp?lid=4585.

[9] Annual Report 2017-18, National Highways Authority of India, Ministry of Road Transport and Highways, https://nhai.gov.in/writereaddata/Portal/Images/pdf/CompressedNHAIAnnualReportEnglishcorrected.pdf.

[10] Chapter 8: Industry and Infrastructure, Economic Survey 2016-17, Volume 2, August 2017, http://www.indiabudget.gov.in/es2016-17/echapter_vol2.pdf.

[11] "278th Report: Demands for Grants (2020-21) of Ministry of Road Transport and Highways", Standing Committee on Transport, Tourism and Culture, March 12, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/20/127/278_2020_9_15.pdf.

[12] "236th Report: Infrastructure Lending in Road Sector", Standing Committee on Transport, Tourism and Culture, August 10, 2016, http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Transport,%20Tourism%20and%20Culture/236.pdf.

[13] "259th Report: Demands for Grants (2018-19) of the Ministry of Road Transport and Highways", Standing Committee on Transport, Tourism and Culture, March 6, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/20/102/259_2018_6_17.pdf.

[14] Chapter 12: Ministry of Road Transport and Highways, Report No. 9 of 2017, 2016, Compliance Audit Union Government Commercial, Comptroller and Auditor General of India, April 5, 2017, http://www.cag.gov.in/sites/default/files/audit_report_files/Executive_Summary_report_No_9_%20of_2017_on_compliance_audit_observations_union_government.pdf.

[15] "19th Report, Committee on Public Undertaking: 'National Highways Authority of India'", Lok Sabha, August 2, 2017, http://164.100.47.193/lsscommittee/Public%20Undertakings/16_Public_Undertakings_19.pdf.

[16] "272nd Report: Action Taken by the Government on the Recommendations/Observations of the Committee contained in its Two Hundred and Thirty Sixth Report on 'Infrastructure Lending in Road Sector'", Standing Committee on Transport, Tourism and Culture, December 9, 2019, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/20/127/272_2020_9_12.pdf.

[17] "220th Report: Demands for Grants (2015-16) of Ministry of Road Transport and Highways", Standing Committee on Transport, Tourism and Culture, April 28, 2015, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/20/31/220_2016_7_17.pdf.

[18] "Report of the Committee on Revisiting and Revitalising Public Private Partnership Model of Infrastructure", Department of Economic Affairs, Ministry of Finance, November 2015, https://www.pppinindia.gov.in/infrastructureindia/documents/10184/0/kelkar+Pdf/0d6ffb64-4501-42ba-a083-ca3ce99cf999.

[19] "272nd Report: Action Taken by the Government on the Recommendations/Observations of the Committee contained in its Two Hundred and Thirty Sixth Report on 'Infrastructure Lending in Road Sector", Standing Committee on Transport, Tourism and Culture, December 9, 2019, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/20/127/272_2019_12_15.pdf.

[20] Lok Sabha Starred Question No. 249, Answered on 5th December, 2019, Ministry of Road Transport and Highways.

.

[21] Lok Sabha Unstarred Question No.2470, Answered on 5th March, 2020, Ministry of Road Transport and Highways.

[22] "Year-end Review", Press Information Bureau, Ministry of Road Transport and Highways, December 30, 2020, https://pib.gov.in/PressReleasePage.aspx?PRID=1684574.

[23] FHWA FY 2019 Budget, Federal Highway Administration, https://www.fhwa.dot.gov/cfo/fhwa-fy-2019-cj-final.pdf.

[24] "Volume 3, Chapter 2, Roads and Road Transport", India Transport Report: Moving India to 2032, National Transport Development Policy Committee, June 17, 2014, http://planningcommission.nic.in/sectors/NTDPC/volume3_p1/roads_v3_p1.pdf.

[25] Strategy for New India @ 75, NITI Aayog, November 2018, https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf.

[26] Road Accidents in India 2019, Transport Research Wing, Ministry of Road Transport and Highways,

Demand for Grants: Education

The Ministry of Education consists of two departments: (i) school education and literacy, and (ii) higher education. The **Department of School Education and Literacy** is broadly responsible for education imparted between the ages of six to 18 years, i.e., school education. Under the Right to Education (RTE) Act, 2009 the government is mandated to provide elementary education to all children between 6-14 years of age. Secondary education is imparted between Class 9-12 for children between 14-18 years of age.

The **Department of Higher Education** is responsible for higher education, and training for students above 18 years of age. Higher education includes undergraduate and postgraduate courses, doctoral degrees, and certificates following the completion of 12 years of schooling or equivalent.

This note looks at the proposed expenditure of the Ministry for 2021-22, trends in this expenditure and discusses some of the issues related to the education sector.

Allocation in Union Budget 2021-22

In 2021-22, the Ministry has been allocated Rs 93,224 crore, the 8th highest allocation among all Ministries. The allocation constitutes 2.67% of the central government's estimated expenditure for 2021-22.

The Economic Survey 2019-20 noted that the expenditure on education by the centre and the states as a proportion of the Gross Domestic Product (GDP) has been around 3% between 2014-15 to 2018-19.[1] The National Policy on Education 1968 recommended the spending on Education to be 6% of GDP. National Education Policy, 2020 (NEP) reaffirms the recommendation of increasing public investment on education to 6% of GDP.

In 2021-22, the **Department of School Education and Literacy** has been allocated Rs 54,874 crore, accounting for 59% of the Ministry's total allocation. The **Department of Higher Education** has been allocated Rs 38,351 crore, accounting for 41% of the Ministry's total allocation.

Overview of finances

Budget Estimates 2021-22

The Ministry has been allocated Rs 93,224 crore in 2021-22, which is an annual increase of 2.1% over the actual expenditure in 2019-20.[2]

Budget speech highlights 2021-22[3]

- The Higher Education Commission of India will be constituted as an umbrella body with four separate bodies for standard setting, accreditation, regulation, and funding.
- Over 15,000 schools will be qualitatively strengthened to implement National Education Policy.
- An umbrella structure will be created in nine cities each to facilitated better cooperation between various research institutes, universities, and colleges under the central government.
- 100 new Sainik Schools will be set up in partnership with non-government organisations, private schools, and states.
- A central university will be set up in Leh for better accessibility to higher education in the region.

Table 1: Budget allocations for the Education (2021-22) (in Rs crore)

Department	2019-20 Actuals	2020-21 RE	2021-22 BE	Annualised change (Actuals 2019-20 to BE 2021-22)
School Education & Literacy	52,520	52,189	54,874	2.2%
Higher Education	36,916	32,900	38,351	1.9%
Total	**89,437**	**85,089**	**93,224**	2.1%

Note: BE – Budget Estimate; RE – Revised Estimates; Annualised change is from 2019-20 Actuals to 2021-22 BE.
Sources: Expenditure Budget - Ministry of Education, 2021-22; PRS.

In 2021-22, the highest expenditure (33%) is allocated towards Samagra Shiksha (Rs 31,050 crore), followed by: (i) autonomous bodies (12%) such as Kendriya Vidyalaya Sangathan (KVS), (ii) Mid-Day Meal Programme (12%), (iii) grants to central universities (8%), (iv) Indian Institutes of Technology (8%), and (v) statutory and regulatory bodies (University Grants Commission (UGC) and All India Council for Technical Education (AICTE)) (5%), among others.

Table 1 shows the key heads under which the Ministry spends its funds (as a percentage of its total expenditure).

Table 2: Major heads of expenditure under the Ministry of Education (2021-22) (in %)

Expenditure head	Allocation (as % of total expenditure)
Samagra Shiksha	33%
Autonomous Bodies	12%
Mid-Day Meal Programme	12%
Grants to Central Universities	8%
Indian Institutes of Technology	8%
UGC and AICTE	5%
National Institutes of Technology and IIEST	4%
Rashtriya Uchhatar Shiksha Abhiyan (RUSA)	3%
Student Financial Aid	3%
Others	10%
Total	**100%**

Note: Autonomous Bodies include Kendriya Vidyalaya Sangathan (KVS) and Navodaya Vidyalaya Samiti (NVS); 'Others' include schemes and programmes under the Ministry each with an allocation of less than 3% of the total expenditure.
Sources: Expenditure Budget - Ministry of Education, 2021-22; PRS.

Key highlights related to allocations in 2020-21

In 2020-21, the allocation for the Ministry of Education has reduced from Rs 99,312 crore at the budget stage to Rs 85,089 crore at the revised stage (a decrease of 14%).

The schemes with a significant reduction in allocation at the revised stage include: (i) Higher Education Financing Agency (91% reduction), (ii) student financial aid (48% reduction), and (iii) Samagra Shiksha (48% reduction).

Some of the heads which observed an increase in their allocation at the revised stage are: (i) world class institutions (increased by 120%), (ii) Mid-Day Meal programme (increased by 17%), (iii) autonomous bodies such as Kendriya Vidyalaya Sangathan (KVS) (increased by 13%), and (iv) grants to Central Universities (increased by 13%).

Refer Table 10 in the Annexure for a detailed breakup of the expenditures under the Ministry.

Financing education

The Standing Committee on Human Resource Development (2020) noted that the Department of School Education and Literacy had been allocated 28% less than what the Ministry had proposed in 2020-21 (allocated Rs 59,845 crore against the proposed amount of Rs 82,570 crore).[4] The Committee recommended additional funds for centrally sponsored schemes and central sector schemes under the department at the revised estimates stage. However, at the revised stage, the budget for centrally sponsored schemes was reduced from Rs 50,081 crore to Rs 41,400 crore and for the central sector schemes, the allocation was reduced from Rs 520 crore to Rs 354 crore.[4]

In 2020-21, the highest reduction in allocation at the revised stage among centrally sponsored schemes was for Samagra Shiksha (reduction of Rs 10,794 crore from the budget stage). Among central sector schemes, the highest reduction was for the National Scheme for Incentive to Girl Child for Secondary Education (reduced from Rs 110 crore at the budget stage to Rs One crore at the revised stage).

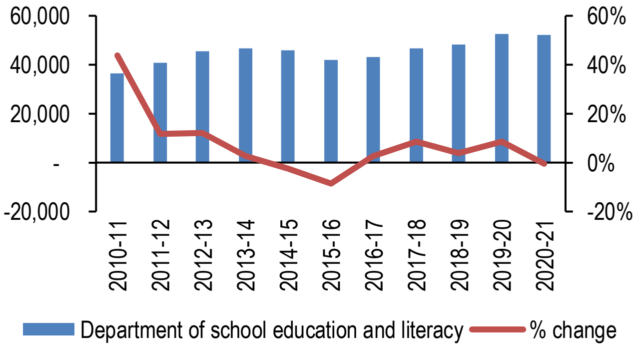
Another Standing Committee on Human Resource Development (2020) noted that the allocation for Central Universities is inadequate as compared to their infrastructure, faculty and number of students enrolled.[26] This affects the implementation of schemes. Thus, the Committee recommends increasing the budgetary allocations of the department of higher education.

The NEP 2020 states that to achieve the target of public spending of 6% of GDP on education at the earliest, financial support will be provided to critical components of education. These components include: (i) adequate number of teachers and staff, (ii) teacher development, and (iii) development of learning resources. In the long-term, the policy recommends investments in key thrust areas of education such as: (i) teacher education and development, (ii) revamping colleges and universities, (iii) promotion of research, (iv) foundational literacy, and (v) quality early childhood care education. Further, the Policy recommends the efficient use of funds to avoid underutilisation of allocations. This will help in the timely achievements of targets under various schemes for education.

Department of School Education and Literacy

Allocation to the department has seen an annual growth of 7% between 2010-11 and 2021-22.

Figure 1: Expenditure by Department of School Education and Literacy (2010-22) (Rs crore)



Note: Revised estimates have been used for 2020-21 and Budget estimates for 2021-22.
Sources: Expenditure Budget, 2010-22; PRS.

Table 3: Major heads of expenditure under the Department of School Education and Literacy in 2021-22 (in Rs crore)

Major Head	19-20 Actuals	20-21 RE	21-22 BE	Annualised Change (Actuals 19-20 to BE 21-22)
National Education Mission	32,377	28,078	31,300	-2%
-Samagra Shiksha	32,377	27,957	31,050	-2%
-Teachers Training and Adult Education	-	120	250	-
Mid-Day Meal Programme#	9,699	12,900	11,500	9%
Autonomous bodies	10,077	10,395	11,192	5%
Scholarship Scheme*	331	350	350	3%
Others	36	467	532	91.3%
Total	**52,520**	**52,189**	**54,874**	**5.9%**

Note: Annualised Change is from 2019-20 Actuals to 2021-22 Budget Estimate; # Refers to National Programme of Mid-Day Meal in Schools; * Refers to National Means-cum-Merit Scholarship Scheme.
Sources: Expenditure Budget, 2021-22; PRS.

Table 4 shows a trend of utilisation of funds allocated to the department between 2010-11 and 2020-21.

Table 4: Comparison of budget estimates and the actual expenditure (2010-21) (in Rs crore)

Year	Budget Estimate	Actuals	Utilisation % (Actuals/BE)
2010-11	33,214	36,433	110%
2011-12	41,451	40,641	98%
2012-13	48,781	45,631	94%
2013-14	52,701	46,856	89%
2014-15	55,115	45,722	83%
2015-16	42,220	41,800	99%
2016-17	43,554	42,989	99%
2017-18	46,356	46,600	101%
2018-19	50,000	48,441	97%
2019-20	56,537	52,520	93%
2020-21	59,845	52,189*	87%

Note: BE – Budget Estimate. *Revised Estimate
Sources: Union Budgets, 2012-22; PRS.

National Education Mission: The NEM consists of two expenditure heads: (i) Samagra Shiksha, and (ii) Teachers Training and Adult Education. Allocation to the NEM accounts for 34% of the total budget of the Ministry of Education. In 2021-22, the NEM has been allocated Rs 31,300 crore, which is a 2% annual decrease as compared to 2019-20.

Samagra Shiksha was launched in July 2018. It aims to ensure inclusive and equitable quality education at all levels of school education. It subsumed three erstwhile centrally sponsored schemes: (i) Sarva Shiksha Abhiyan (SSA), (ii) Rashtriya Madhyamik Shiksha Abhiyan (RMSA), and (iii) Teacher Education (TE).

In 2021-22, Samagra Shiksha has been allocated Rs 31,050 crore (6.8% annual increase over 2019-20). The allocation for Samagra Shiksha accounts for 57% of the total departmental allocation and 99% of the allocation for the National Education Mission. In 2020-21, Samagra Shiksha was allocated Rs 38,751 crore which was reduced to Rs 27,957 crore at the revised stage (a decline of 28%).

Teacher Training and Adult Education has been allocated Rs 250 crore in 2021-22, which is 0.5% of the total departmental allocation. In 2020-21, teacher training and adult education had an allocation of Rs 110 crore at the budget stage, which was increased to Rs 120 crore at the revised stage (an increase of 9%).

National Programme of Mid-Day Meal in Schools: In 2021-22, the mid-day meal programme has been allocated Rs 11,500 crore (9% annual increase over 2019-20). In 2020-21, the programme was allocated Rs 11,000 crore at the budget stage which was increased by 17% to Rs 12,900 crore at the revised stage. The programme targets enhancement of enrolment, retention, attendance, and nutritional levels among children studying in Class 1 to 8 across India.

Autonomous bodies: These include: (i) Kendriya Vidyalaya Sangathan (KVS), (ii) Navodaya Vidyalaya Samiti (NVS), (iii) National Council of Educational Research and Training (NCERT), (iv) Central Tibetan School Administration (CTSA), and (v) National Bal Bhawan. In 2021-22, the allocation for autonomous bodies is Rs 11,192 crore (5% annual increase from 2019-20).

National Means-cum-Merit Scholarship Scheme: The scheme provides one lakh scholarships of Rs 6,000 per annum each to eligible meritorious students in Class 9. The scholarship is provided up to Class 12 to prevent students from dropping out due to financial constraints.

In 2021-22, Rs 350 crore has been allocated for the scheme (3% annual increase over 2019-20). In 2020-21, the scheme was allocated Rs 372 crore at the budget stage, which was reduced to Rs 350 crore at the revised stage (6% decrease).

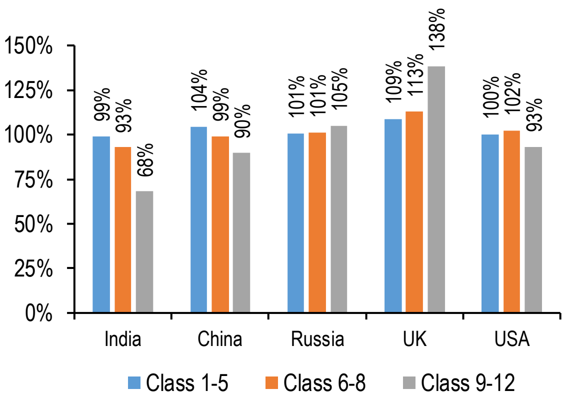
Key issues in school education

Enrolment, transition, and dropout rates

Enrolment: Gross Enrolment Ratio (GER) is the student enrolment as a proportion of the corresponding eligible age group in a given year. In 2018-19, the GER in primary education was close to 100%.[5] However, the GER reduces to 77% at the

secondary level, and to 50% at the senior secondary level. This implies that curtailing dropouts in the education system remains a challenge. The GER for upper primary, secondary, and senior secondary level of education between 2010-11 and 2018-19 annually increased 1%, 2%, and 4% respectively. The GER for the primary level of education had an annual decline of 1% between this period. Figure 2, compares GER in India with other countries as in 2015-16.

Figure 2: International comparison of GER (2015-16)



Sources: Educational statistics at a Glance 2018; PRS.

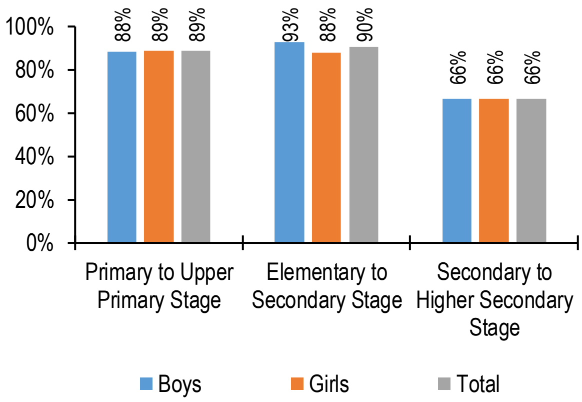
India's enrolment rate in Class 1-5 and Class 6-8 is comparable to that of developed countries. However, it is significantly less (68%) than these countries for Class 9-12 (see Figure 3).

The NEP 2020 notes that the decline in GER is higher for certain socio-economically disadvantaged groups, based on: (i) gender identities (female, transgender persons), (ii) socio-cultural identities (scheduled castes, scheduled tribes), (iii) geographical identities (students from small villages and small towns), (iv) socio-economic identities (migrant communities and low-income households), and (v) disabilities.[6]

Transition and dropouts: Transition rates reflect the dropout levels in the school education system. It is the percentage of pupils enrolled in the final grade of the current stage who proceed to the first grade of the next stage. Higher the transition rate, lower the dropout level. As of September 2016, the transition rate from primary to upper primary and from elementary to secondary was close to 90%, however, the transition rate from secondary to senior secondary was only 66% (Figure 3).[7]

Note that there is a difference in transition rate from elementary to secondary education (Class 8 to Class 9) between boys and girls. The transition rate for both genders is low for the transition from secondary to senior secondary (Class 10 to 11).

Figure 3: Transition rate across different levels of education (as of September 2016)



Sources: UDISE Flash Statistics 2016-17, MHRD; PRS.

According to the Ministry, the most prominent reason for dropping out in 2015-16 was the engagement in domestic activities (for girls) and engagement in economic activities (boys) (Table 5).[8]

To improve the retention of children in schools, the NEP 2020 recommends strengthening existing schemes and policies which are targeted at socio-economically disadvantaged groups. For instance, schemes for free bicycles for girls from socio-economically disadvantaged groups or scholarships to tackle dropouts. Further, it recommends setting up special education zones in areas with a significant proportion of such disadvantaged groups. A gender inclusion fund should also be set up to assist female and transgender students in getting access to education.

The Standing Committee on Human Resource Development (2020) suggested that vocational training be provided to students dropping out at the secondary level. This will help them get job opportunities at the earliest and continue their studies.[4]

Table 5: Major reasons for dropping out (Class 1-12) for 2015-16

Reason for dropping out	Male	Female
Child not interested in studies	23.8%	15.6%
Financial Constraints	23.7%	15.2%
Engage in Domestic Activities	4.8%	29.7%
Engage in Economic Activities	31.0%	4.9%
School is far off	0.5%	3.4%
Unable to cope up with studies	5.4%	4.6%
Completed desired level/ Grade	5.7%	6.5%
Marriage		13.9%
Other reasons	5.1%	6.2%

Note: Other reasons include: (i) timings of educational Institution not suitable, (ii) language/medium of Instruction used unfamiliar, (iii) inadequate number of teachers, (iv) quality of teachers not satisfactory, (v) unfriendly atmosphere at school. For girl students, other reasons also include: (i) non-availability of female teachers, (ii) non-availability of girl's toilet.
Sources: Educational Statistics at Glance 2018, MHRD; PRS.

The Committee stated that Samagra Shiksha has the potential to revamp school education. Note that the utilisation of funds under Samagra Shiksha in 2019-20 was 89%. The Committee specified that such underutilisation and any reduction in funds may lead to an adverse impact on project implementation at the ground level.[4]

Further, the Committee noted that the development of infrastructure has been slow in elementary and secondary schools. This includes: (i) toilets for children with special needs in elementary schools (81% completed), (ii) toilets for girls in secondary schools (68% completed), and (iii) drinking water facilities in secondary schools (83% completed). In addition, the Committee noted that, out of 26 lakh sanctioned posts of cook-cum-helpers under the Mid-Day Meal programme, 25 lakh posts have been engaged (4% vacancy). Moreover, out of 10 lakh kitchen-cum-stores sanctioned, 8.5 lakh kitchen-cum-stores have been created (92% complete). The Committee highlighted that delay in completion of infrastructure leads to cost overruns and students' dropouts in government schools.[4]

Pupil-teacher ratio

Experts have identified various issues concerning the role of teachers to address the challenges confronting elementary education.[10] These include: (i) low teacher accountability and appraisal, (ii) poor quality of the content of teacher-education and changes required in the curriculum of B. Ed and D. Ed courses, (iii) need for continuous in-service teacher training and upgradation of skill set, (iv) inadequate pupil-teacher ratio and deployment of teachers for non-educational purposes, (v) teacher vacancies, and (vi) excessive recruitment of contract/para teachers.

Impact of COVID-19 on school education

In March 2020, COVID-19 was declared a pandemic by the World Health Organisation, and a nationwide lockdown was imposed in India to contain the spread of the virus. The lockdown shifted the teaching mode from offline mode to online mode. In 2020-21, Rs 818 crore was shared by the central government across states to promote online learning, and Rs 268 crore was allocated for online teacher training under Samagra Shiksha to ensure professional development of teachers.[9]

The Economic Survey 2020-21 observes that, as of October 2020, the percentage of students in government and private schools owning a smartphone increased from 36.5% in 2018 to 61.8% in 2020 in rural India.

Further, to optimise the impact of COVID-19 pandemic on school education, the central government launched several initiatives. Some of these initiatives are as follows:

PM eVidya: The initiative was launched in May 2020 under the Aatma Nirbhar Bharat Abhiyaan. Under this initiative all states were provided access to various e-content through the web portal - DIKSHA. The e-content included courses for teachers, and quizzes. In addition, the initiative provided for Swayam Prabha channels, which helped in telecasting educational programmes for students who did not have internet access. The initiative also included a channel for differently abled children.[9]

Swayam MOOCs: 92 online massive open online courses were provided to open school students in Class 9-12.[9]

National Repository of Open Educational Resources (NROER): NROER was created with around 17,500 e-contents for various school subjects in all classes.[9]

Manodarpan: This initiative was part of the Aatma Nirbhar Abhiyaan. It aimed at providing psychological support to students, parents, and teachers.[9]

Over the last few years, the number of teachers in the schooling system has increased (from nearly 82 lakh in 2013-14 to nearly 89 lakh in 2016-17).[7] This has led to a decline in the Pupil-Teacher Ratio (PTR) across school education (from 31.3 in 2013-14 to 28.4 in 2016-17).[8] PTR is defined as the number of students per teacher. According to the RTE Act, 2009, the PTR should ideally be lower than 30:1 at the primary level, and 35:1 at the upper primary level. Amongst the states, only Uttar Pradesh and Bihar do not meet the RTE prescribed PTR at the primary level, with a PTR of 39 and 36, respectively.

The Standing Committee on Human Resource Development (2020) noted that 23% of total posts of teachers (including elementary and secondary levels) under Samagra Shiksha are vacant. The states with comparatively higher vacancy include: (i) Jharkhand (48%), (ii) Uttarakhand (39%), (iii) Kerala (39%), and (iv) Karnataka (33%). The

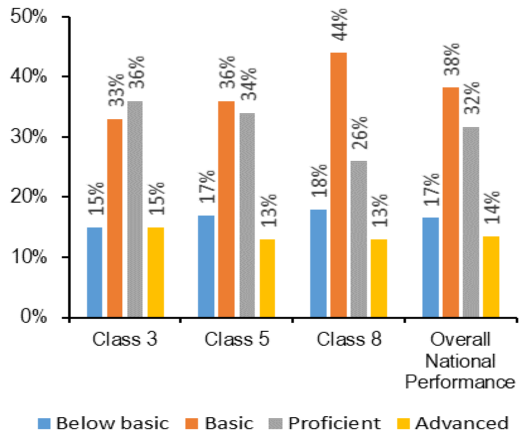
Committee further highlighted that absence of teachers in government schools encourages parents to prefer private schools for their children.[4]

The NEP 2020 also observes that the quality of teacher education, recruitment, deployment, and service conditions are not up to desired standards. Further, it noted the significant teacher vacancies across India. It also adds that poor service conditions and culture, and lack of career progression amongst teachers affects their motivation and teaching quality.

Quality of learning

The National Achievement Survey (NAS) 2017 observed that nearly 53% of Class 3 students have achieved grade proficiency levels.[11] This means that they can solve problems using simple logic, apply simple rules, follow simple instructions, and are able to use simple language to express themselves. This proportion of students who are grade proficient drops to 47% in Class 5 and to a further 39% in Class 8. Note that NAS is conducted for Class 3, 5, and 8 and it measures learning level outcomes in language, mathematics, and environmental studies (for Class 3 and 5), and language, mathematics, sciences, and social sciences (for Class 8).[11]

Figure 4: Proficiency of learning at different levels



Note: Below basic means learners at this level have not achieved the required learning for this grade.
Sources: National Achievement Survey 2017, MHRD; PRS.

The Central Advisory Board on Education (CABE, 2014), National Achievement Survey (2012 and 2017), and the Economic Survey (2016-17) also observed declining learning levels in elementary education even after the implementation of the Right to Education Act, 2009.[12,13,14,15]

Under the RTE Act, children are enrolled in the Class that corresponds to their age, irrespective of their learning levels. This results in a situation where children may have different learning levels within the same Class, depending on when they are enrolled in the schooling system. To close the gap in learning levels, the NEP 2020 has made several recommendations such as reforms in curriculum and nature of assessments and improving foundational literacy and numeracy through incorporating early childhood care and education in the education system.[6]

The NEP 2020 also notes lack of foundational literacy and numeracy as a reason behind poor learning levels at subsequent stages of education. It observed that more than five crore students currently enrolled in elementary school (26% of students) have not attained foundational literacy and numeracy (the ability to read and understand basic text and carry out basic addition and subtraction). It recommends that every child should attain foundational literacy and numeracy by Class 3.

Similarly, the National Achievement Survey (2015) for Class 10 indicate that 24% students were in the range of 0-35% score and 61% students were in the range of 36-50% score in English. Further, 35% students were in 0-35% scores, and 49% students were in the range of 36-50% scores in Mathematics.[16] No significant differences were observed in the scoring pattern on the basis of gender (boys and girls).

Curriculum

The National Education Policy 2020 noted that the current curriculum system is based on rote learning. The Policy specifies reduction in the content of subjects to core essentials to enhance critical thinking, and inquiry-based, discussion-based, discovery-based, and analysis-based learning.[6]

The Policy recommends various reforms in the curriculum system to shift the system towards a character and skill-building system. The reforms include: (i) introduction of experiential learning (such as hands-on learning, arts/sports-integrated learning), (ii) eliminating significant separation among curricular, extracurricular, or co-curricular in certain streams, and (iv) promoting mother tongue as medium of instruction, preferably till Class 8 and beyond.[6]

Further, it recommended that the existing system of exams be reformed. Board examinations should test only core concepts and cover a range of subjects. Students should be able to choose their subjects and have the option to take the exams on up to two occasions during a given year. To track students' progress throughout their school experience, examinations will be conducted in Class 3, 5, and 8. The examination in Class 3 will test basic foundational literacy and numeracy, and its results will only be used for the improvement of the school education system. Further, a National Assessment Centre will be set up under the MHRD as a standard-setting body for student assessment and evaluation.[6]

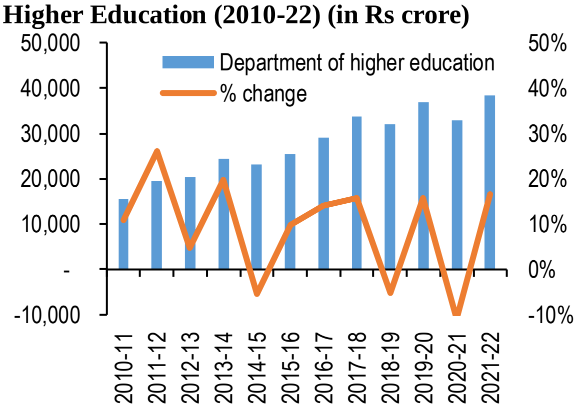
Note that under the RTE Act, the Continuous and Comprehensive Evaluation (CCE) is the evaluation mechanism for elementary education. CCE (e.g., paper-pencil test, drawing and reading pictures, and expressing orally) does not mean an absence of an evaluation, but it means an evaluation of a different kind from the traditional system of examinations. It has been recommended that proper design of assessment and using this information can help improve the quality and innovation in terms of teaching and learning.[17] However, the CABE (2014) noted that CCE has not been adequately implemented or monitored. It recommended that there is a need to proactively communicate the intent of CCE among teachers for its effective implementation.[18]

Department of Higher Education

In 2021-22, the Department of Higher Education has been allocated Rs 38,351 crore (2% annual increase over 2019-20). This is 41% of the total budget allocation to the Ministry of Education. In 2020-21, the allocation for the department was Rs 39,467 crore, which was reduced to Rs 32,900 crore at the revised stage (17% decrease).

The allocation for the department has increased annually by 9% between 2010-11 and 2021-22. Figure 5 depicts the allocation to the Department of Higher Education from 2010-11 to 2021-22.

Figure 5: Allocation to the Department of Higher Education (2010-22) (in Rs crore)



Note: Revised Estimates have been used for 2020-21 and Budget Estimates for 2021-22.
Sources: Union Budgets 2010-22; PRS.

Table 6 indicates utilisation of funds to the department between 2010-11 and 2020-21.

Table 6: Comparison of budget estimates and the actual expenditure (2010-21) (in Rs crore)

Year	Budget Estimate	Actuals	Utilisation % (Actuals/BE%)
2010-11	16,690	15,472	93%
2011-12	21,912	19,505	89%
2012-13	25,275	20,423	81%
2013-14	26,750	24,465	91%
2014-15	27,656	23,152	84%
2015-16	26,855	25,439	95%
2016-17	28,840	29,026	101%
2017-18	33,330	33,614	101%
2018-19	35,010	31,904	91%
2019-20	38,317	36,916	96%
2020-21	39,467	32,900*	83%

Note: BE – Budget Estimate. *Revised Estimate
Sources: Union Budgets 2010-22; PRS.

The utilisation has been over 90% of the budget estimates in the last three years as seen in the table. In 2016-17 and 2017-18, the Department exceeded its budget estimates, i.e., crossed 100% utilisation.

Allocation to World Class Institutions in 2021-22 is Rs 1,710 crore (176% annual increase over 2019-20). The government has granted the status of Institution of Eminence (IoE) to ten private institutions and eight public institutions. These institutions have greater autonomy in admitting

foreign students, fixing fees, and recruiting foreign faculty. Further, each public institution declared as an Institute of Eminence gets financial assistance of up to Rs 1,000 crore over five years.

Table 7 provides the major heads of financial allocation under the Department for 2021-22. In 2021-22, the highest share in the departmental allocation is of grants to Central Universities and Indian Institutes of Technology (IITs) at 20% each. Other expenditure heads with a high share of allocation among others are statutory and regulatory bodies (13%), and National Institutes of Technology, and the Indian Institute of Engineering Science and Technology (10%).

Allocation to World Class Institutions in 2021-22 is Rs 1,710 crore (176% annual increase over 2019-20). The government has granted the status of Institution of Eminence (IoE) to ten private institutions and eight public institutions.[19] These institutions have greater autonomy in admitting

foreign students, fixing fees, and recruiting foreign faculty. Further, each public institution declared as an Institute of Eminence gets financial assistance of up to Rs 1,000 crore over five years.[20]

Table 7: Major heads of expenditure under the Department of Higher Education, 2021-22 (in Rs crore)

Major Head	19-20 Actuals	20-21 RE	21-22 BE	Annualised Change
IITs	6,596	6,841	7,686	8%
Grants to Central Universities	7,989	8,634	7,643	-2%
Statutory and regulatory bodies (UGC and AICTE)	4,872	4,860	5,109	2%
National Institutes of Technology and IIEST	3,487	3,265	3,935	6%
Rashtriya Uchhatar Shiksha Abhiyan (RUSA)	1,278	166	3,000	53%
Student Financial Aid	2,070	1,208	2,482	10%
World Class Institutions	224	1,101	1,710	176%
Indian Institutes of Science, Education, and Research (IISERs)	791	993	946	9%
Digital India-e-learning	458	305	646	19%
Indian Institute of Science (IISc)	596	605	622	2%
Indian Institutes of Management	481	465	476	-1%
Indian Institutes of Information Technology (IIITs)	328	339	393	9%
Research and Innovation	257	284	237	-4%
Others	7,490	3,833	3,465	-32%
Grand Total	**36,916**	**32,900**	**38,351**	**2%**

Sources: Expenditure Budget 2021-22; PRS.

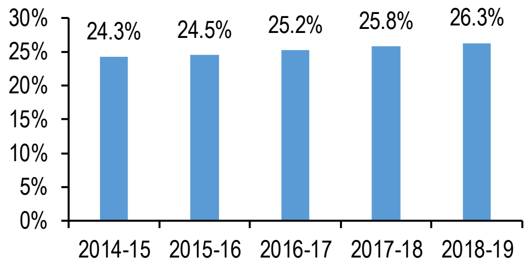
Issues in the higher education sector

Enrolment

As of 2018-19, GER in higher education in India is 26.3%.[21] A GER of 26.3% implies that 26.3% of people in the target age-group are enrolled in universities.

The States/Union Territories with comparatively higher GER in 2018-19 include Sikkim (53.9%), Tamil Nadu (49%), Delhi (46%), and Himachal Pradesh (39.6%), among others.[21]

Figure 6: GER in higher education (2014-19)



Sources: All India Survey on Higher Education, 2018-19; PRS.

The Standing Committee (2016) had noted that the Gross Enrolment Ratio (GER) in higher education in the country has increased due to the government of India's efforts of setting up new Central Universities in the country, including Indian Institutes of Information Technology (IIITs).[22]

The All-India Survey on Higher Education 2018-19 report reveals that enrolment decreases as one goes further higher from undergraduate education.[21] Out of the total number of students enrolled in higher education, the highest enrolment is at the undergraduate level (79.8%) followed by postgraduate (10.8%). With regard to the types of disciplines studied, most students at the undergraduate level are enrolled in the Arts stream (33%), followed by Science (16%), Commerce (14%), and Engineering & Technology (13%). The leading stream at the post-graduate level is social Science, followed by Management. At the Ph.D. level, the majority of the students chose Science in 2018-19.

The NEP 2020 aims to increase the GER in higher education to 50% by 2035. This will be achieved by improvement in the capacity of existing higher education institutes by restructuring and expanding existing institutes.[6]

Further, NEP 2020 recommends that all institutes should aim to be large multidisciplinary institutes (with enrolments in thousands), and there should be one such institution in or near every district by 2030. Further, institutions should have the option to run open distance learning and online programmes to enhance the reach of higher education.[6]

Regulation of higher education

The NEP 2020 observes that higher education in India has been overly regulated with too little effect. It noted problems of concentration of power, conflict of interest, and a resulting lack of accountability in higher education regulation.

In India, higher education is regulated by multiple authorities. The University Grants Commission (UGC) regulates universities and colleges teaching general subjects. It is empowered with disbursing grants to universities for their maintenance and development, and with regulating fees charged by them. It also has powers regarding the recognition, functioning, and de-recognition of deemed universities. Failure to comply with UGC standards may result in withdrawal of grants or termination of affiliation of a college to a university if the college does not comply with fee structure and other regulations.[23]

The All-India Council for Technical Education (AICTE) regulates universities or colleges offering technical courses such as engineering and management. These institutions are required to comply with the academic standards and regulations set by AICTE.[24] Additionally, institutions offering courses related to medical, legal, nursing, or architectural education are regulated by 15 professional councils such as the Medical Council and the Bar Council. These councils also conduct qualifying examinations for entering the profession.

For setting quality standards and accreditation, there are, currently, two accrediting institutions: (i) the National Board of Accreditation (NBA) established by AICTE, and (ii) the National Assessment and Accreditation Council (NAAC) established by UGC. The National Knowledge Commission (2009) had noted that only 10% of all institutions had been accredited.[25] The Standing Committee on Human Resource Development (2016) noted that accreditation of higher educational institutions needs to be at the core of the regulatory arrangement in higher education.[22] Further, the Committee recommends that credit rating agencies, reputed industry associations, and professional bodies should be encouraged to rate Indian universities and institutions.

The Standing Committee on Human Resource Development (2020) noted higher education to be of global importance.[26]

The Committee recommended alignment of the higher education system in India with global standards by developing graduates with new skills, a broad knowledge base, and competencies. The Committee noted that this could be achieved by: (i) upgrading existing institutions, (ii) allocating more funds towards university-based research, and (iii) promoting collaborations among institutions.

The NEP 2020 has recommended a complete overhaul of the higher education regulatory structure. It states that the distinct functions of regulation, accreditation, funding, and setting academic standards should be performed by separate, independent bodies to minimise the conflict of interest and eliminate the concentration of power.

The Finance Minister stated that the legislation, to set up the Higher Education Commission of India, will be introduced in 2021-22. The Commission will act as an umbrella body with four separate arms for: (i) standard-setting, (ii) accreditation, (iii) regulation, and (iv) funding.[3]

Teacher related issues

As of September 2020, 6,210 teaching posts are vacant across 42 central universities which come within the purview of the Ministry of Education.[27]

The Standing Committee on Human Resource Development (2016) noted that this could be due to two reasons: (i) young students don't find the teaching profession attractive, or (ii) the recruitment process is long and involves too many procedural formalities.[22]

The Standing Committee on Education, Women, Children, Youth, and Sports (2021) noted that the current evaluation system of faculty recruitment is ineffective.[28] The Committee recommends transforming the National Eligibility Test to align with the latest modes of teaching and research. Further, the Committee observes a need for a mechanism to monitor faculty induction and development.

The NEP 2020 states that National Professional Standards for Teachers will be developed by 2022. The standards will specify expectations from a teacher at different levels of expertise. These standards will be revised in 2030 and thereafter every ten years to ensure the efficacy of the system.

---

1 'Social Infrastructure, Employment, and Human Development', Chapter 10, Economic Survey, 2019-20, Ministry of Finance, https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf.

2 Expenditure Budget 2021-22, Ministry of Finance, February 2021, https://www.indiabudget.gov.in/doc/eb/allsbe.pdf.

3 Budget Speech 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

4 Report No. 312, Demand for Grants 2020-21 of the Department of School Education and Literacy, Standing Committee on Human Resource Development, March 5, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/16/123/312_2020_3_12.pdf.

5 Static Reports, UDISE+ Dashboard, Ministry of Human Resource Development, accessed on February 9, 2021, http://dashboard.seshagun.gov.in/mhrdreports/#/reportDashboard/sReport.

6 National Education Policy 2020, Ministry of Human Resource Development,

https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf.

[7] UDISE Flash Statistics 2016-17, National Institute of Education Planning and Administration, http://udise.in/Downloads/Publications/Documents/Flash_Statistics_on_School_Education-2016-17.pdf.

[8] Educational Statistics at a Glance 2018, Ministry of Human Resource Development, https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/ESAG-2018.pdf.

[9] Economic Survey 2020-21, https://www.indiabudget.gov.in/economicsurvey/.

[10] "Vision of Teacher Education in India: Quality and Regulatory Perspective", Report of the High-Powered Commission on Teacher Education constituted by the Supreme Court of India, August 2012, Ministry of Human Resource Development.

[11] National Achievement Survey-2017, Ministry of Human Resource Development, https://ncert.nic.in/pdf/NAS/WithReleaseDate_NPPTL.pdf.

[12] "Report of CABE Sub Committee on Assessment on implementation of CCE and no detention provision", 2015, Ministry of Human Resource Development, http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/AssmntCCE.pdf.

[13] A summary of India's National Achievement Survey, Class VIII, 2012, National Council of Educational Research and Training, http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/11-March-National-Summary-Report-NAS-Class-VIII.pdf.

[14] National Achievement Survey 2017, Dashboard, http://nas.schooleduinfo.in/dashboard/nas_ncert#/.

[15] Economic Survey, 2016-17, http://indiabudget.nic.in/es2016-17/echapter_vol2.pdf.

[16] National Achievement Survey (2015), Class X, National Council of Educational Research and Training, http://www.ncert.nic.in/departments/nie/esd/pdf/NASSummary.pdf.

[17] World Development Report, 2018, World Bank, http://www.worldbank.org/en/publication/wdr2018.

[18] "Report of CABE Sub Committee on Assessment on implementation of CCE and no detention provision", Ministry of Human Resource Development, 2014, http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/AssmntCCE.pdf.

[19] 20 Institution recommended for status of 'Institutions of Eminence', Press Information Bureau, Ministry of Human Resource Development, August 2, 2019.

[20] Lok Sabha, Unstarred Q No. 44, Ministry of Human Resource Development, Answered on November 18, 2019, http://loksabhaph.nic.in/Questions/QResult15.aspx?qref=6362&lsno=17.

[21] All India Survey on Higher Education, 2018-19, Ministry of Human Resource and Development, Department of Higher Education, http://aishe.nic.in/aishe/viewDocument.action?documentId=262.

[22] Report No. 284 – Issues and Challenges before Higher Education Sector in India, Standing Committee on Human Resource Development, December 14, 2016, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/16/16/284_2017_4_11.pdf

[23] University Grants Commission Act, 1956, https://www.ugc.ac.in/oldpdf/ugc_act.pdf.

[24] All India Council for Technical Education Act, 1987, http://legislative.gov.in/sites/default/files/A1987-52.pdf.

[25] "Report to the Nation: 2006-2009", National Knowledge Commission, March 2009, http://www.aicte-india.org/downloads/nkc.pdf.

[26] Report No. 313 – Demand for Grants 2020-21 of the Department of Higher Education, Standing Committee on Human Resource Development, March 5, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/16/144/313_2021_1_16.pdf.

[27] Lok Sabha, Unstarred Question No. 202, Vacant teachers and other staff posts, Ministry of Education, September 14, 2020.

[28] Report No. 322, Standing Committee on Education, Women, Children, Youth and Sports, February 2, 2021, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/16/144/322_2021_2_17.pdf.

Annexure

Table 8: Allocations to the Ministry of Education for 2021-22 (in Rs crore)

Major Heads	2019-20 Actuals	2020-21 Budget	2020-21 Revised	% Change from 2020-21 Budget to 2020-21 Revised	2021-22 Budgeted	Annualised change from 2019-20 Actuals to 2021-22 Budget
Department of School Education and Literacy	52,520	59,845	52,189	-13%	54,874	2%
Autonomous bodies	10,077	9,205	10,395	13%	11,192	5%
National Education Mission	32,377	38,861	28,078	-28%	31,300	-2%
-Samagra Shiksha	32,377	38,751	27,957	-28%	31,050	-2%
-Teachers Training and Adult Education	-	110	120	9%	250	-
National Programme of Mid-Day Meal in Schools	9,699	11,000	12,900	17%	11,500	9%
National Means cum Merit Scholarship Scheme	331	373	350	-6%	350	3%
Others	36	407	467	15%	532	282%
Department of Higher Education	36,916	39,467	32,900	-17%	38,351	2%
Student Financial Aid	2,070	2,316	1,208	-48%	2,482	10%
Digital India-e-learning	458	444	305	-31%	646	19%
Research and Innovation	257	307	284	-8%	237	-4%
Statutory and regulatory bodies (UGC and AICTE)	4,872	5,109	4,860	-5%	5,109	2%
Grants to Central Universities	7,989	7,643	8,634	13%	7,643	-2%
Indian Institutes of Technology	6,596	7,332	6,841	-7%	7,686	8%
Indian Institutes of Management	481	476	465	-2%	476	-1%
National Institutes of Technology and IIEST	3,487	3,885	3,265	-16%	3,935	6%
Indian Institute of Science, Education and Research (IISERs)	791	896	993	11%	946	9%
Indian Institute of Science (IISc)	596	592	605	2%	622	2%
Indian Institutes of Information Technology (IIITs)	328	393	339	-14%	393	9%
World Class Institutions	224	500	1,101	120%	1,710	176%
Rashtriya Uchhatar Shiksha Abhiyan (RUSA)	1,278	300	166	-45%	3,000	53%
Improvement in Salary Scale of University and College Teachers	1800	1,900	348.51	-82%	10	-93%
Higher Education Financing Agency (HEFA)	2,100	2,200	200	-91%	1	-98%
Others	3,590	5,172	3,284	-36%	3,454	-2%
Total	**89,437**	**99,312**	**85,089**	**-14%**	**93,224**	2%

Sources: Expenditure Budget 2021-22; PRS.

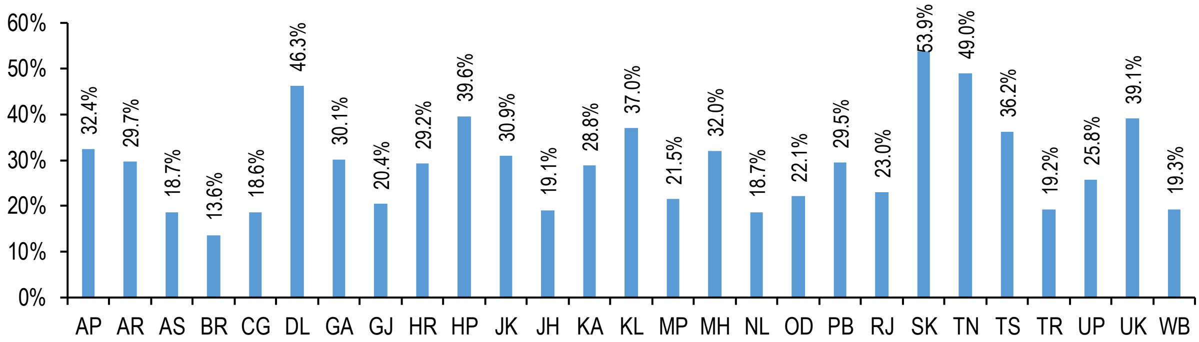
Indicators on school and higher education

Table 9: Enrolment in education in 2016-17 (as a percentage of respective population)

State/ UT	GER in Elementary Education (Class 1-8)			GER in Secondary Education (Class 9-12)		GER in Higher Education (Beyond Class 12)
	Primary	Upper Primary	Total Elementary	Secondary	Higher Secondary	
Andhra Pradesh	82.8	82.1	82.5	76.3	60.6	32.4
Arunachal Pradesh	106.2	119.9	110.4	85.9	51.2	29.7
Assam	107.4	96.7	103.7	78.6	39.7	18.7
Bihar	98.1	103.9	99.9	76.7	28.8	13.6
Chhattisgarh	97.1	100.8	98.5	87.7	54.5	18.6
Goa	101.3	97.1	99.7	99.3	78.7	30.1
Gujarat	95.0	97.2	95.8	74.5	43.2	20.4
Haryana	93.9	94.4	94.1	86.3	60.8	29.2
Himachal Pradesh	97.9	103.0	99.8	103.9	92.0	39.6
Jammu & Kashmir	77.1	66.2	73.0	61.7	52.9	30.9
Jharkhand	96.6	91.8	95.0	63.5	37.1	19.1
Karnataka	103.7	92.9	99.7	84.4	41.9	28.8
Kerala	95.1	93.6	94.6	99.4	79.4	37.0
Madhya Pradesh	92.1	89.7	91.3	80.2	47.1	21.5
Manipur	120.6	119.3	120.2	86.5	64.4	33.7
Maharashtra	97.5	98.7	97.9	91.7	70.7	32.0
Meghalaya	129.1	128.0	128.8	83.3	40.6	25.8
Mizoram	115.7	127.5	119.3	95.9	54.6	25.7
Nagaland	81.7	90.4	84.4	61.8	36.3	18.7
Odisha	100.2	94.6	98.1	79.9	40.1	22.1
Punjab	99.3	97.7	98.7	87.1	72.2	29.5
Rajasthan	97.8	92.0	95.8	76.6	60.3	23.0
Sikkim	92.0	136.8	106.9	112.0	64.2	53.9
Tamil Nadu	102.0	93.4	98.6	93.9	83.7	49.0
Telangana	98.6	86.9	94.1	81.8	50.6	36.2
Tripura	102.4	126.4	110.0	112.3	41.9	19.2
Uttar Pradesh	87.2	72.7	82.1	67.8	59.0	25.8
Uttarakhand	96.4	86.7	92.7	84.4	77.1	39.1
West Bengal	96.3	96.3	96.3	78.6	50.9	19.3
Andaman & Nicobar Islands	86.9	83.1	85.4	84.1	72.8	23.2
Chandigarh	80.1	95.6	85.8	89.7	83.2	50.6
Dadra & Nagar Haveli	82.9	91.6	86.0	91.2	51.8	9.3
Daman & Diu	84.0	81.1	82.9	73.3	34.6	5.5
Delhi	109.2	129.0	115.9	114.4	74.2	46.3
Lakshadweep	70.0	81.4	79.8	105.7	97.9	7.4
Puducherry	85.6	84.8	85.3	87.5	74.2	46.4
India	**95.1**	**90.7**	**93.6**	**79.4**	**55.4**	**26.3**

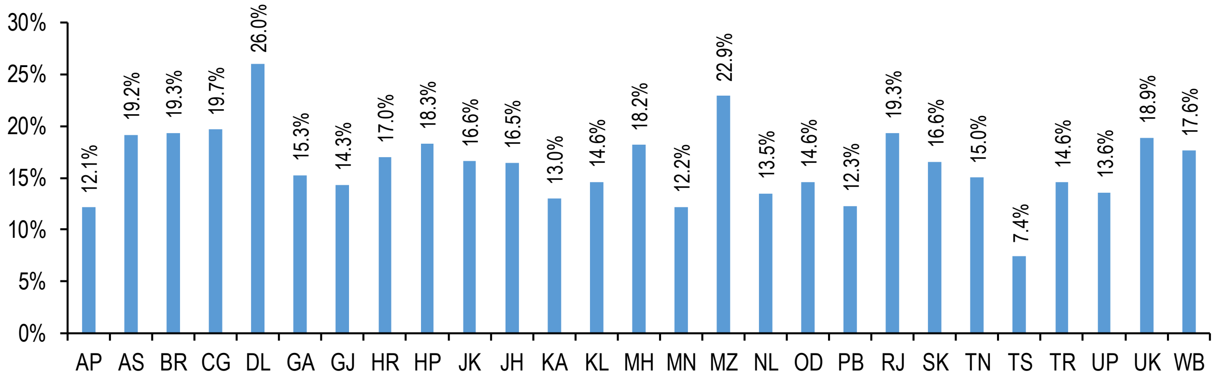
Note: Enrolment rate can exceed 100% due to early or late school entrance and grade repetition, or for example, children not in the 6-14 age group still being enrolled in elementary school. Data for higher education is of 2018.
Sources: Flash Statistics, UDISE 2016-17; AISHE 2018-19, Ministry of Human Resource Development; PRS.

Figure 7: State-wise GER in Elementary Education (Class 1-8) in 2016-17



Sources: All India Survey on Higher Education 2018-19, MHRD; PRS.

Figure 8: State-wise spending on Education (2020-21)



Sources: State budget documents 2020-21; PRS.

Demand for Grants: Health and Family Welfare

The Ministry of Health and Family Welfare has two departments: (i) the Department of Health and Family Welfare, and (ii) the Department of Health Research. The Department of Health and Family Welfare is responsible for functions including: (i) implementing health schemes, and (ii) regulating medical education and training. The Department of Health Research is broadly responsible for conducting medical research. This note analyses the financial allocation trends and key issues concerning the health sector.

Budget speech highlights 2021-22

The Finance Minister, Ms. Nirmala Sitharaman stated that health and well-being is one of the key pillars for the budget. Key highlights in the budget regarding health and well-being include:

- Urban Swacch Bharat Mission 2.0 will be implemented with a capital outlay of Rs 1.4 lakh crores over five years (2021-26). The objectives of the Mission include: (i) complete faecal sludge management, (ii) reduction in single use plastic, (iii) source segregation of garbage, and (iv) reduction in air pollution.
- A new central scheme PM AtmaNirbhar Swasth Bharat Yojana will be launched with an outlay of Rs 64,180 crore over six years. The scheme will be focused on: (i) developing primary, secondary, and tertiary healthcare systems, (ii) strengthening existing national institutions, and (iii) creating new institutions for detection and cure of new diseases.
- Rs 35,000 crore has been allocated for COVID-19 vaccine under the Ministry of Finance.

Apart from the budget allocation to the Ministry of Health and Family Welfare: (i) Rs 13,192 crore has been allocated as finance commission grant for health, (ii) Rs 36,022 crore has been allocated as finance commission grant for water and sanitation.

Overview of finances

Overall, India's public health expenditure has increased from 0.9% of GDP in 2015-16 to 1.1% of GDP in 2020-21.[1,2,3,4] The Economic Survey 2020-21 observed that India ranks 179th among 189 countries in prioritising healthcare in the government budget. Note that the National Health Policy, 2017 aims to increase public health expenditure to 2.5% of the GDP by 2025.

In 2021-22, the Ministry has an allocation of Rs 73,932 crore (an annualised growth of 7% over the actual expenditure in 2019-20).[5] Under the Ministry, the **Department of Health and Family Welfare** accounts for 96% of the Ministry's allocation at Rs 71,269 crore whereas the **Department of Health Research** has been allocated Rs 2,663 crore (4% of the allocation).

Table 1: Budget allocation for the Ministry of Health and Family Welfare (in Rs crore)

Item	2019-20 Actuals	2020-21 RE	2021-22 BE	Annualised Change (Actuals 2019-20 to BE 2021-22)
Health & Family Welfare	62,397	78,866	71,269	7%
Health Research	1,861	4,062	2,663	20%
Total	**64,258**	**82,928**	**73,932**	**7%**

Note: BE – Budget Estimate; RE – Revised Estimates.
Sources: Expenditure Budget 2021-22; PRS.

The revised estimate in 2020-21 (Rs 82,928 crore) includes Rs 14,217 crore for COVID-19 emergency response and health system preparedness package, and COVID-19 vaccination for healthcare and frontline workers. Table 2 details the main heads of expenditure under the Ministry allocated for the year 2021-22.

Table 2: Main heads of expenditure (in Rs crore)

Major Heads	2019-20 Actuals	2020-21 RE	2021-22 BE	Annualised Change (Actuals 19-20 to BE 21-22)
National Health Mission (total)	34,660	35,144	36,576	3%
Autonomous Bodies	9,601	9,882	10,924	7%
PMJAY	3,200	3,100	6,400	41%
PMSSY	4,683	7,517	7,000	22%
National AIDS & STD Control Programme	2,813	2,900	2,900	2%
Family Welfare Schemes	489	496	387	-11%
RSBY	57	29	1	-87%
Others	8,755	23,860*	9,744	5%
Total	**64,258**	**82,928**	**73,932**	7%

Note: * Includes Rs 14,217 crore for COVID-19 emergency response and vaccination of healthcare and frontline workers; BE - Budget Estimate; RE - Revised Estimates; PMJAY: Pradhan Mantri Jan Arogya Yojana; PMSSY- Pradhan Mantri Swasthya Suraksha Yojana; RSBY: Rashtriya Swasthya Bima Yojna; Autonomous Bodies include AIIMS, and ICMR.
Sources: Expenditure Budget 2021-22; PRS.

COVID-19 vaccine

On January 3, 2020 DCGI approved two vaccines (Covishield and COVAXIN) for restricted use in emergency situation.[6] Restricted use in emergency situation refers to approving the use of vaccines only for people who are in urgent need considering their vulnerability to the virus.

Table 3: Status of COVID-19 vaccine candidates in India

Company	Name	Clinical Stage
Bharat Biotech	COVAXIN	Phase 3 ongoing (received restricted use authorisation)
Serum Institute of India/ICMR	Covishield (AstraZeneca/ Oxford)	Phase 3 completed (received restricted use authorisation)
Zydus Cadilla	ZyCoV-D	Phase 2 ongoing; Phase 3 approval granted
Dr Reddy's Laboratories and Sputnik LLC	Sputnik	Phase 2 ongoing
Biological E	Biological E	Phase 1 / 2 ongoing

Notes: *ICMR: Indian Council for Medical Research.
Sources: COVID-19 Vaccines undertrial in India, Indian Council for Medical Research, Ministry of Health and Family Welfare.

Note that some countries such as United States of America issued emergency use authorisation for COVID-19 vaccines.[7] Emergency Use Authorisation (EUA) refers to approving the use of unapproved medical products, or unapproved uses of approved medical products during public health emergencies (such as COVID-19 pandemic).

The Standing Committee on Home Affairs (2020) noted that in India no EUA has been given in the past by CDSCO. The Committee recommended that proper consideration and caution should be taken in case of issuing any EUA. The Committee added that the provision of EUA should be used in the rarest of rare cases.[8]

Development and financing: In 2020-21, the Ministry of Health and Family Welfare supported the development of approximately 30 COVID-19 vaccine candidates.[9]

In 2020-21, ICMR was allocated Rs 25 crore for studies and research on the development of a vaccine, and the Department of Biotechnology spent Rs 75 crore to support eight proposals for vaccine development by private industries and academia. In November 2020, the Department of Biotechnology received a grant of Rs 900 crore in form of a stimulus package (Mission COVID Suraksha) from the Ministry of Science and Technology. The Department of Science and Technology supported three projects (committed expenditure: Rs 3.2 crore; sanctioned expenditure: Rs 22.3 lakh), under Intensified Research in High Priority Areas (IRHPA), on COVID-19 vaccine.

Further, an expenditure of Rs 2,475 crore was approved by the central government under the World Bank funded India Covid-19 Emergency Response and Health System Preparedness Package for procurement of various components such as testing kits, testing machines, and reagents for COVID-19.[10]

In 2020-21, it is estimated that overall, the Ministry of Health and Family Welfare will spend Rs 13,857 crore on COVID-19 Emergency Response and Health System Preparedness Package and Rs 360 crore on COVID-19 vaccination for healthcare workers and frontline workers.

Distribution: The central government, in coordination with the state governments, identified the priority group for vaccination.[11] The priority group comprised of two groups: (i) first group of one crore healthcare workers and two crore frontline workers, and (ii) second group 27 crore adults over 50 years of age and persons below 50 years of age with comorbidities.[12]

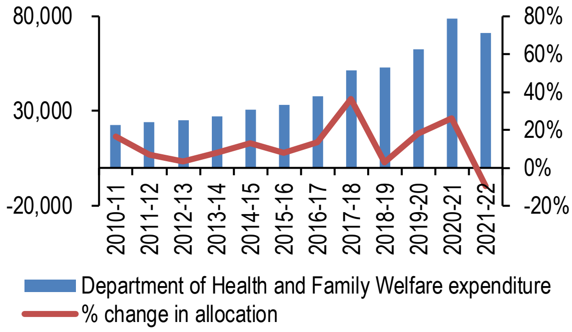
The Standing Committee on Health and Family Welfare (2020) had noted that an approach of smart vaccination may be opted for immediate control of pandemic provided the entire population is vaccinated eventually.[28] Smart vaccination refers to a strategy in which the people of India are divided into three groups: (i) core group, (ii) bridge group, and (iii) general population. Once the core group is vaccinated, with all preventive measures such as wearing masks the pandemic may be contained without vaccinating the entire population of the country.[28]

Trends in allocation and expenditure

In the last 16 years, the allocation to the Department of Health and Family Welfare has increased from Rs 11,366 crore in 2006-07 (revised estimate) to Rs 71,269 crore in 2021-22 (budget estimate). Over the period 2006-22, the Compound Annual Growth Rate (CAGR) has been 13%. CAGR is the annual growth rate over a certain period of time.

The utilisation has been over 100% in the last five years, i.e., the Department exceeded its budget estimates. In 2020-21 (revised estimates), the Department is expected to exceed the budget estimate by 21%. Overall, the Ministry is expected to have an additional spending of Rs 15,817 crore at the revised stage in 2020-21. Out of this, Rs 14,217 crore will be spent for COVID-19 emergency response and health system preparedness package, and COVID-19 vaccination for healthcare and frontline workers.

Figure 1: Allocation to the Department of Health and Family Welfare (2010-22) (Rs crore)



Note: Revised Estimate has been 2020-21; For 2021-22, % change in allocation is 2021-22 BE over 2020-21 RE; BE – Budget Estimate; RE – Revised Estimate.
Sources: Union Budgets, 2006-07 to 2021-22; PRS.

Table 4 indicates the actual expenditure of the Department of Health and Family Welfare compared with the budget estimates of that year (2010-11 to 2020-21).

Table 4: Comparison of budget estimates and the actual expenditure (2010-21) (in Rs crore)

Year	BE	Actuals	% Utilisation (Actuals/BE)
2010-11	23,530	22,765	97%
2011-12	26,897	24,355	91%
2012-13	30,702	25,133	82%
2013-14	33,278	27,145	82%
2014-15	35,163	30,626	87%
2015-16	29,653	33,121	112%
2016-17	37,062	37,671	102%
2017--18	47,353	51,382	109%
2018-19	52,800	52,954	100%
2019-20	62,659	62,397	100%
2020-21	65,012	78,866*	121%

Note: BE – Budget Estimates; *Revised Estimate.
Sources: Union Budgets, 2010-21; PRS.

Major schemes and issues

National Health Mission

The National Health Mission (NHM) consists of two sub missions, the National Rural Health Mission (NRHM) (focused on rural areas) and the National Urban Health Mission (NUHM) (focused on urban areas). NHM aims at strengthening public health systems and healthcare delivery.

The various components under NHM include: (i) reproductive, maternal, newborn and child health services (RCH Flexi Pool), (ii) NRHM Flexi Pool for strengthening health resource systems, innovations, and information, (iii) immunisation including the Pulse Polio Programme, (iv) infrastructure maintenance, and (v) National Disease Control Programme.

The allocation for NHM in 2021-22 (Rs 36,576 crore) is 4% higher than the revised estimates of 2020-21. Under the NHM, the rural component, i.e., the National Rural Health Mission has been allocated Rs 30,100 crore, (0.2% annual increase over 2019-20). The allocation for National Urban Health Mission is Rs 1,000 crore in 2021-22 (8% annual increase over 2019-20).

Note that, significant funding for NHM is done through flexible pools, such as RCH flexible pool, and flexible pool for communicable diseases. The rationale for creating of the flexible pool is to allow more financial flexibility in allocation of funds among RCH services and efficient distribution of funds to obtain desired health outcomes. In 2021-22, Rs 8,451 crore was allocated towards the flexible pools, which is 8% annual decrease over 2019-20.

The Phase-I results of National Family Health Survey-5 indicate certain improvements as compared to those in National Family Health Survey-4. These include: (i) expeditious increase in full immunization coverage, (ii) increase in households with improved sanitation facility and clean cooking fuel across 22 states, and (iii) increase in institutional births.[13]

Table 5: Allocation towards flexible pools in 2021-22 (in Rs crore)

Major Heads	19-20 Actuals	20-21 RE	21-22 BE	Annualised Change (Actuals 2019-20 to BE 2021-22)
Flexible Pool for Communicable Diseases	3,357	2,110	2,178	-19%
Flexible Pool for Non-Communicable	675	404	-	-100%
RCH Flexible Pool	5,902	-	6,273	3%
Total	9,934	2,514	8,451	-8%

Note: RCH flexible pool includes Routine Immunization Programme, Pulse Polio Immunization Programme and National Iodine Deficiency Disorders Control Programme.
Sources: Expenditure Budget 2021-22; PRS.

Table 6 shows the status of some key targets under the NHM framework.

Table 6: Status of some key targets of NHM

Targets (2012-20)	Latest Status
Reduce IMR to 25	IMR has reduced to 32 in 2018.
Reduce MMR to 100/1,00,000 live births	MMR has reduced to 113 in 2016-18.
Reduce TFR to 2.1	TFR has reduced to 2.2 in 2018.
Annual Malaria Incidence to be < .001	Annual Malaria Incidence is 0.02 in 2019.
Less than 1 % microfilaria prevalence in all districts	Out of 256 endemic districts, 99 have reported incidence less than 1% till 2018.
Reduce annual prevalence and mortality from Tuberculosis by half	Incidence reduced from 300 per lakh in 1990 to 204 per lakh in 2017.

Note: IMR-Infant Mortality Rate; MMR-Maternal Mortality Rate; TFR-Total Fertility Rate.
Source: Health and Family Welfare Statistics 2019-20; Special Bulletin on maternal Mortality in India 2016-18; National Family Health Survey-4 (2015-16); Unstarred Question No. 4335, Ministry of Health and Family Welfare, Lok Sabha, December 13, 2019; PRS.

Health infrastructure and enhancing service delivery by training human resources in healthcare are crucial for achieving objectives of the National Health Mission. Healthcare infrastructure in India can be categorised into *physical infrastructure* and *human resources* who provide medical services.

Physical infrastructure

Depending on the level of care required, healthcare in India is broadly classified into three types. This classification includes primary care (provided at primary health centres), secondary care (provided at district hospitals), and tertiary care institutions (provided at specialised hospitals like AIIMS). Primary health care infrastructure provides the first level of contact between health professionals and the population.[14]

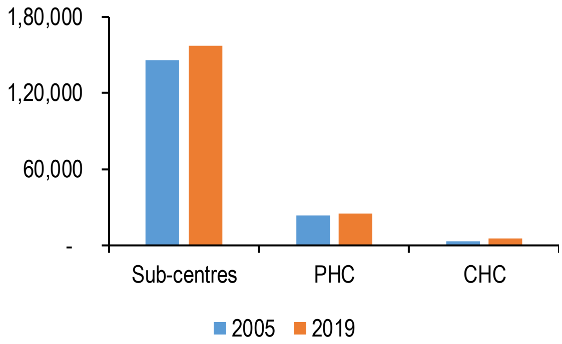
Broadly, based on the population served and the type of services provided, primary health infrastructure in rural areas consists of a three-tier system. This includes Sub-Centres (SCs), Primary Health Centres (PHCs), and Community Health Centres (CHCs).[15]

The High Level Group on Health Sector (2019) and the report of 15th Finance Commission on Ayushman Bharat have observed that focus on prevention and early management of health problems can reduce the need for complicated specialist care provided at the tertiary level.[17,20] It recommended that the focus of healthcare provision in the country should be towards providing primary healthcare.

The Finance Minister announced that PM AtmaNirbhar Swasth Bharat Yojana will be launched with an outlay of Rs 64,180 crore over six years. The scheme will be focused at: (i) developing primary, secondary, and tertiary healthcare systems, (ii) strengthening existing national institutions, and (iii) creating new institutions for detection and cure of new diseases.

The number of SCs, PHCs, and CHCs in 2005 and 2019 respectively across rural and urban areas are given in Figure 2.

Figure 2: Number of Sub Centres, PHCs, and CHCs (2005 and 2019)



Note: PHC – Primary Health Centre; CHC: Community Health Centre.
Source: Comparative Statement, Rural Health Statistics 2017-19; PRS.

The government plans to transform 1.5 lakh sub healthcare centres, primary health centres and urban primary health centres into Health Wellness Centres (HWCs) by 2022. HWCs will provide various range of services beyond maternal and child healthcare services. These services will include: (i) care for non -communicable diseases, (ii) rehabilitative care, (iii) mental health services, (iv) first level care for emergencies and trauma, and (v) free essential drugs and diagnostic services.[16]

Further, the High Level Group noted that India has 1 bed per 1,000 people, which is significantly less than the global average of 2.9 beds.[17,18] The National Health Policy, 2017 plans to increase this to 2 beds per 1,000 people.[17] This could be achieved by creating 3,000 to 5,000 hospitals with 200 beds each by 2025.[17]

Human resources in health

The Economic Survey 2020-21 observed that the aggregate density of health workers is 23 per 10,000 population, which is significantly lower than that recommended by World Health Organisation (WHO) (44.5 health workers per 10,000 population) to achieve the Sustainable Development Goals (SDG) targets by 2030.[4] As of 2019, there is 1 doctor per 1,511 people and 1 nurse per 670 people, which is lower than the WHO standard of 1 doctor per 1,000 people and 1 nurse per 300 people.[17] Note that despite the increase in total number of health workers, there is shortfall of doctors, specialists, and surgeons. For example, the number of health workers (female) (including auxiliary nurse midwives) has increased from 1,33,194 in 2005 to 2,19,326 in 2018.[15] As of 2018, 11% positions of doctors are vacant in primary health centres, and only 60% of total required specialists have been approved for appointment in primary health centres.[15]

Pradhan Mantri Jan Arogya Yojana (PMJAY)

The Ayushman Bharat programme - PMJAY was launched in September 2018.[19] It aims to provide an insurance cover of Rs five lakh per family per year to 10.7 crore poor families.[19] The scheme subsumed two centrally sponsored schemes, namely, Rashtriya Swasthya Bima Yojana (RSBY) and the Senior Citizen Health Insurance Scheme.

Benefits: The scheme provides insurance coverage for secondary and tertiary healthcare. The scheme provides 1,350 medical packages such as surgery, cost of medicines, day care treatments, and diagnostics. In addition, the scheme provides for pre- and post-hospitalisation expenses.

Allocation: In 2021-22, PMJAY has been allocated Rs 6,400 crore, which is double the actual spend two years ago (Rs 3,200 crore in 2019-20).

A study report by the 15th Finance Commission on Ayushman Bharat (2019) estimated the demand and expenditure on PMJAY for the next five years. It stated that the total costs (centre and states) of PMJAY for 2019 could range from Rs 28,000 crore to Rs 74,000 crore.[20] This estimate considers: (i) the assumption that all targeted beneficiaries will be covered (approximately 50 crore people), (ii) hospitalisation rates over time, and (iii) average expenditure on hospitalisation. Further, it noted that these costs could go up to between Rs 66,000 crore and Rs 1,60,089 crore in 2023 (accounting for inflation).

Implementation: The Economic Survey 2020-21 notes that PMJAY enhanced health insurance coverage. The proportion of health insured households increased by 54% in states that implemented PMJAY and decreased by 10% for states which did not implement it. The infant mortality rate also decreased by 20% in states with implementation whereas in states without implementation the mortality rate declined by 12%.

Table 7 shows details regarding the implementation of the Ayushman Bharat programme which includes PMJAY and Health and Wellness Centres.

Table 7: Status of implementation of Ayushman Bharat - PMJAY (as of September 2020)

Indicators	All India
Beneficiary families covered (in crore)	13.13
Funds disbursed to states/UTs for implementation (in crore)	5,474
Total hospital admissions authorised (in crore)	over 1.24#
Health and Wellness Centres	59,307*

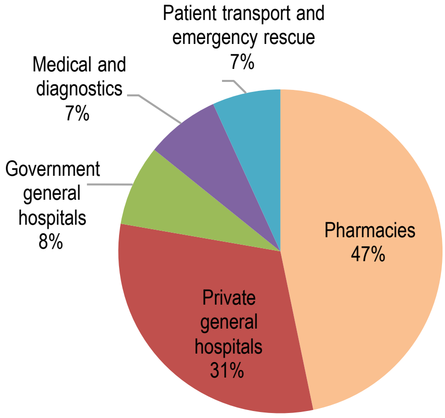
Note: #Includes 5.13 lakh hospital admissions for testing and treatment of COVID-19; *As on February 10, 2021.
Sources: Press Information Bureau (September 23, 2020) Ministry of Health and Family Welfare; Lok Sabha Unstarred Question No. 2081, Ministry of Health and Family Welfare, answered on September 23, 2020; HWC Portal, Ayushman Bharat; PRS.

Note that, the Standing Committee on Health (2018) and a study report of the 15th Finance Commission (2019) had noted that PMJAY is just an extension of RSBY which provided for coverage of up to Rs 30,000 per family per annum.[20,21] Hence, to ensure proper implementation of the scheme, an analysis of the failures and inadequacies of RSBY should be done. This would look at whether: (i) RSBY covered all potential beneficiaries, (ii) hospitalisation rates increased under the scheme, and (iii) insurance companies were profitable under the scheme. The key challenges identified in the implementation of RSBY include: (i) low rate of enrolment of beneficiaries, (ii) increase in out-of-pocket expenditure, and (iii) issues in empanelment of healthcare service providers.[22]

The Standing Committee on Health and Family Welfare (2020) noted that PMJAY faces various implementation challenges. These challenges include issues in: (i) identification of beneficiaries, (ii) non-inclusion of numerous eligible people, (iii) empanelment of healthcare providers, and (iv) hospital transaction system.[23]

Out-of-pocket expenditure: While PMJAY provides coverage for secondary and tertiary levels of healthcare, most of the out-of-pocket expenditure made by the consumers is on pharmacies (47%), private general hospitals (31%), government general hospitals (8%), medical and diagnostics (7%), and towards patient transport and emergency rescue (7%) (See Figure 3).[24]

Figure 3: Major heads for which out-of-pocket expenditure is made (May 2020)



Sources: NITI Aayog (May 1, 2020); PRS.

Out-of-pocket expenditure is the payment made directly by individuals at the point of service where the entire cost of the health service is not covered under any financial protection scheme.

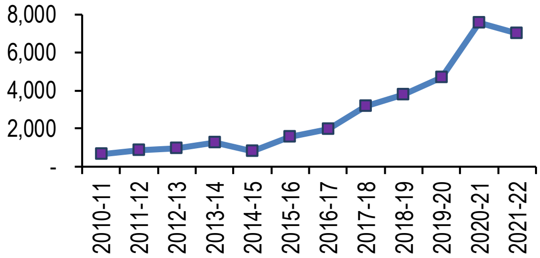
The Economic Survey 2020-21 observes that the overall out-of-pocket expenses in India on healthcare are 60% of the total expense on public health (which is one of the highest in the world). The survey highlights that increasing the spending on public health from 1% of the GDP to 2.5-3% of GDP will help in reducing the out-of-pocket expenses from 60% to 30%.[4]

Pradhan Mantri Swasthya Suraksha Yojana

Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) was introduced in 2003 with objective of: (i) correcting regional imbalances in the availability of affordable and reliable tertiary healthcare services, and (ii) augmenting facilities for quality medical education in the country. This includes establishing AIIMS like institutions and upgrading certain state government hospitals. Over the years, the scheme has been expanded to cover 20 new AIIMS and 71 state government hospitals.

In 2018, the Comptroller and Auditor General (CAG) noted that all new AIIMs overshot their completion time by almost five years.[25] There were similar delays observed in the upgradation of state government hospitals. Further, it was found that the Ministry had estimated the capital cost for setting up six new AIIMS in Phase 1 to be Rs 332 crore per institute. After four years, this cost was revised to Rs 820 crore per institute, on account of shortcomings in planning and assessment of requirements. The Standing Committee on Health and Family Welfare (2017 and 2018) noted that this indicates poor assessment of time and cost which have left the allocated funds unused.[21,26]

Figure 4: Yearly allocation to PMSSY (2010-22) (in Rs crore)



Notes: Values for 2020-21 and 2021-22 are revised estimate and budget estimate respectively
Sources: Union Budget 2010-11 to 2021-22; PRS.

In 2021-22, the allocation to PMSSY has been decreased by 7% over the revised estimates of 2020-21 at Rs 7,000 crore. Allocation towards PMSSY increased from Rs 654 crore in 2010-11 to Rs 6,020 crore in 2020-21 (24% annual increase). In 2020-21, the revised estimate for PMSSY (Rs 7,517 crore) was 25% higher than the budget estimate (Rs 6,020 crore). This was due to the capital allocation (Rs 2,448 crore) for PMSSY at the revised stage.

Health research

In 2021-22, the Department of Health Research has been allocated Rs 2,663 crore (20% annual increase over 2019-20). The revised estimate in 2020-21 is 93% higher than the budget estimate for the year (Rs 2,100 crore).

The Standing Committee on Health and Family Welfare (March 2020) noted that the allocation to Department of Health Research is low compared to the requirement of funds needed for health research. The Committee recommended that at least 10% of the budget for the Ministry of Health and Family Welfare should be allocated towards health research.[27]

The Standing Committee on Health and Family Welfare (November 2020) noted that the budgetary allocation of Department of Health Research has been one of the lowest in 2019-20 (Rs 1,900 crore) as compared to the budgetary allocation of other departments involved in scientific research.[28] The Committee reiterated its recommendations to increase the budgetary outcomes of the Department of Health Research. The Committee noted that shortfall of funds may adversely impact the establishment of new Viral Research & Diagnostic Laboratories; Multi-Disciplinary Research Units in Medical Colleges (MRUs), and Model Rural Health Research Units (MRHRUs) in states.[28]

Further, the Committee noted that there is inadequate investment on public health research, as India invests only 0.65% of GDP on overall research and development activities in the country across various sectors. The Committee recommends that the Ministry of Health and Family Welfare should at least increase its spending on health research to the world average of 1.72% of GDP within two years.[28]

The Standing Committee on Health and Family Welfare (2018) had noted the huge, persistent, and recurring mismatch between the projected demand for funds and actual allocation to the Department of Health Research.[29,30] The Committee also noted that the Department had reported shortfall of funds for implementation of projects and on the other hand, there was underutilisation of funds released.

This mismatch between demand and allocation has led to impact in terms of restrictions in the sanctioning of new labs, providing recurring grants to the ongoing projects, and upgradation of health research infrastructure.[29] This also led to repercussions in the medical research output. For example, in two years i.e., 2015 and 2016, only 1,685 research papers have been published by the Indian Council of Medical Research and three patents have been granted against the 45 patents filed.[29]

The National Medical Commission Act, 2019 (NMC Act)

Parliament passed the NMC Act in 2019 to replace the Medical Council of India (MCI). The NMC will oversee medical education and practice in India.

Functions of the NMC include: (i) framing policies for regulating medical institutions and medical professionals, (ii) assessing the requirements of healthcare related human resources and infrastructure, (iii) ensuring compliance by the State Medical Councils of the regulations made under the Act, (iv) framing guidelines for determination of fees for up to 50% of the seats in private medical institutions and deemed universities which are regulated under the Act.

Regulation of healthcare sector

The Economic Survey 2020-21 noted that information asymmetry is one of the key reasons which exposes the healthcare sector to market failures. It noted that patients in India rarely know the value of information they receive in the healthcare sector. For example, in case of certain medical services such as preventive care or mental health, patients may never know about the quality of the services they received. The Survey recommends setting up a sectoral regulator (specifically in private healthcare): (i) for supervision and regulation of the healthcare sector, and (ii) to prevent information asymmetry in the sector. Further, the Survey noted that mitigating information asymmetry in the healthcare sector will help in achieving lower insurance premiums and better welfare of people.

Drug regulation

In India, the import and manufacture of new drugs (including vaccines) is regulated under: (i) the Drugs and Cosmetics Act, 1940, (ii) Drugs and Cosmetics Rules, 1945, and (ii) New Drugs and Clinical Trials Rules, 2019.[31,32,33] The 1940 Act provides for the regulation of import, manufacture, sale, and distribution of drugs. Although the DCA is a central legislation, it is implemented by the states. The 2019 Rules provide for testing and approval for new drugs (including vaccines) in India.

The Mashelkar Committee Report (2003) highlighted the following challenges of the drug regulatory system: (i) inadequacy of trained and skilled personnel at the central and state levels, (ii) lack of uniformity in the implementation of regulatory requirements and variations in regulatory enforcement, and (iii) inadequate or weak drug control infrastructure at the state and central level.[34]

Expert committees have recommended several steps to address these concerns regarding drug regulation in the country.[34,35,36] They include: (i) a new independent and professionally run regulatory body, Central Drug Administration, reporting directly to Ministry of Health and Family Welfare, (ii) categorising the states in terms of scale of industry (manufacturing and sale) and investment in their regulation accordingly, (iii) the revision and imposition of higher fees for drug applications, clinical trials, and registration of imported drugs and foreign manufacturers, and (iv) establishment of technical expert committees for new drug approvals.

Currently, the Central Drugs and Standards Control Organisation (CDSCO), which is headed by the Drugs Controller General of India (DCGI), regulates the approval of new drugs (including vaccines) that are introduced in the country, grants permission to conduct clinical trials, and registers and controls the quality of imported vaccines.[33] It also approves licenses for the manufacture of new drugs (including vaccines) and coordinates these activities with states across India.[37]

In 2015, the Ministry of Health and Family Welfare constituted 25 panels of experts under the CDSCO in various medical areas such as vaccine, cardiology, and antiviral. These Subject Expert Committees evaluate the application of clinical trials, new drugs, and medical devices in their areas of expertise.[38] They are composed of 8 medical experts each. For example, the evaluation process for emergency authorization of a COVID-19 vaccine is being conducted by the Subject Expert Committee examining COVID-19 drugs and vaccines.[39]

Quality of drugs

The Standing Committee Report (2013) found that in India the prevalence of not-of-standard drugs is 7-8 % and the prevalence of spurious drugs is 0.5%.[40]

A not-of-standard drug refers to drug which do not meet Indian pharmacopoeia standards. The specifications under these standards include: (i) name of pharmacopoeia, (ii) quality of bonding agent, (ii) quality of colouring agent, and (iii) dissolution time. A drug is deemed to be 'spurious' if: (i) it is manufactured under a name which belongs to another drug, (ii) if it is an imitation of another drug, or (iii) if it has been substituted wholly or partly by another drug, or (iv) if it wrongly claims to be the product of another manufacturer.[41]

The extent of 'non-standard quality' drugs in the National Drug Survey between 2014 and 2016 was 3.2%.[42] The extent of 'spurious' drugs during the same period was 0.02%.[42]

With regard to quality of drugs, the Mashelkar Committee recommended that: (i) states should take more samples to check the quality of drugs manufactured and sold in the market, (ii) states should also monitor the source of purchase and quality of drugs stocked by registered medical practitioners, and (iii) number of drug inspectors and their skills must be upgraded according to the load of work of inspections and monitoring.[34]

Drug pricing

The National Pharmaceutical Pricing Authority (NPPA) monitors the availability and pricing of drugs in the country. NPPA fixes the prices of drugs/devices included in Schedule I of Drugs (Prices Control) Order (DPCO), 2013 after their notification under National List of Essential Medicines (NLEM). NLEM, 2015 consists of 3,754 medicines in total. Wherever instances of manufacturers/ importers charging prices higher than the prices fixed by the NPPA are reported, these cases are examined in detail. Since the inception of NPPA in 1995 till 2019, 2,038 demand notices have been issued to pharmaceutical companies for having overcharged patients on the sale of formulations at prices above the ceiling prices notified by NPPA.[43] An amount of Rs 5,477 crore is still remaining to be paid and an amount of Rs 4,033 crore is under litigation.[43]

In January 2019, the Standing Committee on Affordable Medicines and Health Products (SCAMHP) was constituted.[44] The Committee acts as a recommending body to NPPA regarding prices of drugs and health products. In addition, the Committee is authorised to examine a matter, suo-moto or on request of NPPA or Department of Health and Family Welfare.[44]

---

[1] Economic Survey, 2015-16, Ministry of Finance, http://indiabudget.nic.in/budget2016-2017/es2014-15/echapter-vol1.pdf.

[2] Economic Survey, 2016-17, Ministry of Finance, http://indiabudget.nic.in/es2016-17/echapter.pdf.

[3] Economic Survey, 2019-20, Ministry of Finance, https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf.

[4] Economic Survey, 2020-21, Ministry of Finance, https://www.indiabudget.gov.in/economicsurvey/.

[5] Demand Nos. 44 & 45, Ministry of Health and Family Welfare, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/allsbe.pdf.

[6] Press Statement by the Drugs Controller General of India (DCGI) on Restricted Emergency approval of COVID-19 virus vaccine, Press Information Bureau, Ministry of Health and Family Welfare, January 3, 2020.

[7] FDA Takes Key Action in Fight Against COVID-19 By Issuing Emergency Use Authorization for First COVID-19 Vaccine, U.S. Food and Drug Administration, December 11, 2020, https://www.fda.gov/news-events/press-announcements/fda-takes-key-action-fight-against-covid-19-issuing-emergency-use-authorization-first-covid-19.

[8] Report No. 229: Management of Covid-19 Pandemic and Related Issues, Department-Related Parliamentary Standing Committee

On Home Affairs, Rajya Sabha, December 21, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/15/143/229_2020_12_18.pdf.

[9] Unstarred Question No. 285, September 15, 2020, Ministry of Health and Family Welfare, Rajya Sabha, https://pqars.nic.in/annex/252/AU285.pdf

[10] Report No. 124 - Action taken on 119th Report, Standing Committee on Health and Family Welfare, November 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/142/124_2020_11_18.pdf.

[11] Frequently asked questions on COVID-19 vaccine, Ministry of Health & Family Welfare, as accessed on January 25, 2021, https://www.mohfw.gov.in/pdf/FAQsonCOVID19VaccineDecember2020.pdf.

[12] 27 crore prioritized age group and comorbid persons in the sequential roll-out of vaccines after 3 crore healthcare and frontline workers: Health Secretary, Press Information Bureau, Ministry of Health & Family Welfare, January 12, 2021.

[13] National Family Health Survey-5, Press Information Bureau, Ministry of Health and Family Welfare, December 15, 2020.

[14] Chapter VIII: Public Health Care System, Planning Commission of India, http://planningcommission.nic.in/aboutus/committee/strgrp/stgp_fmlywel/sgfw_ch8.pdf.

[15] Rural Health Statistics 2018, https://nrhm-mis.nic.in/Pages/RHS2018.aspx?RootFolder=%2FRURAL%20HEALTH%20STATISTICS%2F%28A%29%20RHS%20-%202018&FolderCTID=0x01200057278FD1EC909F429B03E86C7A7C3F31&View=%7B09DDD7F4-80D0-42E3-8969-2307C0D97DDB%7D.

[16] About HWC, Ayushman Bharat - Health and Wellness Centres, Ministry of Health and Family Welfare, https://ab-hwc.nhp.gov.in/#about.

[17] A Report of High-Level Expert Group on Health Sector, 2019, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/StudyReports/High%20Level%20group%20of%20Health%20Sector.pdf.

[18] Hospital beds (per 1,000 people), Work Bank Database, last accessed on February 4, 2021, https://data.worldbank.org/indicator/SH.MED.BEDS.ZS.

[19] "Ayushman Bharat –Pradhan Mantri Jan AarogyaYojana (AB-PMJAY) to be launched by Prime Minister Shri Narendra

Modi in Ranchi, Jharkahnd on September 23, 2018", Press Information Bureau, Ministry of Health and Family Welfare, September 22, 2018, https://pib.gov.in/Pressreleaseshare.aspx?PRID=1546948.

[20] 'Ayushman Bharat: Costs and Finances of the Prime Minister Jan Arogya Yojana', Institute of Economic Growth, Study Report for the 15th Finance Commission, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/StudyReports/Ayushman%20Bharat%20Costs%20and%20Finances.pdf.

[21] "Report no. 106: Demands for Grants 2018-10 (Demand No. 42) of the Department of Health and Family Welfare", Standing Committee on Health and Family Welfare, March 8, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/100/106_2019_7_10.pdf.

[22] Report No. 112, Standing Committee on Health and Family Welfare, December 28, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/113/112_2019_7_16.pdf.

[23] "Report No. 118: Demands for Grants 2020-21 (Demand No. 42) of the Department of Health and Family Welfare", Standing Committee on Health and Family Welfare, March 3, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/121/118_2020_3_15.pdf.

[24] Household Health Expenditures in India (2013-14), December 2016, Ministry of Health and Family Welfare, http://www.mohfw.nic.in/sites/default/files/38300411751489562625.pdf

[25] Report No. 10, Performance Audit on Pradhan Mantri Swasthya Suraksha Yojana, August 7, 2018, https://cag.gov.in/content/report-no10-2018-performance-audit-pradhan-mantri-swasthya-suraksha-yojana-ministry-health.

[26] [26] "Report no. 99: Demands for Grants 2017-18 (Demand No. 42) of the Department of Health and Family Welfare", Standing Committee on Health and Family Welfare, March 20, 2017, http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/99.pdf

[27] Report No. 119 – Demand for Grants of the Department of Health Research, Standing Committee on Health and Family Welfare, March 3, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/121/119_2020_3_15.pdf.

[28] Report No. 123: The Outbreak of Pandemic Covid-19 and its Management, Department-Related Parliamentary Standing Committee on Health and Family Welfare, Rajya Sabha, November 21, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/142/123_2020_11_15.pdf.

[29] "Report no. 100: Demands for Grants 2017-18 (Demand No.43) of the Department of Health Research", Standing Committee on Health and Family Welfare, March 20, 2017, http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/100.pdf.

[30] Report No. 107, Demand for Grants 2018-19 (Demand No. 43) of the Department of Health Research, Standing Committee on Health and Family Welfare, March 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/14/100/107_2018_6_16.pdf,

[31] The Drugs and Cosmetics Act, 1940, and the Drugs and Cosmetics Rules, 1945, Ministry of Health and Family Welfare, https://cdsco.gov.in/opencms/export/sites/CDSCO_WEB/Pdf-documents/acts_rules/2016DrugsandCosmeticsAct1940Rules1945.pdf.

[32] Draft Regulatory Guidelines for Development of Vaccines with Special Consideration for Covid-19 Vaccine, Ministry of Health and Family Welfare, https://cdsco.gov.in/opencms/opencms/system/modules/CDSCO.WEB/elements/download_file_division.jsp?num_id=NjUwMA==

[33] G.S.R. 227 (E): New Drugs and Clinical Trial Rules, 2019, Ministry of Health and Family Welfare, March 19, 2019, https://cdsco.gov.in/opencms/export/sites/CDSCO_WEB/Pdf-documents/NewDrugs_CTRules_2019.pdf

[34] Report of the Expert Committee on "A Comprehensive Examination of Drug Regulatory Issues, including the problem of Spurious Drugs", Ministry of Health and Family Welfare, November, 2003, http://pharmaceuticals.gov.in/sites/default/files/MashelkarCommitteeReport.pdf.

[35] "Report no.59: The Functioning of the Central Drugs Standards Control Organisation (CDSCO)", Standing Committee on Health and Family Welfare, Ministry of Health and Family Welfare, May 8, 2012, http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/59.pdf.

[36] Report of the (late)Prof. Ranjit Roy Chaudhury Expert Committee to "Formulate Policy and Guidelines for Approval of New Drugs, Clinical Trials and Banning of Drugs", July, 2013, http://www.cdsco.nic.in/writereaddata/Report_of_Dr_Ranjit_Roy.pdf.

[37] Functions of CDSCO, Central Drugs Standard Control Organization, Ministry of Health & Family Welfare, https://cdsco.gov.in/opencms/opencms/en/About-us/Functions/.

[38] Order F. No. 12-01/14-DC (Pt. 20), Ministry of Health and Family Welfare, January 5, 2015, https://www.iscr.org/wp-content/uploads/2019/05/2015-01-05-DCGI-office-order-regarding-Subject-Expert-Committee-functioning.pdf.

[39] Recommendation of the SEC meeting to examine COVID-19 related proposal under accelerated approval process made in its 131st meeting, Central Drugs Standard Control Organization, Ministry of Health & Family Welfare, December 17-18, 2020, https://cdsco.gov.in/opencms/opencms/system/modules/CDSCO.WEB/elements/common_download.jsp?num_id_pk=MTI4Mw==

[40] "Report no.59: The Functioning of the Central Drugs Standards Control Organisation (CDSCO)", Standing Committee on Health and Family Welfare, Ministry of Health and Family Welfare, May 8, 2012, http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/59.pdf.

[41] Drugs and Cosmetics Act 2008, Ministry of Health and Family Welfare, December 5, 2008, http://www.cdsco.nic.in/writereaddata/D&C_ACT_AMENDMENT_2008_file.pdf

[42] National Drug Survey 2014-16, Ministry of Health and Family Welfare, https://mohfw.gov.in/sites/default/files/Chapter10SurveyReslutandAnalysis.pdf.

[43] Year-wise Summary of Overcharging as of June 2019, National Pharmaceutical Pricing Authority, Department of Pharmaceuticals, Ministry of Chemical and Fertilizers, http://www.nppaindia.nic.in/en/utilities/overcharging-status/year-2019/.

[44] Constitution of Standing Committee on Affordable Medicines and Health Products (SCAMHP), Ministry of Chemicals & Fertilizers, January 21, 2019, https://pharmaceuticals.gov.in/sites/default/files/Constitution%20of%20Standing%20Committee%20on%20Affordable%20Medicines.pdf.

Annexure

Table 8: Allocations to the Ministry of Health and Family Welfare for 2021-22 (in Rs crore)

Major Heads	2019-20 Actuals	2020-21 BE	2020-21 RE	2021-22 BE	Annualised Change from 2019-20 Actuals to 2021-22 BE
Department of Health and Family Welfare	**62,397**	**65,012**	**78,866**	**71,269**	**7%**
Department of Health Research	**1,861**	**2,100**	**4,062**	**2,663**	**20%**
Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)	4,683	6,020	7,517	7,000	22%
Family Welfare Schemes	489	600	496	387	-11%
National AIDS and STD Control Programme	2,813	2,900	2,900	2,900	2%
National Health Mission	**34,660**	**33,400**	**35,144**	**36,576**	**3%**
-National Rural Health Mission	29,987	27,039	28,367	30,100	0.2%
-National Urban Health Mission	850	950	950	1,000	8%
-Tertiary Care Programs	241	550	312	501	44%
-Strengthening of State Drug Regulatory System	206	175	130	175	-8%
-Human Resources for Health and Medical Education	3,376	4,686	5,386	4,800	19%
Infrastructure Development for Health Research	148	170	169	177	9%
Rashtriya Swasthya Bima Yojna (RSBY)	57	29	29	1	-87%
Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (PMJAY)	3,200	6,400	3,100	6,400	41%
Autonomous Bodies	9,601	9,616	9,882	10,924	7%
Others	8,607	7,976	9,474	9,567	5%
COVID-19 Emergency Response and Health System Preparedness Package	-	-	13,857	-	
COVID-19 vaccination for healthcare workers and frontline workers	-	-	360	-	
Total	**64,258**	**67,112**	**82,928**	**73,932**	**7%**

Sources: Demand for Grants, Ministry of Health and Family Welfare, Union Budget, 2021-22; PRS.

State-wise numbers on the health sector

Table 9: Comparison of key health indicators across states

State	Population (Million) 2011	Crude Birth Rate 2017	Total Fertility Rate, 2018	Under 5 mortality rate, 2010-15	Infant Mortality Rate (per 1000 live Births) 2018	Underweight children (%) 2015-16	Life Expectancy at Birth (Years) 2014-18	Maternal Mortality Ratio 2016-18
		No. of live births per 1,000 in a population.	No. of children born to a woman in her lifetime	Death between 0-5 years, per 1,000 live births	No. of infants who die before reaching one, per 1,000 live births	% Children below 5 years of age who are underweight	How long a new-born can expect to live, on existing death rate	No. of maternal deaths, per 1,00,000 live births
Andhra Pradesh	49	16	1.6	41	29	32%	70	65
Assam	31	21	2.2	57	41	30%	67	215
Bihar	104	26	3.2	58	32	44%	69	149
Chhattisgarh	26	23	2.4	64	41	38%	65	159
Gujarat	60	20	2.1	44	28	39%	70	75
Haryana	25	21	2.2	41	30	29%	70	91
Jharkhand	33	23	2.5	54	30	48%	69	71
Karnataka	61	17	1.7	32	23	35%	69	92
Kerala	33	14	1.7	7	7	16%	75	43
Madhya Pradesh	73	25	2.7	65	48	43%	67	173
Maharashtra	112	16	1.7	29	19	36%	73	46
Odisha	42	18	1.9	48	40	34%	69	150
Punjab	28	15	1.6	33	20	22%	73	129
Rajasthan	69	24	2.5	51	37	37%	69	164
Tamil Nadu	72	15	1.6	27	15	19%	72	60
Telangana	35	17	1.6	32	27	29%	70	63
Uttar Pradesh	200	26	2.9	78	43	40%	65	197
West Bengal	91	15	1.5	32	22	32%	72	98
Arunachal Pradesh	1	18		33	37	19%		
Delhi	17	15	1.5	42	13	27%	74	
Goa	1	13		13	7	24%		
Himachal Pradesh	7	16	1.6	38	19	21%	73	
Jammu & Kashmir	13	15	1.6	38	22	17%	74	
Manipur	3	15		26	11	14%		
Meghalaya	3	23		40	33	29%		
Mizoram	1	15		46	5	12%		
Nagaland	2	14		37	4	17%		
Sikkim	1	16		32	7	14%		
Tripura	4	13		33	27	24%		
Uttarakhand	10	17	1.8	47	31	27%	71	99
Andaman & Nicobar Islands	0	11		13	9	22%		
Chandigarh	1	14		38	13	25%		
Dadra & Nagar Haveli	0	24		42	13	39%		
Daman & Diu	0	20		34	16	27%		
Lakshadweep	0	15		30	14	23%		
Puducherry	1	13		16	11	22%		
All India	**1,211**	**20**	**2.2**	**50**	**32**	**36%**	**69**	**113**

Sources: Census Data 2011; Sample Registration System 2019; Health and Family Welfare Statistics 2017; Special Bulletin on maternal Mortality in India 2016-18; National Family Health Survey-4 (2015-16); PRS.

Demand for Grants: Jal Shakti

The Ministry of Jal Shakti is responsible for the development, maintenance, and efficient use of water resources in the country and coordination of drinking water and sanitation programs in rural areas. The Ministry was created in 2019 by integrating the Ministries of: (i) Water Resources, River Development, and Ganga Rejuvenation, and (ii) Drinking Water and Sanitation.

In this note we discuss the overview of finances of the Department of Drinking Water and Sanitation, and the Department of Water Resources separately, and then discuss broader issues in the sectors.

Allocations in Union Budget 2021-22

In 2021-22, the Ministry of Jal Shakti received an allocation of Rs 69,053 crore which is a 64% annual increase over the actual expenditure in 2019-20. The focus of the increased expenditure is on drinking water, which is line with the government's agenda to provide functional tap water connections to all households by 2024.[1] Further, the Economic Survey (2020-21) noted that a strong emphasis on sanitation and drinking water is required to prevent communicable diseases.[2]

Table 1 provides details on allocations to the two departments under the Ministry.

Table 1: Budgetary allocation to the Ministry of Jal Shakti (in Rs crore)

Department	Actuals (19-20)	Revised (20-21)	Budgeted (21-22)	Annualised Change (Actuals 19-20 to BE 21-22)
Drinking Water and Sanitation	18,264	17,024	60,030	81%
Water Resources	7,419	7,262	9,023	10%
Total	**25,683**	**24,286**	**69,053**	**64%**

Note: BE is budget estimate.
Sources: Demands for Grants 2021-22, Ministry of Jal Shakti; PRS.

Policy proposals in Union Budget 2021-22

- The Jal Jeevan Mission (Urban) will be launched to enable universal water supply and liquid waste management in urban areas.
- The Urban Swachh Bharat Mission 2.0 will be implemented. It will focus on sludge and waste water management.

Overview of Finances

Department of Drinking Water and Sanitation

The **Department of Drinking Water and Sanitation** administers programs for safe drinking water and sanitation in rural areas. It is responsible for the two programs: the Jal Jeevan Mission with an aim to provide functional household tap connection to every rural household, and the Swachh Bharat Mission-Gramin for sanitation.[3]

The Department has an allocation of Rs 60,030 crore, accounting for 87% of the Ministry's allocation. This is an 81% annual increase compared to the actual expenditure in 2019-20.

Over the past 10 years, the expenditure by the Department increased at an average annual growth rate of 3% (excluding 2021-22). Table 2 below shows the trends in expenditure by the Department in the last decade. The allocation for the Department increased by 253% in 2021-22 (over the revised estimates for 2020-21).

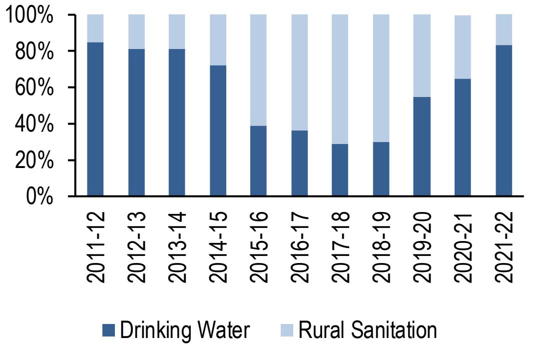
Table 2: Expenditure by the Department of Drinking Water and Sanitation

Year	Expenditure (in Rs crore)	% Change in expenditure
2012-13	12,968	29.7%
2013-14	11,941	-7.9%
2014-15	12,091	1.3%
2015-16	11,081	-8.4%
2016-17	16,476	48.7%
2017-18	23,939	45.3%
2018-19	18,412	-23.1%
2019-20	18,264	-0.8%
2020-21	17,024	-7%
2021-22	60,030	253%

Note: Values for 2020-21 are revised estimates and 2021-22 are budget estimates. Allocations before 2019-20 were towards the erstwhile Ministry of Drinking Water and Sanitation.
Sources: Union Budgets 2014-15 to 2021-22; PRS.

As can be seen in Figure 1, from 2011-12 to 2014-15, the Department's expenditure was focused on drinking water. With the introduction of the Swachh Bharat Mission, between 2015-19, the focus of expenditure was on rural sanitation. However, since 2019-20 the expenditure focus has shifted back towards drinking water.

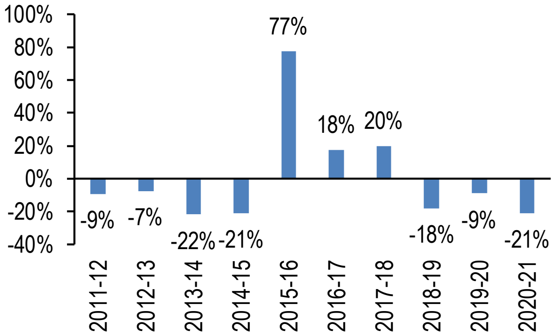
Figure 1: Expenditure on drinking water and sanitation (as a % of Department's expenditure)



Note: Values for 2020-21 are revised estimates and 2021-22 are budget estimates.
Sources: Union Budgets 2011-12 to 2021-22; PRS.

Between 2011-15, the actual expenditure by the Department of Drinking Water and Sanitation was lower than the budgeted expenditure. However, during 2015-18, the Department spent more than the allocated amount. The actual expenditure in 2015-16 was 77% higher than the budgeted expenditure for the year. This may be due to the lack of adequate budgeting and planning in the implementation of the scheme.

Figure 2: % change between actual and budgeted expenditure



Note: The expenditure figure for 2020-21 is revised estimate.
Sources: Union Budgets 2011-12 to 2021-22; PRS.

Schemes under the Department of Drinking Water and Sanitation

Expenditure by the Department of Drinking Water and Sanitation is primarily towards the two major schemes, the Jal Jeevan Mission (JJM) and the Swachh Bharat Mission-Gramin (SBM-G). Table 3 provides details on allocation towards these schemes over the past three years.

Table 3: Budgetary allocation to the Department of Drinking Water and Sanitation (in Rs crore)

Major head	Actuals (19-20)	Revised (20-21)	Budgeted (21-22)	Annualised Change (Actuals 19-20 to BE 21-22)
JJM	10,030	11,000	50,011	123%
SBM-G	8,213	6,000	9,994	10%
Others	21	24	25	10%
Total	**18,264**	**17,024**	**60,030**	**81%**

Note: BE is budget estimate.
Sources: Demands for Grants 2021-22, Department of Drinking Water and Sanitation; PRS.

JJM has been allocated Rs 50,011 crore in 2021-22 (123% annual increase over 2019-20). This increase may be owing to the government's aim to provide functional tap water connections to all households by 2024.[1] SBM-G has been allocated Rs 9,994 crore in 2020-21 (10% annual increase over 2019-20).

The 15th Finance Commission noted that the COVID-19 pandemic has highlighted the importance of drinking water and sanitation.[14] It recommended greater emphasis on availability of safe drinking water and sanitation services to protect human health during infectious disease outbreaks.[14] Further, it recommended that 60% (Rs 1,42,084 crore) of the total grants for rural local bodies be spent on these sectors during 2021-26.[14]

Swachh Bharat Mission - Gramin

In 2014, the Swachh Bharat Mission (Gramin) was launched by restructuring the Nirmal Bharat Abhiyan.[4] The Mission aimed to achieve universal sanitation coverage, improve cleanliness, and eliminate open defecation by October, 2019.[5]

The expenditure towards rural sanitation schemes saw a steady increase from 2011-12 (Rs 1,500 crore) to 2017-18 (Rs 16,888 crore), and a decrease in the subsequent years. Table 4 shows the trends in budget allocation and actual expenditure on rural sanitation in the past 10 years.

Table 4: Budgeted versus actual expenditure on sanitation (in Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2011-12	1,650	1,500	91%
2012-13	3,500	2,474	71%
2013-14	3,834	2,244	59%
2014-15	4,260	2,841	67%
2015-16	3,625	6,703	185%
2016-17	9,000	10,484	116%
2017-18	13,948	16,888	121%
2018-19	15,343	12,913	84%
2019-20	9,994	8,213	82%
2020-21	9,994	6,000	60%

Note: The 'actuals' figure for 2020-21 is the revised estimate.
Sources: Union Budgets 2010-11 to 2021-22; PRS.

The increased spending from 2015-16 to 2017-18 was due to the focus on improving sanitation, after the launch of SBM-G. Note that the allocation towards the scheme has been the same since 2019-20 (Rs 9,994 crore). Further, there has been under-utilisation of the allocated amount since 2018-19.

Construction of Individual Household Latrines (IHHLs): The cost for constructing a household toilet was increased from Rs 10,000 to Rs 12,000 in September 2014 when the Nirmal Bharat Abhiyan was restructured into SBM-G.[6] This cost for constructing toilets is shared between the centre and the state in the ratio of 60:40. Table 5 gives the number of household toilets constructed since the inception of the scheme.

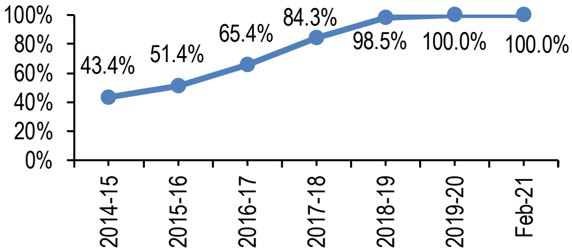
Table 5: Toilets constructed since 2014-15

Year	Toilets Constructed
2014-15	48,10,142
2015-16	1,23,98,184
2016-17	2,15,10,893
2017-18	2,92,57,956
2018-19	2,18,50,623
2019-20	1,77,02,842
Total	**10,75,30,640**

Sources: SBM Dashboard, Ministry of Jal Shakti; PRS.

As per the Department, 43.4% of the rural households had access to toilets in 2014-15, which has increased to 100% in February 2021.[7] Figure 3 illustrates the total coverage of household toilets since the inception of the SBM programme.

Figure 3: Percentage of households with toilets (2014-2021)



Sources: Management Information System Reports of SBM, Ministry of Jal Shakti; PRS.

The Economic Survey (2020-21) noted that sanitation access improved for all states during 2012 to 2018.[2] However, inter-state differences in access to sanitation are still large, especially in rural areas. For example, access to sanitation is below 75% in states such as Odisha, Jharkhand, Uttar Pradesh, and West Bengal.[2]

Open Defecation Free (ODF) villages: Under SBM-G, a village is declared as ODF when: (i) there are no visible faeces in the village, and (ii) every household as well as public institution uses safe technology options for faecal disposal.[8]

After a village declares itself as ODF, state governments are required to verify the ODF status of such a village. Such verification must include indicators such as access to a toilet facility and its usage, and safe disposal of faecal matter through septic tanks.

The guidelines for ODF state that since it is not a one-time process, at least two verifications must be carried out.[9] The first verification must be carried out within three months of ODF declaration. The second verification must be carried out around six months after the first verification.

As per the Ministry of Jal Shakti, a total of 6,03,142 villages across 711 districts and 35 states and union territories have been declared as ODF as of February 2021.[10] Of these, 5,99,953 villages (99.5%) have been verified by state governments as ODF under the first level of verification.[10] 1,79,945 villages (30%) have been verified as ODF under the second level of verification.[11] State-wise details on the number of villages declared and verified ODF are presented in the Annexure. The 15th Finance Commission recommended that an independent survey be instituted to estimate the prevalence of open defecation in the country.[14]

Further, the 15th Finance Commission noted that the practice of open defecation is still prevalent, despite access to toilets and highlighted that there is a need to sustain behavioural change of people for using toilets.[14] In March 2020, the Department launched Phase II of SBM (G) which will focus on ODF Plus and will be implemented from 2020-21 to 2024-25 with an outlay of Rs 1,40,881 crore.[12,13] ODF Plus includes ODF sustainability and solid and liquid waste management.[14]

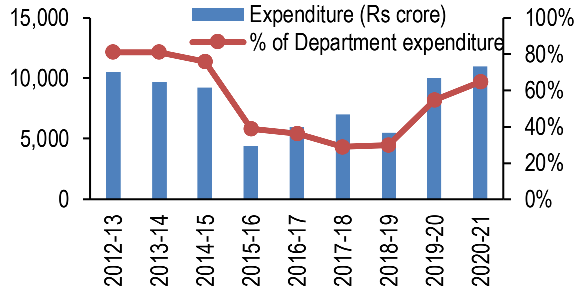
The 15th Finance Commission also noted that the scheme only provides financial incentives to construct latrines to households below poverty line (BPL) and selected households above poverty line.[14] It highlighted that there are considerable exclusion errors in finding BPL households and recommended the universalisation of the scheme to achieve 100% ODF status.[14]

Jal Jeevan Mission

The Jal Jeevan Mission was launched in 2019 with the aim to provide functional household tap connection to every rural household by 2024.[1] It subsumed the National Rural Drinking Water Programme. The total estimated cost of JJM is Rs 3.6 lakh crore over 2019 to 2024.[1]

In 2021-22, it has been allocated Rs 50,011 crore, which is a 123% annual increase over the actual expenditure in 2019-20. After a reduction in expenditure on the scheme from 2015-16 to 2018-19, the expenditure on the scheme was increased from 2019-20 onwards (Figure 4).

Figure 4: Expenditure on Drinking Water schemes (in Rs crore)



Note: Value for 2020-21 is the revised estimate.
Sources: Union Budgets 2012-13 to 2021-22; PRS.

Target versus achievements: The coverage of the National Rural Drinking Water Programme (NRDWP) was monitored in terms of habitations having provision of minimum 40 Litres Per Capita Per Day (LPCD) of potable drinking water sources at a reasonable distance. As of September 2019, 1% of rural households have been fully covered under the scheme with 40 LPCD of water supply and 16% households have been partially covered.[14]

JJM (which subsumed NRDWP) aims to provide functional household tap connections to every household. However, the coverage of piped-water-supply remains low. As of September 2020, only 28.7% of rural households have functional piped-water supply connections.[15] Further, the 15th Finance Commission noted that though the Planning Commission had recommended increasing drinking water supply levels in rural areas from 40 LPCD to 55 LPCD, the Department is yet to incorporate this target in JJM.[14]

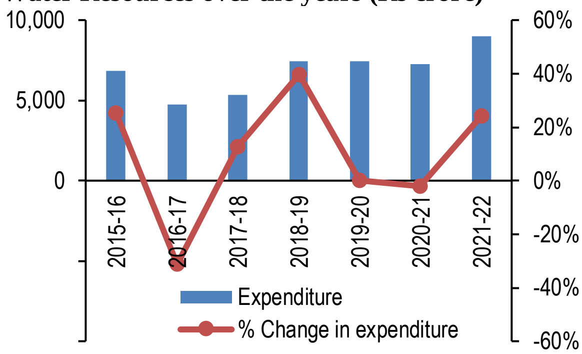
The Standing Committee on Drinking Water and Sanitation (2020-21) noted certain weaknesses in the implementation of the scheme including: (i) lack of participatory approach, (ii) inadequate financial resources, (iii) non-availability of technical human resources, and (iv) poor operation and maintenance of completed schemes.[16] It recommended a speedy increase in the provision of piped water supply and effective strategies to monitor accomplished work.[16]

Department of Water Resources

The Department is responsible for: (i) planning and coordination of water resources in the country, (ii) monitoring of irrigation and flood control projects, (iii) supporting state level activities for ground water development, and (iv) reduction of pollution and rejuvenation of rivers.[17]

In 2021-22, the Department has an allocation of Rs 9,023 crore, accounting for 13% of the Ministry's allocation. This is a 10% annual increase over the actual expenditure in 2019-20.

Figure 5: Expenditure by the Department of Water Resources over the years (Rs crore)



Note: Values for 2020-21 and 2021-22 are revised estimates and budget estimates respectively.
Sources: Union Budgets 2015-16 to 2021-22; PRS.

Major schemes

In 2021-22, 62% of the Department's expenditure is estimated to be on the Pradhan Mantri Krishi Sinchai Yojna. This is followed by the National River Conservation Plan (10.5%), Water Resources Management (8.1%), and Namami Gange (6.7%).

Table 6: Allocation to the Department of Water Resources (in Rs crore)

Major Head	Actuals (19-20)	Revised (20-21)	Budgeted (21-22)	Change (Annualised) (Actuals 19-20 to BE 21-22)
PM Krishi Sinchai Yojna	4,033	4,391	5,588	17.7%
National River Conservation	1,336	900	950	-15.7%
Water Resources Management	626	449	729	7.9%
Namami Gange	353	500	600	30.3%
Central Water Commission	391	361	389	-0.2%
Central Ground Water Board	236	235	238	0.4%
Others	444	427	528	9.0%
Total	**7,419**	**7,262**	**9,023**	**10.3%**

Note: BE is budget estimate. Others include central sector projects such as river basin management, and major irrigation projects.
Sources: Demands for Grants 2021-22, Department of Water Resources, River Development, and Ganga Rejuvenation; PRS.

Issues to consider

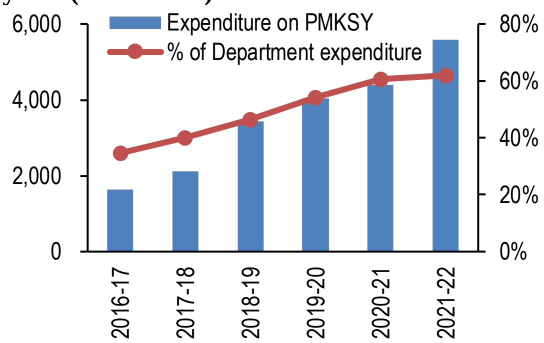
Irrigation

The Economic Survey (2016-17) highlighted that 52% of the total net sown area in India is unirrigated and depends on rainfall for cultivation.[18] It noted that when rainfall is significantly less than usual, the unirrigated areas face higher adverse effects than the irrigated areas. Therefore, it recommended that irrigation coverage in the country needs to be increased.[18]

The Pradhan Mantri Krishi Sinchai Yojana (PMKSY) was launched during 2015-16.[19] The scheme seeks to: (i) expand coverage of irrigation, (ii) improve water use efficiency on farms, and (iii) introduce sustainable water conservation practices.[20] The Jal Shakti Ministry implements certain components of the scheme, such as PMKSY – Har Khet Ko Pani, Flood Management, and Borders Area Programme.[19] Other components of the scheme (such as Per Drop More Crop and Watershed Management) are implemented by the Ministry of Agriculture and Farmers' Welfare and the Ministry of Rural Development.

Figure 6 shows the expenditure on the scheme from 2016-17 to 2021-22. The scheme has been allocated Rs 5,588 crore in 2021-22. Its share in the Department's expenditure is estimated to increase from 35% in 2016-17 to 62% in 2021-22.

Figure 6: Expenditure on PMKSY over the years (in Rs crore)



Sources: Union Budgets 2016-17 to 2021-22; PRS.

Har Khet ko Pani: This scheme's objectives include: (i) creation of new water sources, (ii) restoration and repair of traditional water bodies, (iii) command area development, and (iv) strengthening of distribution network from irrigation sources to the farm.[21,22]

Some components of the scheme are:

Accelerated Irrigation Benefit Programme (AIBP): Under this scheme, financial assistance is being provided for faster completion of irrigation projects. As of February 2021, 44 projects (42%) out of the 106 projects selected under the scheme have been completed.[23] Further, 22 projects (20%) projects are facing constraints such as land acquisition, legal, and contractual issues.[23]

Command Area Development and Water Management Programme: The objective of the programme is to enhance utilisation of irrigation potential created. This is achieved through activities such as construction of field channels, land levelling, and reclamation of waterlogged area.[24] As of February 2021, there are 88 projects under the programme, of which only 18 (21%) have achieved more than 50% physical progress.[25]

Flood Management

The National Water Policy (2012) noted that climate change has deepened incidences of water related disasters such as floods, increased erosion, and increased frequency of droughts.[26] The central government supports states by providing financial assistance for undertaking flood management works in critical areas through the Flood Management and Border Areas Programme. From 2017-18 to 2019-20, central assistance of Rs 2,022 crore has been released under the scheme.[27]

Under flood management component of the scheme, 14 projects of the 83 sanctioned projects had been completed as of March 2020.[28] Major issues faced while implementing the scheme include acquisition of land for the project, legal problems, non-release of state share, and inadequate budget allocation.[29] The Standing Committee on Water Resources (2020-21) noted the delay in completion of projects and recommended that the Department resolve the underlying factors for such delay.[28]

Conservation and Rejuvenation of rivers

The Ministry of Jal Shakti implements the Namami Gange Mission with the objective of rejuvenation of river Ganga and its tributaries through municipal sewage and industrial effluents treatment, river surface cleaning, and rural sanitation.[30] As of February 2021, 142 (43%) of the 334 projects sanctioned under the Mission have been completed.[31]

The scheme was launched in 2014 with a budget outlay of Rs 20,000 crore for the period 2015-2020.[32] During the period 2015-16 to 2020-21, only Rs 4,016 crore (20%) has been spent on the programme.[32] In 2021-22, the scheme has been allocated Rs 600 crore, which is 30% annual increase over the actual expenditure in 2019-20. Table 7 shows the trends in budget allocation and actual expenditure on Namami Gange from 2015-16. Note that the utilisation under the scheme has remained less than 65% since the scheme started.

Table 7: Budgeted versus actual expenditure on Namami Gange (in Rs crore)

Year	Budgeted	Actuals	% of Budgeted
2015-16	-	100	-
2016-17	-	1,675	-
2017-18	2,300	700	30%
2018-19	2,300	688	30%
2019-20	750	353	47%
2020-21	800	500	62%

Note: The 'actuals' figure for 2020-21 is the revised estimate.
Sources: Union Budgets 2015-16 to 2021-22; PRS.

The Standing Committee on Water Resources (2020-21) noted that the implementation of the program does not match the targets.[28] Some key bottlenecks affecting the implementation of projects include: (i) delay in tendering process, (ii) non-availability of land for sewage treatment plants leading to delay in execution of projects, and (iii) underutilisation of sewage treatment plants' capacities due to inadequate house sewer connections in cities, among others.[33] Further, in response to the Committee's observations, the Ministry of Jal Shakti responded (February 2021) that the COVID-19 pandemic and consequent lockdown had slowed the progress of the projects due to insufficient labor.[34]

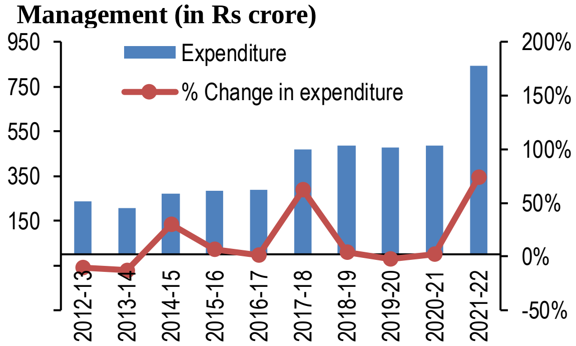
Ground water depletion

Currently, 63% of the net annual ground water available (393 billion cubic meter) is being utilised.[35] However, note that ground water development is not uniform across states in India. It has exceeded 100% in some states such as Delhi (120%), Haryana (137%), Rajasthan (140%), and Punjab (166%).[35] This implies that the annual ground water utilisation in these states is higher than the net annual ground water availability. The status of ground water development ratio across states is provided in the Annexure. Experts have noted that India is fast moving towards a ground water crisis and nearly 60% of all districts in the country have issues related to either availability of ground water, or quality of ground water, or both.[36]

The ground water management and regulation scheme was launched in 2008 with the aim to regulate and control the development of ground water resources of the country.[37] Further, the Atal Bhujal Yojana was launched in April 2020 for sustainable management of ground water resources through a strong ground water database and community participation in the sector.[38]

Figure 7 shows the trend in expenditure on ground water schemes and the Central Ground Water Board over the past ten years. The expenditure on ground water schemes has increased substantially only in 2017-18 and 2021-22.

Figure 7: Expenditure on Ground Water Management (in Rs crore)



Note: Values for 2019-20 are revised estimates and 2020-21 are budget estimates.
Sources: Union Budgets 2011-12 to 2020-21; PRS.

Over the years, ground water usage has increased in areas where the resource was readily available due to its near universal availability, dependability, and low capital cost. Agriculture sector is the major consumer of ground water resources with about 89% of the total annual ground water extraction being used for irrigation (remaining 11% for domestic and industrial use).[39] Government incentives such as credit for irrigation and subsidies for electricity supply have further increased the dependency of agriculture on ground water.[40]

NITI Aayog in its Composite Water Management Index (2019) emphasised that agriculture policies that limit MSPs and subsidies for water-intensive crops (such as sugarcane, wheat, and rice) in regions with declining water tables, can significantly bring down water demand from the agriculture sector.[41] Further, providing better price support for crops such as pulses and oilseeds (which require less water) would incentivise the production of these crops.[42]

The 15th Finance Commission noted that under the Jal Jeevan Mission, 63% of rural habitations are being provided piped water supply from ground water sources.[14] It highlighted that this will become unsustainable, given the highly depleted water table in the country.[14]

The Commission recommended the following to reduce the dependence on ground water: (i) fixing price on water on graded basis, where higher consumption entails higher charges, (ii) greater reliance on surface water for schemes such as Jal Jeevan Mission, and (iii) incentivising creation of rainwater harvesting structures (including stricter implementation of laws) and reuse of greywater.[14]

Ground water contamination

Ground water contamination is the presence of certain pollutants in ground water that are in excess of the limits prescribed for drinking water.[43] The Central Ground Water Board (2018) noted that concentration of contaminants such as fluoride, arsenic, nitrate, and iron in ground water beyond the permissible limits can lead to environmental issues and health problems. Table 8 shows the number of states and districts affected by select geogenic contaminants as of 2020.

Table 8: States and districts affected by geogenic contamination in ground water (2020)

Geogenic contaminants	Number of affected states/UTs	Number of affected districts
Arsenic (> 0.01 mg/l)	21	152
Fluoride (> 1.5 mg/l)	23	370
Nitrate (> 45 mg/l)	23	423
Iron (> 1mg/l)	27	341

Source: Unstarred Question 1944, Lok Sabha, Ministry of Jal Shakti, September 22, 2020; PRS.

Further, as of February 2020, 3% (51,952) of the total habitations (17,24,423) in India were affected by contamination of ground water.[14]

The 15th Finance Commission noted that the number of quality-affected habitations may rise as deeper drilling for drinking water sources may lead to chemical contamination of ground water.[14]

The National Water Quality Sub-Mission was launched in March 2017 to provide safe drinking water to 27,544 arsenic/fluoride affected rural habitations in the country, over a span of four years.[29]

The Standing Committee on Drinking Water and Sanitation (2019-20) observed that out of these habitations, 11,884 habitations (43%) have been covered under the scheme. 4,100 habitations (15%) have seen an improvement in quality on retesting or have been covered under a state plan.[29]

---

1 Background on Jal Jeevan Mission, Ministry of Jal Shakti, https://jalshakti-ddws.gov.in/sites/default/files/JJM_note.pdf.

2 "Healthcare takes centre stage, finally!", Chapter 5, Volume I, Economic Survey (2020-21), February 1, 2021, https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap05_vol1.pdf.

3 Annual Report 2017-18, Ministry of Drinking Water and Sanitation, https://jalshakti-ddws.gov.in/sites/default/files/Annual_Report_2017-18_English.pdf.

4 Review of Sanitation Programme in Rural Areas, 8th Report, Committee on Estimates 2014-15, Lok Sabha, http://164.100.47.193/lsscommittee/Estimates/16_Estimates_8.pdf.

5 About SBM, Swachh Bharat Mission-Gramin, http://swachhbharatmission.gov.in/SBMCMS/about-us.htm.

6 Review of Sanitation Programme in Rural Areas, Committee on Estimates 2014-15, Lok Sabha, http://164.100.47.193/lsscommittee/Estimates/16_Estimates_8.pdf.

7 Swachh Bharat Mission- Gramin, Ministry of Jal Shakti, last accessed on February 4, 2021, http://sbm.gov.in/sbmdashboard/IHHL.aspx.

8 Open Defecation Free (ODF) Sustainability Guidelines, Ministry of Drinking Water and Sanitation, http://swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/guidelines/Guidelines-ODF-sustainability.pdf.

9 Swachh Bharat Mission- Gramin Guidelines, Ministry of Jal Shakti, last accessed on February 4, 2021, https://jalshakti-ddws.gov.in/sites/default/files/SBM%28G%29_Guidelines.pdf

10 Swachh Bharat Mission- Gramin Dashboard, last accessed on February 4, 2021, https://sbm.gov.in/sbmdashboard/ODF.aspx.

11 Status of Declared and Verified villages, Swachh Bharat Mission- Gramin Dashboard, Ministry of Jal Shakti, last accessed on February 4, 2021, https://sbm.gov.in/sbmReport/Report/Physical/SBM_VillageODFMarkStatus.aspx.

12 "Cabinet approves Swachh Bharat Mission (Grameen) Phase-II", Press Information Bureau, Cabinet, February 19, 2020.

13 'Shri Gajendra Singh Shekhawat launches Swachh Bharat Mission (Grameen) Phase-II', Press Information Bureau, Ministry of Jal Shakti, March 4, 2020.

14 Finance Commission Report (2021-26), Volume III, February 1, 2021, file:///C:/Users/Prs/Downloads/XVFC%20Complete_Report.pdf

15 Lok Sabha Unstarred Question No. 891, Department of Drinking Water and Sanitation, Ministry of Jal Shakti, answered on September 17, 2020, http://164.100.24.220/loksabhaquestions/annex/174/AU891.pdf.

16 Standing Committee on Demand for Grants (2020-21), Department of Drinking Water and Sanitation, Ministry of Jal Shakti, March 5, 2020, http://164.100.47.193/lsscommittee/Water%20Resources/17_Water_Resources_4.pdf.

17 Functions, Department of Water Resources, River Development and Ganga Rejuvenation, http://mowr.gov.in/about-us/functions.

18 Climate, Climate Change and Agriculture, Economic Survey 2016-17, https://mofapp.nic.in/economicsurvey/economicsurvey/pdf/082-101_Chapter_06_ENGLISH_Vol_01_2017-18.pdf.

19 Lok Sabha Unstarred Question No.2045, Ministry of Jal Shakti, July 4, 2019, http://164.100.24.220/loksabhaquestions/annex/171/AU2054.pdf.

20 Website, Pradhan Mantri Krishi Sinchayi Yojna, last accessed on February 4, 2021, https://pmksy.gov.in/.

21 Demand no. 61, Department of Water Resources, River Development and Ganga Rejuvenation, Union Budget 2020-21, https://www.indiabudget.gov.in/doc/eb/sbe61.pdf.

22 "Implementation of PMKSY", Press Information Bureau, Ministry of Agriculture and Farmer Welfare, May 2016, https://pib.gov.in/newsite/PrintRelease.aspx?relid=145004.

23 Dashboard, Pradhan Mantri Krishi Sinchayi Yojna – Accelerated Irrigation Benefit Programme, Ministry of Jal Shakti, last accessed on February 5, 2021, http://pmksy-mowr.nic.in/aibp/.

24 Salient features, Pradhan Mantri Krishi Sinchayi Yojna, Ministry of Jal Shakti, http://mowr.gov.in/programmes/salient-features.

25 Dashboard, Common Area Development Programme, Ministry of Jal Shakti, last accessed on February 5, 2021, http://cadwm.gov.in/cadwm-dashboard/.

26 National Water Policy (2012), Ministry of Water Resources, http://mowr.gov.in/sites/default/files/NWP2012Eng6495132651_1.pdf.

27 Lok Sabha Unstarred Question No.2052, Ministry of Jal Shakti, September 22, 2020, http://164.100.24.220/loksabhaquestions/annex/174/AU2052.pdf.

28 Standing Committee on Demand for Grant (2020-21), Department of Water Resources, River Development and Ganga Rejuvenation, March 5, 2020, http://164.100.47.193/lsscommittee/Water%20Resources/17_Water_Resources_3.pdf.

29 "Standing Committee on Water Resources (2019-20)", Ministry of Jal Shakti – Department of Drinking Water and Sanitation, Demand for Grants (2019-20), http://164.100.47.193/lsscommittee/Water%20Resources/17_Water_Resources_2.pdf.

30 Lok Sabha Unstarred Question No.2837, Ministry of Jal Shakti, December 5, 2019, http://164.100.24.220/loksabhaquestions/annex/172/AU2837.pdf.

31 Targets and Achievements, National Mission for Clean Ganga, last accessed on February 4, 2021, http://35.154.100.225/nmcg/nmcgpmtmain.aspx.

32 Sustainable development and climate change, Volume 2, Economic Survey 2018-19. https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap05_vol2.pdf.

33 "20th Standing Committee on Water Resources (2017-18)", Ministry of Water Resources, River Development and Ganga Rejuvenation, Demand for Grants (2018-19),

http://164.100.47.193/lsscommittee/Water%20Resources/16_Water_Resources_20.pdf.

[34] "Action Taken by the Government on the Observations / Recommendations contained in the Third Report on Demands for Grants (2020-21)", Ministry of Water Resources, River Development and Ganga Rejuvenation, February 9, 2021, http://164.100.47.193/lsscommittee/Water%20Resources/17_Water_Resources_8.pdf.

[35] Water and Related Statistics, October 2019, Central Water Commission, http://www.indiaenvironmentportal.org.in/files/file/water-and-related-statistics-2019.pdf.

[36] 12th Five Year Plan, Planning Commission, 2013 http://planningcommission.gov.in/plans/planrel/fiveyr/12th/pdf/12fyp_vol1.pdf.

[37] Lok Sabha Unstarred Question No.737, Ministry of Jal Shakti, November 21, 2019, http://164.100.24.220/loksabhaquestions/annex/172/AU737.pdf.

[38] Lok Sabha Unstarred Question No. 1914, Ministry of Jal Shakti, answered on September 22, 2020, http://164.100.24.220/loksabhaquestions/annex/174/AU1914.pdf.

[39] Ground water year book, 2018-19, https://indiawris.gov.in/downloads/GW%20Year%20Book_2018-19_JAN%208.pdf

[40] Report of the Export Group on Ground Water Management and Ownership, Planning Commission, September 2007, http://planningcommission.nic.in/reports/genrep/rep_grndwat.pdf.

[41] Composite Water Management Index 2019, NITI Aayog, August 2019, https://niti.gov.in/sites/default/files/2019-08/CWMI-2.0-latest.pdf.

[42] Report of the High-Level Committee on Reorienting the Role and Restructuring of Food Corporation of India, January 2015, http://www.fci.gov.in/app/webroot/upload/News/Report%20of%20the%20High%20Level%20Committee%20on%20Reorienting%20the%20Role%20and%20Restructuring%20of%20FCI_English_1.pdf.

[43] Lok Sabha Unstarred Question No. 2157, Ministry of Water Resource, River Development and Ganga Rejuvenation, answered on March 10, 2015, http://164.100.47.132/LssNew/psearch/QResult16.aspx?qref=14305. .

Annexure

Table 9: State-wise ODF declared and verified villages (as of 2020)

State	Total Villages	Total declared	Total Verified	Total Verified (2nd level)	% Verified 2nd level
Andaman and Nicobar Islands	192	192	192	192	100%
Andhra Pradesh	18,841	18,841	18,841	18,819	100%
Arunachal Pradesh	5,389	5,389	5,389	5,389	100%
Assam	25,503	25,503	25,503	15,245	60%
Bihar	38,691	38,691	37,317	-	-
Chandigarh	13	13	13	-	-
Chhattisgarh	18,769	18,769	18,769	18,769	100%
Dadar and Nagar Haveli and Daman and Diu	95	95	95	95	100%
Goa	365	365	18	-	-
Gujarat	18,261	18,261	18,261	18,261	100%
Haryana	6,908	6,908	6,908	6,908	100%
Himachal Pradesh	15,921	15,921	15,921	10,326	65%
Jammu and Kashmir	7,263	7,263	7,195	-	-
Jharkhand	29,564	29,564	29,333	164	1%
Karnataka	27,044	27,044	26,900	-	-
Kerala	2,027	2,027	2,027	2,027	100%
Ladakh	302	302	302	5	2%
Lakshadweep	9	9	9	-	-
Madhya Pradesh	50,228	50,228	50,228	3	0%
Maharashtra	40,533	40,511	40,505	-	-
Manipur	2,556	2,556	2,556	-	-
Meghalaya	6,028	6,028	6,028	2,101	35%
Mizoram	696	696	696	537	77%
Nagaland	1,451	1,451	1,142	-	-
Odisha	46,785	46,785	46,785	-	-
Puducherry	265	265	265	265	100%
Punjab	13,726	13,726	13,700	13,700	100%
Rajasthan	42,860	42,860	42,860	-	-
Sikkim	403	403	403	382	95%
Tamil Nadu	12,525	12,524	12,524	-	-
Telangana	14,200	14,200	14,149	6,822	48%
Tripura	1,178	1,178	646	142	12%
Uttar Pradesh	97,640	97,640	97,623	23,213	24%
Uttarakhand	15,473	15,473	15,473	14,340	93%
West Bengal	41,461	41,461	41,377	22,362	54%
Total	**6,03,165**	**6,03,142**	**5,99,953**	**1,79,945**	**30%**

Sources: Management Information System Reports of SBM; PRS.

Table 10: Status of level of ground water development across states (2017)

State	Ground water development (%)
Andhra Pradesh	44
Arunachal Pradesh	0
Assam	11
Bihar	46
Chhattisgarh	44
Delhi	120
Goa	34
Gujarat	64
Haryana	137
Himachal Pradesh	86
Jammu & Kashmir	29
Jharkhand	28
Karnataka	70
Kerala	51
Madhya Pradesh	55
Maharashtra	55
Manipur	1
Meghalaya	2
Mizoram	4
Nagaland	1
Odisha	42
Puducherry	74
Punjab	166
Rajasthan	140
Sikkim	0
Tamil Nadu	81
Telangana	65
Tripura	8
Uttar Pradesh	70
Uttarakhand	57
West Bengal	45
Total	**63**

Note: Total includes union territories; Data as of 2017.
Sources: Dynamic Ground Water Resources of India, 2017, Central Ground Water Board; PRS

Demand for Grants: Telecommunications

Department of Telecommunications under the Ministry of Communications is responsible for policy, licensing, monitoring, regulation, research and international co-operation in the field of telecommunications. The Department administers several Public Sector Undertakings involved in providing telecommunication services, consultancy, and equipment manufacturing. This note presents the allocation to the Department in 2021-22, and trends in expenditure over the last few years and discusses some of the issues in the sector.

Overview of Finances

Expenditure[1,2]

In 2021-22, the Department has been allocated Rs 58,737 crore, which is a 44% annual increase over the actual expenditure in 2019-20. One of the key reasons for the increase in the allocation to the Department is the revival plan for BSNL and MTNL that was approved by the Union Cabinet in October 2019.[3]

The revival plan provides for: (i) capital infusion for allotment of 4G spectrum and (ii) costs to be incurred towards voluntary retirement scheme. Consequently, allocation to the department saw a significant increase at the budget stage in 2020-21. However, at the revised stage, the allocation towards a majority of the components of the revival plan has been cut and instead shifted in the budget for 2021-22. This is the key reason for: (i) the 44% annual increase in allocation for 2021-22 as compared to 2019-20, and (ii) the 38% decrease in allocation in 2020-21 from the budget to the revised stage.

Table 1: Allocation to the Department of Telecommunications (in Rs crore)

	2019-20	2020-21 BE	2020-21 RE	2021-22 BE	CAGR (19-20 to 21-22)
Revenue	23,466	40,757	36,749	32,803	18%
Capital	4,929	25,675	4,360	25,934	129%
Total	**28,395**	**66,432**	**41,109**	**58,737**	44%

Note: RE: Revised Estimates; BE: Budget Estimates.
Sources: Expenditure Budget; Union Budget 2021-22; PRS.

The capital component of the revival plan comprises capital infusion worth Rs 20,410 crore for 4G spectrum. No allocation has been made towards this in 2020-21 at the revised stage. Instead, the same amount has been allocated in 2021-22 at the budget stage. As a result, there is a substantial decrease in the allocation towards capital expenditure in 2020-21 at the revised stage and a significant increase in 2021-22.

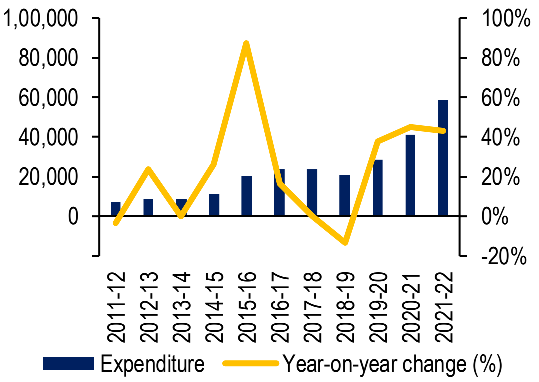
Table 2: Allocation towards Revival Plan for BSNL and MTNL (Rs crore)

Particular	2020-21 BE	2020-21 RE	2021-22 BE
Capital infusion for 4G spectrum- BSNL	14,115	0	14,115
Capital infusion for 4G spectrum-MTNL	6,295	0	6,295
Implementation of VRS (BSNL/MTNL)	3,295	2,160	3,000
Ex-gratia payment to voluntarily retiring employees (BSNL/MTNL)	9,899	11,206	0
Grants for payment of GST-BSNL	2,541	0	2,541
Grants for payment of GST-MTNL	1,133	0	1,133
Total	**37,278**	**13,366**	**27,084**

Note: RE: Revised Estimates; BE: Budget Estimates.
Sources: Expenditure Budget; Union Budget 2021-22; PRS.

Figure 1 depicts the trend in the expenditure during the 2011-22 period. During this period, the expenditure has grown at a CAGR of 15%. The higher increase in expenditure since 2015-16 as compared to previous years is due to allocation towards Bharatnet (a scheme to connect all gram panchayats through optical fibre) and Optical Fibre Network for Defence Services schemes. The increase in 2020-21 and 2021-22 is mainly due to expenditure towards revival plan for BSNL and MTNL.

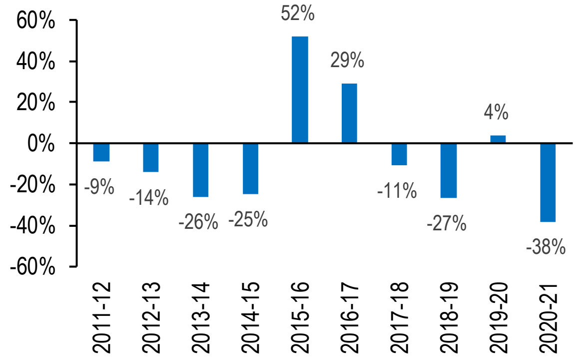
Figure 1: Trend in expenditure (in Rs Crore)



Note: Revised Estimates used for 2020-21. Budget Estimates used for 2021-22.
Sources: Expenditure Budget; Union Budget Documents; PRS.

Over the last 10 years, the actual expenditure by the Department has varied significantly as compared to the budget estimates (Figure 2). In 2015-16 and 2016-17, actual expenditure exceeded budget estimates by 52% and 29% respectively. In 2019-20, actual expenditure was 4% higher than the budgeted expenditure. As per the revised estimates of 2020-21, expenditure is estimated to be 38% less than the budget estimates.

Figure 2: Underspending – Department of Telecommunications (2011-21)



Note: Revised Estimates used for 2020-21.
Sources: Expenditure Budget; Union Budget Documents; PRS.

Major Expenditure Heads

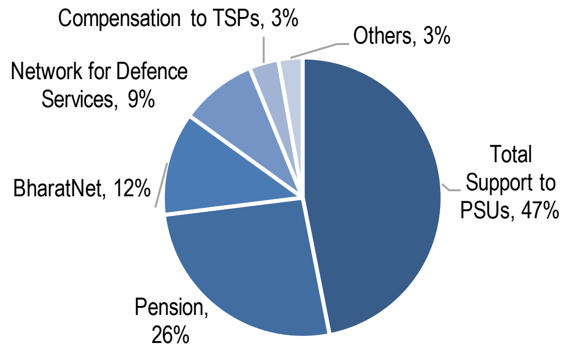
In 2021-22, the allocation towards support to Public Sector Undertakings (PSUs) is 47% of the total allocation for the department (Rs 27,547 crore). Of this, Rs 26,244 crore (95%) has been allocated towards the revival plan for BSNL and MTNL (details in Table 2). The next highest allocation is towards pension (26%), followed by Bharatnet (12%), and network for defence services scheme (9%). Allocation towards Bharatnet in 2021-22 is almost four times the allocation in 2019-20.

Table 3: Major expenditure heads in 2021-22 (in Rs crore)

Expenditure Head	2019-20 Actuals	2020-21 RE	2021-22 BE	CAGR (2019-20 to 2021-22)
Total support to PSUs	6,083	13,941	27,547	113%
Pension	13,451	14,481	15,350	7%
Bharatnet	1,729	5,500	7,000	101%
Network for defence services	4,705	4,000	5,200	5%
Compensation to TSPs	1,196	1,700	2,000	29%
Others	1,231	1,487	1,640	15%
Total	**28,395**	**41,109**	**58,737**	**44%**

Note: BE – Budget Estimate; RE – Revised Estimate; TSP: Telecom Service Providers.
Sources: Expenditure Budget; Union Budget 2021-22; PRS.

Figure 3: Composition of expenditure in 2021-22



Note: TSP – Telecom Service Providers
Sources: Expenditure Budget; Union Budget 2021-22; PRS.

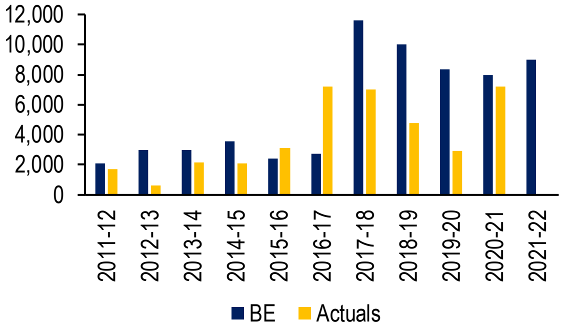
Universal Service Obligation Fund

The Universal Service Obligation Fund (USOF) has been established to provide widespread, non-discriminatory, and affordable access to quality Information and Communication Technology services to people in rural and remote areas.

The resources for the fund are raised through a Universal Access Levy (UAL) which is 5% of the Adjusted Gross Revenue (AGR) earned by all the operators under various licenses currently.[4] Adjusted Gross Revenue is the value of gross revenue after deduction of taxes and roaming/PSTN charges from Gross Revenue. UAL is first credited to the Consolidated Fund of India and then disbursed to the USOF as per the budgetary proposal of the Department of Telecommunications. The schemes being funded through USOF include: (i) Bharatnet, (ii) setting up of towers in left-wing extremism affected areas, and (iii) comprehensive telecom development plan for the north-east region.

A total expenditure of Rs 9,000 crore from this fund has been allocated for 2021-22. This is an annual increase of 75% over 2019-20. In recent years, actual expenditure from USOF has been considerably less than the budget estimates. In 2019-20, actual expenditure from USOF was 65% less than the budget estimate. The corresponding figure for 2017-18 and 2018-19 was 52% and 40%, respectively.

Figure 4: Expenditure from USOF (in Rs crore)



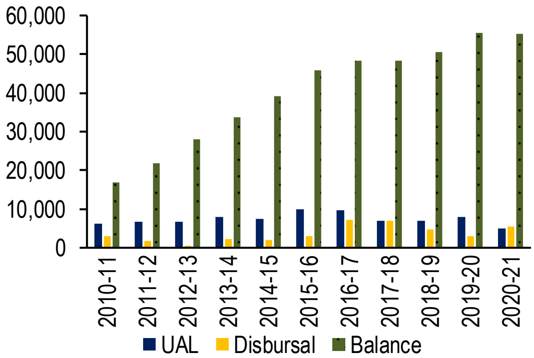
Note: Revised Estimates used for 2020-21.
Sources: Expenditure Budget; Union Budget Documents; PRS.

Balance of Funds under USOF

In its audit report of the Ministry of Communications for the FY 2017-18, the Comptroller and Auditor General of India (CAG) observed that a large amount earned as UAL is yet to be transferred to the USOF.[5] As of December 2020, a total of Rs 55,217 crore is yet to be transferred to the USOF by the central government.[6] Disbursal to the USOF has been a small fraction of UAL over the years. A total of Rs 81,540 crore has been earned as UAL during the 2010-21 period, out of which only Rs 40,112 crore has been disbursed (49%).[6]

The gap between disbursal and UAL has been high over the years, which has led to a rise in balance (Figure 5). Note that in January 2015, the Telecom Regulatory Authority of India (TRAI) had observed that the Department has not been able to devise enough schemes to utilise the earnings of UAL.[7] It also recommended reducing UAL from 5% to 3%.[7] The Standing Committee on Information Technology (2018) noted that with increasing outlay on schemes including Bharatnet, Mobile Towers in Left Wing Extremism Affected Areas Phase-II and Comprehensive Telecom Development Plan for the North-East, the utilisation of USOF funds will improve.[4]

Figure 5: UAL vs Disbursal vs Balance of USOF 2010-21 (in Rs crore)



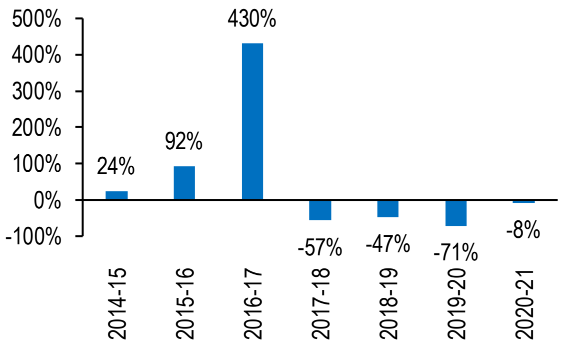
Note: UAL: Universal Access Levy; Disbursal: Amount transferred to USOF; Balance: Balance at the end of that Financial Year.
Sources: USOF Website as accessed on February 13, 2021; PRS.

Bharatnet

Bharatnet aims to create a network to connect all the Gram Panchayats (approx. 2.5 lakh GPs) by broadband by laying around 6.5 lakh km of optical fibre. It seeks to provide all telecom service providers with non-discriminatory access to the network. These service providers include mobile operators, Internet Service Providers (ISPs), Cable TV operators, content providers. Bharat Broadband Network Limited (BBNL) is a special purpose vehicle to create, operate, maintain, and manage the BharatNet infrastructure. The project is financed through the USOF. The estimated total cost of the project is Rs 42,068 crore.[4]

BharatNet is divided into three phases. Phase-I to connect 1.2 lakh GPs was completed in December 2017. Phase-II to connect the remaining GPs is underway. Phase-III is earmarked for future purposes. The scheme also aims to provide last-mile connectivity through Wi-Fi by creating five access points per GP (12.5 lakh Wi-Fi hotspots).[8]

Figure 6: Underspending-Bharatnet (2014-21)



Note: Revised Estimates used for 2020-21.
Sources: Expenditure Budget; Union Budget Documents; PRS.

In 2021-22, Rs 7,000 crore has been allocated towards Bharatnet, an annual increase of 101% over 2019-20. Between 2017-18 and 2019-20, the actual expenditure under the scheme was much lower as compared to the budget estimates. In 2020-21, the expenditure is estimated to be 8% lower than the budget estimates (Figure 6).

Delay in Completion

The Standing Committee on Information Technology (2018) noted that although approved in 2011, the initial target of BharatNet had to be revised in 2014 due to inadequate planning and design, and unpreparedness to address the issues.[9] Under the revised deadline, the phase-I was due by March 2017 but could be completed by December 2017.[9] The phase-II which was to be initially completed by March 2019, the target was then revised to March 2020.[9, 10]

As of February 2021, the project has not been completed. The Standing Committee on Information Technology (2020) noted that the project is now estimated to be completed by August 2021.[11] Thus, the estimated delay in the completion of phase-II is about 2 years and 4 months. Table 4 shows the status of BharatNet as of February 2020.[12,13]

Table 4: Status of BharatNet (February 2020)

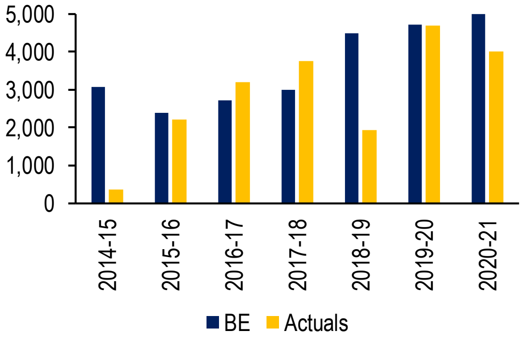
Parameter	Target	Achievement	Achievement in %
Length of OFC laid*	6.5 lakh km	5.0 lakh km	77%
Number of panchayats where OFC laid*	2.5 lakh	1.65 lakh	66%
Number of panchayats which are service-ready*	2.5 lakh	1.53 lakh	61%
Number of panchayats where Wi-Fi installed#	2.5 lakh	1.05 lakh	42%
Number of panchayats where Wi-Fi operational#	2.5 lakh	0.64 lakh	26%

Note: *as of February 12, 2021, #as of February 15, 2021.
Sources: Website of BBNL as accessed on February 17, 2021; PRS.

Network for Defence Services

The Network for Defence Services project aims to provide a dedicated pan-India optical fibre cable-based network for use by defence services. The original total sanctioned cost of the project was Rs 13,334 crore.[4] In May 2018, the central government announced that the budget of the project has been increased to Rs 24,664 crore.[14] BSNL is the implementing agency for the project. A total of 60,000 km of the optical fibre network is to be laid under this project. In 2021-22, Rs 5,200 crore has been allocated towards this project, an annual increase of 5% over 2019-20. Under this scheme, in 2018-19, only 43% of the allotted fund was utilised. In 2020-21, the expenditure is estimated to be 20% less than the budget estimates (Figure 7).

Figure 7: Allocation towards Network for Defence Services



Note: Revised Estimates used for 2020-21.
Sources: Expenditure Budget; Union Budget Documents; PRS.

Delay in completion

The network for defence services project was to be completed by July 2015.[4] The revised deadline for completion was set for May 2020, however, the target was subsequently revised to December 2020.[14] The Standing Committee on Information Technology (2018) had observed that the delay has resulted in massive cost overrun from the initial estimation of Rs 8,098 crore in 2009 to Rs.24,664 crore in 2018 (205% increase).[4]

Non-Tax Revenue from communication services[15, 16]

Communication services are one of the major sources of non-tax revenue of the central government. In 2016-17, non-tax revenue from communication services was the largest contributor to the overall non-tax revenue of the central government, accounting for 26% of the total.[17] This includes receipts from spectrum auctions, one-time fee from new operators and recurring license fees and spectrum charges from telecom service providers which is a percentage share of the Adjusted Gross Revenue (AGR) of the operators.

In 2021-22, non-tax revenue from communication services is estimated to be Rs 53,987 crore, an annual decrease of 12% over 2019-20. In 2020-21, at the budget stage, non-tax revenue from communication services was projected to be Rs 1,33,027 crore. However, as per the revised estimates, this revenue is estimated to be Rs 33,737 crore, 75% less than the budget estimate.

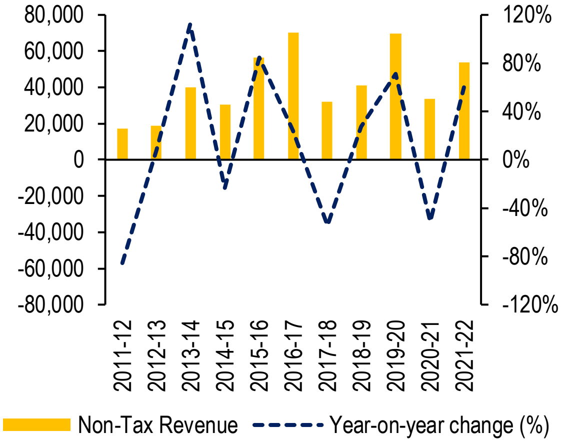
Table 5: Non-tax revenue-communication services (in Rs crore)

2019-20 Actuals	2020-21 BE	2020-21 RE	2021-22 BE	CAGR (19-20 to 21-22)
69,846	1,33,027	33,737	53,987	-12%

Note: RE: Revised Estimates; BE: Budget Estimates.
Source: Receipt Budget; Union Budget 2021-22; PRS.

Although budget documents do not provide clarity, the significant increase in 2020-21 at the budget stage could be due to: (i) anticipated recovery of past dues from the service providers as per the Supreme Court decision in October 2019 on the definition of gross revenue, and (ii) spectrum auction planned during the financial year.[18] Note that process for auction of the certain spectrum has been initiated in January 2021 and the auction is likely to be conducted on March 1, 2021.[19] In November 2019, the Union Cabinet had approved deferred payment of spectrum auction instalments due for years 2020-21 and 2021-22 to provide relief to telecom service providers.[20]

Figure 8: Non-tax revenue-communication services (In Rs crore) (2011-21)



Note: Revised Estimates used for 2020-21. Budget Estimates used for 2021-22.
Sources: Union Budgets, 2011-21; PRS.

At the end of 2019-20, the arrears of non-tax revenue from communication services is 34% of the total arrears of non-tax revenue of the central government. Of the non-tax revenue overdue by more than five years, the arrears of communication services comprise a significant portion of the total arrears (42%).

Table 6: Arrears of non-tax revenue from communication services (in Rs crore) (at the end of reporting the year 2018-19)

Duration (Year)	Arrear-Communications	Arrear-Overall	%Share*
0-1	2,263	20,374	11%
1-2	2,687	23,329	12%
2-3	9,661	31,730	30%
3-5	9,630	41,457	23%
>5	89,638	2,15,539	42%
Total	**1,13,879**	**3,32,429**	**34%**

Note: * % share indicates the share of non-tax revenue from communication services in the total arrears of non-tax revenue of the central government.
Source: Receipt Budget; Union Budget 2021-22; PRS.

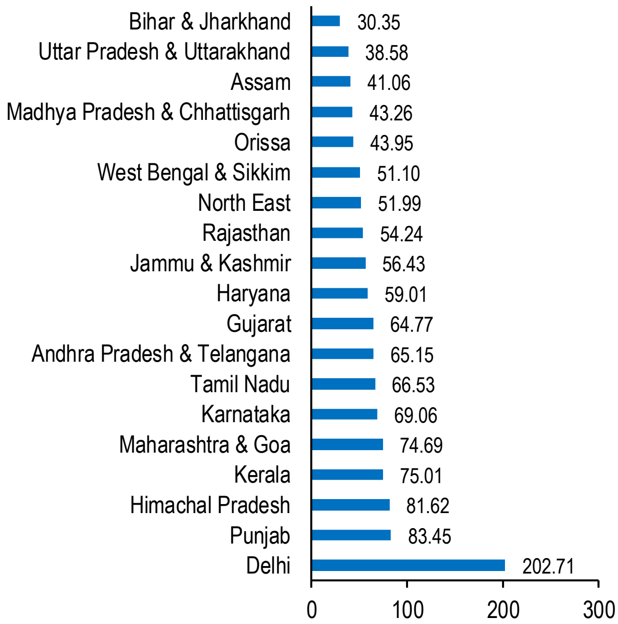
Issues for Consideration

Digital divide

COVID-19 has brought focus on access to communication services. During the nation-wide lockdown, internet access became crucial for adults to work from home and children to access education. However, notable gaps exist in India with regard to access to telecom services and use of internet. International Telecommunications Union (ITU, 2019) notes that barriers are often related to age, gender, socioeconomic status, and geography.[21] The Department of Telecommunications (2020) had noted that India has become the global leader in monthly data consumption.[22] The Department also noted that the cost of data has reduced substantially thereby enabling affordable internet access.[22] Following trends were observed with regard to the use of internet services in India before the onset of COVID-19 pandemic:

Regional Divide: The number of internet subscribers per 100 inhabitants for the country on aggregate was 55.1 as of March 2020. This was lower than the global average for developing countries in 2020 as per ITU (65.1).[23] A substantial inter-state variation is seen on this parameter (Figure 10). This number was much lower for the service areas of Bihar-Jharkhand (30.4) and Uttar Pradesh-Uttarakhand (38.6). In comparison, services areas in Punjab (83.5), Himachal (81.6), and Kerala (75) performed considerably better than the national average on this parameter.

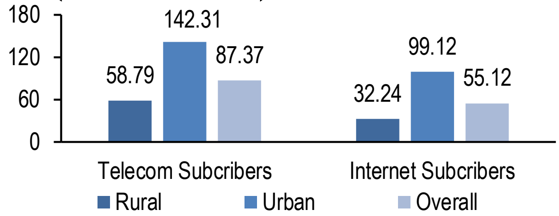
Figure 10: Service-area wise internet subscribers per 100 inhabitants (as of March 2020)



Note: Maharashtra & Goa includes Mumbai circle. Tamil Nadu includes Chennai circle. West Bengal & Sikkim includes Kolkata circle. Uttar Pradesh & Uttarakhand comprises UP East and UP West circles. North-East comprises Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. Service area also includes adjoining union territories.
Sources: Performance Indicator Reports-March 2020, TRAI; PRS.

Rural-Urban Divide: As of March 2020, while the number of internet subscribers per 100 inhabitants in urban areas was 99.1, the corresponding number for rural areas was 32.2, almost two-thirds less (Figure 9). The Standing Committee on Information Technology (2020) had observed that as of March 2020, there were 7,789 villages in the country without telecom connectivity.[11]

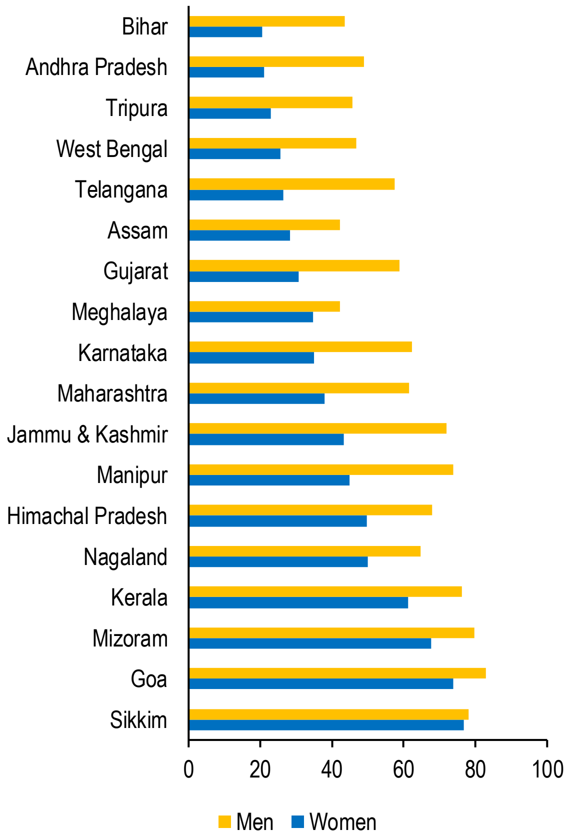
Figure 9: Subscribers per 100 inhabitants in India (as of March 2020)



Source: Performance Indicator Reports-March 2020, TRAI; PRS.

Gender gap**:** The first phase of the 5th round of the National Family Health Survey (2019-20) measured the proportion of men and women who have ever used internet across 22 states and union territories.[24] Across all states, the proportion of men who had used the internet was higher than women, with the difference being higher than 25% point in states such as Telangana, Gujarat, and Andhra Pradesh. In states such as Andhra Pradesh, Bihar, and Tripura, less than 25% of the surveyed women had ever used internet. Across states, the gap between proportion of men and women was wider in rural areas as compared to urban areas.

Figure 11: Adults in 15-49 years age group who have ever used internet (2019-20, Figures in %)



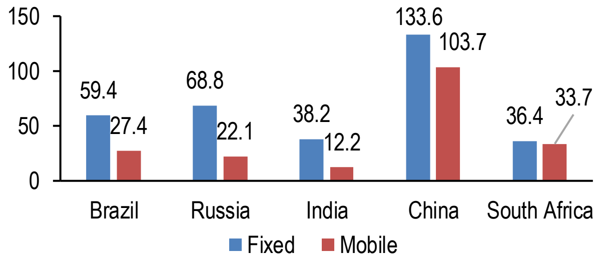
Source: Phase-I of Fifth Round of National Family Health Survey; PRS.

Access to broadband

Communication can be classified among broadband and narrowband based on the bandwidth required for communication. The broadband communication uses a higher bandwidth and provides better speed. Telecom Regulatory Authority of India (2020) had observed that in the post-COVID-19 pandemic era, there will be an increasing reliance on the broadband connectivity and demand for these services is likely to grow much faster.[25] TRAI observed that India needs to improve in terms of access to fixed broadband as well as the speed of broadband. At the end of March 2020, only 7.6 out of 100 households had access to fixed broadband.[25]

TRAI noted that as per a June 2020 report by a private firm (Ookla), India experiences download speeds of 12 Mbps in case of mobile broadband and around 38 Mbps in case of fixed broadband.[25] The corresponding global averages are 35 Mbps and 78 Mbps, respectively.[25] India ranked 129th among 138 nations in mobile broadband speed and 75th among 174 countries in fixed broadband speed according to the report by Ookla.[25] TRAI observed that India's broadband speed is the lowest among the BRICS countries (Figure 12).[25] Note that the National Digital Communications Policy 2018 seeks to provide broadband connectivity at 50 Mbps to every citizen by 2022.[25]

Figure 12: Broadband speed in BRICS countries



Source: TRAI; PRS.

In India, as of March 2020, 92% of internet subscribers in India use a broadband connection.[25] However, a broadband connection in India is defined to have a minimum download speed of 512 kbps (kilo bits per second) to an individual subscriber. In other countries, this threshold is defined at a higher level. In USA, UK, and China, it is defined to be 25 Mbps (mega bits per second), 24 Mbps, and 20 Mbps, respectively.[25]

India's preparedness for 5G

5G is the next technology frontier in the telecom sector. According to the High-Level Forum of the Department on 5G, 5G is predicted to create a cumulative economic impact of USD one trillion in India by 2035.[26] As of January 2021, 118 operators in 59 countries have deployed 5G network.[27] Mostly, 5G has been launched partially in these countries. In India, commercial rollout of 5G is yet to happen. The Standing Committee on Information Technology (2021) examined India's preparedness for 5G.[27] The Committee noted that sufficient preparatory work has not been undertaken for the launch of 5G services in India. It highlighted: (i) inadequate availability of spectrum, (ii) high spectrum prices, (iii) poor development of use cases for 5G, (iv) low status of fiberisation, and (v) deficient backhaul capacity, as some of the key concerns.[27] It noted that as of January 2021, 5G trials have not been permitted by the department.[27]

Table 7: Deployment of telecom technology-India vis-a-vis World

Technology	World	India
2G	1991	1995
3G	1998	2008
4G	2008	2015
5G	2019	-

Source: "21st Report: India's preparedness for 5G", February 2021, Standing Committee on Information Technology; PRS.

Allocation of 5G spectrum

Allocation of new bands of the spectrum is crucial for the rollout of 5G. However, the auction of 5G spectrum is still pending. The Committee noted the concerns of the telecom companies that the reserve price set by TRAI (Rs 492 crore per MHz) for the 5G spectrum is exorbitantly high.[27] It observed that considering the financial stress in the sector and that 5G ecosystem is yet to be developed, high reserve price may have an adverse impact on the abilities of service providers to roll out 5G.[27] The Committee further noted that based on the current availability of spectrum, approximately 50 MHz spectrum per operator can be ensured. This is substantially lower than the global average (about 100 MHz).[27] It noted that in case of 4G too, the average spectrum per operator in India is around one-fourth of the global average.[27] The Committee observed that there is an urgent need for audit of all allocated spectrum for detecting under-utilisation and subsequently rationalising the allocation of spectrum.[27]

Spectrum Fees and Taxes

The Economic Survey of India (2017-18) noted that the telecom sector is facing an issue of higher spectrum charges.[28] It observed that lower spectrum charges will augment the spread of telecommunication services and will help in socio-economic transformation.[28]

TRAI (2015) had observed that the total effective rate of the license-related levy has gone up significantly in the recent past and that spectrum prices in the country are amongst the highest in the world.[7] The total taxes and levies are as high as 30% of the revenue of an operator.[7] This adversely impacts the need to continue a low tariff regime in the country. It had recommended that the license fee should be reduced from 8% to 6% by reducing Universal Access Levy from 5% to 3%.[7] As of January 2021, the license fee is 8%.[27] In 2017, TRAI, as well as the Department of Telecommunications, had recommended lowering General Service Tax (GST) from 18% to 5% and 12% respectively for the telecom sector.[29] The Standing Committee on Information Technology (2021) also recommended that the central government should consider rationalisation of levies and duties on the telecom sector.[27]

Promotion of domestic manufacturing of telecom equipment

The Standing Committee on Information Technology (2019) had observed that India is highly dependent on the import of telecom equipment.[30] During 2017-18 and 2018-19, India imported telecom equipment worth Rs 1.4 lakh crore and 1.2 lakh crore, respectively.[30] The Committee observed that this indicates a lack of requisite ecosystem for the promotion of domestic manufacturing.[30] Some of the reasons for the dependence on import are: (i) import of telecom equipment at zero duty as per existing tariff obligations under international treaties, (ii) low investment in research and development and creation of intellectual property rights, and (iii) lack of market access for indigenous manufacturers.[30] The Committee noted that imports are likely to increase substantially with the introduction of newer technology such as 5G.[30]

The Standing Committee on Information Technology (2021) also stressed on the importance of enhancing domestic manufacturing capabilities in view of the adoption of 5G. It observed that the ecosystem should be developed for complete manufacturing rather than just assembly, as manufacturing gives higher value addition. The Committee also highlighted the importance of promotion of research and development for the success of telecom manufacturing.[27] The Committee noted that in 2018, TRAI had proposed the creation of a Telecom Research and Development Fund with an initial corpus of Rs 1,000 crore for promoting research, innovation, and manufacturing of indigenous telecommunications equipment. It recommended that this fund should be created at the earliest.[27]

Essential Services status for Telecom

The Standing Committee on Information Technology (2021) recommended that telecommunications should be accorded the status of essential service and telecom infrastructure should be designated as a critical infrastructure of the country.[27]

[1] Demand No. 13, Demand for Grants, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/dg13.pdf.
[2] Expenditure Budget, Department of Telecommunications, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe13.pdf.
[3] "Union Cabinet approves revival plan of BSNL and MTNL and in-principle merger of the two", Cabinet, Press Information Bureau, , October 23, 2019, https://pib.gov.in/PressReleseDetail.aspx?PRID=1588848.
[4] "47th Report: Demands for Grants (2018-19) of Department of Telecommunications (Ministry of Communications)", Standing Committee on Information Technology, March 13, 2018, http://164.100.47.193/lsscommittee/Information%20Technology/16_Information_Technology_47.pdf.
[5] "Report No 21 of 2018, Compliance and Performance Audit of Ministry of Communications and Ministry of Electronics & Information Technology", CAG, 2018, https://www.cag.gov.in/sites/default/files/audit_report_files/Report_No_21_of_2018_Compliance_and_Performance_Audit_of_Union_Government_Ministry_of_Communications_.pdf.
[6] "Statement showing the balance of UAL amount available as potential fund under USO as on 31.12.2020", Universal Service Obligation Fund, Department of Telecommunications, website as accessed on February 13, 2021, http://www.usof.gov.in/usof-cms/usof-fund-status-table.jsp.
[7] "Recommendations on Definition of Revenue Base (AGR) for the Reckoning of Licence Fee and Spectrum Usage Charges", TRAI, January 6, 2015, https://main.trai.gov.in/sites/default/files/Reco-AGR-Final-06.01.2015_0.pdf.
[8] "Telecom at a Glance", Department of Telecommunications Website as accessed on July 1, 2019, http://dot.gov.in/sites/default/files/Telecom%20at%20a%20Glance.pdf?download=1.
[9] "50th Report: Progress of Implementation of BharatNet", Standing Committee on Information Technology, August 2018, http://164.100.47.193/lsscommittee/Information%20Technology/16_Information_Technology_50.pdf.
[10] Unstarred Question No 621, Rajya Sabha, Ministry of Communications, June 27, 2019, https://164.100.158.235/question/annex/249/Au621.pdf.
[11] "6th Report: Demand for Grants (2020-21) of Department of Communications (Ministry of Communications), Standing Committee on Information Technology, March 2020, http://164.100.47.193/lsscommittee/Information%20Technology/17_Information_Technology_6.pdf.
[12] "BharatNet Status as on January 31, 2020", Website of BBNL as accessed on February 7,2020, http://bbnl.nic.in/BharatNet.pdf.
[13] "BharatNet Usage Statistics as on 03.02.2020", Website of BBNL as accessed on February 7, 2020, http://www.bbnl.nic.in/usage2.pdf.
[14] "Cabinet approves enhancement of budget for implementation of Network for Spectrum for Defence Services", Cabinet, Press Information Bureau, May 16, 2018, http://www.pib.nic.in/PressReleseDetail.aspx?PRID=1532262.
[15] Non-Tax Revenue, Union Budget, 2021-22, https://www.indiabudget.gov.in/doc/rec/ntr.pdf.
[16] Arrears of Non-Tax Revenue, Union Budget, 2021-22, https://www.indiabudget.gov.in/doc/rec/annex6.pdf.
[17] "Annual Report 2017-18", Department of Telecommunications, http://dot.gov.in/sites/default/files/Telecommunications%20Annual%20Report%202018%20ENGLISH_0.pdf.
[18] Starred Question No 329, Lok Sabha, Ministry of Communications, December 11, 2019, http://164.100.24.220/loksabhaquestions/annex/172/AS329.pdf.
[19] "Auction to commence online from March 1, 2021", Press Information Bureau, Ministry of Communications, https://pib.gov.in/PressReleasePage.aspx?PRID=1686571.
[20] "Cabinet approves proposal for Mitigating financial stress being faced by the Telecom Services Sector", Cabinet, Press Information Bureau, November 20, 2019, https://pib.gov.in/PressReleseDetail.aspx?PRID=1592553.
[21] Website of International Telecommunications Union as accessed on February 16, 2021, https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx.
[22] Annual Report 2019-20, Department of Telecommunications, April 6, 2020, https://dot.gov.in/sites/default/files/Annual%20Report-2019-20%28%20English%29.pdf.
[23] Website of International Telecommunications Union as accessed on February 16, 2021,
[24] Key Indicators-22 States/UTs from Phase-I, 5th Round of National Family Health Survey, http://rchiips.org/NFHS/NFHS-5_FCTS/NFHS-5%20State%20Factsheet%20Compendium_Phase-I.pdf.
[25] "Consultation Paper on Roadmap to Promote Broadband Connectivity and Enhanced Broadband Speed", Telecom Regulatory Authority of India, August 20, 2020, https://trai.gov.in/sites/default/files/Broadband_CP_20082020_0.pdf.
[26] "Making India 5G Ready", Report of the 5G High Level Forum Prepared by Steering Committee, Department of Telecommunications, August 23, 2018, http://dot.gov.in/sites/default/files/5G%20Steering%20Committee%20report%20v%2026.pdf.
[27] "21st Report: India's preparedness for 5G", Standing Committee on Information Technology, February 2021, http://164.100.47.193/lsscommittee/Information%20Technology/17_Information_Technology_21.pdf.
[28] Economic Survey of India 2017-18, Volume 1, http://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf.
[29] Unstarred Question No 1509, Lok Sabha, Ministry of Communications, June 27,2017, https://eparlib.nic.in/bitstream/123456789/765718/1/AU1509_13_16.pdf.
[30] "First Report: Demands for Grants (2019-20) of Department of Telecommunications (Ministry of Communications)", Standing Committee on Information Technology, December 2019, http://164.100.47.193/lsscommittee/Information%20Technology/17_Information_Technology_1.pdf.

Demand for Grants: Housing and Urban Affairs

The Ministry of Housing and Urban Affairs formulates policies, coordinates activities of various agencies (at the state and municipal level), and monitors programmes in the area of urban development. It also provides states and urban local bodies (ULBs) with financial assistance through various centrally supported schemes. In 2017, the Ministry of Housing and Poverty Alleviation, and the Ministry of Urban Development were combined to form the Ministry of Housing and Urban Affairs.

This note looks at the expenditure incurred by the Ministry, the status of the various schemes implemented by it, and the issues faced with investment required for urban planning.

Overview of Finances

Allocation in Budget 2021-22

The total expenditure on the Ministry of Housing and Urban Affairs for 2021-22 is estimated at Rs 54,581 crore.[1] This is an annual increase of 14% over the actual expenditure for 2019-20. In 2021-22, the revenue expenditure of the Ministry is estimated at Rs 28,822 crore (53% of the total expenditure) and the capital expenditure is estimated at Rs 25,759 crore (47% of the total budget). Since 2014-15, the Ministry's revenue expenditure has been higher than its capital expenditure. This may indicate that the Ministry is spending less on creation of assets.

Table 1: Budget allocations for the Ministry of Housing and Urban Affairs (in Rs crore)

	2019-20 Actuals	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Revenue	22,749	36,482	28,822	13%
Capital	19,305	10,309	25,759	16%
Total	**42,054**	**46,791**	**54,581**	**14%**

Notes: BE – Budget Estimate; RE – Revised Estimate.
Sources: Demand No. 59, Ministry of Housing and Urban Affairs Union Budget 2021-22; PRS.

Expenditure trends

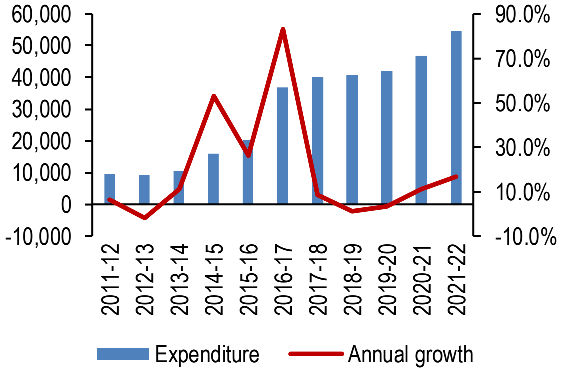
Between 2011 and 2021, the expenditure of the Ministry has increased at an average annual rate of 19% (Figure 1).

Key highlights from budget speech 2021-22

In the budget speech, the Finance Minister made the following announcements regarding the housing and urban development sector:

- The Jal Jeevan Mission (Urban) will be launched to ensure universal water supply in all 4,378 urban local bodies in India and enable liquid waste management in 500 cities under the AMRUT scheme. The Mission has an outlay of Rs 2.8 lakh crore for 2021-26.
- Urban Swachh Bharat Mission 2.0 will focus on: (i) sludge management, (ii) waste water treatment, (iii) source segregation of garbage, (iv) reduction in single-use plastics, (v) control of air pollution by waste management in construction, demolition and bio-remediation dump sites. The Mission will have an outlay of Rs 1.41 lakh crore between 2021-26.
- Metro rail networks will be expanded by using new technologies in Tier-1 and Tier-2 cities. Central funding of Rs 88,059 crore will be provided to four projects.
- Public bus transport services will be augmented by deploying public-private partnerships to finance and maintain over 20,000 buses. The scheme has been allocated Rs 18,000 crore.
- Affordable housing projects can avail a tax holiday until March 31, 2022. Eligibility for tax deductions for affordable housing announced in the 2019-20 budget has also been extended till March, 2022. This tax deduction can be of up to 1.5 lakh rupees and will be provided on interest paid on loans for self-occupied house owners.

Figure 1: Trend in expenditure (2011-22) (Rs crore)



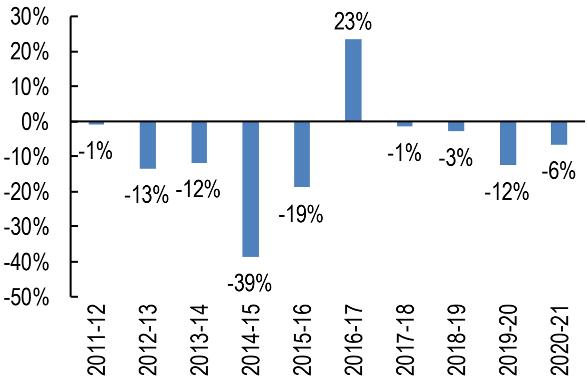
Note: For the years 2011-12 till 2015-16, the figures are a combination of the erstwhile Ministry of Housing and Urban Poverty Alleviation, and the Ministry of Urban Development. Values for 2020-21 and 2021-22 are revised and budget estimates respectively. All other figures are actuals.
Sources: Ministry of Housing and Urban Poverty Alleviation, and the Ministry of Urban Development budgets 2011-12 to 2015-16. Ministry of Housing and Urban Affairs budget documents 2015-16 to 2021-22; PRS.

The Standing Committee on Urban Development, (2020) had noted that the budgetary allocations to the Ministry were lower than the Ministry's demand between 2018-21.[2] This has also been observed in earlier budget allocations. For instance, in 2017-18, while the erstwhile Ministry of Urban Development projected an expenditure of Rs 68,410 crore, it was allocated Rs 34,212 crore in that year's budget.[3]

The Committee further suggested that with the implementation of schemes picking momentum, the allocation towards them should be increased for better implementation.[2] This would also supplement efforts of state governments to develop and maintain urban infrastructure.[2]

The Standing Committee on Urban Development (2019) noted that extra budgetary resources have been used to reduce the gap between the demand and the budgetary allocations.[4] However, the actual expenditure by the Ministry has been lower than the budget estimates since 2016-17 (Figure 2). The Standing Committee (2020) has recommended the Ministry to avoid such under-utilisation of funds.[2]

Figure 2: Deviation in actual expenditure from budgeted expenditure (2011-21)



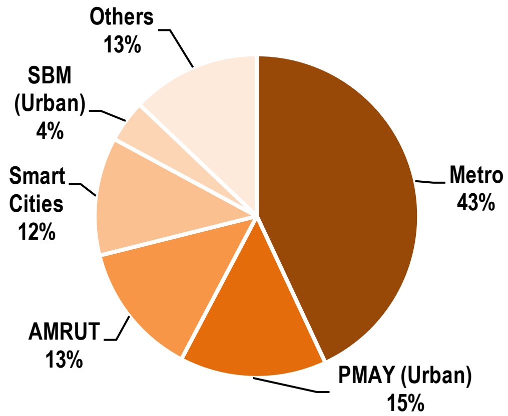
Note: For the years 2011-12 till 2015-16, the figures are a combination of the erstwhile Ministry of Housing and Urban Poverty Alleviation, and the Ministry of Urban Development. Values for 2020-21 are revised estimates. All other figures are actuals.
Sources: Union Budget 2011-12 to 2021-22; PRS.

Major schemes and issues

The Ministry implements several centrally sponsored schemes, and a few central sector schemes. These include: (i) Pradhan mantri Awas Yojana – Urban (PMAY-U), (ii) Atal Mission for Rejuvenation and Urban Transformation (AMRUT), (iii) 100 Smart Cities Mission, (iv) Swachh Bharat Mission – Urban (SBM-U), and (v) Deendayal Antyodaya Yojana-National Urban Livelihood Mission (DAY-NULM). The Ministry also develops and manages metro rail projects across the country.

Of the expenditure allocated to the Ministry in 2021-22, the highest allocation is towards metro projects at 43% of the total budget. The allocation towards the key schemes is shown in Table 2 and Figure 3.

Figure 3: Budgetary allocation for Ministry of Housing and Urban Affairs (2021-22)



Sources: Notes on Demand for Grants 2021-22, Ministry of Housing and Urban Affairs; PRS.

Table 2: Allocations in the Ministry (Rs crore)

	2019-20 Actual	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Metro	18,908	9,000	23,500	11%
PMAY (Urban)	6,848	21,000	8,000	8%
AMRUT	6,392	6,450	7,300	7%
Smart Cities	3,207	3,400	6,450	42%
SBM (Urban)	1,256	1,000	2,300	35%
DAY-NULM	732	795	795	4%
Projects in North-Eastern Region	363	125	120	-42%
Others	-	142	200	
Total	4,349	4,879	5,916	17%

Notes: BE – Budget Estimate; RE – Revised Estimate.
Sources: Expenditure Budget 2021-22; PRS.

Metro Rail Projects

The Ministry of Housing and Urban Affairs is responsible for urban transport which includes metro rail projects. Investments in these projects are made in various forms including grants, equity investments, debt, and pass-through assistance (grants given to the government which can be awarded to other organisations) for externally aided projects.

As of February 2021, metro rail systems are operational and under construction in 27 cities.[5]

702 km of metro lines are operational, while 1,016 km are under implementation.[5] These have been set up as a 50:50 joint venture between the central government and the respective state and union territory governments.

Allocation towards metro projects includes allocation towards the National Capital Region Transport Corporation of Delhi (the implementing agency for the Regional Rapid Transit System in the National Capital Region). In 2021-22, Rs 23,500 crore has been allocated towards metro projects. This is an annual increase of 24% increase over the actual expenditure in 2019-20. In 2020, the allocation towards metro projects was decreased by 55% in the revised estimates. The table below shows the trends in allocations and expenditure towards metro projects.

Table 3: Allocation towards metro projects (in Rs crore)

Year	Budgeted	Actuals	% utilised
2014-15	8,026	5,998	75%
2015-16	8,260	9,300	113%
2016-17	10,000	15,327	153%
2017-18	18,000	13,978	78%
2018-19	15,000	14,470	96%
2019-20	19,152	18,908	99%
2020-21*	20,000	9,000	45%
2021-22	23,500	-	-

Note: *Actuals for 2020-21 indicate Revised Estimates.
Sources: Ministry of Housing and Urban Affairs Budget documents 2014-15 to 2021-22; PRS.

High allocation: In 2021-22, the capital expenditure on metro projects is estimated to be 90% of the Ministry's total capital expenditure.

The Standing Committee on Urban Development (2017) noted that a high allocation towards metro projects leads to inadequate funds for other projects such as the PMAY(Urban) scheme.[3] The Standing Committee (2019) had recommended that state/UT governments must be consulted to find ways to reduce the huge outlay on metro works to enable adequate funding for other schemes.[4]

The Standing Committee (2020) while reviewing measures to reduce the cost of projects observed that with increased standardisation and use of newer technologies like MetroLite, the cost of projects had decreased.[6]

Planning of metro systems: The National Transport Development Policy Committee (NTDPC) report had observed that high speed mass transit systems such as metro rail do not always reduce door-to-door travel time. Door-to-door travel time is seen as the most relevant indicator for users.[7] Underground or elevated transport systems do not save time as compared to cars or two-wheelers, when trip distances are short, because time is lost in walking from ground level to the platform level. Metro rail systems are efficient only when the average trip distance is greater than 12 km. Indian cities, because of their mixed land use patterns and higher density development, have shorter trip lengths, and hence are better suited for non-motorised travel.

The NTDPC had recommended that the decision to implement metro rail projects should also consider the high-cost factor. Rail-based metro systems should be considered after examining the opportunity cost of investing in expensive fixed infrastructure.[7]

The NTDPC had recommended that metro rail projects should initially be limited to cities with population more than five million. Further, the cities should be able to cover all costs through user charges or fiscal costs. The NTDPC had also recommended that Indian cities should focus on improving their existing bus systems, adding bus rapid transit (BRT) systems, and improving non-motorised transport.

Last mile connectivity: The Standing Committee on Urban Development (2019) highlighted the need to promote door-to-door connectivity of the Delhi Metro. It had suggested that cab aggregator services could employ auto rickshaws and cycle rickshaws to remedy this.[4]

The Ministry has stated that as of September, 2020, there are 800 e-rickshaws are operational from 20 metro stations. Further, 124 feeder buses are run on 32 routes connecting 69 stations. E-scooter services are operational in four stations and cycle sharing services are provided in 16 metro stations.[2]

In September 2020, the Committee observed that steps taken to promote last mile connectivity were inadequate in view of rising ridership or in formulative stages of implementation.[2]

Pradhan Mantri Awas Yojana - Urban (PMAY-U)

The housing shortage is expected to reach two crore by 2022.[8] It was estimated that about 56% of this shortage falls in the Economically Weaker Sections (EWS), 40% in the Lower Income Group (LIG) category, and the rest 4% in the middle and higher income groups. The Ministry estimates the demand for housing at around one crore.[9]

PMAY-U is an affordable housing scheme being implemented from 2015 to 2022. It seeks to achieve the 'housing for all target' by 2022.

The scheme comprises four components: (i) in-situ rehabilitation of existing slum dwellers (using the existing land under slums to provide houses to slum dwellers) through private participation, (ii) credit linked subsidy scheme (CLSS) for Economically Weaker Sections, Lower Income Groups, and middle-income group (MIG), (iii) affordable housing in partnership, and (iv) subsidy for beneficiary-led individual house construction. The Ministry provides central assistance to ULBs for the implementation of the scheme through the respective state governments. So far 4,424 cities have been covered under PMAY-U.[10] As of February, 2021, 1.1 crore houses have been sanctioned as part of the scheme.

Allocation: The budgetary allocation towards the scheme for 2021-22 is Rs 8,000 crore. This is an 8% increase over the actual expenditure in 2019-20 (Rs 6,848 crore). In 2020-21, revised estimates increased by 163% in comparison to budgeted allocation for the year. This can be attributed to the Affordable Rental Housing Complexes (ARHC) scheme implemented under the Aatma Nirbhar Bharat Scheme. The ARHC scheme seeks to convert government-owned projects and housing stock (projects available with the central government) to affordable housing through public-private partnerships and encourage development on private land by giving special incentives including streamlining of permits and credit. Funding towards the scheme comes from the Central Road and Infrastructure Fund (comprises of a cess imposed along with excise duty on petrol and diesel). In 2021-22, from the total allocation for PMAY-U, the maximum (59%) is estimated to go towards interest payment against loans raised through extra budgetary sources (EBR) for the scheme.

Table 4: Key components under PMAY-U (in Rs crore)

	2019-20 Actual	2020-21 RE	2021-22 BE	Change (Annualised) (Actuals 2019-20 to BE 2021-22)
Interest Payment against loan raised through EBR	3,069	4,148	4,720	24%
Central assistance to states/ UTs	2,633	9,803	1,542	-23%
CLSS-I for EWS/LIG	600	3,750	1,000	29%
CLSS-II for MIG	400	3,000	0.1	-98%
Others	146	299	738	125%
Total	6,848	21,000	8,000	8%

Notes: BE – Budget Estimate; RE – Revised Estimate.
Sources: Expenditure Budget 2021-22; PRS.

The credit linked subsidy scheme component will receive 13%, and 19% will be provided to states and UTs as central assistance.

There has been a decline in allocation to some components of the scheme in 2021-22 in comparison to revised estimates for 2020-21. Allocation to central assistance declined by 84%, CLSS has lowered by 73% in 2021-22 allocation in comparison to revised estimates for 2020-21.

House construction: Between the launch of the scheme in 2015 and February 8, 2020, 110 lakh houses have been approved.[11] Of this, 36% houses have been constructed. Note that these numbers also include some houses sanctioned under the earlier scheme, Jawaharlal Nehru National Urban Renewal Mission. The aim of the Mission is to encourage reforms and fast track planned development of identified cities (like cities with more than 10 lakhs population as per the 2001 census).

Table 5: Progress under PMAY-U

House construction (in lakhs)		
Houses sanctioned	110	
Under construction	73	64% of the approved houses
Completed	43	36% of the approved houses
Central assistance (in Rs crore)		
Central assistance sanctioned	1,77,410	
Of which central assistance released	85,247	48% of the sanctioned assistance

Note: The total houses approved includes some houses that were sanctioned under the earlier Jawaharlal Nehru National Urban Renewal Mission.
Sources: PMAY-U MIS; as of February 12, 2021, PRS.

With the target of the scheme at 100 lakh houses by 2022, and 42.2 lakh houses been constructed so far, it is unclear how the central government will construct the remaining houses (almost 64% of the target) in two years.

The Standing Committee on Urban Development (2019) had noted that the estimated demand for housing projects under PMAY-U was Rs 1,80,000 crore, as on October 28, 2019.[4] The total central assistance sanctioned was Rs 1,42,000 crore, out of which Rs 57,896 crore had been released. It recommended ensuring timely release of funds to achieve the goal of 'Housing for All' by 2022.[6]

The government stated that funds are released to states in stages based on compliance by states and utilisation of earlier funds. In 2020-21, as of February, 2021, 80% of the funds sanctioned to states was utilised.[6] The Standing Committee on Urban Development (2020) recommended establishing a system to incentivise better performing states under the scheme.[2]

Lending by housing finance companies: Both housing finance companies (HFCs), and public sector banks offer low-cost funding for housing. HFCs have an 80% share in the implementation of the CLSS component of PMAY-U.[13] However, banks and financing companies face constraints such as inability to access long term funds.[13]

The Union Cabinet had approved the creation of a National Urban Housing Fund (NUHF) worth Rs 60,000 crore in February 2018.[12] The NUHF aims to raise funds till 2022 to ensure a sustained flow of central release under PMAY-U to enable construction of houses.

Rental housing: As per the 2011 census, 27.5% of urban residents lived in rented houses. According to the Report of the Group of Secretaries (2017), a rental housing scheme could further complement PMAY-U in achieving the housing target.[13] The Ministry proposed a Draft National Urban Housing Policy in October 2015.[14] It seeks to promote the sustainable development of house ownership with a view to ensuring an equitable supply of rental housing at affordable prices. The Ministry also released the Draft Model Tenancy Acts in 2015, 2019, and 2020 to provide for the regulation and speedy adjudication of matters related to rental housing, and repeal the existing state rent control laws.[15,16]

Urban Rejuvenation Mission: AMRUT and Smart Cities Mission

The Atal Mission for Rejuvenation of Urban Transformation (AMRUT) Mission was launched in June 2015.[17] It seeks to provide basic services (such as water supply, sewerage, and urban transport) in cities, especially to the poorer households.

In 2021-22, the AMRUT Mission has been allocated Rs 7,300 crore. This is a 7% annualised increase in the actual expenditure for 2019-20.

It is a Centrally Sponsored Scheme and was allocated a total central assistance of Rs 50,000 crore between 2015-20. In 2020, the scheme timeline was extended till 2022.[6]

The government had proposed that the outlay of Rs 50,000 be spent by 2020. However, from 2015-16 to 2021-22, the Ministry has allocated Rs 40,899 crore (82% of the proposed amount), and spent Rs 31,526 crore (63% of the proposed amount).[2] Table 6 compares the actual expenditure against the allocation towards AMRUT.

Table 6: Allocation compared to actual expenditure (Rs crore)

Year	Allocated	Actual	% utilisation (actuals/ budget)
2015-16	3,919	2,702	69%
2016-17	4,080	4,864	119%
2017-18	5,000	4,936	99%
2018-19	6,000	6,183	103%
2019-20	7,300	6,391	88%
2020-21	7,300	6450*	88%
2021-22	7,300		
Total	**40,899**	**31,526**	**77%**

Note: *Revised Estimate.
Sources: Ministry of Housing and Urban Affairs Demand for Grants for the years 2015-16 to 2021-22; PRS.

The Standing Committee on Urban Development (2020) has highlighted implementation and performance under the scheme to be below target.[2] For instance, 92% of funds under AMRUT were allocated for water supply and sewerage.[6] However, against the target of 139 lakh, only 71 lakh connections (51% of the target) had been established. Of the target of 145 lakh sewerage connections, only 43 lakh (30% of the target) had been provided.[2]

The Smart Cities Mission aims to develop cities that provide core infrastructure and apply ‘smart' solutions to give its citizens a decent quality of life to its citizens, and a sustainable environment.[18] 100 cities have been selected under the Mission, which were selected based on a Smart City challenge. The cities were evaluated based on their Smart City Plans which consisted of a pan city development strategy and an area-based development strategy.

The mission is being operated as a Centrally Sponsored Scheme. The central government provides financial assistance of up to Rs 48,000 crore over five years (2015-20).[18] The states and ULBs will have to contribute an equal amount, and generate the additional amount as required through other sources such as borrowings, and municipal bonds.[18]

The Smart Cities Mission has been allocated Rs 6,450 crore in 2021-22, which is an annual increase of 42% over the actual expenditure for 2019-20. Between 2015-16 and 2021-22, 71% of the proposed allocation has been allocated at the budget stage. Between 2015-16 and 2020-21, 48% of the proposed allocation has been spent.

Table 7: Allocation towards Smart Cities Mission (in Rs crore)

Year	Budgeted	Actuals	% utilised
2015-16	2,020	1,484	73%
2016-17	3,215	4,412	137%
2017-18	4,000	4,526	113%
2018-19	6,169	5,902	96%
2019-20	6,450	3,135	49%
2020-21	6,136	3,384*	55%
2021-22	6,118		
Total	**34,108**	**22,843**	**67%**

*Revised estimates.
Sources: Budget documents 2015-16 to 2021-22; PRS.

The Standing Committee on Urban Development (2020) stated that the significant reduction of allocation towards the mission in the revised stages for 2019-20 and 2020-21 was undesirable.[2] It stated that funds allocated must be utilised adequately.[2]

So far, all the 100 selected Smart cities have formed their Special Purpose Vehicles (SPVs) and appointed Project Management Consultants (PMCs).[19] Table 8 provides the status of the smart city projects.[20]

Table 8: Status of smart city projects (as on January, 2021) (in Rs crore)

Project status	No. of projects	% of projects	Cost	% of cost
Total Proposed	5,151	-	2,05,018	-
Tendered	788	15%	35,309	17%
Work orders issued	2,441	47%	1,06,187	52%
Completed	2,187	42%	35,413	17%

Sources: Unstarred Question No. 1020, Ministry of Housing and Urban Affairs, Rajya Sabha, February 10, 2021; PRS.

The Standing Committee on Urban Development (2020) has also observed that progress under the mission has been uneven, since states such as Andhra Pradesh, Gujarat and Uttar Pradesh have performed well, while states such as Bihar and Tamil Nadu are lagging behind.[6] The Committee recommended strengthening existing monitoring mechanisms across states to ensure faster implementation.[6]

Swachh Bharat Mission – Urban (SBM-U)

Swachh Bharat Mission (SBM), launched in October 2014, aims to eliminate open defecation and achieve scientific management of municipal solid waste in all statutory towns by 2019.[21,22]

38.7% of districts in India were free from open defecation in 2014, when the Swachh Bharat Mission was launched.[23] 100% of districts were declared to be free from open defecation in October, 2020 by the central government. Of these, 98% have been verified by the Ministry to be free from open defecation.[24] As of February 2021, 62.39 lakh household toilets have been built in urban areas under the Mission, (105% of the target 59.57 lakh toilets set for 2020).[24]

Table 9 shows the number of toilets constructed as on February 8, 2021, as compared to the targets set for October 2019.

Table 9: Achievements under SBM- Urban (as on February 11, 2020)

	Target	Completed	% Achieved
Individual Household Latrines	62,39,742	59,57,471	105%
Community and Public Toilets	6,01,556	5,07,589	119%

Sources: Swachh Bharat Mission Urban - Dashboard; PRS.

The Standing Committee on Urban Development (2020) has highlighted that toilets built under the scheme in areas including East Delhi have very poor quality and do not have adequate maintenance.[6] Further, only 1,304 (30%) of the 4,320 cities declared to be open defecation free have toilets with water, maintenance and hygiene.[2]

The total estimated cost of implementation of SBM-U is Rs 62,009 crore. Of this, the share of the central government is Rs 14,623 crore, and states' assistance will amount to Rs 4,874 crore. The remainder is to be financed via various sources such as the private sector, Swachh Bharat Kosh, market borrowing, and external assistance.[25]

In 2021-22, Rs 2,300 crore has been allocated towards the scheme. This is an annual increase of 35% over actual expenditure for 2019-20. Further, in her budget speech, the Finance Minister announced that the Urban Swachh Bharat Mission 2.0 will be launched. The Mission will have an outlay of Rs 1.41 lakh crore between 2021-26.[5] The mission will focus on outcomes including:

Certifications for statutory towns: The Mission aims to ensure that: (i) all statutory towns be certified as ODF+, and (ii) statutory towns with less than one lakh residents be certified as ODF++. A town is certified as ODF+ when no cases of open defecation are recorded and all public toilets are maintained and function. A town certified as ODF++ is one where all sewage is safely managed and treated with no dumping of untreated sewage in water bodies or open areas.[26] As of February 15, 2021, there are 1,742 towns certified as ODF+ and 538 certified as ODF++.[27]

Garbage free cities: All statutory towns will be at least three-star garbage free rated as per the Ministry's Star Rating Protocol for Garbage Free cities.[26] The protocol is a framework where each ward in each city is graded across 25 parameters to measure solid waste management. 1,435 cities have applied for certification under the protocol.[28] As of February 2021, 72 towns have been awarded three stars and six towns have been given a five-star rating based on the protocol.[29]

Besides these, the Mission seeks to ensure bio-remediation of all legacy dumpsites. Under the mission, 50% of all statutory towns with less than one lakh residents will also be certified as Water+.[26] All wastewater in such a town must be treated before being released into the environment.[30]

Other issues to consider

Additional investment required

The pace of urbanisation is increasing in the country. As per the 2011 census, around 31% of the country's population resided in urban areas. By 2031, around 600 million (43%) people are expected to live in urban areas, an increase of over 200 million in 20 years.[31] Given the pace of urbanisation, large capital investment is needed for infrastructure projects which would require support from central and state governments in the form of capital grants.

With the current rate of urbanisation, the High-Powered Expert Committee (HPEC) for Estimating the Investment Requirements for Urban Infrastructure Services (2011) had estimated a requirement of Rs 39 lakh crore (at 2009-10) prices for the period from 2012-2031.[32] As per their framework, the investment in urban infrastructure should increase from 0.7% of GDP in 2011-12 to 1.1% of GDP by 2031-32. In 2021-22, the estimated expenditure by the Ministry of Housing and Urban Affairs is 0.4% of the GDP.[33]

The Ministry of Finance (2017) had noted that budgetary outlays alone will not be enough to service the growing demands on local governments for improving their infrastructure.[34] Alternate sources of financing are required to meet the funding gap.[34] The flagship schemes of the Ministry (such as Smart Cities Mission, Swachh Bharat Mission) seek to meet their financing requirements through a mix of sources such as borrowings, municipal bond financing, and PPPs. The Standing Committee on Urban Development (2020) noted that as of March 2020, municipal bonds worth Rs 3,390 crore had been issued in eight cities including Ahmedabad and Pune for the implementation of AMRUT scheme.[6]

Financial capacity of cities

The Constitution (74th Amendment) Act, 1992 devolved certain functions relating to urban development to ULBs, including the power to collect certain taxes. These functions include urban planning, planning for economic and social development, and urban poverty alleviation. The new schemes under the Ministry, seek to decentralise the planning process to the city and state level, by giving them more decision-making powers. This implies that a significant share of the funding needs to be raised by the cities themselves.

However, there is an imbalance between the functions and finances of ULBs.[35] The ULBs in India are amongst the weakest in the world both in terms of capacity to raise resources and financial autonomy.[32] Municipal revenue in India accounts for only one percent of the GDP (2017-18).[36] The share of own revenue for ULBs has declined from 63% in 2002-03 to 53% in 2007-08, and to 44% in 2015-16.[37,38] Several states have not devolved enough taxation powers to local bodies. Further, local governments collect only a small fraction of their potential tax revenue.[32]

While the central and state governments provide the ULBs with funds, these devolved funds are largely tied in nature, to either specific sectors or schemes. This constrains the spending flexibility of ULBs.

PPPs have been an important instrument to finance and develop infrastructure projects. However, projects in many sectors such as water-supply and urban transportation require support from ULBs in the form of additional financial resources. The Ministry of Finance has observed that an inability to service such funding requirements constrains project implementation.[34]

In such cases, ULBs can access capital markets through issuance of municipal bonds. Municipal bonds are marketable debt instruments issued by ULBs, the funds raised may be used for capital projects, refinancing of existing loans, and meeting working capital requirements. The Securities and Exchange Board of India regulations (2015) regarding municipal bonds provide that, to issue such bonds, municipalities must: (i) not have negative net worth in any of the three preceding financial years, and (ii) not have defaulted in any loan repayments in the last one year.[39] Therefore, a city's performance in the bond market depends on its fiscal performance.

To improve the finances of the ULBs, the HPEC had recommended that state governments share a pre-specified percentage of their revenues from all taxes on goods and services with ULBs.[32] It had recommended mandating this constitutionally. Further, ULBs should be provided with formula-based transfers, and grants-in-aid.[32] The ULBs could raise their own revenue by tapping into land-based financing sources, and improving non-tax revenues (such as water and sewerage charges, and parking fee).[32]

The Second Administrative Commission (2007) had recommended that the central government provide additional funds and facilitate additional funding mechanisms for ULBs to strengthen their finances.[40]

The 15th Finance Commission (2021) has recommended that Rs 1.2 lakh crore be allocated to urban local bodies as grants.[41]

Technical capacity of the ULBs

It has been observed in the urban sector that the allocation of funds from the central government did not play a role in the implementation of the projects.[32] On the other hand, while ULBs and states implemented the projects, they did not raise the funds. The new schemes seek to empower ULBs to raise their own revenue. Both the national missions, AMRUT and Smart Cities, have a component for capacity building of ULBs.

The HPEC (2011) had observed that municipal administration has suffered due to (i) presence of untrained and unskilled manpower, and (ii) shortage of qualified technical staff and managerial supervisors.[32] It had recommended improving the technical capacity of ULBs. This can be achieved by providing technical assistance to state governments, and ULBs in planning, financing, monitoring, and operation of urban programs.

---

1 Demand No. 59, Ministry of Housing and Urban Affairs, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe59.pdf.

2 "4th Report of the Standing Committee on Urban Development on Action taken by the Government on the Observations/ Recommendations contained in the Second Report on Demands for Grants (2020-21) of the Ministry of Housing and Urban Affairs", September 11, 2020, http://164.100.47.193/lsscommittee/Urban%20Development/17_Urban_Development_4.pdf.

3 15th report, Standing Committee on Urban development, March 2017, http://164.100.47.193/lsscommittee/Urban%20Development/16_Urban_Development_15.pdf.

4 "1st Report of the Standing Committee on Urban Development (2019-20) on Demands for Grants (2019-20) of the Ministry of Housing and Urban Affairs, December 11, 2019, http://164.100.47.193/lsscommittee/Urban%20Development/17_Urban_Development_1.pdf.

5 Union Budget Speech 2021-21, February 1, 2021, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

6 "2nd Report of the Standing Committee on Urban Development (2020-21) on Demands for Grants (2020-21) of the Ministry of Housing and Urban Affairs, December 3, 2020, http://164.100.47.193/lsscommittee/Urban%20Development/17_Urban_Development_2.pdf.

7 "India Transport Report: Moving India to 2032", National Transport Development Policy Committee, June 17, 2014, http://planningcommission.nic.in/sectors/index.php?sectors=National%20Transport%20Development%20Policy%20Committee%20(NTDPC).

8 "6th Report: Demands for Grants (2015-16) of Ministry of Housing and Urban Poverty Alleviation", Standing Committee on Urban Development, April 27, 2015.

9 Unstarred Question No.1439, Ministry of Housing and Urban Affairs, Lok Sabha, February 12, 2019, http://164.100.24.220/loksabhaquestions/annex/17/AU1439.pdf.

10 Progress under PMAY (U), Ministry of Housing and Urban Affairs, Last accessed on February 10, 2021, https://pmay-urban.gov.in/pmayprogress.

11 Pradhan Mantri Awas Yojana - Urban MIS, Ministry of Housing and Urban Affairs, https://pmay-urban.gov.in/uploads/progress-pdfs/60227e8146f62-1.pdf.

12 "Cabinet approves creation of national Urban Housing Fund", Press Information Bureau, Ministry of Housing and Urban Affairs, February 22, 2018, http://pib.nic.in/newsite/PrintRelease.aspx?relid=176687.

13 Report of the Group of Secretaries, Group 4- Health, Sanitation and Urban Development, January 2017, https://smartnet.niua.org/sites/default/files/resources/report_of_sectoral_group_of_secretaries_on_health_sanitation_urban_development.pdf.

14 Draft National Urban Housing Policy, Ministry of Housing and Urban Affairs website, October, 2015, http://mohua.gov.in/upload/uploadfiles/files/National_Urban_Rental_Housing_Policy_Draft_2015.pdf.

15 The Model Tenancy Act, 2019, Ministry of Housing and Urban Affairs, July 10, 2019, http://mohua.gov.in/upload/whatsnew/5d25fb70671ebdraft%20Model%20Tenancy%20Act,%202019.pdf.

16 Background Note on Model Tenancy Act, Ministry of Housing and Urban Affairs, 2020, http://mohua.gov.in/upload/uploadfiles/files/1%20Background%20Note%20on%20MTA%20(English).pdf.

17 Mission Statement and Guidelines, Atal Mission for Rejuvenation and Urban Transformation, Ministry of Urban Development, June 2015, http://amrut.gov.in/writereaddata/AMRUT%20Guidelines%20.pdf.

18 Mission Statement & Guidelines, Smart Cities, Ministry of Urban Development, June 2015, http://smartcities.gov.in/upload/uploadfiles/files/SmartCityGuidelines(1).pdf.

19 Unstarred Question no. 1526, Ministry of Housing and Urban Affairs, Lok Sabha, February 12, 2019, http://164.100.24.220/loksabhaquestions/annex/17/AU1526.pdf.

20 Unstarred Question No. 1020, Ministry of Housing and Urban Affairs, Rajya Sabha, February 10, 2021, https://pqars.nic.in/annex/253/AU1020.pdf.

21 "1,789 Cities have been declared ODF conference on PPP model for waste to energy projects", Ministry of Housing and Urban Affairs, Press Information Bureau, November 30, 2017, http://pib.nic.in/newsite/PrintRelease.aspx?relid=173995.

22 "PM launches Swachh Bharat Abhiyaan", Prime Minister's Office, Press Information Bureau, October 2, 2014, http://pib.nic.in/newsite/PrintRelease.aspx?relid=110247.

[23]. Swachh Bharat Mission (Grameen) Dashboard, Department of Drinking Water and Sanitation, last accessed on January 18, 2021, https://sbm.gov.in/sbmdashboard/IHHL.aspx.

[24] Dashboard, Swachch Bharat Mission (Urban), Ministry of Housing and Urban Affairs, last accessed on February 13, 2021, http://swachhbharaturban.gov.in/dashboard/

[25] Swachh Bharat Mission Urban – Financial Progress, Ministry of Housing and Urban Affairs, last accessed on February 11, 2021, http://swachhbharaturban.gov.in/writereaddata/financial_progress.pdf?id=5mw5jzzbj3sabgx4.

[26] "Swachh Bharat Mission (URBAN) 2.0 Announced For Next 5 Years", Press Information Bureau, Ministry of Housing and Urban Affairs, February 2, 2021.

[27] Swachh Bharat Mission Urban - Dashboard, Ministry of Housing and Urban Affairs, last accessed on February 11, 2021, http://swachhbharaturban.gov.in/dashboard/?id=5mw5jzzbj3sabgx4.

[28] "6 Cities rated 5 Star, 65 Cities rated 3 Star and 70 Cities rated 1 Star", Press Information Bureau, Ministry of Housing and Urban Affairs, May 19, 2020.

[29] Garbage Free City Star Rating, Ministry of Housing and Urban Affairs, last accessed on February 18, 2021, http://gfcstarrating.org/User/GFCStarResult.

[30] Water Plus Protocol and Toolkit, Swachh Bharat Mission (Urban), Ministry of Housing and Urban Affairs, https://sbmurban.org/water-plus.

[31] Challenge of Urbanisation, Approach to the 12th five year plan, Planning Commission, October 2011, http://planningcommission.gov.in/plans/planrel/12appdrft/appraoch_12plan.pdf.

[32] "Report on Indian Infrastructure and Services", High Powered Expert Committee for estimating the investment requirement for urban infrastructure services, March 2011, http://icrier.org/pdf/FinalReport-hpec.pdf.

[33] Press Note on First Advance Estimates of National Income 2020-21, Press Information Bureau, Ministry of Finance, January 7, 2020,

https://static.pib.gov.in/WriteReadData/userfiles/Presss%20note%20for%20FAE-2020-21.pdf.

[34] "Guidance on use of Municipal Bond Financing for Infrastructure projects", Department of Economic Affairs, Ministry of Finance, September 2017, https://www.pppinindia.gov.in/documents/20181/33749/Guidance+on+use+of+Municipal+Bonds+for+PPP+projects.pdf/037cb143-8305-4c57-8f3c-32e5a329297f.

[35] "Report of the sub-committee on financing urban infrastructure in the 12th Plan, Ministry of Urban Development, March 2012, http://mohua.gov.in/upload/uploadfiles/files/Report%20of%20the%20Sub-Committee%20on%20Financing%20Urban%20Infrastructure%20in%20the%2012th%20Plan%20_0.pdf.

[36] State of Municipal Finances, Fifteenth Finance Commission, March, 2019, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/StudyReports/State%20of%20Municipal%20Finances%20in%20India.pdf.

[37] Report of the Steering Committee on Urbanisation, Planning Commission, Government of India, November 2012, https://smartnet.niua.org/content/d5ce7e1d-04fd-45c4-af11-b9e6a25e4ea8.

[38] Economic Survey 2018-19, Ministry of Finance, January 29, 2018.

[39] Securities and Exchange Board of India (Issue and Listing of Debt Securities by Municipalities) Regulations, 2015, Securities and Exchange Board of India, July 15, 2015, http://www.sebi.gov.in/sebi_data/attachdocs/1436964571729.pdf.

[40] Sixth Report, Second Administrative Reforms Commission, Ministry of Personnel, Public Grievances and Pensions, 2007, https://darpg.gov.in/sites/default/files/local_governance6.pdf.

[41] Report for 2021-21, 15th Finance Commission, February, 2021, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/Reports/XVFC%20Complete_Report.pdf.

Demand for Grants: Petroleum and Natural Gas

The Ministry of Petroleum and Natural Gas is concerned with exploration and production of oil and natural gas, as well as refining, distribution and marketing, import and export, and conservation of petroleum products. This note analyses budgetary allocation of the Ministry, the share of expenditure on subsidies, and high import dependence for energy consumption.

Overview of finances

The Ministry has been allocated Rs 15,944 crore in 2021-22. The allocation to the Ministry has decreased by an annual average rate of 39% over 2019-20. Given the impact due to COVID-19, in this note, the budget estimates for 2021-22 have been compared to the actual expenditure for 2019-20. Table 1 details the main heads of expenditure for the Ministry.

Table 1: Allocation for the Ministry of Petroleum and Natural Gas (in Rs crore)

Major Heads	Actual 2019-2020	Revised 2020-21	Budget 2021-22	CAGR 2019-20 to 2021-22
LPG subsidy	**34,086**	**36,072**	**14,073**	**-36%**
Kerosene subsidy	4,443	2,982	0	-
SPR	120	2,728	396	82%
PDH pipeline	1,552	728	250	-60%
Others	2,611	390	1,224	-32%
Total	**42,812**	**42,901**	**15,944**	**-39%**

Notes: CAGR is compounded annual growth rate. It gives the average annual change between any two points of time. SPR = Strategic Petroleum Reserves. Others includes: (i) Indradhanush Gas Grid Limited (North-East Natural Gas Pipeline Grid, (ii) National Seismic Programme, (iii) PM JI-VAN Yojana, among others.
Sources: Union Budget Documents 2021-22; PRS.

LPG subsidy: The Ministry provides subsidy for (i) LPG cylinders to beneficiaries under the PAHAL scheme, and (ii) LPG connections to poor households under the Pradhan Mantri Ujjwala Yojana (PMUY), among others.[1]

In 2021-22, the Ministry is estimated to spend Rs 14,073 crore on LPG subsidy, which is an annualised decline of 36% than the actual expenditure in 2019-20. Of this, the allocation for the PAHAL scheme of Rs 12,480 crore is estimated to decline by 35% over 2019-20.

2021-22 Budget speech highlights for Petroleum and Natural Gas[2]

- Pradhan Mantri Ujjwala Yojana to be extended to cover one crore more households.
- 100 more districts to be added to the City Gas Distribution network in three years.
- Gas pipeline project for Jammu and Kashmir.
- Independent Gas Transport System Operator to be set up for facilitation and coordination of open access natural gas pipelines.
- Introduction of the Agriculture Infrastructure and Development Cess of Rs 2.5 per litre on petrol and Rs 4 per litre on diesel.

There is no allocation for PMUY for 2021-22. Note that in her Budget speech, Finance Minister announced expansion of the PMUY scheme to cover an additional one crore beneficiaries.[2]

Kerosene subsidy: The Ministry provides subsidised kerosene through the Public Distribution System (PDS). In 2021-22, the Ministry has not allocated any funds for the kerosene subsidy. In 2020-21, as per the revised estimates, spending on the kerosene subsidy of Rs 2,982 crore was 33% lower than 2019-20.

Strategic Petroleum Reserves: Strategic Petroleum Reserves (SPR) are underground caverns to store excess crude oil. SPRs are essential to energy security of the country which serves as a cushion during any supply disruptions in global crude oil.[3] In 2021-22, Rs 396 crore has been allocated towards SPR, an annual average increase of 82% over 2019-20, but lower than the spending of Rs 2,728 crore in 2020-21.

PDH Pipeline: The Phulpur-Dhamra-Haldia (PDH) Pipeline is being developed by GAIL India to transport natural gas. The project connects five states to the National Gas Grid. In 2021-22, Rs 250 crore has been allocated for the project, which is 34% lower than the revised estimate for 2020-21. The allocation for the pipeline was lower in 2020-21 than in 2019-20. The Standing Committee (2020) noted that this was due to the scheme coming to an end in 2020-21.[4] The expenditure allocated was for work already committed towards the pipeline.

Increase in excise duty on petroleum products

In Budget 2021-22, it was announced that an Agriculture Infrastructure and Development Cess of Rs 2.5 per litre on petrol and Rs 4 per litre on diesel would be levied, with equivalent cuts made to basic excise duty and to special additional excise duty.[2] Table 2 below compares the change in tax and cess levied on petrol and diesel over the last four years. The share of cess for both petrol and diesel has increased sharply in this period.

Table 2: Change in tax and cess (Rs/ litre)

Excise Duty (Rs per litre)	Petrol		Diesel	
	Apr 2017	Feb 2021	Apr 2017	Feb 2021
Tax	9.48	1.4	11.33	1.8
Cess	12	31.5	6	30
Total	21.48	32.9	17.33	31.8
Cess as % of Total Duty	56%	96%	35%	94%

Sources: Union Budget documents (multiple years); PRS.

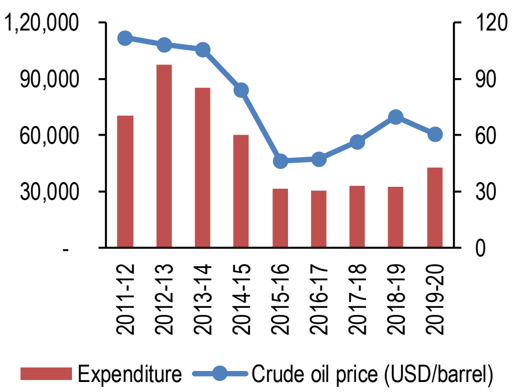
Union excise duty includes (i) tax receipts from basic excise duty, and (ii) cess receipts from special additional duty on motor spirit, the Road and Infrastructure Cess, and the Agriculture Infrastructure and Development Cess. While the central government is constitutionally required to share a part of its tax revenue with states as per the recommendations of the Finance Commission, it is not required to share with states the revenue it gets from cess and surcharge. Thus, an increase in cess with corresponding decrease in excise has the following effects: (a) there is no impact on the consumer, and (b) the centre gets higher revenue with corresponding lower amount going to states.

Impact of crude oil price

Historically, the Ministry's expenditure has followed the trend in crude oil prices. Expenditure was highest in 2012-13 when price of crude oil was more than $100 per barrel. Price of crude oil has declined since and remained under $70 per barrel. Between 2011-12 and 2021-22, expenditure has declined at an annual average rate of 14%.

Figure 1 compares the trend in expenditure of the Ministry to the trend in weighted average price of crude oil for the years 2011-12 to 2019-20.

Figure 1: Expenditure of Ministry (Rs Crore)



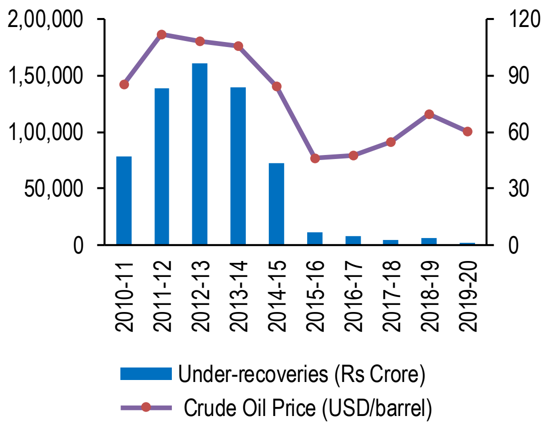
Note: Price of crude oil is the price per barrel of the Indian Basket of crude oil.

Sources: Petroleum Planning and Analysis Cell; Union Budget 2021-22; PRS.

Rise in crude oil prices usually also leads to rise in under-recoveries. Under-recovery refers to the difference in the cost of producing petroleum products, and the price at which they are delivered to consumers. It indicates the loss incurred by oil marketing companies while supplying these products. The central government compensates the oil marketing companies by sharing some of this incurred loss through a burden sharing mechanism. Figure 2 shows the trend of under-recoveries with the price of global crude oil.

In 2020-21, global crude oil prices fell to $20 per barrel in April and remained under $50 per barrel till December 2020. In the first half of 2020-21 (April to September), under-recoveries decreased to zero.

Figure 2: Trend in under-recoveries of oil companies and global crude oil prices



Sources: Petroleum Planning and Analysis Cell; PRS.

Strategic Petroleum Reserves: The decline in crude oil price in 2020-21 also enabled the government to purchase for the Strategic Petroleum Reserves. In April and May 2020, 16.7 million barrels of crude oil were bought at an average cost of $19 per barrel.[5] In January 2020, the price of crude oil was $60 per barrel.

LPG and Kerosene subsidy

Subsidies form the largest component of the Ministry's expenditure, with 88% of its total budget allocated to it. Historically, subsidies have occupied between 75% to 99% of the budget. The Ministry (usually) provides subsidies under three major heads: (i) Direct Benefit Transfer (DBT-PAHAL scheme), and (ii) Pradhan Mantri Ujjwala Yojana (PMUY) for LPG, and (iii) kerosene subsidy (see Table 3).

Table 3: Allocation for subsidy on LPG and Kerosene (in Rs Crore)

Major Head	Actual 2019-20	Revised 2020-21	Budget 2021-22	CAGR 2019-20 to 2021-22
DBT-PAHAL	29,628	25,521	12,480	-35%
PMUY	3,724	9,690	0	-
Kerosene subsidy	4,443	2,982	0	-
Total	37,795	38,193	12,480	-43%

Sources: Union Budget 2021-22; PRS.

LPG subsidy

For 2021-22, the budget allocation for LPG subsidy (Rs 14,073 crore) has decreased at an annual average rate of 36% over 2019-20. In 2020-21, Rs 36,072 crore was spent on the LPG subsidy as per the revised estimate.

Spending on DBT-PAHAL is estimated to be Rs 12,480 crore. In 2020-21, the budget allocation for DBT-PAHAL was Rs 35,605 crore while the revised estimate for spending is Rs 25,521 crore (decline of 28%). Note that expenditure on subsidy is dependent on the difference between the subsidised and non-subsidised price for LPG. The non-subsidised price is in turn dependent on the price of crude oil, which fell in 2020 due to the impact of COVID-19.

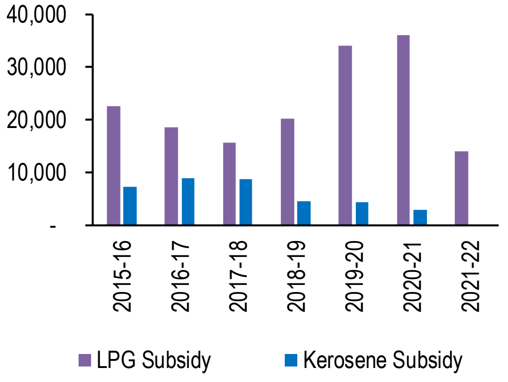
There is no allocation for PMUY in spite of an announcement to increase coverage under the scheme.[2] In 2020-21 the budget allocation for PMUY was Rs 1,118 crore while the revised estimate was Rs 9,690 crore (767% higher). The scheme had met its target of providing LPG connections to 8 crore households in September 2019. The budget allocation for 2020-21 was for clearance of past dues of the government to oil marketing companies implementing the PMUY scheme.[4] However, in March 2020, the Finance Minister announced the provision of up to three free LPG refills for eight crore poor families under the Pradhan Mantri Garib Kalyan Yojana.[6] The cost of free refills availed between April to August 2020 was Rs 9,670 crore for 13 crore refills.[7]

The remaining allocation under the LPG subsidy is for: (i) implementation of the Assam Gas Cracker project (for production of ethylene), and (ii) subsidy to oil companies for supply of LPG to the North East.

Kerosene Subsidy

Over the last few years, the Ministry's expenditure on providing subsidy for kerosene has reduced from Rs 7,339 crore in 2015-16, to an estimated zero in 2021-22 (see Figure 3). The Standing Committee on Petroleum and Natural Gas (2017) had recommended that the Ministry should reduce the expenditure on this subsidy and work towards the eventual withdrawal of the subsidy.[8]

Figure 3: Trend of expenditure on subsidies

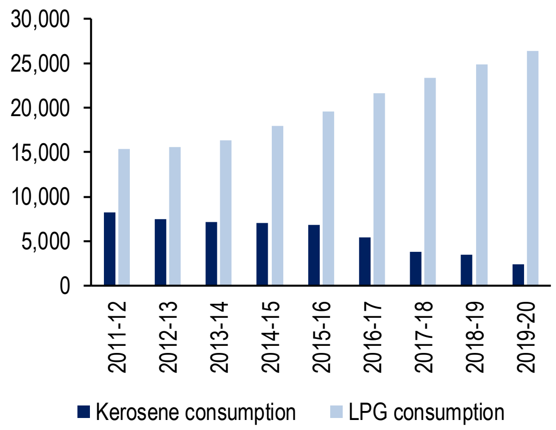


Sources: Union Budget Documents; PRS.

The Standing Committee on Petroleum and Natural Gas (2020) observed that an increase in the coverage of LPG beneficiaries is necessary to reduce dependence on kerosene.[4] This will result in the usage of cleaner fuel, and promote the health of users. However, large segments of the population are still dependent upon kerosene and only three states have become kerosene free.[4]

Figure 4 compares the trend in consumption of kerosene and LPG.

Figure 4: Consumption of Kerosene and LPG (in TMT)



Note: TMT is Thousand Metric Tons.
Sources: Petroleum Planning and Analysis Cell; PRS.

Key issues and analysis

Pradhan Mantri Ujjwala Yojana

The PMUY scheme was launched in May 2016 with the objective of providing LPG connections to women from below poverty line households with a support of Rs1,600 per connection.[9] The scheme initially had a target to provide connections to five crore households, which was later revised to eight crore households by 2020.[10] The ambit of the scheme was also expanded to cover all SC/ST households, beneficiaries of Pradhan Mantri Awas Yojana (Gramin), forest dwellers, backward classes, in addition to households identified under the Socio Economic and Caste Census (SECC).[10]

According to the Ministry, a total of 8.01 crore PMUY connections have been released as of January 2021.[11] In 2020, the government informed the Standing Committee on Petroleum and Natural Gas that the PMUY scheme would be closed since the target of 8 crore beneficiaries had been met.[4] The Committee recommended the scheme be extended to cover poor households among the general category in urban and semi-urban slum areas which do not have LPG access.[4]

According to the National Sample Survey, in 2011-12 more than 67% of the rural households in the country used firewood as the primary source of energy for cooking.[12] LPG was used by 15% of households. When the survey was repeated in 2018, share of rural households using firewood was 45%, while the share LPG was 48%.[13]

The National Family Health Survey, 2019-20 (NFHS-5) also showed improvement in access to clean fuel since NFHS-4 which was conducted in 2015-16. So far, NFHS-5 results are only available for 22 states/UTs. Table 4 compares the percentage of rural households in major states with access to clean fuel.

Table 4: Rural households with access to clean fuel (in %)

State	NFHS-4	NFHS-5
Andhra Pradesh	50	78
Bihar	11	30
Gujarat	27	41
Karnataka	32	69
Kerala	51	66
Maharashtra	34	65
Telangana	48	88
West Bengal	11	21

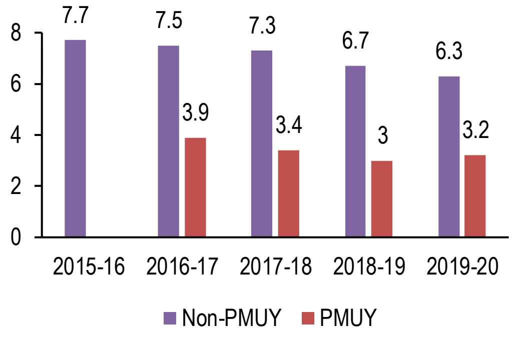
Sources: National Family Health Survey-4; National Family Health Survey-5; PRS.

An assessment report by the Petroleum Planning and Analysis Cell (2016) pointed out the key barriers for not applying for LPG connection are: (i) high initial cost, including security deposit / price of gas stove, (ii) high recurring cost of the cylinder, and (iii) easy availability of firewood.[14]

Refill of cylinders: The Comptroller and Auditor General (CAG) submitted a performance audit report on the PMUY scheme in December 2019.[15] The Report raised concerns related to lack of sustained usage of cylinders released under the scheme. 75% of consumers opted for a refill under the scheme and 57% opted for three or more refills (from date of getting the connection till December 2018).

The CAG performance audit report noted that the average annual refill rate for PMUY beneficiaries is low compared to the refill rate for non-PMUY beneficiaries (shown in Figure 5).[15]

Figure 5: Average annual refill consumption for PMUY and non-PMUY consumers



Sources: CAG Performance Audit, December 2019; Standing Committee on Petroleum and Natural Gas (2020); PRS.

The Standing Committee on Petroleum and Natural Gas (2020) also highlighted the disparity in the average refill of cylinders for regular LPG consumers (6.3 cylinders) and the average refill of cylinders by PMUY beneficiaries (3.2 cylinders).[4] It suggested the Ministry should take measures, including provision of additional monetary incentives, to encourage PMUY beneficiaries to use LPG cylinders on a regular basis.

The Ministry noted certain efforts by oil marketing companies to improve refill consumption such as: (i) increase in LPG distributors to improve last mile connectivity, and (ii) facility to swap 14.2 kg (standard) cylinder refill with a 5 kg refill.[4] However, till September 2020, only 7.15 lakh PMUY beneficiaries have swapped the 14.2 kg refill for the 5 kg refill.[16]

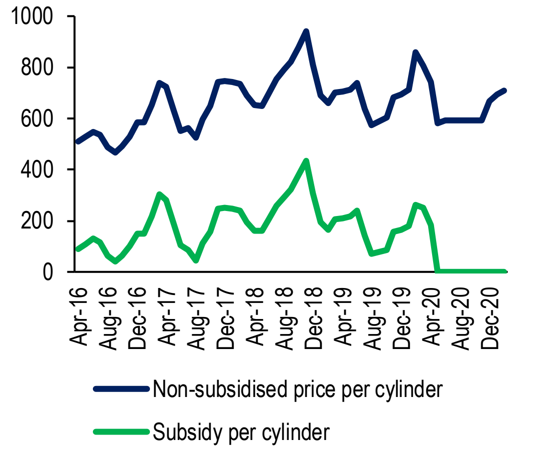
In March 2020, beneficiaries under PMUY were allowed up to three free refills to be availed up to September.[17] In the five months between April to August 2020, 13 crore refills were delivered to beneficiaries.[7] This is nearly half the total refills (28.8 crore) delivered between May 2016 and December 2018.[18] Note that as of March 2020 there were over 8 crore beneficiaries under PMUY, whereas as on December 2018, there were 5.9 crore beneficiaries.

Pratyaksha Hastaantarit Laabh (PAHAL)

PAHAL scheme was launched in 2014 (54 districts in first phase) and rolled out to rest of the country in 2015.[19] Under the scheme, a consumer (with annual income up to Rs 10 lakh) can avail Direct Benefit Transfer (DBT) cash-subsidy for a LPG cylinder. The beneficiaries buy LPG cylinders at market rate and subsequently receive subsidy directly in their bank accounts. Price of LPG and the extent of subsidy change every month. Figure 6 provides the monthly non-subsidised price of an LPG cylinder and the amount of subsidy per cylinder between April 2016 and February 2021.

In 2020-21, the average price of a non-subsidised LPG was Rs 636.6 between April 2020 and February 2021, while the subsidy has been zero from May 2020 onwards. [20]

Figure 6: Non-subsidised price of LPG and subsidy (in Rs)



Note: Prices are at New Delhi.
Sources: Indian Oil Corporation; Petroleum Planning and Analysis Cell; PRS.

As of September 2020, there were 26.35 crore beneficiaries under the PAHAL scheme. [21] The CAG (2019) noted that the coverage of LPG in the country has increased from 62% in May 2016 to 94.3% in March 2019.[15] As of January 2021, LPG coverage is 99.5%.[11] LPG coverage is defined as the ratio of active consumers to total households. [15]

Dependence on imports

Crude oil and petroleum products

India's import of crude oil has increased from 1,71,729 TMT (Thousand Metric Tons) in 2011-12 to 2,26,955 TMT in 2019-20, at an average annual growth rate of 4%.[22] Crude oil is refined in oil refineries to transform oil into useful petroleum products such as high speed diesel, LPG and kerosene. These petroleum products are used as raw materials in various sectors and industries such as transport (fuel) and petrochemicals. Further, they may also be used in factories to operate machinery or fuel generator sets.

India exports petroleum products to countries such as Singapore, the Netherlands, and the United Arab Emirates. [23] In 2019-20, India's total export of petroleum products was 65,685 TMT.

Further, India's production of crude oil and condensate has fallen from 38,082 TMT in 2011-12 to 32,169 TMT in 2019-20, an annual average decline of 2%.[22] Production as a percentage of imports of crude oil declined from 22% to 14% during this period. The Ministry attributed the decline to the natural ageing of oil fields. [24]

Table 5 shows the total import of crude oil and petroleum products, consumption of petroleum products in the country and India's exports of petroleum products for the last 10 years. India's net import (total imports - exports) as a fraction of consumption has risen from 86% in 2011-12 to 95% in 2020-21.

Table 5: Import, export and consumption of petroleum products in the country (in TMT)

Year	Crude Oil imports	Petroleum products import	Petroleum products export	Petroleum products consumption
2011-12	1,71,729	15,849	60,837	1,48,132
2012-13	1,84,795	16,354	63,408	1,57,057
2013-14	1,89,238	16,697	67,864	1,58,407
2014-15	1,89,435	21,301	63,932	1,65,520
2015-16	2,02,850	29,456	60,539	1,84,674
2016-17	2,13,932	36,287	65,513	1,94,597
2017-18	2,20,433	35,461	66,833	2,06,166
2018-19	2,26,498	33,348	61,096	2,13,216
2019-20	2,26,955	43,788	65,685	2,14,127
2020-21*	1,43,232	32,050	42,108	1,40,617

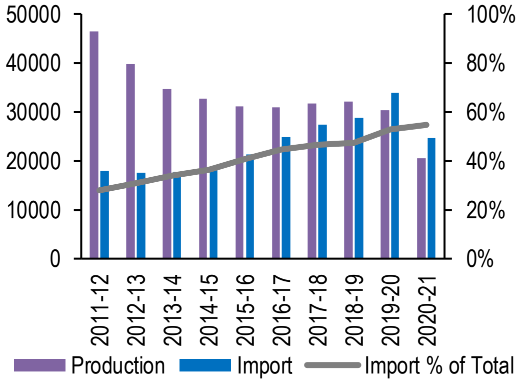
Note: *Data for 2020-21 is till December 2020.
Sources: Petroleum Planning and Analysis Cell; PRS.

The Standing Committee on Petroleum and Natural Gas (2019) noted that the Middle East accounts for more than two-thirds of India's crude oil imports, and urged the government to continue its crude oil import diversification efforts. [25]

Natural Gas

Total imports of natural gas as a percentage of consumption (production plus import) has risen from 28% in 2011-12 to 53% in 2019-20. Figure 7 shows the total production and imports of natural gas, and the share of imports in the total.

Figure 7: Production and Imports of Natural Gas (in MMSCM)



Notes: MMSCM = Million Metric Standard Cubic Meters. Data for 2020-21 is till December 2020.
Sources: Petroleum Planning and Analysis Cell; PRS.

Between 2011-12 and 2019-20, import of natural gas increased from 17,997 MMSCM (Million Metric Standard Cubic Meters) to 33,867 MMSCM, at an average rate of 8%. Whereas the production of natural gas has fallen from 46,453 MMSCM to 30,257 MMSCM.

In 2015, the Prime Minister had envisioned reduction in import in the energy sector (oil, gas, and petroleum products) from 77% to 67% by 2021-22.[26] The Standing Committee on Petroleum and Natural Gas (2018) had noted that it does not find any concrete action taken by the ministry and a clear strategy with stipulated timelines to achieve this target.[27]

Increase in share of natural gas in energy mix

The Report of the Roadmap for Reduction in Import Dependency in the Hydrocarbon Sector by 2030 (2014) had called from an increase in share of natural gas in the energy consumption mix from 10% to at least 20% to 25% by 2025.[28] A necessary precondition to achieve this is to increase the gas pipeline infrastructure. In 2012, India had 13,000 km of natural gas transmission pipeline. As of September 2020, the total authorised length of natural gas pipelines is 32,559 km of which 15,543 km is under construction.[29]

Budget 2020-21 and 2021-22 contained announcements to increase the use of natural gas including: (i) expansion of the national gas grid from 16,200 km to 27,000 km (Budget 2020-21), (ii) addition of 100 districts to the city gas distribution network, and (iii) setting up an independent gas transport system operator to facilitate booking of common carrier capacity in natural gas pipelines.[30,2]

Natural gas pipeline is a mode of bulk transportation and is a natural monopoly since it is impractical to have multiple pipelines in the same route. Common carrier arrangements allow the pipeline to be utilised by any entity on a non-discriminatory basis which leads to competition in the natural gas market. This is currently regulated by the Petroleum and Natural Gas Regulatory Board.[31]

Promotion of alternate fuels

The strategy of import reduction includes increasing production of domestic petroleum and natural gas, and promoting alternate fuels.[4] The Pradhan Mantri Jaiv Indhan-Vatavaran Anukul Fasal Awashesh Nivaran (PM JI-VAN) Yojana was launched in 2019 to provide financial support for setting up bio-ethanol projects using biomass and other renewable feedstock.[32] The scheme has been allocated Rs 233 crore for 2021-22. Note that in 2019-20, the government did not spend any part of the budgeted allocation of Rs 38 crore, and in 2020-21, Rs 32 crore was spent (60% of the budget allocation). The Standing Committee (2020) observed that this scheme could help reduce import dependence by substituting fossil fuels with bio-fuels.[4]

---

[1] About the Scheme, PAHAL – Direct Benefits Transfer for LPG, Ministry of Petroleum and Natural Gas, http://petroleum.nic.in/dbt/whatisdbtl.html.

[2] Budget speech, Budget 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

[3] About ISPRL, Indian Strategic Petroleum Reserves Limited, http://www.isprlindia.com/aboutus.asp.

[4] 2nd Report of the Standing Committee on Petroleum and Natural Gas on the Demands for Grants (2020-21), March 2020, http://164.100.47.193/lsscommittee/Petroleum%20&%20Natural%20Gas/17_Petroleum_And_Natural_Gas_2.pdf.

[5] Unstarred Question No. 180, Lok Sabha, Ministry of Petroleum and Natural Gas, Answered on September 14, 2020, http://164.100.24.220/loksabhaquestions/annex/174/AU180.pdf.

[6] "Finance Minister announces Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona Virus", Press Information Bureau, Ministry of Finance, March 26, 2020.

[7] Unstarred Question No. 459, Rajya Sabha, Ministry of Petroleum and Natural Gas, Answered on September 16, 2020, https://pqars.nic.in/annex/252/AU459.pdf.

[8] 18th Report of the Standing Committee on Petroleum and Natural Gas on the Demands for Grants (2017-18), March 2017, http://164.100.47.193/lsscommittee/Petroleum%20&%20Natural%20Gas/16_Petroleum_And_Natural_Gas_18.pdf.

[9] About PMUY, Pradhan Mantri Ujjwala Yojana, Ministry of Petroleum and Natural Gas, https://www.pmujjwalayojana.com.

[10] 'Cabinet approves enhancement of target under Pradhan Mantri Ujjwala Yojana', Press Information Bureau, Cabinet Committee on Economic Affairs, February 7, 2018.

[11] Unstarred Question No. 936, Lok Sabha, Ministry of Petroleum and Natural Gas, Answered on February 8, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU936.pdf.

[12] Energy Sources of Indian Households for Cooking and Lighting, 2011-12, NSS 68th Round, July 2011-June 2012, Ministry of Statistics and Programme Implementation, http://mospi.nic.in/sites/default/files/publication_reports/nss_report_567.pdf.

[13] Drinking Water Sanitation, Hygiene and Housing Condition in India, NSS 76th Round, July 2018-December 2018, Ministry of Statistics and Programme Implementation, http://mospi.nic.in/sites/default/files/NSS7612dws/Report_584_final.pdf.

[14] Assessment report: Primary survey on household cooking fuel usage and willingness to convert to LPG, Petroleum Planning & Analysis Cell, Ministry of Petroleum and Natural Gas, June 2016, http://ppac.org.in/WriteReadData/Reports/201710310449342512219PrimarySurveyReportPPAC.pdf.

[15] Report of the Comptroller and Auditor General of India on Pradhan Mantri Ujjwala Yojana, Performance Audit, No. 14 of 2019, Ministry of Petroleum and Natural Gas, December 11, 2019, https://cag.gov.in/sites/default/files/audit_report_files/Report_No_14_of_2019_Performance_Audit_of_Pradhan_Mantri_Ujjwala_Yojana_Ministry_of_Petroleum_and_Natural_Gas_0.pdf.

[16] Unstarred Question No. 1248, Rajya Sabha, Ministry of Petroleum and Natural Gas, Answered on September 21, 2020, https://pqars.nic.in/annex/252/AU1248.pdf.

[17] 'Cabinet approves extension of time limit for availing the benefits of "Pradhan Mantri Garib Kalyan Yojana" for Ujjwala beneficiaries by three months w.e.f. 01.07.2020', Press Information Bureau, Ministry of Petroleum and Natural Gas, July 8, 2020.

[18] Refill Data, Pradhan Mantri Ujjwala Yojana, accessed on February 6, 2020, https://pmuy.gov.in/registereduser.html.

[19] PAHAL-Direct Benefits Transfer for LPG(DBTL) Consumers Scheme, Ministry of Petroleum and Natural Gas, http://petroleum.nic.in/dbt/whatisdbtl.html.

[20] Petroleum Price and Under-Recoveries, Petroleum Planning and Analysis Cell, https://www.ppac.gov.in/WriteReadData/userfiles/file/PP_7_b_PS_oil_prices(H).pdf.

[21] Direct Benefit Transfer portal, https://dbtbharat.gov.in/data/documents/Schemes%20wise%20Beneficiaries%20reported%20on%20DBT%20Bharat%202020-21%20as%20on%2015.09.2020.pdf.

[22] Petroleum Planning and Analysis Cell.

[23] Export Import Data Bank, Ministry of Commerce and Industry.

[24] Unstarred Question No. 1140, Lok Sabha, Ministry of Petroleum and Natural Gas, Answered on February 8, 2021, http://164.100.24.220/loksabhaquestions/annex/175/AU1140.pdf.

[25] 1st Report of the Standing Committee on Petroleum and Natural Gas on the Demands for Grants (2019-20), December 2019, http://164.100.47.193/lsscommittee/Petroleum%20&%20Natural%20Gas/17_Petroleum_And_Natural_Gas_1.pdf.

[26] Unstarred Question No. 2524, Lok Sabha, Ministry of Petroleum and Natural Gas, Answered on August 1, 2016, http://164.100.24.220/loksabhaquestions/annex/9/AU2524.pdf.

[27] 25th Report of the Standing Committee on Petroleum and Natural Gas, August 2018, http://164.100.47.193/lsscommittee/Petroleum%20&%20Natural%20Gas/16_Petroleum_And_Natural_Gas_25.pdf.

[28] Report of the Roadmap for Reduction in Import Dependency in the Hydrocarbon Sector by 2030, Ministry of Petroleum and Natural Gas, September 2014, https://www.pngrb.gov.in/OurRegulation/NGP-GSR273.html.

[29] Natural Gas Pipelines Network in India- As on 30.09.2020, Petroleum and Natural Gas Regulatory Board of India, https://www.pngrb.gov.in/data-bank/NGPLReports30092020.pdf .

[30] Budget speech, Union Budget 2020-21, https://www.indiabudget.gov.in/budget2020-21/doc/Budget_Speech.pdf.

[31] Petroleum and Natural Gas Regulatory Board (Guiding Principles for Declaring or Authorizing Natural Gas Pipeline as Common Carrier or Contract Carrier) Regulations, 2009, Petroleum and Natural Gas Regulatory Board of India, April 21, 2009, https://www.pngrb.gov.in/OurRegulation/NGP-GSR273.html.

[32] 'Cabinet approves Pradhan Mantri JI-VAN Yojana', Press Information Bureau, Cabinet Committee on Economic Affairs, February 28, 2019.

Demand for Grants: Science and Technology

The Ministry of Science and Technology has three departments: (i) Department of Science and Technology (DST), (ii) Department of Scientific and Industrial Research (DSIR), and (iii) Department of Biotechnology (DBT). DST is responsible for promoting new areas of science and technology, coordinating, and integrating areas of science and technology having cross-sectoral linkages. It formulates and implements policies for the promotion of science, technology, research, and innovation in the country. DSIR is responsible for promotion, development, and transfer of indigenous technology. The Council for Scientific and Industrial Research (CSIR) is an autonomous body under DSIR which undertakes research and development in diverse areas. DBT is entrusted with the promotion and development of biotechnology. This note examines the expenditure by the three Departments and discusses key issues in the sector.

Overview of Finances[1,2,3]

Expenditure

In 2021-22, the Ministry of Science and Technology has been allocated Rs 14,794 crore. This comprises: (i) Rs 6,067 crore to DST (41%), (ii) Rs 5,224 crore to DSIR (35%), and (iii) Rs 3,502 crore to DBT (24%). This is an annual increase of 8% over 2019-20. Allocation to DBT (22% annual increase over 2019-20) has increased at a higher rate as compared to DST (6%) and DSIR (4%).

Table 1: Overview of Allocation (in Rs crore)

Dept	2019-20	2020-21 BE	2020-21 RE	% change in 20-21 (BE to RE)	2021-22 BE	CAGR (19-20 to 21-22)
DST	5,407	6,302	5,000	-21%	6,067	6%
DSIR	4,872	5,385	4,252	-21%	5,224	4%
DBT	2,359	2,787	2,300	-17%	3,502	22%
Total	**12,637**	**14,473**	**11,552**	**-20%**	**14,794**	**8%**

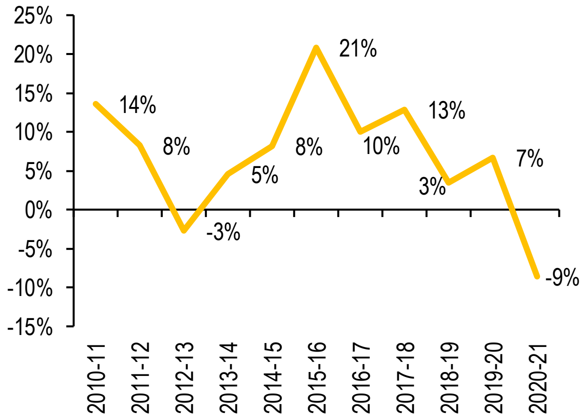
Note: BE: Budget Estimates; RE: Revised Estimates. CAGR: Compounded Annual Growth Rate.
Source: Expenditure Budget; PRS.

Almost all the expenditure under the Ministry is revenue expenditure (99.7% on average). In 2020-21, all three departments have seen a notable cut in the allocation at the revised stage as compared to the budget estimate (20% on aggregate). In comparison, the overall revenue expenditure of the central government in 2020-21 increased by 14.5% from the budget stage to the revised stage. However, note that there have been significant variations in the allocation to individual ministries in 2020-21 at the revised stage. This may be due to a change in expenditure priorities during the year due to COVID-19 and national lockdown. In 2020-21, the amount allocated at the budget stage to the DSIR was about Rs 1,000 crore less than the initial demand by the department.[4] While examining this allocation, the Standing Committee on Technology (2020) had suggested that an additional amount of Rs 440 crore should be allocated to the DSIR at the revised stage.[4] This was to be utilised for meeting its bare minimum expenses on the fellowship to researchers and salary to the staffs of the department, and certain schemes.[4] However, as mentioned earlier, in 2020-21, allocation to DSIR has further reduced by Rs 1,133 crore at the revised stage.

Growth in Expenditure

The growth in the expenditure of the Ministry has been variable during the last decade (Figure 1 and 2). The year-on-year growth in expenditure was relatively higher during the 2015-18 period. During the 2018-21 period, the growth has slowed down. In 2018-19, the expenditure by the Ministry was only 3% higher than the previous year. In 2018-19, actual expenditure by DSIR registered a negative growth as compared to the previous year (-2%). Similarly, expenditure by DBT in 2019-20 was 1% less than the previous year. In 2020-21, all three departments are estimated to register a decline in expenditure as compared to the previous year. During the 2015-20 period, the compounded annual growth rate in expenditure is: (i) 9% for DST, (ii) 5% for DSIR, and (iii) 11% for DBT.

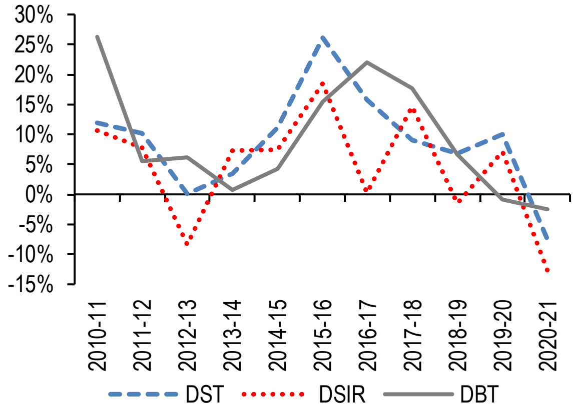
Figure 1: Year-on-year growth in expenditure- Ministry of Science and Technology



Note: Expenditure for 2020-21 is as per revised estimates.
Source: Expenditure Budget; PRS.

Regarding the expenditure of DST, the Standing Committee on Science and Technology (2020) had observed that there is a need for enhancement in the medium-term expenditure framework (MTEF) allocation to the DST.[5] MTEF provides a three-year rolling target for the expenditure of a department.[6] The Committee recommended that DST should pursue the Ministry of Finance for revision of the MTEF to a higher base level. This will help DST in carrying out its new initiatives and future plans.[5]

Figure 2: Department-wise year-on-year growth in expenditure

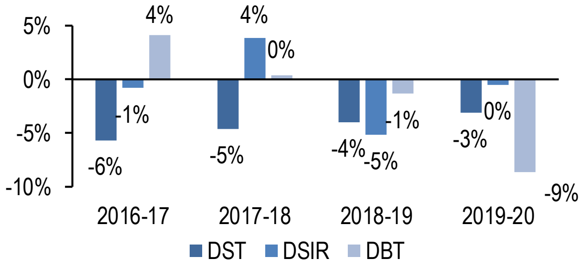


Note: Expenditure for 2020-21 is as per revised estimates.
Source: Expenditure Budget; PRS.

Fund Utilisation

During the 2016-20 period (four years), on average, DST spent 4% less than the budget estimates (Figure 3). The corresponding figures for DSIR and DBT are 1% and 2%, respectively. In 2019-20, DBT spent 9% less than the budget estimates.

Figure 3: Underutilisation



Source: Expenditure Budget; PRS.

Major allocation heads

Department of Science and Technology (DST)

In 2021-22, Rs 1,488 crore has been allocated towards Assistance to Autonomous Bodies (Table 2). Allocation towards Autonomous Bodies is the highest within the Department (25%), followed by allocation towards Institutional and Human Capacity Building (18%), and Innovation, Technology Development and Deployment (16%). The Innovation, Technology Development and Deployment head includes allocation for technology development programme, programmes for socio-economic development, and drugs and pharmaceutical research. About 16% of the total allocation in 2021-22 is towards Statutory and Regulatory Bodies (fourth-highest). Allocation towards these bodies in 2021-22 is estimated to decrease at CAGR of 5% over 2019-20.

In 2020-21, allocation towards the Department is estimated to decrease by 21% from the budget stage to the revised stage. Within the Department, heads that have seen a higher cut at the revised stage include: (i) Research and Development (44%), and (ii) Innovation, Technology Development, and Deployment (38%), and (iii) Statutory and Regulatory Bodies (32%). Research and Development head includes allocation for international cooperation, mega facilities for basic research, technology fusion, and applications research.

Table 2: Major Allocation Heads-DST (in Rs crore)

Particular	19-20 Actuals	20-21 RE	21-22 BE	CAGR (19-20 to 21-22)
Assistance to Autonomous Bodies	1,218	1,375	1,488	11%
Institutional & Human Capacity Building	1,069	911	1,100	1%
Innovation, Technology Development & Deployment	812	656	952	8%
Statutory & Regulatory Bodies of which	1,055	752	950	-5%
(i) SERB	*957*	*742*	*900*	*-3%*
(ii) TDB	*98*	*10*	*50*	*-29%*
Research and Development	584	403	594	1%
Survey of India	434	444	531	11%
Mission on ICPS	123	271	270	48%
Total	**5,407**	**5,000**	**6,067**	**6%**

Note: SERB: Science and Engineering Research Board; TDB: Technology Development Board; ICPS: Interdisciplinary Cyber Physical Systems. RE: Revised Estimates; BE: Budget Estimates.
Source: Expenditure Budget; PRS.

Department of Scientific and Industrial Research

In 2021-22, almost 98% of the total allocation under DSIR is towards the Council of Scientific and Industrial Research (CSIR). In 2020-21, the allocation to the National Laboratories under CSIR is estimated to decrease by 22% at the revised stage.

Table 3: Major Allocation Heads-DSIR (in Rs crore)

Particular	19-20	20-21 RE	21-22 BE	CAGR (19-20 to 21-22)
CSIR of which	4,832	4,208	5,144	3%
(i) National Laboratories	4,532	3,808	4,669	2%
(ii) Capacity Building and Human Resource Development	300	400	475	26%
Industrial Research and Development	7	13	21	75%
Total	**4,872**	**4,252**	**5,224**	**4%**

Note: RE: Revised Estimates; BE: Budget Estimates.
Source: Expenditure Budget; PRS.

Although, allocation towards the Industrial Research and Development head was small (Rs 31 crore at the budget stage in 2020-21), this was cut to Rs 13 crore at the revised stage (by 59%). Expenditure under this head include schemes for: (i) promoting innovations through individual, startups, and small scale industries, (ii) patent acquisition, and (iii) research facilities.

Department of Biotechnology (DBT)

In 2021-22, the highest allocation within this Department is towards Biotechnology Research and Development (Rs 1,660 crore, 47% of the total). This is followed by allocation towards Industrial and Entrepreneurship Development (27%) and Assistance to Autonomous Institutions (23%). Allocation towards Industrial and Entrepreneurship Development in 2021-22 is about four times the actual allocation in 2019-20. Under the Industrial and Entrepreneurship Development, assistance is given for public-private partnership programmes, bio-clusters, and biotech parks. In 2020-21, a higher cut is estimated in the allocation to Research and Development (16%) and Assistance to Autonomous Institutions (29%) at the revised stage.

Table 4: Major Allocation Heads- Department of Biotechnology (in Rs crore)

Particular	19-20	20-21 RE	21-22 BE	CAGR (19-20 to 21-22)
Biotechnology Research and Development	1,305	1,323	1,660	13%
Industrial and Entrepreneurship Development	231	344	960	104%
Assistance to Autonomous Institutions	762	577	807	3%
Total	**2,359**	**2,300**	**3,502**	**22%**

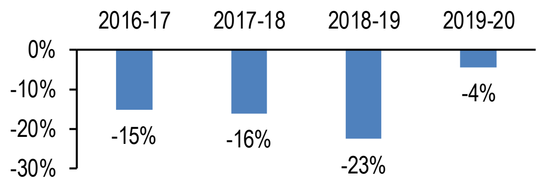
Note: RE: Revised Estimates; BE: Budget Estimates.
Source: Expenditure Budget; PRS.

For the majority of the allocation heads across all three departments, fund utilisation was above 90% during the 2016-20 period. Following are some heads with lower fund utilisation during this period:

Research and Development under DST

Under this head, funds are allocated towards: (i) international co-operation, (ii) National Mission for Nano Science & Nano Technology, (iii) Mega Facilities for Basic Research, (iv) alliance and R&D mission (climate change program), (v) super-computing facility and capacity building, and (vi) technology fusion and applications research. Expenditure under this head at Rs 594 crore comprises 10% of the total expenditure of the department in 2021-22. During 2016-20 period, on average, the actual expenditure was 15% less than the budget estimate.

Figure 4: Underutilisation - Research and Development head under DST

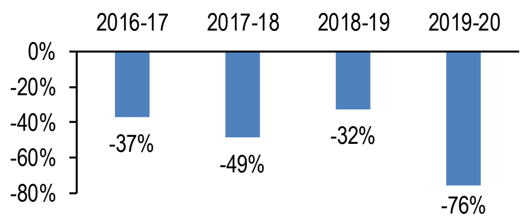


Source: Expenditure Budget; PRS.

Industrial Research and Development under DSIR

Under this head, funds are allocated towards: (i) Promoting Innovations in Individuals, Startups & MSMEs (PRISM), (ii) Patent Acquisition and Collaborative Research & Technology Development (PACE), (iii) Building Industrial R&D and Common Research Facilities (BIRD) and (iv) Access to Knowledge for Technology Development & Dissemination (A2K plus) programmes of the Department. Expenditure under this head at Rs 21 crore comprises less than 1% of the total expenditure under DSIR in 2021-22. The actual expenditure under this head has been substantially lower than the budget estimates in all four years between 2016-17 and 2019-20 (49% on average).

Figure 5: Underutilisation - Industrial Research and Development head under DSIR



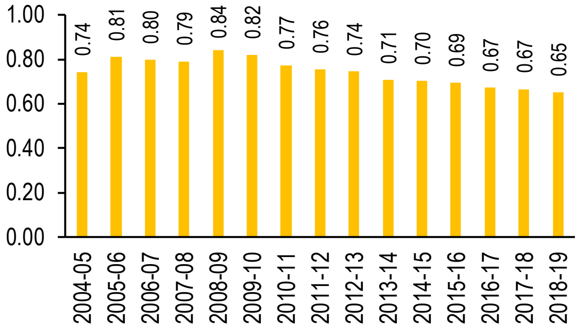
Source: Expenditure Budget; PRS.

Issues for consideration

National expenditure on research and development at its lowest level since 2004-05

The Science, Technology, and Innovation Policy, 2013 had observed that increasing gross expenditure in research and development (GERD) to 2% of GDP has been a national goal for quite some time.[7] This Policy is administered by the Ministry of Science and Technology. GERD includes expenditure on research and development by business enterprises, higher education institutions, governments, and private non-profit organisations. The 2013 Policy had observed that the target for GERD could be achieved by 2018-19 if the private sector at least matches the expenditure level of the public sector.[7] However, as can be seen in Figure 6, the GERD in 2018-19 was estimated to be 0.65% of GDP.[8] Between 2004-05 and 2018-19, GERD reached its highest in 2008-09. However, since then, GERD in terms of % of GDP has been declining. GERD in 2018-19 was the lowest since 2004-05.

Figure 6: Gross Expenditure on Research and Development (Figures in % of GDP)

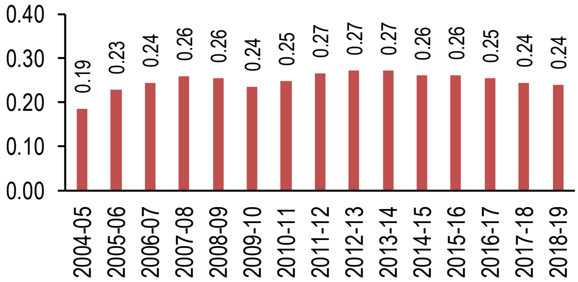


Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

Contribution of the private sector

The 2013 Policy had stressed that the expenditure on research and development (R&D) by the private sector needs to go up. It had observed that an increase in private investment is necessary for translating R&D outputs into commercial outcomes. However, the expenditure on R&D by the private sector has decreased from 0.27% of GDP in 2012-13 to 0.24% of GDP in 2018-19 (Figure 7). NITI Aayog (2018) noted that low investment by the private sector in R&D is a key challenge in the development of the innovation ecosystem in the country.[9] Note that the Draft Science, Technology, and Innovation Policy, 2020 seeks to double the GERD and the private sector contribution to GERD in five years.[10] Since October 2019, companies have been allowed to use corporate social responsibility funds (CSR) for contributions towards research.[11] They can spend CSR funds as contributions to public-funded incubators, research organisations and universities engaged in research in science, technology, engineering, and medicine.

Figure 7: Expenditure by the Private Sector on R&D (Figures in % of GDP)

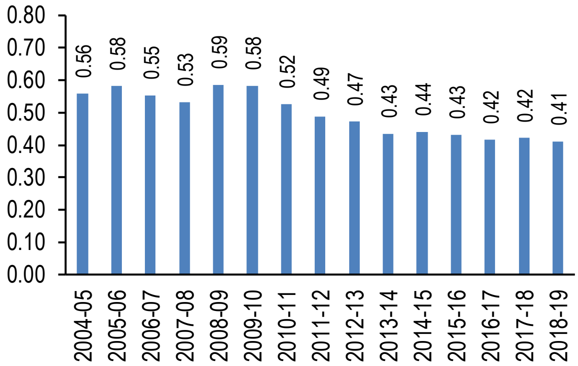


Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

Contribution of public sector

The 2013 Policy had observed that the public sector has led the expenditure on R&D in the country. This includes expenditure by: (i) all central government ministries, (ii) public sector units, (iii) state governments, and (iv) higher education institutes. Expenditure by the public sector has also been declining since 2008-09 (Figure 8). In 2018-19, expenditure by the public sector towards R&D in the country (0.41% of GDP) was the lowest since 2004-05.

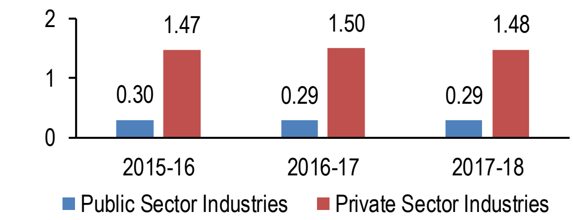
Figure 8: Expenditure by the Public Sector on R&D (Figures in % of GDP)



Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

Further, the public sector industries (such as National Thermal Power Corporation Limited (NTPC) and Steel Authority of India Limited (SAIL)) spend a lesser portion of their sales turnover on R&D as compared to the private sector industries (Figure 9). In 2017-18, private sector companies spent 1.48% of their sales turnover on R&D. The corresponding percentage for the public sector industries was 0.29%.

Figure 9: Percentage of sales turnover spent on R&D (Figures in %)

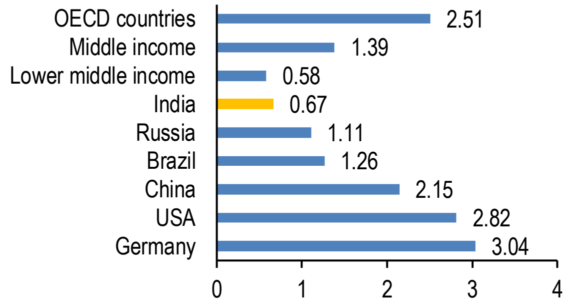


Note: Data for public sector refers to 103 industrial R&D units. Data for private sector refers to 2,007 industrial R&D units excluding scientific and industrial research organisations. The public sector contributed 48% of the total sales turnover of the considered units in 2017-18.
Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

International Comparison

If we compare globally, as of 2017, India's GERD was substantially lower than countries such as Germany, USA, China, South Africa, and Brazil (Figure 10).[12] However, India's GERD is higher than the average for lower-middle-income group countries.[12]

Figure 10: Gross Expenditure on Research and Development in 2017 (Figures in % of GDP)

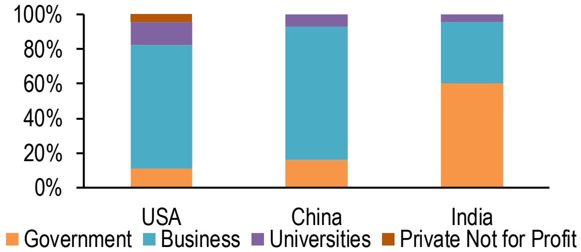


Source: World Bank; PRS.

The Economic Survey (2017-18) had observed that:

- In countries such as the USA, China, Germany, and Japan, the share of the private sector in the overall spending in research and development is significantly higher (Figure 11).[13]

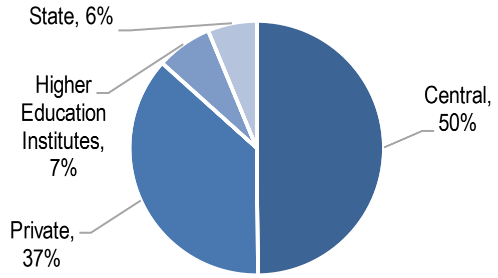
Figure 11: Source-wise funds for research and development in 2015



Source: Volume I, Economic Survey 2017-18; PRS.

- In most countries, the private sector carries out the bulk of research and development even if the government plays an important role in funding. However, in India, the government is the primary source as well as the primary user of funds for R&D.[13] The Standing Committee on Science and Technology (2020) had recommended that the Department of Science and Technology should consider a higher direct allocation to the private sector from its funds for R&D related activities.[5]
- The Economic Survey (2017-18) observed that the government expenditure on R&D is undertaken almost entirely by the central government. There is a need for greater state government spending (Figure 12).[13]

Figure 12: Sector-wise source of funds for R&D in 2018-19



Note: Central sector includes expenditure by central ministries and central public sector units. State sector includes spending by the state ministries/organisations and state agricultural universities. Examples of Higher Education Institutes are IITs and Indian Institute of Science, Bangalore.
Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

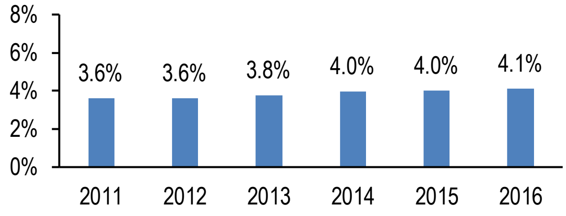
- The Survey took note of an analysis by a private organisation (Forbes, 2017). According to this analysis, India had 26 firms in the list of top 2,500 global R&D spenders as compared to 301 Chinese companies. 19 of these 26 firms were in three sectors: (i) pharmaceuticals, (ii) automobiles, and (iii) software. India had no firms in five of the top ten R&D sectors as opposed to China, which has a presence in each one of them.[13]
- The Survey observed that in several countries, universities play a critical role in both creating the talent pool for research as well as generating high-quality research output. However, publicly funded research in India is concentrated in specialised research institutes under different government departments.[13] This leaves universities to largely play a teaching role. Hence, universities play a relatively small role in research activities. The Economic Survey recommended linking national laboratories to universities for improvement in the knowledge ecosystem.[13]

Share in global scientific publications increased but target set in the 2013 Policy likely to be missed

The Economic Survey (2017-18) noted that looking at scientific publications can help in assessing the productivity and quality of research.[13] The Science, Technology, and Innovation Policy 2013 observed that India's share in the global scientific publications had increased from 1.8% in 2001 to 3.5% in 2011.[7] The Policy had set a target of doubling the global share in the scientific publications by 2020.[13] By 2016, India increased its share in the global scientific publication to 4.1% (latest data available).[8] The compounded annual growth rate (CAGR) for scientific publications during the 2011-2016 period for India has been 6.4% as against the CAGR of 3.7% for the world.[8] If the publication output were to grow at the same rate, India's share in 2020 will be about 4.5%. This will be lower than the target set by the

2013 Policy for 2020 (7% share in the global scientific publications).

Figure 13: Share in Global Scientific Publication (SCI Database)



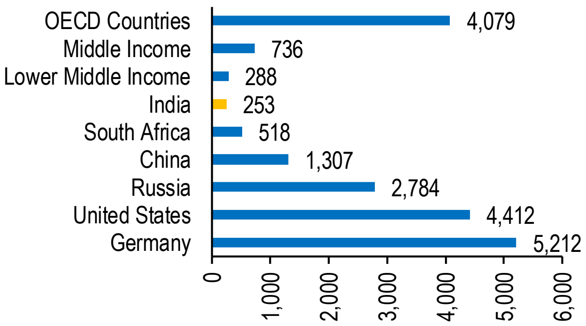
Note: Data is as per the Science Citation Index (SCI) Database.
Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

The Economic Survey (2017-18) also observed that in addition to increasing publications, India needs to improve in terms of high-quality research output (measured as highly cited articles).[13] It noted that India lags considerably on this parameter when compared to other large countries such as USA and China.[13]

Low number of researchers per million people

India has a significantly low number of researchers per million people (253 in 2018) when compared to countries such as USA and China.[14] It is also less than the average for lower-middle-income group countries (288 in 2015).[14] In comparison, USA and China had 4,412 (2017) and 1,306 (2018) researchers per million people.[14] The Economic survey (2020-21) observed that among the top 10 economies, the government's contribution to total R&D personnel and researchers was the highest in India.[15] Against an average of 9%, the government's contribution to total R&D personnel and researchers in India was 36% and 34%, respectively.[15] Among the top 10 economies, the contribution of the business sector in R&D personnel and researchers was the second-lowest in India.[15] Against an average of above 50%, the business sector's contribution to R&D personnel and researchers in India was 30% and 34%, respectively.[15]

Figure 14: Researchers per million people



Note: Data belongs to different years. For Germany, China, Russia, and India, the data is as of 2018. For USA, South Africa, and OECD countries, the data is as of 2017. For middle-income, and lower-middle-income countries, the data is as of 2015.
Source: World Bank; PRS.

India's performance on the Global Innovation Index

The Economic Survey (2020-21) observed that:

- Since the inception of the Global Innovation Index in 2007, India entered the top 50 innovating countries for the first time in 2020.[15] Its ranking improved from 81 in 2015 to 48 in 2020. The Global Innovation Index provides detailed metrics about the innovation performance of 131 economies around the world.[16] It assesses political, regulatory, and business environment, education, infrastructure, and market and business sophistication. Sophistication refers to how conducive market/firms are to innovation. For instance, business sophistication includes indicators such as GERD performed and financed by business, knowledge-intensive employment, and research collaboration between industry and universities.
- India has performed above expectation on innovation with respect to its level of development.[15] However, India seems to be underperforming in innovation with respect to the size of its GDP. India lags behind most other large economies (top 10) on most indicators of innovation.[15] India is currently the fifth-largest economy in terms of GDP.
- India must focus on improving its performance on: (i) institutions (political, regulatory, and business environment), and (ii) business sophistication.[15]

Note that India's gross enrolment ratio (GER) in higher education itself is low as compared to these countries. In 2018, India's GER in higher education was 26.3%.[17] In comparison, the GER in higher education in countries such as USA, China, and Germany was 88%, 49%, and 70%, respectively.[18] The National Education Policy 2020 recommends increasing GER in higher education to 50% by 2035.[17] The Economic Survey (2017-18) observed that considerable improvement in mathematics and cognitive skills is required at the primary and secondary education level to enable the R&D ecosystem in the country.[13] The National Education Policy 2020 also aims to improve foundational literacy and numeracy and cognitive capacities of students.[17]

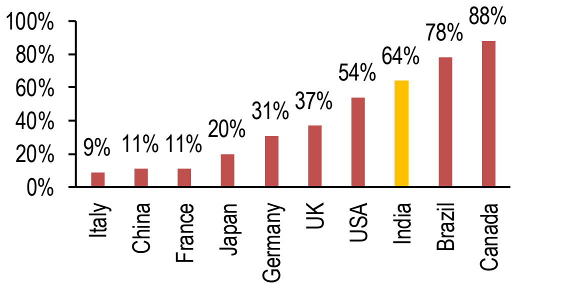
NITI Aayog (2018) had observed that the link between research, higher education, and the industry is weak and nascent in India.[9] It further observed that so far the education system has not focussed on cultivating scientific temperament at an early age.[9] Even in the later stages, the lack of career opportunities in basic sciences leads to the diversion of potential researchers to other rewarding sectors.[9] It had recommended that once the Higher Education Commission is set up, the Commission may consider giving credits for innovation and startups.[9] The Commission should also consider setting up online entrepreneurial development courses in colleges and universities.[9] The Higher Education Commission is proposed to replace the existing regulatory institutions for higher education.

The Economic Survey (2017-18) also noted that more than one lakh people with PhDs, who were born in India, live and work outside India.[13] In USA alone, the number of immigrant scientists and engineers from India increased from five lakh in 2003 to 9.5 lakh in 2013.[13] It noted that government programs such as Ramanujan Fellowship Scheme, INSPIRE Faculty Scheme, and Ramalingaswami Re-Entry Fellowships provide opportunities to Indian researchers residing in foreign countries to work in Indian universities. However, the number of people returning has been modest (243 during 2007-12 and 649 during 2012-17).[13] The Survey recommended enhancing the scope of these schemes to also provide additional support for good research instead of just financial incentive. The additional support should include: (i) laboratory resources, and (ii) ability to hire post-docs.[13]

Resident share in patent applications needs to increase

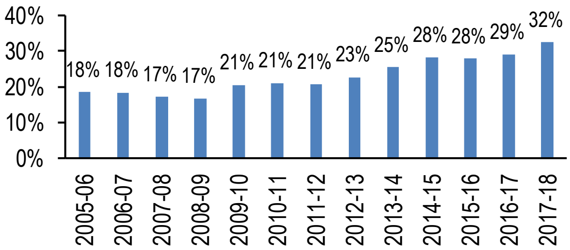
The Economic Survey (2017-18) had observed that patents reflect a country's standing in technology.[13] During the 2007-18 period, the patent applications filed in India grew at a CAGR of 3%.[12] As can be seen in Figure 15, a larger number of patent applications in India are filed by non-residents (64% in 2019) as compared to countries such as China (11%) and USA (54%).[15] However, the share of residents in patent applications has been steadily increasing (Figure 16).[8] The Economic Survey (2020-21) had observed that resident share in the patent applications needs to rise further for India to become an innovation nation.[15]

Figure 15: Percentage of patent applications filed by non-residents in the top 10 economies (2019)



Source: Economic Survey 2020-21; PRS.

Figure 16: Percentage of patent applications filed in India by residents



Source: Research and Development Statistics 2019-20; Ministry of Science and Technology; PRS.

Foreign Direct Investment in R&D remains low

The Office of the Principal Scientific Advisor noted that Foreign Direct Investment (FDI) is one of the key factors for enhancing R&D exports.[19] India's share in global R&D exports was about 2.8% in 2019.[19] R&D exports include: (i) licensing of intellectual property, (ii) technology embodied in exported intermediate goods, (iii) technology transfer through FDI, and (iv) outflow of technical services. India has a trade surplus in R&D services.[19] During 2011-20, India's R&D exports grew at a CAGR of 26.6%, the highest growth among the top 10 exporting countries in R&D.[19] However, R&D accounts for only a tiny share of FDI inflows into India (0.25% in 2018-19).[20] Further, it is mostly concentrated in four sectors - Information and Communication Technology, Natural Sciences and Engineering, Pharmaceuticals, and Clinical Research (more than 80%).[20] The Economic Advisory Council to the Prime Minister suggested a goal of increasing yearly FDI inflow into R&D to USD 300 million by 2022.[21] However, FDI in R&D has been on a decline since 2015-16 (Table 5).[20]

Table 5: FDI equity inflow (in USD million)

Year	R&D	Total	% Share
2015-16	235	40,001	0.59%
2016-17	84	43,478	0.19%
2017-18	107	44,857	0.24%
2018-19	110	44,366	0.25%
2019-20	67	49,977	0.13%

Source: Note titled "FDI into R&D: Current Status and Way Forward" by the Office of the Principal Scientific Advisor; PRS.

Adoption of technologies developed by public-funded research organisations is low

NITI Aayog (2018) had observed that the rate of transfer of technology developed by public-funded institutions such as the Council of Scientific and Industrial Research (CSIR) is relatively low.[9] It highlighted poor marketing skills and information dissemination as key reasons for this.[9] It suggested the following measures to enhance technology commercialisation by public-funded institutions:

- Value addition centres may be set up in these institutions for: (i) upscaling technologies and improving technology readiness level, (ii) coordinating with investors to incubate entrepreneurs, (ii) enabling commercialisation and marketing, and (iii) providing technology support during production.
- A National Technology Data Bank should be created by the Department of Science and Technology which will act as the central database for technologies that are ready for deployment or under development.
- Public funded research institutions should focus on the development and deployment of socially relevant technologies in areas such as clean drinking water, sanitation, energy, healthcare,

and organic farming. These technologies have a large potential for commercialisation.

Tax incentives for R&D to the private sector have been reduced

India used to allow a weighted tax deduction of 200% of expenditure towards in-house research and development to corporations.[15] This was reduced to 150% from April 2018.[15] This is going to be reduced further to 100% from April 2021.[15] The Standing Committee on Science and Technology (2020) was informed that withdrawal of tax incentive on R&D as well as exemptions on funds spent in acquiring patents by the private sector, has negatively affected the R&D investment in the private sector.[5] The Committee observed that the tax incentive had stimulated R&D spending by the private sector. It recommended that the Department of Science and Technology should conduct an impact assessment in this regard.[5]

Public procurement does not encourage new and innovative technologies

NITI Aayog (2018) had observed that public procurement is biased in favour of experienced and established products and technologies.[9] This discourages new and innovative technologies offered by startups.[9] It recommended that:

- international competitive bidding should be resorted to only when Indian manufacturers are unable to supply products or services of comparable international quality;
- to adopt innovative technologies, experts or scientific practitioners should be mandatorily included on committees related to public procurement; and
- Indian startups should be given preference in the technical evaluation for public procurement.

Following incentives are available to startups recognised by the Department for Promotion of Industry and Internal Trade: (i) relaxation in prior turnover and prior experience requirements, subject to meeting of quality and technical specifications (notified in March 2016), (ii) relaxation in bid security deposit requirements (notified in July 2017).[22,23,24] Startups can also get the opportunity to work on trial orders with the government.[22] The recognised startups are allowed to offer their products and services for procurement on government's e-marketplace platform.[25] This is aimed at helping startups to introduce unique innovations to government and public sector unit buyers.[25]

[1] Demand No 88, Department of Science and Technology, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe88.pdf.

[2] Demand No 89, Department of Biotechnology, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe89.pdf.

[3] Demand No 90, Department of Scientific and Industrial Research, Union Budget 2021-22, https://www.indiabudget.gov.in/doc/eb/sbe89.pdf.

[4] Report No 328: Demand for Grants (2020-2021) of the Department of Scientific and Industrial Research, Departmentally Related Parliamentary Standing Committee on Science and Technology, Environment, Forests, and Climate Change, March 6, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/19/126/329_2020_12_15.pdf.

[5] Report No 329: Demand for Grants (2020-2021) of the Department of Science and Technology, Departmentally Related Parliamentary Standing Committee on Science and Technology, Environment, Forests, and Climate Change, March 6, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/19/126/329_2020_12_15.pdf.

[6] Medium-term Expenditure Framework Statement laid before parliament, August 2018, https://dea.gov.in/sites/default/files/MTEF%20Statement%20%28english%29%202018.pdf.

[7] The Science, Technology, and Innovation Policy 2013, Ministry of Science and Technology, http://dst.gov.in/sites/default/files/STI%20Policy%202013-English.pdf.

[8] S&T Indicators Tables, 2019-20, Research and Development Statistics 2019-20, Department of Science and Technology, March 2020, https://dst.gov.in/document/reports/st-indicators-tables-2019-20.

[9] "Strategy for New India @75", NITI Aayog, November 2018, https://niti.gov.in/writereaddata/files/Strategy_for_New_India.pdf.

[10] Draft 5th Science, Technology, and Innovation Policy, Department of Science & Technology, December 2020, https://dst.gov.in/sites/default/files/STIP_Doc_1.4_Dec2020.pdf.

[11] G.S.R. 776 (E), Ministry of Corporate Affairs, October 11, 2019, http://egazette.nic.in/WriteReadData/2019/213151.pdf.

[12] "Research and development expenditure (% of GDP)", Data Bank, World Bank, as accessed on February 10, 2021, https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS.

[13] Chapter 8: Transforming Science and Technology in India, Volume I, Economic Survey 2017-18, https://www.thehinducentre.com/resources/article10057766.ece.

[14] "Researchers in R&D (per million people)", Data Bank, World Bank, as accessed on February 10, 2021, https://data.worldbank.org/indicator/SP.POP.SCIE.RD.P6.

[15] Chapter 8: Innovation: Trending Up but needs thrust, especially from the Private Sector, Volume I, Economic Survey 2020-21, https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap08_vol1.pdf.

[16] The Global Innovation Index (GII) Conceptual Framework, World Intellectual Property Organization, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2017-annex1.pdf.

[17] National Education Policy 2020, Ministry of Human Resource Development, https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf.

[18] "National Monitoring : Gross enrolment ratio by level of education", Website of UNSECO Institute for Statistics as accessed on February 11, 2021, http://data.uis.unesco.org/.

[19] Note on R&D Exports, Office of the Principal Scientific Advisor to the Government of India, December 10, 2020, https://www.psa.gov.in/psa-prod/publication/R%26D%20Exports.pdf.

[20] Note on FDI into R&D, Office of the Principal Scientific Advisor to the Government of India, November 10, 2020, https://www.psa.gov.in/psa-prod/publication/FDI%20in%20R%26D.pdf.

[21] "R&D Expenditure Ecosystem: Current Status and Way Forward", Economic Advisory Council to the Prime Minister of

India, July 2019, https://www.psa.gov.in/psa-prod/publication/RD-book-for-WEB.pdf.

[22] "Procurement by Government", Website of Startup India as accessed on February 14, 2021, https://www.startupindia.gov.in/content/sih/en/public_procurement.html.

[23] Policy Circular No 1(2)(1)/2016-MA, Ministry of Micro, Small, and Medium Enterprises, March 2016, https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/notification/Relaxed_Norms_of_Public_Procurement_for_Startups/1.%20Relaxed_Norms_of_Public_Procurement_for_Startups.pdf.

[24] No.F.20/2/2014-PPD(Pt.), Department of Expenditure, Ministry of Finance, July 25, 2017, https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/notification/Relaxed_Norms_of_Public_Procurement_for_Startups/2.%20Notification_EMDExemption.pdf.

[25] "Easing Public Procurement", Website of Startup India as accessed on February 14, 2021, https://www.startupindia.gov.in/content/sih/en/compendium_of_good_practices/easing_public_procurement.html.

Annexure

Table 6 and 7 provide details on the achievements of the Department of Science and Technology and the Department of Biotechnology on key performance indicators as per their respective dashboards.

Table 6: Key Statistics-Department of Science and Technology

Indicator	2018-19	2019-20	2020-21 (up to Dec 31, 2020)
Human Capacity Building			
Fellowships provided	1,16,854	92,869	1,030
Number of people trained	20,381	2,805	61,390
Number of conferences	640	389	463
Research and Development			
New R&D Projects	3,658	691	545
Ongoing Projects	7,982	10,479	2,946
Institutional Capacity Building			
New R&D Infra	251	102	156
Innovation and Startups			
Number of Innovations	468	658	617
Startups	898	791	610
International Cooperation			
International Collaborative Visits	3,302	774	1
Ongoing Projects	478	2,931	1,829
Fellowships	66	144	37
Number of Manpower Trained	1,221	569	99
Science and Engineering Research Board			
Number of Ongoing Projects	6,033	26,664	22,283
Number of New R&D Projects	2,492	2,076	1,189
Human Resource Development	2,912	2,049	464
Development Activities	2,212	1,868	0
Autonomous Institutions			
Number of Publications	2,336	2,624	2,453
Number of PhDs Produced	221	296	150
Number of Manpower Trained	1,896	5,452	2,747
Number of Patents Granted	38	98	91

Source: Dashboard of the Department of Science and Technology as accessed on February 14, 2021; PRS.

Table 7: Key Statistics-Department of Biotechnology

Indicator	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21*
Ongoing Projects	2,212	1,955	1,893	2,165	2,460	2,405	2,004
Projects Sanctioned	656	415	552	831	847	594	227
Ongoing International Collaborative Projects	42	66	79	101	139	96	69
Scientists Supported (PI/CoPI)	4,801	4,493	4,569	5,121	5,553	4,521	2,364
Research Personnel (JRF+SRF+RA)	5,766	6,076	6,180	6,195	6,221	6,312	-
CTEP-Proposals Sanctioned							
Conferences	-	-	161	92	83	96	-
Travels	-	-	522	421	314	317	-
Exhibitions	-	-	9	8	9	17	-
Popular Lectures	-	-	6	13	10	28	-
Technologies Generated	117	90	136	75	82	119	-
Publications	2,482	2,494	2,654	1,904	3,478	3,758	-
Patents Filed	186	160	181	102	93	76	-

Note: *as of February 14, 2021. PI: Principal Investigator; CoPI: Co-Principal Investigator; JRF: Junior Research Fellowship; SRF: Senior Research Fellow; RA: Research Assistant. CTEP: Conference, Travel, Exhibition, and Popular Lectures.
Source: Dashboard of the Department of Biotechnology as accessed on February 14, 2021; PRS

Demand for Grants: Environment, Forests and Climate Change

The Ministry of Environment, Forests and Climate Change is responsible for the planning, promotion, co-ordination of, and overseeing the implementation of India's environmental and forestry policies and programmes. This note presents the budgetary allocations to the Ministry for 2021-22, and analyses various issues related to the sector.

Budget speech highlights 2021-22[1]

Key highlights in the budget regarding environment include:

- Rs 2,217 crore will be allocated for 42 urban centres with population more than one million for tackling the problem of air pollution.
- A voluntary scrapping policy will be introduced to phase out old and unfit vehicles. Vehicles will undergo a fitness test after: (i) 20 years (personal vehicles), and (ii) 15 years (commercial vehicles). This seeks to encourage environment friendly vehicles and fuel efficiency and reduce vehicular pollution and expense on oil import.
- Urban Swacch Bharat Mission 2.0 will be implemented with a capital outlay of Rs 1.4 lakh crores over five years (2021-26). The objectives of the Mission include: (i) complete faecal sludge management, (ii) reduction in single use plastic, (iii) source segregation of garbage, and (iv) reduction in air pollution.

Allocation in Union Budget 2021-22

In 2021-22, the Ministry of Environment, Forests and Climate Change has been allocated Rs 2,870 crore, which is an annual increase of 6% over the actual expenditure in 2019-20. The allocation to the Ministry is 0.1% of the estimated expenditure of the union government for 2021-22.

Table 1: Budgetary allocation to the Ministry 2021-22 (in Rs crore)

	Actuals 19-20	BE 20-21	RE 20-21	BE 21-22	Annualised change (Actuals 19-20 to BE 21-22)
Total	2,538	3,100	2,015	2,870	6%

Note: BE is budget estimate and RE is revised estimate.
Sources: Demands for Grants 2021-22; PRS.

In 2021- 22, 27% of the Ministry's allocation (Rs 766 crore) is estimated to be on centrally sponsored schemes on environment, forests and wildlife such as National Mission for Green India and Integrated Development of Wildlife Habitats. 16% of the allocation of the Ministry is towards pollution control and about 5% is towards environment protection, management, and sustainable development. Establishment expenditure, i.e., spending on the secretariat and offices accounts for 22% of the total expenditure.

Table 2 represents the budgetary allocation for major heads under the Ministry.

Table 2: Major heads of expenditure under the Ministry (in Rs crore)

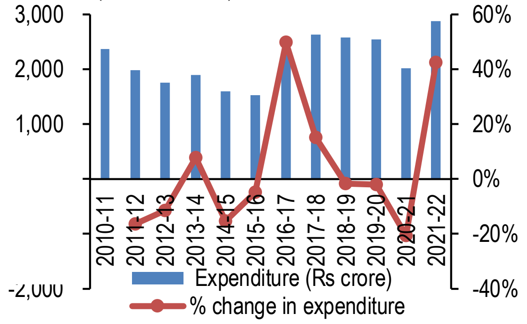
Heads	2019-20 Actuals	2020-21 RE	2021-22 BE	Annualised change (Actuals 19-20 to BE 2021-22)
Environment, Forestry and Wildlife	768	556	766	-0.2%
Establishment Expenditure of the Centre	521	477	634	10%
Control of Pollution	409	284	470	7%
Autonomous Bodies	326	340	289	-3%
National Coastal Mission	91	68	200	48%
Statutory and Regulatory Bodies	135	108	161	9%
Environment Protection, Management and Sustainable Development	118	108	136	7%
Decision support System for Environmental Awareness, Policy, Planning and Outcome Evaluation	109	84	117	4%
Environmental Knowledge and Capacity Building (such as Eco-Task Force)	86	40	70	-10%
Total	**2,538**	**2,015**	**2,870**	6%

Note: BE is budget estimate and RE is revised estimate; Establishment Expenditure of the Centre includes Secretariat and subordinate offices; Autonomous Bodies include Indian Council of Forestry Research and Education, and Indian Institute of Forest Management; Environment Protection, Management and Sustainable Development includes Climate Change Action Plan, National Adaptation Fund, and National Mission on Himalayan Studies; Decision support System for Environmental Awareness, Policy, Planning, and Outcome Evaluation include environmental education, awareness and training, and environment information systems.
Sources: Demands for Grants 2021-22; PRS.

Overview of the financial allocation

Figure 1 shows the trend of expenditure of the Ministry between 2010-11 and 2021-22. The expenditure of the Ministry has seen an annual average growth of 2% during this period.

Figure 1: Expenditure between 2010-11 and 2021-22 (in Rs crore)



Note: Values for 2020-21 and 2021-22 are Revised Estimates and Budget Estimates respectively.
Sources: Union Budgets 2010-11 to 2021-22; PRS.

Table 3 shows the utilisation trend of the funds allocated to the Ministry between 2010-11 and 2020-21.

Table 3: Trend of fund utilisation by the Ministry (in Rs crore)

Year	BE	Actuals	Over/Under Utilisation
2010-11	2,351	2,372	1%
2011-12	2,492	1,982	-20%
2012-13	2,629	1,753	-33%
2013-14	2,630	1,890	-28%
2014-15	2,256	1,599	-29%
2015-16	1,682	1,521	-10%
2016-17	2,250	2,278	1%
2017-18	2,675	2,627	-2%
2018-19	2,675	2,586	-3%
2019-20	2,955	2,538	-14%
2020-21	3,100	2,015*	-35%

Note: BE – Budget Estimate; *Revised Estimate; (+) indicates over-utilisation; (-) indicates under-utilisation.
Sources: Union Budgets from 2010-11 to 2021-22; PRS.

Between 2010-11 and 2020-21, on average the actual expenditure of the Ministry has been less than the budget estimates for the year. However, the Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2020) stated that the utilisation of funds by the Ministry in 2017-18 and 2018-19 is satisfactory.[2]

In 2020-21, the Ministry was allocated Rs 3,100 crore, which decreased by Rs 1,085 crore (35%) at the revised estimates stage. This includes reduction in funds towards: (i) Environment, Forestry and Wildlife (reduced by Rs 370 crore), (ii) Establishment Expenditure of the Centre (reduced by Rs 194 crore), and (iii) Control of Pollution (reduced by Rs 176 crore), among others. This may be due to the impact of the COVID-19 pandemic, and a change in spending priorities of the government over the year.

Key issues for consideration

Some of the key issues in the environment sector include: (i) global warming, (ii) air pollution, and (iii) declining forest cover.[2,3,4] In this section, we discuss some of these issues.

Climate Change

Climate change refers to a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere.[5] Studies indicate that the amount of greenhouse gases including carbon dioxide, methane, and nitrous oxide in the atmosphere have increased rapidly over the last few centuries as a result of human activities.[6,7] The increased concentration of greenhouse gases in the atmosphere has led to a rise in global temperatures leading to other changes in global climate, such as erratic rains, floods, and cyclones.[6,7]

According to the Intergovernmental Panel on Climate Change (IPCC), the average global temperature is estimated to have increased by 0.85°Celsius (°C) between 1880 and 2012.[7] At the end of the 21st century, the increase in global temperature is likely to exceed 1.5°C as compared to pre-industrial levels (1850 to 1900).[7] This could lead to a reduction of the snow cover, increase in heat waves, extreme precipitation, intensification of tropical cyclones and increase in sea levels.

Current Emission Levels

The total carbon dioxide (CO_2) emissions across the world in 2018 were 33,513 million tonnes. Table 4 compares India's CO_2 emissions from fuel combustion to that in other countries.

Table 4: Global comparison of CO2 emissions (2018)

Country	CO_2 emissions from fuel combustion (million tonnes)	% of world emissions	Per capita emissions (tonnes CO_2)
China	9,571	29%	6.8
US	4,921	15%	15.0
EU	3,151	9%	6.1
India	**2,308**	**7%**	**1.6**
Russia	1,587	5%	1.7
Japan	1,081	3%	8.5
World	33,513		4.4

Note: EU is European Union; US is United States if America.
Sources: CO_2 Emissions from Fuel Combustion 2018, International Energy Agency (2020); PRS.

China was the largest contributor to the world's CO_2 emissions (29%). On a per capita basis, the United States had the highest per capita emissions. India amounts for 7% of the total global CO_2 emissions, and is well below the average global emissions per capita.[8]

The 15th Finance Commission observed India's dependence on thermal energy and the consequent effect on emission levels.[9] It noted that about 60% of the country's installed capacity is thermal based (coal based thermal power accounting for the largest share). Further, it noted that while the share of renewables in total power generation has increased from 6% in 2014-15 to 10% in 2018-19, substantial investment is required in renewable energy.[9] It recommended that a comprehensive energy policy should be framed. It also noted that the prices of coal, natural gas, and kerosene in India are below environmentally efficient levels (which can partly be due to subsidies given for LPG and kerosene to select consumers). It recommended bringing the prices of these fuels closer to environmentally efficient levels, while providing targeted assistance to potentially affected vulnerable households.[9]

The projected changes in climate change pose a major threat for India in particular, given that the national economy is closely tied to climate sensitive sectors such as agriculture and forestry.[10]

The National Action Plan on Climate Change (NAPCP) was launched in June 2008 to deal with issues related to climate change.[11] The NAPCP has eight missions: (i) the National Solar Mission, (ii) the National Mission on Enhanced Energy Efficiency, (iii) the National Water Mission, (iv) the National Mission for Green India, (v) National Mission on Sustainable Habitat, (vi) National Mission for Sustainable Agriculture, (vii) National Mission for Sustaining the Himalayan Ecosystem, and (viii) National Mission on Strategic Knowledge for Climate Change.

NITI Aayog in its report on Strategy for New India (2018) recommended that all eight national missions under the NAPCP should be revised in light of new scientific information and technological advances.[12] Further, new national missions on wind energy, waste-to-energy, and coastal areas should be developed.[12] In addition, NITI Aayog in its report recommended the following to maintain a clean, green, and healthy environment:[12]

- **Changes to regulatory framework**: Stringent civil penalties should be introduced to strengthen enforcement of environment-related Acts. Further, Rules related to waste management should be revised and strictly implemented. These include: (i) Plastic Waste (Management and Handling) Rules, (ii) Bio-Medical Waste (Management and Handling) Rules, (iii) E-Waste (Management) Rules, and (iv) Hazardous and Construction & Demolition Waste Management Rules.
- **Funds**: National Adaptation Fund for Climate Change and other global funds for strengthening resilience against climate change in sectors such as agriculture, forestry, and infrastructure should be utilised. Further, scientific and analytical capacity for climate change related assessments should be strengthened.

The Estimates Committee (2018) had reviewed the implementation of the NAPCP and made specific recommendations on some of the Missions. These recommendations include:[11]

- **National Mission on Sustainable Habitat:** The Committee observed that the emphasis of the Mission is limited to urban habitats only and does not take into account the requirements of the rural habitats. It recommended that the Mission introduce a comprehensive and integrated plan encompassing the needs of both rural as well as urban habitats.
- **National Mission for Sustainable Agriculture:** The Committee noted that although the Mission focuses on different aspects of agriculture, it does not include income security of farmers. It observed that crop insurance schemes and the MSP scheme have not made farming remunerative. It recommended the government to consider these elements of the Mission.

In 2015, the Paris Agreement was adopted by the Conference of Parties with the consensus of 197 parties to the convention (including India).[13] The Paris Agreement aims to reduce greenhouse gas emissions globally and limit the increase in the global average temperature to a level between 1.5ºC to 2ºC above pre-industrial levels.

India's Nationally Determined Contributions (NDC)

India submitted its Nationally Determined Contributions to the United Nations Framework Convention on Climate Change on October 2, 2015. India's commitments include achieving the following targets by 2030:

- Reducing greenhouse gas emissions per unit of GDP by 33-35% from 2005 levels.
- Achieving 40% of installed electric power capacity from non-fuel-based energy sources (such as solar, wind, hydropower) with help of transfer of technology and low-cost international finance.
- Increasing forest and tree cover by creating additional carbon storage and absorption capacity for 2.5-3 billion tonnes of carbon dioxide.
- Enhancing investments in development programmes in sectors vulnerable to climate change, including agriculture, water resources, health, disaster management, and Himalayan and coastal regions.
- Mobilising funds domestically and from developed countries to implement mitigation and adaptation actions.

In December 2020, the Ministry of Environment, Forest and Climate Change constituted a high-level inter-ministerial Apex Committee for Implementation of Paris agreement.[14] The Committee will be the national regulatory authority for carbon markets in India. Its functions include: (i) developing policies and programmes to make

India's domestic climate change compliant to international obligations, (ii) coordinating communications of nationally determined contributions, and (iii) defining responsibilities of concerned ministries for achieving India's nationally determined contribution goals.[14]

Climate Change Financing

The Economic Survey (2020-21) observed that India is relying on domestic resources to implement adaptation and mitigation action for climate change.[15] It noted that the financing considerations will remain critical as the country had increased its targets substantially. Preliminary estimates provided by the NDC indicate that India's climate change actions till 2030 will require financial resource of USD 2.5 trillion (at 2014-15 prices).[15] It recommended a clearer assessment of the financial requirement for implementing the NDC for appropriate allocation of resources. Further, the possible sources for meeting these requirements should also be devised.[15] The Survey noted that availability of adequate financial resources for implementing the NDC goals is a major challenge.[15] It recommended that additional financial resources and technological support to the developing countries (as was committed by the developed countries under the Paris Agreement) should be implemented.[15]

Environment Impact Assessment and Clearance

Environment Impact Assessment is a planning tool to integrate environmental concerns into the developmental process from the initial stage of planning.[16] The Ministry of Environment, Forests and Climate Change has made Environmental Clearance (EC) for certain development projects mandatory such as certain building, construction, and area development projects.[16]

The Comptroller and Auditor General of India (CAG) (2016) noted certain issues with the environmental clearance process. Its observations and recommendations include:[16]

- **Delay in process**: The CAG noted a delay in the process of EC (including grant of Terms of Reference, public consultation, and grant of EC by the Ministry). For example, (i) out of 216 projects examined, the Terms of Reference was granted within the prescribed time limit (60 days) to only 14% of the projects, and (ii) the EC was granted within the prescribed time limit (105 days) in only 11% of the cases. It recommended the Ministry to increase transparency in the grant of EC, streamline the processes, and adhere to the timelines given under the EIA Notification.

Draft Environment Impact Assessment Notification, 2020

The Draft Notification seeks to replace the EIA Notification, 2006. It proposes certain conditions and thresholds on undertaking new infrastructure projects, and on expansion or modernisation of existing infrastructure projects. These projects include dams, mines, airports, and highways.

The draft notification was released by the Ministry of Environment, Forest and Climate Change in March, 2020.[17] Initially, the Ministry invited comments on the Notification by June 10, 2020, which was later extended to June 30, 2020 in wake of the COVID-19 pandemic.[18] Further, Delhi High Court and Karnataka High Court extended the deadline to August 11, 2020 considering limited advertisement of the notification in regional languages.[19,20] Currently, the notification has not been issued as the consideration of suggestions is ongoing.[21]

Key features of the draft EIA notification, 2020 include:

Validity of prior-environment clearance increased: The draft notification proposes to increase the validity of prior environment clearance and prior environment permission for all projects. For example, it seeks to increase the validity for: (i) mining projects from 30 years to 50 years, (ii) river valley projects from 10 years to 15 years, and (iii) all other projects from five years to 10 years.

Exemptions from public consultation: The 2006 notification exempts certain infrastructure projects from conducting public consultation. These include industrial parks and complexes, special economic zones, irrigation projects, and construction projects, among others. The draft notification adds several other projects under the list of projects exempted from public consultation. These include: (i) development projects in border areas, (ii) highways, expressways, (iii) metallurgical industries, and (iv) pesticide industries.[22] Further, the draft notification makes certain changes to the public consultation timeline, compared to the 2006 notification.

Table 5: Comparison between public consultation timeline in EIA notification, 2006 and draft EIA notification, 2020

Activity	Allotted time as per 2006 notification	Allotted time as per 2020 notification
Finalisation of date, time, and venue for public hearing	7 days from date of receipt of application	10 days from date of receipt of application
Advertising the details of public hearing	No mention	5 days from getting consent of the concerned Pollution Board
Minimum notice period to public for submitting responses	30 days	20 days
Sending public hearing proceedings to the regulatory authority	8 days	5 days
Total	**At least 45 days**	**Up to 40 days**

Source: EIA Notification, 2006; Draft EIA Notification, 2020; PRS.

- **Cumulative impact studies**: The CAG noted that such studies before preparing the Environment Impact Assessment reports was not a mandatory requirement. Due to this, the impact of a number of projects was not known.
- **National Regulator**: It noted that the Ministry has not appointed a national level regulator to carry out an independent, objective, and transparent appraisal and approval for ECs of projects and to monitor the implementation of the conditions laid down under ECs.
- **Uniformity in terms and conditions**: It noted that there was non-uniformity in the terms and conditions of the EC for similar kind of projects. It recommended the Ministry to make conditions of ECs compatible with the nature and type of project to avoid non-uniformity for similar projects.
- **Compliance to Conditions of Environment Clearance**: The CAG noted non-compliance in the 216 sampled projects (ranging from 4% to 56%), in respect of 13 general Environmental Clearance conditions. It recommended the Ministry to grant fresh EC only after verifying the compliance to the earlier EC conditions. Further, it recommended the Ministry to mandate certain other conditions for an EC, including installation of monitoring stations and frequency of monitoring of various environment parameters for air, surface water, ground water, and noise pollution.

Air Pollution

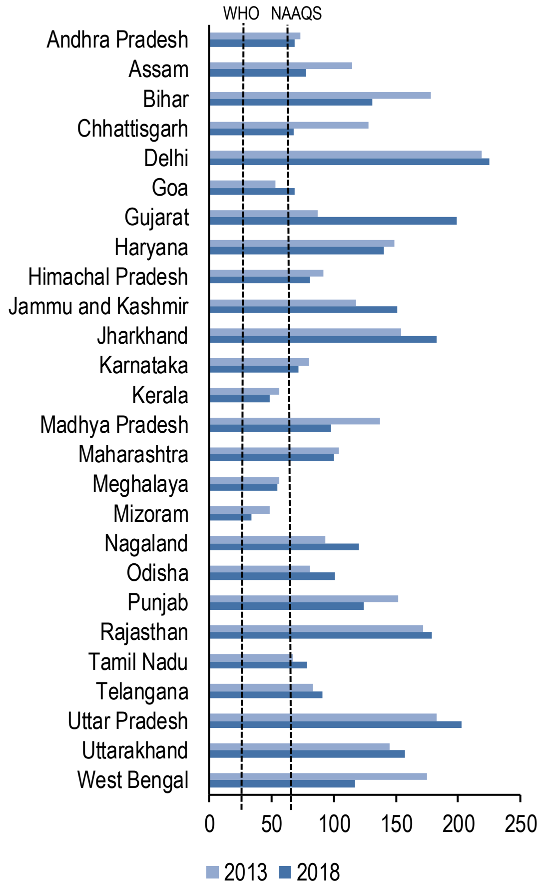
Air pollution is the presence of any air pollutant in the atmosphere.[23] An air pollutant is any solid, liquid, or gaseous substance in the atmosphere in such concentration which may be injurious to human beings, other living creatures, or property.

Among the risk factors of diseases in India, air pollution ranks the second highest (after malnutrition), accounting for 10% of the disease burden, and thus, is one of the leading causes for premature death and disabilities.[24] According to estimates published by the India Disease Burden Initiative, in 2017, 12.4 lakh deaths, i.e., 12.5% of the deaths in India, were attributable to air pollution.[25]

The Central Pollution Control Board (CPCB) notified the National Ambient Air Quality Standards (NAAQS) in 2009.[26] The programme enables CPCB to identify non-attainment cities, i.e., cities that do not comply with the NAAQS. It identified 102 non-attainment cities where the ambient air quality crossed the prescribed standards continuously during the period 2011-15.[27]

Figure 2 compares the annual average PM_{10} levels in different states during 2013 and 2018. It also highlights the WHO standards (20 µg/m^3) and the NAAQS (60 µg/m^3) for the pollutant. As of 2018, states with comparatively higher PM_{10} levels include: (i) Delhi (225 µg/m^3), (ii) Uttar Pradesh (203 µg/m^3), and (iii) Gujarat (199 µg/m^3), among others.

Figure 2: PM_{10} levels (annual average, in µg/m^3)



Note: Data for Andhra Pradesh, Bihar and Telangana for 2014.
Sources: CPCB; PRS.

National Clean Air Programme (NCAP): The Ministry of Environment, Forest and Climate Change launched the NCAP in January 2019.[28] It receives funding under the budget head Control of Pollution. The programme sets a national level target of 20% to 30% reduction of $PM_{2.5}$ and PM_{10} concentration levels by 2024, with 2017 as base for concentration levels.[28] City specific action plans are to be formulated for the 102 non-attainment cities identified by CPCB.[27] NCAP aims to: (i) prepare comprehensive mitigation actions for prevention, control and abatement of air pollution, and (ii) augment the air quality monitoring network and strengthen awareness activities.

Financing for air pollution

In 2021-22, Control of Pollution has been allocated Rs 470 crore, a 16% annual increase over the actual expenditure in 2019-20. In 2020-21, the allocation for Control of Pollution was reduced by 30% (from

Rs 660 to Rs 460 crore) at the revised estimates stage.

The Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2020) noted that the NCAP is a programme of utmost importance in the present-day context and controlling air pollution must be given the topmost priority.[2] It recommended that the Ministry must be provided the requisite allocation as sought by it with respect to Control of Pollution at the revised stage.[2]

In the 2020-21 Union Budget Speech, it was announced that Rs 4,400 crore will be allocated towards clean air for large cities (population more than one million) through the Ministry of Housing and Urban Affairs.[2] In 2021-22, it was announced that Rs 2,217 crore will be allocated for 42 urban centres having population more than one million.[3] However, no such allocation has been specified in this Ministry's Demand for Grants in either years.

The Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2020) noted that the announced allocation in the Budget Speech (Rs 4,400 crore) for clean air for large cities in 2020-21 through the Ministry of Housing and Urban Affairs was higher than the entire budget allocation for the Ministry of Environment, Forests, and Climate Change (Rs 3,100 crore) for the year.[2]

The Ministry of Environment, Forests, and Climate Change has identified 102 non-attainment cities for utilising this fund under the NCAP. These are cities which do not meet NAAQS for a period of five years.[2] The Committee noted that there are 46 cities (with population more than one million), which may be kept out of the non-attainment category.[2] This will help the Ministry of Environment, Forests, and Climate Change to reduce the shortfall of funds for the schemes of pollution control.

The 15th Finance Commission recommended the Ministry of Housing and Urban Affairs be made the nodal ministry for grants to cities with population more than one million to take steps to check air pollution.[9] The Ministry of Environment, Forests and Climate Change may be given a separate grant for installation of systems to monitor air quality.[9]

Air Pollution in NCR

Since the past few years, the National Capital Region (NCR) continues to see particulate matter levels reach the severe category at several locations, especially during the winter season. The CPCB identified the season as critical due to the meteorological conditions, i.e., lower mixing height, higher humidity, fall of ambient air temperature coupled with lower temperature difference between maximum and minimum, and low wind speed.[29] Further, the burning of crop residue by farmers in the NCR and adjoining areas is also one of the key reasons for pollution in the region.

Supreme Court's directions for pollution control in NCR

On October 18, 2019, the Environment Pollution (Prevention and Control) Authority (EPCA) (established for the prevention and abatement of environmental pollution in NCR) submitted a report to the Supreme Court on the situation of pollution in NCR and sought urgent directions to improve enforcement of pollution control measures. On November 4 and 6, 2019, the Court gave various directions to the governments of Delhi, Punjab, Haryana, and Uttar Pradesh. Some of these are:[30,31]

- Chief secretaries, district collectors, and police officers of concerned areas of Punjab, Haryana, and Uttar Pradesh must ensure cessation of stubble burning.
- No demolition, construction activities and garbage burning should take place in Delhi and NCR region.
- Delhi government and concerned municipal corporations should remove open garbage and waste, and ensure no open dumping takes place.
- Ensure that coal-based industries are not operating.
- Pollution control boards of Punjab, Haryana, and Uttar Pradesh and Delhi government must ensure that polluting activities against norms are stopped.

Ordinance to set up a commission for air quality management in NCR

The Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020 was promulgated in October 2020.[32] The Ordinance establishes a Commission for better co-ordination, research, identification, and resolution of problems related to air quality in the NCR and adjoining areas. Adjoining areas refers to areas in Haryana, Punjab, Rajasthan, and Uttar Pradesh where any source of pollution may cause adverse impact on air quality in the NCR. The key provisions of the Ordinance include:

- **Functions**: Functions of the Commission include: (i) coordinating actions taken under the Ordinance by the concerned state governments (Delhi, Haryana, Punjab, Rajasthan, and Uttar Pradesh), (ii) planning and executing plans to prevent and control air pollution in the region, and (iii) preparing various action plans such as increasing plantation and addressing stubble burning.
- **Penalties**: Non-compliance with or violation of the Ordinance, and orders and directions of the Commission is punishable with imprisonment of up to five years or fine of up to one crore rupees or both. All appeals against the orders of the Commission will be heard by the National Green Tribunal.

Other measures being implemented by the Ministry to reduce air pollution include:[33]

- introduction of cleaner/alternate fuels, such as gaseous fuels (CNG and LPG) and fuels blended with ethanol;
- shifting from BS-IV to BS-VI fuel standards by April 2020 for the entire country;
- promotion of public transport and improvements in roads, and building of more bridges to ease congestion on roads;
- revision of emission standards for industrial sectors from time to time;
- banning of burning of biomass;
- deployment of increased number of mechanised road sweeping machines; and
- development of a mechanism for redressal of public complaints regarding air pollution issues in Delhi and NCR, among others.

NITI Aayog in its report on Strategy for New India (2018) noted certain challenges to reduce the problem of air pollution, including:[12] (i) convincing farmers to discontinue the practice of burning crop residue by providing alternative methods, (ii) lack of awareness of the ill effects of pollution, thereby making it difficult to bring about behavioural change in people, and (iii) ineffective implementation of 'polluters should pay for the pollution' principle (costs of pollution be borne by those who cause it).

It recommended the following:[12]

- **Funds**: A "Clean Air Impact Fund" should be created to provide viability gap funding for long-term projects aimed at reducing air pollution (such as bio-power or bio-ethanol projects).
- **Reward and monitoring at the local level**: A reward scheme for village panchayats with zero burning may be instituted, and a mechanism to monitor farm fires should be devised.
- **Industry Emissions**: Emission and effluent standards for industries should be revised and effectively implemented. Further, a task force should be set up to study and implement measures to control pollution from brick kilns.

Forestry

In India, forests are considered as a part of the natural and cultural heritage. They provide variety of ecosystem services including: (i) absorption of greenhouse gases, (ii) prevention of soil erosion, and (ii) habitat to wildlife. One of the critical challenges faced by forests in the country is degradation of forest cover.[34]

Green India Mission

Green India Mission (erstwhile National Afforestation Programme) was launched in February 2014. Its objectives includ: (i) increasing forest cover by up to 5 million hectare and improving quality of forest cover on additional 5 million hectare of land, (ii) enhancing eco-system services such as capturing and storing atmospheric carbon to reduce global warming, and (iii) increasing forest-based livelihood income of about 3 million households.[3]

NITI Aayog, in its report on Strategy for New India (2018), identified increasing the forest cover to 33.3% of the geographical area between 2021-23 as one of the key objectives for a clean, and healthy environment in India.[12] Between 2017 and 2019, the forest cover across India increased by 0.6% (0.4 million hectares).[35] As of 2019, total forest cover in India accounts for 22% of the total geographical area (71 million hectare out of 329 million hectare).[36] The states with comparatively higher forest cover as share of their geographical area include: (i) Lakshadweep (90%), (ii) Mizoram (85%), (iii) Andaman and Nicobar Islands (82%), (iv) Meghalaya (76%), and (v) Manipur (75%), among others.[4]

Note that, the 14th Finance Commission assigned 7.5% weightage to "forest cover" in its calculation of states' share in the central taxes.[37] The 15th Finance Commission (2020) replaced this by a weightage of 10% to "forest and ecology".[38] This was done to reward states for the ecological services from the forest cover, and to compensate them for constraints arising from the dense forests in the state.[38]

NITI Aayog recommended promoting afforestation through peoples' participation and the involvement of the private sector, with priority to restoration of degraded forests.[12] Further, it recommended that the public land along railway tracks, highways, and canals should be used for tree plantation.[12]

The Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2018) had noted that despite the overall increase in the forest cover in India, some of the North-Eastern states observed a decline in the forest cover in 2017.[3] These states include Manipur, Arunachal Pradesh, and Mizoram.[3,4]

The Standing Committee on Science & Technology, Environment & Forests on the 'Status of Forests in India' (2019) also expressed concerns about the decline in the forest cover in the North-Eastern States, which constitute 65.34% of their geographical area in comparison to the national forest cover of 21.54%.[34] It recommended that the concerned state governments and the Ministry of Environment, Forests and Climate Change must take all necessary steps to ensure that the decline in forest cover in these states is stopped at the earliest.[34]

In addition, the Committee noted that no action plan has been prepared by the Ministry for controlling illegal cutting of trees in forests. It recommended the Ministry to take cognizance of the illegal felling of trees in different parts of the country and prepare an action plan for tackling this menace, in coordination with state governments.[34]

Financing afforestation: In 2021-22, the Green India Mission has been allocated Rs 250 crore (an annual increase of 14% over the actual expenditure in 2019-20).

The Standing Committee on Science & Technology, Environment & Forests on the 'Status of Forests in India' (2019) had noted that the budget allocation to National Afforestation Programme has been insufficient. This has affected the achievement of the annual targeted area of afforestation during the last few years. The Committee recommended the Ministry to ensure adequate allocation to the National Afforestation Programme to achieve the targets under the Programme.

The Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2020) noted that the Green India Mission is an important programme.[2] However, there has been under-utilisation of funds in the Mission. In 2020-21, up to the revised stage, 61% of the funds allocated to the Mission has been utilised.[2]

Evaluation: The Standing Committee on Science & Technology, Environment & Forests on the 'Status of Forests in India' (2019) noted that the mid-term evaluation study on National Afforestation Programme conducted by the Indian Council of Forestry Research and Education (ICFRE) in 2008 had highlighted the successful implementation of the programme.[34] However, the Committee observed that more than ten years have passed since the previous ICFRE evaluation and recommended the Ministry to undertake a new study. This will help in assessing the actual impact of the Green India Mission on the forest cover and formulate strategies accordingly.[34]

The Committee also recommended the Ministry to take necessary action for determining the availability of total land for afforestation in the country. This will help state governments in formulating strategies for taking up the afforestation activities at their level.

Compensatory Afforestation Management and Planning Authority (CAMPA) funds

The CAMPA funds were established under Compensatory Afforestation Fund Act, 2016 in August 2016.[39] The Act requires an entity, diverting a forest land towards non-forest purposes (such as mining), to pay for planting forest over an equal area of non-forest land or over twice the area of the degraded forest land. The purposes for utilisation of the fund include: (i) artificial plantations, (ii) wildlife and forest protection, and (iii) forest related infrastructure development.

The Standing Committee on Science and Technology, Environment, Forests, and Climate Change (2020) noted that the CAMPA fund has a huge corpus of Rs 54,394 crore. The funds have accumulated due to deforestation. However, the current guidelines on the utilisation of fund restrict its utilisation for other schemes with similar objectives (such as Green India Mission) under the Ministry.[2]

The Committee recommended the Ministry to explore possibilities of utilisation of fund for schemes with objectives like those defined for utilisation of CAMPA fund. It specified that amendment to CAMPA Act and rules should be also considered for enabling utilisation of the fund for schemes with similar objectives.[2]

[1] Budget Speech 2021-22, https://www.indiabudget.gov.in/doc/Budget_Speech.pdf.

[2] Report No. 331, Standing Committee on Science and Technology, Environment, Forests, and Climate Change, March 6, 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/19/126/331_2020_12_16.pdf.

[3] Report No. 313, Standing Committee on Science and Technology, Environment, Forests, and Climate Change, March 13, 2018, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/19/103/313_2019_1_14.pdf.

[4] Chapter 2 – Forest Cover, India State of Forest Report 2019, Ministry of Environment, Forests, and Climate Change, https://fsi.nic.in/isfr19/vol1/cover-page.pdf.

[5] Article 1, United Nations Framework Convention on Climate Change, 1992.

[6] IPCC Fourth Assessment Report: Climate Change 2007, Intergovernmental Panel on Climate Change, 2007, http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html.

[7] Climate Change 2013: The Physical Science Basis, Fifth Assessment Report, Intergovernmental Panel on Climate Change, 2013, http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf.

[8] CO_2 Emissions from Fuel Combustion 2015, International Energy Agency, 2015, http://www.iea.org/publications/freepublications/publication/CO2EmissionsFromFuelCombustionHighlights2015.pdf.

[9] The Report of the 15th Finance Commission (2021-26), Volume III, The Union, October 2020, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/Reports/XVFC-Vol%20III-Union.pdf.

[10] National Action Plan on Climate Change, Prime Minister's Council on Climate Change, June 2008, http://www.moef.nic.in/sites/default/files/Pg01-52_2.pdf.

[11] "Thirtieth Report: Performance of the National Action Plan on Climate Change", Estimates Committee, Lok Sabha, December 13, 2018, http://164.100.47.193/lsscommittee/Estimates/16_Estimates_30.pdf.

[12] Strategy for New India @ 75, NITI Aayog, November, 2018, https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf.

[13] Paris Agreement, 2015, United Nations Framework Convention on Climate Change, http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf; Paris Climate Change Conference, United Nations Framework Convention on Climate Change, November 2015, http://unfccc.int/meetings/paris_nov_2015/meeting/8926.php.

[14] Government constitutes High-level Ministerial Committee for implementation of Paris Agreement, Press Information Bureau, Ministry of Environment, Forest and Climate Change, December 2, 2020.

[15] Sustainable Development and 06 Climate Change, Chapter 6, Economic Survey (2020-21), https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap06_vol2.pdf.

[16] Report of the Comptroller and Auditor General of India on Environmental Clearance and Post Clearance Monitoring, 2016, https://cag.gov.in/uploads/download_audit_report/2016/Union_Government_Report_39_of_2016_PA.pdf.

[17] Draft Environment Impact Assessment Notification, 2020, March, 2020, Ministry of Environment, Forest and Climate Change http://moef.gov.in/wp-content/uploads/2020/03/Draft_EIA2020.pdf.

[18] S. O. 1429(E), Ministry of Environment, Forest and Climate Change, http://moef.gov.in/wp-content/uploads/2020/05/EIA-2020_extn-of-period.pdf

[19] Vikrant Tongad vs Union of India (Ministry of Environment, Forest and Climate Change), W.P.(C) 3747/2020 & CM Appl. 13426/2020, June 30, 2020.

[20] "Karnataka HC restrains Centre from publishing final notification based on draft EIA", The New Indian Express, August 5, 2020, https://www.newindianexpress.com/states/karnataka/2020/aug/05/karnataka-hc-restrains-centre-from-publishing-final-notification-based-on-draft-eia-2179450.html.

[21] Unstarred Question No. 843, Ministry of Environment, Forests and Climate Change, February 5, 2021, Lok Sabha.

[22] S.O. 1533: Environment Impact Assessment Notification, 2006, September 14, 2006, Ministry of Environment and Forests, http://moef.gov.in/wp-content/uploads/2018/03/so1533.pdf.

[23] Air (Prevention and Control of Pollution) Act, 1981, Ministry of Environment and Forests.

[24] India: Health of the Nation's States, The India State-Level Disease Burden Initiative, Indian Council of Medical Research, Public Health Foundation of India, and Institute for Health Metrics and Evaluation, November 2017, https://phfi.org/wp-content/uploads/2018/05/2017-India-State-Level-Disease-Burden-Initiative-Full-Report.pdf.

[25] The impact of air pollution on deaths, disease burden, and life expectancy across the states of India: The Global Burden of Disease Study 2017, Lancet Planet Health 2018, December 2018, https://www.thelancet.com/action/showPdf?pii=S2542-5196%2818%2930261-4.

[26] No. B-29016/20/90/PCI-I, Gazette of India, Ministry of Environment and Forests, November 18, 2009, http://www.egazette.nic.in/WriteReadData/2009/E_217_2010_005.pdf.

[27] Unstarred Question No. 1181, Ministry of Environment, Forests and Climate Change, June 28, 2019, Lok Sabha.

[28] "Government launches National Clean Air Programme (NCAP)", Press Information Bureau, Ministry of Environment, Forests and Climate Change, January 10, 2019.

[29] Unstarred Question No. 219, Ministry of Environment, Forests and Climate Change, February 5, 2018, Rajya Sabha.

[30] M.C Mehta vs Union of India and Ors., Supreme Court, Writ Petition (Civil) No. 13029/1985 of 2019, http://www.epca.org.in/court_orders/SC-ordee-dated4-11-19.pdf.

[31] M.C Mehta vs Union of India and Ors., Supreme Court, Writ Petition (Civil) No. 13029/1985 of 2019, http://www.epca.org.in/court_orders/SC-order-dated6-11-19.pdf.

[32] The Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020, Ministry of Law and Justice, October 28, 2020, http://www.egazette.nic.in/WriteReadData/2020/222804.pdf.

[33] Unstarred Question No. 103, Ministry of Environment, Forests and Climate Change, June 21, 2019, Lok Sabha.

[34] Report No. 324 – Status of Forests in India, Standing Committee on Science and Technology, Environment, Forests, and Climate Change, February 12, 2019, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/19/108/324_2019_9_12.pdf.

[35] India State of Forest Report, 2019, Forest Survey of India, Ministry of Environment, Forests and Climate Change, December 30, 2019, http://www.fsi.nic.in/forest-report-2019.

[36] Chapter 2 – Forest Cover, India State of Forest Report 2019, Ministry of Environment, Forests, and Climate Change, https://fsi.nic.in/isfr19/vol1/cover-page.pdf.

[37] 14th finance commission: Report of 14th Finance Commission, https://fincomindia.nic.in/writereaddata/html_en_files/oldcommission_html/fincom14/others/14thFCReport.pdf.

[38] 15th finance commission: Volume I – Main Report, 15th Finance Commission, October 2020, https://fincomindia.nic.in/writereaddata/html_en_files/fincom15/Reports/XVFC%20VOL%20I%20Main%20Report.pdf.

[39] The Compensatory Afforestation Fund Act, 2016, https://legislative.gov.in/sites/default/files/A2016-38_1.pdf.

PRS Legislative Research

Institute for Policy Research Studies
3rd Floor, Gandharva Mahavidyalaya,
212, Deen Dayal Upadhyaya Marg,
New Delhi-110002
Tel: (011) 4343-4035, 2323-4801
www.prsindia.org