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Small servings, MANY PLATES

FM signals shift from previous trickle-down strategy to a package of schemes for jobless youth, MSMEs; announces tax cuts for middle class; tightens fiscal deficit target to 4.9% of the GDP

Vikas Dhoot
NEW DELHI

Presenting her seventh Union Budget and the first after this year's Lok Sabha election, Finance Minister Nirmala Sitharaman on Tuesday unveiled a flurry of measures aimed at fixing the woes of unemployed youth, small businesses, and the middle class, and sought to strengthen the ruling NDA coalition's bonds with support for multiple investment projects in Bihar and Andhra Pradesh.

Ms. Sitharaman proposed income tax rate cuts worth up to ₹17,500 a year, putting an extra ₹1,458 a month in the hands of these taxpayers, and hiked standard deductions for salaried taxpayers and pensioners by ₹25,000 and ₹10,000, respectively.

She also vowed to spend ₹2 lakh crore over five years on five schemes which are part of what she called "the Prime Minister's package", aimed at spurring jobs and imparting skills to 4.1 crore youth.

This marked a shift in strategy, or rather a frenetic changing of lanes ahead of a roundabout as drivers in the capital are prone to do, from the previous government's preferred reliance on letting multiplier and trickle-down effects work while avoiding direct handouts to such sections of society.

A similar lane change was last seen when Ms. Sitharaman's predecessor, the late Arun Jaitley, presented his third Budget, for 2016-17.

Seeking to shed the "suit-boot sarkar" label used by the Opposition at the time, Jaitley dedicated that Budget to the farmers, the poor, and vulnerable sections of society and switched his focus to the rural economy and job creation.

The trigger for the shift could be the BJP's electoral



Union Finance Minister Nirmala Sitharaman with the Budget ahead of the presentation in Parliament on Tuesday. SHIV KUMAR PUSHPAKAR



NARENDRA MODI
Prime Minister

This is a Budget that will take the country's villages, poor and farmers on the path of prosperity. This is for the continuation of the empowerment of the neo middle class

reverses after a decade of outright majority in Parliament, preceded by revelations such as big businesses' poll bond purchases.

Theme of the budget

At a briefing after her roughly 90-minute speech, which appeared to acknowledge and begin addressing the perceived disenchantment among specific voter groups like the young, the salaried class, farmers, and small entrepreneurs, Ms. Sitharaman made it clear that the overarching theme of Budget was 'EMPLOYMENT'.

Used as an acronym, the theme was spelt out – **Em**ployment and **E**ducation;



RAHUL GANDHI
Leader of the Opposition in LS

Kursi Bachao Budget. Appease allies: hollow promises to them at the cost of other States... Copy and paste: Congress manifesto and previous Budgets

Micro, Small and Medium Enterprises (MSMEs); Productivity; Land; Opportunities; Youth; Middle Class; Energy Security; New Generation Reforms; and Technology.

Her speech referred to 'employment' 23 times, up sharply from three mentions of the word in the 2023-24 Budget, and seven (four of which were about past achievements rather than the future) in the Interim Budget presented this February. References to growth slipped to 10, from a combined 34 mentions in the last two Budget speeches. Jaitley's third Budget had also slashed growth references, but the similarities with that speech don't

end there. While he had released a plan to 'Transform India' based on action points around nine pillars, Ms. Sitharaman on Tuesday laid out nine priorities for generating ample opportunities for all. Five of those are, in fact, similar to Jaitley's list that led with the promise to double farmers' incomes in five years. Ms. Sitharaman said that her first priority would be to raise productivity and resilience in agriculture, followed by employment and skilling, inclusive human resource development and social justice.

Infrastructure and next generation reforms also figure in the priorities, with the Minister promising more details about the latter through an economic policy framework to be formulated later, with a focus on fixing factors of productivity, including land, labour, capital, and entrepreneurship. She also announced a review of the Income Tax and Customs Acts and a simplification of Foreign Direct Investment norms.

The Finance Minister did provide some indirect support to private investments by accelerating the fiscal consolidation process, armed with a ₹2.1 lakh crore surprise dividend from the central bank. The fiscal deficit target for this year has been pegged at 4.9% of GDP from the 5.1% projected in the Interim Budget, and the 5.6% of GDP achieved last year.

As is the case with many initiatives of this Budget, more details will emerge over time. But, Ms. Sitharaman will be hoping that the lens change reflected in the Budget's focus areas will not be lost on voters gearing up to cast their ballots in the upcoming State Assembly elections.

SHUFFLING THE DECK

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Small servings, MANY PLATES (24 July)

FM signals shift from previous trickle-down strategy to a package of schemes for jobless youth, MSMEs; announces tax cuts for middle class; tightens fiscal deficit target to 4.9% of the GDP

- Finance Minister Nirmala Sitharaman presented her seventh Union Budget, the first after this year's Lok Sabha election.
- Key measures include income tax cuts up to ₹17,500 per year, providing an extra ₹1,458 monthly to taxpayers.

- Standard deductions for salaried taxpayers and pensioners increased by ₹25,000 and ₹10,000, respectively.
- ₹2 lakh crore planned over five years for schemes aimed at creating jobs and providing skills to 4.1 crore youth.
- The Budget marks a shift from indirect economic benefits to direct support for unemployed youth, small businesses, and the middle class.
- This approach echoes a previous shift seen in Arun Jaitley's 2016-17 Budget, which focused on rural economy and job creation.
- The shift in strategy may be a response to the BJP's recent electoral reversals and criticism from the opposition.

Theme of the budget

- Finance Minister Nirmala Sitharaman's speech emphasized 'EMPLOYMENT' as the Budget's central theme.
- The acronym 'EMPLOYMENT' stands for Employment and Education; Micro, Small, and Medium Enterprises (MSMEs); Productivity; Land; Opportunities; Youth; Middle Class; Energy Security; New Generation Reforms; and Technology.
- 'Employment' was mentioned 23 times in her speech, compared to fewer mentions in previous budgets.
- The speech focused more on employment and skilling, agriculture productivity, and social justice, while reducing references to growth.
- The Budget outlines nine priorities, with some similar to the previous administration's focus, including productivity, agriculture, and social justice.
- Infrastructure and next-generation reforms are also highlighted, with promises for future economic policy frameworks and simplification of tax and investment regulations.
- A fiscal deficit target of 4.9% of GDP has been set, improved from previous projections.
- The Finance Minister hopes the new focus areas will resonate with voters in upcoming State Assembly elections.

A.P. gets ₹15,000 cr. to build Amaravati, aid for Polavaram

Appaji Reddem
VIJAYAWADA

The Union Budget spells a boost to Andhra Pradesh, with a special financial support of ₹15,000 crore for developing its capital Amaravati, besides assistance for the Polavaram irrigation project, grants for backward regions.

“Recognising the State's need for a capital, we will facilitate special financial support through multilateral development agencies. In the current financial year, ₹15,000 crore will be arranged, with additional amounts in future

years,” Union Finance Minister Nirmala Sitharaman said in her Budget speech on Tuesday.

She said the government has made concerted efforts to fulfil the commitments in the AP Reorganisation Act.

Ms. Sitharaman said the Centre would come up with a plan named ‘Purvodaya’ for the overall development of Bihar, Jharkhand, West Bengal, Odisha and Andhra Pradesh.

A few days ahead of the Budget, Chief Minister and TDP chief N. Chandrababu Naidu, a key NDA ally, had apprised the Centre of the



A.P. Chief Minister N. Chandrababu Naidu in Amaravati. G. N. RAO

“dismal” financial situation in the State.

Blaming the past government of “irregularities”, he sought substantial financial support for developing Amaravati,



the Polavaram irrigation pro-

ject. This apart, she has also ensured the promotion of industrial development, and funds for essential infrastructure such as roads, water, power and railways.

As part of it, the Kopparthi Industrial Node, the corridor between Visakhapatnam and Chennai, will be developed on a priority basis. Grants for backward regions of Rayalaseema, Prakasam and north coastal Andhra Pradesh will also be provided.

The State is also expected to benefit from the funding plan that will cover 53,000 tribal villages across the country.

Mr. Naidu thanked Prime Minister Narendra Modi on X for the allocations to the State.

“On behalf of the people of Andhra Pradesh, I thank the Hon'ble Prime Minister, @narendramodi Ji and Hon'ble Union Finance Minister, @nsitharaman Ji, for recognising the needs of our State and focusing on a capital...This support from the Centre will go a long way towards rebuilding Andhra Pradesh. I congratulate you on the presentation of this progressive and confidence-boosting Budget,” Mr. Naidu said

A.P. gets ₹15,000 cr. to build Amaravati, aid for Polavaram (24 July)

- Andhra Pradesh will receive ₹15,000 crore in special financial support for developing its capital, Amaravati.
- Additional funds will be arranged in future years through multilateral development agencies.
- Support will also be provided for the Polavaram irrigation project and grants for backward regions.
- A development plan named ‘Purvodaya’ will be created for Andhra Pradesh and other states.
- Chief Minister N. Chandrababu Naidu had previously highlighted the state's financial issues and requested substantial support for key projects.
- The Centre is committed to financing and expediting the Polavaram project and promoting industrial development in the state.
- Infrastructure projects including roads, water, power, and railways will receive funds, with a focus on developing the Kopparthi Industrial Node and the Visakhapatnam-Chennai corridor.
- Grants will be provided for backward regions of Rayalaseema, Prakasam, and north coastal Andhra Pradesh.
- The state will also benefit from a funding plan for 53,000 tribal villages across the country.
- Naidu thanked Prime Minister Narendra Modi and Finance Minister Nirmala Sitharaman for their support, expressing confidence in the Budget's impact on Andhra Pradesh.

Polavaram Irrigation Project

The Polavaram Irrigation Project is a large multi-purpose project under construction on the Godavari River in Andhra Pradesh, India.

Aim:

- Provide irrigation water to around 23 lakh hectares (2.3 million hectares) of land in the Krishna and Godavari delta regions, aiming to improve agricultural productivity and drought-proofing.
- Generate hydroelectricity with a capacity of 960 MW, contributing to renewable energy production and meeting power needs.
- Regulate Godavari river flows for better flood management and reduce downstream flooding.

Benefits:

- **Irrigation:** The project aims to provide irrigation water to a vast area of agricultural land, potentially leading to increased agricultural production, improved food security, and higher income for farmers.
- **Hydropower:** The project will generate clean hydroelectric power, contributing to energy security and reducing reliance on fossil fuels.
- **Flood Control:** Improved management of Godavari river flows aims to mitigate the risk of floods and protect downstream areas from devastation.
- **Drinking Water Supply:** The project also plans to provide drinking water to urban and rural areas in the surrounding districts.
- **Socio-Economic Development:** The project is expected to create jobs during construction and operation, stimulate economic activity in the region, and improve the overall quality of life for affected communities.

Angel tax on foreign investments in start-ups nixed

Ashokamithran T.
MUMBAI



In a major respite to India's fledgling start-ups, Finance Minister Nirmala Sitharaman announced scrapping of the contentious angel tax on foreign investments received by such enterprises, a development that is expected to ease their funding woes.

Ms. Sitharaman introduced the measure stating that it would help "bolster the Indian start-up ecosystem, boost the entrepreneurial spirit, and support innovation".

The tax was introduced during the UPA regime, she said in a media briefing on Tuesday while outlining measures the NDA government took for the growth of start-ups.

Replying to queries on the possibility of money laundering due to the abolition, Revenue Secretary Sanjay Malhotra said, "There are other provisions in the Income Tax [Act] itself to find out the source of these funds." The Prevention of Money Laundering Act continued to be in existence. The existing laws were sufficient to cater to it, Mr. Malhotra added.

"We hope that even some of the past investments which are not alrea-

We hope some past investments not already under dispute will have a little more benign outlook from the tax department

ASHISH AGGARWAL,
VP & Head of Public Policy,
NASSCOM

dy under dispute will probably have a little more benign outlook from the tax department," Ashish Aggarwal, VP & Head of Public Policy at NASSCOM, told *The Hindu*.

"This new development will lead to cessation of fresh litigation. Furthermore, funds that would have been tied up in deposits for cases involving notice issuance cease," said Brijesh Damodaran, Partner at Auxano Capital. The abolition of angel tax assumes significance as it comes at a time when start-up funding fell 60% in 2023 to \$10 billion, according the Indian Tech Startup Funding Report 2023 by Inc42, a private start-up media and information platform.

The tax was opposed by several industry players as they believed it curbed foreign investment and deterred the growth of start-ups.



Angel Tax

- The angel tax taxes the difference between the fair market value (estimated value) of a startup and the price at which it issues shares to investors.
- This can be a significant burden for startups, especially in their initial stages when their fair market value might be lower than the investment they receive.

Mudra Loans:

- Non-farm micro and small enterprises are eligible for Mudra loans. This includes businesses engaged in manufacturing, trading, and services sectors, but excludes activities related to agriculture and allied activities.

Mudra loans are categorized into three categories based on the loan amount:

- **Shishu:** Loans up to Rs. 50,000 - Ideal for new or small businesses with minimal capital requirements.
- **Kishore:** Loans from Rs. 50,001 to Rs. 5 lakh - Suitable for established businesses looking to expand or upgrade their operations.
- **Tarun:** Loans from Rs. 5,00,001 to Rs. 10 lakh - Caters to well-established businesses with larger funding needs.

Angel tax on foreign investments in start-ups nixed (24 July)

- The angel tax on foreign investments in Indian start-ups has been scrapped.
- This move aims to ease funding challenges for start-ups and support innovation.
- The tax, introduced during the UPA regime, was seen as a barrier to start-up growth.
- Revenue Secretary Sanjay Malhotra assured that existing laws, including the Prevention of Money Laundering Act, will prevent misuse.
- The abolition is expected to reduce litigation and resolve past disputes, as well as prevent funds from being tied up in legal cases.
- Start-up funding had fallen by 60% in 2023 to \$10 billion.
- The tax was criticized for hindering foreign investment and start-up growth.

Category	Description	Example
Listed Financial Asset	Traded on a stock exchange	Shares of Reliance Industries (RIL) on the Bombay Stock Exchange (BSE)
Unlisted Financial Asset	Not traded on a stock exchange	Shares in a private startup company
Financial Asset	Represents ownership or claim on future cash flow	Government bond, Venture capital investment
Non-Financial Asset	Tangible asset, not a financial instrument	Land, Artwork, Gold

Unlisted bonds, debentures, debt MFs to attract capital gains tax

Lalatendu Mishra
MUMBAI

Finance Minister Nirmala Sitharaman proposed to simplify capital gains taxation in her Budget presentation for the year 2024-25.

As per the proposal, short-term gains on certain financial assets will henceforth attract a tax of 20%, while those on all other financial and non-financial assets would continue to attract the 15% tax rate.

Long-term gains on all fi-

nancial and non-financial assets, on the other hand, would attract a tax of 12.5%. "For the benefit of lower and middle-income classes, I propose to increase the limit of exemption of capital gains on certain financial assets to ₹1.25 lakh a year," she said.

Ms. Sitharaman said listed financial assets held for more than a year would be classified as long term, while unlisted finan-



cial assets and all non-financial assets would have to be held for at least two years to be classified as long term. Unlisted bonds and debentures, debt mutual funds and market-linked debentures, irrespective of the holding period, would attract tax on capital gains at applicable rates.

"Indian founders and promoters will be smiling at the reduction of capital gains tax and foreign inves-

tors are hit where it matters most. Exits would now be taxed at 12.5% as opposed to 10%," said Kalpesh Maroo, Partner and Head, Deal Advisory, M&A Tax, PE, KPMG in India.

"The simplification of capital gains taxation and the introduction of a 20% tax on short-term gains will have multiple impacts. This will reduce volatility, raise tax revenue, and have long-term focus," said Arpit Mehrotra, MD, Office Services, Colliers India.



In tax net: Long-term gains on all financial and non-financial assets would attract a tax rate of 12.5%. VIJAY BATE

Unlisted bonds, debentures, debt MFs to attract capital gains tax (24 July)

- Finance Minister Nirmala Sitharaman proposed changes to capital gains taxation for 2024-25.
- Short-term gains on certain financial assets will be taxed at 20%.
- Short-term gains on other financial and non-financial assets will be taxed at 15%.
- Long-term gains on all financial and non-financial assets will be taxed at 12.5%.
- The exemption limit for capital gains on certain financial assets will be increased to ₹1.25 lakh per year.
- Listed financial assets held for over a year are considered long-term; unlisted financial and non-financial assets must be held for at least two years.
- Unlisted bonds, debentures, debt mutual funds, and market-linked debentures will be taxed at applicable rates.
- The new tax rates are expected to impact Indian founders, promoters, and foreign investors, with reduced volatility and increased tax revenue.

Samarthya

Aim: Samarthya is an umbrella scheme that subsumes several existing schemes for women's empowerment. It focuses on providing comprehensive support for shelter, income generation, skill development, and overall well-being.

Components of Samarthya:

- **Ujjwala:** Provides LPG connections at subsidized rates to eligible women below poverty line, promoting a cleaner and healthier cooking environment.
- **Swadhar Greh:** Offers short-term shelter, food, medical care, counselling, and legal aid to women in difficult circumstances like victims of domestic violence, trafficking, or those who are homeless.
- **Working Women Hostel:** Provides safe and affordable accommodation for working women from economically weaker sections.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Offers financial compensation for wage loss to pregnant and lactating women.
- **National Creche Scheme (Palna):** Provides safe and secure daycare facilities for children of working mothers.
- **Gap Funding for Economic Empowerment:** A new component that provides flexible funding for critical gaps in other schemes related to women's safety, well-being, and economic empowerment.

Eligibility:

- Schemes target women below poverty line, working women, victims of violence, and women in difficult circumstances.

Benefits:

- Improved living conditions, safety, and access to basic necessities.
- Financial support for wage loss and child care needs.
- Skill development opportunities for income generation.
- Legal and psychological support for women facing challenges.

2. Swadhar Greh

Aim: Swadhar Greh is a specific component within the Samarthya umbrella scheme. It offers short-term (up to 3 months with the possibility of extension) residential care to women in difficult circumstances.

Eligibility:

- Women in difficult circumstances like victims of domestic violence, trafficking, or those who are homeless.
- Age limit is generally 18-60 years old, with exceptions for some categories.

Benefits:

- Safe and secure shelter with basic necessities like food, clothing, and medical care.
- Counselling and psychological support to help overcome trauma.
- Legal aid and guidance on accessing justice.
- Skill development training to enhance employability and economic independence.

3. Pradhan Mantri Matru Vandana Yojana (PMMVY)

Aim: PMMVY is a maternity benefit scheme that aims to compensate for wage loss and improve the health of pregnant women and lactating mothers.

Eligibility:

- Pregnant women and lactating mothers who are eligible for pre-conception and maternity care under the Mother and Child Tracking System (MCTS).

Benefits:

- Cash incentive of Rs. 5,000 per month for the first three months after childbirth, totalling Rs. 15,000.

1. Saksham Anganwadi and Poshan 2.0 (Ministry of Women and Child Development)

Aim: This flagship program tackles malnutrition in children (below 6 years), pregnant women, lactating mothers, and adolescent girls (14-18 years). It focuses on improved nutrition and Early Childhood Care and Education (ECCE).

Eligibility:

- Children under 6 years old.
- Pregnant women and lactating mothers.
- Adolescent girls aged 14-18 years.

Benefits:

- **Nutritional Support:** The program provides hot cooked meals, take-home rations, and micronutrient supplementation.
- **Early Childhood Care and Education (ECCE):** It offers pre-school education, play-based learning activities, and health checkups for children.
- **Infrastructure Upgrade:** Upgradation of Anganwadi centers with improved facilities like LED screens, RO water purifiers, smart learning aids, and internet connectivity (where available).
- **Awareness Campaigns:** The program promotes awareness about nutrition, hygiene, and good health practices.

2. Mission Vatsalya (Ministry of Women and Child Development)

Aim: This mission focuses on ensuring the well-being, safety, and holistic development of children in challenging circumstances. It includes children in institutions, children in need of care and protection (CICP), and vulnerable children.

Eligibility:

- Children living in Child Care Institutions (CCIs) including orphanages, shelter homes, and observation homes.
- Children in Need of Care and Protection (CICP) like abandoned children, victims of abuse, neglect, or exploitation.
- Vulnerable children facing various risks or deprivations.

Benefits:

- **Improved Care and Protection:** The mission aims to strengthen the quality of care provided in CCIs through training staff, improving infrastructure, and ensuring access to education, healthcare, and rehabilitation services.
- **Child Tracking System:** It aims to strengthen the child protection system through a robust online tracking system for missing children.
- **Support for Foster Care:** The mission promotes foster care as an alternative care option for vulnerable children.
- **Life Skill Development:** It focuses on equipping children with life skills and vocational training for a brighter future.

3. Mission Shakti (Ministry of Women and Child Development)

Aim: This mission empowers rural women through economic and social empowerment initiatives. It fosters entrepreneurship, leadership skills, and financial inclusion for women.

Eligibility:

- Rural women of all ages, with a particular focus on marginalized communities.
- Self-Help Groups (SHGs) of women.

Benefits:

- **Skill Development & Entrepreneurship:** Mission Shakti provides skill development training to women to start and run micro-enterprises.
- **Financial Inclusion:** It promotes access to micro-credit and financial services for women entrepreneurs.

- **Leadership Development:** The mission empowers women through leadership training and capacity building programs.
- **Convergence:** It fosters collaboration with other government schemes for holistic women's development.

Full Saturation

- **Clean Drinking Water:** Ensuring every household has access to safe and clean drinking water.
- **Electricity:** Providing reliable electricity to all homes.
- **Sanitation:** Access to proper sanitation facilities, including toilets.
- **Health Services:** Availability of basic healthcare services and facilities.
- **Education:** Ensuring access to quality education for all children.
- **Housing:** Providing decent housing facilities.
- **Road Connectivity:** Building and maintaining roads to connect villages with nearby towns and cities.

3 cancer drugs exempted from customs duty

Bindu Shajan Perappadan
NEW DELHI



Union Finance Minister Nirmala Sitharaman on Tuesday announced exemption of customs duty on three cancer treatment drugs – **Trastuzumab Deruxtecan, Osimertinib, and Durvalumab.**

“To provide relief to cancer patients, I propose to fully exempt three more medicines from customs duties. I also propose changes in the **BCD (basic customs duty) on X-ray tubes and flat panel detectors for use in medical X-ray machines under the phased manufacturing programme,**” she said.

The total outlay for the health sector was ₹89,287 crore, amounting to 1.85% of the Budget expenditure, marginally up from 1.76%, and ₹79,221 crore in the Revised Estimates for Budget 2023-24. This remains below the 2% mark for health outlays from FY18 to FY22.

Hike for Ayush

The Health Ministry has been allocated ₹90,958.63 crore, an increase from ₹80,517.62 crore in the 2023-24 Revised Estimates. The allocation for the Ayush Ministry has been increased from ₹3,000 crore to ₹3,712.49 crore.

I also propose changes in the BCD on X-ray tubes and flat panel detectors for use in medical X-ray machines

NIRMALA SITHARAMAN
Finance Minister

The government is also set to operationalise the Anusandhan National Research Fund for basic research and prototype development, and bring in provisions for enhanced private sector-driven research and innovation at a commercial scale, with a financing pool of ₹1 lakh crore, in line with the announcement in the interim Budget.

Reacting to the Budget, members from the healthcare sector said some long-standing demands remained unaddressed. “These include increasing the GDP spend on healthcare to 2.5%, prioritising healthcare as a national issue, promoting medical value travel in India, addressing indirect taxation, and rationalising GST with a uniform rate and full input tax credit eligibility,” Ashutosh Raghuvanshi, MD and CEO, Fortis Healthcare Limited, said.



Centre slashes customs duty on certain inputs for textile and leather industries

The Hindu Bureau
COIMBATORE

The Union Budget presented on Tuesday has announcements related to the reduction of customs duty on some items in the textile and leather sectors.

The import duty on **Methylene Diphenyl Diisocyanate (MDI)** will be reduced to 5% from 7.5%.

“To enhance the competitiveness of exports in the leather and textile sectors, I propose to reduce BCD on real down-filling material from duck or goose. I am also making additions to the list of exempted goods for manufacture of leather and textile garments, footwear



and other leather articles for export,” Finance Minister Nirmala Sitharaman said.

The duty on wet white, crust, and finished leather for manufacture of garments, footwear, and other leather products for exports will be brought down to nil from 10%. It will also be nil

on some of the additional accessories and embellishments for manufacture of textile and leather garments, leather and synthetic footwear, or other leather products for exports. The duty on real down-filling material from duck or goose for use in the manufacture of garments for exports will be reduced to 10% from 30%.

Customs duty on gold, silver reduced to 6% (24 July)

- Customs duties on gold and silver have been reduced to 6%, and on platinum to 6.4%.
- Duty on gold bars cut from 15% to 6%, gold dore from 14.355% to 5.35%, platinum from 15.4% to 6.4%, silver bars from 14.35% to 6%, and silver dore from 14.35% to 5.35%.
- These reductions aim to reduce smuggling and will cost the government an estimated ₹28,000 crore annually.
- Customs duties reductions are intended to enhance domestic value addition in gold and precious metal jewelry.
- Safe-harbour rates will be provided for foreign mining companies selling raw diamonds in India to support the diamond cutting and polishing industry.
- The Gem & Jewellery Export Promotion Council (GJEPC) welcomed the proposals, seeing them as a boost to India’s gem and jewelry industry and a step towards making India a global diamond trading hub.

3 cancer drugs exempted from customs duty (24 July)

- Customs duty has been exempted on three cancer treatment drugs: Trastuzumab Deruxtecan, Osimertinib, and Durvalumab.
- Changes in customs duty on X-ray tubes and flat panel detectors for medical X-ray machines have been proposed.
- The total health sector budget is ₹89,287 crore, up from ₹79,221 crore in the 2023-24 Revised Estimates, but still below the 2% mark from FY18 to FY22.
- The Health Ministry’s allocation is ₹90,958.63 crore, up from ₹80,517.62 crore in the previous year.
- The Ayush Ministry’s allocation increased from ₹3,000 crore to ₹3,712.49 crore.
- The Anusandhan National Research Fund will be operationalized with ₹1 lakh crore for research and innovation.
- Healthcare sector members noted that demands for increasing GDP spend on healthcare to 2.5%, prioritizing healthcare, promoting medical value travel, addressing indirect taxation, and rationalizing GST remain unmet.

Centre slashes customs duty on certain inputs for textile and leather industries (24 July)

- Import duty on Methylene Diphenyl Diisocyanate (MDI) will be reduced from 7.5% to 5%.
- Customs duty on real down-filling material from duck or goose will be reduced from 30% to 10%.
- Duty on wet white, crust, and finished leather for export-related garment, footwear, and leather product manufacturing will be reduced to zero from 10%.
- Additional accessories and embellishments for export-oriented textile and leather products will also have zero duty.
- These measures aim to boost competitiveness and enhance export potential in the leather and textile sectors.

Credit support for MSMEs; Mudra loan limit raised to ₹20 lakh

M. Soundariya Preetha
COIMBATORE

The Union Budget has a package of support measures for the micro, small, and medium enterprises (MSMEs) and the labour-intensive manufacturing sector.

According to the Economic Survey tabled on Monday, the contribution of MSMEs to all-India manufacturing output in FY22 was 35.4% and the share of MSME-made products in

exports in FY24 was 45.7%.

“This Budget provides special attention to MSMEs and manufacturing, particularly labour-intensive manufacturing. We have formulated a package covering financing, regulatory changes, and technology support for MSMEs to help them grow and also compete globally,” Finance Minister Nirmala Sitharaman said.

The Budget proposes a credit guarantee scheme that will work on pooling



Many of the proposals focus on credit assistance.

of credit risks of MSMEs to facilitate term loans for purchase of equipment without collateral or third-

party guarantee. A separately constituted self-financing guarantee fund will provide, to each applicant, a guarantee cover up to ₹100 crore, while the loan amount may be larger. The borrower will have to provide an upfront guarantee fee and an annual guarantee fee on the reduced loan balance.

Public sector banks will build in-house capabilities to assess MSMEs for credit.



They will take the lead in developing a new credit assessment model, based on the scoring of digital footprints of MSMEs in the economy so that those without a formal accounting system are also covered.

The limit of Mudra loans will be enhanced to ₹20 lakh from ₹10 lakh for those who have repaid previous loans under the ‘Tarun’ category.

E-commerce export

hubs will be set up on public-private-partnership mode so that MSMEs and traditional artisans sell their products in the international markets.

An investment-grade energy audit of traditional MSMEs will be done in 60 clusters and financial support will be provided to shift them to cleaner forms of energy. Rental housing with dormitory type accommodation for industrial workers will also be facilitated on PPP mode.

Credit support for MSMEs; Mudra loan limit raised to ₹20 lakh (24 July)

- The Union Budget includes support measures for micro, small, and medium enterprises (MSMEs) and the labour-intensive manufacturing sector.
- MSMEs contributed 35.4% to all-India manufacturing output in FY22 and 45.7% to exports in FY24.
- A credit guarantee scheme will be introduced to facilitate term loans for MSMEs without collateral or third-party guarantees, with a guarantee cover up to ₹100 crore.
- Public sector banks will develop a new credit assessment model based on MSMEs' digital footprints.
- The Mudra loan limit will be increased to ₹20 lakh from ₹10 lakh for those who have repaid previous loans under the 'Tarun' category.
- E-commerce export hubs will be set up through public-private partnerships to help MSMEs and traditional artisans sell internationally.
- Investment-grade energy audits will be conducted for traditional MSMEs in 60 clusters, with financial support for cleaner energy shifts.
- Rental housing with dormitory-type accommodation for industrial workers will be facilitated through public-private partnerships.

Agriculture gets more; food subsidies cut

Union Finance Minister Nirmala Sitharaman allocates ₹1.52 lakh crore for farming and allied sectors; she says enhancing productivity and resilience in the agriculture sector is her priority; however fertilizer and food subsidies sees 'huge decline', inviting flak from several farmer organisations

The Hindu Bureau
NEW DELHI

Maintaining that enhancing productivity and resilience in agriculture is her priority, Union Finance Minister Nirmala Sitharaman allocated ₹1.52 lakh crore for farming and allied sectors in the first Budget of the third term of the Narendra Modi government on Tuesday. However, fertilizer and food subsidies were decreased, inviting flak from farmer organisations.

Ms. Sitharaman announced that the Centre will review the agriculture research set-up to bring focus on raising productivity and developing climate-resilient varieties. “New 109 high-yielding and climate-resilient varieties of 32 field and horticulture crops will be released for cultivation by farmers,” the Minister said.

In the next two years, one crore farmers across the country will be initiated into natural farming supported by certification and branding. Pulses and oilseeds production will be strengthened and large-scale clusters for vegetable production will be developed closer to major consumption centres, she said.

“We will promote Farmer-Producer Organisations (FPOs), cooperatives, and start-ups for vegetable supply chains, including for collection, storage, and marketing,” Ms. Sitharaman said.

Another major announcement was the implementation of Digital Public Infrastructure for Agriculture, and digital crop survey of kharif crop in 400 districts. The Centre will provide financial support for setting up a network of Nucleus Breeding Centres for shrimp



Food for thought: A major announcement was the implementation of the Digital Public Infrastructure for Agriculture, and a digital crop survey of kharif crops in 400 districts. R. RAGU

broodstocks through NABARD.

Union Minister of Agriculture Shivraj Singh Chouhan said the Budget is for the development of the country and welfare of the poor.

The total allocation for the Department of Agriculture and Farmers Welfare is ₹1,22,528.77 crore.



In the Revised Estimates for 2023-24, the amount was ₹1,16,788.96 crore. This included an allocation of ₹500 crore for Namo Drone Didi Scheme.

The bulk of the allocation is for the PM Kisan Nidhi. For the Department of Agricultural Research and Education, ₹9,941.09 crore has

been allocated.

In the revised Budget of last fiscal, it was ₹9,876.60 crore.

The total allocation for the Ministry of Fisheries, Animal Husbandry and Dairying is ₹7,137.68 crore. In the last Revised Estimates, it was ₹5,614.93 crore.

Concern over cut

The allocation for the Fertilizers Department is ₹1,64,150.81 crore. In the Revised Estimates in 2023-24, the amount was ₹1,88,947.29 and the actual expenditure incurred in 2022-23 was ₹2,51,369.18 crore.

Farmer organisations expressed concern over this cut and pointed out the “huge decline” by about 34.7% in allocation for fertilizers. Compared with the 2022-23 actuals, it amounts to a decrease of ₹87,238 crore, they said. “This will have a deleter-

ious impact on agricultural productivity,” said Samyukt Kisan Morcha leader Ashok Dhawale.

The Department of Food and Public Distribution also saw a decrease in its allocation at ₹2,13,019.75 crore. In the last Revised Estimates, the amount was ₹2,21,924.64 crore and the actual expenditure in 2022-23 was ₹2,83,744.53 crore.

To control the rising prices of essential commodities, the Budget has allocated ₹10,000 crore to the Price Stabilisation Fund. In the last Revised Estimates, the allocation was a mere ₹10 lakh.

Though the Budget has promised to improve the agriculture sector through cooperatives and FPOs, no allocation has been made to the Integrated Scheme on Agriculture Cooperation. In the revised Budget in 2023-24, the scheme had received ₹300 crore.

₹1,000-crore venture capital fund to be set up for space technology start-ups

Vasudevan Mukunth
CHENNAI

The Department of Space received a marginal rise (0.02% points) as a share of outlays in the 2024-25 Union Budget compared with Revised Estimates of FY24. The bulk of the absolute increase goes toward the development of space technologies. The allocation increased marginally for space applications, decreased for space sciences, and almost halved for INSAT satellite systems over the budgeted amount in 2023-2024.

Ms. Sitharaman also announced a pool of ₹1,000 crore, or around \$120 million, as venture capital funding for space start-ups, with the goal of “expanding the space economy by five times in the next 10 years”.

However, this announcement was met with mixed reactions. Many called it a “pittance” and said the pool had to have been “10-100 times bigger”. Arup Dasgupta, Distinguished Professor in the Academy of Geoinformat-



Big ambitions: ISRO's PSLV-C58 lifts off on January 1. PTI

ics, Bhaskaracharya Institute of Space Applications and Geoinformatics, Gandhinagar, called the pool “a start” but added that “somewhere down the line, the government has to realise that globally governments are anchor financiers and customers”.

Susmita Mohanty, director-general of think-tank Spaceport Sarabhai, said that the allocation is out of step with the Finance Minister's ambitions considering “the total funds raised in 2023-2024 by all our space start-ups combined was a paltry \$134 million”.

“As an industry, we



need to show some success beyond raising venture funding,” Prateep Basu, CEO of decision analytics start-up SatSure, told *The Hindu*. “There is not a single start-up that has crossed ₹100 crore in revenue, so the demand metrics for increasing the financial risk appetite of venture capital funding and private equity is limited today.”

Narayan Prasad, chief operations officer at satsearch, a space industry marketplace, was more optimistic about the impact of the government procuring from start-ups as an anchor customer. “The government acting as a customer is the best valida-

tion for many high-risk products to be then taken into the market,” he said.

“The government is then creating a market for competition and not picking winners based on input, which means it allows the money on the table to be looked at as an opportunity for other investors to back companies that will compete against each other to get the pie,” he added.

Mr. Basu also said the government “acting as a sponsor taking the catalytic first loss risk will cement trust in the ecosystem”.

Removing angel tax

Ms. Sitharaman also proposed removing angel tax, which space industry members hailed as less friction against new investments. In February this year, the Indian government allowed 100% automatic foreign direct investment (FDI) in satellite component manufacturing and satellite and user ground segments; up to 74% in satellite-manufacturing and operations; and up to 49% in rockets and space ports.

₹1,000-crore venture capital fund to be set up for space technology start-ups (24 July)

- The Department of Space received a slight increase in budget share for 2024-25 compared to FY24 Revised Estimates.
- The increase primarily supports the development of space technologies, with reductions in space sciences and INSAT satellite systems funding.
- A ₹1,000 crore (\$120 million) venture capital fund was announced for space startups, aiming to expand the space economy fivefold in the next decade.
- Reactions to the fund were mixed, with some critics calling it insufficient and suggesting it should be much larger.
- Some experts viewed the fund as a start but emphasized that global governments are major financiers and customers in the space sector.
- Concerns were raised about the limited revenue of space startups and the need for more significant funding to increase risk appetite among investors.
- Optimists believe government procurement from startups could validate high-risk products and create a competitive market, attracting more investment.
- Government backing could help build trust in the space sector and encourage further private investment.

Removing angel tax

- Ms. Sitharaman proposed removing the angel tax, reducing friction against new investments.
- The Indian government allowed:
 - 100% automatic foreign direct investment (FDI) in satellite component manufacturing and user ground segments.
 - Up to 74% FDI in satellite manufacturing and operations.
 - Up to 49% FDI in rockets and space ports.

Customs duty reduced on mobile phones, chargers, and electronic components

The Hindu Bureau
NEW DELHI

The Union government on Tuesday slashed basic customs duty on mobile phones, chargers, and some components as part of the Budget.

Finance Minister Nirmala Sitharaman said that duties on “oxygen free copper for manufacture of

resistors”, hitherto set at 5%, would be eliminated.

Duties on mobile phones, chargers, and printed circuit board assemblies (PCBAs) were reduced from 20% to 15%. Inputs for connectors used in transistors have been exempted completely. Duties on rare earth metals as well as



lithium, copper, and cobalt, some of which are used in telecom equipment manufacturing, have also been eliminated or slashed. Meanwhile, PCBAs intended for telecom equipment have had their duties raised from 15% to 20% to “promote domestic manu-

facturing”, Ms. Sitharaman said.

Pankaj Mohindroo, chairman of the India Cellular and Electronics Association, welcomed the announcements, stating that “[o]ur proposal for tariff slab rationalisation, [which Ms. Sitharaman said would] be taken up in the next six months, will further embolden the industry.”

Customs duty reduced on mobile phones, chargers, and electronic components (24 July)

- Basic customs duty on mobile phones, chargers, and some components slashed.
- Duties on oxygen-free copper for resistors eliminated (previously 5%).
- Duties on mobile phones, chargers, and PCBAs reduced from 20% to 15%.
- Inputs for connectors used in transistors exempted from duties.
- Duties on rare earth metals, lithium, copper, and cobalt eliminated or reduced.
- Duties on PCBAs for telecom equipment raised from 15% to 20% to promote domestic manufacturing.
- Pankaj Mohindroo welcomed the changes and mentioned that tariff slab rationalisation will be addressed in the next six months.

Emission targets likely to be set for polluting industries soon

Jacob Koshy
NEW DELHI

Finance Minister Nirmala Sitharaman’s Budget speech has, for the first time, signalled that polluting industries such as iron, steel, and aluminium will have to conform to emission targets.

“A road map for moving the ‘hard to abate’ industries from ‘energy efficiency’ targets to ‘emission targets’ will be formulated. Appropriate regulations



To be held accountable: Smoke rises from a coal-powered steel plant at Hehal village near Ranchi in Jharkhand. FILE PHOTO

for transition of these industries from the current ‘Perform, Achieve, and Trade’ mode to ‘Indian

Carbon Market’ mode will be put in place,” Ms. Sitharaman said in her address. While emission norms

have usually applied to large industries, the Budget suggests a tightening of norms for even small and micro-scale industries. “An investment-grade energy audit of traditional micro and small industries in 60 clusters, including brass and ceramic, will be facilitated. Financial support will be provided for shifting them to cleaner forms of energy and implementation of energy effi-



ciency measures. The scheme will be replicated in another 100 clusters in the next phase,” Ms. Sitharaman said.

These directives come in the backdrop of the proposed India Carbon Market that has been in the works for a few years. A carbon market or an emission trading scheme works as a trading platform where carbon credits, created as

a consequence of preventing carbon emissions, can be bought and sold on negotiated prices on a portal. The system only works if an industry is required to curb annual emissions, failing which they may be fined. Currently, industry in India has no curbs on emissions in lieu of carbon credits but are incentivised to achieve energy efficiency targets via a scheme called Perform, Achieve, Trade that has been operational since 2015.

Emission targets likely to be set for polluting industries soon (24 July)

- Finance Minister Nirmala Sitharaman announced that polluting industries like iron, steel, and aluminium will have to conform to emission targets.
- A roadmap will be formulated to move these industries from energy efficiency targets to emission targets.
- Regulations will be put in place to transition from the ‘Perform, Achieve, and Trade’ mode to the ‘Indian Carbon Market’ mode.
- Emission norms will be tightened for small and micro-scale industries.
- An investment-grade energy audit of traditional micro and small industries in 60 clusters will be facilitated.
- Financial support will be provided for shifting to cleaner energy forms and implementing energy efficiency measures.
- The scheme will be replicated in another 100 clusters in the next phase.
- These directives come in the backdrop of the proposed India Carbon Market, which involves trading carbon credits to curb emissions.
- The current ‘Perform, Achieve, Trade’ scheme incentivizes energy efficiency but does not mandate emission curbs.

Women-friendly schemes get a push

Minister announces ₹3 lakh crore for schemes benefiting women and girls; a significant portion of the allocation, ₹25,848 cr., is directed towards Central schemes; properties purchased by women to attract lower duties; Vatsalya, a new pension scheme, set to be rolled out

Sreeparna Chakrabarty
NEW DELHI

The first Union Budget of the new Modi government saw a concerted effort at women-led development, with the Finance Minister Nirmala Sitharaman announcing more than ₹3 lakh crore for schemes benefiting women and girls, and promised a look at further lowering duties for properties purchased by women.

She announced a new pension scheme named 'Vatsalya'. A contributory pension scheme, this will have contributions from parents and guardians. On the child attaining the age of majority, the plan can be converted seamlessly into



Big effort: The announcement of setting up of special working women's hostels aims to facilitate women's employment. FILE PHOTO

a regular National Pension System (NPS) account.

The announcements include the setting up of special working women's hostels and creches in collaboration with industries to facilitate women's employment, and promot-

ing women-specific skilling programmes and support for women's self-help groups.

Marginal dip

According to an analysis by *The Hindu's* data team, the allocation for the Ministry

of Women and Child Development has actually seen a dip, though very marginal, of 0.03%. While the Budget estimate for 2024-25 is ₹26,092 crore, the revised estimate in 2023-24 was ₹25,448 crore.

The allocations for schemes coming under the Women and Child Development (WCD) Ministry, including 'Samarthya' (supporting projects such as women's hostels), 'Swadhar Greh', and 'Pradhan Mantri Matru Vandana Yojana', have also been increased slightly.

A significant portion of the Ministry's allocation is directed towards Centrally sponsored schemes, which received ₹25,848 crore.

The flagship schemes under the Ministry, including Saksham Anganwadi, POSHAN 2.0, Mission Vatsalya and Mission Shakti, have been given substantial funds to continue their efforts in improving nutrition, child protection, and women's empowerment.

What activists find encouraging though are the doubling of the upper limit of Mudra loans to ₹20 lakh to promote entrepreneurship in the country as, according to them, nearly 60% of entrepreneurs in the micro, small and medium enterprises (MSME) sector are women, and they are desperately in need of formal loans. The credit guaran-

tee scheme for MSMEs is also likely to be beneficial for women, they feel.

"The MSME sector has the maximum number of women who struggle to get collateral-free loans. These efforts made in the Union budget would be hugely beneficial to them as we have observed in our work with communities," Kalpana Ajayan, regional head, South Asia, Women's World Banking, and Member, Gender Committee, Reserve Bank Innovation Hub, said.

She said that the Union Budget missed out on the need for gender-aggregated data to be placed in the public domain in order to see how women have benefited from gender-budgeting over the years.

Women-friendly schemes get a push (24 July)

Minister announces ₹3 lakh crore for schemes benefiting women and girls; a significant portion of the allocation, ₹25,848 cr., is directed towards Central schemes; properties purchased by women to attract lower duties; Vatsalya, a new pension scheme, set to be rolled out

- The first Union Budget of the new Modi government focuses on women-led development.
- Finance Minister Nirmala Sitharaman announced more than ₹3 lakh crore for schemes benefiting women and girls.
- There is a proposal to further lower duties for properties purchased by women.
- A new pension scheme named 'Vatsalya' was introduced, which is a contributory scheme involving contributions from parents and guardians, convertible into a regular National Pension System (NPS) account upon the child reaching adulthood.
- The Budget includes setting up special working women's hostels and creches in collaboration with industries.
- Women-specific skilling programs and support for women's self-help groups are also promoted.

Marginal dip

- The allocation for the Ministry of Women and Child Development saw a marginal dip of 0.03%.
- Budget estimate for 2024-25 is ₹26,092 crore; revised estimate for 2023-24 was ₹25,448 crore.
- Allocations for schemes under the WCD Ministry, including 'Samarthya', 'Swadhar Greh', and 'Pradhan Mantri Matru Vandana Yojana', have slightly increased.
- A significant portion of the Ministry's allocation goes to Centrally sponsored schemes, which received ₹25,848 crore.
- Flagship schemes such as Saksham Anganwadi, POSHAN 2.0, Mission Vatsalya, and Mission Shakti received substantial funds.
- Doubling of the upper limit of Mudra loans to ₹20 lakh is seen as encouraging for women entrepreneurs, who make up nearly 60% of the MSME sector.
- The credit guarantee scheme for MSMEs is expected to benefit women.
- Activists note the Budget missed the need for gender-aggregated data to track the impact of gender budgeting.

New scheme to focus on uplift of tribal villages

Abhinay Lakshman
NEW DELHI

Finance Minister Nirmala Sitharaman on Tuesday announced that the Union government will launch the **PM Janjatiya Unnat Gram Abhiyaan** with the aim of achieving full saturation of basic facilities among five crore Scheduled Tribe families across 63,000 villages in tribal-majority areas and aspirational districts.

The scheme, designed after the **PM-JANMAN** to achieve saturation of basic facilities for **Particularly Vulnerable Tribal Groups**, will be for Scheduled Tribe populations across the country, the Finance Minister said in her 2024-25 Budget speech on Tuesday, without going into the details of how much funds are being set aside for this or how this package would be implemented or overseen.

Tribal Affairs Minister Jual Oram hailed the announcement of the “transformative scheme”, expressing gratitude, adding in a social media post that it would “uplift the socio-economic conditions of tribal communities”.

This came as the government allocated ₹13,000 crore in the Budget Estimate 24-25 for the Ministry of Tribal Affairs, which showed an increase of 4.31% compared to BE 23-24 even as the Revised Estimate for FY 23-24 had been pegged at ₹7,605 crore.



This transformative scheme will uplift the socio-economic conditions of tribal communities, covering 63,000 villages

JUAL ORAM
Tribal Affairs Minister

The last available Actual Expenditure for the FY 2022-23 showed that the Ministry had spent a total of ₹7,273.53 crore. More than half of the Tribal Affairs Ministry’s allocation in this year’s BE 24-25 - ₹6,399 crore - has gone to the scheme for **Eklavya Model Residential Schools for tribal students**.

Meanwhile, BE 24-25 for the Ministry of Social Justice and Empowerment showed an allocation of ₹14,225.47 crore, which is 1.08% more than BE 23-24.

The Budget Estimate for 2024-25 showed that the **National Fellowship for OBC students** was allocated ₹55 crore compared to ₹57 crore in BE 23-24 even though the Revised Estimate 23-24 was at ₹90 crore for the scheme.

The Budget documents also showed that the allocation under Interest Subsidy on Overseas Studies for OBC and EBC students had decreased from ₹29 crore in BE 23-24 to ₹25 crore in BE 24-25 - significantly lower than the government’s RE 23-24.



₹10 lakh education loan with annual 3% interest subvention

The Hindu Bureau
NEW DELHI

As part of the new loan scheme announced by Finance Minister Nirmala Sitharaman while presenting the Union Budget for 2024-25, **e-vouchers will be given to one lakh students every year to secure loans up to ₹10 lakh to pursue higher education in domestic institutions. The annual interest subvention will be 3% of the loan amount.**

Educationists say the move will help in reducing the financial burden on students and promoting enrolment in domestic institutions.

“This initiative will undoubtedly empower many aspiring students to pursue their academic goals without the burden of financial constraints and increase job opportunities,” Professor Mahadeo Jaiswal, Director, Indian Institute of Management, Sambalpur, said.

Barring supporting loans for higher education, the Budget speech did not contain any major proposals on education.

The allocation for the Ministry of Education at ₹1.2 lakh crore has seen a slight increase at 7.14% as compared with last year’s ₹1.12 lakh crore.



This initiative will undoubtedly empower many aspiring students to pursue their academic goals

MAHADEO JAISWAL
Director, IIM, Sambalpur

However, compared with the Revised Estimates for 2023-24, which stand at ₹1.29 lakh crore, this year’s Budget Estimates have decreased by 6.97%.

Revamped scheme

The Budget also announced that the Model Skill Loan Scheme will be revised to facilitate loans up to ₹7.5 lakh with a guarantee from a government-promoted fund. This measure is expected to help 25,000 students every year.

Official sources in the Ministry of Skills told *The Hindu* that this scheme is a revamped version of the Skill Loan Scheme that was launched in 2015, but later discontinued.

As per information provided by the Indian Banks Association with respect to 21 banks, a total skill loan of ₹29.06 crore was disbursed during the year 2018-19.



Urban, rural land reforms by Centre; land records to be digitised with GIS mapping

Vasudevan Mukunth
CHENNAI

The 2024-25 Union Budget presented by Finance Minister Nirmala Sitharaman promised a few reforms related to land and land use in the country ranging from their identification to planning and potentially drawing from multiple domains.

Ms. Sitharaman said “land-related reforms and actions, both in rural and urban areas, will cover land administration, planning and management, and urban planning, usage

and building bylaws”. According to her, these activities are to be completed in three years with “appropriate fiscal support”.

She added that “rural land-related actions will include assignment of **unique land parcel identification numbers or Bhu-Aadhaar for all lands, digitisation of cadastral maps, survey of map sub-divisions as per current ownership, establishment of land registry, and linking to the farmers registry**”.

On the urban front, the

Minister continued saying: “Land records...will be digitised with **geographic information system (GIS) mapping. An IT-based system for property record administration, updating, and tax administration will be established. These will also facilitate improving the financial position of**

urban local bodies. Ms. Sitharaman said that on the successful pilot the Centre in with States will the implement

Digital Public Infrastructure (DPI) in agriculture for coverage of farmers and their lands in three years.” This programme will include a “digital survey” of the kharif crop in 400 districts and the land details being brought into a “land registry”.

“Incentivising States for action on reforms around land, in both rural and urban areas, is a welcome move,” said Deepa Jha, who is in charge of land governance at the Indian Institute of Human Settlements, Bengaluru, told *The*



Cadastral maps are detailed, large-scale maps that show the boundaries and ownership of land parcels.

Union Budget 2024-25 — no signs of learning (24 July)

- Nirmala Sitharaman presented her seventh consecutive Budget as Union Finance Minister.
- The BJP-led coalition gained power for the third time with a weak mandate.
- Signals from the government suggested a focus on easing regulation for businesses rather than taxing excess profits for development.
- The Economic Survey 2023-24 indicated that India's industrialists and business elite were making significant profits.
- The government aims to encourage the private sector to create productive jobs out of "enlightened self-interest."
- The government's strategy is to persuade businesses to lead the march to "Viksit Bharat 2047."
- Speculation outside the government focused on two main issues:
- How the NDA would respond to core economic problems like rural distress, unemployment, and inflation.
- The scale and structure of benefits for allies TDP and JD(U), which are crucial to maintaining the NDA's post-election coalition government.

Initiatives and their slotting

- The Budget speech addressed economic issues but may disappoint beneficiaries due to the scale and effectiveness of the schemes.
- The speech focused on increasing employment, especially for the educated unemployed.
- Employment initiatives fell into two categories:
- Employment subsidies to employers, such as ₹15,000 in three installments for new employees with salaries up to ₹1 lakh a month, likely influencing compensation packages.
- Government contributions of ₹3,000 a month for two years to provident fund subscriptions, directly benefiting employers.
- Other schemes included subsidized internships and interest subvention for educational loans to skill workers, aiming to make them more employable.
- The assumption is that unemployment is due to a skills mismatch rather than inadequate growth.
- The Budget included direct tax concessions for foreign firms and indirect tax adjustments to favor domestic manufacturing, aiming to persuade private capital to hire the unemployed.
- The perception is that businesses want to hire but find the labor force too expensive or lacking in skills.
- For agriculture, the Budget proposed long-term productivity programs rather than addressing demands for legally guaranteed minimum support prices.
- Farmers, struggling with economic viability and demanding support prices, are unlikely to be impressed.

What the key allies have got

- NDA allies, JD(U) and TDP, are likely to be disappointed with the Budget.
- JD(U) in Bihar received promises for various infrastructure projects, but not the large sums expected from special status.
- TDP received support for building Amravati, but significant financial backing from the Centre is lacking.
- Most spending is to be financed through borrowing from multilateral development banks (MDBs), increasing state debt burdens.
- It's unclear how states can borrow additional funds given borrowing restrictions.
- The government has ignored welfare schemes highlighted before the election.
- National Social Assistance Programme's budget remains the same at ₹9,652 crore for 2024-25.
- National Rural Employment Guarantee Programme's allocation is unchanged from the previous year.
- Food subsidy is budgeted to decrease from ₹2,12,332 crore to ₹2,05,250 crore.
- Pradhan Mantri Awas Yojana (PMAY) saw an increase in allocation.

The 'secret source' of funds

- The Budget has two key focuses: fiscal consolidation and capital expenditure on infrastructure.
- Fiscal deficit is expected to decrease from 4.9% of GDP in 2023-24 to 4.5% in 2024-25, with plans to continue reducing it.
- Capital expenditure is set to increase from ₹7,40,025 crore in 2022-23 to ₹9,48,506 crore in 2023-24, and further to ₹11,11,111 crore in 2024-25.
- Tax revenues are not expected to significantly increase.
- Increased funding will come from dividends and surpluses from the Reserve Bank of India and public financial institutions.
- These transfers are budgeted to rise from ₹39,961 crore in 2022-23 to ₹1,04,407 crore in 2023-24, and to ₹2,32,874 crore in 2024-25.
- Despite these funds, there is little allocation for welfare spending or meaningful support for government allies.
- The government appears to prioritize fiscal goals over welfare and ally support, possibly not learning from past experiences.

Shuffling the deck

The Budget sought to be many things to many people, but fiscal responsibility remained in focus

Finance Minister Nirmala Sitharaman's first Budget of the BJP-led NDA government's third consecutive term in power is a distinct attempt to tell India's voters that it has heard the angst-ridden message from the country's unemployed youth loud and clear. With the BJP having suffered reverses in the general election in the face of a concerted Opposition campaign that spotlighted issues agitating young voters such as a palpable lack of jobs, the Minister was keen to redress matters ahead of the slew of State elections later this year. Asserting that the poor, women, youth and farmers were the four 'castes' that this government was focused on serving, Ms. Sitharaman stressed that this year's Budget laid particular emphasis on "employment, skilling, MSMEs, and the middle class". As a part of this effort, a package of five schemes and initiatives have been proposed with a view to facilitating employment, skilling and other opportunities for 4.1 crore youth over a five-year period with a central outlay of ₹2 lakh crore. The centrepiece is a scheme to provide a month's wage as subsidy to all persons newly entering the workforce in a formal sector job, which would entail the employer registering the employee at the Employees' Provident Fund Organisation (EPFO). The direct benefit transfer of one-month salary, subject to a cap of ₹15,000, would be made in three instalments to first-time employees. The key caveat is that the employer would have to refund the subsidy if the first-timer's employment ended within 12 months of hiring. Other schemes are an incen-

ing sector, one offering direct support to employers who boost the number of jobs registered with the EPFO, and another, a skilling programme in concert with States, and the private sector that leverages the existing network of ITIs to boost the employability of the youth. The fifth in this quiver of schemes, predictably credited as being under the aegis of the Prime Minister, is an interesting move to facilitate internship opportunities to the youth in 500 top companies. The scheme, which appears to mirror a similar proposal contained in the Congress manifesto, entails the interns being paid a monthly allowance of ₹5,000 and a one-time assistance of ₹6,000, with the participating corporates expected to bear the training cost for the 12-month period as well as 10% of the internship allowance from CSR funds. Targeted at unemployed persons aged between 21 and 24 who are not engaged in full-time education at the time of applying, the Minister said this scheme would, over a five-year period, potentially provide one crore youth with a chance to gain exposure to a real-life business environment and varied professions. All these schemes will, however, need to be weighed against the backdrop of the fact that India needs to, on average, generate 78.5 lakh non-farm jobs annually until 2030, as the Chief Economic Adviser highlighted in his Economic Survey, largely to absorb the workforce exiting agriculture.

MSME sector. Beginning with a credit guarantee scheme to help MSMEs in the manufacturing sector obtain loans to finance their purchases of machinery and equipment without collateral or a third-party guarantee, the Budget's proposals for the key employment-providing sector have been tailored to ease their access not only to debt financing and working capital, but also to business opportunities as potential suppliers to a wider pool of central public sector enterprises and large corporates. MSMEs, however, may wait to see the outcome of yet another Budget assurance by the Minister – that the government will work to further simplify the GST regime and rationalise the tax structure – before cheering, given the difficulties they encounter with the indirect tax system. For the middle-class, Ms. Sitharaman's menu of offerings is focused almost entirely on tax relief for the salaried. In a bid to entice more taxpayers to wholeheartedly embrace the new Income-Tax regime, the standard deduction has been raised and the tax slabs with their relevant tax rates revised so as to leave a little more money in the hands of the salaried, post taxes. Pensioners are also set to benefit by a marginal increase of ₹10,000 in the deduction allowed on family pensions.

Ms. Sitharaman's Budget for 2024-25 yet again sticks to the government's fiscal consolidation path, with the Fiscal Deficit proposed to be pared to 4.9% of GDP. To achieve this fiscal goal, the Minister has quietly set about paring spending on several social sectors including school and higher education that saw cuts in their shares of Budget outlays. The most egregious reduction though must be the cut in share of spending on the rural job guarantee scheme – MGNREGA – with the Budget Estimate pegging the spending on the scheme at a nine-year low share of 1.78% of overall outlay, down from 1.92% in the Revised Estimates for 2023-24. Subsidies too across the board, from fertilizers to food and petroleum

दिल्ली से भी बेहतर

आपके शहर गोरखपुर में

Patriotic IAS

IAS/PCSwali Pathshala

पैडलेगंज, गोरखपुर Mob. 9971932488



Team Led by:
Amit Kumar

(More than 4 Years of Teaching Experience
In Vision IAS Delhi & Qualified 4
Times For The IAS Mains).



Piyush Gambhir Sir

(More than 5 years of teaching experience
in Vision IAS Delhi & qualified 3 times for
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in Vision IAS Delhi & qualified
2 times for the IAS Mains).



Divyansh Srivastava sir

More than 3 years Working
experience with Vision IAS Delhi
and Qualified 2 times for IAS mains and
2 times for CAPF interview.

Shuffling the deck (24 July)

The Budget sought to be many things to many people, but fiscal responsibility remained in focus

- Finance Minister Nirmala Sitharaman's first Budget in the BJP-led NDA government's third term aims to address unemployment.

- The Budget focuses on the poor, women, youth, and farmers.
- Emphasis on employment, skilling, MSMEs, and the middle class.
- A package of five schemes targets employment and opportunities for 4.1 crore youth over five years with a central outlay of ₹2 lakh crore.
- Main scheme provides a month's wage as a subsidy for new formal sector employees, with conditions.
- Incentives for job creation in the manufacturing sector and support for employers boosting EPFO-registered jobs.
- Skilling program in collaboration with States and private sector using ITIs.
- Internship opportunities for youth in 500 top companies with allowances and training costs partly covered by CSR funds.
- Schemes aim to help youth gain business exposure, targeting those aged 21-24 not in full-time education.
- The Economic Survey highlighted the need to generate 78.5 lakh non-farm jobs annually until 2030.
- Nirmala Sitharaman's Budget aims to address MSME sector challenges, including a credit guarantee scheme for loans without collateral.
- Proposals ease MSME access to debt financing, working capital, and business opportunities.
- Government promises to simplify the GST regime and rationalize the tax structure.
- Tax relief for the salaried middle-class includes a raised standard deduction and revised tax slabs.
- Pensioners benefit from a ₹10,000 increase in family pension deduction.
- Fiscal consolidation path continues with a proposed Fiscal Deficit reduction to 4.9% of GDP.
- Spending cuts in social sectors like education and the rural job guarantee scheme (MGNREGA).
- Subsidies on fertilizers, food, and petroleum are reduced.
- No mention of Indian Railways in the speech.
- Significant allocations for Bihar and Andhra Pradesh due to political allies.
- The Budget balances political and fiscal needs to some extent.

A message of fiscal stability, growth continuity (24 July)

- The FY25 Union Budget focuses on fiscal stability and sustainable growth.
- Emphasis on inclusive growth and addressing weaker economic segments.
- FY24 GDP growth of 8.2% was uneven, with luxury consumption rising and lower-income segments facing stagnant wages and high inflation.
- FY24 fiscal deficit at 5.6% of GDP supported growth through capital spending.
- FY25 Budget aims to improve employment quality, strengthen agriculture, and involve MSMEs in manufacturing.
- Agriculture initiatives include promoting self-reliance in pulses and oilseeds, agricultural research, vegetable production clusters, and Digital Public Infrastructure.
- Support for farmers will help sustain the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) for five more years.

On employment generation

- The Budget focuses on generating employment for youth in the formal workforce with a new ₹10,000 crore scheme offering incentives to employers and first-time employees.
- Additional ₹2,000 crore allocated for internships and youth skilling in collaboration with State governments and industry.
- Urban PMAY allocation increased by 37% and rural PMAY by 70%, highlighting the government's housing initiative.
- PLI Scheme allocation raised by 75%, primarily for the auto sector, with custom duty adjustments to support domestic manufacturing.
- MSMEs to receive term loans for machinery and equipment without collateral, with improved credit assessment and government-backed lending during stress times.
- Fiscal deficit target for FY25 reduced to 4.9% of GDP from the interim estimate of 5.1%, aiming for 4.6% in FY26.
- Maintained capex target at ₹11.1 trillion, utilizing RBI's ₹2.1 trillion dividend transfer for higher welfare spending and reducing fiscal deficit.
- Fiscal discipline aims to improve India's standing in global bond indices and potential sovereign rating upgrade.

Nepal, Sri Lanka, Seychelles secure more funds under Budget allocation for MEA

Kallol Bhattacharjee
NEW DELHI

India-funded projects in the neighbourhood received the bulk of the allocation for the Ministry of External Affairs (MEA) in the Union Budget.

Nepal secured an allocation of ₹700 crore, which is a jump of ₹150 crore from the previous year's allocation of ₹550 crore. Sri Lanka received ₹245 crore, an improvement of ₹95 crore over last year's funding of ₹150 crore. The Seychelles, which had an allocation of ₹10 crore, got a boost with the infusion of ₹30 crore.

Dip in funding

Bhutan, the largest recipient of the annual allocation under the MEA, has seen a dip in funding by ₹332.02 crore. Total funding for Bhutan this year stands at ₹2,068.56 crore.

Bhutan and India are



Annual allocation: Dips in funding were seen for Myanmar, Mauritius, Bangladesh, and Mongolia. ANI

close economic partners and Foreign Secretary Vikram Misri visited Thimphu last week, when the two sides cleared 61 projects amounting to ₹4,958 crore.

The slight reduction in the annual allocation therefore does not indicate a reduction in funding for projects in Bhutan.

Dips in funding were seen for Myanmar, Mauritius, Bangladesh, and Mongolia. Conflict-torn Myanmar, which had an allocation of ₹400 crore

last year, received ₹250 crore this year. Mauritius, with an allocation of ₹370 crore, has received ₹90.79 crore less than the previous year. The allocation for Mongolia, which earlier received ₹7 crore, has been scaled down to ₹5 crore.

Allocation for Bangladesh has dropped by ₹80 crore to ₹120 crore. Both Afghanistan and the Maldives, with ₹200 crore and ₹400 crore, respectively, have secured the same allocation as last year.

SC gives split verdict on validity of Centre's nod for GM mustard

The Hindu Bureau
NEW DELHI

The Supreme Court on Tuesday pronounced a split verdict on the validity of the Centre's 2022 decision granting conditional approval for environmental release of genetically modified (GM) mustard crop.

The Bench of Justices B.V. Nagarathna and Sanjay Karol, however, asked the Centre to formulate a national policy with regard to GM crops for research, cultivation, trade and commerce in the country.

The case would now be referred to a three-judge Bench to be constituted by the Chief Justice of India.

On October 18, 2022, the Genetic Engineering Appraisal Committee (GEAC) – a statutory body under the Ministry of Environment, Forest and Climate Change and regulator of genetically modified or-

The Centre has been asked to formulate a national policy with regard to GM crops for research and other purposes

ganisms in the country – recommended the environmental release.

A subsequent decision was taken on October 25, 2022 approving the environmental release of transgenic mustard hybrid DMH-11, a variety of GM mustard.

On Tuesday, in its judgment, the court said the “national policy shall be formulated in consultation with all stakeholders, such as experts in the field of agriculture, biotechnology, State governments, representatives of farmers, etc”.

It said the government should conduct a national consultation with the aim of formulating the policy.

New U.K. Foreign Secretary David Lammy arrives today

Suhasini Haidar
Sriram Lakshman
NEW DELHI/LONDON

In the first high-level visit by the newly elected Labour government in the United Kingdom, U.K. Foreign Secretary David Lammy will arrive on Wednesday morning for a day-long visit, where a “full reset” of ties and “economic, domestic and global security” will be at the top of the agenda, the British Foreign Office (FCDO) announced.

Mr. Lammy, who is coming to Delhi on his way to Laos for ASEAN meetings, will hold bilateral talks with External Affairs Minister S. Jaishankar.

He is expected to call on Prime Minister Narendra Modi and will hold meetings with National Security Adviser Ajit Doval and Commerce Minister Piyush

Goyal as well before leaving for Vientiane on Thursday morning. Mr. Lammy is also expected to discuss plans for the new U.K. PM Keir Starmer and Mr. Modi to exchange visits.

“I am travelling to India in my first month as Foreign Secretary because resetting our relationship with the Global South is a key part of how this government will reconnect Britain for our security and prosperity at home,” Mr. Lammy said in a statement ahead of his departure, calling India the “emerging superpower of the 21st century”, one of the fastest growing economies, with the world's largest population.

With his visit, Mr. Lammy will be fulfilling a promise made at an Indian diaspora event shortly before the U.K. election on Ju-



David Lammy will arrive in Delhi for a day-long visit. REUTERS

ly 4 that he would visit India “within the month” if the Labour government was elected. He is expected to put reviving India-U.K. Free Trade Agreement (FTA) talks for an early conclusion at the top of his agenda and will also discuss the next steps in the Strategic Partnership. While most of the FTA ne-

gotiations, which began in 2022, were completed with the previous Rishi Sunak government, they were put on hold earlier this year with both countries heading to general elections. Officials said that a few issues, including the question of business mobility, tariffs and market access for certain goods still remain unresolved.

Shared interests

“Our Free Trade Agreement negotiations is the floor not the ceiling of our ambitions to unlock our shared potential and deliver growth, from Bengaluru to Birmingham. We have shared interests on the green transition, new technologies, economic security and global security,” Mr. Lammy said.

According to the FCDO statement, Mr. Lammy's

agenda in India includes a visit to a high-tech facility, meetings with Indian business leaders, and discussions on cooperating on clean energy initiatives, as well as assisting climate resilience projects for small island states in the Global South.

Apart from these bilateral issues, India is expected to discuss its concerns about anti-Indian, pro-Khalistan groups operating in the U.K., which have been raised several times in the past. Officials are expected to bring up the long-pending extradition cases against businessmen Vijay Mallya and Lalit Modi, who are wanted in India.

Mr. Lammy may also raise the continued imprisonment of two British nationals in high-profile and controversial cases: Jagtar

Singh Johal, arrested in 2017 for his alleged role in targeted killings by pro-Khalistan groups in Punjab, and Christian Michel, who India extradited from the UAE in 2017, wanted in India as the alleged middleman in the Agusta Westland corruption case.

In both cases, the U.K. government, the UN and U.S.-based human rights agencies have questioned their continued imprisonment without trial, as well as allegations of torture and arbitrary detention in India.

Mr. Sunak had raised the Michel case with Mr. Modi on the sidelines of the G-20 summit last year. In the case of Mr. Johal, Mr. Starmer, then in Opposition, had himself written to the U.K. government demanding that the U.K. push for Mr. Johal.

New U.K. Foreign Secretary David Lammy arrives today (24 July)

- U.K. Foreign Secretary David Lammy will visit Delhi for a day-long trip to discuss a “full reset” of ties, focusing on economic, domestic, and global security issues.
- He will meet with External Affairs Minister S. Jaishankar, Prime Minister Narendra Modi, National Security Adviser Ajit Doval, and Commerce Minister Piyush Goyal.
- Lammy is also expected to discuss future exchanges between U.K. Prime Minister Keir Starmer and Modi.

- Lammy's visit is part of a broader effort to reconnect with the Global South and strengthen relations with India, described as an "emerging superpower."
- He aims to revive discussions on the India-U.K. Free Trade Agreement (FTA), which were paused due to elections in both countries.
- Some unresolved issues in the FTA negotiations include business mobility, tariffs, and market access for certain goods.

Shared interests

- U.K. Foreign Secretary David Lammy emphasized that the Free Trade Agreement (FTA) negotiations are just the beginning of broader ambitions to enhance growth and collaboration between the U.K. and India.
- Lammy's agenda includes visiting a high-tech facility, meeting with Indian business leaders, and discussing cooperation on clean energy and climate resilience projects for small island states.
- India is expected to raise concerns about anti-Indian, pro-Khalistan groups in the U.K., and discuss long-pending extradition cases for Vijay Mallya and Lalit Modi.
- Lammy may also address the continued imprisonment of British nationals Jagtar Singh Johal and Christian Michel, who are involved in controversial cases and facing allegations of torture and arbitrary detention in India.
- The U.K. government, UN, and human rights agencies have questioned the detention conditions for Johal and Michel.

Jaishankar to attend ASEAN and Quad meetings this week (24 July)

- External Affairs Minister S. Jaishankar has a busy schedule this week with multiple bilateral and multilateral meetings.
- He will travel to Vientiane, Laos, for ASEAN outreach meetings from July 25 to 27.
- In Vientiane, Jaishankar will attend the ASEAN-India meeting, the East Asia Summit (EAS) with Chinese Foreign Minister Wang Yi and Russian Foreign Minister Sergey Lavrov, and the ASEAN Regional Forum (ARF) with over 25 countries.
- On July 28-30, Jaishankar will fly to Tokyo for the Quad Foreign Ministers' meeting with U.S. Secretary of State Antony Blinken, Australian Foreign Minister Penny Wong, and Japanese Foreign Minister Yoko Kamikawa.

PatrioticIAS

Drug used to treat clots can protect against cobra venom damage

Researchers found **tinzaparin, a drug commonly used to prevent blood clots**, significantly reduced damage to human cells caused by **spitting cobra venom**; the team also found the drug reduced skin damage in mice injected with the venom; the scientists have filed for a patent and may start human clinical trials soon

Savantan Datta

Orange-red in colour and native to Tanzania, the *Naja pallida* – the red-spitting cobra – is a formidable, 1.2-metre-long foe.

When threatened, it raises its hood and hisses loudly. If this display doesn't deter its predator, it will use its most potent weapon, its venom. Muscles around the snake's venom glands squeeze, releasing jets of venom onto the eyes, nose, and mouth of the threat. As the victim's face sears in pain, the cobra takes the opportunity to lunge forward and bite, delivering a massive quantity of venom into the victim's body.

The venom attacks cells in the body and damages the nervous system. For most of the cobra's regular victims – toads, frogs, birds, and other snakes – the only fate is death. A lucky human might be spared, but with a permanent disability.

Bad deal on antivenoms

Encounters with venomous snakes kill about 1.4 lakh people every year, especially in the tropical regions of Africa and Asia. Despite this alarming number, the treatment for snakebites has remained archaic.

Based on the work of French scientists in the late 1800s, antivenom is made today by injecting domestic animals like horses and sheep with small amounts of snake venom. This kicks the animal's immune system into action, producing antibodies to neutralise the venom. Researchers extract these antibodies from the animal's blood and transport them in cold storage to hospitals, where they are injected into the bodies of snakebite victims.

Difficulties in production, storage, transportation, and administration aside, antivenoms are also expensive and can have severe side effects in humans; some of them could be fatal.

That may soon change. In a July 2024 study published in the journal *Science Translational Medicine*, a team of Australian, British, Canadian, and Costa Rican scientists reported that tinzaparin, a drug commonly used to prevent blood clots, significantly reduces damage to cells due to spitting cobra venom. The team also found the drug could reduce skin damage in mice injected with the venom.

According to a press release, the scientists have filed for a patent and may start human clinical trials soon.

According to Kartik Sunagar, an associate professor at the Centre for Ecological Sciences, Indian Institute of Science (IISc), Bengaluru, who studies the evolution of snake venoms, "This



Dealing with snakes is a tricky business. Even more dangerous is the task of rearing poisonous reptiles and extracting their venom for medical research. Here, Romulus Whitaker holds a cobra while puncturing a rubber sheet stretched over a cup with its fangs. THE HINDU ARCHIVES

discovery could pave the way for a real-world solution for regions that suffer the highest burden of snakebite morbidity."

How venom kills cells

The venom of the red and the black-necked spitting cobras – the two species whose venom the researchers used in the study – is "poorly understood," R.N.V. Krishna Deepak, who studies snake venoms using computational methods at Azim Premji University, Bengaluru, said.

Our understanding of how these venoms kill human cells is worse, which contributes to the lack of advances in antivenom development.

To address this issue, the researchers first investigated how spitting cobra venom affects human cells. They grew a collection of human cells in the laboratory that had a single gene removed. (They used CRISPR-Cas9, a Nobel-winning genome-editing tool, to build this collection.) When this gene was knocked out, cells that used the genome couldn't manufacture a particular protein – a protein researchers suspected was involved in cells being damaged.

The researchers then treated the cells with the venom of either of the two snakes and selected those that survived. Given that this resistance to spitting cobra venom had been conferred by the absence of a gene, the authors concluded the said genes were involved in facilitating the venom's effects on normal human cells.

Further investigation revealed that



The venom attacks cells in the body and damages the nervous system. For most of the cobra's victims – toads, frogs, and other snakes – the only fate is death. A human might survive, but with permanent disability

many of these genes were involved in the synthesis of a sugar compound called heparan sulphate, which is known to regulate the formation of blood vessels and clots in the human body.

Blood thinner to antidote

The researchers hypothesised that if the venom's toxicity depended on the biological pathway that synthesised heparan sulphate, artificially stopping this pathway could ameliorate the venom's toxic effects.

One way of doing so is to introduce molecules that closely resemble heparan sulphate. As the body senses an excess of these molecules, it shuts down the pathways responsible for heparan sulphate synthesis. One such molecule is tinzaparin, a drug used to treat serious blood clots.

When the team introduced tinzaparin immediately after subjecting cells to the snake venom, the cells survived.

Tinzaparin could protect these cells even when it was introduced an hour after the cells had been exposed to the venom. Further experiments revealed that tinzaparin worked by blocking the

interaction between the venom and its receptor in the cell by binding to venom molecules.

When the researchers injected mice with venom from either of the two cobras along with tinzaparin, they found that skin damage resulting from the venom was much less when the mice were provided with the drug versus when they were deprived of it.

'Hiding right under our noses'

Dr. Deepak said the study's use of the "highly efficient CRISPR approach" to a "mighty but neglected problem" could potentially renew the global scientific community's interest in understanding mechanisms underlying snake venom toxicity.

IISc venomologist Dr. Sunagar added that the study is "one of the few research undertakings where the molecular mechanism of how venom causes damage is taken into account to design a targeted therapy." The therapeutic agent itself that the study proposes – tinzaparin – is inexpensive, widely available, and has been "hiding right under our noses", Dr. Deepak said. He added that he is excited to see how different research groups follow up on the study's findings. In the meantime, he hoped the study would garner enough attention to make a case for increased funding that will allow researchers to employ "advanced methods like CRISPR-Cas9 to address snakebite envenoming."

(Savantan Datta is a science journalist and a faculty member at Krea University. The author tweets at @queersprings.)

THE GIST

Venomous snakes kill about 1.4 lakh people every year, especially in Africa and Asia. Despite this, treatment for snakebites has remained archaic and is still based on the work of French scientists in the late 1800s

Researchers grew human cells that had a gene removed. These cells now couldn't manufacture a particular protein. The cells were treated with venom and those that survived were selected. The authors concluded the said gene facilitated the venom's effects

This gene is involved in the synthesis of heparan sulphate, which regulates blood vessels. Introducing molecules that resembled heparan sulphate led the body to shut down pathways responsible for heparan sulphate synthesis. One such molecule is tinzaparin

Drug used to treat clots can protect against cobra venom damage (24 July)

- The *Naja pallida*, or red-spitting cobra, is native to Tanzania and uses venom as its primary defense mechanism.
- When threatened, it spits venom at the eyes, nose, and mouth of predators, then bites them, injecting venom that damages the nervous system.
- Snakebites kill about 140,000 people annually, mostly in tropical Africa and Asia, and current antivenom treatments are outdated, expensive, and can have severe side effects.
- Traditional antivenoms are made by injecting animals with snake venom to produce antibodies, which are then extracted and used for treatment.
- A recent study has shown that tinzaparin, a drug used for blood clots, can significantly reduce damage caused by spitting cobra venom and may soon enter human clinical trials.
- This new approach could improve treatment options for regions heavily affected by snakebites.

How venom kills cells

- The venom Researchers investigated how spitting cobra venom affects human cells using CRISPR-Cas9 to remove a specific gene from cells.

- Cells missing this gene showed resistance to the venom, suggesting that the gene plays a role in how the venom damages cells.
- The study found that the gene is involved in producing heparan sulfate, a sugar compound that regulates blood vessel and clot formation in the body.
- of the red and black-necked spitting cobras is not well understood, which hampers antivenom development.

Blood thinner to antidote

- Researchers hypothesized that blocking the pathway that synthesizes heparan sulfate could reduce the toxicity of cobra venom.
- They tested this by introducing molecules resembling heparan sulfate, such as tinzaparin, which is used for blood clots.
- Tinzaparin protected cells from venom damage and reduced skin damage in mice when administered along with the venom.
- The study used CRISPR-Cas9 to understand venom toxicity and showed that tinzaparin blocks the venom's interaction with its cellular receptor.
- The research is seen as a breakthrough in understanding venom mechanisms and could inspire further studies and funding for snakebite treatments.

Inducing sleep with pills



Q: What chemical in tablets causes sedation and how does it work?

A: Barbiturates, derivatives of barbituric acid, are mainly used in tablets to

cause sedation and hypnotic activity. The list also includes benzodiazepines and alcohol. They decrease the total REM time and proportion of sleep spent in REM sleep with enhanced amounts of NREM sleep.

REM, or 'rapid eye movement', sleep is characterised by loss of reflexes, intermittent jerky eyeball movements, brief body twitches, and irregular heart beats and blood pressure. Non-REM is a relatively deactivated phase divided into four stages, numbered 1-4.

By most physiological criteria related to the autonomic and central nervous systems, REM sleep is more like wakefulness than non-REM sleep, but drugs that cause arousal in wakefulness, such as amphetamines, suppress REM sleep.

Sedatives cause reversible depression of the activity of all excitable tissues, including the central nervous system. The exact mechanism of the action is not known. However, they are suspected to inhibit neurotransmission in the nervous system. Neurotransmission is responsible for the exchange of information between nerve cells.

In the brain, there are two types of pathways, one that activates and the other that inhibits its activities. The endogenous neurotransmitters of the inhibitory system include gamma amino



Sedatives cause reversible depression of the activity of all excitable tissues, including the central nervous system. GETTY IMAGES

butyric acid (GABA). Sedatives potentiate the action of GABA and thereby inhibit the major pathways of the brain that keep a person awake, thus resulting in sedation or sleep.

In the brain, there are two types of pathways: one that activates and the other that inhibits its activities. The endogenous neurotransmitters of the inhibitory system include gamma-aminobutyric acid (GABA). Sedatives potentiate the action of GABA and thereby inhibit the major pathways of the brain that keep a person awake, thus resulting in sedation or sleep.

Not all drugs are REM-deprivers. Some of the latest drugs reduce stage 4 of non-REM sleep. Most of the stimulants, including amphetamines, and depressants such as barbiturates and alcohol tend to reduce REM activity on an electroencephalogram. (B. Sri Krupa and S. Lalitha, Chennai)

For feedback and suggestions for 'Science', please write to **science@thehindu.co.in** with the subject 'Daily page'



Inducing sleep with pills (24 July)

What chemical in tablets causes sedation and how does it work?

- Barbiturates, benzodiazepines, and alcohol are used to cause sedation and increase non-REM (NREM) sleep while decreasing REM sleep.
- REM sleep involves loss of reflexes, jerky eye movements, brief body twitches, and irregular heartbeats and blood pressure.
- Non-REM sleep has four stages and is less active compared to REM sleep.
- Drugs that cause arousal, like amphetamines, suppress REM sleep.
- Sedatives depress the central nervous system and are thought to inhibit neurotransmission, particularly by enhancing the action of GABA, a neurotransmitter that promotes inhibition in the brain.
- Not all drugs reduce REM sleep; some newer drugs may reduce stage 4 of non-REM sleep.
- Stimulants and depressants like barbiturates and alcohol generally reduce REM activity.