The Cape Town Convention and Protocol holds the power to transform our aviation industry and will bring multiple benefits that will shape the future of air travel in India. These include: (i) Lowering aircraft leasing costs -- Airlines in India rely heavily on leased aircraft and by adopting this Convention, we open doors to alternative and better financing options. This will reduce operational costs for airlines, making air travel more affordable and accessible for millions of passengers across the country. (ii) Boost foreign investment in aviation sector. (iii) Faster aircraft repossession and dispute resolution. The Bill will establish a clear, legally-secure framework for aircraft leasing companies, reducing financial risk and legal disputes.Hon. Minister, Sir, I have one small request. From Tirupati, Nellore and Annamaya districts, five lakh workers are working in Kuwait and neighbouring countries. Right now they are travelling from either Chennai or Hyderabad. ...(Time-bell)... One minute, Madam. This is an important point that I am making. I have a special request...

उपसभाध्यक्ष (सुश्री इंदु बाला गोस्वामी) : माननीय सदस्य, दो मिनट ..(**व्यवधान**)... आप बैठिए। ...(**व्यवधान**)... मुझे announcement करनी है। आप बैठिए। यह एक special announcement है। Hon. Members, as announced earlier today, further discussion on the Protection of Interest in Aircraft Objects Bill, 2025 and the reply to the discussion by the hon. Minister will be taken up at the next available opportunity.

Now, Private Members' Resolution. Shri Kartikeya Sharma to move a Resolution urging the Government *inter alia* to establish a Council of Future Affairs (CFA) to drive innovation in fields like AI, Blockchain, Quantum Computing and Water Reuse to create policies for technology transfer, IP ownership and market deployment while fostering global collaboration to ensure funding for long-term R&D and set national goals for technological leadership. Shri Kartikeya Sharma, please.

PRIVATE MEMBERS' RESOLUTIONS

Resolution regarding establishing a Council for Future Affairs (CFA) to drive innovation in fields like AI, Blockchain, Quantum Computing and Water Reuse and to create policies for technology transfer, IP ownership and market deployment

SHRI KARTIKEYA SHARMA (Haryana): Madam, I move the following Resolution:

"Having regard to the fact that:-

(i) the rapid evolution of Artificial Intelligence (AI), Blockchain, Quantum Computing, Small Modular Nuclear Energy, Water Reuse and Purification, and other emerging technologies is reshaping economies, industries, and global power structures;

(ii) India has a strong research ecosystem, but fragmentation between research institutions, industry players, policymakers and investors limits the transition of research into market-ready products;

(iii) amidst rapidly evolving global scenarios, there is a pressing need for a holistic unified strategic body, equipped with research and production facilities, which will eliminate the siloisation of development efforts, and prevent delays in innovation, duplication of efforts, and inefficiencies in scaling up technological breakthroughs;

(iv) the next era of global leadership will be determined by nations that successfully integrate cutting-edge research, product innovation, and strategic policymaking under a single, forward-looking framework;

(v) India must proactively position itself as a leader in future affairs, anticipating and shaping technological, economic, and geopolitical trends rather than merely reacting to them; and

(vi) there is a pressing need for a centralized institutional mechanism that aligns research, product development, industry collaboration, and policy formulation to ensure that India remains ahead of global disruptions and leads in future technologies.

The House urges upon the Government to —

(a) institute a Council for Future Affairs (CFA) to provide a unified, strategic framework for research-driven innovation and product development in critical future domains such as AI, Blockchain, Quantum Computing, Small Nuclear Energy, Water Reuse, and other emerging fields;

(b) structure the Council for Future Affairs (CFA) as an apex body comprising leading experts, industry leaders, policymakers, global investors, academic institutions, and startups, ensuring a multi-stakeholder approach to deep-tech research, product commercialization, and national strategy formulation;

(c) establish Research and Product Development Councils (RPDCs) under the CFA, each dedicated to a specific critical field such as AI, Blockchain, Quantum Computing, Small Modular Nuclear Energy, and Water Reuse, ensuring that research and development efforts are aligned with national priorities;

(d) allocate sufficient budgetary support to CFA and its RPDCs to fund long-term research, prototype development, and commercialization of innovative technologies in partnership with industry and global investors;

(e) mandate CFA to set long-term national goals in emerging technology domains, ensuring India's leadership in future global markets and technological disruptions;

(f) require each RPDC to define clear research and product development objectives at the beginning of each financial year and submit an annual report to Parliament detailing progress, challenges, and policy recommendations;

(g) develop a policy framework that facilitates technology transfer, intellectual property
(IP) ownership, and market deployment, ensuring that research breakthroughs lead to indigenous industrial growth and global competitiveness; and

(h) promote international collaborations through CFA to attract cutting-edge expertise, funding, and technology partnerships, ensuring India remains connected to global innovation ecosystems."

Hon. Vice-Chairperson Madam and distinguished Members of this august House, I rise today to present a Private Members' Resolution of profound national

importance, the establishment of a Council for Future Affairs (CFA) for our nation. Madam, this Resolution emerges from a deep responsibility and a golden opportunity towards securing India's position as a global leader in the era of rapid technological transformation. The rapid evolution of transformative technologies such as Artificial Intelligence, Blockchain, Quantum Computing, Small Modular Nuclear Energy and advanced water reuse systems is fundamentally reshaping the global economies, industries and power structures. While India possesses a robust research ecosystem, we need to harmonize research institutions, industry players, policy makers and investors. This harmonisation significantly limits our ability to transition ground-breaking research into market-ready products that can benefit our citizens and establish India's technological sovereignty.

In today's rapidly evolving global scenario, there exists a pressing need for a holistic unified strategic body equipped with strategic execution and legislative capabilities. Such an institution would eliminate the current siloisation of development efforts that leads to delays in innovation, duplication of work and inefficiencies in scaling up technological breakthroughs. The next era of global leadership will undoubtedly be determined by nations that successfully integrate cutting-edge research, product innovation, and strategic policymaking under a single, forward-looking framework. India must position itself proactively as a leader in future affairs, anticipating and shaping technological, economic, and geopolitical trends rather than merely reacting to them. More than 70 per cent of businesses in the future will be based on knowledge.

Through this Resolution, I am urging the Government to institute a Council for Future Affairs that would provide a unified, strategic framework for research-driven innovation and product development in critical future domains. The proposed Council would serve as an apex body comprising of leading experts, industry leaders, policy makers, global investors, academic institutions and start-ups, ensuring multi-stakeholder approach to deep-tech research, product commercialization, and national strategy formulation.

Hon. Vice-Chairperson, Madam, through you, I would like to inform the House that Haryana, the State I come from, has set a pioneering example in this direction. There is a State-level initiative as a model for national importance and implementation. The Government of Haryana has taken a revolutionary step by establishing the Department of Future Affairs, becoming the first State in India to create a dedicated institutional mechanism for anticipating and preparing for future challenges and opportunities. This department demonstrates Haryana's commitment to proactive governance and a strategic foresight, positioning the State to become a

leader in adopting emerging technologies and innovative governance approaches. The Haryana model shows how a dedicated future-thinking institution can integrate planning across multiple sectors, including agriculture, healthcare, manufacturing, education, energy, IT, transport, urban development and urban living, tourism and environmental management. The Department of Future Affairs in Haryana serves as a think tank, implementation catalyst and a coordination hub for future-orientated initiatives, scanning the horizon for emerging technologies and assessing their potential impact on the State's economy and society. The States' approach demonstrates how federal structures in India can incubate and innovate governance models that can later be scaled to national level. There are umpteen global examples of future-focused governance. I would like to quote a few so that we can take an informed decision on this.

I would like to quote some of the developments in the United Arab Emirates where they have set up the comprehensive future governance. The UAE established the Ministry of Cabinet Affairs and the Future in 2016, demonstrating institutional commitment to the future planning at the highest Government level, created the position of Minister of State of Artificial Intelligence in 2017, becoming the first country in the world and dedicated AI Minister. This has accelerated the AI adoption across Government services with more than 100 plus AI-use cases which have been already implemented. Results are that UAE has risen from the 30th to 9th place in the Global Innovation Index. Between 2016 and 2023, digital Government services now save an estimated 2.5 billion Dirhams annually because of that.

Singapore is another good example which has set up the strategic foresight and execution excellence. Singapore Centre for Strategic Futures, established in 2009 under the Prime Minister's Office, conducts scenario planning and horizon scanning to identify emerging issues. The Research, Innovation and Enterprise, the RIE-25, allocates 25 Singapore billion dollars for strategic technological development with clear missions and accountability mechanisms. Singapore's AI Governance Framework, developed by the Personal Data Protection Commission, provides a risk-based model balancing innovation with ethical considerations. Results are: Singapore consistently ranks amongst the top 5 nations for digital competitiveness and attracts 17.2 billion dollars in fixed asset investments in 2023 despite global economic uncertainties.

Another great example is Israel, which has created the innovation ecosystem with defence technology integration. Israel's Innovation Authority serves as a central agency for technology development with specialised divisions for different maturity stages and technology domains. The Government allocates 5.6 per cent of the GDP

to R&D, which is highest globally, with strategic coordination between defence needs and commercial applications. The Israeli Technological Incubator Programme provides for 85 per cent funding of high-risk StartUps and the Israeli Defence Forces Unit-8200 functions as a talent incubator for cyber and AI technologies with structured pathways for transitioning military innovations and civilian applications. Results are: Israel has the highest density of StartUps globally, one per 1,400 citizens, and attracts the highest per capita venture capital investment of 414 dollars per person annually.

I would also like to quote an example of Finland, which has set up the Parliamentary Foresight and Participatory Futures. Finland's Committee for the Future, established in 1993 as a Parliamentary Standing Committee, ensures long-term thinking in political decision-making. The Committee engages directly with citizens through a deliberative democracy process to develop inclusive future visions such as the Finland 2050 Initiative. Sitra, the Finnish Innovation Fund, functions as an independent public foundation that reports directly to the Parliament with a 900 million endowment to pilot future-orientated initiatives. Result are: Finland consistently ranks in the top three countries of e-Government development and has successfully transitioned from resource-dependent to knowledge-based economy with one of the highest Patent applications per capita.

Another great example is that of South Korea in industrial transformation through strategic planning. South Korea's National Science and Technology Council coordinates technology policy across 17 Ministries and agencies, ensuring alignment with national strategic objectives. K-New Deal allocated 144 billion dollars for strategic technologies, including AI, 6G, green energy, and biotechnology between 2020 and 2025. Results are: South Korea has transformed as one of the world's poorest countries to a technological leader in a single generation, with the world's highest robot density in manufacturing, 1,000 per 10,000 workers. There are umpteen examples, but I will just quote a few to put in the context of why it is important and what is the relevance of how the world is approaching this issue and how India should as well. Japan has also set up a Society 5.0 and the Moonshot Research Program. The Japan's Council for Science, Technology and Innovation (CSTI) developed the Society 5.0 version for human-centered technology integration across all aspects of life. The Moonshot Research and Development Programme commits 1.8 billion to the ambitious technology objectives, including AI robots capable of autonomous learning and avatar technologies. Japan's Cross-Ministerial Strategic Innovation Promotion Programme (SIP) ensures co-ordination across Government departments for critical technologies. Japan's Super City Initiative designates regions for regulatory flexibility

and test autonomous vehicles, drone delivery, and AI-driven public services. The results are that Japan maintains leadership in robotics with 52 per cent of the global market share, and it holds 40 per cent of patients in regenerative medicine despite demographic challenges.

It is important to understand where the world is going, in which direction the world is going. And, therefore, with having become the fifth largest economy, and on the way to becoming the third largest economy, and the vision of having India seen as a developed economy in 2047, we need to understand the challenges that we face and the opportunities that are confronted, which the rest of the world is taking. If we have to beat China at this game, we must understand how they have used this to their advantage as well. China centralized planning with their market mechanisms. China has a five-year plan which provides comprehensive technology development roadmaps with the 14th Plan of 2021-25 prioritizing quantum information, AI, integrated circuits and space technology. The Made in China-25 Initiative targets 70 per cent self-sufficiency in key technologies by 2025 through a co-ordinated industry policy. The National Natural Science Foundation reformed itself and evaluated to support a long-term high-risk research contributing to China's rise in the world top producers of scientific papers. So, as a result, China shares a global high-tech manufacturing value-added increase from 7 per cent in 2003 to 30 per cent in 2023. The Chinese companies now file more patents than ever before.

Germany is also a great example. Germany's high tech strategy, which is for 2025, co-ordinates innovation policies across federal Ministers with 3.5 billion Euro annual investment in key technologies. The Fraunhofer Society operates 76 institutes conducting applied research with 30,000-plus staff serving as a bridge between academia and industry. Germany's Platform Industry-4.0 brings together 350-plus organizations to develop standards and reference architecture for the industry internet. The German Research Foundation provides ethical frameworks for emerging technology, balancing innovation with social responsibility. As a result, Germany maintains manufacturing competitiveness despite high labour costs with 320 hidden champions, global market leaders in specialized sectors and the world's highest trade surplus in research-intensive goods.

Even the United Kingdom, on the other hand, has similar strategies like many other countries, but I would just mention a few. The U.K. established the Advanced Research and Innovation Agency (ARIA) in 2022 with 800 million funding and gave an exceptional autonomy to pursue high-risk research. As a result, despite relatively modest research and development of 1.7 per cent of the GDP, the U.K. produces 14

per cent of the world's most highly-cited research papers and has created 43 per cent of Europe's unicorn start-ups.

Now, I come to the key lessons from these global examples. What are the key takeaways? The key lessons are that we are going to build institutional commitment. Countries achieving technological leaderships establish dedicated high-level institutions with direct reporting lines to the senior leadership. Also, the policy consistency is a very important factor because successful technology development requires long-term planning horizons which are more than 10 years, transcending electoral cycles. Ecosystem approach is again a very important aspect. Effective models integrate research, education, industry, finance and regulatory functions rather than sole interventions. The Public-private collaborations, the most successful program, leverage public strategic direction with private sector's innovation and commercialisation capabilities. Risk tolerance is also very important. Leaders in emerging technologies implement specialized funding mechanism for high-risk, high-reward research start-ups with multidisciplinary integration, which is future focused. Institutions break down boundaries between traditional disciplines, recognizing the breakthrough innovations which often occur at intersections and international engagements. Even strongly, nationalistic technology strategies maintain international scientific collaborations and talent attraction. These are some of the key lessons from the global examples that I have spoken about.

Now, I come to the mission and vision of the proposed Council. This is applicable because it is very important part of the proposal. The mission stated by the proposed Council is to establish India as a global leader in the future technologies, integrated research, development and deployment of strategic emerging technologies, advanced national security, economic prosperity and social well-being while ensuring technological sovereignty.

The vision, Madam, Vice-Chairman, is to position India as a pre-eminent creator and developer of critical future technologies by 2035, create a unified ecosystem where research seamlessly translates into market-ready innovations across key strategic domains, ensure that India not only adopts but also shapes the global technology standards and frameworks, develop indigenous capabilities in critical technology areas to reduce foreign dependencies and establish technological sovereignty, enable India to anticipate technological disruptions and proactively develop strategic responses rather than be reactive, foster collaborative innovation across Government, academia, industry and civil society to develop solutions for complex national challenges, and, ensure technological development aligns with the Indian values and serves the diverse needs of our population.

The strategic objectives are also very important to be understood along the thought behind this entire initiative. The strategic objectives are: identify and prioritize critical technology domains where India can establish leadership or must ensure sovereign capabilities, accelerate technology transfer from lab-to-market by reducing institutional barriers and creating integrated research to production pathways, develop strategic foresight capabilities to anticipate technological disruptions and their socio-economic implications, create a robust intellectual property framework that protects Indian innovations while enabling their commercialization, establish a talent pipeline by aligning education and skill development with future technology needs, promote international collaboration with safeguarding strategic national interests.

The most important aspect of this proposal is alignment with the Modi Government's vision of Digital India and the technological self-reliance. The proposed Council of Future Affairs directly complements the hon. Prime Minister's Digital India Vision by creating institutional mechanism to accelerate digitalization across sectors. The Council aligns with the Government's focus of *Atmanirbhar Bharat* by strengthening indigenous technological developments, capabilities and reducing dependence on foreign technologies in critical sectors. Hon. Prime Minister, Shri Narendra Modi, has repeatedly emphasized India's aspiration to be *vishwa guru*, a world leader in technological domain. The Council would institutionalize this aspiration through a dedicated focus on future technologies.

The Government's push for innovation is evident in its initiatives like Start-Up India, Atal Innovation Mission and the National Research Foundation. The Council would provide a strategic umbrella to coordinate these efforts towards future-focused technologies.

The strategic governance through technology is a very important aspect. The Modi Government has embraced technology as a governance tool and that has been the bedrock of transformation in the last 10 years of this Government and how it has brought transformation right from the grass-root levels to right at the top. As demonstrated by initiatives like the Jan Dhan Yojana-Aadhaar Cards-Mobile Number (JAM), Direct Benefit Transfer and the CoWIN platform, the Council would further enhance governance through advanced technologies.

The Government's focus on using technology for transparency and efficiency aligns with the Council's proposed role in developing next-generation public service delivery systems. The proposed Council would strengthen the implementation of existing flagship programs like Digital India, Smart Cities Mission and National Hydrogen Mission by providing strategic foresight and technological integration

capabilities. There are huge implications as far as national security and strategic autonomy is concerned, especially because hon. Prime Minister has emphasized the importance of technology for national security and strategic autonomy.

The Council would institutionalize capabilities to develop indigenous technologies in critical domains and the hon. Prime Minister's vision of India as a robust democracy, leveraging technology for development, aligns perfectly with the Council's proposed mission to develop ethical and inclusive technology solutions.

This proposal is completely aligned with the vision of Viksit Bharat, 2047. I am proud to say that today, as a Member of Parliament, I am part of the Government, headed by hon. Prime Minister, Shri Narendra Modi, who has taken the vision of taking India to the world stage and making India a developed economy by 2047, and I can say that no one before him actually thought of doing this. I say because for the past 75 years, we have been struggling with our fundamental issues, which still remain, but we are progressing there. If India needs to become a developed economy by 2047, this is a very important piece of suggestion which I think we must inculcate in our way forward.

Contributing to the economic growth targets of Viksit Bharat, which envisions India as a developed nation with a 30 trillion dollar economy by 2047, the Council of Future Affairs would directly contribute by accelerating technology-driven growth across sectors. Viksit Bharat aims to increase R&D expenditure to three per cent of GDP by 2047. The Council would provide strategic directions to ensure that this investment focuses on future-ready technology with maximum economic impact. It will also enhance India's global positioning. Viksit Bharat 2047 envisions India as a global power with significant influence. Technological leadership fostered by the Council would strengthen India's geopolitical standing as well. Viksit Bharat targets making India a global innovation hub. The Council would accelerate this by creating institutionalised pathways for converting research into market-ready products.

On addressing sustainable development goals, Viksit Bharat 2047 emphasizes sustainable development goals. The Council would focus on technologies like renewable energy, water management and sustainable agriculture to address environmental challenges while growing at that pace. I also want to come to one of the most important parts of this proposal, which is the importance of the Council in the era of technological disruptions. We are living in a world where technology is not only enabler, but is a disruptor as well. And accelerating pace for technological change is very important. The pace of technology adoption is accelerated dramatically in the past few years. While telephone took 75 years to reach 100 million users, Instagram reached this milestone in just two years and ChatGPT merely in two

months. That is the pace at which technology is changing. By 2030, over 70 per cent of the new value created in the global economy will be based on digitally-enabled businesses and business models, according to the World Economic Forum. The average lifespan of the S&P 500 companies has decreased from 60 years in the 1950s to less than 20 years today largely due to technological disruptions demonstrating the urgency for nations to establish institutional mechanisms to navigate these disruptions. The collective impact of AI, quantum computing, biotechnology and renewable energy technologies is expected to create an economic value of 15 to 30 trillion dollars globally by 2030. I am quoting this figure from the McKinsey Global Institute. It is very important to understand the emphasis that the world is putting in the future it holds as far as evolution of these technologies is concerned.

Next is the economic impact of technological leadership. Countries that lead in adopting AI technologies are projected to gain an additional 25 per cent in economic benefits compared to those that lag, potentially adding 1.2 to 1.5 per cent to annual GDP growth. These figures have been quoted by PwC Global AI Study in 2023. The quantum computing market is projected to reach 65 billion dollars by 2030 with early adopter nations positioned to capture disproportionate economic benefits. This figure is quoted by Boston Consultancy Group. Nations with coordinated approach to technology development like China's five-year plans for technology have demonstrated 30 to 40 per cent greater efficiency in research commercialization compared to countries with fragmented approaches. The economic cost of technological fragmentation is estimated at five per cent of potential GDP for developing economies that fail to coordinate their technological development strategies. That is why it is so important to have coordination and cohesion over here. There are huge national security implications. I have already briefly spoken about it.

I want to move to a more important point. How India is uniquely positioned to lead in future technologies? Today, we are the world's youngest country. The majority of our country is under the age of 35. We have a huge demographic advantage. India possesses the world's largest youth population with 600-plus million citizens under 25 years of age creating an unparalleled talent pool for technological innovation. India produces over 1.5 million engineering graduates annually, the highest in the world, providing a steady stream of technical talent. The median age in India is 28 years, compared to 38 in China, 42 in Europe and 38 in the US, giving India a demographic dividend that will last until 2055 according to the UN population projections. India has the world's second largest English-speaking

scientific and technical workforce, facilitating global collaborations and knowledge exchange. These are very pertinent and important points.

Madam, then, there is digital infrastructure and adoption. I really want to emphasize on this point because how do we take the good work, which has been done by the Government in the last ten years, and unify it with this. India's Unified Payment Interface, UPI, processed 117 billion transactions valued at 182 trillion in the financial year 2023-24, demonstrating unmatched scale in digital financial structures. With over 950 million internet users and smartphone penetration expected to reach one billion by 2026, India has created a massive base for technology adoption. The India Stack, Aadhaar, UPI, DigiLocker, etc., have demonstrated India's capability to build public digital infrastructure at unprecedented scale and pace. India's data consumption has grown exponentially to over 20 GB per user per month. It is among the highest in the world, creating a very rich database of AI and ML applications.

Then comes innovation ecosystem and its strengthening. India has the world's third largest StartUp ecosystem with over one lakh registered StartUps and 100 plus unicorns, demonstrating strong entrepreneurial capacity. The country has established a network of 25 innovation and technology development centres, 15 technology business incubators and numerous Centre-State collaborative technologies. India ranked 40th on the Global Innovation Index in 2023, having improved its position from 41st in 2015, showing significant momentum in innovation capabilities. There is strong leadership and policy environment which has been created in the last ten years through sheer political will to bring in transformation. And that is very visible on the ground. Let me just quote a few things. The Digital India programme has transformed citizen-Government interaction with over 4,000 Government services now available online, reducing corruption and improving efficiency, which is one of the mainstays of this proposal. It is to bring in transparency and accountability in a transformative way, being completely transparent in that process, as is being done by the Government in the last ten years. The JAM trinity (Jan Dhan-Aadhaar-Mobile) has enabled direct benefit transfers worth Rs. 28 lakh crore, eliminating leakages estimated at Rs. 2.2 lakh crore and ensuring transparent governance. The Government e-Marketplace (GeM) has processed transactions exceeding Rs. 4.5 lakh crore, bringing transparency to public procurement and enabling MSMEs to accelerate Government contracts. There are umpteen examples. The list is so long; I can go on and on. But the fundamental premise is that India is on a transformation path and we are heading towards becoming Viksit Bharat by 2047. This suggestion can definitely aid in that process.

Madam, I also want to come back to the fact that how disruptive technologies have shaped global power dynamics. It is an extremely important point. The discovery and control of oil resources fundamentally reshaped the global power structures in the 20th century, with the United States leveraging its oil abundance to fuel its rise as a superpower of the world. Countries that strategically managed their oil resources like Norway's Sovereign Wealth Fund created integrational prosperity. Nuclear technology transformed global security architecture after the World War II, with the nations possessing nuclear capability gaining significant geopolitical leverage. Countries like France that developed civilian nuclear power reduced energy imports by 40 per cent strengthening economic sovereignty. The semiconductor revolution propelled economies like South Korea, Taiwan and Japan from the developing status to global economic powers. Taiwan's strategic focus on semiconductor manufacturing has resulted in TCMC controlling 60 per cent of the global foundry market and 90 per cent of the advanced chip production. The internet revolution enabled the United States to establish economic and cultural dominance. With American tech companies now representing seven of the world's 10 most valuable corporations, the US captured approximately 70 per cent of the economic value created by internet technologies. Then, there are contemporary examples of technology-driven leadership. Israel transformed itself into a StartUp nation through strategic investments in technology achieving the highest density of tech StartUps — one StartUp per 1,400 people. This focus has created a tech sector that contributes 15 per cent to the GDP despite Israel having limited natural resources.

3.00 P.M.

South Korea's targeted development of battery technology has resulted in Korean companies holding over 30 per cent of the global EV battery market, positioning the country at the centre of the electric vehicle revolution. Singapore's strategic focus on biotechnology through its "Biopolis" initiative has transformed it into Asia's premier biomedical hub, attracting over 25 billion dollars in investments and creating a sector that contributes 8 per cent to the GDP.

Next is, economic impact of technology and leadership. Countries that led in adopting -- and this is a very important point, Vice-Chairman, Madam -- previous waves of digital technologies experienced a 25 per cent higher GDP growth rate in the subsequent decade according to the World Bank data. Nation-states with coordinated approaches to emerging technologies have demonstrated 40 per cent greater returns on R&D investments compared to countries with fragmented

approaches. The economic impact of AI alone is estimated to be 15.7 trillion dollars by 2030, with 70 per cent of the benefits accruing to early adopter nations according to PwC. The quantum computing race has already attracted over 35 billion dollars in investments globally, with early leaders positioned to capture disproportionate economic and security benefits. There are lots of sectors that have been impacted by future of technologies and especially the critical sectors requiring strategic focus, whether it is healthcare and life sciences, whether it is agriculture and food security, whether it is energy and sustainability, whether it is advanced manufacturing, whether it is national security and defence, whether it is space technology, whether it is financial services or education and skill development. But there is an urgency for strategic intervention. The accelerating pace of technological change creates a narrow window for establishing leadership positions, with early movers gaining significant advantages in standard setting and capturing the market. Cross-sectoral implications of emerging technologies necessitates coordinated approaches rather than siloed departmental initiatives. The international technology governance frameworks are being actively shaped, especially because it has a dual-use and the nature of many future technologies are based on civilian and military applications as well. The use cases of future technologies are umpteen, whether it is AI-enabled diagnostics in medicine, telemedicine and remote monitoring, precision medicine and genomics, drug discovery through AI, stem cell therapy and regenerative medicine, stem cell treatment and degenerative diseases, gene editing for genetic disorders, immunotherapy for cancer, 3D bio printing of tissues and organs, digital therapeutics and prescription apps. There are umpteen examples but one of the most important aspects is this technology has multiple manifestations. For example, the blockchain technology. On one hand, it can be used for crypto currency, and we all know the impacts of that. On the other hand, a blockchain technology can be used for governance, ensuring that data security can be ensured, and especially by imbibing it in the Government setup, we will ensure transparency as well as a greater amount of accountability. So let me give you an example on how blockchain technology can be used beyond crypto currencies. First is, supply chain transparency and traceability. Blockchain can provide immutable records of product origin, handling, and quality certifications, critical for agriculture exports worth 50 plus billion dollars annually. Implementation could potentially increase export values by 15 per cent to 20 per cent through premium pricing of certified origins, as is the case by many EU laws coming in the future anyway. Next is, land records management. Distributed ledger technology can create tamper-proof land ownership records, potentially resolving India's estimated 7.7 million land dispute cases that lock up 9.5 lakh crores in

economic value. Pilot projects in Andhra Pradesh and Haryana have demonstrated 90 per cent reduction in property fraud. Next is, intellectual property protection. Blockchain can establish verifiable timestamps for creative works and innovations, protecting India's growing IP assets, which increased from 39,400 patent applications in 2010-11 to 58,502 in 2020-21 itself. Next is, financial inclusion through decentralized finance. Blockchain-based financial services can extend banking to India's 190 million unbanked adults potentially adding 14 lakh crores to the formal economy while reducing transaction costs by 60 per cent to 70 per cent. Next is, secure electronic health records. Blockchain can enable secure patient controlled health records accessible across healthcare providers for India's 1.5 billion citizens. This could eliminate duplicate testing estimated to cost Rs.25,000 crores annually while improvising care coordination. Also, in technology, such as civil nuclear technology and SMRs, the Small Modular Reactors, as an energy revolution, has been initiated by the hon. Prime Minister and the hon. Finance Minister made an announcement in this Budget. Now, Distributed Power Generation; SMRs (typically between 10-300 megawatts) can provide reliable baseload powers for industrial clusters, remote regions, and strategic facilities without requiring massive transmission infrastructure. This could address India's peak power deficit while reducing transmission losses estimated at Rs. 38,000 crores annually. Clean hydrogen production, water desalination and purification, carbon-free industrial heat, energy security and manufacturing are some of the effects through these SMRs which are deployed can have a huge impact on the economy. Now, I come to Strategic Planning and Coordination. The powers and functions of the Proposed Council is an important aspect which will formulate a comprehensive national future technology strategy with 5, 10, and 25-year horizons identifying priority technologies and developing pathways; establish coordination mechanism across Ministries, research institutions, industry and international partners to eliminate silos and duplication; conduct regular technology horizon scanning and develop strategic foresight capabilities to anticipate emerging trends and disruptions; and, define key national technological missions in areas of strategic importance. For example, quantum computing, advanced AI and hypersonic systems, etc. And, develop frameworks for measuring and benchmarking India's technological sovereignty across critical domains. Now, I come to Institutional Architecture and Governance which operates as an apex body with direct reporting to the hon. Prime Minister to ensure high-level strategic direction and inter-Ministerial coordination; establish Research and Product Development Councils for key technology domains, each with dedicated research facilities, industry partnerships, and commercialization pathways; create a Strategic

Technology Advisory Board comprising both of eminent experts from academia, industry, Defence and civil society to provide independent guidance; develop institutional mechanisms for rapid decision-making on technological investments, partnerships and strategic pivots; and, establish a dedicated Secretariat with specialized cells for technology assessment, strategic intelligence, international collaboration and policy development. Now, I come to Research and Innovation Ecosystem Development which allocates substantial multi-layer funding for fundamental and applied research in priority technology domains, ensuring stability on long-term research programs; create a network of Advanced Technology Research Institutes focused on specific domains like quantum computing and advanced materials, etc., with world-class facilities and talent; establish frameworks to industry-academia collaboration, including joint research programs, talent exchange and shared infrastructure; develop specialized grant mechanisms for high-risk, high-reward research with streamlined applications that report requirements; and, create institutionalized pathways for transitioning research from Technology Readiness level 3-4 to commercial applications of TRL 7-9. Now, I come to Commercialization and Industrial Development which establish technology transfer offices with specialized expertise in intellectual property management, licensing, and startups and implementation of technology procurement initiatives to create an early market for strategic innovation, similar to the Defense Advanced Research Projects Agency in the United States. Now, I come to Legislative and Regulatory Framework Development which advises Parliament and Government on legislative reforms required to govern emerging technologies while enabling innovation; develop agile regulatory frameworks that address risks while allowing for experimentation and iteration; create specialized regulatory capabilities for complex technology domains requiring deep technical expertise like biotech and quantum cryptography; establish anticipatory governance mechanisms to develop regulations for emerging technologies before widespread adoption creates entrenched interests; and coordinate with international bodies to ensure Indian perspectives are reflected in global technology governance frameworks. Now, I come to Human Capital Development to create specialized fellowship programs to identify and nurture exceptional talent in strategic technology domains; develop industry and academia curriculum collaboration to ensure educational programs align with frontier technology skills; establish researcher mobility programs to enable talent circulation between academia, industry and Government; create specialized training programs for mid-career professionals to transition into emerging technologies and fields and develop international talent attraction programmes to bring leading researchers and

entrepreneurs to India's technology ecosystem. International collaboration and strategic partnerships: With the spirit of *Vishwa Mitra Bharat*, we can establish strategic technology partnerships with like-minded nations to pool resources, share capabilities and develop common standards; create specialized diplomatic capabilities for technology negotiations and partnerships; develop frameworks for responsible technology transfer that protect national security while enabling global scientific collaboration; participate actively in international technology governance forums to shape global norms aligned with the Indian values and interests; create dedicated programs for diaspora engagement to leave global Indian talent for the national technology development. Impact on research, startups and market development: Transforming the research ecosystem. The council's integrated approach could increase research commercialization rates from the current 5 to 7 per cent to 20 to 25 per cent by creating clear pathways from laboratories to market. Long-term stable funding commitments would enable high-risk, high-reward research programs that currently struggle under short-term grant cycles. The network of specialized research institutes could achieve critical mass in strategic domains, similar to how ISRO transformed the space capabilities through sustained institutional development. Research productivity could increase by 30 to 40 per cent through shared infrastructure, reduced administrative burdens and strategic coordination. International research collaborations represent 33 per cent of India's high impact publications, could expand to 45 to 50 per cent through strategic partnerships and programs. Catalyzing the deep tech startup growth: The deep tech startup ecosystem could grow from the current base of approximately 3,000 startups to 15,000 to 20,000 startups by 2030 through dedicated incubation and acceleration programs. Survival rates of hardware and deep tech startups could improve from 20 to 25 per cent right now, going to 40 to 45 per cent through specialized support mechanisms addressing their unique challenges. Time to market for deep tech innovations could reduce by 30 to 40 per cent through streamlined regulatory pathways and demonstrative infrastructure. Venture funding for deep tech could grow from a current 2 to 3 billion annually to 15 to 20 billion by 2030 through dedicated investment vehicles and risk sharing mechanisms. There are multiple accelerating market development and adoptions. Government procurement of innovative technologies currently representing less than 5 per cent of the public procurement could expand to 15 to 20 per cent through mission-driven acquisition programs. Regulatory sandboxes and standards development could reduce market entry barriers for new technologies by 40 to 50 per cent. Industrial adoption of emerging technologies could accelerate by establishing common platforms and interoperability

standards, potentially increasing productivity growth by 1 to 2 per cent annually. Strategic missions focused on societal challenges could create early markets for technologies addressing healthcare access, environment sustainability and digital inclusion. India's technology export capabilities could expand from the current service-dominated model to include advanced hardware and intellectual property potentially adding 100 to 150 billion dollars to the annual exports by 2030. The economic value creation: The proposed Council's initiatives could potentially add, like I said, one to one-and-a-half per cent to India's annual GDP, growth through productivity enhancements, new industry creations and improved competitiveness. The direct job creation in high technology sectors could reach anywhere between five to seven million by 2030 with an additional 10 to 15 million indirect jobs across the supply chain also created in the process. Import substitution in critical technologies could save 30 to 50 billion dollars annually by 2030, improving trade balance and economic resilience. New industry creation in the quantum technologies, advanced materials and biotechnology could generate 100 to 150 billion dollars in annual economic value by 2035. Public investments in strategic technologies could leverage three to five times of the private capital, creating a multiplier effect for the overall economy. Vice-Chairman, Madam, I would like to conclude my submissions and in my conclusion, I would definitely urge upon the House to pay attention to this issue of umpteen importance, which affects directly our mission to becoming a *Viksit Rashtra* by 2047. The establishment of a council for future affairs represents a strategic imperative for India at the pivotal moment in technological history. As we have examined, the pace of technology change is accelerating dramatically, and countries that establish institutional mechanisms to anticipate and shape these challenges and change will secure lasting advantages in economic prosperity, national security, and global influence. Haryana's pioneering initiative in its Department of Future Affairs demonstrates how effective governance structures can coordinate technology adoption across sectors. At the national level, a Council for Future Affairs would amplify this approach and create an integrated ecosystem, while research seamlessly translates into market-ready innovation across key strategic domains. This proposal aligns perfectly with the vision of hon. Prime Minister of a technologically advanced self-reliant India and the broader aspirations of a Visksit Bharat. By establishing this Council, we can ensure that India not only participates in the next wave of technology revolutions, but actively shapes them according to our values and national interests and our ecosystem. The economic security and the societal benefits would be substantial from accelerated GDP growth and creating millions of high-quality jobs to addressing critical national challenges in healthcare, agriculture, energy, and

Defence. The proposed Council would serve as both catalyst and coordinator, bringing together our considerable national assets, our demographic dividends, our digital infrastructure, our innovative innovation ecosystem, and strategic leadership to position India as a global technology leader. Hon. Vice-Chairman, Madam, as we stand at the threshold of a new technological era, the establishment of this Council represents not merely an institutional reform, but a strategic national investment in India's future.

I urge this House to support this Resolution and take a decisive step towards securing India's rightful place as a leader in future affairs. Thank you.

The question was proposed.

THE VICE-CHAIRMAN (MS. INDU BALA GOSWAMI): I now call upon the Members whose names have been received for participation in the discussion. माननीय श्री संदीप कुमार पाठक। आपके पास 5 मिनट्स का समय है।

SHRI SANDEEP KUMAR PATHAK (Punjab): Thank you, hon. Vice-Chairman, Madam. आज ऑनरेबल मेम्बर ने एक बहुत ही महत्वपूर्ण विषय को उठाया है और यह विषय हमारे देश के भविष्य से संबंधित है। किसी भी देश का भविष्य उसके विज्ञान, उसकी शिक्षा और उसके अनुसंधान पर निर्भर करता है। ऑनरेबल चेयर मैडम, ऑनरेबल मेम्बर ने यह बात रखी है कि सदन में एक Resolution लाना चाहिए, किस चीज के लिए? यह Resolution होना चाहिए कि देश में जो advance technologies हैं, जैसे Artificial Intelligence ले लीजिए, Blockchain ले लीजिए, Quantum Computing ले लीजिए, Modular Nuclear Energy ले लीजिए और अलग-अलग तरह की जो advance technologies हैं, उनको improve करने के लिए हमें एक काउंसिल बनानी चाहिए - Council for Future Affairs. मुझे नहीं लगता कि किसी को भी इस पर कोई संदेह होगा या किसी के मन में भी प्रश्न होगा और इन technologies को improve करने के लिए और देश को दुनिया में नंबर एक बनाने के लिए इस तरीके के किसी भी प्रावधान या व्यवस्था में किसी को भी तकलीफ होगी। आज प्रश्न यह है कि अगर सरकार की नीयत इसको सच में achieve करने की है, तो हमने इन पूरे 10-15 सालों में क्या-क्या काम किए हैं, जिनसे यह जो हमारा उद्देश्य है, उसकी पूर्ति होती है, वह स्पष्ट हो जाता है। हमें खुशी होगी, लेकिन इस देश में अनुसंधान को लेकर कई सारी काउंसिल्स बनी हुई हैं। हम रिसर्च को लेकर देख सकते हैं, innovations को लेकर देख सकते हैं। उनमें मुझे नहीं लगता है कि सरकार की तरफ से थोड़ी भी interest ली जा रही है या थोड़ा भी कोई फोकस किया जा रहा है। अगर आप देखेंगे, तो हमारे देश में हमारा जितना भी total GDP है, उसका मात्र 0.64 प्रतिशत ही research and development में जाता है। अगर किसी देश में सिर्फ 0.64 percent, if you invest only 0.64 per cent in research and development, you cannot expect to achieve something extraordinary. Now, we are comparing ourselves with the United States, China,

Japan, and Germany; we must understand the significant amounts they invest in research and development. If we invest only 0.6 per cent and expect to produce innovations like Google, Amazon, and other technological advancements, that would be unrealistic. तो जैसा हम बीज लगाएँगे, जैसी मेहनत करेंगे, फल वैसा ही प्राप्त होगा। आर्टिफिशियल इंटेलीजेंस के बारे में अगर हम यह समझें यह अचानक पैदा हो गया, यह आज अचानक आ गया और हम सोचें कि हम भी इसे बना लें, तो मैं यह बताना चाहता हूँ कि आर्टिफिशियल इंटेलीजेंस कोई स्टैंड-अलोन टेक्नोलॉजी नहीं है। आपकी जो कॉम्प्लेक्स कम्प्यूटिंग है, जो कम्प्यूटर साइंस है, उसके डेवलपमेंट के साथ ही यह इवॉल्व हुआ है; आपका जो क्वांटम फिजिक्स है, उसके साथ ही यह इवॉल्व हुआ है और आपका जो कॉम्प्लेक्स मैथेमेटिक्स है, उसके साथ ही यह इवॉल्व हुआ है। इस प्रकार यह कोई अचानक से पैदा हुई टेक्नोलॉजी नहीं है, यह ऑलरेडी जो बेसिक साइंस और एडवांस्ड टेक्नोलॉजीज़ थे, उनके फलस्वरूप ही यह एक प्रोडक्ट पैदा हुआ है। यह एक ऐसा प्रोडक्ट है, जोकि बेसिक साइंस के फलस्वरूप पैदा हुआ है। अगर हम यह सोचें कि हम एक काउंसिल बना लें, ऐसा कर लें, वैसा कर लें और इससे हम यह कर पाएँगे, तो वह अपने आपमें बेमानी होगी। अगर हमें अच्छे प्रोडक्ट्स बनाने हैं, इनोवेशंस करने हैं, तो आपको स्कूली शिक्षा से शुरुआत करनी पड़ेगी। आज हमारे देश का दुर्भाग्य है, इसे हम कलेक्टिवली कह सकते हैं कि यह समझा जाता है कि एजुकेशन में पैसा डालने से या एजुकेशन से वोट नहीं मिलता। जिस दिन देश यह समझे कि एजुकेशन में काम करने से वोट मिलता है या राजनीति का हिस्सा बन जाएगा, तब उस दिन से हर व्यक्ति और हर पॉलिटिकल पार्टी एजुकेशन को सीरियसली लेगी।

आज हमें देखना चाहिए कि हमारे कितने गवर्नमेंट स्कूल्स ऐसे हैं, जिनमें बच्चों को फैसिलिटीज़ मिल रही हैं, रिसर्च की सुविधा मिल रही है। अगर आप 11वीं और 12वीं के बच्चों की लेबोरेटरी में जाकर देखेंगे, तो पाएँगे कि वहाँ एक फनल और एक पिपेट के अलावा कुछ नहीं होता है। मेरे इस वक्तव्य से यहाँ बैठा कोई भी सदस्य असहमत नहीं होगा। आप किसी भी सरकारी स्कूल में यह जाकर देखिए। आप शुरुआत 12वीं कक्षा से कर रहे हैं, 11वीं कक्षा से कर रहे हैं, लेकिन आपके स्कूल में जो लेबोरेटरी है, अगर वह प्रॉपर नहीं है, इक्विप्ड नहीं है, तो हम यह सोचें कि हम आगे आकर एडवांस्ड चीजें बना लेंगे, तो कहीं न कहीं हम मिस्टेक कर रहे हैं।

इसके बाद आप अभी स्कूल को छोड़ दीजिए और यूनिवर्सिटी को ले लीजिए। अगर यूनिवर्सिटी लेवल पर आइए, गवर्नमेंट यूनिवर्सिटीज़ और ईवन प्राइवेट यूनिवर्सिटीज़ मेजॉरिटी के रिसर्च का जो इंफ्रास्ट्रक्चर है, उसको देख कर आपको दु:ख होगा। आप सभी अपनी कांस्टीटुएंसीज़ में या अपने स्टेट्स में या कहीं पर भी जाकर देखेंगे, तो सारे गवर्नमेंट कॉलेजेज़ में, रिसर्च इंफ्रास्ट्रक्चर बहुत ही abysmal है, बहुत ही कमजोर है। मैं यह नहीं कह रहा हूँ कि यह किसी एक सरकार की व्यवस्था में खामी है, बल्कि इसमें बहुत सारी राज्य सरकारों का, पिछली सरकारों का भी कांट्रीब्यूशन कमजोर रहा है। तो इसे कलेक्टिव रूप में लेना पड़ेगा, लेकिन जिस तरीके से अभी की सरकार कह रही है, स्लोगंस तो बहुत सारे आए हैं, लेकिन जो फंडामेंटल चेंजेज़ हैं, उनमें काफी लिमिटेशंस हैं। तो गवर्नमेंट इंस्टीट्यूशंस के रिसर्च और डेवलपमेंट का जो इंफ्रास्ट्रक्चर है, वह काफी कम है। अगर आप 0.6 परसेंट टोटल इन्वेस्ट कर रहे हैं, तो इसका मतलब यह है कि इंफ्रास्ट्रक्चर के इंप्रूव होने के कोई चांसेज़ नहीं हैं।

[**उपसभाध्यक्ष (डा. संगीता बलवन्त**) *पीठासीन हुईं*]

हमारे रिसर्च एंड डेवलपमेंट के जो पूरे आधार हैं, अब आप उनको ले लीजिए। आप आईआईटीज़, एनआईटीज़, आईआईएसईआर या फिर डीआरडीओ या सीएसआईआर के लैब्स को ले लीजिए। ये जो नेशनल लेवल के जितने रिसर्च इंस्टिट्यूशंस हैं, उन्हीं पर ही इसे आधारित रख रहे हैं। आप स्कूल को भी छोड़ दीजिए, गवर्नमेंट कॉलेजेज़ को भी छोड़ दीजिए, यूनिवर्सिटीज़ को भी छोड़ दीजिए, आप सीधे-सीधे आईआईटीज़, आईआईएसईआर, आईआईएससी और सीएसआईआर की सारे लेबोरेटरीज़ पर आइए। मैं आपको पूरी जिम्मेदारी के साथ यह कहना चाहता हूं कि आज भी हमारे इन प्रीमियर इंस्टिट्यूट्स में बच्चे रिसर्च के लिए स्ट्रगल करते हैं। मैं खुद आईआईटी में प्रोफेसर था। कोई भी बच्चा या कोई भी प्रोफेसर जब बाहर से पढ़ाई करके यहां आता है - एक तो बहुत सारे लोग यहाँ आते नहीं है, वो इसीलिए नहीं आते है, क्योंकि यह समझा जाता है कि यहां पर ग्रोथ स्लो होगा या जो भी उनके पास कारण हों, लेकिन यहां पर जो लोग भी आ जाते हैं, तो लगभग डेढ़ से दो साल तो उसकी लेबोरेटरी तैयार होने में लगते हैं। अब आप सोचिए कि एक यंग रिसर्चर के लिए, 2 साल उसकी लेबोरेटरी बनने में लग रहे हैं, उसके बाद उसके इक्विपमेंट्स आएंगे, थोड़े इक्विपमेंट्स रहेंगे और थोड़े इक्विपमेंट्स नहीं रहेंगे, वह पूरी तरीके से इको-सिस्टम में स्ट्रगल करता रहेगा और उसको अपनी लेबोरेटरी एस्टेब्लिश करने में 5 से 7 साल लग जाएंगे। एक रिसर्चर साइंटिस्ट का जो ब्रेन होता है, उसको अगर 5 से 6 साल का डिले कर दोगे, तो फिर वह बस ऐसा हो जाता है कि भाई, मुझे तो सरकारी नौकरी मिली है, मैं क्यों इतना माथा-फोड़ी करूं, जैसी जिंदगी चल रही है, चलने दो। जिस दिन एक साइंटिस्ट ऐसा सोचने लगता है कि यार, अब यह सरकारी सिस्टम में है, इसको चलने दो, अभी ज्यादा कुछ हो नहीं सकता, उस दिन समझिए कि एक साइंटिस्ट की हत्या हो जाती है, एक ब्राइट ब्रेन की हत्या हो जाती है। एक ब्राइट ब्रेन की हत्या हो जाती है और इसके लिए पूरी व्यवस्था जिम्मेदार है। इसके लिए मैं किसी एक को दोष नहीं देना चाहता हूँ। यह premier institutions की स्थिति है। जो रिसर्च और R&D के equipment हैं, सीरियसली, वे under-resourced हैं। मैं आईआईटीज़ की बात कर रहा हूँ। आप नीचे CSIR के laboratories में चले जाइए, क्योंकि आपके ज्यादातर रिसर्च CSIR के laboratories से होते हैं। आप डीआरडीओ ले लीजिए, Defence Research and Development Organisation के majority of the research institutions are under-equipped. मैं यह full sense of responsibility के साथ कह रहा हूँ। मुझे भी यह कहते हुए दुख हो रहा है। यह क्यों हो रहा है? मैंने 0.64 परसेंट खर्च के बारे में कहा था, उसको हम एक नंबर में दरकिनार कर देते हैं और यह कहा जाता है कि यह नंबर क्या बोल रहे हैं, यह reality नहीं है। आप यह जो जीडीपी का 0.64 परसेंट इसके लिए लगा रहे हैं, उसके कारण ही आज बाकी के इंस्टीट्यूशंस में कमी दिख रही है और उसका कारण वहीं से शुरू हो रहा है। मेरा यह कहना है कि advance technologies, Artificial Intelligence, quantum physics, bio-medical आदि सारी चीजों में अच्छी बात है, लेकिन जब तक आप अपने रिसर्च इंफ्रास्ट्रक्चर को मजबूत नहीं करेंगे, तब तक desired result नहीं निकलने वाले हैं। हम कई सारे स्कीम्स बना सकते हैं, parallel schemes चला सकते हैं, कई सारे स्लोगन्स ला सकते हैं, हमारी भावना

अच्छी हो सकती है, हमारे उद्देश्य अच्छे हो सकते हैं, लेकिन उन भावनाओं को, उन उद्देश्यों को, उन स्लोगन्स को फलीभूत करने के लिए आपको एजुकेशन में, रिसर्च एंड डेवलपमेंट पर और ecosystem को build करने में पैसा लगाना ही पड़ेगा। हमारे पास इसके सिवाय और कोई चारा नहीं है।

ऑनरेबल चेयर मैडम, प्राइवेट में R&D में इन्वेस्टमेंट को ले लीजिए। प्राइवेट सेक्टर में जितने रिसर्च इंस्टीट्यूट्स हैं, ऐसे तो हमारे देश में प्राइवेट सेक्टर में रिसर्च इंस्टीट्यूट्स काफी कम हैं, जो institutes हैं, वे mostly teaching में focus फोकस कर रहे हैं। जो थोड़े-बहुत प्राइवेट इंस्टीट्यूट्स हैं, वे भी highly under-equipped हैं। इसके अलावा आप देखिए कि हमारे देश में बचपन में जो टीचिंग होती है... सरकार अब न्यू एजुकेशन पॉलिसी लेकर आई है। इस New Education Policy में the kind of debates that we are having. मुझे पूरे सदन की चर्चा में किसी ने यह नहीं बताया कि न्यू एजुकेशन पॉलिसी पर क्या होना चाहिए। मैं young Member हूँ, हो सकता है कि मेरी समझ थोड़ी कम हो, आप लोग ज्यादा समझदार होंगे, अगर यहाँ यह न्यू एजुकेशन पॉलिसी आई है, तो हमें इस पर यह डिबेट करना चाहिए कि इस एजुकेशन पॉलिसी से क्या फायदा होने वाला है और क्या नुकसान होने वाला है। यह नहीं होकर, हमारे सारे डिबेट्स ऐसे होते हैं कि हम कभी लैंग्वेज़ में फँस रहे हैं, कभी इस पर फँस रहे हैं, कभी उस पर फँस रहे हैं, लेकिन जो real crux है, उस पर तो हमारा डिस्कशन ही नहीं हुआ। इसके लिए भी सरकार की प्राइमरी दायित्व बनती है कि वह पहले उन सारी चीजों में consensus build करे और एजुकेशन पॉलिसी पर proper डिबेट और डिस्कशन होनी चाहिए।

इसके साथ ही अगर आप देखेंगे कि जो entrepreneur culture होती है, जो रिस्क टेकिंग कल्चर होती है, वह सरकार कोई एक झटके में क्रिएट नहीं कर सकती है, उसके लिए पूरा ecosystem होता है। उसमें यह होता है कि the fear of failure नहीं होना चाहिए। यूनाइटेड स्टेट्स में या दूसरे किसी भी डेवलप्ड कंट्रीज़ में आप देखेंगे कि fear of failure नहीं होती है, क्योंकि वह taboo भी नहीं होता है और वहाँ का पूरा रिसर्च, इनोवेशन का ecosystem उनको सपोर्ट करता है। हमारे यहाँ इसकी कमी है।

टैलेंट का जो attraction है, आपके पास टैलेंट आए, आप पैसे लगा दिए, रिसर्च इंस्टीट्यूशंस बना दिए, अगर उसमें टैलेंट ही नहीं है, उसमें रिसर्च करने वाले बच्चे ही नहीं हैं, तो उसका भी कोई रिजल्ट नहीं निकलेगा। इसलिए टैलेंट का जो माइग्रेशन है, वह आज की प्रॉब्लम नहीं है, बल्कि यह प्रॉब्लम बहुत समय से है। हम आईआईटीज़ में बच्चे तैयार करते हैं, सरकार उसमें इतना इन्वेस्ट करती है, बच्चे बाहर निकलते हैं और वे बाहर चले जाते हैं। आप जितने भी बड़े ऑर्गेनाइजेशन्स देखेंगे, अमेरिका में successful innovations देखेंगे, चाहे गूगल ले लीजिए, Amazon ले लीजिए, माइक्रोसॉफ्ट ले लीजिए, हर जगह इंडियन्स हैं और वे काफी अच्छे पोजिशन पर हैं, वे लीड कर रहे हैं, पर वे यहाँ सफल नहीं हो पाते हैं, लेकिन वे अमेरिका में जाकर सफल हो रहे हैं। इसलिए प्रश्न तो यह उठता है कि हमें ऐसा क्या करना चाहिए कि हमारे बच्चे हमारे देश में ही सेवा करे, सर्विस दे, तो ये सारे इनोवेशन्स यहाँ पर हो सकते थे।

इसके अलावा access to capital की बात है, तो हम जो स्टार्टअप करते हैं, उनके लिए पैसे का access होना चाहिए, तभी वे ज्यादा रिस्क लेंगे और failure का fear नहीं रखेंगे। जो access to capital है - venture capital ले लीजिए, private equity ले लीजिए - इसका जो फ्री

मार्केट है, वह काफी मिसिंग है, इसलिए सरकार को पॉलिसी लेवल पर इसका introduction करना पड़ेगा और intervention करना पड़ेगा ताकि इसमें सभी स्टार्टअप्स को access to capital मिल सके। इसी तरह, Government-support policies हैं। जो Government की policies हैं, उनमें कई सारी अच्छी policies आई हैं और जब भी policies आती हैं, तो उनको हम सब सपोर्ट करते हैं, लेकिन उनमें बहुत lag है। जैसे, आज एयरक्राफ्ट पर एक बिल आया। 2001 और 2008 में सरकार ने एग्रीमेंट कर दिया था, लेकिन उसके लिए लीगल बाइंडिंग हम आज लेकर आए हैं। मैंने यह एक एग्जांपल दिया। अगर एक-एक policy-making में हमारा 5 से 10 साल का delay होगा, तो आप formulate कर लीजिए कि उससे हम पता नहीं कितने decades पीछे चले जा रहे हैं। पॉलिसी में जो quickly policy introduction और intervention सरकार को करनी चाहिए, वह बहुत जरूरी है और यह काफी quick span में करना पड़ेगा। ...(**व्यवधान**)...

इसके बाद, एक collaborative ecosystem है। Collaborative ecosystem कहने का मतलब यह है कि अगर केंद्र सरकार R&D में कम पैसे लगा रही है, तो राज्य सरकार भी कोई बहुत अच्छा काम नहीं कर रही है। राज्य सरकार का इससे भी काफी कम है। इसमें राज्य सरकार और केंद्र सरकार, सबको मिलकर बहुत सारा पैसा लगाना पड़ेगा, लेकिन हमारे देश में अभी जो एक political situation है, उसमें यह हो रहा है कि अगर मैं केंद्र में फलां पार्टी का हूँ और राज्य में दूसरी पार्टी की सरकार आ गई, तो मैं उसको सपोर्ट नहीं करूँगा। राज्य सरकार में अगर State-level पर एक पार्टी आ गई और Corporation में दूसरी पार्टी आ गई, तो वह उसको सपोर्ट नहीं करेगी। इसी तरह, पंचायत और ब्लॉक समिति की भी बात है। जो democracy की strength है, उसको हमने complexity में परिवर्तित कर दिया है और इसमें भी आपको इसका फर्क नजर आता है। चाहे एजुकेशन सिस्टम हो, रिसर्च एंड डेवलपमेंट हो या entrepreneur skill या skill-development की बात हो, ये सारी चीजें इसमें आती हैं।

इसके साथ-साथ, जो Intellectual Property Rights होते हैं, उनके प्रोटेक्शन के लिए भी हमें कुछ करना होगा। अमेरिका obviously बहुत तेज कंट्री है और वह इसीलिए ग्रो कर रहा है, क्योंकि एक तो वह research और innovation को सपोर्ट करता है, उसमें बहुत सारा पैसा लगाता है और फिर उससे जो कुछ भी नतीजा निकलता है, उसको प्रोटेक्ट करने के लिए Intellectual Property Rights पर उसके legal-frameworks बहुत स्ट्रांग हैं। वह किसी भी दूसरे देश को अपने प्रोडक्ट के प्रॉपर्टी राइट को चोरी करने नहीं देता है। हमें अपने देश में ही जो legal infringes हैं, उनको स्ट्रांग करना पड़ेगा और property rights को protect करके रखना पड़ेगा। कई जगहों पर, institutes में, universities में बच्चे अच्छी चीजें बना लेते हैं, पर उनको प्रोटेक्ट नहीं कर पाते हैं।

मैं overall इतना ही कहना चाहूँगा कि Artificial Intelligence, quantum chemistry, quantum physics, biomedical के क्षेत्र में जो हो रहा है और आप ये सारी जो advanced चीजें कह रहे हैं, वह एक प्रोडक्ट है और वह advancement एक स्टेज है। वे all of a sudden आकाश से नहीं टपक गये कि आज यह टपक गया, बल्कि वह आपकी उस investment का result है, जो आपने basic science में किया है। आपने R&D पर जो इन्वेस्ट किया है, उसके फलस्वरूप अंत में निकला हुआ यह एक प्रोडक्ट है। अगर हमें इनको करना है, तो इन सारी चीजों पर फोकस

करना पड़ेगा, इन सबमें पैसे डालने पड़ेंगे, seriousness रखनी पड़ेगी और politics को इससे अलग रखना पड़ेगा, तभी जाकर हम कुछ कर सकते हैं।

महोदया, आपने मुझे समय दिया, आपने मुझे सुना, इसके लिए आपका धन्यवाद। यह काफी अच्छा बिल है, ऐसे बिल्स आते रहने चाहिए। मैं आपको और पूरे सदन को धन्यवाद करता हूँ। Thank you.

उपसभाध्यक्ष (डा. संगीता बलवन्त) : धन्यवाद। माननीय सदस्य, डा. भागवत कराड़, 15 मिनट।

डा. भागवत कराड़ (महाराष्ट्र) : माननीय उपसभाध्यक्ष महोदया, आज इस सभागृह में एक बहुत ही इंपॉर्टेंट बिल आया है। हमारे कार्तिकेय शर्मा जी, जो एक विद्वान सदस्य हैं, उनके माध्यम से यह बिल आया है। हमारे यशस्वी प्रधान मंत्री, मोदी जी का जो मंत्र और विचार है कि भारत को हमें एक विकसित राष्ट्र बनाना है, तो विकसित राष्ट्र बनाने के लिए अनुसंधान की जरूरत है। मुझे याद आ रहा है कि जब लालबहादुर शास्त्री जी प्रधान मंत्री थे, तो उस वक्त उन्होंने एक नारा दिया था - "जय जवान, जय किसान।" जो जवान दिन-रात बॉर्डर पर मेहनत करते हैं और हमें सुरक्षित रखते हैं, उनके लिए जय जवान का नारा था और किसान, जो दिन-रात खेत में काम करके अनाज पैदा करते हैं और हमारे अन्नदाता बनते हैं, उनके लिए उन्होंने जय किसान का नारा दिया था। उसके बाद हमारे यशस्वी प्रधान मंत्री, श्रद्धेय अटल जी ने भी एक नारा दिया था - "जय जवान, जय किसान और जय विज्ञान।" यह सभी भारतवासी और पूरी दुनिया को मालूम है कि उन्होंने "जय जवान, जय किसान और जय विज्ञान" का नारा दिया था... और उन्होंने विज्ञान के माध्यम से राजस्थान में विस्फोट परीक्षण किया था। उसी वक्त भारत देश की ताकत पूरी दुनिया को मालूम चल गई थी। अभी हमारे यशस्वी प्रधान मंत्री, माननीय नरेन्द्र मोदी जी ने नारा दिया है - "जय जवान, जय किसान, जय विज्ञान और जय अनुसंधान।" यानी, रिसर्च और डेवलपमेंट एक ऐसा तरीका है, जिसके माध्यम से भारत एक विकसित राष्ट्र बन सकता है। इसीलिए अनुसंधान को बहुत महत्व दिया गया है।

महोदया, मैं बताना चाहता हूं कि हमारा भारत देश 140 करोड़ जनता का देश है और यह यंगेस्ट पॉपुलेशन वाला देश है। The average age of our citizens is 25-30 years, which comprises 65 per cent of the population. इस तरह से हमारा देश दुनिया का सबसे बड़ा लोकतंत्र है। हमारा देश सबसे युवा आबादी और सबसे बड़ी जनसंख्या वाला राष्ट्र है। अगर हम देखें तो यह 'unity in diversity' यानी विविधता में एकता का प्रतीक है। भले ही हमारे देश में विभिन्न धर्मों, भाषाओं और पंथों के लोग रहते हैं, लेकिन जब राष्ट्र की बात आती है, तो हम सब एक हैं।

अगर हमें इस राष्ट्र को विकसित बनाना है, तो अनुसंधान के माध्यम से इसे आगे ले जाना होगा। प्रत्येक नागरिक को अनुसंधान की सुविधाएं मिलनी चाहिए ताकि हम एक उन्नत और आत्मनिर्भर भारत का निर्माण कर सकें। अगर हम पिछले 10 साल के आंकड़ों को देखें, तो the gross expenditure on Research and Development has doubled in the last decade. अगर हम 2004 से 2014 तक के आंकड़ों को देखें, तो अनुसंधान पर खर्च 60,196 करोड़ रुपये था।

लेकिन पिछले 10 वर्षों में, माननीय प्रधान मंत्री जी के नेतृत्व में, यह आंकड़ा 2013-14 तक 1,27,381 करोड़ रुपये हो चुका है। यानी, अनुसंधान पर होने वाला खर्च लगभग दोगुना हो गया है।

इतना ही नहीं, पिछले दो वर्षों (2023-24 और 2024-25) में अनुसंधान के लिए 1 लाख करोड़ रुपये के बजट का प्रावधान किया गया है। अगर हमारा कोई साइंटिस्ट हो, कोई स्टूडेंट हो, यदि वह रिसर्च कर रहा है, तो उसके लिए उन्हें पैसा मिल सकता है। मैं अलग-अलग सेक्टर के बारे में बताना चाहता हूं। The hon. Prime Minister emphasized the importance of research and development in *Amritkaal*. इसलिए अनुसंधान को भी महत्व दिया गया है और अनुसंधान नेशनल रिसर्च फाउंडेशन बनाया है, जिसके माध्यम से there is a uniform research ecosystem bridging science, humanities and social sciences. To support *Atmanirbhar Bharat* and Viksit Bharat, the Government of India approved One Nation, One Subscription scheme (ONOS) that ensures nationwide access to international research articles, which is very important. कोई अनुसंधान अमेरिका या चीन में हुआ है, that appears in all journals. तो रिसर्च आर्टिकल हो, जनरल आदि हमारे सभी स्टूडेंट, साइंटिस्ट और प्रोफेसर्स को पढ़ने को आना चाहिए। इसीलिए this scheme has been started और उसके लिए बजट भी रखा है। इतना ही नहीं, 'वन नेशन, वन सब्सक्रिप्शन' has acquired national licenses of e-journals database from 30 major international publishers, granting access to all their journals. This initiative, the 'One Nation, One Subscription Scheme', benefits 1.8 crore students, faculty and researchers across all disciplines, including those in two-tier and three-tier cities helping crores of people. The One Nation, One Subscription scheme is a crucial step in integrating India into the global research ecosystem by making high quality knowledge easily accessible. In March 2024, the then hon. Health Minister, Dr. Mansukh Mandaviya launched one programme, that is, AYUSH-ICMR Advanced Centre for Integrated Health Research at AIIMS, New Delhi. Dr. Mansukh Mandaviya announced one more programme, that is, a Joint Mega Initiative between the Ministry of Health and Family Welfare and the Ministry of AYUSH, which included the multi-centric clinical trial on anaemia. हम सभी को पता है कि एनीमिया के माध्यम से हीमोग्लोबिन कम होता है और हीमोग्लोबिन कम हुआ, तो then any disease can happen and the patient cannot work. There is a joint effort on establishing AYUSH-ICMR Centre for Integrated Health Research in AIIMS. जैसा हमारे पूर्व सभा सदस्य ने बताया कि Artificial Intelligence is also very important. In India, there are different scientists who are working on the Artificial Intelligence. India is undergoing a major AI revolution under hon. Prime Minister, Modi*ji*'s, leadership, with the Government actively building an AI ecosystem with affordable computing power, GPUs and research opportunities. India's AI Mission and computerising infrastructure, India Mission 2024, allocated Rs.10,300 crore over five years to enhance AI capabilities. A high-end computing facility with 18,693 GPUs is being developed, making it one of the largest AI infrastructures globally. So, we are aiming

to work globally to see how India will have a merit globally in AI sector. IndiaAI database platform will provide StartUps and researchers with high-quality database to reduce innovation barriers. Large-scale non-personal database will improve AI reliability in agriculture and AI reliability in weather forecasting and traffic management. Similarly, the Government has established three Centres of Excellence for AI in healthcare, agriculture and sustainable cities in New Delhi. Budget-2025 announced Rs.500 crore for AI CoE in Education. Five National Centres of Excellence will train youth in industry-relevant AI skills in collaboration with the global firms supporting 'Make in India, Make for the World' vision. IndiaAI is funding the development of the indigenous AI models, including Large Language Models (LLMs) and problem-specific AI solutions. Digital India BHASHINI will enable AI-powered language translation and voice-based internet access in Indian languages. BharatGen, the world's first Government-funded multi-model LLM, launched in 2024, will enhance public service and citizen engagement. Sarvam-1, a 2-billion-parameter AI model supports 10 major Indian languages for translation, summarization and content generation. Chitralekha, an open-source video transcreation tool, enables audio transcript editing in Indic languages. Everest 1.0, a multilingual AI system currently supports 35 Indian languages with plans to expand to 90. 'AI for All', a self-learning online programme under the Ministry of Education, is designed to raise public awareness about Artificial Intelligence. Madam, this is about AI. As we are aware, आज हम पूरी दुनिया में देखें, तो पांचवीं इकोनॉमिक सिस्टम बन चुकी है। हमारा नंबर पांचवां है।

महोदया, 2014 में, जब प्रधान मंत्री नरेन्द्र मोदी जी ने शपथ ली थी, तब उस वक्त इंडिया 10वें नंबर था, अब हम 10वें नंबर से 5वें नंबर पर आए हैं, लेकिन अभी तीसरे नंबर पर जाना है, इसलिए हमें इस सेक्टर में, यानी economic sector में भी research देखनी है। हमें यह देखना है कि क्या-क्या रिसर्च होती है।

माननीय महोदया, मैं इस सभा गृह को बताना चाहता हूं कि कांग्रेस के जमाने में एक प्राइम मिनिस्टर ने बताया था कि जब हम दिल्ली से 1 रुपया भेजते हैं, तो beneficiary के अकाउंट में सिर्फ 15 पैसे जाते हैं, लेकिन माननीय प्रधान मंत्री नरेन्द्र मोदी जी के नेतृत्व में JAM trinity आई है। In JAM, 'J' stands for Jan Dhan Account, 'A' stands for Aadhaar and 'M' stands for mobile. महोदया, JAM trinity के माध्यम से हम beneficiary के account में direct पैसा दे सकते हैं। उसी प्रकार से economic sector में भारत ने जो UPI innovation किया है, वह प्रशंसनीय है। अभी हमारे एक माननीय सदस्य ने बताया था कि यूपीआई के माध्यम से जो ट्रांजेक्शन्स हो रहे हैं, worldwide very large number of transactions are taking place. अभी पूर्व सदस्य ने बताया था कि future में digital economy आने वाली है, इसलिए इसके लिए भी innovation करने की जरूरत है।

महोदया, हमारे इकोनॉमिक सेक्टर में भी डिजिटल इकोनॉमी पर काम हो रहा है। मैं इतना ही बताना चाहता हूं कि अगर हमें भारत को विकसित भारत बनाना है, तो अनुसंधान करना

बहुत जरूरी है। महोदया, अनुसंधान के लिए The Anusandhan National Research Foundation बन चुका है। यह The Anusandhan National Research Foundation has been established through the ANRF Act in 2023, which came into effect on 5th February 2024. For the fiscal year 2024-25, the ANRF has been allocated Rs.966 crores. The Anusandhan National Research Foundation aims to receive funds amounting to Rs.50,000 crores during the period 2023-2028 in the form of ANRF Fund, Innovation Fund, Science and Engineering Research Fund, and Special Purpose Fund.

I will briefly speak about the key features of the ANRF. It has the Global Positioning Initiatives. The ANRF has formulated programmes aimed at enhancing India's position in key sectors globally, driving scientific advancements and fostering an innovation ecosystem. Electric Vehicle (EV) Mobility Programme has been launched under the Mission for Advancement in High-Impact Areas. This initiative addresses priority-driven solution-focused research in mission mode. It encourages multi-institutional, multi-disciplinary collaborations with close industry partnerships. Industry partners are required to contribute, at least, 10 per cent of the project cost in cash. We all know that electric vehicles are very important nowadays and the provision for this has also been given in this Anusandhan National Research Foundation.

Several programmes have been formulated for promoting indigenous research and development in the country. One of these programmes is the Prime Minister Early Career Research Grant. This scheme is very important for Anusandhan. This scheme supports early-career scientists, enabling them to undertake independent and impactful research to promote indigenous research and development. This is for the beginner scientists. Then, there is the vision for transformation of institutions to the global standards. Our institutions, whether they are private or Government institutions, we want them to do innovation and we want to make them up to the global standards. For this, there are certain schemes. The Anusandhan National Research Foundation (ANRF) has developed programmes aimed at transforming institutions to meet global standards, promoting translational research and supporting basic research initiatives. These efforts ensure that scientists and researchers received adequate resources and financial assistance to establish their global presence. These initiatives reflect ANRF's commitment to advancing India's research and innovation landscape through strategic funding and collaborative programmes. ANRF also formulated programmes for transforming institutions to global standards, translational research, basic research promotion, etc. These schemes ensure providing proper resources and financial assistance to the scientists and researchers in their bid to carve out a niche at the global forum. They can do some partnership

also for research. There are schemes from the Government for this partnership also. The ANRF has launched Partnership for Accelerated Innovation and Research (PAIR), an initiative to enhance research capabilities of universities, particularly, Central and State Public Institutions in the country. The PAIR is a multi-institutional programme to boost research capabilities of institutions where research is relatively at nascent or early stage through mentorship-driven hub and spoke framework by pairing them with well-established top-tier institutions. Research hubs will guide emerging institutions in research activities, provide access to harness their resources and expertise, thus bridging the gap between institutions and nurturing a robust research ecosystem in the country.

With regard to fund allocation for ANRF, I would like to mention that the Anusandhan National Research Foundation (ANRF) aims to receive funds amounting to Rs. 50,000 crore during 2023-28 in the form of ANRF Fund, Innovation Fund, Science and Engineering Research Fund and Special Purpose Funds. A budgetary provision of Rs. 14,000 crore is made from the Central Government and the remaining amount will be sourced from donations from any other source including public sector enterprises, the private sector, philanthropist organizations, foundations or international bodies.

The main intention of ANRF is to make our country number one in innovation as well as to make our country a Viksit Bharat. माननीय प्रधान मंत्री जी के नेतृत्व में reform, perform and transform के सूत्र के माध्यम से अभी तक 40,000 से भी ज्यादा रिफॉर्म्स हो चुके हैं। इसके माध्यम से जो कुछ गाइडलाइन्स आती हैं, उनके माध्यम से अलग-अलग डिपार्टमेंट्स में रिफॉर्म्स किए जाते हैं और रिफॉर्म्स होने के बाद उसी तरह से काम किया जाता है और लोगों को सुविधा मिलती है।

The main intention of the Resolution is to draw the attention of Government of India to the rapid evolution of emerging technologies which are reshaping the global economies and power structures. It is mentioned that despite a strong research ecosystem in the country, fragmentation amongst institutions and industry players hampers and delays commercialization. It is suggested that a unified strategic body is essential to accelerate breakthroughs and integrate research with policymaking. The Resolution urges the establishment of a Council for Future Affairs (CFA) to provide a unified framework for research-driven innovation in AI, Blockchain, Quantum Computing, Small Nuclear Energy, Water Reuse and other emerging fields. *...(Time-bell rings)...* मैडम, मुझे दो मिनट और दे दीजिए। The CFA may function as an apex body comprising experts, industry leaders, policymakers, global investors, academic institutions and startups to ensure a multi-stakeholder approach.

It is also suggested that Research and Product Development Councils be created under the CFA, each dedicated to a specific technological field, aligning research with national priorities. Sufficient budgetary support be also allocated to fund long-term research, prototype development and commercialisation in collaboration with industry and global investors. Additionally, CFA will set long-term national goals, define research objectives and formulate policies for technology transfer and intellectual property management. The Resolution also emphasises fostering international collaborations to attract global expertise, funding and technology partnerships.

The issues raised in the Resolution have already been receiving appropriate attention from the Government of India through the Empowered Technology Group, Anusandhan National Research Foundation Framework, etc. The ETG was constituted with Cabinet approval on February 19, 2020. It serves as an institutionalized structure to proactively oversee national policies on research, development, procurement and adoption of emerging technologies, ensuring India's leadership in critical domains such as Artificial Intelligence, Blockchain, Quantum Computing, Small Modular Nuclear Energy and Water Reuse.

The Government of India has launched Anusandhan National Research Foundation Framework, a comprehensive research and innovation strategy to strengthen India's Research and Development ecosystem. Anusandhan aims to bridge the gap between research and industry, enhance interdisciplinary collaboration and ensure that critical and emerging technologies are effectively developed and commercialised. *...(Time-bell rings)... मैडम, मुझे दो मिनट और दे दीजिए, यह* last *है। मैडम, मैं इतना ही बताना चाहता हूँ कि हमें विकसित भारत बनाना है और विकसित भारत की जो नींव है, वह रिसर्च में है। माननीय प्रधान मंत्री, मोदी जी के नेतृत्व में हरेक सेक्टर में, चाहे* health sector *हो, चाहे* education *हो, चाहे* finance *हो, हर सेक्टर में* reforms *हो रहे हैं और जहाँ-जहाँ* innovation *के लिए* institutions *हैं, चाहे* private institutions *हों,* Government institutions हों, scientists हों, students हों, उनके लिए फंड का provision किया गया है। जैसा मैंने पहले भी बताया कि पिछले बजट में एक लाख करोड़ का provision था for research. यह last year के बजट में था, ताकि research को preference दी जाए। माननीय प्रधान मंत्री जी का नारा है - जय जवान, जय किसान, जय विज्ञान और जय अनुसंधान। हम अनुसंधान के माध्यम से ही, research के माध्यम से ही भारत को विकसित राष्ट्र बना सकते हैं। मैं एक मेडिकल डॉक्टर हूँ, मैं बताना चाहता हूँ कि जब भारत देश स्वतंत्र हुआ, तो उस टाइम मेरी age 35-37 years थी और अभी मैं 70.5 years की age तक पहुँचा हूँ। We are almost at the global level.

4.00 **P.M.**

हमें अगर हेल्थ में रिसर्च करनी है, हमें अपनी एवरेज एज बढ़ानी है, जैसे अभी जापान की एवरेज एज 85 to 90 years है, उसमें भी रिसर्च होनी है। तो मेडिकल क्षेत्र में रिसर्च के लिए, अनुसंधान के लिए बहुत सारे प्रॉविजंस किए गए हैं।

मैडम, हमारे कार्तिकेय शर्मा जी द्वारा जो प्राइवेट मेम्बर बिल लाया गया है, वह बहुत ही अच्छा बिल है। गवर्नमेंट ने ऑलरेडी इसके ऊपर काम चालू किया हुआ है। The Government is supportive and is in favour of this Bill. ऐसा मुझे लगता है। इन्हीं शब्दों के साथ, मैं अपनी वाणी को विराम देता हूँ, धन्यवाद।

DR. FAUZIA KHAN (Maharashtra): Madam, I thank you for being so generous with time today. I am seeing this generosity for the first time. I do not know the reason behind the generosity but, I think, we can perceive the reason. Madam, this Resolution moved by Shri Kartikeya Sharma is very imperative in today's times. Just a few years ago, Artificial Intelligence was viewed as a distant futuristic concept. Today, it is an undeniable and defining force of our era. AI systems no longer remain confined to research labs; they actually shape decision-making across States. Individual, corporate and Government — everybody has scope to innovate. But, while AI presents immense opportunities, its potential for misuse is also equally serious. One of the biggest threats is algorithmic bias. A global study in 2021 has revealed that only 20 per cent of corporations using AI had an ethical framework in place. In a country as diverse as ours, unchecked biases in AI in these systems can deepen inequalities and erode public trust. So, while we go for innovation, ethical restrictions are also very important. Addressing this challenge demands collaboration not in silos but through a structured partnership between academia, industry and governance.

Another major area that faces threat and potential harm is our defence and security networks and infrastructure. I think, globally, this is something for which the world is putting their heads together. India's internal security landscape is no longer confined to traditional threats. We now face cyber warfare, AI-enabled surveillance, drone-based hybrid warfare and even space-based threats. Between 2019 and 2022, cyber attacks on India's critical infrastructure have increased by 300 per cent according to CERT-In. In 2023 alone, we have suffered over 79 million cyber attacks, making us the third most targeted nation globally.

Let me cite a few worrying incidents and examples. The 2022 ransomware attack on AIIMS Delhi disrupted critical medical services for days. The 2021 drone strike on Jammu Air Force station proved how commercial drones can be weaponised

by non-State actors. China's alleged use of AI surveillance along our borders raises alarms about misuse of dual-use technologies. BSNL data breach exposed 278 GB of sensitive telecom data, including SIM card details and server snapshots. The data breach at Telangana Police's HawkEye App compromised sensitive data relating to police services. The Facial Recognition System of Tamil Nadu Police was breached, compromising integrity of law enforcement tools. These are only a few examples, but there are several such examples that are emerging from time and time. And these are not altogether isolated incidents. They represent the growing capabilities of malicious actors to target both state institutions and common citizens. Such breaches can lead to identity theft, to espionage, and even sabotage of democratic institutions. The Government must not only enforce data protection, but also integrate AI into regulatory frameworks to monitor, mitigate, and penalize misuse effectively. Internationally too, as I said, the threat is expanding. The 2024 Lebanon pager attacks demonstrated vulnerabilities in military networks to cyber electronic warfare. Therefore, India must act swiftly to modernize its defence infrastructure, especially insulating critical systems from foreign made components, particularly from countries like China on which we are relying too much. The Council for Future Affairs, as proposed in the Resolution, is a forward looking initiative, no doubt. But I strongly advocate for a dedicated sub body within the Council focused solely on national security. This body must, number one, formulate national security strategies addressing emerging tech threats like deepfakes and quantum computing. Number two, regulate dual-use technologies such as AI, drones, and biometric systems. Number three, ensure rapid absorption of indigenous technologies developed by DRDO, CSIR, IITs and Indian private defence players. India has the talent and technological capability, but we face a clear academia industry gap. The NETRA AI of the DRDO's surveillance system can revolutionize border monitoring, but it requires integration with our Central Armed Police Forces. The drone swarm technology of the IIT, Madras offers counter-terrorism solutions, but without institutional adoption, it remains underutilized. Global models like the US Defence Innovation Unit can serve as blueprints. India must create similar security focused innovation channel within the Council for Future Affairs. Let us not allow technology to become our vulnerability. Let us make it our shield. Let us make it our shield by fostering a secure, ethical, and collaborative national AI ecosystem. With this Resolution, we take a step forward towards securing India's digital and physical frontiers in an increasingly complex world. …(*Time-Bell rings*)… Thank you, Madam, for not being generous with me for time! Thank you.

THE VICE-CHAIRMAN (Dr. SANGEETA BALWANT): Shri Brij Lal.

Shri Brij Lal (Uttar Pradesh): Thank you Vice-Chairperson, Madam, for giving me an opportunity to speak on the Resolution moved by our hon. Member of Parliament, Shri Kartikeya Sharma. In his Resolution, he has mentioned that the main intention of the Resolution is to draw attention of the Government of India to rapid evolution of emerging technologies, which are reshaping global economic power structures. It is mentioned that despite a strong research ecosystem in the country, fragmentation among institutions, industry players hamper innovation and delay commercialization. He has also suggested that a unified strategic body is essential to accelerate breakthrough and integrate research with policymaking. उन्होंने कहा है कि ये जो रिसर्च हो रहे हैं, इनमें तमाम तरह के fields हैं, तमाम लोग हैं, लेकिन वे fragmented हैं। जो fragmented हैं, उनको integrate करने की जरूरत है और उसके लिए माननीय सदस्य ने अपना सजेशन दिया है। उन्होंने क्या कहा है? उन्होंने कहा है, the Resolution urges the establishment of Council for future affairs to provide a unified framework for research-driven innovation in artificial intelligence, blockchain quantum computing, small nuclear energy, water re-use and other emerging fields. According to him, the Council for future affairs may function as an apex body comprising experts, industries, policymaker, global investor, academic institution, and startups to ensure a multi-stakeholder approach.

Vice-Chairman Madam, he has also said that the Research and Product Development Council be created under CFA, each dedicated to specific technologies field, aligning research with national priorities. Sufficient budgetary support to be allocated to fund long-term research prototype development and commercialization in collaboration with industry and global investor. CFA will set up long-term national goals, define research objective, formulate policies for technology transfer. उन्होंने ये तमाम चीजें बताई हैं कि क्या-क्या चीजें होनी चाहिए।

अब मैं बताना चाहता हूँ कि इसके लिए सरकार ने क्या किया है। The issues raised in the Resolution have already been receiving appropriate attention from the Government of India through the Empowered Technology Group, ETG, Anusandhan, the National Research Foundation framework. ETG was constituted by Cabinet Approval on February 19, 2020. It serves as an institutionalized structure to proactively oversee national policies on research, development, procurement, adoption and emerging technologies ensuring India leadership in critical domains such as artificial intelligence, blockchain quantum, small modular nuclear energy and water reuse.

Vice-Chairman Madam, NITI Ayog is our apex body in policy-making. The NITI *Aayog* has already taken significant steps to advance India's position in emerging

technologies. The NITI *Aayog* has also evolved strategies, road map and future directions in the emerging and upcoming technologies. इसमें जो कहा गया है कि ETG Anusandhan framework addresses the concern, यह बहुत important है, related to fragmentation research and policy, coordination, bringing together key stakeholders including leaders from atomic energy, space, Defence, electronics, telecommunication, science & technology. इन तमाम चीज़ों पर उन्होंने जोर दिया है।

अब मैं Atomic Energy पर कहना चाहता हूँ। अभी जब मैंने एक सवाल पूछा था, तो हमारे मंत्री, डा. जितेन्द्र सिंह ने बताया कि हमारे लिए यह बहुत important है कि हम अपनी energy को किस तरह से clean energy में बदलें। उस पर तमाम research चल रही हैं, लेकिन atomic energy ऐसी है, जिसके लिए उन्होंने इसमें Small Modular Reactor के बारे में बताया है। यह क्या होगा? जो दूरदराज के इलाके हैं, वहाँ रिसर्च करके इसको लगाया जा रहा है। दूरदराज के पहाड़ी इलाके, जहाँ एनर्जी की सुविधा नहीं है, वहाँ पर Small Modular Reactor काम करेंगे। इस पर already काम शुरू हो गया है। मैंने एक प्रश्न उत्तर प्रदेश के लिए पूछा था, जहाँ हमारा नरौरा एटॉमिक पावर प्लांट है। मंत्री जी ने बताया कि 200 किलोवॉट के दो Small Modular Reactors उत्तर प्रदेश में लगाए जाएँगे। हम एटॉमिक एनर्जी में काफी आगे हैं। महोदया, पहले हमने यूरेनियम पर काम किया। यूरेनियम-235 एक टेक्नोलॉजी थी, जिसमें फिशन एटम टूटते हैं और ऊर्जा निकलती है। यही ऊर्जा उपयोग में लाई जाती है, जिसे हम एटॉमिक एनर्जी कहते हैं। यह हमारा पहला चरण था।

हमारा दूसरा चरण प्लूटोनियम-239 पर आधारित था, जिसमें हमने काफी प्रगति की। उपसभाध्यक्ष महोदया, मंत्री जी ने थोरियम के बारे में भी बताया था। मैं बताना चाहता हूं कि हमारे पास 25 परसेंट थोरियम भंडार हैं। हम इसका अवश्य उपयोग करेंगे और हमारी न्यूक्लियर एनर्जी और भी आगे बढ़ेगी। इससे हम अपने देश को क्लीन एनर्जी उपलब्ध करा पाएंगे।

मैं यह कहना चाहूंगा कि न्यूक्लियर एनर्जी और क्लीन एनर्जी के क्षेत्र में क्या प्रगति हो रही है, इस पर ध्यान दिया जाए।

महोदया, डिफेंस के बारे में कहा गया। यह बहुत महत्वपूर्ण है। पहले हम डिफेंस के सामानों का आयात करते थे। जब 1962 का युद्ध हुआ था, तब हमारे पास 303 राइफल्स थीं, जबकि दुनिया में एसएलआर (Self-Loading Rifles) आ चुकी थीं। उस समय हमारे पास प्रथम और द्वितीय विश्व युद्ध में उपयोग की गई 303 बोल्ट-एक्शन राइफल्स थीं। यही कारण था कि हम चीन से युद्ध हार गए, क्योंकि आज़ादी के बाद रक्षा क्षेत्र में हमें जितना मजबूत होना चाहिए था, उतना नहीं होने दिया गया। "हिंदी-चीनी भाई-भाई" का नारा लगता रहा, Nobel Peace Prize पाने के लिए सब किया जाता रहा और हमारे देश को 1962 में हार का सामना करना पड़ा। उस समय हमारे जवानों के पास स्नो बूट्स, उचित कपड़े और आधुनिक हथियार नहीं थे। यही कारण था कि हम हार गए।

आज प्रधान मंत्री जी ने वडोदरा में C-295 विमान का उद्घाटन किया है। यह Spanish Airbus का प्रोजेक्ट है, जिसे हम वडोदरा में बना रहे हैं। इससे हम आत्मनिर्भर बनेंगे। पहले हम रूस से AN-32 विमान आयात करते थे। We started with AN-32.. फिर AN-12, AN-32, IL-76, (गजराज) विमान आए। अगर आप एयरपोर्ट जाते हैं, तो दाईं ओर इसकी ऊँची पूंछ दिखाई

देती है। इस पर हमने early-warning system लगाया और आगरा में इसका बेस बनाया। मैं वहाँ तैनात भी रहा हूँ।

हमारे पास पहले इस तरह के विमान थे, लेकिन आज हमारे पास आधुनिक मिलिट्री विमान हैं, जो छोटे-छोटे रनवे और पहाड़ों पर आसानी से लैंड कर सकते हैं। हमने इन्हें लद्दाख में भी तैनात किया है, जिससे हम भारी टैंकों और अन्य सैन्य उपकरणों को वहाँ आसानी से पहुँचा सकते हैं।

आपने तेजस फाइटर जेट के बारे में सुना होगा। तेजस Mk-1 और AMCA के बारे में अखबारों में पढ़ा होगा। उपसभाध्यक्ष महोदया, हम 5th Generation के फाइटर जेट्स बना रहे हैं। हमारे पास पहले से ही 4.5 Generation के फाइटर जेट्स उपलब्ध हैं। इस प्रकार, हम defence production में आत्मनिर्भर हो रहे हैं।

शुरुआत में मैंने 303 राइफल्स की बात की थी, लेकिन आज हम AK-203 राइफल बना रहे हैं। यह जो Kalashnikov rifle है, पहले हम इसे रूस से आयात करते थे - मैंने भी as a police officer इसका इस्तेमाल किया है - लेकिन अब इसका एडवांस वेरिएंट AK-203 हमारे गृह राज्य उत्तर प्रदेश के अमेठी में निर्मित किया जा रहा है। इसकी रेंज 700 मीटर तक है, और यह 700 गोलियाँ प्रति मिनट दाग सकती है। यह किसी भी मौसम में काम कर सकती है। महोदया, जहाँ पहले हम 303 राइफल्स से चीन से लड़ रहे थे, आज हम AK-203 जैसी अत्याधुनिक राइफल्स से लैस हैं।

आज 'ब्रह्मोस मिसाइल' की मांग पूरी दुनिया में है। अब तो हमने इसका नौसेना संस्करण (Naval Variant) भी लॉन्च कर दिया है। मैं बताना चाहता हूँ कि पहले हम रक्षा उपकरणों का import करते थे, लेकिन आज हम export कर रहे हैं।आज Brahmos की मांग पूरी दुनिया में है। आज पूरी दुनिया तरसती है कि भारत के पास Brahmos है। अब तो हम उसका Naval variant भी ले आए हैं। पहले हम Defence production में import करते थे, आज export कर रहे हैं और माननीय मोदी जी के डायरेक्शन में हम एक major Defence exporting country बनने जा रहे हैं। इसके बाद एक बड़ी इम्पोर्टेंट चीज़ water के बारे में कही गई है। अगर शुद्ध पानी पीने को मिल जाए, तो आपकी 70 per cent बीमारियां खत्म हो जाएंगी। चूंकि ज्यादातर बीमारियां water-borne diseases होती हैं। उसके लिए क्या किया गया है? उसके लिए नल से जल लाया गया है। हम सब जानते हैं कि राजस्थान में और कुछ places में ऐसी तमाम जगहें थीं, जहां लड़कियों की शादी नहीं हो पाती थी, क्योंकि वहां पानी नहीं है। आज मोदी जी हर घर में नल से जल दे रहे हैं। कोई भी एरिया ऐसा नहीं है, जहां हम नल से जल प्रोवाइड नहीं कर रहे हैं। हमारा देश एक कृषि प्रधान देश है। जहां 60 crore population agriculture में जुड़ी हुई है। अब इसका production कैसे बढ़ाया जाए। एक समय यह था कि 1954 में बना हुआ PL-480 का लाया गया लाल गेहूं खाते थे और आज हमारी 140 करोड़ population होने के बावजूद हम 80 करोड़ से ज्यादा लोगों को free ration दे रहे हैं। दाल दे रहे हैं, oil दे रहे हैं। हर field में oil production हो रहा है। आज माननीय मंत्री शिवराज सिंह जी बोल रहे थे कि हम oil में sufficient हो रहे हैं। हमारे यहां लोगों का protein का मेन सोर्स दाल है, जो vegetarian हैं। हम सबसे ज्यादा दाल का production करने वालों में से हैं, लेकिन इसके बावजूद भी हमें अपने consumption के लिए दाल import करनी पड़ती है। ऐसी-ऐसी technology आई। कानपुर में Dalhan Research Institute है। ऐसी

चीज़ें की गईं है, जो हम Myanmar से तुअर दाल import करते हैं, Nigeria से लेते हैं, Canada से लेते हैं, Turkey से लेते हैं और ऐसी technology, चूंकि पानी की कम जरूरत पड़े। आज फसलों के लिए जो technology develop हुई, आज उसमें हम self-sufficient हो रहे हैं। अटल बिहारी वाजपेयी जी ने हमारी नदियों के बारे में सोचा था। गंगा, यमुना, राप्ती, ऐसी तमाम नदियां हैं, जो उत्तर-भारत में हैं और यहां क्या होता है? यहां बरसात में बाढ़ आ जाती है। लोग डूब जाते हैं और जब बरसात का मौसम खत्म होता है, तो हम पानी के लिए तरसते हैं। इसके लिए क्या किया गया? इसके लिए अटल बिहारी वाजपेयी जी ने नदियों को जोड़ने के बारे में सोचा। Ken-Betwa Link पानी के लिए किया गया है। Ken-Betwa Link को जोड़कर और बुंदेलखंड, जो हमारा arid area है, वहां के लोग मजदूरी करने के लिए migrate होते थे, आज Ken-Betwa Link न केवल बुंदेलखंड, बल्कि मध्य प्रदेश का जो adjoining एरिया है, उसको दाल का कटोरा बना रहा है। Ken-Betwa Link से एग्रीकल्चर को बढ़ावा मिल रहा है।

दूसरा, हमारी technologies हैं। Drift irrigation - सबसे कम पानी खर्च हो, तो हमने Israel से drift irrigation की टेक्नोलॉजी ली और आज ऐसी तमाम चीजें हम लोगों ने की हैं, जिससे कम खर्च में ऐसी variety develop की जा रही है कि वह कम पानी में पैदा हो जाएगा। मैं उत्तर प्रदेश का रहने वाला हूं। झांसी arid area है। मैं जालौन में एसपी था। आज जालौन पूरे देश को हरा मटर सप्लाई करता है। वहां जहां कुछ पैदा नहीं होता था। आज झांसी ऐसा एरिया है, जहां strawberry पैदा की जाती है। एग्रीकल्चर क्षेत्र में जो डेवलपमेंट हुई है, पानी का मैनजमेंट हुआ है, पीने के पानी की व्यवस्था की गई, नल से जल पहुंचाया गया, वहीं साथ ही साथ ऐसा किया जा रहा है कि हम पेट भर रहे हैं। इसके साथ ही साथ नदियों को जोड़कर पानी की व्यवस्था ऐसी कर रहे हैं, जब यहां उत्तर भारत में नदियों में बहुत बाढ़ होती है, तो अगर हम दक्षिण भारत से और बाकी एरिया से भी जोड़ दें, तो वह पानी वहां पहुंच जाएगा। उसकी शुरुआत माननीय अटल बिहारी वाजपेयी जी ने की थी। वह केन-बेतवा लिंक अब परिपक्व हो रहा है। उपसभाध्यक्ष महोदया, मैं इसी तरह से यह कहना चाहूंगा कि जब हमारे नागरिक स्वस्थ रहेंगे, तभी देश स्वस्थ रहेगा, स्वस्थ नागरिक ही देश का डेवलपमेंट करेगा। महोदया, स्वास्थ्य पर क्या काम किया गया, मैं उसको बताना चाहता हूं।

महोदया, स्वास्थ्य के क्षेत्र में ऐसी-ऐसी दवाएं बनाई गईं, जो बहुत उपयोगी हैं। हमारी जो 'आयुष्मान भारत योजना' है, उसमें 5 लाख रुपये का कवरेज दिया गया है, जो 70 प्लस साल के लोग हैं, उनकी चाहे कोई भी इन्कम हो, उनको भी आज 5 लाख रुपये का कवरेज दिया जा रहा है।

महोदया, मैं गाँव का रहने वाला हूं, यदि पहले गाँव किसी को कैंसर हो जाता था, तो उसके बारे में लोग जानते ही नहीं थे, किसी की किडनी खराब हो गई, तो राम-राम कहते थे, ऐसा कहते थे कि इसको मरना है, इसलिए राम-राम कहो, लेकिन आज हर जिले में किडनी पेशेंट के लिए सुविधा है, आज उनका वहीं पर डायलिसिस हो जाता है। महोदया, इसी बजट में तमाम लाइफ सेविंग ड्रग्स पर इम्पोर्ट ड्यूटी घटाई गई और इतनी घटाई गई कि जो गरीब आदमी है, वह भी उसको एफोर्ड कर सकता है।

महोदया, जो मेडिसिन्स बनाई गईं, जो आयुर्वेदिक मेडिसिन्स बनाई गईं, जो 15,000 से ज्यादा आउटलेट्स बने हैं, मैं उस पर भी कहना चाहूंगा। महोदय, मार्किट में जो मेडिसिन 100

रुपये की है, जो कि एक ब्रांडेड मेडिसिन है, आज उसकी कीमत कितनी है? मोदी जी ने आज वह मेडिसिन 10 परसेंट से 30-40 परसेंट पर दी गई है, ..(**व्यवधान**)...आज 1 रुपये तक में भी मेडिसिन मिल रही है। महोदया, यह जो किया गया है, वह बहुत सराहनीय कदम है। महोदया, हॉस्पिटल्स दिए गए हैं, मेडिकल कॉलेज, एम्स दिए गए हैं। यूपीए सरकार में, कांग्रेस सरकार में सिर्फ दिल्ली में एम्स था, लेकिन आज दूसरा एम्स रायबरेली में बना है, जो कि एक बड़े आदमी की कांस्टीटूएंसी थी। उनसे वह भी नहीं चल पाया, लेकिन आज हम एम्स दे रहे हैं। महोदया, एम्स में, मेडिकल क्षेत्र में, नल से जल, सस्ती दवाएं और जो आयुष्मान योजना है, इन सभी ने स्वास्थ्य के क्षेत्र में एक क्रांति ला दी है। आज हमारे देश का आदमी स्वस्थ है और जब नागरिक स्वस्थ होगा, तो देश की प्रगति में कंट्रीब्यूट करेगा।

उपसभाध्यक्ष महोदया, स्वास्थ्य के क्षेत्र में, एग्रिकल्चर के क्षेत्र में, टेक्नोलॉजी के क्षेत्र में, न्युक्लियर मार्किट में बहुत अचीवमेंट्स हुई हैं। ..(**व्यवधान**)...

उपसभाध्यक्ष महोदया, हमारे प्रधान मंत्री का लक्ष्य है कि हम 2047 में विकसित भारत बनाएंगे और 2070 तक जीरो ..(**व्यवधान**)... I am not yielding, Mr. Sandosh. हम उसमें जीरो कार्बन एमिशन ला रहे हैं। पहले हमारा सबसे ज्यादा बजट कहाँ पर खर्च होता था? वह ऑयल इम्पोर्ट पर खर्च होता था। ..(**व्यवधान**)...

उपसभाध्यक्ष (**डा. संगीता बलवन्त**) : माननीय सदस्य, आप किस रूल के अंतर्गत प्वाइंट ऑफ ऑर्डर देना चाहते हैं?

SHRI SANDOSH KUMAR P: Madam, my point of order is under Rule 240 — 'irrelevant remarks' because the hon. Member is speaking out of context. We are discussing about AI. ...*(Interruptions)*... No; no, when the discussion is on ...*(Interruptions)*... Please bear with me. ...*(Interruptions)*... आप देखिए। No; no, this is artificial crisis.

उपसभाध्यक्ष (**डा. संगीता बलवन्त**) : माननीय सदस्य, नियमों के अंतर्गत इसका अवलोकन होगा। माननीय सदस्य, बृज लाल जी, आप अपनी बात जारी रखें।

श्री बृज लाल : जी। महोदया, बीच में हमारे मित्र ने इंटरवीन किया था, मेरा यह कहना है कि हम हर क्षेत्र में प्रगति कर रहे हैं, वह चाहे टेक्नोलॉजी का क्षेत्र हो या कोई और क्षेत्र हो। पहले कितनी आईआईटीज़ थीं और आज कितनी आईआईटीज़ बन गई हैं, कितने इंजीनियरिंग कॉलेज बन गए हैं? सबसे बड़ी यह चीज़ है कि हमने फोरेंसिक साइंस में नया क्रिमिनल जस्टिस सिस्टम दिया है। किसी देश के नागरिकों को न्याय देना एक बहुत बड़ा काम होता है। 164 वर्ष पहले अंग्रेज़ों ने जो कानून बनाया था, मोदी जी के नेतृत्व में उसको बदला गया, and now it is the new Criminal Justice System. हम जहाँ टेक्नोलॉजी में काम कर रहे हैं, देश के लोगों को स्वस्थ रख रहे हैं, मेडिसिन्स दे रहे हैं, खाना दे रहे हैं, पानी दे रहे हैं, वहीं स्वस्थ भारत भी बना रहे हैं।

उपसभाध्य महोदया, आपने सदन में मुझे अपनी बात रखने का अवसर दिया, इसके लिए आपका बहुत-बहुत धन्यवाद।

उपसभाध्यक्ष (डा. संगीता बलवन्त) : माननीय सदस्य, आपका बहुत-बहुत धन्यवाद। श्रीमती जेबी माथेर हीशम, आप अपना भाषण आरंभ कीजिए।

SHRIMATI JEBI MATHER HISHAM (Kerala): Thank you, Madam, for having given me the opportunity. As the Private Member's Resolution revolves around technology, I wish to start by remembering the one and only one father of technology revolution, the architect of Digital India and telecommunication revolution, our former Prime Minister, Shri Rajiv Gandhi. Many, many years ago, even when technology was not a term which was much used, Shri Rajiv Gandhi had the Vision to think of and implementing Technology Mission. Shri Rajiv Gandhi's focus was to integrate technology into people's lives. Shri Rajiv Gandhi visualized, through Technology Missions, how people's lives can be changed for the better. Shri Rajiv Gandhi took various steps, be it immunization, be it agriculture, be it making telephones available to every ordinary Indian citizen, and the most important of all, the computer, which we all see today. For what all we see today, the credit, definitely, goes to Shri Rajiv Gandhi. My esteemed colleagues from the Treasury Benches, Brij Lal*ji* and all can go on and on and on. They can scream, they can go to hills of Himachal Pradesh, they can speak in the valleys of the North East, but the fact remains that the father of Digital India and Telecommunication is only Shri Rajiv Gandhi.

Madam, coming to Artificial Intelligence, today, we live in a very exciting time and also in a very worrisome time. Exciting time because these days, we have everything on our finger tips. Earlier, if we required something, we used to think of asking first our friend, children used to think of asking their parents, but today we have reached a point of time, which we have to accept, when we tend to ask or this generation tends to ask ChatGPT. Nowadays, many of us, while listening to any conversation going on between friends and relatives, if we ask, 'Okay, whose suggestion was it?', let us not be surprised when they say that it was not a suggestion of father, mother, brother or a friend, but it was a suggestion of ChatGPT. I am saying this to tell you how important these have become. But, that is the exciting part of Artifcial Intelligence. I wish to say, in a recent interview, Mr. Bill Gates has said that with Artificial Intelligence, the while-collar jobs are going to come down heavily and the jobs which involve sweat may continue for a while. That is exactly where we are concerned. In our country, already, there is a 45-year-high unemployment rate. In spite of the BJP's and Modi*ji*'s promise of two crore jobs per

year, --- all the heavy promises definitely go without being taken care of, -- the youths are wandering with degrees in hand, but they are not able to find jobs. They are running away from the country to elsewhere in search of jobs. Even post-graduates line up in thousands and thousands for jobs. In a country where even those who are educated are not finding jobs at the moment, what is going to happen with the coming of Artificial Intelligence is the biggest question and the worry. That is from the point of view of youths. As a voice of Indian youths, I wish to ask: Does this Government have any plan to address the issue of unemployment which will rise further with the coming of Artificial Intelligence? For example, the jobs of PS, Personal Assistants, etc., are going to be cut down. What is the Government doing? Do you have any plan? Does the Government think of it? We have not seen the Government thinking of it so far. But it is our duty to repeatedly say, please, wake up from deep slumber and think about the youth of this country who is hoping, though they have lost all hopes, but who is, at least, hoping that some day they will find some job.

Now, Madam, the second worry is definitely the security part of Artificial Intelligence. Everything is very glossy. Everything is very bright. Everything is very nice. But when it comes to security, there is total privacy-breach which is going to happen to all Indians if the Government is not careful enough about what is going to happen with Artificial Intelligence. Whether anybody's privacy can be intruded, whether what one wishes something to be said or shown, whether somebody can intrude it -- all these are the issues which matter to every Indian, which should concern the Government with the coming of Artificial Intelligence.

Madam, another thing which I wish to say is that the democracy itself is at stake again with this. Why I am saying that democracy itself will be at stake by the intrusion of Artificial Intelligence is because there is definitely a worry. Why? Because chronology समझिए। Chronology क्या है? What is the chronology which we have seen from 2014? What are we seeing? The Fourth pillar of democracy, that is, the Media seems to be captured by the ruling dispensation. Whether it is national, whether it is regional, there is a total capturing of that. Where is free democracy? Those who raise voice against the ruling dispensation are being jailed. Now today, the Supreme Court of India had to quash the FIR filed against our esteemed colleague, Imran Pratapgarhiji. Why? It is because for one of his poems, a case was filed against him. There is a total breach of freedom of expression. So, from the point of view of democracy being under peril, definitely, our Media is captured initially. It is the first thing. Then, what we are seeing is that social media is captured. Social media is being captured. We don't know the algorithms. God knows. We don't know what the understanding is. What is the intervention? What the Government wants the people

to see, only that is being shown. What the Government doesn't want the people to see, that is not being shown. So, social media stands captured. Now we fear the electoral IDs, voter lists, all being captured. There are innumerable instances. We have the case of Maharashtra where more than the actual voters, there is more number in the list. So that is how voting itself can be in peril.

उपसभाध्यक्ष (डा. संगीता बलवन्त) : माननीय सदस्य, कृपया आपस में बात न करें।

SHRIMATI JEBI MATHER HISHAM: Thank you, Madam. Madam, another worry is, our democracy is in peril with the coming of Artificial Intelligence because the ruling dispensation is trying to inject what they want to inject, which they have been using through WhatsApp universities which we are facing now. That is one part; but with Artificial Intelligence, if it is manipulated in such a way, they would want the people to think in a manner which only the 'number one' and 'number two' wish the people of India to think. That is the biggest danger that can happen. What will happen if extreme thoughts from Nagpur are injected into the Apps with Artificial Intelligence? What will happen? Who will control it? All these are the things where democracy itself can be under peril. So, what we are worried about is, when Shri Kartikeya Sharma is urging to institute a Council for Future Affairs, just like the ED is now under the control of the ruling dispensation, the Election Commission is under the control of the ruling dispensation and the CBI is under the control of the ruling dispensation, the new council, as suggested by Shri Kartikeya Sharma, the Council for Future Affairs, would also come under the control of the ruling dispensation, with democracy in India coming to an end. But we wish to say that a day will come when not technology, but the people of India would realise that whether you capture media, whether you capture social media, whether you capture Artificial Intelligence, you will face the heat for all that you have done and what you are doing. The actual reality of the country is being faced by the poor and the women of this country and, as long as they are facing it, whatever Artificial Intelligence you try to get in, reality will always remain reality. So, I am making a humble request. Although we make repeated requests, whatever subject we may talk about, we know that there would be no effect. But we still continue to be the voice of India because we believe, if we do not speak up, it is India that would be losing. I can see Shri R.P.N. Singh and other esteemed Members there, but a day will come when what we believe in, what the people of India want and what our forefathers wanted India to be when India was established, would be realised.

Madam, I conclude by saying what Shakespeare once said. He said, "Music is the food of love." Now, if Artificial Intelligence is for the good of the people, then it should get all its due. The Government should take measures. I repeat, we have no hope that this Government would do it, but I repeatedly say, the security aspect and employment are issues that actually matter to the citizens. The youth of the country and women, especially, are worried about the security aspect of Artificial Intelligence. That is one request that I am making. I hope this subject will be taken with due seriousness. I also wish to say, Shri Rajiv Gandhi, while invoking the need for technological development, focussed on what good people should get, but not that his face should be seen everywhere. What we see now is that Prime Minister of those times and the Prime Minister of these times are very different, but we hope that everyone at least takes the message home from Shri Rajiv Gandhi, where good of the people was the priority and not self-interest. That will always be counted. I conclude my speech, Madam. Thank you.

DR. V. SIVADASAN (Kerala): Respected Madam, the need of the society is the basis for development of technology. It is reflected in the theories of Einstein, Edison and Newton. We understand the importance of technology in all fields. If we study the history of development of technology, we see the contribution of workforce in this development. In a democratic society, the duty of the Government is to provide the benefits of technological development to each citizen, but the current system is going in the opposite direction. AI has created lot of prospects and challenges. We are discussing the importance of Artificial Intelligence. The Government should provide the benefit of technological advance to the entire society. But the question is: How can we achieve such development? I am sad to say that, in India, a huge number of schools are working without digital device and internet facility. We cannot hide the reality from the people. That is why we should discuss the existing condition of our nation. Technology, the importance of technology or the advancement of technology, is the central portion of our discussion. Here, lakhs of employees are struggling because of their increasing workload after the implementation of digitalisation. Some of the companies are thinking that technologies and technological development are only for exploitation and profit making. That is why the workload of employees is increasing and the recruitment of employees is not taking place. It is not acceptable by common people.

[THE VICE-CHAIRMAN (SHRI GHANSHYAM TIWARI) *in the Chair.*]

Respected Chair, AI and research activities should be designed with highest social responsibility. Now, in each and every sector, high-end technologies are being used in banking, railways, military and tourism sectors. AI and the digital technologies are an inevitable part of the sector. Now, in each and every sector, the high-end technologies are able to provide the universities and other institutions the best opportunities. But, the universities are not getting proper financial assistance for HR activities. It should create advanced space for education, employment and enjoyment. It should enhance the efficiency of workforce. But, paradoxically, the direction of imperialist world is going to an opposite direction. They are using it not for the people; they are using it only for profit making. Everywhere, in the capitalist world, it is the existing picture of the usage of technology. Look at the banking sector. Even after the smart banking, the employees are compelled to work for more hours in their office. Basic rights of workers are being trampled upon. Look at the railways. Even after the mechanisation, loco-pilots are compelled to spend more hours. They are working long hours without rest. The level of exploitation is extremely increasing. Technological development has changed the entire work atmosphere. Earlier, workers worked in the factories or their work space. But, now, we are discussing 'work from home'. It has created new issues in front of workers. In this world, employees, especially IT workers, are one of the most exploited groups. Employers are getting the possibility to intervene anytime because of large-scale connectivity of internet and modern technologies like AI. So, currently, the slogan of 'employee's right to disconnect' is a critical topic of discussion everywhere. The Australian Parliament has enacted Fair Work Legislation which established the right of employees to disconnect from work outside their designated working hours. Similarly, Portugal has enacted legislation. In a similar manner, Spain has discussed the issue. Here, ensuring the benefit of technological development for all is important. And, the second one is to ensure the well-being of the people. It is highly connected.The Government should make more investment in the education sector. In India, the investment for the education is below 3 per cent of the GDP. India is the largest country in the world in terms of population. The second largest country in the world, our neighbour China, spends Rs.43 lakh crores on research and development. India is spending only Rs.1.1 lakh crore. It is a meagre amount for research and

development activities. Here, we spend less than 4 per cent of what China spends on education. So, how can we become *Vishwa Guru* is the question in front of us. The allocation for education should be increased and we will try to give a new political direction to the research and development activities. Some of them are promoting pseudoscience. The pseudoscience will not help the people of the nation. Here, on the one hand, some of them are promoting the pseudoscience. I will take just one minute.

उपसभाध्यक्ष (श्री घनश्याम तिवाड़ी) : यदि आप बैठना चाहें, तो बैठ सकते हैं।

DR. V. SIVADASAN: On the other hand, they are utilising the entire technological advancement for promoting the pseudoscience. We should discuss these two things and we should promote AI and technological advancement for the people, not for the market, nor for the profit of big corporate loot. In this way, we should conduct our discussion. I request all the parliamentarians to support more investment for education, health and research and development activities. This is my humble request to the House. Thank you, Sir.

उपसभाध्यक्ष (श्री घनश्याम तिवाड़ी): धन्यवाद। डा. सस्मित पात्रा।

DR. SASMIT PATRA (Odisha): Sir, at the outset, I congratulate and thank the hon. Member, Shri Kartikeya Sharma, for this very wonderful Private Members' Resolution, that he has brought. It is timely, it is important, and, probably, someone like Shri Kartikeya Sharma thinking about it is the need of the hour. I have only five minutes. So, I will be very brief.

उपसभाध्यक्ष (श्री घनश्याम तिवाड़ी) : आप बोलिए।

DR. SASMIT PATRA: Thank you, Sir. First, he has asked, through his Private Members' Resolution, to institute a Council for Future Affairs, which would essentially be a cerebral hub for unified strategic framework for futuristic areas. I think we need to create such a cerebral hub, such a think tank, such a thoughtful leadership in our country, especially a country which has got so much of talent with 1.4 billion people.

Now, why is this needed? What is the need for this? Let us start with the first area. Everybody is talking about artificial intelligence. We are a large country. We have a lot of technology. China has DeepSeek. Their LLM platform is coming. The

day the LLM platform comes in, NVIDIA, which is one of the top most, will lose its capital market share by more than 20 per cent. The stocks will crash across the country and the world. The reason is that technology is going to be the disruptor. Similarly, when we talk about artificial intelligence, ChatGPT has been one of the forerunners. But, as a country, we are trying our best to make the next LLM, which will become the Large Language Model, which will drive AI. The hon. Minister, Shri Ashwini Vaishnaw, has said that within six months' time, it will be in place, but I believe this is only the beginning of AI. The artificial intelligence is going to pervade every step of our lives as we go forward, whether it is education, health, agriculture, or anything that you can think of, it is going to be like what the Internet is for us today.

Because of the paucity of time, I will go on to the second one, that is, quantum technologies. We are underestimating quantum technologies. Quantum technologies will have the power to decrypt your credit card in less than two minutes. That is the kind of teraflop counter computing that is going to happen. We have to start instrumentalizing it in our labs, in our schools, in our colleges and in our universities. Who is going to think about it? This is something that Shri Kartikeya Sharma is saying in this Private Members' Resolution.

Number three is the cyber security. Cyber security is going to be the key because your money, my money, our money is going to be digital money. And, tomorrow, hackers sitting in China, hackers sitting in various countries will hack into the systems of our cyber security firewalls and try to threaten us. They are not going to come to you. They are going to come to public sector banks whose cyber security we are not really thinking about. We are not upgrading it. We need to work on futuristic areas where countries like China, America and others are doing it. We need to create a platform that has to pervade across various silos. Autonomous and hypersonic transport systems are going to revolutionise the way we move across our great country. To fly from Delhi to Kerala takes three hours. Can a hypersonic system take us there in three hours? That is a question. People are doing it. The USA is doing it. Where are we in terms of doing that? That is why a Council for Future Affairs is necessary. We need to future think, to ideate and to become a thought leader to see where our country will be as the number one country 50 years from now. Being economically powerful is not enough. We have to be futuristically and cerebrally powerful.

Next is future of AI and displacement. On future of AI, we all say that jobs are going to go. That is a reality. I believe the future of AI is going to provide more opportunities for the youth to become innovators rather than employees. And for that, we need this Council. We talked about next generation defence technologies.

Wars will not be fought on the strength of infantry. Wars will be fought through drones and automated systems. Are we prepared for that? Are we deep-mining it? Even today, though we are trying to become Atmanirbhar, a lot of our radar technology comes from Israel. A lot of our technology comes from Russia. We have to think about the software, if not the hardware. That is where this Council is necessary. Future energy in nuclear fusion. A couple of days back, the hon. Minister, Shri Singh, was talking about it. I think it is a critical area. We have to identify how we are going to follow the path of energy resilience and energy security. I will come to ethical AI. You have zero waste and smart cities. There is circular economy and crypto economy. There is AI in health. I will just take 30 seconds and then I will conclude.

Let us look at the structure that Shri Sharma is talking about. The structure talks about multi-stakeholder system. I agree with him. Can we have innovation hubs where children start thinking in classrooms and libraries where they see India 30-40 years from now? What kind of India do they want to grow old in? We are growing older in a country that we see. But somebody who is 10-20 years old, where does he see India 50 years from now? That ideation, that innovation has to happen. We have to start identifying it, prototyping it and taking it forward.

He talked about research and development councils. You need funding in research and development. Everybody has talked about it. I will just be reinventing it. We have to at least have six per cent of the GDP spent on research and development. I would like to go back to the National Education Policy and Professor Kasturirangan who said that three per cent of GDP needs to actualise NEP. I am less ambitious than him. I am saying that let us have a Council, provide it the powers of at least six per cent of GDP and allow it to broadbase across the country in terms of finding the right talent. It is in the villages. It is in our towns. Let us bring them together. I will just end it with one small thing.

In terms of the ecosystem, one of the areas which I would suggest to Shri Sharma and to the House is this. Let us tap into the rich Pravasi Bharatiya across the world. When I travel abroad, I find a lot of people from my State and others who are professors in great universities. There are people who are really working in sectors of artificial intelligence, nanotechnology, strategy and various other areas. Let this entire discussion not just be within the contours of India and with the kind of technology that we have. But let us get the best of brains from across the seas. Indians who have benefitted from our IITs and IIMs have gone ahead and have done a name for themselves. Let us bring them back. We will be a great soft power. I am pretty sure that a Council for Future Affairs, as suggested by Shri Sharma in this Resolution, is

necessary for breaking silos and creating a unified cerebral thought leadership for our nation. Thank you, Sir.

THE VICE-CHAIRMAN (SHRI GHANSHYAM TIWARI): Shri Sadanand Mhalu Shet Tanavade. Not present. Shri Sandosh Kumar P.

5.00 P.M.

SHRI SANDOSH KUMAR P (Kerala): Thank you, Sir. ...(*Interruptions*)... Sir, should I start?

उपसभाध्यक्ष (श्री घनश्याम तिवाड़ी) : माननीय सदस्य, गैर-सरकारी संकल्पों का समय समाप्त होता है। Message from Lok Sabha; Secretary-General.

MESSAGE FROM LOK SABHA

The Carriage of Goods by Sea Bill, 2025

SECRETARY-GENERAL: Sir, with your kind permission, I rise to report that the Lok Sabha at its sitting held on the 28th March, 2025 passed the Carriage of Goods by Sea Bill, 2025.

I lay a copy of the said Bill on the Table.

THE VICE-CHAIRMAN (SHRI GHANSHYAM TIWARI): Special Mentions; Dr. Fauzia Khan.

SPECIAL MENTIONS

Need to preserve and promote Cultural Heritage of Chhatrapati Sambhajinagar

DR. FAUZIA KHAN (Maharashtra): Sir, Aurangabad, which is now known as Chhatrapati Sambhajinagar, is home to a rich cultural heritage; yet many of its monuments are in urgent need of attention. The Bibi Ka Maqbara, often called the Taj of the Deccan, is in a state of disrepair, with the main tomb and its four minarets