International Journal of Advanced Research and Multidisciplinary Trends (IJARMT)
An International Open Access, Peer-Reviewed Refereed Journal
Impact Factor: 6.4 Website: https://ijarmt.com ISSN No.: 3048-9458

Viksit Bharat@2047: Challenges, Opportunities, and Roadmap

Ms. Seema Dahiya
Assistant Professor, Tika Ram College of Education, Sonipat
Email ID: seema.pers@gmail.com

Abstract
As India approaches its centenary of independence in 2047, the vision of **Viksit Bharat** aims at transforming the nation into a developed economy. This goal encompasses economic growth, social justice, technological leadership, and environmental sustainability. However, realizing this vision necessitates overcoming substantial challenges while leveraging emerging opportunities. The Indian economy, despite its rapid growth, faces systemic bottlenecks that need urgent attention. The country's diverse socio-economic landscape demands a tailored approach to development that integrates both traditional and modern methodologies. This paper explores these aspects in detail and proposes a roadmap to achieving a developed India by 2047 by drawing insights from global best practices and successful developmental strategies.
Keywords: Viksit Bharat, Tailored, Approach, Global

1. Introduction

The journey to Viksit Bharat is not just about economic growth but also about ensuring that the benefits of development reach every citizen. It requires a multi-dimensional approach that addresses the root causes of inequality, poverty, and environmental degradation. This paper will delve into the challenges India faces, the opportunities it can harness, and a comprehensive roadmap to achieve the vision of Viksit Bharat by 2047.

2. Challenges to Viksit Bharat@2047

2.1 Economic Challenges

- **Income Inequality:** The gap between the rich and poor continues to widen, affecting equitable growth. According to the World Inequality Report 2023, the top 10% of India's population holds 57% of the national income, while the bottom 50% holds only 13%. This disparity is a significant barrier to inclusive growth and social cohesion.
- **Unemployment and Underemployment:** Despite a young workforce, job creation remains a significant concern. The unemployment rate in India has been hovering around 7-8%, with youth unemployment being particularly high. Underemployment, where individuals are working in jobs that do not utilize their skills or education, is also a pressing issue.
- **Slow Industrialization:** India's economy is heavily reliant on the service sector, which contributes over 50% of the GDP. However, the manufacturing sector, which is crucial for job creation and long-term economic stability, contributes only about 15-17% of the GDP. This imbalance needs to be addressed to ensure sustainable economic growth.
- **Dependence on Agriculture:** A large portion of the population still relies on traditional farming, which is often rain-fed and prone to income instability. According to the Economic Survey 2022-23, nearly 45% of India's workforce is employed in agriculture,

but the sector contributes only about 18% to the GDP. This indicates low productivity and the need for modernization.

- **Inflation and Fiscal Deficit:** Economic fluctuations and government debt pose risks to sustained development. India's fiscal deficit has been a concern, with the government borrowing heavily to finance its expenditure. High inflation, particularly in food and fuel prices, further exacerbates the economic challenges faced by the common man.

2.2 Infrastructure Challenges

- **Inadequate Urban Infrastructure:** Overcrowding in cities leads to transportation and housing shortages. According to a report by the Ministry of Housing and Urban Affairs, over 65% of Indian cities face severe infrastructure deficits, including inadequate public transportation, poor waste management, and insufficient housing.
- **Deficient Rural Infrastructure:** Limited access to roads, electricity, and internet hinders rural development. While the government has made significant strides in rural electrification, many villages still lack reliable electricity. Internet penetration in rural areas is also low, with only about 30% of rural households having access to the internet.
- **Energy Crisis:** India's dependence on non-renewable energy sources increases vulnerability to global price fluctuations. The country imports over 80% of its crude oil needs, making it susceptible to global oil price shocks. The transition to renewable energy is slow, and the infrastructure for renewable energy generation and distribution is still underdeveloped.
- **Logistics and Supply Chain Inefficiencies:** Poor transportation networks affect industrial efficiency and exports. India's logistics costs are among the highest in the world, accounting for nearly 14% of the GDP. This is due to inadequate road networks, inefficient rail systems, and a lack of integrated logistics hubs.

2.3 Technological and Innovation Barriers

- **Low R&D Investment:** India's investment in research and development (R&D) is significantly lower than that of developed nations. According to the World Bank, India spends only about 0.7% of its GDP on R&D, compared to 2-3% in countries like the United States and South Korea. This lack of investment hampers technological innovation and the development of cutting-edge technologies.
- **Limited AI and Automation Adoption:** The adoption of Industry 4.0 technologies, such as artificial intelligence (AI), robotics, and the Internet of Things (IoT), is still in its infancy in India. While some sectors, such as IT and manufacturing, have started integrating these technologies, the overall adoption rate remains low due to high costs and a lack of skilled workforce.
- **Digital Divide:** Limited internet access in rural areas restricts digital transformation and financial inclusion. According to the Telecom Regulatory Authority of India (TRAI), only about 45% of rural households have access to the internet, compared to 70% in urban areas. This digital divide hampers the government's efforts to promote digital services and financial inclusion.

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2.4 Social and Educational Challenges

- **Quality of Education:** Many educational institutions lack infrastructure and updated curricula. According to the Annual Status of Education Report (ASER) 2022, only 50% of fifth-grade students in rural India can read a second-grade text. The quality of higher education is also a concern, with only a few Indian universities ranking among the top 500 globally.
- **Skill Mismatch:** A significant portion of the workforce is not equipped for modern industry demands. According to a report by the National Skill Development Corporation (NSDC), over 75% of Indian engineers are unemployable due to a lack of practical skills and industry exposure.
- **Healthcare Infrastructure:** Rural healthcare facilities remain underdeveloped and lack skilled professionals. According to the National Health Profile 2023, there is only one doctor for every 1,457 people in India, well below the World Health Organization (WHO) recommended ratio of 1:1,000. Rural areas face an even greater shortage of healthcare professionals.

2.5 Environmental and Sustainability Challenges

- **Air and Water Pollution:** Industrialization and urbanization have led to severe environmental degradation. According to the World Air Quality Report 2023, 14 of the 20 most polluted cities in the world are in India. Water pollution is also a significant concern, with over 70% of India's surface water being contaminated.
- **Climate Change Impacts:** Rising temperatures and erratic weather patterns threaten agriculture and biodiversity. According to the Indian Meteorological Department (IMD), the frequency of extreme weather events, such as floods and droughts, has increased significantly over the past decade.
- **Resource Depletion:** Overuse of natural resources without sustainable alternatives poses long-term risks. Groundwater levels in India are depleting at an alarming rate, with over 60% of the country's aquifers being overexploited. This has serious implications for agriculture and drinking water supply.

3. Opportunities for India's Development

3.1 Economic and Industrial Opportunities

- **Demographic Dividend:** India's young workforce offers potential for rapid economic growth. With a median age of 28 years, India has one of the youngest populations in the world. This demographic dividend can be harnessed to drive economic growth, provided that the youth are adequately skilled and employed.
- **Emerging Markets:** India's expanding consumer base presents opportunities for local and global businesses. With a growing middle class and increasing disposable incomes, India is becoming a key market for consumer goods, automobiles, and electronics.
- **Make in India & Atmanirbhar Bharat:** The government's initiatives to strengthen domestic manufacturing and self-reliance offer significant opportunities for economic growth. The Make in India initiative aims to increase the share of manufacturing in the GDP to 25% by 2025, while the Atmanirbhar Bharat (Self-Reliant India) campaign focuses on reducing dependence on imports and promoting domestic production.

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- **Financial Inclusion:** Expanding digital banking and microfinance can support entrepreneurs and rural development. The government's Jan Dhan Yojana has already brought millions of unbanked individuals into the formal banking system, and the expansion of digital payment platforms like UPI has further enhanced financial inclusion.

3.2 Digital and Technological Advancements

- **Artificial Intelligence and Automation:** AI can drive efficiency across sectors, from healthcare to manufacturing. According to a report by NASSCOM, AI has the potential to add $957 billion to India's GDP by 2035. The adoption of AI in sectors like healthcare, agriculture, and manufacturing can lead to significant productivity gains.
- **Expanding 5G and Internet Penetration:** The rollout of 5G technology and the expansion of internet connectivity can enhance digital services and education. According to the Telecom Regulatory Authority of India (TRAI), 5G services are expected to cover 70% of the population by 2025, enabling faster internet speeds and new applications in areas like telemedicine and online education.
- **Space Exploration and Defense Tech:** India's advancements in space technology and defense manufacturing boost global standing. The successful launch of the Chandrayaan-3 mission and the development of indigenous defense technologies, such as the Tejas fighter jet, have positioned India as a key player in the global space and defense sectors.
- **Cybersecurity Growth:** Increasing investments in data protection and digital security enhance the trustworthiness of digital platforms. With the rise in cyberattacks, the demand for cybersecurity solutions is expected to grow significantly, creating opportunities for Indian companies in this sector.

3.3 Infrastructure Development

- **Smart Cities Mission:** Urban planning with tech-driven governance for sustainable city growth. The Smart Cities Mission aims to develop 100 smart cities across India, with a focus on sustainable urban development, efficient public transportation, and digital governance.
- **Renewable Energy Expansion:** Wind and solar power initiatives reduce dependence on fossil fuels. India has set an ambitious target of achieving 500 GW of renewable energy capacity by 2030, which includes 280 GW of solar power and 140 GW of wind power. This presents significant opportunities for investment in renewable energy projects.
- **Robust Transportation Networks:** High-speed rail, highways, and waterways to facilitate trade and movement. The government's Bharatmala and Sagarmala projects aim to develop a robust network of highways and ports, respectively, to improve connectivity and reduce logistics costs.
- **Housing for All:** Affordable housing projects to reduce urban slums and improve living standards. The Pradhan Mantri Awas Yojana (PMAY) aims to provide affordable housing to all urban poor by 2024, with a target of constructing 20 million houses.

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3.4 Social and Human Capital Development

- **Education Reforms:** Integrating STEM, AI, and vocational training into mainstream education. The National Education Policy (NEP) 2020 emphasizes the need for a holistic and multidisciplinary approach to education, with a focus on skill development and lifelong learning.
- **Women Empowerment:** Increased participation in politics, business, and leadership roles. The government's Beti Bachao, Beti Padhao (Save the Girl Child, Educate the Girl Child) campaign aims to improve the status of women in society by promoting education and gender equality.
- **Public Healthcare Enhancement:** Expanding telemedicine, insurance schemes, and AI-based diagnostics. The Ayushman Bharat scheme, which provides health insurance to over 500 million people, is a significant step towards achieving universal healthcare coverage.
- **Skill Development Programs:** Industry collaboration for hands-on training in advanced technologies. The Skill India Mission aims to train over 400 million people in various skills by 2022, with a focus on emerging technologies like AI, robotics, and data analytics.

3.5 Environmental and Sustainability Opportunities

- **Green Energy Revolution:** Expansion of electric mobility, biofuels, and energy-efficient technologies. The government's FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) scheme aims to promote the adoption of electric vehicles (EVs) by providing incentives for EV manufacturers and buyers.
- **Afforestation and Water Conservation:** Programs to restore biodiversity and ensure water security. The Jal Shakti Abhiyan (Water Power Campaign) aims to conserve water resources through rainwater harvesting, watershed management, and afforestation.
- **Climate-Resilient Agriculture:** Promoting organic farming and climate-adaptive crop techniques. The Paramparagat Krishi Vikas Yojana (PKVY) promotes organic farming practices to improve soil health and reduce the use of chemical fertilizers and pesticides.
- **Sustainable Urban Planning:** Green buildings, waste management, and eco-friendly infrastructure development. The Green Rating for Integrated Habitat Assessment (GRIHA) is a rating system for green buildings in India, which promotes sustainable construction practices.

4. Roadmap to Achieve Viksit Bharat@2047

4.1 Economic and Industrial Growth

- **Boosting Manufacturing and MSMEs:** Strengthening domestic industries and promoting global competitiveness through **Make in India 2.0** initiatives. The government should focus on creating a conducive environment for manufacturing by improving infrastructure, reducing regulatory hurdles, and providing financial incentives to MSMEs.
- **Encouraging Foreign Direct Investment (FDI):** Implementing investor-friendly policies, improving ease of doing business, and ensuring regulatory transparency. The

government should continue to liberalize FDI norms in key sectors like defense, retail, and insurance to attract more foreign investment.

- **Strengthening Agricultural Reforms:** Enhancing productivity through smart farming, precision agriculture, and agro-processing industries. The government should promote the use of technology in agriculture, such as drones, IoT, and AI, to improve crop yields and reduce post-harvest losses.
- **Enhancing Financial Inclusion:** Expanding banking services, digital transactions, and micro-financing to empower rural entrepreneurs. The government should focus on increasing the penetration of digital payment platforms in rural areas and providing financial literacy programs to rural populations.
- **Fostering Entrepreneurship and Startups:** Creating incubation hubs, funding support, and mentorship programs to nurture innovation-driven enterprises. The Startup India initiative should be expanded to provide more funding and mentorship opportunities to startups in emerging sectors like AI, blockchain, and renewable energy.
- **Developing Robust Logistics and Supply Chains:** Strengthening **transport networks, warehousing, and cold storage facilities** to boost industrial efficiency. The government should focus on developing integrated logistics parks and improving last-mile connectivity to reduce logistics costs.

4.2 Digital Transformation and Technological Advancements

- **Expanding AI, IoT, and Blockchain Integration:** Promoting AI-driven automation in governance, education, and industries. The government should establish AI research centers and promote the adoption of AI in key sectors like healthcare, agriculture, and manufacturing.
- **Enhancing Cybersecurity Infrastructure:** Strengthening data protection laws, digital security frameworks, and cybersecurity awareness programs. The government should establish a national cybersecurity agency to coordinate efforts to combat cyber threats and protect critical infrastructure.
- **Promoting Smart Cities and Digital Governance:** Expanding **e-governance, AI-driven urban planning, and digital citizen services** to improve administrative efficiency. The government should focus on developing smart city infrastructure, including smart grids, intelligent transportation systems, and digital public services.
- **Bridging the Digital Divide:** Expanding rural broadband access, enhancing digital literacy programs, and ensuring affordable technology for all. The government should focus on increasing internet penetration in rural areas and providing digital literacy training to rural populations.
- **Boosting Indigenous R&D Capabilities:** Establishing innovation hubs and public-private partnerships to accelerate technological progress. The government should increase funding for R&D and promote collaboration between academia, industry, and government to drive innovation.

4.3 Human Capital Development and Education

- **Reforming the Education System:** Incorporating **AI-driven learning modules, STEM-focused curriculums, and industry-oriented skill development programs**.

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The government should focus on modernizing the education system by integrating technology into the classroom and promoting experiential learning.

- **Enhancing Vocational Training and Skilling Programs:** Upskilling the workforce for Industry 4.0 with specialized training in **automation, AI, and robotics**. The government should expand vocational training programs and collaborate with industry to provide hands-on training in emerging technologies.
- **Strengthening Higher Education and Research:** Increasing government and private sector funding for world-class universities and R&D centers. The government should focus on improving the quality of higher education by promoting research and innovation in universities.
- **Fostering Global Collaborations:** Partnering with leading global institutions for knowledge exchange and research development. The government should promote international collaborations in education and research to enhance the global competitiveness of Indian universities.
- **Encouraging Women's Participation in the Workforce:** Promoting gender equality through workplace policies, financial incentives, and skill development initiatives. The government should focus on increasing the participation of women in the workforce by providing flexible work arrangements and promoting women's entrepreneurship.

4.4 Environmental Sustainability and Green Energy

- **Achieving Net-Zero Carbon Emissions:** Implementing large-scale renewable energy projects, afforestation programs, and sustainable industrial practices. The government should focus on achieving its target of net-zero carbon emissions by 2070 by promoting renewable energy and energy-efficient technologies.
- **Expanding Solar and Wind Energy Projects:** Accelerating the adoption of solar rooftops, wind farms, and hybrid energy solutions. The government should provide incentives for the adoption of renewable energy technologies and promote public-private partnerships in the renewable energy sector.
- **Encouraging Electric Mobility:** Promoting electric vehicles (EVs) through incentives, charging infrastructure, and battery innovation. The government should focus on expanding the EV charging infrastructure and providing financial incentives for EV buyers.
- **Strengthening Climate Resilience:** Implementing smart irrigation, water conservation techniques, and green architecture. The government should focus on promoting climate-resilient agriculture and sustainable urban planning to mitigate the impacts of climate change.
- **Developing a Circular Economy:** Encouraging **waste-to-energy solutions, plastic recycling, and sustainable consumption models**. The government should promote the adoption of circular economy principles by incentivizing waste recycling and promoting sustainable consumption.

4.5 Strengthening Governance and Policy Reforms

- **Improving Public Administration Efficiency:** Digitalizing government processes, increasing transparency, and reducing bureaucratic delays. The government should

focus on implementing e-governance solutions to improve the efficiency of public administration.

- **Enhancing Judicial Reforms:** Speeding up legal processes through AI-driven case management and judicial digitization. The government should focus on modernizing the judicial system by implementing technology-driven solutions to reduce case backlogs.
- **Ensuring Decentralized Governance:** Empowering state and local governments with more autonomy and financial resources for grassroots development. The government should focus on promoting decentralization by providing more financial and administrative powers to local governments.
- **Strengthening National Security and Border Management:** Implementing advanced surveillance systems, AI-driven intelligence, and cybersecurity enhancements. The government should focus on modernizing the national security infrastructure by adopting advanced technologies like AI and blockchain.

5. Conclusion

Viksit Bharat@2047 is a visionary goal requiring a **holistic and integrated approach**. This paper outlines a roadmap focusing on economic stability, technological advancements, sustainability, and governance to achieve this milestone. India must adopt progressive policies and leverage its demographic strength to emerge as a global powerhouse by 2047. By addressing economic challenges, embracing digital transformation, promoting environmental sustainability, and strengthening governance, India can achieve its development aspirations. **Collaboration among government, private sector, and citizens will be essential** to make Viksit Bharat a reality.

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