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22. EMERGING TECHNOLOGIES AND SUSTAINABLE DEVELOPMENT - AN ASSESSMENT

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ABSTRACT

India is aiming to become a developed nation by 2047, driven by infrastructure growth and technological innovation. Digital infrastructure is being built to ensure the advantages of the digital transformation reach all citizens. Technology is being used to make the tax system faceless and to solve problems encountered by taxpayers, while emerging technologies like 5G and AI are revolutionising industries and helping to assist the underprivileged.

India has set 2047 as the target year for economic development and is investing in democracy, inclusion, the world, and a better, cleaner, and safer earth. The budget for this year gives the infrastructure industry new life, and the Gati Shakti National Master Plan will revitalise India's infrastructure and multidimensional logistics. This research paper relies on secondary sources of data and statistical data for descriptive and diagnostic analysis. India needs to implement long-term structural reforms, give more traction to the service sector, become a global manufacturing hub, reduce human load on agriculture, realise the demographic dividend, usher in massive investment in health and education, broaden the progressive tax regime, eliminate gender disparities, and eradicate corruption to become a Developed Country. The study article examines the challenges and constraints facing the emerging technologies and sustainable development industry by 2047, which is essential for India's economic growth.

KEYWORDS

Infrastructure Growth, Technology, Digital Infrastructure, Technological Innovation, Emerging Technologies and Sustainable Development.

INTRODUCTION

India has equally created the objective of becoming a developed nation by 2047. The Indian economy must consistently expand at a rate of about 8% per year on average in order to achieve this objective. According to some financial organisations, the worldwide recessionary trends will also have an impact on India the following year. In terms of technological innovation and sustainable growth, India wants to lead the globe in 2047. The economy is driven by infrastructure growth, which will assist India in becoming a prosperous nation by 2047. As evidenced by the vast and cutting-edge digital infrastructure being built to guarantee that the advantages of the digital transformation reach all citizens, technology will assist India in achieving its goal of becoming a developed country by 2047. The Indian government has asked the business community to come up with an inventory of compliances that can be cut in order to lower the cost of staying compliant for small businesses. It wants to lower small companies' regulatory expenses. India is building a cutting-edge digital infrastructure and making sure that everyone gains from the digital revolution. To solve the issues that taxpayers encounter, technology is being used to make the tax system faceless. Technology is being used to bring about a qualitative change in the lives of Indian citizens. It used technology to make the tax system faceless and to solve problems encountered by taxpayers. Subsequently claimed that emerging technologies like 5G and Artificial Intelligence (AI) are dominating discussions right now and are set to revolutionise a number of industries, including health, agriculture, and

education. The Jan Dhan Yojana, Aadhaar, and Mobile Number Trinity are just a few of the ten issues that technology can help with to assist the underprivileged.

STATEMENT OF THE PROBLEM

Everyone, rich or poor, experiences a high standard of living and a high per capita income, making the system equitable. India stated that 2047 is the target year for economic development. Investing in India is an investment in democracy, inclusion, the world, and a better, cleaner, and safer earth. It also sheds light on India's thriving start-up ecosystem and, more specifically, the part that the government is playing to give it impetus. India has the third-largest startup ecosystem worldwide, behind the US and China. Numerous well-known start-ups are based in the city that is frequently referred to as the "Silicon Valley of India," including Ola, BYJU'S, Zerodha, Cred, Razorpay, and others. Bengaluru has built a reputation as a technology hub not just in India but also abroad. When someone thinks of technology, the first thing that comes to mind is Brand Bengaluru.

Government sources claim that there is a fusion of culture and environment, tradition and technology, stunning design, and thriving startups. The industry, information technology, fintech, biotech, start-ups, sustainable energy, and industry collectively consider it the biggest technology cluster in the world today. By 2047, India would have built its infrastructure and become a developed country. States have been urged to place the highest priority on modern infrastructure. Highlighting the fact that infrastructure development was the engine propelling the economy and that by taking this course, India would reach its objective of becoming a developed country by the year 2047. The budget for this year gives the development of the infrastructure industry new life. The Gati Shakti National Master Plan, which asserts that infrastructure development has always been a crucial pillar in the progress of a country's development and urges the states to give modern infrastructure the utmost importance, will revitalise India's infrastructure and multidimensional logistics. National highway building has increased by almost two times annually on average since

2014.

Unfortunately, contemporary infrastructure did not receive the necessary attention after Independence. More talented youth will volunteer to work if the infrastructure is better. As a result, it ought to emphasise entrepreneurship, project development, and talent development. It needs to concentrate on forecasting talent demand in addition to physical infrastructure. It also exhorted all branches of government to work on improving infrastructure. Infrastructure development paves the path for a nation's expansion on its own. Additionally, it was mentioned that the government was trying to build cutting-edge infrastructure in all sectors, including roads, railways, ports, and airports. It would lower the cost of logistics while boosting company competitiveness. India will need to achieve this goal by continuing structural reforms, gaining more momentum in the services sector, and developing into a hub for global manufacturing. India will surpass Germany and Japan to become the third-largest economy in the world by fiscal year 2028, according to the World Economic Outlook index of the International Monetary Fund.

According to the report, India's economy will expand to \$5.36 trillion by fiscal year 2028, outpacing Japan's \$5.17 trillion in that year. This is not shocking to anyone who has followed India's development. The more intriguing question is whether India will achieve development by 2047, the year it marks 100 years since regaining independence from oppressive British control. On the Indian peninsula, there was an imperial period. According to British economist Angus Maddison, it controlled the global economy between 1000 AD and 1700 AD. It generated slightly more than a quarter of the global GDP in the year 1000 AD and slightly less than a quarter between the years 1500 and 1700 AD. It beat both China and Europe with a Gross Domestic Product that comprised 24.4% of the global economy in 1700. The definition of Developed Country is crucial. Low-income, lower-middle-income, upper-middle-income, and high-income nations are categorised by the World Bank. India is presently categorised by the World Bank as a lower middle-income

economy, which refers to nations with a GNI per capita of between \$1,086 and \$4,255. According to the World Bank's definition, a nation is deemed higher-income if its per capita yearly income is over \$12,000. India hopes to achieve this status by 2047. A developed nation has a relatively high rate of economic development, high standards of living, a higher per-capita income, and performs well on the Human Development Index (HDI), which measures factors like health, education, and literacy. In light of the aforementioned, the study article concentrates on evaluating theoretical perspectives on emerging technologies and sustainable development, as well as the challenges and constraints this industry currently faces by 2047, when it is anticipated that fostering this sector will be crucial for India's economic growth and supporting this sector will be essential for India's growth. The research article raises a significant, urgent, and timely problem that is relevant from a social, political, and economic standpoint when taking this context into account. The study paper's topic is clear just from the title, and it is investigated thoroughly.

METHODOLOGY OF THE STUDY

This research paper mainly relies on secondary sources of data and statistical data for the descriptive and diagnostic analysis. Secondary information and statistical data can be gathered from a variety of sources, including books, unofficial records, journals, newspapers, websites, and private sources. Little study and effort are needed when using these websites.

OBJECTIVES OF THE ARTICLE

The main objective of this paper is to evaluate theoretical viewpoints on emerging technologies and sustainable development, as well as the difficulties and limitations this industry currently faces by 2047, when it is anticipated that fostering this sector will be crucial to India's economic growth.

Review of Literature

According to Ahmad, A., et al. (2021), the Internet of Things (IoT) is a technological advancement that seeks to combine the real world with the digital world to make it smarter. As a solution to the problems caused by rapid urbanisation and city population growth,

smart cities are beginning to emerge. This editorial provides a summary of the current big data-based smart city, smart building, smart healthcare, and intelligent transit systems. According to Ludovico de Almeida et al. (2013), the future of industries will be shaped by emerging technologies based on biotechnology, nanotechnology, information and communication technologies (ICT), and green chemistry, sparking discussions and revisions of regulatory frameworks and corporate business models. This study looks at these industries' evolutionary trajectories over a 20-year period.

According to Sung, A., et al. (2020), the goal of sustainable development is to satisfy current requirements without jeopardising the capacity of future generations to satisfy their own needs. This article examines the use of technology to support education for sustainable development, with a particular emphasis on persuasive design and gamification, sense-related technology and wearable technology, and the use of technology to assess changes in human behaviour. The creation of novel desalination methods for brackish and seawater is examined by Bhagwati, A., et al in 2023, with a focus on solar energy. It describes sun desalination, why it is carried out, and the methods that can be applied to make it more organised and cost-effective. It offers a thorough analysis of both direct and indirect solar systems, as well as technical information unique to each plant. Additionally, it analyses the factors that affect each desalination technology's expense as well as its economic viability.

FUTURE CHALLENGES

- The path to becoming a developed nation by 2047 is fraught with obstacles, and India must overcome seemingly impossible obstacles. According to the UN State of the World Population Report 2022, India will dethrone China as the world's most populous nation in 2023. Despite the fact that India has surpassed Britain as the fifth-largest economy in terms of GDP, its per capita GDP of \$2,466 in nominal terms in 2022 and \$8,293 in Purchasing Power Parity (PPP) terms in 2022 places it at 142nd nominally and 125th in PPP terms globally. India not only lags behind

Bangladesh, but its per-capita GDP of \$2,277 in 2021 lags behind China (\$12,556.3), the United States (\$69,287.5), and the United Kingdom.

- A hungry country cannot be a developed one. According to the most recent Global Hunger Index (2022), India ranks 107th out of 121 nations, with a score of 29.4. Despite our protests about the small sample size and anti-India bias, India ranking lower on the Global Hunger Index (GHI) than Nepal, Bangladesh, Sri Lanka, Pakistan, Rwanda, Burkina Faso, and Sudan does not augur well for India's ambitions to be a global economic powerhouse.

- According to the World Inequality Report 2022, India is one of the most unequal countries in the world, with the lowest half of the population earning Rs 53,610 and the top 10% earning 20 times that at Rs 11,66,520. Unsurprisingly, while the top 10% control 57 percent of national revenue and the top 1% control 22 percent, the bottom 50% control 13 percent. Such glaring inequality must be addressed aggressively if India is to become a developed nation within the next 25 years.

- India ranks 132nd out of 191 nations in the UN Human Development Report (2021–22). The HDI is a useful tool for tracking growth in three key areas of human development, including access to education, a long and healthy life, and a reasonable standard of living. To put things in perspective, India currently has an HDI score of 0.64, which is considerably lower than any developed nation's score did in 1980. China's HDI level was 0.64 in 2004, but it took the country another 13 years to get to 0.75, which was the UK's HDI level in 1980. India wants to ride the unprecedented demographic dividend to the status of Developed Nation, but there is a chance that this demographic dividend will become an unmitigated demographic catastrophe.

- Regardless of major advances in literacy, India still has the largest population of illiterates in the world, with a literacy rate of about 25%. Furthermore, the country is burdened by millions of educated people who are unemployed despite a significant quantitative rise in education. India must focus on providing high-quality education and quickly end ignorance. To grow, India needs to have a

sizable population of educated workers.

RECOGNIZING INDICATIONS

India has a history of achievement, which shows that it can overcome these challenges. Hope for India's future can be found in the country's transition from a battered and battered economy in 1947 to the fifth-largest in 2022. India will benefit from the economic headwinds that are crippling developed countries and slowing China's growth, even if it routinely experiences growth at the new-normal rate of 6.5 to 7 percent. India's economy will need innovation to change, and its rise in the Global Innovation Index 2022 from 81st place in 2015 to 40th place now is an optimistic indication of the things lies future. Furthermore, when the Competitiveness Roadmap for India in the 100th year is strictly adhered to, achieving \$10,000 per capita income and India becoming a \$20 trillion economy by 2047, with commensurate sustainable Human Development Index growth, are entirely achievable objectives.

CONCLUSION

By 2047, India hopes to be a developed country thanks to its expanding facilities and cutting-edge technology. To guarantee that all citizens can benefit from the digital transformation, digital infrastructure is currently being built. Emerging technologies like 5G and AI are revolutionizing sectors and assisting the underprivileged, while technology is being used to make the tax system faceless and to solve issues faced by taxpayers. India has established the year 2047 as its goal for economic growth and is making investments in the world, democracy, inclusion, and a better, cleaner, and safer earth. The Gati Shakti National Master Plan will revitalize India's infrastructure and multidimensional logistics, and the budget for this year breathes fresh life into the infrastructure sector.

Many people did not believe that India could become a \$5 trillion economy up until recently, but regardless the two years lost due to COVID-19, India will going to achieve that goal by Fiscal Year 2027. In a comparable manner in order to become a Developed Country, India will need to implement long-term structural reforms, give more traction to the service sector, become a global manufacturing hub, reduce human load on agriculture, realise

the demographic dividend, usher in massive investment in health and education, broaden the progressive tax regime, eliminate gender disparities, and eradicate corruption. India requires to make internal modifications that will enhance the standard of life there, like restructuring the healthcare system to put more of an emphasis on primary care facilities. India requires reforms to raise the standard of living for the vast majority, with slower growth for the poorer classes. To succeed internationally and assume leading roles, India must carry out reforms. It can set up a mechanism to provide more resources to less fortunate groups. To become a Developed Country, India must carry out long-term structural reforms, give the service sector more momentum, establish itself as a hub for global manufacturing, reduce the human burden on agriculture, realize the demographic dividend, usher in massive investments in health and education, expand the progressive tax system, end gender disparities, and eradicate corruption. The research article looks at the difficulties and limitations that the sector of sustainable development and emerging technologies will face by 2047, which is crucial for India's economic development.

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