ENERGIZING VIKSIT BHARAT: ENERGY SECURITY AND GREEN GROWTH DIPLOMACY FOR SUSTAINABLE DEVELOPMENT

Ankit
Research scholar,
Department of Gandhian Thought and Peace Studies,
School of Social Science, Central University of Gujarat, Kundhela,
Email Id: ankit.bu10@gmail.com

Jatin Baswal
M.A. Student,
Department of Gandhian Thought and Peace Studies,
School of Social Science, Central University of Gujarat, Kundhela,
Email Id: baswaljatin3@gmail.com

Abstract:

As India embarks on its journey to become a viksit Bharat (developed nation) by 2047, energy security and green growth diplomacy have emerged as cornerstones of development. The government has launched various schemes aimed at promoting renewable energy, enhancing grid stability and reducing CO2 emissions. These initiatives include the *National Bio-Energy Mission (2022), National Green Hydrogen Mission (2023), PM-Kusum (2019), PM Surya ghar muft Bijli yojana (2024)* (Ishwar, 2024), reflecting the nation's commitment to a cleaner, renewable, and self- reliant energy future. This paper highlights that India's initiative must align with global sustainability commitments and leverage its diplomatic engagement to secure sustainable energy partnerships. This includes access to critical minerals, technology transfer and renewable energy investment through bilateral and multilateral agreements. It also addresses challenges that are reducing its pace and effectiveness such as lack of technical and green awareness among people, extreme price volatility, geopolitical tensions and low indigenous innovations leading towards a gap between government's initiatives and its desired outcome. As a solution paper focuses on making people centric policies and therefore making people develop ***Viksit Janta*** which would enable people to utilise the outcomes of government schemes and ultimately that would lead to developed India i.e. viksit bharat.

Introduction:

The viksit Bharat @2047 initiative aims to make India a developed nation by its centenary of independence in 2047. Sustainable development through prioritizing cleaner energy growth, new jobs in energy sectors, reduction in imported fossil fuels, strengthening energy security, lowering its carbon footprint and just transition framework are key roadmap for powering the goal of viksit Bharat (ISHWAR, 2024). Role of diplomacy and international cooperation cannot be neglected; it plays significant role in fostering global agreements and receiving desired assistance from developed countries and international organisation (i.e. Paris agreement and Kyoto protocol) for building suitable environments such as hydrogen infrastructure, green technology and reducing greenhouse gas emissions. More importantly, at the national level India needs sustainable politics that reflect balance between economic growth and environmental integrity. Which is crucial for the survival of both the current demographic and future generation. Thus, these two policy sectors can be compatible and both must aim to build "human capital" along with environmental consciousness for a prosperous human life (Ishwar, 2024).

Above all, green policies must be fundamentally job-oriented to ensure a just and equitable transition to a sustainable economy. The focus on "green jobs" is not merely an

idealistic goal but a vital strategy for multiplying economic opportunities across India. In fact, robust data estimates highlight India's immense potential to generate a staggering 35 million green jobs by the significant milestone year of 2047. This forecast underscores the transformative scale of the net-zero transition. More critically, for this potential to be realized, the government must proactively and substantially encourage the development and proliferation of essential green skills across the workforce. These indispensable skills include, but are not limited to, specialized expertise in renewable energy management (covering installation, maintenance, and operation of solar and wind energy systems), advanced waste management and recycling techniques (moving towards a circular economy model), regenerative agriculture practices (focused on soil health and sustainable food production), and comprehensive climate change adaptation skills (preparing communities and infrastructure for climate impacts). Investing in these specific skills is the critical enabler that will make India's ambitious net-zero transition not only achievable but also a powerful engine for national economic growth and job creation.

India has become the world's 4th largest country in terms of installed renewable energy capacity; solar capacity has been increasing rapidly and an unprecedented low solar tariff of Rs 1.99 per unit has been achieved. The global biofuel alliance, initiated by India, is at the forefront of using sustainable biofuels worldwide (Singh & Kumar, 2025). The government, through the National *Institute of wind energy (NIWE)***,** has installed over 800 wind-monitoring stations across the country. As of January 2025, India's cumulative wind power capacity stands at 48.16 GW making it 4th largest global installed wind power capacity (Singh & Sadhanandan, 2025) following China, the United States and Germany also, India's *Gobardhan scheme* is promoting waste-to-energy solutions, converting agriculture waste to biogas and compost. Moreover through the '*PM Kusum Scheme*, India is empowering farmers with solar energy solutions. At the same time***, the one sun, one world, one grid*** initiative plans to develop a global grid for solar energy, encouraging sustainable growth on the world map (Sahoo & Vardranam, 2024).

Beyond these structural energy challenges, a significant disconnect exists between the nation's push for sustainable economic growth and the level of public awareness and preparedness. This gap renders a large segment of the population incapable of fully capitalizing on, or contributing to, the desirable outcomes of this growth. This challenge is starkly illustrated in the **Sustainable Development Report 2024**, where India ranks 109th out of 166 countries, with a score of 63.99. This ranking unequivocally signals that considerable and persistent challenges remain across the spectrum of the 17 Sustainable Development Goals

(SDGs). Key areas of concern often include clean energy access, climate action, and building sustainable infrastructure.

Furthermore, the current pace of innovation, particularly in sustainable energy technologies and citizen-centric solutions, remains limited. This stagnation forces a critical examination of the fundamental premise of national development. It poses the profound question: can the vision of a *Viksit Bharat* be realized without first cultivating a *Viksit Janta*? The lack of widespread innovation and public engagement suggests that **Viksit Janta, a citizenry** that is informed, engaged, and capable of driving and sustaining growth, must be the essential forerunner and prerequisite for achieving the ambitious goal of **Viksit Bharat**. This necessitates a shift in focus from merely achieving macroeconomic targets to fostering a truly energy-literate and sustainably-aware society. (Dreze & Sen, 2013).

Concept of Sustainable Development

It seeks to achieve calculated needs of the present without compromising the ability of future generations to meet their own needs. In a broader sense the question of sustainable development starts with ***sustainability of lifestyle*** which is further based on human behaviour and their empirical knowledge regarding the subject, these imply prevention of energy loss, plantation, minimal use of emission non-compliant vehicles, proper waste management and meaningful use of human and natural resources etc. Environmental sustainability requires green policies ***(Green India Mission, Ecomark Scheme, Green Credit Program)*** that seek to balance environmental goals while considering economic objectives by mitigating environmental harm. In fact, as per current data *India is probably the 3rd largest CO2 emitter in the world, after China and the United States*. Therefore, certain measures have to be taken which include shifting towards a low **carbon economy** where economic activities generate minimal carbon emission (Lee and Thompson,2021). Moreover, the sustainable development goals ***(SDGs)*** include many other aspects as a part of the 2030 agenda for sustainable development (Schwab, 2018).

Sustainable Development via Renewable Energy

Renewable energy sources such as wind, solar, hydroelectric and geothermal power etc are part of sustainable energy which is regenerative in nature. And have a lower environmental footprint compared to fossil fuel. In fact, through transitioning to renewable energy, the government aims to reduce carbon emissions and mitigate the effect of global warming (brown,2021). India is having the 3rd position in renewable energy country attractive index in the year 2021. but now we can see slight reduction in its ranking, seventh in June 2024. Due to policy implementation challenges and fragile financial health of companies.

The government initiatives such as the national green hydrogen mission launched in January 2021, aimed at transitioning India towards a hydrogen-based economy by developing Indigenous technology which would reduce India's dependence over other nations for fossil fuel and feedstock (Sethi, 2015). In fact, with over 8 lakh crore rupees in total investment green hydrogen capacity is expected to reach 5 million metric tons by 2030. And expected to create 6 lakhs jobs by 2030, it has potential to decarbonate hard to abate sectors such as transportation, shipping and heavy industries etc. under the scheme of ***National Solar Mission*** government of India had launched various schemes to encourage generation of solar power in the country came up with idea like *solar park scheme* (country is having 57 solar parks by 2024, with a sanctioned capacity 39.28 GW). And rooftop solar installations. Therefore, total installation of renewable energy Of approx. 60.4 GW made India 4th ranked country in 2021 overtaking Germany for the First time Waste to energy programme the ministry of new and renewable energy ***(MNRE)*** To support projects that generate energy from diverse waste sources India has installed a Total of 14 waste to energy plants having capacity of 5.7 gigawatts (Rifkin, 2019).

Energy security as a step towards self-reliant India

"Energy security is not less than defending the country's overall growth**". *The International Energy Agency (IEA)*** defined it as making energy available to people at an affordable cost. India's electrical sector is more coal dominant which fulfills 55% of the country's energy needs with coal based power plants generating approximately 74% of the country's electricity requirements (PIB, 2023). In fact, India is also the third largest electricity producer and consumer in the world. However, a reliable electricity supply for many consumers is yet lacking in India (Mehta & Chattopadhyay, 2023). For instance, a study by the ***Council on Energy, Environment and Water (CEEW)*** revealed that 76% of households faced unexpected supply interruptions (Ishwar, 2024).

India's recent announcement about its aim to reach Net zero emission by 2070 and to meet 50% of its electricity requirements from renewable energy by 2030 have huge significance to combat problems of climate change (IEA,2022). Thus, India's energy security can be seen in terms of fulfilling 3A's- **Availability, Accessibility and Affordability** (Rifkin, 2019). Moreover, India's energy sector reforms such as promoting foreign Investment by allowing 100% foreign direct investment (FDI) in the Renewable energy sector has been fundamental in the inclusion of private Capital in building India's energy infrastructure (Mehta & Chattopadhyay, 2023), advancing the power and gas market, shifting towards solar panel use at homes, offices, educational institutions, off-grid electrification, diversification of crude oil imports, strategic petroleum reserves, use of biofuels to find alternative fuels, with natural

gas as a substitute for petrol, ethanol playing a pivotal role in leading towards lower crude oil import. In fact, the Indian government is committed to advance the target of 20% ethanol blending in petrol till 2030 (William, 2021). and meaningful use of domestic minerals like nickel, cobalt and copper for building solar panels, EVs, wind turbines and batteries. These steps aimed at making India a reliable partner at the global stage (Sharma & Joshi, 2020).

Green Diplomacy in India's Way

Since the scope of environmental challenges go beyond the territorial affairs of a nation, the role of diplomacy and international cooperation become crucial to deal with issues like climate change, biodiversity loss, pollution and sustainable development (Adams, 2005). which further involves negotiations, treaties and collaborations among nations thus green diplomacy acts as a key to foster these ties. In fact, its willingness to host the 33rd conference of parties (COP33) in 2028, highlights India's commitment to global cooperation on environment issues. Actions such as ***Green Credit Initiative*** joint initiative with other countries, that rewards individuals and organisations for undertaking environmentally beneficial actions with tradable credits to promote sustainable development which consolidate India's commitment to collective climate action across various sectors. In fact, India's national grid interconnects Bhutan, Bangladesh, Myanmar and Nepal. Now India plans the Indian national grid into a transformational grid by expanding it to Vietnam and Saudi Arabia to encourage carbon neutral solar power generation (Sen, 2022).

India's rise as the fastest developing nation has positioned it as the leading voice and an emerging leader of the Global South. As such, India strongly advocates for the unique needs and differentiated position of the least developed countries in meeting global sustainable development goals. This commitment is embodied in India's green diplomacy, which is reflected by the **Just Climate Framework,** and its foundation in the principle of "common but differentiated responsibilities."

Moreover, international platforms like G20, BRICS. Provide meaningful opportunities for India to not only follow global agreements but also put forward its requirement and plan towards cleaner energy. In fact, the 2023 G20 presidency with the theme of "vasudhaiva kutumbakam" (one earth, one family, one future) and initiatives such as "Green Development Pact for a Sustainable Future" reaffirming the goal of 2015 Paris agreement, i.e. strong, sustainable, balanced and inclusive models like- "*MISSION LIFE" or "LIFESTYLE FOR ENVIRONMENT","LEAVE NO ONE BEHIND"* demonstrate India's practical focus on climate action (Mor & Das, 2023).

Thus, recently "Delhi Declaration"(G20, 2023) has proved India's leading role in the global south, however achieving approval of the G20 member countries on a need for an annual investment of over $4 trillion for energy transition where leaders recognized that developing countries will need $5.8-5.9 trillion in the pre-2030 period to achieve nationally determined contribution (NDCs), along with $4 trillion per year for clean energy technology by 2030 to reach net zero emission by 2050. Resonate India's potential for the same.(Elkahwagy et al., 2017) This substantial financial requirement underscores the imperative for innovative financing mechanisms and international collaboration to facilitate India's green growth trajectory (Mor & Das, 2023).

Challenges in The Path

Green colonialism is an emerging impediment, due to higher global inequality in terms of resources and because of limited financial back up developing countries are compelled to follow policies that are being biased with western interest, consequently leading towards new types of colonialism that can also be termed as *soft colonialism*. Moreover, lack of indigenous innovation, dependency on foreign technology for environmental monitoring systems, like satellite imagery and climate monitoring etc. However, the gap between citizen's capability and development growth makes people devoid of availability, accessibility and affordability.

In fact, India is off target on 19 out of 33 SDGs indicators, particularly in areas like ocean to basic services, child nutrition, anaemia, child marriage, partner violence, tobacco use and SDG2(zero hunger) (PIB, 2023): the national average score is 52 out of 100, with states like Bihar scoring as low as 24, indicating severe challenge in eradicating hunger. More importantly gender inequality SDG5 (gender inequality) the national average score is 49 out of 108, with Odisha scoring the lowest at 39, reflecting significant issues in achieving gender equality and empowering women. Most importantly, growing unemployment among youth is a major challenge (PIB, 2023), (Mor & Das, 2023).

From Viksit Janta Towards Viksit Bharat

Viksit Janta is a developmental idea that represents a bottom-up approach to actualise the goal of Viksit Bharat. In other words, make people an engine of growth rather than a passive spectator of development. Following steps can be taken to make people viksit (develop) holistic development, social wellbeing, overall quality of life, education and skill development and social welfare are keys (Mor & Das, 2023). If Viksit Bharat is a goal, then Viksit Janta must represent the aspiration of it. However, sustainability of education, innovation, investment, health and employment are key to having Viksit Janta '*developed people'*. (Padder, 2023).

In addition, viksit Janta does not simply comprise economic progress though it plays substantial role in terms of increasing per capita income, consequently purchasing power of the people. But on the other hand, we need to have a coherent civil society, where people are aware, knowledgeable and more rational (Mor & Das, 2023). However, Viksit Bharat by 2047, is a future oriented goal which requires younger population to accelerate this, favourably India is having approximately 27.2 to 27.3% of its total population aged 15-29 years (roughly 345-371) million people (PIB, 2023), thus government's primary focus must be the empowerment of youth by making them more capable to have that aspiration toward making India a developed nation. This demographic dividend, combined with strategic investments in education and skill development, presents an unprecedented opportunity to drive innovation and economic progress (Padder, 2023).

Conclusion

India is making commendable progress in renewable energy and sustainable development through its green diplomacy, with data indicating positive trends. According to a Central Electricity Authority (CEA) estimate, the share of renewable energy generation is projected to increase significantly from the current 18% to 44% by 2030, while thermal energy generation is expected to decrease from 78% to 52% (PIB, 2023). Despite challenges, India clearly has the potential to achieve energy security and foster green development. However, realizing this potential must be tied to the goal of "Viksit Janta" (developed people). Ultimately, achieving the desired outcomes of a "Viksit Bharat" (developed India) necessitates aligning developmental policies with the needs of its citizens, ensuring that growth is reflected in the lives of the people.

REFERENCE

- Adams, W. M. (2005). Green development theory?: Environmentalism and sustainable development. In Power of development (pp. 85-96). Routledge.
- Andaish QIAMUDDIN, Dumitru Alexandru BODISLAV, Vansiya N. YOGESH. (2026). Human development inequality within and between selected SAARC countries using Mean Log Deviation MLD. Theoretical and Applied Economics Volume XXXIII (2026), No. 1(646), Spring, pp. 19-38 Available at: https://store.ectap.ro/articole/1891.pdf
- Bloom, D., Canning, D., & Sevilla, J. (2003). The demographic dividend: A new perspective on the economic consequences of population change.
- Drèze, J., & Sen, A. (2013). Uncertain glory: India and its contradictions. In An uncertain glory. Princeton University Press.

- Hess, D. J., & Gentry, H. (2019). 100% renewable energy policies in US cities: strategies, recommendations, and implementation challenges. Sustainability: Science, Practice and Policy, 15(1), 45-61.
- Ishwar, D. (2024). Viksit Bharat@ 2047: A vision for India's sustainable development. THE SCIENTIFIC TEMPER Учредители: The Scientific Temper, 15, 53-58.
- Kaushik, C. (2025, Oct 04). Environmental Geopolitics: India's Role in Global Climate Negotiations and Green Partnerships. IMPR. https://www.impriindia.com/insights/indias-role-in-climate-negotiations
- Mehta, S., & Chattopadhyay, S. (2023, July-December). Impact and Policy Research Review (IPRR). IMPRI Impact and Policy Research Institute, 2(2). https://iprr.impriindia.com/wp-content/uploads/2024/02/IPRR-V2I2-July-December-2023.pdf
- Mor, S., & Das, M. (2023). G-20 and Sustainable Development: A Way Forward. Space and Culture, 11(2), 1-5. https://doi.org/10.20896/saci.v11i2.1425
- Padder, A.H. (2023), 'Viksit Bharat@2047', ResearchGate, Retrieved, from https://www.researchgate.net/publication/37667936
- PIB (2023), 'Viksit Bharat Sankalp Yatra gets massive public response', Press Release, Retrieved, from https://www.pib.gov.in/PressRelease/framePage.
- Rifkin, J. (2019). The green new deal: Why the fossil fuel civilization will collapse by 2028, and the bold economic plan to save life on earth. Macmillan+ ORM.
- Sahoo, J., & Vadranam, S. (2024). Viksit Bharat@ 2047 transformation of society: Vision and accomplishments. International Journal of Political Science and Governance, 6(1), 79-83.
- Sathaye, J., Shukla, P. R., & Ravindranath, N. H. (2006). Climate change, sustainable development and India: Global and national concerns. Current science, 314-325.
- Schwab, K. (2018). The Global Competitiveness Report 2019 (World Economic Forum, 2019). https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf
- Sethi, S. P. (2015). An Uncertain Glory: India and its Contradictions, by Jean Drèze and Amartya Sen. Princeton, NJ: Princeton University Press, 2013. 448 pp. ISBN: 978-0691160795. Business Ethics Quarterly, 25(2), 275-278.

- Vansiya, Y. N. (2008). Exploration of human development in Surat. *Vishleshan: Bi-Annual Refereed Journal of Research & Readings in Economics*, 44(Oct–Dec), 40–50. https://www.worldcat.org/issn/09736891
- Vansiya, Y. N. (2013). Sustainable agricultural development concept: Questions and challenges. *Vishleshan*, 39(1), 91–102.
- Vansiya, Y. N., & Sharma, S. (2021). Importance of economic and social well-being measures for rural India: Evidences from Dadra and Nagar Haveli. *IDEES: International Multidisciplinary Research Journal*, 7(1), 65–79. https://drive.google.com/file/d/1vi_PtP9UZPnh5Xi21mRGI4ukU-fvsurF/view
- Vansiya, Y. N., & Andaish, Q. (2025). A comparative analysis of development in SAARC countries in the relation of sustainable development – Taxonomic analysis. *Theoretical and Applied Economics*, 32(2[643]), 53–70. https://store.ectap.ro/articole/1831.pdf