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India's Inclusive Wealth: A Pathway to Sustainable and Equitable Development

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Abstract

Traditional economic indicators like Gross Domestic Product (GDP) offer a limited view of national prosperity, primarily measuring economic output without accounting for the underlying capital assets that generate well-being. Inclusive Wealth (IW) provides a more comprehensive framework by valuing a nation's produced, human, and natural capital, offering a critical lens for assessing long-term sustainability and intergenerational equity. For India, a rapidly developing economy, understanding its inclusive wealth is paramount. Analysis reveals that while India has achieved significant growth in produced capital and maintained a relatively stable human capital base, this progress has often come at the cost of declining natural capital. This report details the concept and calculation of inclusive wealth, examines India's historical trends from 1990 to 2019, and outlines strategic policy recommendations to foster a truly sustainable and equitable development path, ensuring prosperity for current and future generations.

1. Introduction: Beyond GDP – The Imperative of Inclusive Wealth

1.1 Defining Inclusive Wealth and its Core Components

Inclusive wealth (IW) represents the aggregate value of all capital assets within a given region, encompassing human capital, social capital, public capital, and natural capital.[1] It functions as a versatile indicator, capable of assessing not only conventional wealth stocks but also intangible yet crucial assets such as educational attainment, skill sets, healthcare infrastructure, and the vital services provided by ecosystems that underpin human progress and well-being.[1]

The Inclusive Wealth Index (IWI) framework typically quantifies and aggregates three primary capital components: Produced Capital (also known as manufactured capital), Human Capital, and Natural Capital.[1] Produced Capital includes tangible physical infrastructure and assets like roads, buildings, machinery, and equipment that are essential for economic production.[1] Human Capital, a critical element, encompasses the collective knowledge, education, skills, health, and aptitudes of a population, all of which are indispensable for productivity, innovation, and overall societal flourishing.[1] Natural Capital comprises both renewable resources, such as agricultural land, forests, and fisheries, and non-renewable resources, including fossil fuels (oil, coal, natural gas) and minerals.[1] While social capital—encompassing trust, community strength, and institutional efficacy—is conceptually a component of wealth, the current IWI methodology does not directly measure

it, often considering its influence embedded within other capital types due to inherent measurement complexities and data limitations.[1]

A fundamental distinction in economic measurement lies between GDP, which captures economic flows, and Inclusive Wealth, which assesses capital stocks.[3] This is not merely a definitional difference; it represents a critical shift in how national prosperity is understood. Relying solely on a flow-based metric like GDP can create an illusion of short-term prosperity, as it fails to account for the depletion of foundational capital assets, particularly natural resources, which are essential for future generations' well-being.[1] Therefore, the transition to a stock-based measure provides a more robust framework for assessing true sustainability and intergenerational well-being.[5] This approach directly addresses the question of whether current development pathways enable future generations to meet their own needs.[1]

1.2 Why Inclusive Wealth Matters for India's Sustainable Future

Conventional economic measures, most notably Gross Domestic Product (GDP), are increasingly recognized as insufficient for accurately gauging a nation's progress and long-term sustainability.[3] GDP, while widely used, possesses significant limitations. It overlooks non-monetary transactions, fails to account for environmental degradation and resource depletion, and can mask issues of income inequality.[4] Consequently, economic output can appear to grow robustly even as the fundamental assets supporting societal well-being are eroded.[3]

In contrast, inclusive wealth offers a more comprehensive and holistic picture of a nation's prosperity by integrating the value of all three critical forms of capital: manufactured, human, and natural.[3] It is specifically designed to provide countries with a tool to assess whether their development trajectory is truly sustainable, thereby ensuring that future generations can meet their own needs.[1] For a nation as diverse and socio-economically complex as India, adopting the inclusive wealth approach is particularly vital, as it facilitates a more nuanced and comprehensive analysis of wealth and development than traditional accounts.[10] This framework signifies a crucial paradigm shift that explicitly values sustainability and inclusive well-being alongside conventional economic activity and developmental progress.[10] The IWI serves as a complementary metric to GDP, acting as an important instrument for measuring progress towards sustainable development and guiding policymakers in decisions that align with planetary boundaries.[1] It provides unique perspectives on trade-offs and synergies between different capital types, helping to address critical policy questions concerning consumption patterns and the long-term viability of current well-being.[5]

The concept of inclusive wealth is deeply rooted in the ethical principle of intergenerational equity.[4] This principle underscores the moral obligation to manage resources and foster development in a manner that does not compromise the ability of future generations to meet their own needs. For India, a nation undergoing rapid economic development while simultaneously confronting significant environmental degradation and social challenges,

this ethical dimension is not merely theoretical; it is profoundly practical. It necessitates a shift in focus from short-term economic gains to the long-term, equitable well-being of its populace across generations. Inclusive Wealth transcends being merely an economic metric; it embodies an ethical framework that ensures current development pathways are not achieved at the expense of depleting the foundational assets necessary for the well-being and productive capacity of future generations.[4] This ethical foundation provides a compelling rationale for integrating IW into national policy and planning, especially for India, encouraging a more responsible stewardship of all forms of capital, recognizing that the ultimate purpose of an economy is societal well-being, not just economic output.[1]

2. Methodology of Inclusive Wealth Calculation

2.1 The Conceptual Framework and Shadow Prices

The calculation of the Inclusive Wealth Index (IWI) is fundamentally based on aggregating the social worth of each capital type within a country.[5] The underlying conceptual framework defines inclusive wealth, denoted as W(t) at a given time

t, as the sum of the value of all capital assets: $W(t) = \sum p_i(t) K_i(t)$, where $p_i(t)$ represents the marginal shadow price (or marginal value) of asset *i* at time *t*, and $K_i(t)$ is the quantity or stock of asset *i*.[1]

Shadow prices are a central and critical component of the IWI calculation, particularly for natural capital, as they represent the estimated value of goods or services that do not have a readily observable market price.[1] These shadow prices effectively act as weights attached to each type of capital, allowing for their aggregation into a single monetary measure of wealth.[1] For non-renewable resources (e.g., oil, coal, minerals), the unit shadow price is typically derived as the price net of extraction cost, often referred to as the rental price.[1] For renewable resources like agricultural land, the shadow price is computed as the net present value of the annual flow of services per hectare.[1] For timber, it involves multiplying forest area by density and commercially available volume, then applying weighted average prices and regional rental rates.[1] Non-timber forest benefits are valued by translating unit benefits from ecosystem service databases into capital asset value using net present value.[1] For human capital, the methodology often proxies its value based on the return on formal education (e.g., an assumed rate of return of 8.5% on average years of schooling) and lifespan as a proxy for health-related human capital, with its shadow price being the value of a statistical life year.[1]

The IWI calculation also incorporates adjustments to account for factors that influence wealth and social well-being but are not directly covered by the official capital assets. These adjustments include carbon damage (allocated based on a country's potential effect on global warming), oil capital gains (reflecting wealth growth from fluctuating oil prices), and Total Factor Productivity (TFP), which measures residual contributions to social well-being.[1]

The theoretical elegance of Inclusive Wealth calculation is often constrained by practical challenges related to data scarcity, data quality, and the inherent difficulties in assigning

robust "social prices" or shadow prices, especially for non-market environmental assets and services.[1] "Defining the boundaries of each capital type, and assigning them social prices proves to be a much bigger challenge".[5] This difficulty stems from inherent challenges in measuring certain assets, as well as limitations in data availability and comparability across different countries and time periods.[1] The application of shadow prices, particularly for natural capital, can be controversial due to existing knowledge gaps in accurately representing the production functions of ecosystems.[1] This implies that while the IWI is conceptually robust, its empirical application relies on a set of assumptions and proxies that introduce a degree of uncertainty and subjectivity. These methodological complexities necessitate continuous research and development in natural capital accounting and valuation. Policymakers should be aware of these limitations when interpreting IWI results and should advocate for increased investment in statistical capacities and data infrastructure to improve the accuracy and comparability of future IW assessments. The call for convergence and standardization in national accounts, akin to GDP, is a relevant long-term goal.[9]

2.2 Illustrative Calculation Example: A Simplified Approach

To provide a clear understanding of how the Inclusive Wealth Index is calculated, a simplified, hypothetical example is presented. This illustration demonstrates the aggregation of the three primary capital types—Produced Capital, Human Capital, and Natural Capital—using conceptual shadow prices.

Formula: IWI = (Produced Capital Stock × Shadow Price_Produced) + (Human Capital Stock × Shadow Price_Human) + (Natural Capital Stock × Shadow Price_Natural).[1]

Illustrative Inclusive Wealth Calculation (Hypothetical Values)

Capital Type	Stock (Hypothetical Units)	Shadow Price (Hypothetical USD/Unit)	Value (USD)
Produced Capital	1,000	50	50,000
Human Capital	500	150	75,000
Natural Capital	200	200	40,000
Total Inclusive Wealth			**165,000**

Explanation of Calculation:

- **Produced Capital Value:** In this hypothetical scenario, 1,000 units of produced capital (e.g., infrastructure units) are multiplied by a conceptual shadow price of $50 per unit, resulting in a value of $50,000.
- **Human Capital Value:** For human capital, 500 units (e.g., skilled labor units, representing the collective knowledge and abilities of the workforce) are assigned a shadow price of $150 per unit, yielding a value of $75,000.
- **Natural Capital Value:** 200 units of natural capital (e.g., hectares of productive land equivalent, representing the value of ecosystems and resources) are multiplied by a shadow price of $200 per unit, totaling $40,000.
- **Total Inclusive Wealth:** Summing these individual capital values ($50,000 + $75,000 + $40,000) provides a total Inclusive Wealth of $165,000 for this hypothetical economy.

This simplified numerical example makes the abstract concept of aggregating different capital stocks using shadow prices concrete and easily digestible. While the actual computation of IWI is highly complex and involves detailed methodologies for valuing diverse assets within each capital type, this illustration visually breaks down the components of the IWI formula into a clear, numerical representation.

3. India's Inclusive Wealth: Trends and Analysis (1990-2019)

3.1 Overall Inclusive Wealth and Per Capita Growth

The United Nations Environment Programme's (UNEP) Inclusive Wealth Reports (IWR) systematically track sustainability progress across numerous countries, including India.[1] The IWR 2018 indicated a global increase in inclusive wealth by 44% from 1990 to 2014, implying an average annual growth rate of 1.8%.[1] However, it also highlighted that approximately 40% of the 140 analyzed countries experienced stagnant or declining inclusive wealth, sometimes despite concurrent increases in GDP.[1]

Focusing on India, the IWR 2014, which covered the period from 1990 to 2010, reported an average annual growth rate in its overall Inclusive Wealth Index (IWI) of 0.7%.[12] The per capita inclusive wealth growth rate for India was also positive at 0.7%.[12] This growth rate for inclusive wealth stands in stark contrast to India's significantly higher GDP per capita growth rate of 4.8% during the same period.[12] India's Human Development Index (HDI) also grew at a comparatively higher average annual rate of 1.5%.[12]

More recent data from the IWR 2023, assessing the period between 2000 and 2019, further elaborates on India's complex wealth accumulation trajectory. It revealed that while India's physical capital experienced a steady increase and its human capital stock remained relatively stable, its natural capital, a critical component of inclusive wealth, unfortunately, declined.[10]

India's robust economic growth, as measured by GDP, has historically masked a significantly slower and potentially unsustainable rate of true wealth accumulation, primarily due to the depreciation of its natural capital. The data presented for India from 1990-2010 is highly revealing: GDP per capita grew at an impressive 4.8% annually, whereas IWI per capita

grew at a mere 0.7%.[12] This substantial disparity is not unique to India, as the IWR 2018 globally noted that many countries experienced stagnant or declining IW despite GDP growth.[1] This observation directly underpins the core necessity for the Inclusive Wealth framework. It demonstrates that GDP, as a measure of economic activity (flow), fails to capture the true, long-term costs of development, especially when that growth is achieved through the depletion of fundamental capital assets. India's rapid economic expansion, while boosting output, has not translated proportionally into a sustainable accumulation of comprehensive wealth. The IWI effectively answers the critical question of "at what cost?" regarding economic development.[3] This divergence signals that India's past economic policies, while successful in driving market output, may not have adequately prioritized the long-term sustainability and intergenerational well-being of its productive base. This necessitates a re-evaluation of growth strategies to ensure that future economic expansion contributes to genuine, inclusive, and sustainable wealth accumulation.

India's Inclusive Wealth vs. Traditional Indicators (1990-2010)

Indicator	Average Annual Growth Rate (1990-2010)
Inclusive Wealth Index (IWI)	0.7%
IWI per capita	0.7%
GDP per capita	4.8%
Human Development Index (HDI)	1.5%

Graphical Representation: Trend of India's IWI and GDP per capita (1990-2010) (Conceptual)

A line chart would visually represent the growth trajectories of India's IWI per capita (with an average annual growth of 0.7%) and GDP per capita (with an average annual growth of 4.8%) over the period from 1990 to 2010.[12] For effective comparison, both indices would be normalized to a base value (e.g., 100) in 1990. This chart would depict two distinct lines: one showing a relatively flat or slow upward trend for IWI per capita, and another showing a significantly steeper upward trend for GDP per capita. This visual juxtaposition would powerfully illustrate the divergence between economic output and true wealth accumulation, making the concept of growth without sustainability immediately apparent.

3.2 Dynamics of Produced, Human, and Natural Capital

An analysis of India's inclusive wealth composition during 1990-2010 reveals that Human Capital constituted the largest share, accounting for 65% of total inclusive wealth.[12] Natural Capital followed, making up 21% (with 12% from non-renewable resources and 9% from renewable resources), while Produced Capital represented the smallest share at 14%.[12] This composition underscores the significant reliance of India's productive base on its human and natural endowments.

When examining the contribution of each capital type to India's overall IWI growth from 1990-2010, Produced Capital demonstrated the highest positive contribution at 1.5%.[12] Human Capital also contributed positively, adding 1.1% to the growth rate.[12] In stark contrast, Natural Capital showed a negative contribution of -0.1%, indicating a net decline in its value over this period.[12] The IWR 2023, covering the more recent period of 2000-2019, corroborates these trends, reporting that India's physical capital (produced capital) steadily increased, its human capital stock remained relatively stable, but its natural capital experienced a continued decline.[10]

The most critical finding from the disaggregated data is the negative contribution of natural capital to India's IWI growth (-0.1%) between 1990 and 2010 [12], further confirmed by its explicit decline from 2000-2019.[10] This trend is particularly alarming when juxtaposed with the positive contributions from produced and human capital. This pattern strongly suggests a trade-off mechanism, where India's economic development, characterized by increasing physical infrastructure and a relatively stable human capital base, has been achieved at the direct expense of its natural resource base. This is precisely the kind of unsustainable trade-off that the Inclusive Wealth framework is designed to illuminate.[5] The IWR 2023 also highlights that the net impact of environmental degradation cost India approximately US$ 1,222 per capita, significantly offsetting welfare gains from SDG progress.[10] India's historical development trajectory has involved a significant and concerning depletion of its natural capital. This implies that a portion of the growth in produced and human capital, and thus overall economic output, has been effectively "financed" through environmental degradation and resource over-extraction. This persistent decline in natural capital directly challenges the principle of intergenerational equity, as it suggests that future generations in India will inherit a diminished natural resource base, potentially impacting their long-term well-being and economic opportunities, despite gains in other capital forms. Sustainable development for India requires actively reversing this trend.

Despite the challenges, human capital consistently stands out as the largest component of India's inclusive wealth (65% in 1990-2010) and a significant positive contributor to its growth (1.1%).[12] The decomposition analysis of human capital further clarifies that a substantial portion of this growth was driven by the increase in the number of adults attaining average education levels (Term II contributing 65% to human capital growth).[12] This underscores the profound importance of investments in education and skill development. India's human capital is its most valuable asset in terms of overall inclusive wealth composition and has been a primary positive driver of IWI growth, largely attributable to

advancements in educational attainment. This highlights that continued, strategic investment in education and health is not merely a social welfare imperative but also the most potent and sustainable engine for future wealth accumulation in India. However, the existing challenges related to the quality and equity of human capital development [13] suggest that optimizing this engine requires a deeper focus on qualitative improvements and addressing disparities.

Composition and Contribution to Growth of India's Inclusive Wealth by Capital Type (1990-2010)

Capital Type	Average Annual Growth Rate Contribution (1990-2010)	Average Percentage of Total IW (1990-2010)
Produced Capital	1.5%	14%
Human Capital	1.1%	65%
Natural Capital	-0.1%	21%

Graphical Representation: Composition of India's Inclusive Wealth by Capital Type (1990-2010) (Conceptual)

A stacked bar chart or area chart would visually represent the average percentage composition of India's Inclusive Wealth for 1990-2010, clearly showing Human Capital at 65%, Natural Capital at 21% (potentially with sub-segments for renewable and non-renewable resources if space allows), and Produced Capital at 14%.[12] This chart would visually emphasize the relative proportions of each capital type within India's total inclusive wealth, clearly demonstrating the predominant role of human capital and the significant, albeit declining, share of natural capital.

Graphical Representation: Comparative Growth Rates of Capital Types in India (1990-2010) (Conceptual)

A bar chart would display the average annual growth rate contributions of Produced Capital (1.5%), Human Capital (1.1%), and Natural Capital (-0.1%) from 1990-2010.[12] This chart would feature positive bars for Produced and Human Capital, and a distinct negative bar for Natural Capital. This visual representation would powerfully highlight the trade-off in India's development, making the depletion of natural assets evident and underscoring the urgency for policy intervention.

3.3 Policy Impacts on Capital Accumulation (2000-2019)

3.3.1 Produced Capital: Infrastructure and Industrial Policies

India's produced capital has demonstrated a consistent and steady increase between 2000 and 2019.[10] This positive trend is directly attributable to sustained governmental and private sector investment in physical infrastructure and industrial machinery.[10]

Key policies and initiatives have shaped this trajectory. The foundational period post-1991 saw significant economic liberalization reforms, including the delicensing of most industries, the amendment and eventual repeal of the MRTP Act to remove restrictions on large firms' expansion and mergers, the opening of previously public-sector-reserved industries to private investment, and the progressive relaxation of Foreign Direct Investment (FDI) policies, with automatic approval for up to 100% foreign equity in many manufacturing sectors.[15] Import licensing for capital and intermediate goods was also largely abolished.[15] These reforms were instrumental in stimulating industrial growth and attracting crucial foreign capital. More recently, Production-Linked Incentive (PLI) Schemes, introduced post-2020 but reflecting ongoing industrial policy, have been launched to attract foreign investments in strategic industries (e.g., electronics, pharmaceuticals) and reduce import dependencies, showing particular success in smartphone manufacturing.[17] These schemes represent a proactive industrial policy aimed at boosting domestic manufacturing capacity.

Large-scale infrastructure development programs have further bolstered produced capital. The National Infrastructure Pipeline (NIP), introduced in 2019, is a comprehensive plan emphasizing projects in energy, roads, railways, and urban development, with significant contributions from both central and state governments and the private sector.[18] The PM Gati Shakti National Master Plan (2021) was designed to integrate planning and coordinate execution of infrastructure projects across ministries, aiming for seamless connectivity and reduced travel times.[19] Bharatmala Pariyojana, launched in 2017, is a flagship program focused on developing economic corridors, improving national highway networks, enhancing port connectivity, and building greenfield expressways to reduce logistics costs and improve freight movement efficiency.[19] Additionally, the Pradhan Mantri Gram Sadak Yojana (PMGSY), initiated in 2000, is a long-running program dedicated to providing all-weather road connectivity to unconnected rural habitations.[19]

These concerted efforts have led to tangible improvements. Studies suggest that every rupee spent on infrastructure can generate a 2.5 to 3.5 rupee gain in GDP.[18] The Bharatmala project is projected to significantly reduce logistics costs from 14-18% of GDP to 6-8%.[21] India's World Bank Logistics Performance Index (LPI) ranking improved notably from 44 in 2018 to 38 in 2023.[19] The consistent increase in India's produced capital [10] is not merely an organic economic phenomenon but a direct result of decades of deliberate and evolving policy interventions. The post-1991 liberalization reforms [15] created a more open and competitive environment, attracting private and foreign investment. Subsequently, the strategic shift towards massive infrastructure development programs [18] and targeted industrial incentives [17] actively channeled investments into physical asset accumulation. The reported multiplier

effect of infrastructure spending on GDP [18] and the improved LPI ranking [19] demonstrate a positive feedback loop: robust policy frameworks lead to infrastructure development, which in turn enhances economic efficiency and output, thereby contributing significantly to the stock of produced capital. India's success in steadily increasing its produced capital is a clear outcome of its long-term commitment to economic liberalization and strategic, large-scale public and private investment in physical infrastructure and manufacturing capabilities. This trajectory provides valuable lessons for other developing economies, underscoring the importance of a dual approach: fostering market-oriented reforms to attract capital and innovation, while simultaneously engaging in substantial public investment to build foundational physical assets that support broad-based economic activity.

3.3.2 Human Capital: Education and Health Initiatives

India's human capital stock, while remaining "relatively stable" between 2000 and 2019 according to the IWR 2023 [10], has nonetheless seen "remarkable progress" in key education and health outcomes throughout the 21st century.[23]

In the education sector, significant reforms have been implemented. The Right to Education Act (2009) is a landmark legislation that made education free and compulsory for children aged 6-14 years, contributing to near-universal enrollment in elementary education.[24] Government initiatives like Sarva Shiksha Abhiyan and Rashtriya Madhyamik Shiksha Abhiyan have aimed at improving access to and quality of primary and secondary education nationwide.[25] The National Education Policy (NEP 2020) is a comprehensive framework designed to provide universal access to quality education for children aged 3-18 years, emphasizing holistic development and skill-building.[14] Furthermore, flagship programs such as the Pradhan Mantri Kaushal Vikas Yojana and the Atal Innovation Mission focus on enhancing employability and bridging skill gaps among youth across various sectors.[25] These efforts have led to substantial improvements in literacy rates, which increased from 64.8% in 2001 to 73.0% in 2011 [24], and were estimated near 77% in 2023.[23] Enrollment rates in higher education also significantly rose from 10% in 2000 to over 26% in 2019.[26] Despite these gains, significant challenges persist, including persistent funding deficits in the education sector, regional disparities in access and quality, and overall concerns about the quality of learning outcomes.[13] Education inequality remains high and contributes significantly to wage inequality, especially when compared to countries like China.[27] India's historical emphasis on humanities in tertiary education, contrasting with China's focus on vocational and engineering skills, has influenced sector-specific growth.[27]

In the health sector, initiatives like the National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), launched in 2005, aimed to bridge healthcare gaps, particularly in rural and vulnerable urban areas, by establishing community-owned, decentralized health delivery systems and expanding human resources in healthcare.[23] The Janani Suraksha Yojana (JSY), a program under NRHM, significantly incentivized and increased institutional deliveries, leading to improved maternal and infant health outcomes.[23] More recently, Ayushman Bharat, a National Health Protection Scheme, provides health insurance coverage to economically vulnerable sections of the population and establishes

Health and Wellness Centers at the primary level.[25] These efforts have contributed to a dramatic increase in life expectancy, more than doubling since 1947 to over 70 years by 2024.[23] There have also been significant declines in the Maternal Mortality Ratio (MMR) and Under-5 Mortality Rate (U5MR).[23] Major public health achievements include the eradication of smallpox (1977) and polio (2014).[23] However, despite overall progress, disparities and inequalities in health outcomes persist, particularly for marginalized groups.[23] India's public health expenditure remains low, spending only 1.26% of its GDP on health, which is below the National Health Policy's target of 2.5%.[25] Undernutrition also remains a significant public health issue.[24]

The characterization of India's human capital stock as "relatively stable" between 2000 and 2019 [10] might seem to contradict the "remarkable progress" reported in education and health outcomes.[23] This apparent contradiction is reconciled by a deeper analysis of the

quality and *equity* of these advancements. While access to education and basic health indicators have improved quantitatively, consistent reports highlight persistent challenges such as regional disparities, concerns over education quality, funding deficits, and entrenched socio-economic inequalities in access and outcomes.[13] The comparison with China's human capital development strategy, particularly its focus on vocational and engineering skills for manufacturing [27], further underscores India's challenges in fully aligning its human capital development with broader economic transformation needs. India's human capital development, while achieving quantitative gains in access to education and improvements in basic health indicators, is significantly hampered by persistent qualitative and equitable gaps. These limitations prevent the full realization of human capital's potential as a robust and inclusive driver of national wealth. Future policies aimed at enhancing human capital must shift their emphasis from merely increasing access to ensuring high-quality and equitable outcomes. This requires targeted interventions to address issues like teacher training, curriculum reform, and tailored support for marginalized communities. Furthermore, aligning educational and skill development with the evolving demands of the economy is crucial to leverage India's demographic dividend effectively and ensure that human capital truly contributes to sustainable and inclusive wealth.

3.3.3 Natural Capital: Environmental Policies and Challenges

A critical finding from the Inclusive Wealth Reports is the consistent decline in India's natural capital between 2000 and 2019.[10] This depletion has a tangible economic cost: the net impact of environmental degradation was approximately US$ 1,222 per capita, significantly offsetting the welfare valuation of progress made towards Sustainable Development Goals (SDGs) during this period.[10]

India possesses a comprehensive legal framework for environmental protection, including the Environment (Protection) Act 1986, Forest (Conservation) Act 1980, Wildlife (Protection) Act 1972, Water (Prevention and Control of Pollution) Act 1974, and Air (Prevention and Control of Pollution) Act.[31] The 1988 National Forest Policy explicitly emphasized conservation as its fundamental principle.[32] The National Action Plan on

Climate Change (NAPCC), launched in 2008, is an overarching government program that aims to mitigate and adapt to the adverse impacts of climate change through eight core "National Missions." These missions focus on promoting solar energy (National Solar Mission), enhancing energy efficiency, fostering sustainable habitats, water conservation (National Water Mission), sustaining the Himalayan ecosystem, increasing green cover (Green India Mission through afforestation), promoting sustainable agriculture, and building strategic knowledge on climate change.[33] Specific environmental programs include the National Clean Air Program (NCAP, 2019) launched to reduce air pollution levels in over 100 polluted cities [31], and regulations like the E-Waste Management Rules (2016) and Plastic Waste Management Amendment Rules (2021) addressing specific waste streams.[31] There are also ongoing efforts to increase the share of renewable energy in the national energy mix.[31] The Supreme Court of India has played a proactive role in environmental issues since the late 1980s, often issuing directives to encourage pollution reduction.[32]

Despite this extensive policy framework and numerous initiatives, India continues to grapple with severe environmental challenges, including pervasive air and water pollution, significant deforestation, biodiversity loss, and increasing impacts of climate change.[32] In 2019, India was ranked as the seventh most affected country globally by extreme weather events, incurring substantial economic damage and human casualties.[37] Natural resource depletion, measured as a share of national income, was "considerable" across Emerging Market and Developing Economies (EMDEs), including India, between 2000-2019.[38] Specific negative outcomes include a reported 70% decrease in populations of mammals, fish, birds, amphibians, and reptiles, and over 33% of fish stocks being overfished.[38] Coastal regions face degradation due to pollution and warming.[38] A significant impediment to effective environmental conservation is the gap between policy formulation and implementation. Challenges include inconsistent enforcement, limited resources, issues of corruption, and a notable lack of integration and coordination among various government departments and agencies responsible for policy execution.[32] Policies have sometimes favored short-term economic gains over long-term environmental sustainability.[36]

India has a robust legal and policy architecture for environmental protection [31] and has launched ambitious programs like the NAPCC.[33] However, the persistent and concerning decline in natural capital [10] and the high economic cost of environmental degradation [10] clearly indicate a significant gap between policy intent and effective implementation. Reports explicitly point to systemic weaknesses such as "inconsistent enforcement, limited resources, and corruption" [32], as well as a "lack of integration and coordination" among government entities.[36] This suggests that the challenge is not primarily a lack of environmental awareness or policy articulation, but rather deep-seated issues in governance, resource allocation, and cross-sectoral collaboration. Reversing the trend of natural capital decline in India will require more than just introducing new policies. It demands a fundamental strengthening of environmental governance, improved inter-agency coordination, enhanced resource allocation for enforcement, and a genuine shift in development priorities to fully internalize environmental costs into economic decision-

making. The concept of moving natural assets onto the national balance sheet with an "all-of-government" approach [9] represents a critical institutional shift required.

4. The Path Forward: Future Growth and Policy Implications

4.1 Projections for India's Sustainable Development

India harbors ambitious aspirations to achieve high-income status by 2047, a goal that necessitates an average economic growth rate of 7.8% over the next 22 years.[39] A recent World Bank report indicates that this target is indeed possible, provided India undertakes accelerated reforms.[39] To realize this ambitious growth trajectory, the report highlights several critical requirements: achieving faster and more inclusive growth across all states, significantly increasing total investment from the current 33.5% of GDP to 40% by 2035, and substantially raising female labor force participation rates from 35.6% to 50% by 2047.[39] Future growth strategies must strategically incentivize the private sector to invest in job-rich sectors (e.g., agro-processing, manufacturing, hospitality), promote structural transformation of the economy, enhance trade participation, and accelerate technology adoption.[39]

However, there is a growing and crucial recognition that an "unbridled, mindless pursuit of growth often blurs the costs of growth, namely, accelerating climate change, deepening inequality, and a degrading ecosystem".[40] This acknowledges the inherent trade-offs in traditional growth models. In response to these challenges, Prime Minister Narendra Modi's call for "Lifestyle for Environment (LiFE)" emphasizes the adoption of sustainable lifestyles, responsible consumption patterns, and a harmonious alignment with nature's regenerative capacities. This initiative is designed to intersect with and support all Sustainable Development Goals (SDGs).[40]

India's progress on the SDG index has shown an increase from 58.6 in 2016 to 63.45 in 2022. However, this progress has been erratic, with India reportedly on track to achieve only 34% of SDG targets, showing limited improvement on 43%, and actually deteriorating on 23% of them.[10] Furthermore, significant regional disparities in SDG progress persist across Indian states.[10]

India's ambitious goal of achieving high-income status by 2047, requiring an average 7.8% growth rate [39], creates a critical tension with its historical trend of natural capital depletion.[10] While the concept of "green growth" is often presented as a win-win scenario where GDP can be decoupled from natural resource use, research indicates that such decoupling is neither empirically substantiated nor economically sustainable in the long term.[40] This implies that simply pursuing high GDP growth without fundamental changes in consumption and production patterns will likely exacerbate environmental degradation, undermining the very foundation of inclusive wealth. The LiFE initiative represents a policy attempt to address this, but its effectiveness in translating behavioral shifts into tangible IW gains remains to be seen. India's future growth trajectory must fundamentally integrate environmental sustainability, moving beyond the simplistic "green growth" assumption to genuinely decouple economic progress from natural capital depletion. This requires a

transformative shift in societal consumption patterns, land-use practices, and industrial processes. Achieving high-income status sustainably will necessitate not just incremental policy adjustments but a profound reorientation of India's development model. This includes strengthening natural capital accounting at subnational levels [10] to identify and address regional disparities, ensuring that all states contribute to and benefit from inclusive wealth accumulation.

4.2 Strategic Recommendations for Inclusive Wealth Enhancement

Based on the analysis of India's inclusive wealth trends and the underlying policy impacts, the following strategic recommendations are crucial for fostering sustainable and equitable development:

Prioritize Natural Capital Regeneration and Sustainable Management:
A comprehensive approach to natural capital is essential. This involves moving beyond reactive environmental protection to proactive natural capital regeneration. It requires implementing and rigorously enforcing existing environmental regulations, ensuring that policies are not undermined by inconsistent application, limited resources, or corruption.32 Simultaneously, there must be a significant increase in public and private investment in renewable energy infrastructure, sustainable agricultural practices, large-scale forest restoration and afforestation programs (e.g., Green India Mission), and advanced water resource management and conservation initiatives (e.g., National Water Mission).33 Furthermore, the valuation of natural capital must be systematically embedded into national accounting systems, infrastructure planning, and corporate financial decision-making, treating natural ecosystems as essential economic infrastructure.9 The persistent decline in natural capital is the most significant drag on India's inclusive wealth. A comprehensive, integrated, and well-enforced policy framework, coupled with substantial investment, is essential to reverse this trend. The "all-of-government" approach to incorporating natural assets onto the balance sheet 9 represents a critical institutional shift required.
Deepen Human Capital Investment with an Equity Focus:
While quantitative improvements in human capital have occurred, underlying disparities and quality issues limit its full contribution to inclusive wealth. Future investments must be strategically targeted and equitably distributed to maximize human potential and ensure broad-based societal well-being. This involves shifting the emphasis from merely increasing enrollment rates to significantly improving the quality of learning outcomes across all educational levels, which necessitates comprehensive teacher training programs, curriculum reforms, and the integration of technology.13 Skill development programs must be actively aligned with the evolving demands of industries, particularly those in emerging sectors like the green economy, to ensure employability and productivity.43 Public health expenditure should be substantially increased to meet national targets (e.g., 2.5% of GDP) and ensure universal, equitable access to high-quality healthcare services, addressing issues like undernutrition and regional disparities.24 Finally, targeted policies and programs are needed to empower women and marginalized communities, ensuring their equitable access to quality education, healthcare, and productive employment opportunities to unlock their full human capital potential.25

Sustain Produced Capital Growth Responsibly:

The impressive growth in produced capital should continue. This requires maintaining the strong momentum of investment in physical infrastructure, continuing to leverage effective public-private partnerships.18 However, future infrastructure development must prioritize "green" infrastructure that minimizes environmental footprints, utilizes sustainable materials, and maximizes synergies with natural capital, rather than contributing to its degradation.40 Policies should also foster an innovation-driven economy through measures that promote structural transformation, technology adoption, and enhanced productivity across all sectors, particularly manufacturing.39 This approach ensures that the expansion of physical assets is not only economically beneficial but also environmentally sound and socially inclusive.

Strengthen Governance and Data Systems:

The vast disparities across Indian states necessitate a localized approach to wealth assessment.10 Developing subnational Inclusive Wealth measures, grounded in the specific physical, natural, and human capital characteristics of different regions, can illuminate these disparities and drive targeted policy interventions.10 This requires robust data collection, improved statistical capacities, and enhanced inter-agency coordination at both national and subnational levels. Strengthening financial sector regulations, removing constraints to formal credit for micro, small, and medium enterprises (MSMEs), and simplifying foreign direct investment (FDI) policies will also be critical to enable inclusive growth and investment.39

Foster a Culture of Sustainable Lifestyles:

Beyond policy, promoting a societal shift towards sustainable lifestyles, as advocated by the LiFE initiative, is crucial. This involves encouraging responsible consumption, ecological mindfulness, and alignment with nature's regenerative capacities at individual and community levels.40 Such behavioral changes can significantly reduce environmental footprints and contribute to the long-term preservation of natural capital.

Conclusions

India's pursuit of economic growth has yielded significant advancements in produced capital and notable improvements in human capital indicators. However, this progress has been accompanied by a concerning decline in natural capital, creating a divergence between conventional GDP growth and true inclusive wealth accumulation. The Inclusive Wealth framework reveals that India's development path, while economically dynamic, carries substantial environmental costs that threaten long-term sustainability and intergenerational equity.

To achieve its ambitious vision of high-income status by 2047 in a truly sustainable and equitable manner, India must fundamentally reorient its development strategy. This requires a concerted effort to reverse natural capital depletion through rigorous policy enforcement and strategic investments in ecological regeneration. Simultaneously, human capital development must move beyond quantitative access to focus on qualitative improvements and equitable outcomes, ensuring that all segments of society can contribute to and benefit from national prosperity. Sustaining produced capital growth must be integrated with green infrastructure principles, fostering an innovation-driven economy that minimizes

environmental impact. Ultimately, India's future prosperity hinges on its ability to transcend the "growth at any cost" paradigm, embracing a holistic approach to wealth accumulation that values and invests in all forms of capital for the well-being of present and future generations.

Works cited

1. Inclusive wealth - Wikipedia, accessed July 28, 2025, https://en.wikipedia.org/wiki/Inclusive_wealth
2. Inclusive Wealth as a Metric of Sustainable Development - Capitals Coalition, accessed July 28, 2025, https://naturalcapitalcoalition.org/wp-content/uploads/2016/08/Polasky-et-al.-2015_Inclusive-Wealth_annurev-environ-101813-013253.pdf
3. This Index Measures Progress and Sustainability Better Than GDP ..., accessed July 28, 2025, https://news.climate.columbia.edu/2018/10/09/inclusive-wealth-index-sustainability/
4. Rethinking Wealth for a Sustainable Future - Number Analytics, accessed July 28, 2025, https://www.numberanalytics.com/blog/rethinking-wealth-for-a-sustainable-future
5. Inclusive Wealth PROJECT, accessed July 28, 2025, http://www.managi-lab.com/iwp/iwp_iw.html
6. The Ultimate Guide to Inclusive Wealth - Number Analytics, accessed July 28, 2025, https://www.numberanalytics.com/blog/ultimate-guide-to-inclusive-wealth
7. Measuring inclusive wealth at the state level in the United States, accessed July 28, 2025, https://apps.it.purdue.edu/sites/Home/DirectoryApi/Files/3a4910a2-513c-414a-ad6c-64c83e055c69/Download
8. Inclusive Wealth Report 2023: Measuring Sustainability and Equity ..., accessed July 28, 2025, https://www.unep.org/pt-br/node/38286
9. Inclusive Wealth As a Measure of Sustainability and Equity | IISD ..., accessed July 28, 2025, https://enb.iisd.org/inclusive-wealth-report-2022-launch-cop-15
10. A case for inclusive wealth assessment of Indian states, accessed July 28, 2025, https://www.orfonline.org/expert-speak/a-case-for-inclusive-wealth-assessment-of-indian-states
11. The Inclusive Wealth of Nations 2018: Valuation methodology, accessed July 28, 2025, https://seea.un.org/sites/seea.un.org/files/Presentations/Valuation_Meeting_Bonn/3.2_inclusive_wealth_hussein.pdf
12. Inclusive Wealth Report 2014 Measuring progress toward ..., accessed July 28, 2025, http://www.managi-lab.com/iwp/img/IWR2014-WEB.pdf
13. (PDF) Education Investment and Human Capital Development in India - ResearchGate, accessed July 28, 2025, https://www.researchgate.net/publication/381038884_Education_Investment_and_Human_Capital_Development_in_India
14. Becoming a High-Income Economy in a Generation - The World Bank, accessed July 28, 2025, https://thedocs.worldbank.org/en/doc/400139d320ead96a0ec624d3608d9b56-0310012025/original/India-Country-Economic-Memorandum-2024-0227c.pdf
15. Industrial policy in India since independence - PMC - PubMed Central, accessed July 28, 2025, https://pmc.ncbi.nlm.nih.gov/articles/PMC9940074/
16. (PDF) MODERN INDIAN INDUSTRIAL POLICY TRANSFORMING INDIA INTO A GLOBAL INDUSTRIAL HUB - ResearchGate, accessed July 28, 2025,

https://www.researchgate.net/publication/388076603_MODERN_INDIAN_INDUSTRIAL_POLICY_TRANSFORMING_INDIA_INTO_A_GLOBAL_INDUSTRIAL_HUB
17. India's PLIs and their impact on foreign investments - Hinrich Foundation, accessed July 28, 2025, https://www.hinrichfoundation.com/research/article/trade-distortion-and-protectionism/india-plis-impact-foreign-investments/
18. Infrastructure Development in India - Invest India, accessed July 28, 2025, https://www.investindia.gov.in/team-india-blogs/infrastructure-development-india
19. Infrastructure Development in India - PIB, accessed July 28, 2025, https://www.pib.gov.in/PressReleasePage.aspx?PRID=2098788
20. Bharatmala: Optimizing the Efficiency of Movement, accessed July 28, 2025, https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/apr/doc2023428189201.pdf
21. Bharatmala Pariyojana & Expressway Expansion - IAS Mentoring, accessed July 28, 2025, https://iasmentoring.com/bharatmala-pariyojana-expressway-expansion.html
22. Bharatmala Project: The Backbone of India's Logistics Future - Shiprocket, accessed July 28, 2025, https://www.shiprocket.in/blog/bharatmala-project/
23. 5. Health and Education Outcomes in India - Hoover Institution, accessed July 28, 2025, https://www.hoover.org/sites/default/files/research/docs/SurveyOfIndia_ch05_web-240123.pdf
24. Social determinants of health in India: a critical appraisal of the equity-oriented policies, accessed July 28, 2025, https://the.evidencejournals.com/index.php/j/article/view/126
25. Investing in human capital and sustainable growth: A symbiotic paradigm, accessed July 28, 2025, https://www.orfonline.org/expert-speak/investing-in-human-capital-and-sustainable-growth
26. The Economics of Higher Education in India (2000–2019): Navigating Challenges and Unlocking Opportunities, accessed July 28, 2025, https://kuey.net/index.php/kuey/article/download/9226/7012/17603
27. The Making of China and India in the 21st Century - World Inequality Database, accessed July 28, 2025, https://prod.wid.world/www-site/uploads/2024/11/WorldInequalityLab_WP2024_24_The-Making-of-China-and-India-in-21st-Century_Final.pdf
28. Achievements under National Health Mission (2021-24): A Milestone in Improving India's Public Health Outcomes, accessed July 28, 2025, https://www.mohfw.gov.in/?q=en/pressrelease-190
29. National Rural Health Mission: Turning into Reality - PMC, accessed July 28, 2025, https://pmc.ncbi.nlm.nih.gov/articles/PMC3026119/
30. National Health Mission: Healthcare for All - Invest India, accessed July 28, 2025, https://www.investindia.gov.in/blogs/national-health-mission-healthcare-all
31. India - Environmental Technology - International Trade Administration, accessed July 28, 2025, https://www.trade.gov/country-commercial-guides/india-environmental-technology
32. Environmental policy of India - Wikipedia, accessed July 28, 2025, https://en.wikipedia.org/wiki/Environmental_policy_of_India
33. National Action Plan for Climate Change - Wikipedia, accessed July 28, 2025, https://en.wikipedia.org/wiki/National_Action_Plan_for_Climate_Change
34. INDIA'S National Action Plan On Climate Change - Climate Change Cell, Haryana, accessed July 28, 2025, https://hrccc.harenvironment.gov.in/indias-national-action-

plan-on-climate-change/
35. India's National Action Plan on Climate Change - PMC - PubMed Central, accessed July 28, 2025, https://pmc.ncbi.nlm.nih.gov/articles/PMC2822162/
36. IMPACT OF GOVERNMENT POLICIES IN INDIA ON THE ENVIRONMENT CONSERVATION - GAP Gyan, accessed July 28, 2025, https://www.gapgyan.org/res/articles/(58-61)%20IMPACT%20OF%20GOVERNMENT%20POLICIES%20IN%20INDIA%20ON%20THE%20ENVIRONMENT%20CONSERVATION.pdf
37. Navigating the impact of climate change in India: a perspective on climate action (SDG13) and sustainable cities and communities (SDG11) - Frontiers, accessed July 28, 2025, https://www.frontiersin.org/journals/sustainable-cities/articles/10.3389/frsc.2023.1308684/full
38. Natural Capital, Institutional Quality and SDG Progress in Emerging Market and Developing Economies - MDPI, accessed July 28, 2025, https://www.mdpi.com/2071-1050/15/4/3055
39. India: Accelerated Reforms Needed to Speed up Growth and Achieve High-Income Status by 2047 - World Bank, accessed July 28, 2025, https://www.worldbank.org/en/news/press-release/2025/02/28/india-accelerated-reforms-needed-to-speed-up-growth-and-achieve-high-income-status-by-2047
40. India Needs Inclusive Wealth - OBSERVER RESEARCH FOUNDATION, accessed July 28, 2025, https://www.orfonline.org/research/india-needs-inclusive-wealth
41. India climate mission: focused on sustainable lifestyles - The World Economic Forum, accessed July 28, 2025, https://www.weforum.org/stories/2023/01/davos23-india-climate-mission-is-focused-on-sustainable-lifestyles/
42. What is natural capital, and can it help economic resilience and global stability?, accessed July 28, 2025, https://www.weforum.org/stories/2025/06/natural-capital-economic-resilience-global-stability/
43. India needs to invest more in human capital to future-proof economy | Policy Circle, accessed July 28, 2025, https://www.policycircle.org/policy/human-capital-strategy-india/