



भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT
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Confederation of Indian Industry

KARNATAKA @ 100

A vision document
for **2047**

Message from



Professor Rishiksha T Krishnan

Director, IIM Bangalore

It is with great pleasure that I present to you this vision document for Karnataka in 2047, drafted by my colleagues at IIM Bangalore in collaboration with Confederation of Indian Industry (CII) Karnataka. This document shall serve as a compass, guiding our journey towards a future where Karnataka stands as a beacon of equitable and sustainable growth for the world.

The vision document emphasizes sustainability and innovation as two key pillars for balanced and inclusive growth of Karnataka. The vision document is an invitation to all stakeholders of Karnataka from citizens to policymakers, from academia to the business community, to join hands and come together to build a green ecosystem in Karnataka, that shall put our state at the frontier of the global economy.

I express my gratitude to the faculty members of IIM Bangalore and the Confederation of Indian Industry for their contributions to this document. I hope that this vision document serves as a catalyst for fruitful conversations and action towards a more prosperous, equitable and sustainable Karnataka.

Message from



Vijaykrishnan Venkatesan

Chairman, CII Karnataka State Council 2023-24

I am very happy to present Karnataka@100 Vision Document envisioning the future of Karnataka State. This document a collaborative initiative captures and presents the collective aspirations and shared vision for the future. It briefly highlights key focus areas and suggested roadmap to create an enabling ecosystem and robust policy framework that would further strengthen Karnataka as a leading state in India.

CII Karnataka continues to align and focus on Ease of Doing Business, MSME outreach and Policy reforms for conducive growth of Industry and businesses. Building on the strategic areas for the State, CII Karnataka is charting its course on the theme, "Towards a Competitive & Sustainable Karnataka@100 : Growth, Inclusiveness, Globalisation & Building Trust through a strategy on Beyond Bengaluru focused on enhancing competitiveness, promoting inclusiveness & facilitating sectoral growth initiatives.

I would like to express my gratitude to all stakeholders who contributed towards this document. On behalf of CII, we thank the Director & faculty members of IIM Bangalore for collaborating on this endeavour. A special mention to all the Panel and Taskforce leaders of CII Karnataka, Young Indians Chapters of Bengaluru, Mysuru, Hubballi and Mangaluru; and Indian Women Network, Karnataka for their valuable inputs shared during the Stakeholder outreach sessions. A special acknowledgment to CII Karnataka Zonal and District of Mysuru, Mangaluru, Belagavi and Hubballi for their contributions.

We hope this document will serve as a reference for the future efforts of all stakeholders in building an inclusive, sustainable and innovation led Karnataka.

Karnataka: India's Land of Opportunity

Karnataka has shown extraordinary socio-economic progress since India's independence in 1947, and even more so since the liberalization of the Indian economy in 1991. From coffee to IT, Karnataka has made a distinct name for itself on the global map. Building on the legacy of stalwarts like M. Visvesvaraya, who laid the foundation of industrialization in the state, and the entrepreneurial energy of leaders who spearheaded India's post-liberalization success, Karnataka's GDP has steadily increased at 7.3% annually between 2012 and 2021, making it one of the fastest growing states in India over the past few decades.

The state's capital, Bengaluru, has emerged as a global startup, health, IT, and biotechnology hub, attracting talent and investments from India and worldwide. Rapid economic growth, coupled with robust social progress on various parameters including health, gender, and education, amongst others, has moved the state from a low-income economic bracket to a middle-income one, with Karnataka becoming the richest large state of India having a per capita GDP of Rs 2.36 lakhs, which is nearly double that of India (at Rs 1.26 lakhs).

Challenges: Balanced and Sustainable Growth

Lofty economic growth has also brought to the state its fair share of unique challenges. Karnataka's economic engine has not been geographically balanced with the Bengaluru Urban district contributing more to the state's GDP than the entire Northern Karnataka region. Moreover, Karnataka suffers from stark regional inequality, with poverty fairly low in the southern parts of Karnataka (only 2% in Bengaluru) while it remains high in the North (as high as 41% in Yadgir). Karnataka's growth needs to be such that the state completely eradicates multidimensional poverty (currently at 13%) over the next few decades with its residents leading a high quality of life.

Karnataka's economic growth, notably in the 21st century, has also come with multitudes of sustainability and climate change challenges that contemporary rich countries (particularly, developed economies of the West and the “miracle” economies of East Asia) have never experienced. Hence, while Bengaluru is a cosmopolitan city with innovation and entrepreneurship hubs that stand at the frontier of the world's economy, there are other districts in Karnataka that need to be propelled towards economic growth and opportunity.



Vision: A Green Ecosystem for the 21st Century

While there exists no standard recipe for growth with different regions of Karnataka being at different stages of their socio-economic development, should our vision then be to aim for a GDP target for the state in 2047? We believe that Karnataka must be bestowed with much greater responsibility: utilizing its strengths in innovation, entrepreneurship, biodiversity and heritage, Karnataka must trailblaze an uncharted path of equitable and harmonious growth fueled by a green ecosystem at its core, which will become a benchmark not just for India, but for the entire world, especially the Global South.

We invite all stakeholders of Karnataka: citizens, businesses, entrepreneurs, innovators, academics, policymakers, activists, media, government, investors, and visitors to contribute to building a green ecosystem that shall become a model for harmonious socio-economic development for the entire world to take inspiration from and follow.

We strongly believe that Karnataka is uniquely positioned to undertake such global leadership today.

➡ Reaffirm Socio-Cultural-Ecological Harmony

Social, cultural, and ecological harmony is the bedrock of any sustained progress. However, rising social polarization, cultural differences, and emerging climate crises threaten sustained progress worldwide, and Karnataka is not immune to such challenges. Drought is a major ecological concern for Karnataka, and how the state manages its water resources will directly impact its growth trajectory.

Karnataka's indigenous practices, such as traditional water conservation practices that have been historically adopted by local communities, must be adapted to the modern context so that Karnataka stands on a solid foundation of progress in the 21st century, protected from the threats of ecological imbalance. To strengthen the local community, strong, effective, and democratic local governments become essential to ensure that Karnataka's aspirations for economic leadership are in sync with the voices at the grassroots.

➡ Upgrade Physical and Social Infrastructure

Bengaluru has been an engine of growth in Karnataka, propelling development in nearby regions, notably the southern part of the state. However, some remote areas, particularly in Northern Karnataka, lie disconnected from any major urban cluster and have found themselves isolated from burgeoning economic opportunities. Infrastructure development in the low-income regions of Karnataka is an urgent task for them to connect seamlessly with the region's major economic hubs like Bengaluru, Hyderabad, and Pune. We also need focused initiatives to develop new economic clusters in Karnataka, particularly in tier-two cities such as Belagavi, Hubli-Dharwad, Mysuru, Kalaburagi, and Mangaluru leading to broader state-wide prosperity.

Physical infrastructure, such as state and national highways, in Karnataka is only moderately developed as compared to national levels of penetration and quality. A mission-like urgency is needed to upgrade the state's infrastructure to make it an enabler to progress. Social infrastructure such as schools, universities, and healthcare facilities in Karnataka also have the potential to be brought up to global standards. The state has a modest human development index of 0.667, similar to countries like Iraq, Bhutan, and Bangladesh. More public investment, improved governance, and inclusive business models are necessary across all sectors if Karnataka aspires to be an advanced region in terms of its human development index by 2047.

➡ Cultivate an Entrepreneurial Ecosystem

Ease of doing business and availability of supporting infrastructure were two significant concerns of industry stakeholders. Turning Bengaluru into a world-class hub of innovation and entrepreneurship is the city's next natural stage of development. With a critical mass of entrepreneurs and innovators, and top global institutions like IISc, IIMB, and ISRO, Bengaluru will continue to attract investment and talent as long as the city is well-planned and adequately governed.

To fulfil the city's aspirations, Bengaluru needs a more powerful and enabling local Government that can independently make policies on city-specific issues such as urban planning, education, commercial developments, etc. However, to realize the dream of being a global innovation hub, this entrepreneurial and innovative ecosystem must not be limited to the confines of Bengaluru. District-level institutions, including local universities, chapters of industrial bodies, civil society groups (e.g., CSR arms of businesses), along with the district administrations, are important stakeholders in percolating and curating a culture of innovation and entrepreneurship at the grassroot levels of Karnataka. Incubators like IIMB's NSRCEL can be replicated at district levels, and by using hybrid modes of learning, entrepreneurship and innovation can become a part of the DNA of Kannadiga culture, especially its youth. Such value creation must not be confined to the limits of the digital economy; it must include sustainable and inclusive business models like self-sustained agricultural cooperatives (e.g., Farm Veda) that generate value at the bottom of the pyramid.

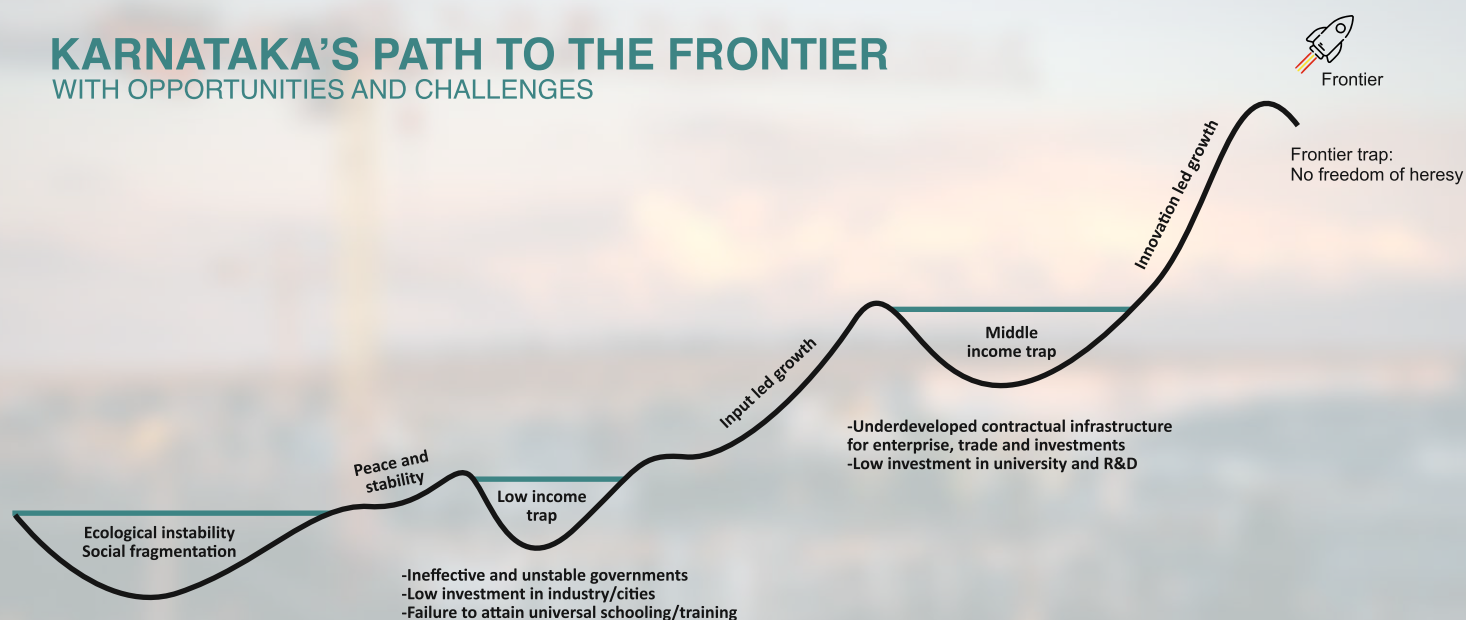
➡ Preserve Karnataka's Open Culture

Karnataka has welcomed investment and talent from all over the world to create exceptional value for the state, India, and the global economy. Karnataka's openness remains its biggest source of economic dynamism and optimism. Karnataka has always been at the world's crossroads, unafraid to adopt the new, be it coffee in the early modern age, IT in the 1980s, or green technologies today. This pervasive culture of openness is a source of Karnataka's strength as it trailblazes the global frontier and beyond by showing the world a new model of growth that is harmonious with nature, socially inclusive, developmentally robust, elevating millions out of poverty, and ensuring a fulfilling quality of life to all its residents.

This vision document provides a comprehensive overview of the current place of Karnataka in India and the world, on a variety of critical parameters: education, health, innovation, manufacturing, tourism, infrastructure, urbanization, media, and sustainability.

KARNATAKA'S PATH TO THE FRONTIER

WITH OPPORTUNITIES AND CHALLENGES



Invest in Education and Skill Development

Karnataka is home to globally recognized academic institutions like the IISc, IIMB, IIT-Dharwad, VTU-Belagavi, amongst others, and it has maintained a strong education sector, ranking in India's top ten states based on SDG-4 for almost twenty years.

The state has government-run, government-aided, and private schools, teaching in Kannada or English. The literacy rate rose from 66.64% in 2001 to 75.6% in 2011, holding steady since, with 82.47% males and 75.36% females literate. However, high dropout rates persist in districts of North Karnataka for children aged 6-14.

An alarming trend is the decline in funding for elementary education from 69.76% in 2018-19 to 58.82% in 2020-21 in Karnataka, with secondary education funding also decreasing marginally. In contrast, university-level budget allocation has risen from 9.67% in 2018-19 to 12.3% in 2020-21. Despite evidence highlighting the benefits of pre-primary education, low-income countries spend less than 2% of their education budgets here. Governments, private partners, and NGOs must invest more in quality education.

By 2047, Karnataka should aim to equip all residents with not just literacy but also essential soft and hard skills for full human development. Identified targets include high-quality early childhood, primary, and secondary education, gender parity, affordable technical, vocational, and tertiary education, promoting diversity and inclusivity, and upgrading child- and disability-friendly education facilities. The student-teacher ratio must increase through qualified teachers and teacher training.

In front of these goals, Karnataka faces challenges, such as high dropout rates and decreasing numbers of primary and secondary schools. Children of migrant workers suffer the highest dropout rate due to migration and disinterest in studies, among other factors.

To improve education quality, the government must allocate better funding to educational schemes, ensure enrolment, provide meal schemes, improve infrastructure, and promote diversity. The government should invest in infrastructure in densely populated cities with large incoming migrant populations. The National Education Policy 2020 offers valuable goals and requirements, such as increasing the Gross Enrolment Ratio in higher education and adding new seats to higher education institutions.

Businesses and private entities can also enhance Karnataka's education, especially through public-private partnerships, digitalization, infrastructure financing, and skills development. As a hub of digital revolution, Karnataka should harness solutions developed by startups and incentivize investment in educational digital technologies.

Non-Governmental Organizations (NGOs) and media play a crucial role in raising public awareness of rights and improving school education. To enhance their effectiveness, NGOs should focus on advocacy and mobilization and assist the government with research, networking, and tracking performance against announced policies.

Key action points:

- Increase public and private spending on education as a fraction of Karnataka's GDP.
- Focus on soft and hard skill development, beyond literacy, leveraging public-private partnership and digital startups.
- Involve civil society in public monitoring and governance of education-related initiatives.

Provide Affordable and Universal Healthcare

Despite being the 5th highest per capita income state, Karnataka's life expectancy of 69.2 years during 2013-17 mirrors the national average, hinting at healthcare gaps. Despite innovative schemes such as Yeshasvini and Vajpayee Arogyashree Scheme, and MCTS, significant relative gains in key health metrics are elusive. As NITI Aayog's Health Index reveals, Karnataka fell to the bottom of the nine major states in 2019-20, indicating stagnation in healthcare metrics.

Healthcare systems encompass three dimensions: service availability, financing methods, and state-supported healthcare funding access. Out-of-pocket payments in India, constituting over 48.2% of all healthcare spending, signify insufficient risk-pooled funding. Despite high instance-specific quality, healthcare continuity and health analytics for patient trajectory tracking are limited, making healthcare intervention convergence an unattained goal. Using a Universal Health Index, the state's healthcare gaps are evident across reproductive and child health, infectious diseases, non-communicable diseases, health system access and capacity, and financial protection against out-of-pocket medical expenses.

Looking towards 2047, it's crucial to reframe healthcare in Karnataka, considering anticipated economic growth and increased personal incomes. The challenge is to reduce fragmented healthcare financing. A comprehensive healthcare coverage scheme combining private and public-funded insurance would require regulatory and governance reforms but would be a transformative step towards achieving universal healthcare, thereby benefiting both private insurance companies and public healthcare outlets.

There is also significant scope for expanding healthcare services. While the public sector services range from sub-centres to hospitals, the private sector role is growing. Comprehensive patient care often lags due to lack of primary care access and limited innovations in this sphere. As we improve tertiary healthcare, primary care must also be prioritized. Overcoming geographical distribution challenges and healthcare professional scarcity in rural areas requires technological solutions and careful financial planning. The next 25 years must focus on integrating promising digital health technologies and interesting financial models for a healthcare platform that provides integrated, continuous, and comprehensive care for Karnataka.

Key action points:

- Increase public spending on health as a fraction of Karnataka's GDP.
- Provide comprehensive health coverage to all residents reducing fragmentation of health services.
- Leverage public-private partnership and digital technologies to enhance healthcare delivery.

Invest in R&D and Innovation at the Grassroots

Karnataka has made a mark in innovation, securing the top position among major states in the India Innovation Index 2021, particularly excelling in human capital, investment, and knowledge workers. Even so, there's more that the state can achieve, considering its vast potential.

The state can leverage transformative technologies such as artificial intelligence, cloud computing, and robotics, among others, to create a significant impact across sectors. This isn't limited to large companies but extends to MSMEs, startups, and grassroots innovators. The interplay of these transformative technologies with existing ones can lead to groundbreaking innovations.

Over the years, Karnataka has cultivated an innovation ecosystem, especially in the fields of information technology and biotechnology. As outlined in the Karnataka Research, Development and Innovation Policy, 2022, several challenges and opportunities lie ahead. These include the need for strengthening the governance and financial outlay of the R&D and innovation system, enhancing the capacity for R&D and innovation, supporting MSMEs in leveraging the innovation ecosystem, and focusing on innovations in key priority sectors to effect societal transformations.

Drawing lessons from global leaders in innovation, Karnataka should aim to benchmark its progress with the world's best. For instance, Israel, a global leader in innovation, invests a significant portion of its GDP in R&D, with a large part of its workforce engaged in high-tech sectors. Emulating Israel's reverse innovation model and focusing on technical excellence, with an emphasis on local support coupled with global ambitions, and empowerment of youth could serve as an excellent roadmap for Karnataka.

Against this backdrop, five key recommendations can be considered. The Karnataka State Research Foundation (KSRF) proposed in 2022 should be fast-tracked to become a nodal organization responsible for overall R&D and innovation in the state. This entails nurturing the innovation ecosystem, raising funds, evaluating innovative projects, and adopting effective funding models like the Biotechnology Industry Research Assistance Council model.

Second, it is crucial to develop capabilities to foster multi-disciplinary, technology-driven, market-focused innovation. This starts with inculcating innovative thinking in students from an early age and extends to establishing well-equipped tinkering labs and R&D parks and incubation cells in universities.

Third, it is important to nurture and connect the innovation ecosystem, involving all key stakeholders like the government, industry, MSMEs, startups, and higher education institutes. The aim should be to create a “pan Karnataka innovation ecosystem”, which includes a network of innovation and technology parks across the state, and ensuring active participation from all regions.

Fourth, a dedicated focus on MSMEs is required, guiding them to become familiar with and access the latest emerging technologies. The KSRF can play a vital role in ensuring that all ecosystem players actively collaborate with MSMEs.

Finally, it's important to put a spotlight on grassroots innovations. These innovations, which solve local issues in fields like agriculture, environment, natural resources, health, and nutrition, have immense potential. They can meet the needs of large population segments, and with the right support in technology, funding, and business, they can transform members of the informal sector into potential MSMEs and startups.

Key action points:

- Increase public and private spending on R&D as a fraction of Karnataka's GDP.
- Establish a nodal agency for R&D and innovation in the state for better governance.
- Inculcate culture of innovation from the bottom-up, by involving students, MSMEs, local universities and institutions and grassroots innovators.

Turn Karnataka into a Factory of the Future

Karnataka's ambition to be a global leader in advanced manufacturing, innovation, research and development, and sustainable development (Industrial Policy 2020-25) has immense potential if it leverages the state's existing strengths. The state's manufacturing sector contributes only 13% to the GSDP with heavy reliance on the service sector. Karnataka's manufacturing performance doesn't match global indicators, contributing less than China's 29% or India's 17% to GDP. With only 5.74% of India's factories and 6% of its MSMEs, Karnataka's GSVA is less than 50% of the top three states. Furthermore, MSMEs in the manufacturing sector are predominantly in rural areas, leading to haphazard district development.

Stakeholders highlight that the state's vision documents and infrastructure plans could translate into efficient implementation through a focused approach, with sufficient thrust on job creation through entrepreneurship.

Newer strategies to sustain Government corporations and enterprises can boost the planning and management of various schemes and benefit the end users. While 60 SEZs were allocated with the potential to provide employment to 11 lakh people, only 25 of these are operational, employing about 1.9 lakh people.

Regional development and fund allocations should be balanced and operational challenges like poor demand forecasting skills, inadequate inventory management systems, inefficiency in plants, material wastage, and a shortage of skilled labour, must be addressed through better managerial and technical skilling.

To fulfil the mission envisaged in the Industrial Policy 2020-25, focus sectors including automobile, pharma, medical devices, machine tools, cement, steel sugar, renewable energy, aerospace and defence, electronics, and electric vehicles should be sustained for the next 25 years.

Karnataka should aspire to be the "Factory of the Future", adopting "Industry 4.0" to revolutionize manufacturing and distribution. Manufacturers should integrate new technologies such as IoT, cloud computing, analytics, AI, and machine learning. Government should incentivize the adoption of these technologies to enhance productivity and efficiency.

A focus on developing integrated or multi-product specific Industrial Parks is crucial. At least two mega or ultra-mega manufacturing factories should be established in each division, with the vision of eight factories across the state.

The state should aggressively promote schemes like the "One District One Product" (ODOP) program. Training task forces at the division level, involving industry associations, educational institutions and the government, should be formed to address operational challenges and impart necessary skills.

This decentralization approach requires a standardized metric for measuring progress, with policy making/implementation time frame of 5 years and progress measurement time frame of 6 months to 1 year. Also, improved cohesion across departments, such as roads and power departments working in tandem with industries, is needed for effective policy implementation. Achieving a cohesive and synchronized approach among various departments will be one of the biggest challenges.

Key action points:

- Leverage Karnataka's strengths in services and innovation, to enhance its manufacturing as a "Factory of the Future".
- Focus on "one district one product" program, while also promoting establishment of integrated industrial clusters.
- Undertake governance reform to streamline workflow across government departments to speed implementation.

Focus on Tourism, Hospitality and Sports

Karnataka's Tourism Policy 2020-26 could further bolster the growth of this sector through a focused vision and increased budget allocation. The tourism sector reportedly contributes 14% to the GSDP according to a statement by the Chief Minister in 2019

A greater fraction of funds allocated for tourism development should go to on the ground development, and governance of such development projects should be enabled by a leaner bureaucracy. The laudable Karnataka Tourism Vision Group recommendations need wider publicity and awareness amongst stakeholders.

The sector needs to be recognized as an Industry, which will then attract foreign direct investments and foster growth potential. Skill shortages exist due to insufficient training institutions and lack of focus on this sector in state education policy. Slow technology adoption and occasional inadequacies affect profitability. Environmental considerations are crucial as unplanned growth may damage the ecosystem. Sustainable development goals (SDGs) should be implemented to ensure sustainable operations. Enhancing the existing frameworks and infrastructural progress will be beneficial to meet the demands of the industry. Capability building of this industry and service providers through skill building will enhance the sectoral growth potential.

Strategies to achieve Vision 2047 include decentralizing administration and delivery. The 31 districts divided into 4 divisions should have an accountable divisional headquarter for tourism development. These headquarters, comprised of regional stakeholders, should be empowered. The Karnataka Tourism and Trade (Facilitation and Regulation) Act 2015 should be amended to ease business and encourage entrepreneurship in the sector. The 5-year Tourism policies must have clear milestones and accountability. Empowered groups should manage key tourism themes like "Agri Tourism", "Coastal & Beach Tourism", etc.

The geographical location of Karnataka and its pleasant all-season weather makes it a uniquely attractive destination for a variety of sports and training activities as well. There is immense potential in developing facilities for water sports across the vast coastal zone of the State. High altitude training and fitness regimes are also feasible at various locations. Suitable infrastructure and inclusive policies would also tap into indigenous talent across the State, grooming them for sporting excellence in the global arena.

Physical and mental well-being of the youth, especially while being students, is a matter of primary concern today. The magnitude of this problem of vulnerability has been steadily increasing due to rapid advancements in technology, devices, and digital use and abuse. Promotion of sports and allied activities of engagement is the most purposeful and effective manner of resolving this concern of the youth, their health, and well-being.

With more than 15% of its urban population being below poverty line (this is well above the national level of 13%), and the current rate of employment being only 37%, development of Sports and allied infrastructure and activities will literally be the game-changer in engaging with the urban youth of the State.

Development of sports infrastructure, ecosystem for coaching services and training, and promotion of sports-based tourism and entertainment represent a huge potential waiting to be unlocked in the State. A true realization of aspirations of the youth in the State shall be to provide career avenues and means of secure livelihood in the arena of Sports.

Key action points:

- Increase investment in tourism and sports related infrastructure proportional to its economic significance.
- Decentralize and empower administration of tourism, hospitality and sports services.
- Promote ease of doing business in tourism, hospitality and sports sector by promoting start-ups and new business models.

Improve Governance and Public Infrastructure

Karnataka has seen rapid urbanization over the last few decades and is one of the most urbanized states of India today, with nearly 50% of the population estimated to be living in urban areas (39% in the 2011 census). The urbanization level of India is estimated to be 35% (30% in the 2011 census). Economic Survey data shows that Karnataka has seen an expansion of Class II and III towns with a population between 20 thousand and 1 lakh between 2011 and 2021, which is driven by the rural populations moving to nearby towns, as the economy transitions into a modern service-oriented economy. In the next decade, Economic Survey estimates 18 new Class I cities to emerge in Karnataka with a population of more than 1 lakh.

Bengaluru holds a preeminent position in Karnataka's economy, and Bengaluru Urban district alone contributes 37% of the state GDP, greater than the whole of North Karnataka combined (26%), and equivalent to South Karnataka (that includes other districts like Bengaluru Rural, which are a part of the greater Bengaluru metropolitan area). The city has seen rapid urbanization, creating challenges for balanced growth of the state, and sustainable urban development of the city.

Bengaluru has emerged as one of the most attractive investment and business destinations in the world, being home to 33 “unicorn” companies, which is the sixth largest in the world behind only San Francisco (176), New York (120), Beijing (90), Shanghai (69) and London (39). Bengaluru, being the world's IT hub attracts upward mobile migrants from around the country. Such rapid expansion has created an infrastructure crisis in the city. The latest rankings, Bengaluru ranked as the worst large Indian city (146th out of 173 cities in the world) in the Global Liveability Index, largely attributable to poor infrastructure planning that is inadequate for its rapidly expanding needs. Similarly, the city was ranked to have the second slowest traffic in the world. Many parts of the city have expanded without adequate piped water supply (relying on private water tanks) or drainage.

In terms of basic infrastructure facilities – electricity, roads, and water – the state has a mixed performance. Almost all households in the state somewhat have access to electricity, and the state has lately invested in renewable resources, reducing the dependency on coal, and increasing power availability.

The road density in Karnataka per thousand population is above average at 6 km per thousand population, against the national average of 4 km per thousand population. Nearby state of Kerala fares better (8), Maharashtra is at par (6), while Andhra Pradesh (old) and Tamil Nadu fare worse (4). When looking at the quality of roads, only 60% of Karnataka's roads are surfaced which is less than the national average (72%), and worse than all of its neighbouring states. Hence, while Karnataka has an above-average road penetration, a large fraction of such roads remain of very poor quality.

The state needs to accelerate its focus on infrastructure development and urbanisation, which will prove beneficial. This could be achieved through an enabling and empowered city council, which can act independently for effective and faster resolution of issues.

All significant cities globally have mayors with actual power to levy taxes, manage policing, and oversee development projects. Indian cities need local executives with similar powers, accountable for their city's management, rather than bureaucrats who get transferred frequently.

A publicly crowd sourced dashboard providing real-time status of basic amenities like roads, water, electricity, pollution, and relevant official contacts can empower citizens leading to data transparency and accountability in terms of rights and responsibilities.

To improve the quality of roads, drains, water, and air, Karnataka needs to strengthen the pillars of good city governance: transparency, participation, and accountability. While Karnataka has been at the forefront of enabling the administrative framework of Gram Swaraj and Panchayat Raj, the aspirational demand of governance and public administration must be: (D)igital and democratic; (R)epresentative and responsive; (E)thical and efficient; (A)gile and accountable; while being (M)odern and minimal. In short, governance and administration must realize this D-R-E-A-M.

Key action points:

- Immediately address regional and city-level infrastructure gaps in the state.
- Improve governance of cities by devolving power to accountable mayorships and city councils.
- Involve civil society in public monitoring and governance of infrastructure initiatives.

Leverage Karnataka's Platform Advantage

Karnataka is an innovation hub, home to Bengaluru and a host of cities that house a multitude of firms and initiatives around digital platforms. India is rapidly evolving as one of the fastest-growing digital economies in the world, powered by a growing number of smartphone users, a strong demographic dividend of digital-natives, and increased access to low-cost internet services.

Digital platforms are omnipresent in today's business and societal landscape. It is crucial for all businesses, citizens, governments, and civil society organizations to utilize the power of digital platforms to improve their efficiency, enhance their customer experience, and use the data and insights these platforms generate to stay competitive.

Digital platforms provide start-ups with easy and open access to resources, such as angel investment and venture capital funding, borderless access to talent and consumers, and shortened innovation, product development, and prototyping cycles. Additionally, they have significantly contributed to public life by improving access to education through online multi-lingual content and healthcare services like digital medical records and telemedicine.

The right approach to digitalization requires four fundamental priorities. First, it is important to nurture a strong and positive mindset around digitalization as the key to improving efficiency, reducing costs, and eliminating monotony in operations. Second, digitalization should lead to automation and process standardization, reducing errors, eliminating rework, and enhancing the quality of products and service delivery. Third, while employee experience is significant, it should be balanced with improvements in customer experience. Finally, digitalization efforts across businesses and ecosystems should strive to eliminate inefficiencies in search, matching, transactions, and evaluation markets.

The industry and government foresee five mega-trends led by digital platforms. First, the growing importance of digital public infrastructure and digital public goods is forming the base for innovation and value creation by start-ups and large corporations. Second, protocols that provide seamless interoperability, decentralized governance, and composability will enable the reimagining of new products, services, and platforms. Third, the evolution of stronger data protection norms will give citizens and businesses control over their data use, leading to consent-driven and accountable customization of algorithms. Fourth, improved access to information and data will create a more transparent and accountable society, combating corruption and increasing public trust in government and institutions. Finally, the government and public institutions will need to rethink how they provide citizen-services, moving away from the conventional approach. Digital platforms will facilitate this mindset change, integrating governments, private entities, and civil societies.

Key action points:

- Invest in digital public goods, forming the base of innovation and value creation in the economy.
- Promote protocols and standards that promote decentralization, transparency, and privacy.
- Embrace digital platforms in providing citizen services to improve public governance.

Adopt the cooperative model

There has been a renewed global interest in cooperative business models due to recent financial crises, the pandemic, concerns about global warming, and rising inequality. In India, some perceive cooperatives as outdated organizations unsuited for the 21st century. However, these collectives, also known as Farmer Producer Organizations (FPOs), Producer Companies, and Cooperatives, play a crucial role in empowering small producers. Given Karnataka's labour reliance on agriculture (~ 50%), collectivization is a promising step, as demonstrated by successful cooperatives in countries like the US and Western Europe.

Cooperatives have proven to be a powerful method of transforming agriculture worldwide. However, in India, the potential of cooperatives, also known as Farmer Producer Organizations (FPOs), Producer Companies, and Self-Reliant Cooperatives, is not fully tapped. Compared to other countries, India's turnover in the top 300 agricultural cooperatives is less than \$10 billion, while countries like Japan, the US, France, Germany, and Denmark have significantly higher turnovers ranging from \$25 billion to \$115 billion.

Cooperative models could reap benefits in the state of Karnataka with ample focus on decentralised methodology, effective utilisation of allocated funds and enabling legal frameworks. Nevertheless, there are genuine success stories in India, such as Nandini in Karnataka, and Amul in Gujarat, and novel cooperative business models like Bangalore based Farmveda which works with over 452 farmers cooperatives in over 5 states, and over 112 villages.

In the current context of environmental concerns and the need for sustainability in agriculture, cooperatives can play a significant role. Examples of cooperatives in India engaging in activities like restoring local water bodies and adopting scientific yet sustainable farming practices demonstrate the potential impact. A large federation of cooperatives can help disseminate best practices throughout the country.

For cooperatives to thrive, they need to be financially self-sustainable and profitable ventures owned, governed, and operated by farmers. Farmer members should invest their funds in the cooperative, enhancing their sense of ownership and driving more efficient operations. External control, regulations, and restrictions from government, politics, and control-oriented NGOs should be minimized, taking inspiration from successful models in other countries. An external promoting agency is necessary to organize farmers, provide training, assist in setting up processing units, and support marketing efforts. This agency should possess expertise in social mobilization, cooperative organization, and agribusiness. Collaboration between farmers' wisdom and professional management expertise is essential. However, the promoting agency should only act as a promoter, rather than a donor, controller, or implementer. An example is Nandini Dairy, which operates independently of the National Dairy Development Board (NDDB) despite being initially set up by them.

Leveraging modern technology can further enhance the impact of cooperatives in promoting sustainable farming, restoring water bodies, and facilitating agroforestry. This technological integration complements the core function of cooperatives as business entities that deliver higher value to their farmer members.

Recent advancements in technology make it easier to implement such initiatives.

Key action points:

- Promote cooperative business models for inclusive, bottom-up, and sustainable growth especially in agriculture.
- Innovate on financially-viable business and organizational models of cooperatives, like Nandini.
- Develop external promoting agencies to infuse cooperatives with modern managerial and technical skills and practices.

Build a Green Ecosystem

Karnataka faces acute threats from climate change. The state of North Karnataka has experienced severe drought conditions for six consecutive years from 2011 to 2016. In 2016, the region faced drought during both the Kharif and Rabi seasons. Additionally, erratic rainfall during the Southwest Monsoon in 2018 led to devastating floods in coastal and Malnad districts, while interior parts of Karnataka suffered from severe drought. The scarcity of rainfall during the Northeast monsoon further intensified moisture stress, affecting agriculture and horticulture crops in many taluks.

Being a heavily agriculture-dependent state, Karnataka faces inconsistencies in seasonal rainfall, leading to crop failures and causing extreme hardships for farmers. The consequences of drought include reduced agricultural production, which threatens the livelihoods of farmers and contributes to large-scale migration, increased malnutrition among children, women, and the elderly, higher school dropout rates, and a rise in farmer suicides.

Karnataka is the second most vulnerable state in India to climate change, primarily due to its arid and driest regions in North Karnataka. Climate change has already had adverse effects on crop productivity, forest biodiversity, hydrological processes, and human health. The Western Ghats, known for their evergreen and deciduous forests, are particularly at risk.

Karnataka has shown commitment to sustainable development goals (SDGs) and has improved its ranking in NITI Aayog's Sustainable Development Goals India Index, securing the sixth position. The state has been at the forefront of initiatives such as municipal waste management, minimizing single-use plastic, and promoting sustainable and circular business models.

NITI Aayog has developed the State Energy & Climate Index (SECI) to assess and improve the performance of states in the energy sector. Karnataka is the top-performing state in the SECI, with a score of 70, followed by Rajasthan with a score of 61. However, Gujarat, Kerala, Punjab, Haryana, Uttarakhand, and Maharashtra fall under the category of front-runners.

India, with its growing population and aspirations for economic growth, also faces the challenge of reducing greenhouse gas emissions. The country has committed to achieving net-zero emissions by 2070, despite having relatively low per capita emissions. Karnataka has the potential to become a global model for sustainable growth, utilizing innovative urban planning, collaborative governance, and sustainable solutions.

The achievement of these goals requires the collective effort of the government, private sector, investors, civil society organizations, and individuals to shape a sustainable future for Karnataka and India as a whole.

In 2008, India's National Action Plan on Climate Change set multiple goals, with Karnataka initiating notable steps for a green transition. To realize a net-zero economy, the state government needs a regulatory and incentive framework that promotes innovation and decarbonizes energy, transportation, manufacturing, and agriculture sectors, while encouraging stakeholder engagement.

Raising public awareness is paramount to India's green transition. With the help of NGOs and the media, citizens of Karnataka must be encouraged to adopt greener products, sustainable diets, and a reduced mobility footprint through initiatives like the Lifestyle for Environment mission (LiFE). The government has made efforts to spread awareness about Sustainable Development Goals (SDGs) through various media.

Tackling climate change in Karnataka requires strategic efforts across several sectors. The power sector, responsible for 40% of India's GHG emissions, mainly due to coal, needs to transition to renewable energy, enhance infrastructure efficiency, retrofit carbon capture technologies, and sequester unavoidable emissions.

The industrial sector, particularly iron, steel, cement, chemicals, and fertilizer industries, also significantly contribute to GHG emissions. Decarbonization here will involve improved energy efficiency, electrification of heating systems, adoption of low-carbon fuels, and cutting-edge non-fossil feedstock technologies.

Transportation, accounting for 10% of India's GHG emissions and nearly half of the country's oil consumption, needs more fuel-efficient vehicles, electrification, a long-term shift to hydrogen-based mobility, and a shift in fuel towards biofuels and gas-based fuels.

Agriculture, a primary source of nitrous oxide and methane emissions, faces the challenge of balancing rising food demand with GHG emission management. Strategies include modernizing rice production, reducing nitrogen and urea use, adopting low- and no-tillage practices, sustainable animal husbandry, and utilizing green energy for pumping.

Urban centres like Bengaluru and Mysuru significantly influence the state's GHG emissions. To mitigate this, a green urban planning approach involving water supply and waste management, creation of green spaces, retrofitting existing structures, and adoption of low-carbon construction methods is required.

Green technology innovation is vital to Karnataka's decarbonization. Key facilitators will be private sector incentives, R&D subsidies, creation of green tech company incubators, and R&D centres in partnership with universities. Additionally, creating a compendium of Karnataka's traditional indigenous practices on water conservation, afforestation, construction etc., must be studied.

According to the OECD, “green finance” implies achieving economic growth while reducing pollution and GHG emissions, minimizing waste, and improving natural resource efficiency. Measures to develop green finance include a formal carbon pricing framework, mobilizing domestic savings and institutional capital, and attracting global capital.

Given Karnataka's ambitious economic expansion plans, reducing GHG emissions presents inherent challenges, necessitating a comprehensive sequestration plan. Solutions include reforestation, afforestation, agroforestry practices, and deploying carbon capture, utilization, and storage technology for industrial plants.

In conclusion, Karnataka's vision involves fostering an environment that is inclusive, resilient, peaceful, and productive, enabling all citizens to realize their full potential. The transition to a sustainable future requires a rapid progression towards low-carbon, energy-efficient technologies. It's vital to clearly define sustainability goals, mitigate emissions, continue to raise citizen awareness for greener adoption, and build partnerships among civil society organizations.

Key action points:

- Make sustainable “green” growth the focus of all economic stakeholders of the state, across industries and regions.
- Subsidize investment, innovation and R&D in sustainability, using innovations such as “green finance” and the adoption of indigenous practices.
- Raise public awareness towards more sustainable lifestyles, such that demand shifts towards greener alternatives, pushing other stakeholders (producers) to do the same.



Conclusion

Our vision document calls for Karnataka to chart a path of economic growth, that raises the quality of life for all its residents in harmony with nature and the world. For this, we reiterate that sustainable “green” growth must become focus of all stakeholders of the state.

Investment:

We call for an increase public spending on human capital - education, health and R&D - as a fraction of Karnataka’s GDP. While significant focus on physical infrastructure has been given in the past by governments. Increased attention to the city - level and regional infrastructural gaps will enable the development of the state multifold. Karnataka should take a global lead in investing in digital public goods which shall form the base of innovation and value creation in the economy. Investment in innovation and R&D in sustainability is not an option but a necessity for the state which acutely faces the perils of climate change.

Participation:

We believe public-private partnership, through industry and civic bodies is essential for accelerating investments and innovation in areas like education, healthcare delivery and manufacturing. A culture of innovation and sustainable lifestyle needs to be inculcated from the bottom-up in the grassroots because innovation and sustainability will be the two pillars of Karnataka's future growth. A cooperative business model is a promising business-form for a more inclusive, participative and sustainable economic growth.

Industry 4.0:

Karnataka has strong services and innovation sector and such strength must enhance the state's manufacturing capabilities by embracing “Factory of the Future” model using technologies like AI and IoT. To promote a manufacturing base, on “one district one product” program is a commendable imitative, but establishment of integrated multi-product industrial clusters is just as important, not just for boosting the manufacturing sector, but also for bolstering city growth beyond Bengaluru.

Innovation:

A dedicated nodal agency for R&D and innovation can go a long way for pushing focused efforts in promoting innovation. One such important innovation of the 21st century is digital platforms which can provide citizen services and improve public governance. Such digital platforms must have protocols and standards that promote decentralization, transparency, and privacy.

Governance:

Governance remains one of the key challenges in the state, revealing glaring gaps between the state's aspirations and reality. Promoting an active civil society – NGOs, citizen groups, media – for public monitoring and governance of public initiatives like education and infrastructure is essential. The government needs to undertake governance reforms to streamline workflow across various central, state and local departments to speed up implementation of plans. Moreover, devolution of power in favour of more accountable mayorships and local councils is an important step in boosting accountability.

Karnataka stands at a unique junction whereby focusing on an ecosystem catered around innovation and sustainability, the state can forge a new path for not just itself but the world. With judicious investment and focus, Karnataka @ 2047 can be a haven for all - its residents, flora, fauna, the environment, India and the world.

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About CII

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9,000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 286 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

As India strategizes for the next 25 years to India@100, Indian industry must scale the competitiveness ladder to drive growth. It must also internalize the tenets of sustainability and climate action and accelerate its globalisation journey for leadership in a changing world. The role played by Indian industry will be central to the country's progress and success as a nation. CII, with the Theme for 2023-24 as 'Towards a Competitive and Sustainable India@100: Growth, Inclusiveness, Globalisation, Building Trust' has prioritized 6 action themes that will catalyze the journey of the country towards the vision of India@100.

With 65 offices, including 10 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 350 counterpart organizations in 133 countries, CII serves as a reference point for Indian industry and the international business community.

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About IIMB

Indian Institute of Management Bangalore (IIMB) is a leading graduate school of management in Asia. Under the IIM Act of 2017, IIMB is an Institute of National Importance.

IIMB has 106 full-time faculty members, about 1,200 students across various degree-granting programmes and nearly 5,000 annual Executive Education participants.

Our logo carries a proclamation in Sanskrit, **तेजस्वि नावधीतमस्तु** (tejasvi navadhitamastu), which translates to 'let our study be enlightening'. Our vision is to be a global, renowned academic institution fostering excellence in management, innovation and entrepreneurship for business, government and society.

Located in India's high technology capital, we are in close proximity to some of the leading corporate houses in the country, ranging from information technology to consumer product companies, giving us the added advantage of integrating classroom knowledge with practical experience.

Our long-duration programmes comprise the Doctor of Philosophy (Ph.D.), the Post Graduate Programme in Management (PGP), the Post Graduate Programme in Management – Business Analytics (PGP-BA), the Executive Post Graduate Programme in Management (EPGP), and the Post Graduate Programme in Enterprise Management (PGPEM). We offer the NS Ramaswamy Pre-doctoral (NSR Pre-doc) Fellowship, as a Certificate programme, with the aim of increasing social diversity of management academia in India.

We also offer the Mahatma Gandhi National Fellowship (MGNF) programme. MGNF is a Certificate Programme in Public Policy and Management offered by IIMs. It has been designed at the initiative of the Ministry of Skill Development and Entrepreneurship (MSDE), Government of India (GoI), and implemented in collaboration with State Skill Development Missions (SSDMs). Along with 11 disciplinary areas, we have ten centres of excellence that offer courses and conduct research on interesting questions facing various sectors of industry.

We have key partnerships and collaborations with Goldman Sachs and Kotak Bank for women entrepreneurship, with Michael and Susan Dell Foundation for incubation of non-profits, and with NITI Aayog for scaling up of new ventures.

We are committed to make deep social impact using technology-enabled education. Towards this end, we offer Massive Open Online Courses (MOOCs). We are the first management school in India to offer MOOCs on the edX platform. We are also the coordinating institute for management education for SWAYAM, GoI's online education platform.

We have taken several steps to meet the vision set for IIMB. These include hiring high quality faculty, enhancing the quality of research, emphasizing internationalization, expanding our activities in the field of entrepreneurship, in both research and mentoring, scaling up in terms of student intake in all programmes, deepening our engagement with the alumni, improving infrastructure, and improving administration and governance. We are accredited by the EFMD Quality Improvement System (EQUIS).

We have a vibrant Student Exchange Programme with several partner universities across North America, South America, Europe, Asia, and Australia.

We have a deep engagement with the international network, Global Network for Advanced Management (GNAM), which includes 32 eminent business schools around the world.

We are developing our second campus in Jigani, about 27 km from the Bannerghatta Road campus. We are on an exciting trajectory of expansion and growth, and we welcome you to join us on this journey.



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