Intelligent Investment

Hyderabad's Genome Valley: Capitalising on the Life Sciences Growth Trajectory

Table Of Contents

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Snapshot of the Life Sciences Sector in India

01

Life Sciences Gearing for Exponential Growth in India

India has emerged as a global life sciences hub, driven by the rapid expansion of pharmaceutical, biotechnology, and medical device companies in response to surging domestic and international demand. Accelerated by the COVID-19 pandemic, the country's bioeconomy sector, the third largest in the APAC region, is estimated to exceed USD 124 billion in 2024 and is projected to reach USD 150 billion by 2025 and USD 300 billion by 2030[1]. The Indian pharmaceutical industry is also estimated to grow at a CAGR of over 10% to reach a size of USD 130 billion by 2030[2].

The subsectors of the Indian life sciences sector - pharmaceuticals, biotechnology, medical devices, and healthcare - are expected to witness considerable expansion in the coming years led by various factors such as policy interventions, infrastructure development, foreign direct investments (FDI), improved manufacturing capabilities, access to cost-effective talent pool, increasing focus on research and development, and epidemiological factors such as increasing population and life expectancy coupled with changing lifestyles.

Policy initiatives such as 'Production Linked Incentive Scheme for Bulk Drugs', 'Production Linked Incentive Scheme for Pharmaceuticals', and 'Scheme for Bulk Drugs Parks' are likely to augur well for life sciences firms in the future, apart from various policies at the state level. Global life sciences companies are increasingly expected to set up their R&D labs in the country, led by the niche talent available in the top cities. Such firms are looking to leverage technologies such as artificial intelligence to enhance drug development capabilities.

Domestic pharmaceutical firms are expected to expand their product lines by increasing their drug manufacturing capabilities. Simultaneously, the global competitiveness of Indian vaccines and biopharmaceuticals has driven robust export demand to over 150 countries. India currently holds approximately 3% of the global biotechnology market share[3]. By leveraging its expertise in generics and biosimilars, the country is at the forefront of providing affordable, innovative, and accessible healthcare solutions, and also expand its share of global biotechnology output.

[1 & 3] Invest India, Government of India (GoI), 2024; [2] Pharmaceuticals Industry Report, India Brand Equity Foundation, May 2024

Figure 1.1: Key growth drivers for the LS sector in India

1.5 bn population by 2036# Currently 1.4 bn; estimated to be largest in the world overtaking China as of July 2024	Demographics	78 years life expectancy by 2050# 15% increase as compared to 68 years in 2023
74 bio-incubation centres created through DBT-BIRAC and 4 Industry Clusters in Hyderabad, Pune, Bangalore, Delhi-NCR	Industrial Base	USD 13 bn size of medical tourism industry by 2026# More than double as compared to 2020
USD 3 bn+ outlay under PLI scheme** for pharmaceuticals, bulk drugs, and medical device segments during 2021-26	Policy push	7 bulk drugs & medical device parks^ USD 122 mn cap for each bulk drug park; USD 12 mn for each medical device park
Healthcare expenditure @ 2.5% of the GDP by FY 2025-26# 40 bps increase from 2.1% of GDP at present (i.e., INR 83,000 crore allocated in FY 2022-23)	Healthcare	1.3 bn sq. ft. additional healthcare space required by 2030* 2.9 mn additional hospital beds needed by 2030 to match the global bed-to-population average
6,000+ biotech start-ups as of July 2024 to grow up to 10,000+ by 2025	Talent pool	1 mn+ skilled biotech workforce India Star College Mentorship Program by DBT

Note: #forecasted estimates; *The Evolving Indian Healthcare Ecosystem: What It Means for the Real Estate Sector, CBRE Research, June 2022; **Production Linked Subsidy Scheme; ^proposed
Source: World Population Review, 2024; National Commission on Population (NCP), Ministry of Health and Family Welfare, GoI, 2024; United Nations data, 2024; Invest India, 2024; Ministry of Finance, GoI, 2024; CBRE Research, Q3 2024

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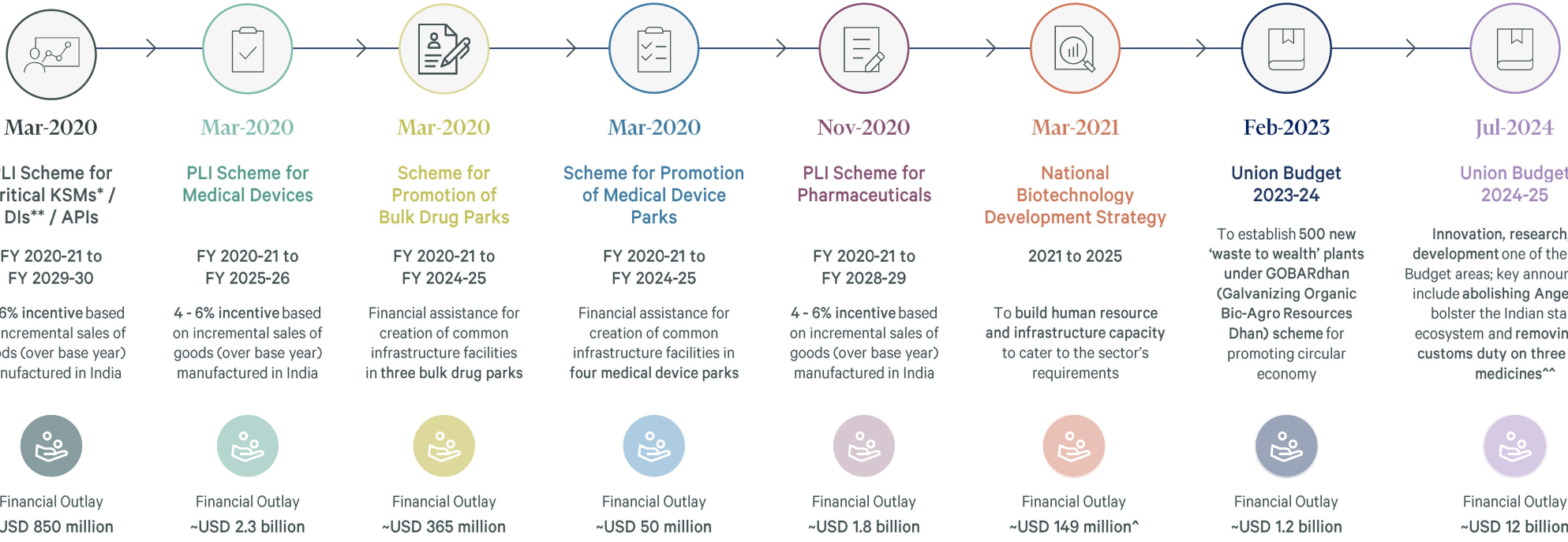
Favourable Policy Ecosystem Fuelling the Life Sciences Sector

02

National-level Polices Supporting the Indian Life Sciences Sector

The Indian life sciences sector is supported by various policies introduced by the central government to boost domestic manufacturing capacity and to increase global exports of pharmaceutical and biotechnology products and medical devices from the country. A few of the key central policies are outlined below.

Figure 2.1: A timeline of key LS initiatives announced by the central government



Note: *Key Starting Material; **Drug Intermediates; ^Includes INR 250 crore biotech AcE fund and INR 1,000 crore manufacturing fund; ^^Budget 2024-25 outlay to spur private-sector driven research and innovation at commercial scale
Source: Ministry of Chemicals and Fertilizers, Department of Pharmaceuticals, GoI, 2020-23; Department of Biotechnology, Ministry of Science & Technology, GoI, 2023; CBRE Research, Q3 2024

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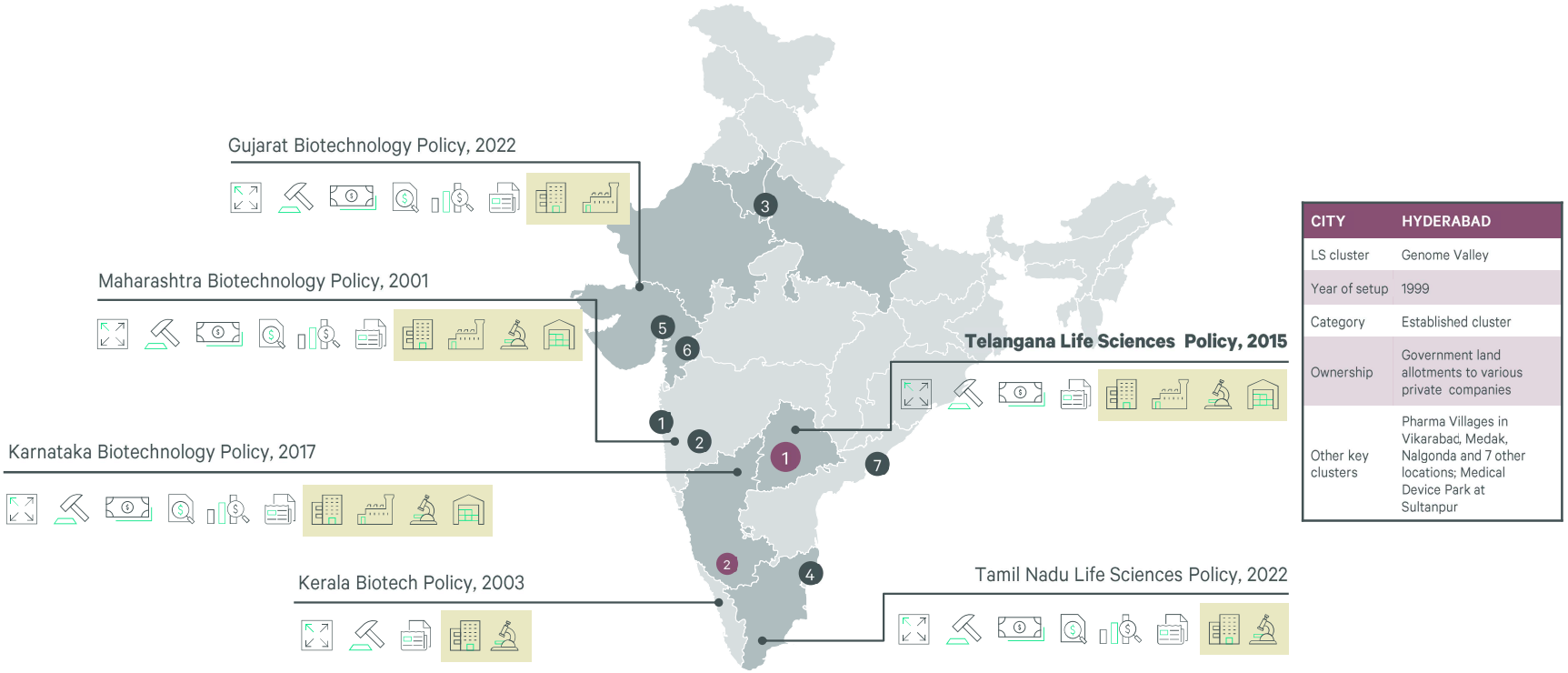
Prominent State-level Polices Promoting Investment Activity

In addition to the central level policies, various state governments have also been giving an enormous push to the life sciences sector over recent years, complete with dedicated policies and LS cluster developments. Below is a snapshot of a few key state level initiatives and incentives in some of the primary and secondary LS markets in India.

Figure 2.2: A few key state-level life sciences policies and markets in India



CITY	HYDERABAD
LS cluster	Genome Valley
Year of setup	1999
Category	Established cluster
Ownership	Government land allotments to various private companies
Other key clusters	Pharma Villages in Vikarabad, Medak, Nalgonda and 7 other locations; Medical Device Park at Sultanpur

LEGEND

- Land-related incentives
- Infrastructure concessions and subsidies
- Capital subsidies
- Stamp duty exemptions
- Tax benefits
- Single window clearance / ease of approvals
- Office space
- Manufacturing units
- R&D lab space
- Logistics & cold storage facilities

Primary LS Markets

1. Hyderabad
2. Bangalore

Prominent Secondary LS Markets

1. Mumbai
2. Pune
3. Delhi-NCR
4. Chennai
5. Ahmedabad
6. Vadodara
7. Visakhapatnam

Note: *In a few cases, though the policies do not directly mention about a particular incentive, an indication of indirect initiatives has been considered
Source: Respective state government websites; Invest India website updated as of July, 2024; Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024; CBRE Research, Q3 2024

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Life Sciences in Telangana: An Overview

03

Telangana: The Leading Life Sciences Hub of Asia

Telangana has emerged as a pivotal contributor to India's life sciences landscape, accounting for approximately one-third of the country's pharmaceutical production, one-fifth of pharmaceutical exports, and one-third of global vaccine production. The state's position as a pharmaceutical manufacturing hub has attracted significant investments, with over USD 1.49 billion channelled into the life sciences sector over the past four years[4].

Figure 3.1: Life sciences industry landscape in Telangana

Leading life sciences hub

Telangana, India's youngest state, is a leading life sciences hub in Asia with over 800 life sciences companies valued at USD 50 billion

Vaccine production

Accounts for one-third of the global vaccine output, earning the title of the vaccine capital of the world

Pharmaceutical production

Hyderabad district in Telangana contributes about 35% of India's pharmaceutical production and accounts for close to a 45% share in the total exports of the state

Global / domestic investments

Attracted approximately 900 greenfield investment projects worth USD 2 billion over the last five years

Revenue contribution

In 2020, Telangana contributed USD 12.8 billion - nearly 30% of India's total life sciences industry revenues of USD 43 billion

Bulk drug exports

Produces about 50% of India's bulk drug exports

Talent availability

Home to ~ 4,750 colleges with more than 250,000 students; Hyderabad leads the country in number of natives travelling abroad for higher education

Manufacturing facilities

Houses over 170 European Medicines Agency and over 70 FDA-approved manufacturing facilities

Source: Telangana Life Sciences Vision 2030, Telangana Life Sciences website, Government of Telangana, 2020; Invest India, 2024; CBRE Research, Q3 2024

[4] Department of Industries & Commerce, Government of Telangana, 2024

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Hyderabad: Driving Economic Growth Through Strategic Initiatives

A combination of proactive government policies, a conducive investment climate, and targeted government support, coupled with the city's pre-eminent position as an IT and life sciences hub, robust institutional framework, and a substantial demographic dividend, has catalysed Hyderabad's economic growth trajectory.

- Significant presence of Fortune 500 companies and multinational corporations, further accentuated by many campus developments undertaken by industry leaders such as Microsoft, Google, and Amazon.
- Ranked the most liveable city in India for five consecutive years[5].
- Top city in India and ranked 10th globally for hiring software developers[6].
- Recognised as the vaccine capital of India, contributing to one-third of global vaccine demand.
- Major player in the pharmaceutical industry, with initiatives such as the Genome Valley cluster and the Medical Devices Park propelling its growth.
- Industry-friendly government policies and expedited single-window approvals driving multi-faceted sector growth.

Hyderabad has emerged as a leading metropolis through numerous infrastructure upgrades. The state government's strategic investments in physical infrastructure, including the Operational Outer Ring Road, the forthcoming Regional Ring Road, airport expansion, and enhanced road networks, have been complemented by developments in social infrastructure such as sports stadiums and premier educational institutions. Simultaneously, the creation of business hubs such as Cyberabad, Hardware Park, SEZs, etc., life sciences initiatives such as Genome Valley, and International Convention Centre, among others, have solidified the city's position as a preferred destination for domestic and international corporations. These concerted efforts have propelled the development of large-scale real estate projects by both domestic and foreign investors in the city.

[5] Mercer Quality of Living Index, 2023; [6] The Top 20 Cities for Hiring Software Developers in 2023, Karat, 2023

Hyderabad boasts of world-class universities such as University of Hyderabad and Osmania University, academic and research institutions - including over 20 national research institutions - and a pool of exceptional talent, propelling the life sciences industry's growth.

Examples of prominent life sciences research institutions in the city*

NIPER Hyderabad

MBA, MPharm. and PhD. courses offered in the pharma sector. Multiple national and international collaborations with diverse research focus.

CSIR - Indian Institute of Chemical Technology

PhD. courses offered in chemical and biological sciences with research focus on formulation development, process chemistry, etc.

ICMR - National Institute of Nutrition

MSc. and PhD. courses in nutritional science with multiple national and international collaboration.

CSIR - Centre for Cellular & Molecular Biology

MBA and PhD. courses offered in molecular biology, biochemistry, biotechnology, etc. Multiple collaborations with research focus on SARS-COV2 Genome, combinational therapy, etc.

BITS Pilani Hyderabad

BSc., MSc., PhD., courses in molecular biology and other life sciences subjects offered.

NARFBR Hyderabad

The National Animal Resource Facility for Biomedical Research (NARFBR) is the country's first exclusive animal-related research centre and the first-of-its-kind facility in South Asia.

*Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.

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Genome Valley

04

Genome Valley: India's First Systematically Developed R&D Cluster

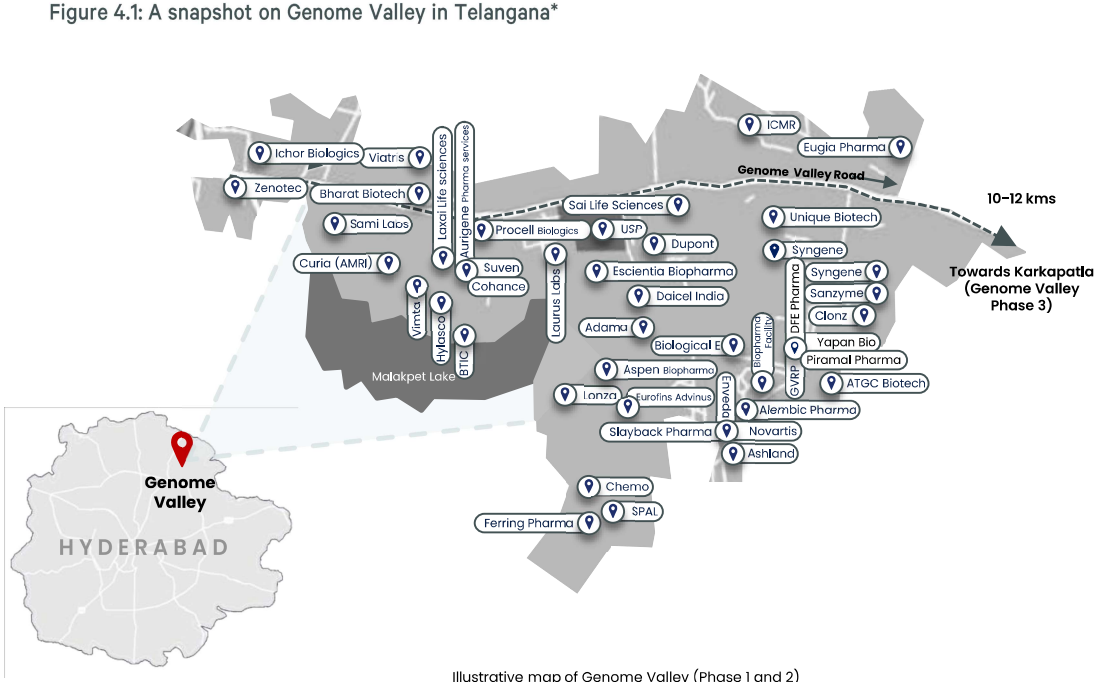
Genome Valley in Hyderabad stands as India's first and largest life sciences manufacturing and R&D cluster undertaking research, training, and manufacturing. This planned ecosystem houses some of the world's top 10 R&D companies, leading vaccine manufacturers, and over 200 companies while a robust infrastructure for burgeoning start-ups. With two life sciences incubators and an accelerator, the cluster boasts the country's most concentrated hub for innovation in these sectors, replete with cutting-edge infrastructure.

200+
Lifesciences companies*

20,000+
Skilled workforce*

10 msf +
Of R&D and Manufacturing space*

Figure 4.1: A snapshot on Genome Valley in Telangana*



Illustrative map of Genome Valley (Phase 1 and 2)

Illustrative map of Phase 3

*Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.

Global Presence: A vibrant R&D cluster, home to over 200 biotech and pharmaceutical companies from 18 countries.

Vaccine Manufacturing: Hosts three of India's largest vaccine manufacturers: Bharat Biotech, Biological E, and Indian Immunologicals.

Multinational companies: Recognised as the European hub of India, housing large pharmaceutical companies such as Novartis, Ferring, and Chemo.

Domestic CROs: Home to India's leading contract research organisations (CROs) such as Syngene, Sai Life Sciences, Aurigene Pharma Services, and Cohance.

Top Ranking: Ranked #1 among the core clusters established in India.

Available Land: Around 120 acres of land is available for industries as part of Genome Valley Phase III.

Employment: Provides jobs to more than 15,000 skilled professionals.

Research Output: Significant contributor to India's biotech research with numerous patents and innovative products.

Exports: Substantial contributor to India's biotech exports, reaching markets in over 100 countries.

R&D Cluster: The largest and most vibrant R&D cluster in India, with six of the world's top 10 R&D companies having facilities in the area.

Start-up Support: Hosts more than 20 life sciences and med-tech incubators, the highest number of any city in India.

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Development Infrastructure in Genome Valley

Envisioned in the early 2000s, Genome Valley has evolved into a thriving life sciences cluster - the largest cluster of multi-tenanted lab space infrastructure in a single location in India – and is now home to over 200 companies. This dynamic ecosystem encompasses a diverse range of organisations, from global industry leaders to innovative start-ups. Spanning several thousand acres, it boasts state-of-the-art facilities such as research laboratories, manufacturing units, and incubation centres. Its strategic location, well-connected by road, ensures seamless logistics and transportation.

Genome Valley is a blend of Knowledge Parks, Special Economic Zones (SEZs), multi-tenanted lab space buildings, incubation facilities, and office spaces, all supported by high-quality amenities. Covering approximately 600 sq. km, it includes key establishments developed by the Telangana Industrial Infrastructure Corporation (TGIIC, erstwhile TSIIC), the nodal agency for industrial infrastructure in the state.

To accommodate their manufacturing, cold storage, and R&D operations, most companies within Genome Valley establish dedicated industrial facilities. Prominent examples of companies with self-contained units within the cluster include Bharat Biotech and Biological E.

The development of the Genome Valley unfolded in three phases*:

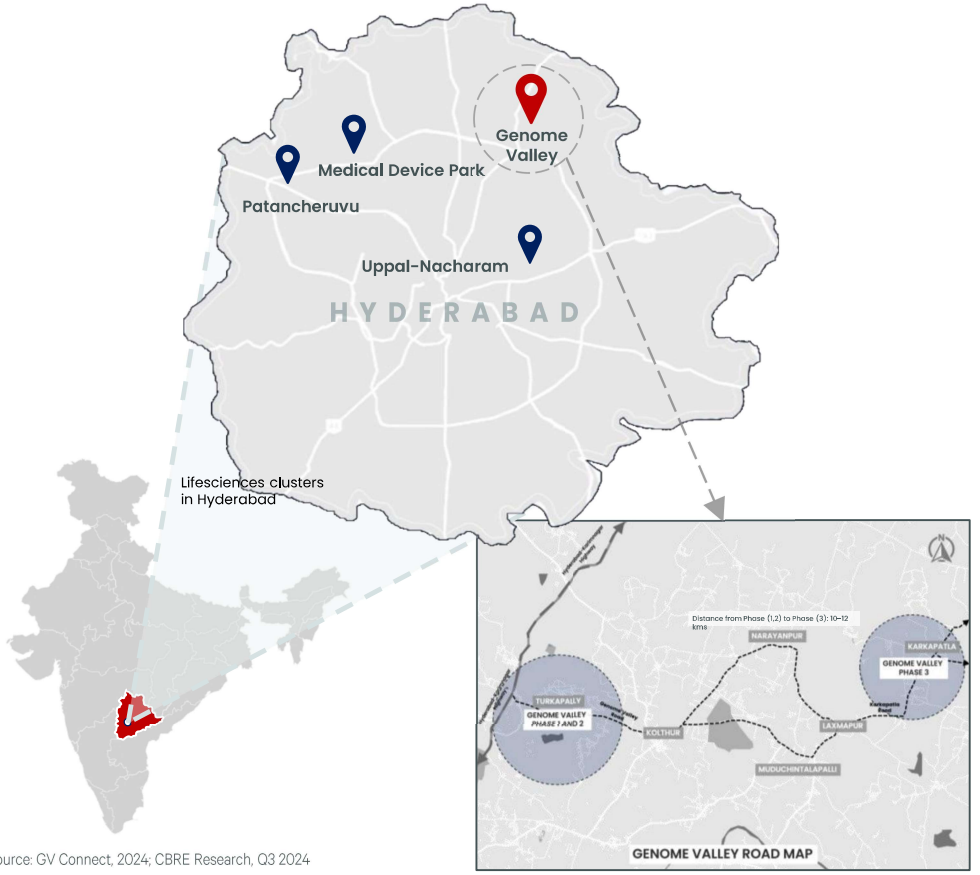
Phase I: Land plotting done by TGIIC (the erstwhile APIIC) in 2004 in the first phase. One of the land allottees was ICICI Knowledge Park (IKP), which is spread over approximately 200 acres, and is focused on promoting biotech activities. It offers land on long leases, plug-and-play modular labs, and incubation space.

Phase II: In 2009, TGIIC (the erstwhile APIIC) plotted approximately 90 acres, 50 of which were in SEZs and 40 in non-SEZ areas.

Phase III: TGIIC (the erstwhile APIIC) completed land plotting in 2012. This phase expanded into the Karkapatla region, approximately 11 km from Phase II. It includes around 100 acres of SEZ land with 20 plots and approximately 509 acres of non-SEZ land with 70 plots.

*Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.

Figure 4.2: Layout of the Genome valley with major parks



Source: GV Connect, 2024; CBRE Research, Q3 2024

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Genome Valley: A Legacy of Impact

The Government of Telangana initiated Vision 2.0 with the aim of propelling the growth of the Genome Valley. This strategic endeavour yielded notable successes, including:

- Attracting India's top contract research organisations (CROs) to the cluster
- Propelling the growth of start-ups to foster innovation
- Attracting an institution of national repute such as ICMR-NARFBR
- Establishing biopharma R&D facilities within the cluster
- Expanding Genome Valley Phase III in Karkapatla

Genome Valley 3.0

The Government of Telangana's recent push to expand Genome Valley further by 300 acres with an investment of INR 2,000 crore is anticipated to be pivotal in strengthening the cluster's positioning on the global map. The decision to terminate the Hyderabad Pharma City project* is also expected to present a strategic opportunity for the life sciences cluster. The proposed upgrades will likely create a compelling value proposition, attracting top talent and leading global and domestic companies to establish operations within Genome Valley. This enhanced ecosystem is anticipated to foster collaboration, innovation, and the exchange of ideas among the scientific community. The aim is to maximise the potential of this growth and further elevate the cluster to the ranks of leading global life sciences hubs such as Boston and San Francisco in the US and Oxford in the UK.

Vision: To position Genome Valley among the leading life sciences clusters across the world

Mission: To play a pivotal role in innovation on a global scale through the development of novel therapies / drugs in this bio cluster

Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.; *Note: According to multiple media reports, the Telangana government announced in February 2024 its decision to shelf the Hyderabad Pharma City project and instead establish ten pharma villages across the state, beginning with Vikarabad, Medak, and Nalgonda.

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Genome Valley: Forging the Future of Life Sciences

Concerted efforts needed to bolster Genome Valley as a prime life sciences destination globally

To leverage the strengths of this vibrant ecosystem and make significant contributions in R&D and biomanufacturing, the Genome Valley cluster strives to achieve the following:

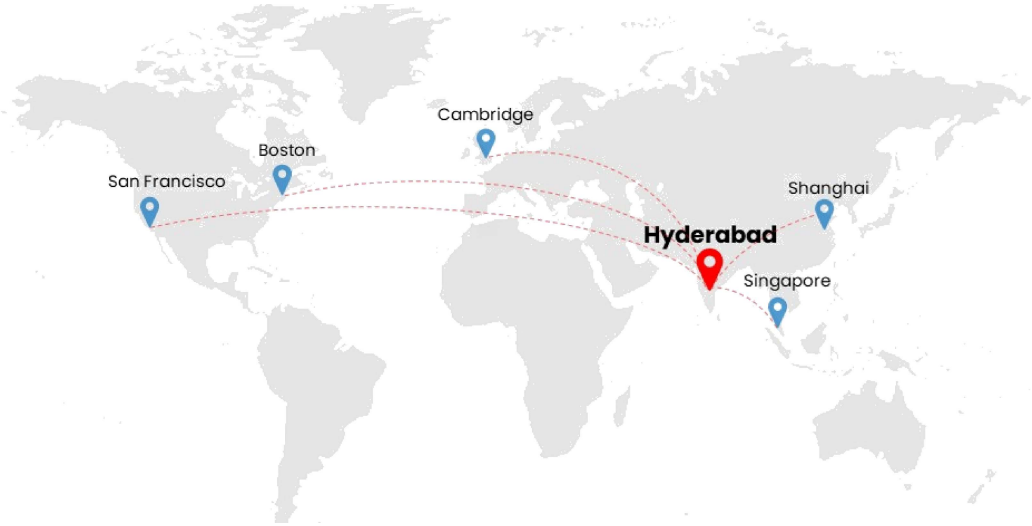
- Achieve pre-eminence in chemistry-based solutions across various sectors within the life sciences industry.
- Establish a dominant position as a global producer of vaccines.
- Secure a ranking among the world's three most sought-after biomanufacturing destinations.
- Become one of the top ten international talent hubs for LS scientists.

To ensure the continued success of Genome Valley, it is imperative for different stakeholders to operate synergistically through the following measures:

- All stakeholders need to contribute collectively to elevate the Genome Valley brand on both domestic and international platforms.
- Infrastructure upgradation, including large-scale multi-occupancy campuses and essential social amenities, needs to be prioritised.
- Strong collaborations between industry leaders and premier academic institutions are essential to attract and nurture top talent within the Genome Valley ecosystem.
- Venture capital (VC) and private equity (PE) funding should be attracted to support the seeding and scaling of innovative companies.

Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.

Figure 5.1: Major life sciences hubs in the world



Source: GV Connect, a non-profit networking platform aimed at strengthening the Genome Valley cluster, 2024.

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