



**COMPREHENSIVE DEVELOPMENT FRAMEWORK
REPORT OF STATE OF SIKKIM**

YOUTH PEACE AND DEVELOPMENT FORUM

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FOREWORD

The state of Sikkim occupies a unique and vital position within the broader narrative of Indian civilizational progress. Endowed with profound natural wealth, dense ecological reserves, and a deeply rooted cultural heritage, the state is currently navigating a critical transition. It is moving steadily toward a modernized and diversified economy. The Comprehensive Development Framework Report of the State of Sikkim captures the essence of this historical juncture. It maps a future where the traditional strengths of the region are harmonized with the modern imperatives of proactive governance, rapid infrastructure development, and comprehensive technological integration.

When we examine the evolution of statecraft and regional development, it becomes increasingly clear that effective policymaking requires far more than basic macroeconomic forecasting. True governance demands a nuanced understanding of social behavior, community incentives, and the historical continuities that shape public life.

Traditional rational choice models often fail to account for the complex realities of human decision making at the grassroots level. This framework succeeds precisely because it aligns structural economic models with the lived, everyday realities of the people. By focusing on equitable resource distribution, institutional capacity building, and targeted poverty alleviation, the report offers a detailed blueprint. It bridges the critical gap between aggregate economic growth and genuine human flourishing.

At the Youth Peace and Development Forum (YPD FORUM), our core conviction is that sustainable development cannot be achieved without social cohesion and the active, structural engagement of the next generation. Peace and development are inherently mutually reinforcing concepts. Neither can endure if a society fails to integrate its youngest members into its socio-political fabric.

Sikkim is on the cusp of a significant demographic shift, with its working age population projected to expand rapidly over the coming decade. This presents a narrow but immensely powerful window of opportunity. The true test of any development framework will be its ability to translate physical infrastructure and industrial expansion into tangible, accessible opportunities for the youth, empowering them as the primary stakeholders in the future of the state.

The Comprehensive Development Framework Report acknowledges these shifting dynamics by prioritizing human capital. It recognizes that the wealth of a state lies not only in the minerals beneath its soil but in the potential of its people. The policies outlined herein reflect a deep understanding of behavioral economics, recognizing that citizens are not merely passive recipients of government aid but active participants whose choices must be nurtured through sound policy architecture. By mitigating risks for small enterprises, incentivizing educational attainment, and ensuring that development reaches the most marginalized districts, the framework creates a foundation for sustainable, long term stability.

A crucial component of this vision is the integration of the state's tribal and rural populations into the mainstream economic narrative without erasing their socio-cultural identities. The cultural identity of Sikkim must remain a guiding force as the state modernizes. The preservation of local traditions alongside the adoption of modern industrial practices is not a contradiction but a necessary synthesis.

Development policies must respect the historical context of the communities they serve, ensuring that progress feels organic rather than imposed. The framework thoughtfully addresses this balance, proposing strategies that elevate local communities while connecting them to the broader national and global economy.

Furthermore, we must recognize that true peace is not merely the absence of conflict but the presence of justice, equity, and opportunity. In regions that have historically faced developmental deficits, building physical infrastructure must be accompanied by the building of trust in public institutions. This report outlines actionable methodologies to enhance administrative transparency and accountability. It understands that when citizens see fair distribution of resources and opportunities, the foundations of lasting social peace are strengthened.

This comprehensive document is a vital intervention in the ongoing discourse regarding state capacity and regional transformation in India. It provides policymakers, corporate investors, and civil society leaders with the analytical rigor and empirical data required to drive meaningful, systemic change. It serves as a reminder that the ultimate goal of economics and political thought is the elevation of the human condition.

I commend the extensive research and collaborative effort that has gone into the creation of this document. It is my sincere hope that it will not remain a mere theoretical exercise but will serve as a definitive, actionable guide. The path ahead requires unwavering commitment, but with the right policy architecture in place, we can build a resilient, prosperous, and fundamentally inclusive Sikkim for generations to come.

Dheeraj G. N.
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The Youth Peace and Development Forum (YPD Forum) expresses its sincere gratitude to all individuals whose dedication, expertise, and commitment made the preparation of The Comprehensive Development Framework Report of the State of Sikkim possible.

This report forms part of a larger national initiative undertaken through the Council for Comprehensive Development Frameworks (CDF Council), constituted by the YPD Forum to facilitate the fast-track preparation of comprehensive development frameworks for all 28 States of India. The Council represents the Forum's commitment to promoting evidence-based policymaking, strategic planning, and long-term developmental thinking across the nation.

The Forum places on record its deep appreciation to **Dheeraj GN**, Chairman of the Youth Peace and Development Forum, for his vision, leadership, and initiative in conceptualizing and guiding this ambitious project. The Forum also extends its heartfelt thanks to **Aravind Saj**, Vice Chairman of the Youth Peace and Development Forum, for his constant support and encouragement throughout the execution of this initiative.

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The Forum acknowledges the commitment, intellectual curiosity, and sense of responsibility demonstrated by each member of the Council. Through research, analysis, discussion, drafting, review, and continuous engagement with developmental issues, these members contributed significantly to the realization of the Council's objectives. Their willingness to dedicate their time and talents to a national developmental initiative reflects a commendable spirit of public service and constructive citizenship.

The Forum also recognizes that the preparation of a comprehensive development framework requires engagement with a wide range of ideas, perspectives, and sources of knowledge. Accordingly, sincere appreciation is extended to all researchers, academicians, policy experts,

development practitioners, government publications, statistical agencies, think tanks, and public institutions whose work provided valuable insights and reference material for this report. Their contributions to the broader body of knowledge on governance, economics, social development, environmental sustainability, infrastructure, education, healthcare, and public policy have enriched the quality and depth of this framework.

The Youth Peace and Development Forum is particularly grateful to the students, young researchers, and volunteers associated with the Forum who continue to demonstrate that youth can play a constructive role in addressing national challenges. Their enthusiasm, creativity, and commitment to public causes embody the ideals upon which the Forum was founded and reaffirm the importance of empowering younger generations to participate actively in nation-building.

The Forum further extends its appreciation to all well-wishers, supporters, advisors, and stakeholders who encouraged this initiative and contributed to its successful completion. Whether through guidance, feedback, consultation, or moral support, their contributions helped strengthen the quality and relevance of this work.

This report represents more than a policy document; it reflects a collective effort to envision a better future. It is the product of shared aspirations, collaborative research, and a common belief that informed planning and constructive dialogue can contribute to meaningful social, economic, and institutional progress. While the recommendations contained herein are intended to support the development of Sikkim, they also form part of a broader national effort to strengthen the foundations of a developed, inclusive, sustainable, and prosperous India.

As India advances towards the centenary of its independence in 2047, the Youth Peace and Development Forum remains committed to fostering research, dialogue, and innovation in support of national development. It is hoped that this report will serve as a useful resource for policymakers, administrators, researchers, civil society organizations, industry leaders, and citizens, and that it will contribute meaningfully to the ongoing pursuit of inclusive growth, good governance, and sustainable development.

With gratitude to all who contributed to this endeavour, the Youth Peace and Development Forum proudly presents this report as a modest contribution towards the shared vision of a stronger Sikkim and a developed India.

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PREFACE

Sikkim occupies a distinctive place in India's federal development story. It is the least populous state in the country, the second smallest by area after Goa, and the only fully organic farming state in the world, a status it achieved in 2016 when it phased out chemical fertilisers and pesticides across its entire agricultural land base (Government of Sikkim, Department of Food Security and Agriculture Development, 2016). It shares international borders with Nepal, Bhutan, and the Tibet Autonomous Region of China, giving it a strategic weight in national security planning that is disproportionate to its size. Its terrain rises from subtropical valleys below 300 metres to the permanently snow bound slopes of Kangchenjunga, the third highest mountain on earth, within a horizontal distance of under 150 kilometres (Sikkim State Disaster Management Authority, 2023). Few states in India, and few sub national jurisdictions anywhere in the world, compress such ecological, cultural, and strategic complexity into so small a territory.

This framework has been prepared to consolidate, in one place, the state's demographic profile, fiscal position, economic structure, human development record, infrastructure base, and governance architecture, and to set out priorities for the period to 2047, the centenary year of India's independence and the horizon adopted by the Government of India for its Viksit Bharat vision. The document follows the standardized chapter structure used across comparable state development frameworks, so that Sikkim's position can be read alongside that of other states using a common template, and so that policymakers, researchers, and citizens can locate any given theme, whether fiscal, social, environmental, or administrative, in a predictable place within the report.

The purpose of this exercise is not simply descriptive. A development framework of this kind is meant to serve three functions at once. First, it is a record, an attempt to state clearly and with proper attribution what is known about Sikkim's current condition across the principal dimensions of state capacity and citizen welfare. Second, it is a diagnostic, intended to surface where the state's performance is strong relative to its peers and where structural constraints, whether fiscal, geographic, or institutional, continue to limit outcomes. Third, it is a planning instrument, meant to feed into the medium and long term priority setting that culminates in Chapter 21's vision for 2047. These three functions pull in different directions at times. A record must be conservative and evidence bound. A diagnostic must be willing to name weaknesses plainly. A planning instrument must look forward into genuine uncertainty. This report attempts to hold all three in balance, chapter by chapter.

Two features of Sikkim shape the analysis throughout, and it is worth stating them clearly at the outset because they recur, in different forms, in nearly every chapter that follows. The first is the state's genuinely high development indicators. Sikkim ranks tenth among Indian states on the Human Development Index with a value of 0.807 for 2023, comparable to upper middle income countries, and it has recorded one of the fastest rates of improvement on the NITI Aayog SDG India Index of any state between 2018 and 2023 to 2024 (NITI Aayog, 2024; Sub National HDI Database, 2023). These are not marginal achievements. They place

Sikkim among a small group of Indian states, alongside Kerala, that have translated relatively modest fiscal resources into human development outcomes well above the national median, through sustained public investment in health, education, and basic infrastructure over several decades of both monarchical and post merger governance.

The second feature is the acute physical constraint under which that achievement has been built and must be sustained. Sikkim has a small and mountainous land base, high exposure to seismic and landslide risk following the 2011 Sikkim earthquake and the 2023 South Lhonak glacial lake outburst flood, and a workforce and revenue base too small to achieve fiscal self sufficiency without central transfers. Nearly the entirety of the state's territory falls within Seismic Zone IV or V under the Bureau of Indian Standards classification, and its river systems, the primary source of both its hydropower revenue and its irrigation, are fed by glacial lakes whose stability cannot be taken for granted, as the October 2023 Teesta valley disaster demonstrated with severe consequence for both human life and infrastructure (Bureau of Indian Standards, 2016; National Disaster Management Authority, 2023). The tension between strong human development outcomes and structural fragility, between what the state has achieved and how exposed that achievement remains to a single seismic or hydrological event, is the organising theme of this report, and it is a tension this framework returns to explicitly in the chapters on fiscal architecture, infrastructure, environment, and climate risk.

A further point bears mentioning here rather than being left implicit. Sikkim's most recent enumerated population count remains the 2011 Census, since the Census due in 2021 has been repeatedly deferred and had not been conducted as of the time of this report's preparation in 2026. Every population figure cited for the current period in this document, and indeed in most national planning documents that rely on Sikkim data, is therefore a projection built on assumed growth trajectories from that 2011 baseline, not a verified count. This is a real limitation on the precision available to any development framework for the state at this moment, and it is one shared by national agencies, not one specific to this report. Where recent, granular, or district disaggregated data for Sikkim was not available in the public domain at the time of writing, a limitation that arises more often for a state of Sikkim's size than for a larger state, this is stated explicitly in the relevant section rather than filled in with an unsupported estimate. Every statistic in this report carries a source and a year, and every projection is identified as such.

Tanvi Harivanam

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Executive Summary

Sikkim enters the second quarter of the twenty-first century as a small state with an outsized development record and an outsized exposure to climate and disaster risk, and the tension between those two facts runs through nearly every chapter of this report. Its Human Development Index value of 0.807 for 2023 places it among the top ten Indian states, a ranking that reflects sustained investment in health, education, and basic public services across successive governments (Sub National HDI Database, 2023). Its literacy rate of 81.42 percent, recorded in the 2011 Census, exceeded the national baseline of that period, and its per capita income is among the highest of any Indian state, a position driven substantially by hydropower revenue, tourism receipts, and a services led economy that has grown alongside the state's full transition to certified organic agriculture, completed in 2016 (Census of India, 2011; Wikipedia, Economy of Sikkim, 2026, drawing on Government of Sikkim Economic Survey data; Government of Sikkim, Department of Food Security and Agriculture Development, 2016).

At the same time, several structural realities temper any straightforward reading of these indicators as a settled success story. Sikkim's population remains uncounted since 2011 because the decennial Census due in 2021 has been deferred, and every population figure cited for 2026 in this report is therefore an estimate rather than an enumeration. Third party demographic trackers place the projected 2026 population anywhere between approximately 698,000 and 732,000, a spread that itself illustrates how much uncertainty remains in the absence of an actual count (Registrar General of India, 2011; Census2011.co.in, 2026; IndiaCensus.in, 2026; FindEasy, 2026). This report flags such figures wherever they feed into per capita calculations or service coverage ratios elsewhere in the document.

The state's fiscal architecture compounds this uncertainty in a different way. Sikkim's own tax base is narrow, a function of its small population and the ceiling that mountainous terrain places on commercial activity, and like other Himalayan and northeastern special category states it depends heavily on central devolution and centrally sponsored scheme transfers to fund both revenue and capital expenditure. This dependence is examined in Chapter 2 and returns again in the financing strategy set out in Chapter 21. It is not a criticism unique to Sikkim's management. It is a structural feature shared by nearly every small mountain state in India, and it shapes what is realistically achievable across every other chapter of this framework.

The state's physical geography introduces a third, and arguably the most consequential, layer of constraint. Sikkim's terrain, steep slopes, high seismicity concentrated in Bureau of Indian Standards Zone IV and Zone V, and a network of glacial lakes sitting above several of its major river valleys, has translated into recurring and severe disaster events. The most damaging in recent years was the October 2023 South Lhonak glacial lake outburst flood, which breached its moraine dam, sent a destructive flood surge down the Teesta river valley, damaged the Teesta III hydropower project, one of the state's largest single infrastructure assets, and displaced thousands of residents (National Disaster Management Authority,

2023). That single event illustrates a risk profile that composite indicators such as the Human Development Index do not capture, and this report treats it as a first order planning consideration, addressed directly in Chapter 14 and again in the infrastructure and energy chapters where hydropower dependence is discussed.

Set against these constraints, Sikkim's comparative performance on national indices remains genuinely strong. On the NITI Aayog SDG India Index 2023 to 2024, Sikkim was named among the four fastest improving states nationally, with its composite score rising by 18 points between the 2018 baseline and the 2023 to 2024 edition, a rate exceeded only by Uttar Pradesh, Jammu and Kashmir, and Uttarakhand, all considerably larger states with different starting conditions (NITI Aayog, 2024; Press Information Bureau, 2024). The specific goal wise breakdown for Sikkim within that index was not available in the sources consulted for this report and would need to be drawn from NITI Aayog's full state fact sheet for a precise sub indicator analysis.

This framework sets out, across twenty one chapters, the full range of the state's development architecture, beginning with geography and demography in Chapter 1, presented here, and proceeding through fiscal architecture, economic structure, investment climate, education, health, and social justice in Chapters 2 through 7. It then covers physical infrastructure, transport, energy, water and sanitation, and urban and rural development, in Chapters 8 through 12, before addressing environmental governance and climate risk directly in Chapters 13 and 14. Administrative reform, technology enabled service delivery, and the innovation ecosystem follow in Chapters 15 through 17, and the report closes with agriculture, tourism, cross-cutting priorities, and a concluding vision to 2047 in Chapters 18 through 21.

Throughout, this report holds together a clear account of what Sikkim has achieved and an equally direct account of what remains fragile or unresolved. Its record on human development is real and stated without hedging. Its exposure to fiscal dependence, demographic uncertainty, and physical disaster risk is equally real and stated with the same directness. Where data does not yet exist to answer a question precisely, this report says so rather than filling the gap with an invented number, on the view that this is the only basis on which a development framework can be genuinely useful to the people who will act on it.

Chapter 1: State Profile, Geography, Demography and Society

1.1 Geographic and Ecological Characteristics of the state

Sikkim lies in the eastern Himalaya, bounded by the Tibet Autonomous Region of China to the north and east, Bhutan to the southeast, Nepal to the west, and the Indian state of West Bengal to the south. It covers a land area of approximately 7,096 square kilometres, making it the second smallest state in India by area after Goa, though some geospatial data sources report a slightly larger figure of around 9,050 square kilometres depending on the boundary dataset used (GeoIQ, 2026; Government of Sikkim, 2023). This report uses the Survey of India administrative figure of 7,096 square kilometres as the standard reference, consistent with Census of India documentation, and notes the discrepancy for transparency rather than silently adopting one figure over the other.

The state's terrain is defined by extreme vertical relief, a feature that shapes almost every other dimension of governance and planning discussed in this report. Elevation ranges from around 280 metres above sea level in the southern foothill areas near the West Bengal border to 8,586 metres at the summit of Kangchenjunga on the Nepal border, the third highest peak in the world (Sikkim State Disaster Management Authority, 2023). This vertical span, compressed into a horizontal distance of roughly 150 kilometres, produces an unusually compressed sequence of ecological zones: subtropical forest below 1,000 metres, temperate broadleaf and conifer forest between 1,000 and 3,000 metres, subalpine and alpine meadow between 3,000 and 5,000 metres, and permanent snow and glacial terrain above 5,000 metres. A traveller moving from the southern town of Melli on the West Bengal border to the northern settlement of Lachen can pass through nearly the full range of Himalayan ecological zones in a single day's road journey, a compression rarely found elsewhere in the Indian Himalaya and one that has direct consequences for road engineering, agricultural zoning, and disaster exposure, all of which recur later in this report.

This same vertical compression also produces a climate that varies enormously within short distances. The southern and lower elevation districts experience a subtropical monsoon climate with heavy rainfall between June and September, while the higher elevation areas of North Sikkim experience alpine and tundra like conditions with sub zero winter temperatures and only a short growing season. Annual rainfall across the state is generally high by Indian standards, concentrated heavily in the southwest monsoon months, a pattern that both sustains the state's dense forest cover and contributes to its persistent landslide risk on the steep, often geologically young and unstable slopes typical of the eastern Himalaya. Road maintenance budgets and school academic calendars in the higher districts are both shaped by this seasonal rhythm, since several stretches of highway in North and West Sikkim close intermittently during the monsoon due to landslide risk and again in parts of North Sikkim during peak winter due to snow.

Sikkim is part of the Eastern Himalaya biodiversity hotspot, one of the most species rich regions on earth, and this ecological richness is not incidental to the state's development story

but a central asset that recurs across several later chapters, from tourism in Chapter 19 to environmental governance in Chapter 13. The state's Khangchendzonga National Park was inscribed as a UNESCO World Heritage Site in 2016, recognised as a mixed natural and cultural site, the first of its kind in India, in recognition of both its biodiversity and its sacred status in Lepcha and Bhutia cosmology, where Kangchenjunga itself is venerated as a guardian deity (UNESCO World Heritage Centre, 2016). The park spans a substantial share of the state's northern and western territory and encompasses the full range of Himalayan ecological zones within a single protected area, from subtropical forest to permanent ice, a rare arrangement that gives Sikkim's conservation authorities jurisdiction over an unusually complete ecological gradient within one administrative boundary.

Forest cover across the state is extensive and has generally been reported as stable or expanding in successive national assessment cycles. The India State of Forest Report placed Sikkim's forest and tree cover at just over 47 percent of its geographical area in the most recent assessment cycle, among the higher proportions recorded for any Indian state and considerably above the national average (Forest Survey of India, 2023). This forest cover performs functions well beyond conservation value alone. It stabilises the steep slopes that dominate the state's terrain, moderates the flow regime of rivers that feed the state's hydropower installations, and underpins the ecotourism sector that has become an increasingly important part of the state's tourism economy alongside its more traditional pilgrimage and mountaineering tourism base. Loss of this cover through construction, road widening, or unregulated fuelwood extraction would carry consequences well beyond the immediate site of clearance, given how tightly slope stability, river flow, and tourism value are bound together in this terrain.

The state's river systems, principally the Teesta and its major tributary the Rangit, are fed by glacial melt and monsoon precipitation, and together they support the majority of the state's installed hydropower capacity, discussed in detail in Chapter 9. These same river systems, and the glacial lakes that feed them at high altitude, are also the source of the state's most severe disaster risk. The relationship between Sikkim's rivers as an economic asset and as a hazard source is not a coincidence but a structural feature of Himalayan hydrology: the steep gradient and glacial feed that make Teesta basin rivers so attractive for run of river hydropower generation are the same characteristics that make glacial lake outburst floods so destructive when they occur, since floodwaters descend through narrow valleys at high velocity with little natural buffering. This dual character of the river system is examined further in section 1.7 of this chapter and again in Chapter 14.

Sikkim's seismic classification places nearly the entire state in Zone IV, the second highest seismic hazard zone under the Bureau of Indian Standards classification, with parts of north Sikkim falling in Zone V, the highest classification used in India (Bureau of Indian Standards, 2016). The state experienced a magnitude 6.9 earthquake in September 2011, centred near the Sikkim Nepal border, that killed more than 100 people across Sikkim and neighbouring areas and caused extensive damage to public buildings, roads, and private housing, particularly in West Sikkim. That event continues to inform the state's building codes, its retrofitting

priorities for schools and health facilities, and its broader disaster preparedness planning, and it is referenced again in the governance and disaster risk chapters of this report.

1.2 Administrative Divisions: Districts, Divisions and Sub-State Units

Sikkim's administrative structure was reorganised in 2021, when the four historic districts, East, West, North, and South Sikkim, were expanded into six districts to improve administrative reach and service delivery in a state where several settlements remain difficult to access due to terrain (Government of Sikkim, Home Department, 2021). The reorganisation split East Sikkim into East and Pakyong districts, and South Sikkim into South and Soreng districts, while West and North Sikkim retained their earlier boundaries with minor adjustments. This reorganisation reflected a broader logic common to hill state administration in India, that the effective radius of governance from a single district headquarters shrinks considerably in mountainous terrain relative to the plains, since travel time rather than travel distance is the binding constraint on how far a district administration can reasonably serve.

The six districts, with their headquarters, are as follows.

East Sikkim is headquartered at Gangtok, which is also the state capital and by far the largest urban centre in the state, hosting the majority of government offices, the state's principal referral hospitals, its main higher education institutions, and the bulk of private commercial investment. Pakyong district was carved from East Sikkim and is headquartered at Pakyong town, notable as the location of Sikkim's only airport, Pakyong Airport, commissioned in 2018 as the state's first air link and discussed further in Chapter 8. South Sikkim is headquartered at Namchi, a town that has itself become a significant pilgrimage and tourism centre owing to large scale religious statuary and cultural infrastructure developed over the past two decades. Soreng district was carved from South Sikkim and is headquartered at Soreng town. West Sikkim is headquartered at Gyalshing, and is home to some of the state's most significant Buddhist heritage sites including Pemayangtse and Tashiding monasteries. North Sikkim is headquartered at Mangan, and is by a considerable margin the largest district by area while simultaneously being the most sparsely populated, given that much of its territory lies at high altitude and includes substantial portions of protected forest and glacial terrain, including areas bordering Khangchendzonga National Park.

Below the district level, Sikkim's rural areas are organised into Gram Panchayat Units, and its urban areas into municipal bodies including the Gangtok Municipal Corporation, the state's only municipal corporation, and several municipal councils and nagar panchayats in smaller towns such as Namchi, Jorethang, Rangpo, and Singtam (State Election Commission, Sikkim, 2023). Panchayati Raj institutions in Sikkim carry a distinctive feature relative to most Indian states, arising from the state's particular constitutional history. A substantial share of the state's land, and the Panchayat structures that govern it, interact with the Sikkim Subject regulations and land ownership protections that predate the state's 1975 merger with India, particularly in areas populated by the Lepcha and Bhutia communities, whose land rights are protected under Article 371F of the Constitution of India. This constitutional

provision, unique to Sikkim among Indian states, restricts the transfer of land from Sikkim Subject holders to non Sikkim Subjects in defined circumstances, a protection that has shaped settlement patterns, agricultural land markets, and the pace of outside investment in land across the state in ways that later chapters on investment climate and rural development return to.

It is worth situating this administrative architecture within its broader historical context, since Sikkim's institutions of governance are comparatively young relative to most Indian states. Sikkim existed as an independent Chogyal monarchy, with periods of British protectorate and later Indian protectorate status, until 1975, when a referendum led to its merger with India as its twenty second state. This merger occurred nearly three decades after Indian independence, and the state's modern bureaucratic and Panchayati Raj institutions have therefore developed over a shorter span than those of states that were part of the Indian Union from 1947 or earlier. This relatively compressed institutional history is not in itself a weakness, and Sikkim's strong development indicators, discussed later in this chapter, suggest that institution building proceeded effectively over this period, but it is a relevant piece of context for understanding why certain statistical series, district boundaries in particular, remain comparatively recent and still being consolidated, a point that recurs later in this section and again in section 1.7.

The 2021 reorganisation itself is still being absorbed into the state's routine administrative and statistical practice. Departmental budgets, staffing allocations, and several data collection systems that were built around the earlier four district structure are in the process of being realigned to the six district boundaries, and this transition period means that some administrative datasets referenced elsewhere in this report are only partially disaggregated to the newer district boundaries, a limitation this report flags wherever it becomes relevant rather than working around it silently.

1.3 Demographic Structure: Population, Density, Growth and Composition

Sikkim's most recent enumerated population count is the 2011 Census, which recorded a total population of 610,577, comprising 323,070 males and 287,507 females, giving a sex ratio of 890 females per 1,000 males, below the national average recorded in the same census (Registrar General of India, 2011). This was, and remains, the smallest population of any Indian state, a position Sikkim has held for decades and is likely to continue holding regardless of which growth projection eventually proves closest to the true 2021 or later figure.

Because the 2021 Census has been deferred and had not been conducted as of the time of writing in 2026, no official enumerated figure exists for the state's current population, and this absence of a hard count deserves more discussion than a single caveat, since it affects the reliability of nearly every per capita and coverage statistic used elsewhere in this report. Multiple demographic tracking services publish projections based on assumed growth trajectories extrapolated from the 2011 baseline. These projections range between approximately 698,000 and 732,000 for 2026, a spread of roughly 34,000 people, or close to

5 percent of the estimated total, illustrating how much uncertainty remains in the absence of an actual count (Census2011.co.in, 2026; IndiaCensus.in, 2026; FindEasy, 2026). One tracking service estimates the male population at approximately 372,000 and the female population at approximately 334,000 for 2026, implying a projected sex ratio broadly consistent with the 2011 figure, though this too should be read as a modelled extrapolation rather than a measured outcome. This report treats all such figures as projections, not as verified data, and flags them accordingly wherever cited elsewhere in this document, including in the fiscal, health, and education chapters where per capita and per beneficiary calculations are unavoidable.

Population density, correspondingly, is best expressed as a range rather than a point estimate, in the order of 86 to 103 persons per square kilometre depending on which land area and population figures are combined, among the lowest densities of any Indian state and a reflection of the large share of the state's territory that lies at high, sparsely habitable altitude, including glaciated and protected forest land that is by definition uninhabited. This low overall density conceals substantial internal variation, since East Sikkim and Pakyong district, anchored by Gangtok, carry population densities far above the state average, while North Sikkim's density is a small fraction of the state figure given its combination of large area and thin, high altitude settlement. This internal density gradient matters directly for infrastructure planning, since the cost per household of extending piped water, electricity, or road connectivity rises sharply as density falls, a relationship examined further in Chapters 9 and 10.

The 2011 Census recorded that 25.15 percent of Sikkim's population lived in urban areas, with the urban population having grown by 156.52 percent over the preceding decade, one of the highest urban growth rates recorded in any Indian state in that census cycle, driven substantially by Gangtok's expansion as the seat of government and the primary hub of the state's growing service and tourism economy (Census of India, 2011). If this pace of urbanisation has continued through the 2010s and into the 2020s, a plausible but unverified assumption given the absence of a 2021 count, Sikkim's urban share in 2026 would be meaningfully higher than the 2011 figure, with implications for urban infrastructure, housing, and municipal service delivery that are addressed in Chapter 11. Urban sex ratio in 2011 stood at 913 females per 1,000 males, somewhat higher than the state's overall rural inclusive figure of 890, a pattern consistent with the tendency of urban labour markets, particularly in services, retail, and government employment, to draw women into paid work and urban residence at higher rates than the state's rural, more agriculturally oriented economy.

Literacy stood at 81.42 percent in 2011, with urban literacy at 88.71 percent, both above the national average recorded in the same census, and consistent with the state's generally strong performance on human development indicators discussed in section 1.5. Child population in the 0 to 6 age group was recorded at 64,111 in the 2011 Census, representing 10.5 percent of the state's overall population, with a child sex ratio of 957 females per 1,000 males, notably higher than the overall population sex ratio of 890 (Census of India, 2011). This gap between a relatively favourable child sex ratio and a less favourable overall sex ratio is a pattern worth

flagging rather than glossing over, since it suggests that Sikkim's lower overall sex ratio may be driven at least in part by gender differentiated migration patterns among the working age population rather than by skewed sex ratios at birth, though confirming this interpretation would require age disaggregated migration data that was not available in the sources consulted for this report.

The state's population pyramid in 2011 showed a relatively young age structure, typical of a state still in an earlier phase of demographic transition relative to some larger Indian states. Out migration of working age residents to other states and abroad for higher education and employment, a pattern common across Himalayan states with limited local higher education capacity and a narrow formal employment base outside government service, has likely altered this age structure in the years since 2011 in ways that cannot be verified without updated census or survey data. This out migration pattern, often referred to in regional policy discussions across the Himalayan states as a form of demographic hollowing in rural and remote areas, is a theme this report returns to in the discussion of the labour market in Chapter 3 and rural livelihoods in Chapter 12.

1.4 Linguistic, Ethnic, Religious and Cultural Profile

Sikkim's population is drawn from three broad ethnic communities recognised in state policy and constitutional law: the Lepcha, regarded as the original inhabitants of the region and referred to in Lepcha tradition as the Mutanchi Rong Kup, meaning children of the sacred snowy peak, the Bhutia, of Tibetan origin and historically dominant in the state's pre merger monarchy under the Namgyal dynasty, and the Nepali speaking communities, who form the demographic majority in the state today and who themselves comprise multiple distinct sub communities including Chettri, Bahun, Rai, Gurung, Limbu, Tamang, Sherpa, Newar, Magar, and others, each with its own language, customary practices, and, in several cases, distinct religious traditions spanning Hindu, Buddhist, and animist practice (Government of Sikkim, Department of Information and Public Relations, 2022).

Article 371F of the Constitution of India, inserted at the time of Sikkim's merger in 1975, provides special protections for the state, including reserved legislative assembly seats for the Bhutia Lepcha community and a reserved seat for the Sangha, or Buddhist monastic community, a constitutional arrangement unique to Sikkim among Indian states and one that has no direct parallel in the reservation architecture of any other state legislature in the country. This provision reflects the negotiated terms of Sikkim's accession and continues to shape the state's electoral and legislative politics, ensuring institutional representation for communities that might otherwise be numerically outweighed within a purely population based electoral system.

The principal languages recorded in Sikkim include Nepali, which functions as the state's lingua franca and is also included in the Eighth Schedule of the Constitution of India, alongside Bhutia, Lepcha, Limbu, Newari, Rai, Gurung, Magar, Sherpa, Tamang, and Sunwar, several of which have been granted official language status by the state government for use in administration and education in areas where they are spoken (Government of

Sikkim, 2022). This multiplicity of officially recognised languages, unusually high for a state of Sikkim's small population, reflects a deliberate policy choice to protect linguistic diversity in a state where several of these languages, Lepcha in particular, have relatively small speaker populations and face genuine risk of intergenerational decline without institutional support through school curricula and state media.

On religion, the 2011 Census recorded Hinduism as the majority faith at 57.76 percent of the population, followed by Buddhism at 27.39 percent, reflecting the historical Buddhist character of the pre merger kingdom and its extensive network of monasteries, Christianity at 9.91 percent, reflecting missionary activity and conversion particularly among some Lepcha and Nepali speaking communities over the nineteenth and twentieth centuries, Islam at 1.62 percent, and smaller shares practising Sikhism at 0.31 percent, Jainism at 0.05 percent, and other faiths or no particular religion accounting for the remainder (Census of India, 2011). Sikkim's Buddhist monasteries, including Rumtek, regarded as one of the most significant seats of the Karma Kagyu lineage of Tibetan Buddhism outside Tibet itself, Pemayangtse, Tashiding, and Enchey, remain central to the state's cultural identity and tourism economy, and are subjects of ongoing heritage conservation programmes administered jointly by the state's Ecclesiastical Department and central heritage bodies. These monasteries also function as important centres of Buddhist scholarship and monastic education, and several host significant annual festivals, including Chaam masked dance performances, that draw both religious pilgrims and cultural tourists, a theme developed further in Chapter 19.

Sikkim's cultural calendar reflects this religious and ethnic diversity directly. State recognised festivals span Hindu observances such as Dashain and Tihar, celebrated predominantly by the state's Nepali speaking Hindu population and closely related to the festivals of the same name observed in Nepal, Buddhist observances such as Losar, the Tibetan and Sikkimese new year, and Saga Dawa, and community specific observances tied to the Lepcha and Limbu calendars. This layered cultural calendar is not merely of anthropological interest but has practical governance implications, since the state administration must plan its public holiday calendar, school academic calendar, and tourism promotion cycle around a considerably more diverse set of observances than most Indian states, a coordination task the state's Department of Information and Public Relations and its ecclesiastical affairs machinery manage on an ongoing basis.

1.5 Human Development Index: State Ranking and Trend Analysis

Sikkim recorded a Human Development Index value of 0.807 for 2023 according to the Global Data Lab Sub National HDI Database, placing it tenth among Indian states and in the range conventionally described as very high human development, a notable achievement for a state with Sikkim's fiscal constraints and terrain challenges (Sub National HDI Database, 2023). This figure sits well above India's national HDI value of 0.644 for 2023, which places the country 134th globally in medium human development, and it places Sikkim closer, on this particular composite measure, to the profile of a moderately developed middle income country than to the median profile of an Indian state (United Nations Development Programme, 2024, as cited in Vajiram and Ravi, 2025).

It is worth being precise about what this ranking does and does not establish. The Human Development Index is a composite of three sub indices, a health index typically built from life expectancy or similar longevity measures, an education index built from schooling attainment and expected years of schooling, and an income index built from gross national income or a comparable measure of per capita output. A state can achieve a strong composite score through different combinations of strength across these three components, and the sub national HDI database consulted for this report did not provide a component level breakdown specific to Sikkim, meaning this report cannot say with confidence whether Sikkim's strong overall score is driven more heavily by its health outcomes, its education attainment, or its comparatively high per capita income linked to hydropower and tourism revenue. A component level disaggregation would meaningfully sharpen the education, health, and economic policy discussions in Chapters 3, 5, and 6 of this report, and is flagged here as a priority for the state's own statistical machinery, discussed further in Chapter 20, to publish alongside future HDI updates.

Sikkim's strong HDI position is consistent with its performance on the NITI Aayog SDG India Index 2023 to 2024, on which it was named among the four fastest improving states nationally, with its composite score rising by 18 points between the 2018 baseline and the 2023 to 2024 edition, behind only Uttar Pradesh, Jammu and Kashmir, and Uttarakhand (NITI Aayog, 2024; Press Information Bureau, 2024). The index, which tracks 113 indicators aligned to the Ministry of Statistics and Programme Implementation's National Indicator Framework across all 16 Sustainable Development Goals, places states on a 0 to 100 scale, and Sikkim's trajectory reflects sustained public investment in health, education, and basic infrastructure over the period. The underlying goal wise breakdown specific to Sikkim was not available in the sources consulted for this report and would need to be drawn from NITI Aayog's full state fact sheet for precise sub indicator analysis, a limitation this report notes rather than papers over with an estimated breakdown.

It should also be noted that HDI and SDG index estimation for small states carries wider confidence intervals than for large states, given smaller survey sample sizes in national data collection exercises such as the National Family Health Survey and the Periodic Labour Force Survey, both of which typically draw samples proportional to population and therefore yield thinner, less statistically robust state level estimates for a state of Sikkim's size than for populous states such as Uttar Pradesh or Maharashtra. This report treats the 0.807 figure as strongly indicative of Sikkim's relative standing among Indian states rather than as a precise point estimate with a tight confidence interval, and recommends that any policy document relying on year on year change in this figure treat small movements with appropriate caution.

1.6 Poverty, Inequality and Multidimensional Deprivation Indices

National level data from NITI Aayog's National Multidimensional Poverty Index indicates that multidimensional poverty across India nearly halved from 24.8 percent in 2015 to 2016 to 14.96 percent in 2019 to 2021, with further improvement to an estimated 11.28 percent in 2022 to 2023, according to NITI Aayog's most recent update cited in official government communication around the release of the SDG India Index 2023 to 2024 (Press Information

Bureau, 2024, citing NITI Aayog's National MPI updates). Sikkim has historically recorded multidimensional poverty rates well below the national average in successive rounds of this index, consistent with its high HDI ranking and its strong performance on the No Poverty goal within the SDG India Index framework, which NITI Aayog has separately reported moved into the Front Runner category nationally, defined as a score between 65 and 99, over the same period (Press Information Bureau, 2024). A current, state specific 2026 multidimensional poverty figure for Sikkim was not located in the sources available for this report, however, and should be sourced from NITI Aayog's most recent National MPI state fact sheet before being cited in formal policy documents, rather than assumed from the state's general HDI standing.

Income inequality data disaggregated to the state level for Sikkim, such as Gini coefficient estimates derived from consumption or income surveys, is not routinely published by national statistical agencies at a frequency or granularity that would support a reliable current figure, and this report does not manufacture one. This is a genuine data gap, and it is a significant one, because a state can simultaneously exhibit low multidimensional poverty and a high or rising Gini coefficient if growth in hydropower revenue, tourism income, and government salaries has been concentrated among urban, formally employed households in and around Gangtok while rural and remote household incomes have grown more slowly. Without a reliable inequality measure specific to Sikkim, this report cannot confirm or rule out that pattern, and it is flagged here as a priority area for the state's statistical machinery, discussed further in Chapter 20, to address through a dedicated household income and consumption survey.

1.7 Intra-state disparities: Aspirational districts and Backward region identification

None of Sikkim's districts have been designated under the Government of India's Aspirational Districts Programme, launched in January 2018 to target the 112 most under developed districts nationally for intensive central support through convergence of central and state schemes and monthly performance ranking; the absence of any Sikkim district from this list is itself consistent with the state's relatively strong composite development indicators discussed above (NITI Aayog, Aspirational Districts Programme documentation). At the sub district level, however, the picture is somewhat different. Under the Aspirational Blocks Programme, launched by the Government of India on 7 January 2023 to extend a similar convergence and performance ranking model to 500 blocks across 27 states and 4 union territories, blocks within Sikkim's Namchi and Soreng districts have been identified for participation, with block level administrations conducting fellowship recruitment and coordination activity through the programme's district and block support structures (World Health Organization India, 2023; Government of Sikkim, District Administrative Centre Namchi, 2023 to 2024). The inclusion of Sikkim blocks in this sub district programme, even in the absence of any full district designation under the earlier Aspirational Districts Programme, indicates that meaningful intra state variation in development indicators exists at a finer geographic resolution than the district level alone would suggest, and that this

variation is significant enough to have attracted central government attention through a dedicated block level intervention.

Within the state more broadly, meaningful intra state disparity exists between Gangtok and its surrounding East Sikkim and Pakyong districts, which host the bulk of government offices, higher education institutions, tertiary healthcare, and private investment, and the more remote and higher altitude settlements of North Sikkim and parts of West Sikkim, where terrain, seasonal road closure, and low population density constrain service delivery. North Sikkim in particular faces distinct development challenges tied to its extreme altitude, sparse population, and border proximity, including seasonal accessibility of several settlements during the winter months, higher per capita costs of infrastructure provision given the small population base over which fixed costs must be spread, and greater exposure to glacial lake outburst flood risk given its position at the head of the Teesta river system, discussed further in Chapter 14. A rigorous, quantified district level disparity index for the six reorganised districts was not available in public sources at the time of writing, given that the 2021 district reorganisation is still relatively recent and district level statistical series, particularly for indicators drawn from large sample surveys, are still being rebuilt and disaggregated around the new boundaries rather than the earlier four district structure.

1.8 State's Position in National Rankings Across Key Development Indicators.

Taken together, the indicators available for Sikkim point to a state that performs well above its population and fiscal weight would suggest on composite human development measures, ranking tenth nationally on the Human Development Index with a value of 0.807 for 2023, and among the four fastest improving states on the NITI Aayog SDG India Index between 2018 and 2023 to 2024 (Sub National HDI Database, 2023; NITI Aayog, 2024). Its GDP per capita ranks first among Indian states according to Wikipedia's compilation of Sikkim economic data, estimated at approximately 857,560 rupees, or around 10,000 US dollars, for 2025 to 2026, though this figure should be verified against the state's official Economic Survey before use in formal planning documents, since Wikipedia aggregates rather than originates such figures and the underlying Economic Survey release was not independently accessed for this report (Economy of Sikkim, Wikipedia, 2026, citing Government of Sikkim Economic Survey data).

At the same time, the state's small population base, narrow own revenue sources, high per capita cost of infrastructure delivery in mountainous terrain, and acute exposure to seismic and glacial lake outburst flood risk represent structural constraints that composite rankings do not fully capture, precisely because indices like the HDI and the SDG India Index are designed to measure outcomes achieved rather than the structural fragility of the base on which those outcomes rest. A state can rank highly on both indices in a given year and still see a material share of its infrastructure, revenue, and human welfare gains put at risk by a single seismic or hydrological event, as the October 2023 South Lhonak flood demonstrated concretely for the Teesta valley. These themes recur throughout the chapters that follow, beginning with the state's fiscal architecture in Chapter 2, which examines how a small own

revenue base interacts with the state's dependence on central transfers to shape its capacity to both sustain existing development gains and invest in the resilience needed to protect them.

Chapter 2: Fiscal Architecture of the State

2.1 Revenue Framework: Own Tax Revenue, Non-Tax Revenue and Devolution

Sikkim's revenue base is structurally narrow, a direct consequence of the demographic and geographic constraints described in Chapter 1: a population under a million, a limited industrial and commercial footprint outside a handful of sectors, and a terrain that keeps the cost of both revenue collection and service delivery high relative to the tax base it can draw on. For the 2025 to 2026 fiscal year, the state budget presented by Chief Minister Prem Singh Tamang, who also holds the finance portfolio, estimated own tax revenue at 2,076 crore rupees and non tax revenue at 1,007 crore rupees, together forming only a modest share of the state's total receipts of 12,232 crore rupees excluding borrowings for the year (PRS Legislative Research, 2025; The Week, 2025). The overwhelming majority of the state's resources therefore come from outside its own tax and non tax collection, a pattern typical of India's special category and Himalayan states rather than an anomaly specific to Sikkim's fiscal management.

Central transfers dominate the receipts side of the budget. Devolution of taxes from the Centre, that is, Sikkim's share of the divisible pool of central taxes distributed under the formula recommended by the Finance Commission, was estimated at 5,519 crore rupees for 2025 to 2026, described in budget coverage as the leading single source of the state's receipts (The Week, 2025; Assam Tribune, 2025). In addition, the central government was budgeted to provide 2,600 crore rupees in grants and aid for the year, and a further 2,896 crore rupees was earmarked for the state's own contribution toward centrally sponsored schemes, reflecting the cost sharing arrangement under which most centrally sponsored schemes require a state matching contribution, typically set at a fixed ratio depending on the scheme and the state's special category status (Sikkim Legislative Assembly, 2025; Sikkim Express, 2025). Taken together, central tax devolution and grants alone, at roughly 8,100 crore rupees combined, considerably exceed the state's own tax and non tax revenue of roughly 3,080 crore rupees, illustrating just how dependent the state's fiscal architecture remains on the Centre relative to what it raises domestically.

Sikkim's own tax revenue is drawn from a combination of state excise, particularly significant given the state's established distillery and brewing industry, value added tax on the residual set of goods not covered under the Goods and Services Tax regime, motor vehicle tax, stamp duty and registration fees on the comparatively limited volume of land and property transactions permitted under the Sikkim Subject land protections discussed in Chapter 1, and the state's own goods and services tax collections following the national GST rollout. A detailed, line item breakdown of the composition of the 2,076 crore rupee own tax revenue figure for 2025 to 2026 was not available in the budget summary sources consulted for this report, and a precise sectoral split, for example the share contributed by excise relative to state GST, would need to be drawn directly from the state's Annual Financial Statement and Revenue Budget documents for full precision.

Non tax revenue, budgeted at 1,007 crore rupees for the year, is understood to draw substantially on receipts from the state's hydropower assets and its equity stakes in power generation companies operating within the state, an important and somewhat unusual feature of Sikkim's fiscal structure relative to most Indian states, since few states derive a comparable share of non tax revenue from power sector returns. This linkage between the state's hydropower endowment, discussed in full in Chapter 9, and its non tax revenue base means that the state's fiscal position is meaningfully exposed to hydrological variability and to the operational performance of the hydropower projects located within its boundaries, a vulnerability made concrete by the damage the Teesta III project sustained in the October 2023 glacial lake outburst flood referenced in Chapter 1.

2.2 Expenditure Profile: Composition, Quality and Efficiency

Total expenditure, excluding debt repayment, for 2025 to 2026 was estimated at 15,535 crore rupees, an increase of 9 percent over the revised estimate of 14,265 crore rupees for 2024 to 2025 (PRS Legislative Research, 2025). Within this, the budget was structured around a gross expenditure provision of 16,647 crore rupees for the year, which after accounting for recoveries of 451 crore rupees produced a net outgo of 16,196 crore rupees, the headline budget figure widely reported in state and national coverage of the March 2025 budget presentation (Sikkim Express, 2025; India Today NE, 2025).

Of this net figure, revenue expenditure accounted for 11,028 crore rupees and capital expenditure for 5,168 crore rupees, meaning capital spending represented approximately 32 percent of net budgeted expenditure for the year, a comparatively high capital share relative to many larger Indian states, where revenue expenditure, dominated by salaries, pensions, and interest payments, typically consumes a larger proportion of the total (Sikkim Legislative Assembly, 2025; The Week, 2025). This relatively capital heavy expenditure mix is consistent with a state still in an active phase of infrastructure build out, particularly in roads, power, and urban development, and is examined further in section 2.3 below.

Revenue expenditure in Sikkim, as in most Indian states, is dominated by establishment costs, salaries and wages for the state's civil service and teaching cadre, pension payments to a growing base of retired government employees, and interest payments on the state's outstanding debt stock, which stood at an estimated 38.2 percent of Gross State Domestic Product at the end of 2025 to 2026, a figure discussed further in section 2.4 (PRS Legislative Research, 2025). A precise, itemised breakdown of revenue expenditure by economic head, distinguishing salaries, pensions, interest payments, and subsidies as separate line items, was not available in the budget summary sources consulted for this report, and would need to be drawn from the state's detailed Demand for Grants documents to support a rigorous assessment of expenditure quality and the scope for rationalisation.

On expenditure efficiency more broadly, the state government's own framing of the 2025 to 2026 budget emphasised fiscal prudence and sustainable development as guiding principles, and the Chief Minister described the budget as aiming toward what he termed zero poverty and total literacy for the state within the framework of this and subsequent budgets, an

ambition that, if pursued, would require sustained and well targeted social sector expenditure over multiple budget cycles rather than a single year's allocation (Sikkim Express, 2025). Whether current expenditure patterns are efficiently targeted toward these stated goals, in the sense of maximising outcomes per rupee spent, is not something this report can assess without access to scheme level outcome data and audit findings that were not available in the sources consulted, and this is flagged as an area requiring the Comptroller and Auditor General's state specific audit reports, discussed further in section 2.8, for a rigorous efficiency assessment.

2.3 Capital Expenditure: Infrastructure Investment and Asset Creation

Capital expenditure for 2025 to 2026 was budgeted at 5,168 crore rupees, and the budget documents provide an unusually granular sectoral breakdown of this capital allocation, which is worth setting out in full since it indicates the state's current infrastructure priorities with more precision than most comparable budget summaries allow. Roads and bridges received the largest single allocation at 6,703 crore rupees, though it should be noted that this figure, as reported in budget coverage, appears to include multi year committed expenditure rather than representing solely the 2025 to 2026 annual tranche, a distinction that should be verified against the state's detailed capital budget before being cited as a single year figure in other planning documents (India Today NE, 2025). Housing and urban development received 4,594 crore rupees, power infrastructure received 4,190 crore rupees, tourism development received 3,476 crore rupees, and irrigation and flood control received 1,305 crore rupees (India Today NE, 2025).

This sectoral pattern of capital allocation, with roads, urban development, and power infrastructure together accounting for the largest shares, reflects priorities that recur throughout this report, particularly in Chapter 8 on transport connectivity, Chapter 9 on energy, and Chapter 11 on urban development. The comparatively smaller allocation to irrigation and flood control, at 1,305 crore rupees against a total capital envelope well above 15,000 crore rupees across these five sectors combined, is worth flagging in light of the disaster risk profile discussed in Chapter 1 and developed further in Chapter 14, since flood control infrastructure along the Teesta valley carries direct relevance to the kind of glacial lake outburst flood risk that materialised so destructively in October 2023.

The state's approach to capital expenditure also needs to be read against its debt financed character. Of the total budget, 2,651 crore rupees was planned to be raised through borrowing for the 2025 to 2026 fiscal year, and the state's outstanding public debt repayment provision for the year was set at 37,086 crore rupees, a figure that, if accurate as reported, reflects a substantial rollover of existing debt obligations alongside new borrowing rather than a single year's net debt service cost (India Today NE, 2025). The scale of this rollover figure relative to the state's total budget size underscores the extent to which Sikkim's capital investment programme, however productive in asset terms, is being financed against a debt stock that already exceeds the Finance Commission's indicated sustainable threshold, a point developed in the next section.

2.4 Fiscal Deficit, Primary Deficit and Debt Sustainability

Sikkim's fiscal position for 2025 to 2026 combines a revenue surplus with a substantial fiscal deficit, a combination that is not contradictory but reflects the standard distinction between revenue account and capital account balances in Indian state budgeting. The budget estimates a revenue surplus of 1,203 crore rupees, equivalent to 2.1 percent of Gross State Domestic Product, for 2025 to 2026, meaning the state's revenue receipts exceed its revenue expenditure for the year (PRS Legislative Research, 2025). At the same time, the fiscal deficit, which measures the gap between total expenditure and total receipts excluding borrowing and therefore captures the capital account financing gap as well, is estimated at 5.8 percent of Gross State Domestic Product for 2025 to 2026, following an even higher revised estimate of 6.1 percent of Gross State Domestic Product for 2024 to 2025 (PRS Legislative Research, 2025). Both figures sit well above the 3 percent of Gross State Domestic Product fiscal deficit ceiling that has conventionally anchored Finance Commission recommendations and the fiscal responsibility legislation of most Indian states, though special category states including Sikkim have historically been permitted somewhat higher deficit ceilings in recognition of their capital investment needs and narrower revenue base.

This fiscal deficit trajectory is governed, at least in framework, by the Sikkim Fiscal Responsibility and Budget Management Act, 2010, which sets annual targets intended to progressively reduce the state's outstanding debt, revenue deficit, and fiscal deficit over time (PRS Legislative Research, 2025). The state's actual outstanding debt position, however, has moved in the opposite direction to what a strict reading of that Act's underlying intent would suggest. Outstanding debt is estimated at 38.2 percent of Gross State Domestic Product at the end of 2025 to 2026, higher than the revised estimate for the preceding year, and considerably above the 27.9 percent of Gross State Domestic Product debt to Gross State Domestic Product level indicated as sustainable for Sikkim by the Finance Commission in the state's Medium Term Fiscal Policy document (PRS Legislative Research, 2025). The gap between the Finance Commission's indicated sustainable threshold and the state's actual outstanding debt ratio, at roughly 10 percentage points of Gross State Domestic Product, is substantial and represents one of the clearest fiscal sustainability concerns identified anywhere in this report.

The stated reason for this divergence, as recorded in the state's own budget documentation, is additional borrowing undertaken since 2021 to 2022 on account of a fifty year interest free loan for capital investment extended by the Central government, and a pension fund adjustment that added to the recorded debt stock (PRS Legislative Research, 2025). This explanation is worth taking seriously on its own terms, since a fifty year interest free loan carries a materially different debt servicing burden than conventional market borrowing at prevailing interest rates, even though it is recorded identically within the headline debt to Gross State Domestic Product ratio. A debt sustainability assessment that treats all components of Sikkim's outstanding debt stock as equivalent in their servicing burden would therefore overstate the state's genuine fiscal stress relative to an assessment that accounts for the concessional terms of this specific central loan facility. This report flags this distinction as

an important nuance for any reader using the headline 38.2 percent figure in comparative state fiscal analysis, while also noting that the total debt stock, whatever its interest cost composition, still represents a real and growing contingent liability that will require either continued central forbearance or a sustained fiscal consolidation effort to bring back toward the Finance Commission's indicated threshold.

A precise primary deficit figure, that is, the fiscal deficit net of interest payments, which offers a cleaner measure of the state's current period borrowing requirement independent of the legacy cost of past debt, was not available in the budget summary sources consulted for this report and would need to be drawn from the state's detailed Medium Term Fiscal Policy statement for precise citation.

2.5 State's Borrowings, Guarantees and Off-Budget Liabilities

The state's outstanding debt figure discussed above does not capture the full universe of the state's contingent fiscal exposure. Budget analysis sources note explicitly that outstanding debt of Indian states, as conventionally reported, does not include a range of other liabilities, most significantly outstanding government guarantees extended in support of borrowing by state public sector undertakings, statutory corporations, and special purpose vehicles (PRS Legislative Research, 2025). A specific, quantified figure for Sikkim's outstanding government guarantees was not available within the sources consulted for this report, and this represents a genuine information gap rather than an oversight in this report's research. Given that hydropower project financing in Sikkim has historically involved a mix of state equity participation, guarantees, and public private partnership structures, discussed further in Chapter 4 and Chapter 9, it is plausible that meaningful contingent liabilities exist outside the headline debt figure, but this report does not estimate a figure it cannot verify.

Similarly, off budget borrowing, meaning debt raised by state owned entities or through mechanisms that do not appear directly on the state government's own balance sheet but which the state may be effectively liable for in practice, a practice that has drawn increased scrutiny from the Union Finance Ministry and the Comptroller and Auditor General across several Indian states in recent years, was not separately quantified for Sikkim in the sources available for this report. This is flagged here as a priority area for future editions of this framework to address directly, ideally by drawing on the state's own disclosure under any off budget borrowing reporting requirements imposed by the Finance Commission or the Union government, since off budget liabilities of this kind, if material, would mean the state's genuine debt exposure exceeds the 38.2 percent of Gross State Domestic Product figure discussed in section 2.4.

2.6 Finance Commission Awards: Allocation and Utilisation

Sikkim is one of eleven states formally accorded special category status, a status extended in recognition of the distinctive fiscal and developmental challenges facing Himalayan, northeastern, and certain other hill states, alongside Assam, Nagaland, Himachal Pradesh, Manipur, Meghalaya, Tripura, Arunachal Pradesh, Mizoram, and others (Drishti IAS, 2023). Following the recommendations of the Fourteenth Finance Commission, which increased the overall vertical devolution share of central taxes to states from 32 percent to 42 percent partly as a mechanism to address the resource gap of special category states without extending the more expansive concessional financing arrangements historically associated with that status, and which the Fifteenth Finance Commission continued at a broadly similar though slightly reduced level of 41 percent for the 2021 to 2026 award period, Sikkim's principal channel of central fiscal support now runs primarily through the tax devolution formula rather than through the plan versus non plan and gap filling grant architecture that characterised special category state financing before 2015 (Drishti IAS, 2023; Vajiram and Ravi, 2026).

Within the Fifteenth Finance Commission's horizontal devolution formula, which distributes the divisible tax pool among individual states according to weighted criteria, income distance, meaning the gap between a state's per capita income and that of the state with the highest per capita income, carries the largest weight at 45 percent, favouring states with lower per capita income in the interest of promoting equity across the federation (Vajiram and Ravi, 2026). Given that Sikkim's per capita income, as discussed in Chapter 1, ranks among the highest of any Indian state, this income distance criterion would tend to work against Sikkim's share of horizontal devolution relative to lower income states, even as the state's small population and other criteria in the formula, including area and demographic performance, work in the opposite direction. A precise decomposition of how each Fifteenth Finance Commission criterion nets out for Sikkim specifically was not available in the sources consulted for this report.

Beyond tax devolution, Sikkim has also been a recipient of the Fifteenth Finance Commission's post devolution revenue deficit grants, a mechanism intended to bridge the gap between a state's assessed revenue and expenditure needs after accounting for its own resources and its share of tax devolution. Sikkim was named among the states recommended for this grant during 2022 to 2023, alongside states including Assam, Himachal Pradesh, Kerala, Punjab, and West Bengal, with the Fifteenth Finance Commission recommending approximately 3 trillion rupees in aggregate revenue deficit grants across all eligible states over the five year award period ending in 2025 to 2026 (Drishti IAS, Revenue Deficit Grants, undated). The Fifteenth Finance Commission also recommended sector specific grants across eight areas, including health, school education, higher education, agricultural reforms, maintenance of roads under the Pradhan Mantri Gram Sadak Yojana, judiciary, statistics, and aspirational districts and blocks, with a portion of these grants linked to performance outcomes, and grants to local bodies with a performance linked component (Vajiram and Ravi, 2026). The extent to which Sikkim has drawn on and utilised these sector specific and local body grants, and its performance against the outcome linked conditions attached to them, was not available in the sources consulted for this report and would require

examination of the state's utilisation certificates and the Finance Commission's own state wise monitoring reports for a full assessment.

It is worth noting one further data point that speaks to the state's institutional capacity in managing Finance Commission linked grants at the local body level. A study of Fourteenth Finance Commission grant devolution to Panchayats found that, in a cycle where several states faced delays in fund release due to non compliance with Ministry of Panchayati Raj reporting guidelines, Sikkim was noted as the one state whose grant release was much more than its formal allocation, an outcome that, while requiring further context to interpret fully, suggests relatively effective absorption capacity at the local body level relative to several larger states in the same assessment (Ministry of Panchayati Raj, Fifteenth Finance Commission technical study, undated).

2.7 GST Implementation: Revenue Impact and Compensation Status

Sikkim's implementation of the national Goods and Services Tax regime converged the state's previously separate value added tax, entry tax, and several other indirect state levies into the unified GST structure applied nationally from July 2017 onward, consistent with the implementation timeline followed across all Indian states and union territories. Sikkim's own Fifth State Finance Commission, reporting in July 2017, explicitly addressed the fiscal implications of this transition for the state's Panchayati Raj institutions and urban local bodies, noting that local taxes, fees, and charges outside the purview of GST, along with local entrepreneurship initiatives such as tourism, commercial cropping, and local markets, would need to become a more significant focus of local body revenue generation precisely because GST convergence had removed several previously available local and state tax handles (Fifth State Finance Commission, Sikkim, 2017).

The GST compensation mechanism, under which the Union government guaranteed states compensation for revenue shortfalls relative to a protected 14 percent annual growth rate over the first five years of GST implementation, formally expired in June 2022, and its expiry has been a recurring point of concern for several states, including special category states with narrower own tax bases, since it removed a guaranteed revenue floor that had cushioned states during the initial disruption of GST implementation and the subsequent pandemic period. A specific assessment of how the expiry of GST compensation has affected Sikkim's own tax revenue trajectory since 2022, and whether the state has experienced GST revenue growth above or below the previously protected 14 percent benchmark in the post compensation period, was not available in the sources consulted for this report. Given that Sikkim's own tax revenue for 2025 to 2026 was budgeted at 2,076 crore rupees against a total budget of 16,196 crore rupees, representing under 13 percent of total resources, this is a meaningful gap in the available evidence base for this report, and one that the state's Finance Department's own GST revenue trend data, if published, would be well placed to close in a future edition of this framework.

2.8 Public Financial Management Reforms and Audit Compliance

The Sikkim Fiscal Responsibility and Budget Management Act, 2010, provides the state's principal statutory anchor for fiscal discipline, setting annual targets intended to progressively reduce the state's outstanding debt, revenue deficit, and fiscal deficit (PRS Legislative Research, 2025). As discussed in section 2.4, the state's actual fiscal trajectory in recent years, with outstanding debt rising to 38.2 percent of Gross State Domestic Product against a Finance Commission indicated threshold of 27.9 percent, and a fiscal deficit running at 5.8 percent of Gross State Domestic Product for 2025 to 2026, indicates that the state's performance against its own statutory targets has come under pressure, even accounting for the concessional nature of a meaningful share of the debt increase attributable to the fifty year interest free central loan facility.

A detailed assessment of Sikkim's audit compliance record, drawing on the Comptroller and Auditor General's state specific Audit Reports on state finances, would ordinarily form a central part of this section, covering matters such as the timeliness of the state's annual accounts finalisation, the incidence of unreconciled expenditure, outstanding utilisation certificates for centrally sponsored scheme funds, and any qualified opinions or significant audit observations raised in recent audit cycles. This report was not able to access the specific text of recent Comptroller and Auditor General audit reports for Sikkim within the sources consulted, and therefore cannot provide sourced findings on these specific compliance dimensions. This is flagged as a substantive gap that any future edition of this framework, or any reader using this document for formal policy purposes, should address directly by consulting the Comptroller and Auditor General's published state audit reports for Sikkim, which are the authoritative source for this category of information and were beyond the scope of what could be retrieved and verified for this report.

On the positive side of public financial management practice, the state's 2025 to 2026 budget presentation followed the standard structure of Indian state budgeting, comprising an Explanatory Memorandum, Annual Financial Statement, Estimates of Receipts, and Demands for Grants, tabled in the Legislative Assembly in the conventional manner, and the Chief Minister's budget speech explicitly framed the exercise around fiscal prudence and sustainable development, suggesting at least a stated institutional commitment to conventional public financial management discipline (Government of Sikkim, 2025).

2.9 Centre-State fiscal relations: Trends and themes

Sikkim's fiscal relationship with the Union government is defined by a degree of dependence that is structural rather than incidental, arising from the small scale of the state's own economy relative to the fixed costs of governing a mountainous, border adjacent territory. This dependence operates through several parallel channels examined in this chapter: the tax devolution formula under successive Finance Commissions, currently set at 41 percent vertical devolution under the Fifteenth Finance Commission for the 2021 to 2026 award period, direct grants and aid, budgeted at 2,600 crore rupees for 2025 to 2026, post devolution revenue deficit grants, for which Sikkim has been a recognised recipient state,

sector specific and local body grants under the Finance Commission's broader recommendations, and centrally sponsored scheme funding, which required a budgeted state matching contribution of 2,896 crore rupees for 2025 to 2026 alone (PRS Legislative Research, 2025; The Week, 2025; Drishti IAS, undated; Sikkim Legislative Assembly, 2025).

This multi channel dependence gives the Union government considerable influence over the pace and shape of Sikkim's development spending, since scheme design, matching fund requirements, and the conditions attached to performance linked grants are set substantially at the national level even where implementation is carried out by the state. At the same time, this dependence has also functioned as a genuine source of fiscal support that has allowed Sikkim to sustain the relatively high capital expenditure share, at roughly 32 percent of net budgeted expenditure for 2025 to 2026, that underpins the infrastructure investment discussed in section 2.3 and throughout the infrastructure chapters of this report. The fifty year interest free central loan facility referenced in section 2.4, in particular, represents a materially more generous financing instrument than the state could access through conventional market borrowing, and its availability has been directly credited by the state's own budget documentation as a driver of the recent increase in the state's outstanding debt stock.

Looking forward, the central themes in Sikkim's centre state fiscal relationship that this report identifies as most consequential for the chapters that follow are threefold. First, the tension between the state's rising debt to Gross State Domestic Product ratio and the Finance Commission's indicated sustainable threshold, which will require either a sustained state level fiscal consolidation effort, continued central forbearance through concessional financing instruments, or some combination of both. Second, the uncertainty introduced by the post 2022 expiry of GST compensation, whose effect on Sikkim's own revenue trajectory this report was unable to quantify with available sources but which represents a genuine and unresolved question for the state's medium term fiscal planning. Third, the forthcoming recommendations of the Sixteenth Finance Commission, whose award period will begin after the expiry of the current Fifteenth Finance Commission cycle in 2025 to 2026, and whose treatment of special category states, income distance weighting, and disaster and climate resilience related grant criteria will materially shape Sikkim's fiscal resources for the remainder of the decade. This report was not able to access specific, confirmed Sixteenth Finance Commission recommendations for Sikkim within its sources, since that Commission's final report had not been published and implemented at the time of writing, and this is noted as the most significant near term source of fiscal uncertainty for the state, one this framework recommends revisiting directly once those recommendations are formally released.

Chapter 3: Economic Structure, Growth and Sectoral Performance

3.1 Gross State Domestic Product: Trends, Growth Rate and Sectoral Share

Sikkim's Gross State Domestic Product is estimated at 0.57 lakh crore rupees, or approximately 6.7 billion US dollars, for 2025 to 2026, ranking the state twenty third among Indian states by absolute size, a modest position that reflects its small population base rather than weak per capita performance (Economy of Sikkim, Wikipedia, 2026). On a purchasing power parity basis, the same estimate translates to approximately 28.2 billion US dollars for the year. According to the India Brand Equity Foundation, GSDP is estimated to expand at a compound annual growth rate of 9.10 percent between fiscal year 2019 and fiscal year 2026, a robust pace by national standards (India Brand Equity Foundation, 2026). This is broadly consistent with the official NITI Aayog assessment, which found that Sikkim's real GSDP grew at an average rate of 6.4 percent during the period 2012 to 2013 through 2021 to 2022, meaningfully higher than the national average real growth rate of 5.6 percent over the same period (NITI Aayog, 2025). The state's share of the country's nominal Gross Domestic Product stood at 0.2 percent as of 2021 to 2022, a figure that appears small only because it is measured against a national economy many hundreds of times Sikkim's population.

On sectoral composition, two sources consulted for this report, drawing on slightly different reference years and possibly different classification conventions, offer a broadly consistent picture with modest numerical variation. The official NITI Aayog Summary Report for Sikkim, drawing on Ministry of Statistics and Programme Implementation data as of March 2024, found that industry contributed 62.6 percent of the state's Gross State Value Added as of 2021 to 2022, the largest share of any sector, followed by services at 28.3 percent and agriculture at 9.1 percent (NITI Aayog, 2025). The India Brand Equity Foundation, citing a slightly different reference year, reported that the secondary sector contributed 62.60 percent to the state's Gross State Value Added at current prices in 2022 to 2023, followed by the tertiary sector at 28.58 percent and the primary sector at 8.83 percent (India Brand Equity Foundation, 2026). These figures are close enough to be treated as consistent rather than contradictory, and this report uses them together as corroborating evidence of a state economy in which industry, driven substantially by capital intensive pharmaceutical manufacturing and hydropower generation, dominates value addition to an unusual degree for an Indian state, even though, as discussed in section 3.7, this sector employs only a small share of the state's workforce.

Sector wise growth rates over the period 2013 to 2014 through 2022 to 2023 show industry growing at 7.1 percent per annum, services at 6.7 percent per annum, and agriculture at 4.7 percent per annum, according to the NITI Aayog Summary Report (NITI Aayog, 2025). A separate figure cited by the India Brand Equity Foundation, that the primary sector grew at a compound annual growth rate of 12.66 percent between 2011 to 2012 and 2022 to 2023, making it the fastest growing of the three sectors over that particular longer period, appears at first glance to sit in tension with the more moderate 4.7 percent agricultural growth figure

cited by NITI Aayog for the shorter 2013 to 2023 window (India Brand Equity Foundation, 2026). Both figures may be accurate for their respective, non identical reference periods and base effects, since a low base in the earliest years of the longer window could produce a materially higher compound growth rate than a shorter, more recent window measured from a higher base. This report presents both figures with their respective time periods rather than reconciling them into a single number, since doing so would require access to the full underlying GSVA time series that was not available in the sources consulted.

3.2 Per Capita Income and Purchasing Power Analysis

Sikkim's GDP per capita is estimated at 857,560 rupees, or approximately 10,000 US dollars, for 2025 to 2026, and on a purchasing power parity basis at approximately 42,310 US dollars, ranking the state first among all Indian states on this measure (Economy of Sikkim, Wikipedia, 2026). This first place ranking is a genuinely striking feature of Sikkim's economic profile given the state's fiscal constraints described in Chapter 2, and it is worth being precise about why it arises. According to the NITI Aayog Summary Report, Sikkim's nominal per capita income stood at 3.2 times the national per capita income as of 2021 to 2022 (NITI Aayog, 2025), and separate reporting places the state's per capita GSDP at current prices at over 700,000 rupees against a national average of approximately 215,000 rupees (Sikkim Express, 2025, The Dual Reality of Sikkim).

This high per capita figure is driven substantially by the concentration of capital intensive industry, pharmaceutical manufacturing and hydropower generation in particular, within a very small population base, rather than by a broad based high wage economy spread evenly across the workforce. As the same Sikkim Express analysis observes, the dominance of the industrial sector in GSVA terms, at 62.6 to 63 percent, sits alongside a workforce in which industry employs only a small minority of workers, a divergence discussed further in section 3.7 (Sikkim Express, 2025). The practical implication is that Sikkim's headline per capita income figure, while accurate as an aggregate measure of value added divided by population, should not be read as directly indicative of typical household purchasing power across the state, since a large share of the value captured in that denominator is generated by capital intensive enterprises whose profits do not translate proportionately into wages for the median resident. A precise measure of median household income or consumption expenditure for Sikkim, which would offer a more direct read on typical purchasing power than the per capita GSDP figure, was not available in the sources consulted for this report, a gap consistent with the inequality data limitation already flagged in Chapter 1, section 1.6.

3.3 Primary Sector: Agriculture, Horticulture, Animal Husbandry and Fisheries

Agriculture occupies a distinctive place in Sikkim's economy, contributing a comparatively modest 9.1 percent of Gross State Value Added as of 2021 to 2022 while employing nearly half the workforce (NITI Aayog, 2025; Sikkim Express, 2025). Sikkim Express reported that nearly half the workforce is engaged in agriculture, which contributes just 9 percent to the economy, a productivity gap that is among the more consequential structural features of the state's economy and one this report returns to in the labour market discussion in section 3.7

(Sikkim Express, 2025, The Dual Reality of Sikkim). This gap reflects, at least in part, the physical constraints on agricultural productivity in mountainous terrain, where landholding sizes are typically small and fragmented, mechanisation is difficult on steep slopes, and the transition to organic cultivation, while valuable for market positioning and environmental sustainability, has in some documented cases across other organic transition regions been associated with yield adjustments during the conversion period, though a Sikkim specific yield impact assessment was not available in the sources consulted for this report.

Sikkim's most distinctive agricultural policy achievement is its status as India's only fully organic state, a transition completed in 2016 when the state government phased out the sale and use of chemical fertilisers and pesticides across its entire agricultural land base, a policy administered by the state's Department of Food Security and Agriculture Development (Government of Sikkim, Department of Food Security and Agriculture Development, 2016). This transition has become a significant part of the state's economic identity and marketing positioning, both for its agricultural produce and for its tourism sector, discussed further in Chapter 18 and Chapter 19, though this report notes that a comprehensive, current assessment of the transition's effects on farm household incomes, crop yields relative to the pre organic baseline, and export market access for certified organic produce was not available in the sources consulted, and would strengthen a future edition of this framework considerably.

On agricultural trade, drug formulations, cereal preparations and miscellaneous processed items, engineering goods, and organic and inorganic chemicals accounted for a majority share of the state's total merchandise exports, which stood at 147 crore rupees, or approximately 17.24 million US dollars, in fiscal year 2025 through February (India Brand Equity Foundation, 2026). It is worth noting that this export composition, dominated by pharmaceutical and chemical products rather than raw or processed agricultural output, suggests that Sikkim's celebrated organic agricultural sector remains oriented primarily toward domestic consumption and tourism related demand rather than toward significant export volumes, a pattern this report flags as relevant to the food processing and value chain discussion in Chapter 18.

Horticulture, animal husbandry, and fisheries each form components of Sikkim's primary sector, with cardamom, ginger, and citrus fruit cultivation historically significant to the state's horticultural output given the favourable mid elevation growing conditions across several districts. A detailed, current sub sector breakdown quantifying the relative contribution of horticulture, animal husbandry, and fisheries within the state's primary sector GSVA was not available in the sources consulted for this report and is addressed in fuller sector specific detail in Chapter 18.

3.4 Secondary Sector: Industry, Manufacturing and Mining

Industry is the dominant sector of Sikkim's economy in value added terms, contributing 62.6 percent of Gross State Value Added as of 2021 to 2022, a concentration explained substantially by two capital intensive activities: pharmaceutical manufacturing and hydropower generation (NITI Aayog, 2025; Sikkim Express, 2025). Sikkim Express's

analysis attributes the dominance of the industrial sector largely to capital intensive enterprises such as pharmaceutical and hydroelectric power companies, an observation consistent with the state's known industrial base (Sikkim Express, 2025, The Dual Reality of Sikkim). Sikkim's pharmaceutical manufacturing cluster, concentrated substantially around industrial estates in the state's southern districts, has developed over more than two decades under a combination of central excise and income tax incentive schemes historically extended to industrially backward hill states, and drug formulations feature prominently among the state's merchandise exports discussed in section 3.3.

On the power generation side of the industrial sector, Sikkim had a total installed power generation capacity of 788.82 megawatts as of September 2025, comprising 157.15 megawatts under central utilities, 415.11 megawatts under state utilities, and 216.56 megawatts under the private sector (India Brand Equity Foundation, 2026). This installed capacity, overwhelmingly hydropower given the state's river systems described in Chapter 1, both generates substantial GSVA in its own right and, through the non tax revenue channel discussed in Chapter 2, section 2.1, functions as an important source of state government income. Hydropower's dual role as an economic driver and, as discussed in Chapter 1, a source of disaster exposure through its dependence on glacial fed river systems, is examined in full in Chapter 9.

Mining plays a comparatively limited role in Sikkim's industrial base relative to states with substantial mineral reserves, consistent with the state's geology and its extensive protected forest area discussed in Chapter 1. A quantified, current assessment of mining sector output and its contribution to industrial GSVA was not available in the sources consulted for this report and is addressed further, to the extent data allows, in Chapter 13 on environment and natural resource governance.

3.5 Tertiary Sector: Trade, Finance, Real Estate and Services

The services sector contributed 28.3 to 28.58 percent of Sikkim's Gross State Value Added, depending on the reference year and source consulted, growing at 6.7 percent per annum over the period 2013 to 2014 through 2022 to 2023 (NITI Aayog, 2025; India Brand Equity Foundation, 2026). Tourism forms a particularly significant and rapidly growing component of this sector. The state recorded 15,40,421 domestic tourist visitors in 2024 and 12,18,372 domestic visitors during the January to October period of 2025, alongside 46,591 foreign travellers recorded through September 2025, figures that the India Brand Equity Foundation characterises as a strong rebound for the state as a tourism destination (India Brand Equity Foundation, 2026). Tourism was reported, as of an April 2025 assessment, to contribute nearly 10 percent of the state's Gross State Domestic Product, a substantial share for a single sub sector and one that underscores the strategic importance of the tourism infrastructure and promotion themes developed in Chapter 19 (India Brand Equity Foundation, 2026).

Sikkim Express's analysis found that the services sector, accounting for 40 percent of the state's jobs, adds 28 percent to value added, a productivity relationship broadly the inverse of the primary sector's pattern described in section 3.3, where the services sector's contribution

to employment slightly exceeds its contribution to value added, though far less dramatically than agriculture's employment to value added gap (Sikkim Express, 2025, The Dual Reality of Sikkim). This pattern is consistent with the services sector being a genuinely significant source of formal and semi formal employment for the state's workforce, including in government administration, tourism and hospitality, retail trade, transport, and the professional and financial services that have grown alongside Gangtok's expansion as an administrative and commercial hub.

A detailed breakdown of the tertiary sector into its constituent sub sectors, trade, finance, real estate, and other services, quantifying each sub sector's individual share of GSVA, was not available in the sources consulted for this report and would need to be drawn from the state's detailed Economic Survey for full precision.

3.6 Informal Economy: Size, Significance and Integration Challenges

Sikkim's informal economy, encompassing unregistered small enterprises, informal agricultural labour arrangements, home based production, and cash based service provision outside the scope of formal tax and labour regulation, is not separately quantified in the state level data sources consulted for this report. This is a genuine and significant data gap rather than an indication that the informal economy is small or unimportant in Sikkim. Given that agriculture alone employs nearly half the state's workforce while contributing only 9.1 percent of GSVA, and given that a substantial share of this agricultural employment likely takes the form of smallholder cultivation on family landholdings that fall outside formal wage employment statistics, it is reasonable to infer that Sikkim's informal economy, encompassing both informal agricultural livelihoods and informal non farm activity in areas such as tourism support services, local transport, and small retail, represents a substantial share of total economic activity by employment even where its contribution to measured GSVA is comparatively modest.

This report does not attempt to estimate a specific informal economy size for Sikkim in the absence of reliable primary data, consistent with the approach taken throughout this framework of flagging genuine gaps rather than filling them with unsupported figures. The integration of informal economic activity into the formal tax and social protection system, including through mechanisms such as Self Help Group federation, discussed further in Chapter 12, and formal registration incentives for micro and small enterprises, discussed in Chapter 4, represents an important policy frontier for the state that this report recommends future editions address directly once suitable state specific informal sector survey data becomes available, potentially through a dedicated unincorporated sector enterprise survey conducted by the state's own statistical machinery, discussed further in Chapter 20.

3.7 Labour Market: Employment, Unemployment and Workforce Quality

Sikkim's labour market indicators, as reported in the NITI Aayog Summary Report drawing on Periodic Labour Force Survey data, present a generally favourable picture relative to national averages. As of 2022 to 2023, the state's annual unemployment rate stood at 2.2

percent, below the national average, and the Female Labour Force Participation Rate stood at 68.6 percent, higher than the national average, a notably strong figure for female workforce participation by Indian standards (NITI Aayog, 2025). The working population in the state is predominantly concentrated in agriculture at 45.8 percent, services at 39.2 percent, and construction at 9.2 percent, in that order, with the residual share distributed across industry and other sectors (NITI Aayog, 2025).

This workforce distribution, when read alongside the sectoral GSVA shares discussed in sections 3.3 through 3.5, reveals the central structural tension in Sikkim's labour market. Industry, which generates 62.6 percent of the state's value added, appears to employ only a small minority of the workforce, since agriculture, services, and construction together account for 94.2 percent of employment according to the NITI Aayog figures, leaving industry and residual categories combined with well under 6 percent of the workforce despite generating nearly two thirds of value added. Sikkim Express's independent analysis corroborates this pattern directly, finding that industry contributes a staggering 63 percent to the economy but provides employment to only 14 percent of the workforce, a figure that, while higher than the residual implied by the NITI Aayog breakdown, confirms the same underlying structural gap between industrial value creation and industrial employment generation (Sikkim Express, 2025, The Dual Reality of Sikkim). This divergence between where the state's economic value is created and where its people are actually employed is, in this report's assessment, one of the most consequential structural features of Sikkim's economy, since it implies that continued industrial growth concentrated in capital intensive pharmaceutical and hydropower enterprises may do comparatively little to absorb the substantial share of the workforce still engaged in low productivity agricultural activity, a concern that bears directly on the skill development and workforce alignment priorities discussed in Chapter 17 and the rural livelihood diversification priorities discussed in Chapter 12.

On workforce quality more broadly, Sikkim's education outcomes, discussed in full in Chapter 5, provide a generally favourable foundation, with the state recording a literacy rate of 81.4 percent against a national average of 73 percent, a lower than average school dropout rate at the Class X level, and pass percentages for Class X and Class XII examinations both above respective national averages as of the reference years available (NITI Aayog, 2025). Whether this comparatively strong educational foundation is being effectively converted into workforce skills matched to the state's actual industrial and service sector opportunities, given the sectoral employment mismatch just described, is a question this report flags for closer examination in Chapter 17 rather than resolving here without dedicated skills gap survey data.

3.8 Inflation, Price Stability and Consumer Welfare

State specific, headline consumer price inflation data for Sikkim expressed as a single clean year on year percentage figure was not readily available in the sources consulted for this report, a genuine limitation this report notes rather than works around with a borrowed national figure presented as state specific. What is available is index level data from the

Ministry of Statistics and Programme Implementation's Consumer Price Index series for Sikkim. The Consumer Price Index for Sikkim's urban food and beverages category, on a 2012 base of 100, was reported at 188.4 in March 2025, a level that had remained unchanged from the preceding month and that represented a significant rise from the series' historical low of 86.5 recorded in February 2011, indicating substantial cumulative food price inflation for urban Sikkim households over the intervening fourteen year period (CEIC Data, 2025). The index reached an all time high of 199.6 in October 2024, before easing somewhat into early 2025 (CEIC Data, 2025). The Consumer Price Index for Sikkim's miscellaneous category, covering a range of non food, non housing consumption items, stood at 191.1 in March 2025, reaching an all time high of 191.3 the preceding month, February 2025 (CEIC Data, 2025).

At the national level, for broader context, the Ministry of Statistics and Programme Implementation's most recent headline releases available at the time of writing recorded year on year inflation based on the All India Consumer Price Index, on the newly rebased 2024 series, at 3.48 percent for April 2026 over April 2025, and at 3.93 percent for May 2026 over May 2025, with food inflation running somewhat higher at 4.78 percent for the same May 2026 comparison (Ministry of Statistics and Programme Implementation, Press Information Bureau, 2026). Without a Sikkim specific headline inflation percentage to compare against these national figures, this report cannot state with confidence whether Sikkim's current cost of living pressure is running above, at, or below the national trend, though the sustained rise in the state's urban food price index over the 2011 to 2025 period suggests food price inflation has been a persistent feature of the state's consumer welfare environment, a dynamic with particular relevance given how large a share of household budgets food typically represents for lower income households in a state where, as discussed in sections 3.2 and 3.7, a meaningful share of the workforce remains engaged in low productivity agricultural livelihoods.

3.9 Growth Corridors: engines of economic expansion

Several identifiable corridors of economic expansion emerge from the sectoral evidence assembled in this chapter, each of which recurs in more detailed form in the infrastructure and sector specific chapters that follow. The first is the pharmaceutical and hydropower industrial corridor, concentrated substantially in and around the state's southern and eastern districts, which together account for the majority of the industrial GSVA discussed in section 3.4 and which the state's capital expenditure allocation, discussed in Chapter 2, section 2.3, continues to support through significant budgeted investment in power infrastructure. The second is the tourism corridor anchored by Gangtok, Pelling, Namchi, and the state's monastery and high altitude trekking circuits, which contributed an estimated 10 percent of GSDP as of 2025 and which recorded a strong visitor rebound through 2024 and 2025, a trajectory this report examines in full in Chapter 19 alongside the connectivity infrastructure, particularly Pakyong Airport and the state's evolving road network discussed in Chapter 8, that underpins continued tourism growth.

The third corridor, less developed but identified by this report as a priority area given the labour market mismatch documented in section 3.7, is the potential for organic agriculture value addition, moving beyond primary cultivation toward processed and branded organic food products that could capture more value within the state economy and, in doing so, help close the gap between agriculture's outsized employment share and its comparatively modest contribution to GSVA. This potential corridor connects directly to the food processing and value chain development priorities discussed in Chapter 18 and to the industrial policy and MSME development framework discussed in Chapter 4. Realising this potential would require sustained investment in cold chain infrastructure, processing facilities, and market linkage mechanisms that, based on the capital expenditure allocation reviewed in Chapter 2, do not yet appear to be receiving budgetary priority comparable to roads, urban development, or power infrastructure, a gap this report flags as worth the state government's attention in its medium term planning, addressed further in the vision for 2047 set out in Chapter 21.

Chapter 4: Investment, Industry and Private Sector Development

4.1 Investment Climate Assessment and Ease of Doing Business

Sikkim positions itself in its own investment promotion literature as, in the words of the state's Department of Commerce and Industries, a green investment destination, combining a unique combination of natural beauty, strategic location, and investor friendly policies (Government of Sikkim, Department of Commerce and Industries, 2026). The state's connectivity infrastructure, discussed in detail in Chapter 8, features prominently in this positioning. Sikkim is described as having the highest road density in Northeast India at 394.3 kilometres per 1,000 square kilometres, with excellent district connectivity, and the state's investment promotion material highlights the New Jalpaiguri railway station, approximately 80 kilometres from Gangtok, as the current principal rail link, alongside the Sevoke to Rangpo railway line, a project intended to bring rail connectivity directly into the state and reported as targeted for completion around 2025, a timeline that should be verified against the project's current status given the general tendency of large hill terrain infrastructure projects to face schedule revisions (Government of Sikkim, Department of Commerce and Industries, 2026).

On regulatory ease, secondary sources describe Sikkim as pursuing simplified registration and clearance processes intended to attract investors, alongside participation in the North East Industrial and Investment Promotion Policy, a central government framework providing financial incentives for industries locating in the northeastern states (Sikkim PCS Notes, 2024). A specific, current numerical ranking for Sikkim on the Department for Promotion of Industry and Internal Trade's Ease of Doing Business assessment, the exercise through which Indian states are formally ranked on business regulatory reform implementation, was not available in the sources consulted for this report, and this report does not estimate one. Given that this ranking exercise is published periodically by the central government and is the authoritative source for cross state ease of doing business comparison, a future edition of this framework should draw directly on the most recent published ranking cycle to give this section the empirical grounding a formal development framework requires.

What is clear from the sources available is that the state government has explicitly identified investment climate improvement as a policy priority, formalised most recently through the Sikkim Industrial and Investment Policy 2024, discussed in detail in section 4.2, which frames industrial growth and entrepreneurship as, in the policy document's own words, the real engines of economic growth and employment for the state (Government of Sikkim, Department of Commerce and Industries, 2024, Sikkim Industrial and Investment Policy). The state's terrain constrained land availability, discussed in Chapter 1, and its Article 371F land protections, discussed in Chapter 1, section 1.2, mean that Sikkim's investment climate cannot be benchmarked purely against plains states with abundant flat industrial land, and the state's policy framework has instead emphasised locational incentives and sector targeting over land availability as its primary competitive lever, an approach examined further in the sections that follow.

4.2 Industrial Policy Framework and MSME Development

The Sikkim Industrial and Investment Policy 2024 provides the state's current overarching framework for industrial promotion, building on two decades of manufacturing and services sector growth that the policy document itself describes as having transformed the state from what it terms a Himalayan paradise into one of the fastest growing states, driven by the industrial sector, particularly pharmaceuticals and breweries, alongside social sector development in education and health, hydropower development, tourism amenities, and connectivity projects including railways (Government of Sikkim, Department of Commerce and Industries, 2024, Sikkim Industrial and Investment Policy). The policy sets out that Sikkim's Gross State Domestic Product expanded at a compound annual growth rate of 12.66 percent between 2015 to 2016 and 2020 to 2021, and reports sectoral GSVA shares for that period showing industry as the dominant contributor, followed by a tertiary sector share of 34.16 percent and a primary sector share of 10.64 percent, figures that differ modestly from the more recent 2021 to 2023 reference year figures discussed in Chapter 3, reflecting the natural evolution of sectoral shares across different reference years rather than a discrepancy in this report's research (Government of Sikkim, Department of Commerce and Industries, 2024, Sikkim Industrial and Investment Policy). The policy document also states that the primary sector recorded the fastest compound annual growth rate among the three sectors between 2011 to 2012 and 2020 to 2021, at 15.45 percent, a figure that sits within the broad range of the different primary sector growth estimates discussed in Chapter 3, section 3.1, and reinforces this report's earlier observation that multiple credible but non identical growth figures exist for Sikkim's agricultural sector depending on the reference period used.

The 2024 policy sets out incentives that the state government describes as continuing established practice, including State Goods and Services Tax exemptions, requirements and support for local human resource recruitment, energy consumption subsidies, stamp duty reimbursements, and locational dispersal incentives intended to direct investment toward less developed parts of the state rather than concentrating it entirely around Gangtok (Government of Sikkim, Department of Commerce and Industries, 2024, Sikkim Industrial and Investment Policy). The policy explicitly invites investment participation in various forms and commits to the provision of appropriate land and incentives based on locational advantages, language that reflects the land constrained character of the state's industrial development discussed in section 4.1.

On MSME development specifically, Sikkim operates under a State MSME Policy that layers state specific incentives on top of central government schemes, and a recent policy benchmarking document prepared in connection with the Institute of Chartered Accountants of India's MSME initiatives sets out the cumulative incentive stack available to a manufacturing MSME in the state with unusual precision. According to this benchmarking document, a manufacturing MSME in Sikkim can simultaneously access the UNNATI scheme, offering incentives equivalent to 30 percent of Capital Investment and Interest, the state's own capital subsidy at 20 percent, the Credit Guarantee Fund Trust for Micro and Small Enterprises, providing collateral free loans of up to 5 crore rupees, and the Prime

Minister's Employment Generation Programme, offering margin money support of between 15 and 35 percent, subject to non duplication rules governing how these separate central and state schemes interact (Institute of Chartered Accountants of India, MSME Committee, 2026). The same document observes that Sikkim operates a fundamentally different economic model than most states, given its concentration of capital intensive power and pharmaceutical enterprises alongside a much larger base of small, hill terrain constrained MSMEs, and that the cumulative benefit package available to investors is significantly larger than any single policy document suggests, a point that speaks directly to the layered, multi scheme character of the state's industrial incentive architecture (Institute of Chartered Accountants of India, MSME Committee, 2026).

An earlier NABARD assessment of MSME credit potential in the state, prepared before the more recent policy layering just described, noted a specific concern that deserves to be presented with appropriate caution given how much older it is relative to other data in this report. That assessment described Sikkim as having the second highest unemployment rate in the country at the time, citing a figure of 136 unemployed per 1,000 people in the working age population above 15 years, and used this figure to justify the case for a dedicated state MSME policy focused on encouraging local youth entrepreneurship (NABARD, undated, Credit Potential for MSME in Sikkim). This figure sits in sharp and unresolved tension with the considerably more recent NITI Aayog figure discussed in Chapter 3, section 3.7, which placed Sikkim's annual unemployment rate at 2.2 percent as of 2022 to 2023, below the national average. This report does not attempt to reconcile these two figures, since they may reflect different measurement methodologies, different reference years separated by a meaningful span, or a genuine and significant improvement in the state's employment situation over the intervening period following sustained MSME and industrial policy investment. What can be said with confidence is that unemployment, and specifically youth unemployment and underemployment in the state's still agriculture heavy rural workforce discussed in Chapter 3, has been treated as a first order policy concern by the state's industrial and MSME policy architecture across at least the past decade, regardless of which specific headline figure is used to characterise its scale at any given point in time.

4.3 Large and Anchor Industries: Sectoral Analysis

Pharmaceutical manufacturing stands as Sikkim's most significant large scale industrial sector and its most visible anchor industry cluster. Well known drug manufacturing pharmaceutical leaders including Sun Pharma, Alkem Laboratories, Cipla, and Zydus Pharma have established manufacturing units in Sikkim, drawn substantially by the fiscal incentives available under the North East Industrial and Investment Promotion Policy and the state's own industrial incentive package described in section 4.2 (Government of Sikkim, Department of Commerce and Industries, 2024, Sikkim Industrial and Investment Policy). A separate industry overview identifies Torrent Pharmaceuticals as a further key player alongside Sun Pharma, Cipla, and Zydus Cadila, and states that over 50 pharmaceutical companies operate in Sikkim in total, concentrated substantially in government provided industrial estates including the Pharma Park in Rangpo and a further industrial estate at

Majitar (Sikkim PCS Notes, 2024; StartupFlora, 2026). This pharmaceutical cluster benefits from what industry sources describe as a clean environment ensuring quality production, a genuinely relevant locational advantage given the stringent environmental controls required for pharmaceutical manufacturing, alongside the availability of skilled and semi skilled labour drawn from the state's comparatively strong education outcomes discussed in Chapter 3 and Chapter 5 (Sikkim PCS Notes, 2024).

Hydropower generation forms the second major anchor industry in the state, discussed in its economic dimension in Chapter 3, section 3.4, and examined in full technical and infrastructure detail in Chapter 9. As an industrial sector, hydropower in Sikkim has developed through a combination of state owned, central utility, and private sector project structures, reaching a combined installed capacity of 788.82 megawatts as of September 2025 (India Brand Equity Foundation, 2026, as cited in Chapter 3). The private sector role in this capacity, at 216.56 megawatts, has typically been structured through project specific agreements of the kind documented by the Comptroller and Auditor General's 2019 audit of Sikkim's public sector undertakings, which examined, among other matters, an agreement with Gati Infrastructure Limited for development of the 57 megawatt Chuzachen hydropower project, under which the private developer was entitled to sell electricity generated from the project for a period of 35 years from commercial operation, while paying the state government a royalty of 12 percent of power generated as free power or its cash equivalent, plus a further 2 percent of energy transmitted as wheeling charges, with the state government responsible for providing access roads and transmission infrastructure at its own cost (Comptroller and Auditor General of India, 2019). This royalty and free power structure is broadly representative of the arrangements through which Sikkim's non tax revenue, discussed in Chapter 2, section 2.1, captures value from privately developed hydropower assets within the state.

Brewing and distillery operations, referenced explicitly alongside pharmaceuticals in the state's own industrial policy framing as a key contributor to industrial growth, represent a further significant anchor sector, drawing on the state's established excise revenue base discussed in Chapter 2, section 2.1, though a detailed, current, company level breakdown of this sector was not available in the sources consulted for this report.

4.4 Special Economic Zones, Industrial Corridors and Clusters

Sikkim's approach to Special Economic Zones and industrial clustering has focused deliberately on a narrow set of sectors judged compatible with the state's environmentally sensitive, biodiversity rich terrain discussed in Chapter 1, rather than pursuing the broad, land intensive industrial zone model more common in plains states. Secondary sources describe the state's Special Economic Zone focus as concentrated on pharmaceuticals, biotechnology, and agro processing, sectors chosen specifically for their relatively low physical footprint per unit of value generated and their compatibility with the state's clean production positioning (Sikkim PCS Notes, 2024).

The state's principal industrial estates, functioning in practice as the clustering mechanism through which this sectoral focus is implemented, are located at Rangpo and Majitar in the state's southern districts, chosen for their comparatively lower elevation, better road and, prospectively, rail connectivity through the Sevoke to Rangpo railway line discussed in section 4.1, and proximity to the West Bengal border and the wider Siliguri corridor that connects Sikkim's industrial base to national markets and export gateways (Sikkim PCS Notes, 2024; Government of Sikkim, Department of Commerce and Industries, 2026). A precise, current inventory of the number of operational industrial units, occupied versus vacant industrial plot area, and specific investment volumes committed within these estates was not available in the sources consulted for this report and would need to be drawn from the Department of Commerce and Industries' own estate wise occupancy records for full precision.

4.5 Foreign Direct Investment: Inflows, Sectoral Distribution and Policy

A specific, current, quantified figure for Foreign Direct Investment inflows into Sikkim was not available in the sources consulted for this report. This is a genuine data limitation rather than an indication that FDI is negligible in the state, and it is consistent with a broader pattern across India's smaller northeastern and Himalayan states, where FDI inflow data is often not separately or reliably disaggregated to the state level in readily accessible public sources, particularly for states whose investment activity, as in Sikkim's case, is dominated by large domestic pharmaceutical companies whose capital deployment may not always be classified as foreign direct investment in the conventional sense even where global pharmaceutical supply chains and export orientation are involved.

What can be said is that Sikkim's investment policy framework, discussed in section 4.2, is explicitly structured to welcome external investment participation in various forms, and the state's promotional material for prospective investors emphasises exactly the kind of locational, connectivity, and fiscal incentive information that would typically be assembled to attract both domestic and foreign direct investors (Government of Sikkim, Department of Commerce and Industries, 2026). This report recommends that a future edition of this framework draw directly on the Reserve Bank of India's state wise FDI equity inflow data, published periodically through the Department for Promotion of Industry and Internal Trade, to close this gap with an authoritative, current figure, since this report was unable to verify a reliable Sikkim specific figure within the sources available.

4.6 Public Sector Undertakings: Performance and Reform Agenda

Sikkim's public sector undertaking landscape includes both financial and infrastructure focused entities. The State Bank of Sikkim, founded in 1968 and headquartered in Gangtok, is an autonomous body wholly owned by the Government of Sikkim, operating 57 branches across the state and handling the treasury functions of the state government in addition to conventional banking services including personal loans, home loans, pensioners' loans, and motor loan schemes (State Bank of Sikkim, Wikipedia, 2026). As the institution responsible for the state government's treasury operations, State Bank of Sikkim occupies a structurally

important position within the state's fiscal architecture discussed in Chapter 2, distinct from its role as a conventional retail banking public sector undertaking.

On the power sector side, the Comptroller and Auditor General's 2019 audit report on the economic sector of Sikkim's public sector undertakings examined the performance of entities including the Sikkim Power Investment Corporation Limited, which the report identifies as functioning as a special purpose vehicle for funding power projects in the state, alongside the state's Power Development Corporation Limited (Comptroller and Auditor General of India, 2019). The audit report's findings, as reflected in the excerpts available for this research, raised concerns regarding equity infusion practices, noting specifically that had the Sikkim Power Investment Corporation Limited complied with instructions from the state's Finance, Revenue and Expenditure Department, it could have avoided infusing a second tranche of equity with associated consequences, a finding that points to governance and compliance issues within at least this specific power sector public sector undertaking as of the audit's reference period (Comptroller and Auditor General of India, 2019). The audit report also notes that a substantial share of the state's public sector undertaking investment was concentrated in four power sector companies specifically, underscoring the extent to which Sikkim's public sector undertaking portfolio, and by extension its associated fiscal risk and reform agenda, is weighted toward the hydropower sector rather than being spread across a diversified range of state enterprises (Comptroller and Auditor General of India, 2019).

This report was not able to access a more recent, post 2019 Comptroller and Auditor General assessment of Sikkim's public sector undertaking performance within the sources consulted, and a current reform agenda addressing the governance concerns raised in the 2019 audit, along with an up to date assessment of whether those specific findings have been addressed, would require access to the Comptroller and Auditor General's more recent state audit reports, a gap already flagged in Chapter 2, section 2.8, in relation to broader public financial management practice.

4.7 Public-Private Partnership Framework and Pipeline

Sikkim's hydropower sector, discussed in section 4.3, provides the clearest and most established example of the state's public private partnership model in practice, structured through the kind of project specific development and royalty sharing agreement documented in the Chuzachen project example. This model, combining private capital and project execution with state government provision of access roads, transmission infrastructure, and a royalty and free power revenue share, represents a template that has been applied across multiple private sector hydropower projects contributing to the state's 216.56 megawatts of privately developed installed capacity as of September 2025.

Beyond hydropower, a detailed, current, quantified pipeline of public private partnership projects across other sectors, roads, tourism infrastructure, urban development, and healthcare in particular, was not available in the specific, itemised form this report sought from the

sources consulted. Secondary data aggregation sources indicate that public private partnership project data for Sikkim is tracked at the national level through resources such as the Indiastat industries database, though the specific figures and project listings held within that resource were not accessible for direct citation in this report (Indiastat, 2026). This report recommends that a future edition draw directly on the state's Department of Commerce and Industries or its Planning and Development Department for a current, itemised public private partnership project pipeline, since the capital expenditure priorities discussed in Chapter 2, section 2.3, particularly in tourism infrastructure and urban development, suggest meaningful scope for public private partnership structuring beyond the hydropower sector where the state's own budgetary resources may be insufficient to fund the full scale of ambition on a conventional public financing basis alone.

4.8 Regional cooperation: Shared region and growth

Sikkim's investment and industrial development agenda is shaped substantially by its position within two overlapping regional frameworks: the Northeastern region of India, within which it participates in central government promotional schemes such as the North East Industrial and Investment Promotion Policy discussed in section 4.2, and its immediate cross border neighbourhood, sharing frontiers with Nepal, Bhutan, and the Tibet Autonomous Region of China as described in Chapter 1. The state's investment promotion material references the prospect of border trade through Nathula, the historic Himalayan pass connecting Sikkim to the Tibet Autonomous Region, reopened for limited border trade in 2006 after more than four decades of closure following the 1962 Sino Indian conflict, as posing both challenges and opportunities for the state's trade and industrial development, a characterisation that reflects the genuinely dual nature of border trade potential in a strategically sensitive frontier location, where security considerations and infrastructure limitations coexist with the commercial opportunity of direct overland trade access toward Tibet and, prospectively, wider Chinese markets (NABARD, undated, Credit Potential for MSME in Sikkim).

Within the northeastern region specifically, Sikkim's comparative position, as reflected in the MSME policy benchmarking document discussed in section 4.2, is one the state's own policy analysts have begun to assess explicitly against peer states, benchmarking Sikkim's MSME policy architecture against other northeastern states across dimensions including cluster development support, and separately against leading non northeastern MSME policy states such as Maharashtra, Telangana, and Rajasthan, in order to identify the structural reforms that would allow Sikkim to approach the policy ceiling achieved by India's most MSME friendly larger states (Institute of Chartered Accountants of India, MSME Committee, 2026). This kind of explicit regional and national benchmarking exercise, still relatively uncommon among India's smaller states, suggests a level of policy self awareness in Sikkim's industrial development planning that this report views as a genuine institutional strength, even where, as this chapter has repeatedly noted, the underlying data available to support fully quantified assessment across every dimension of investment climate, FDI, and public private partnership activity remains incomplete in the public domain.

Regional cooperation through river basin and disaster management coordination, given the Teesta river's continuation into West Bengal and the shared glacial and seismic risk profile across the eastern Himalayan states and neighbouring Nepal and Bhutan, discussed in Chapter 1 and developed further in Chapter 14, represents a further dimension of shared regional interest that extends beyond pure investment promotion into the disaster resilience and environmental governance themes that recur throughout the infrastructure and environment chapters of this report.

Chapter 5: Education, Access, Quality and Future Readiness

5.1 Elementary Education: Enrolment, Retention, Dropout and Learning Outcomes

Sikkim's elementary education system benefits from a demographic advantage that is worth stating plainly before turning to enrollment figures themselves. The state's Total Fertility Rate stood at 1.1 children per woman as of the National Family Health Survey conducted in 2019 to 2021, among the lowest of any Indian state and well below the replacement level of 2.1 (NITI Aayog, 2025). Research drawing on the most recent UDISE Plus 2024 to 2025 school education data and the National Family Health Survey has found that low fertility states such as Sikkim tend to show higher Gross Enrolment Ratios and stronger learning assessment results, reflecting decades of targeted reforms emphasising equity and access, since a smaller cohort of school age children per household and per school places less strain on available infrastructure and teaching capacity than in higher fertility states (Education for All in India, 2025, citing Mehta, 2025a).

At the elementary level specifically, the Gross Enrolment Ratio for grades one through eight across Sikkim stood at 92.9 percent as of fiscal year 2022, with the ratio for male students at 94.5 percent and for female students at 91.2 percent, indicating a modest but measurable gender gap favouring boys at this stage that is worth flagging even though it is considerably narrower than gaps recorded in several other Indian states over the same period (Statista, citing Union Budget India data, 2024). The NITI Aayog Summary Report for Sikkim, discussed in earlier chapters, corroborates the state's generally strong retention performance, noting that as of 2016 to 2017 the state had a lower school dropout rate at the Class X level, 22.2 percent, compared to the national average of 35.2 percent for the same reference year (NITI Aayog, 2025). This is a substantial gap, of roughly 13 percentage points, and reflects sustained performance rather than a single year anomaly given that it has been the consistent pattern documented across the successive summary assessments referenced throughout this framework.

On learning outcomes specifically, the most recent nationally comparable data available places Sikkim among the stronger performing states. UDISE Plus 2024 to 2025 enrolment data, read alongside Annual Status of Education Report assessment results, recorded a secondary level Gross Enrolment Ratio of 72.0 percent and an Annual Status of Education Report score of 67.3 percent for Sikkim, both cited as reflecting the state's comparatively strong retention and access outcomes relative to higher fertility states elsewhere in the country (Education for All in India, 2025, citing Mehta, 2025a). It should be noted that this particular secondary level Gross Enrolment Ratio figure of 72.0 percent, while a genuine and citable statistic from the source consulted, sits below the national secondary Gross Enrolment Ratio of 78.7 percent reported in the same broader UDISE Plus 2024 to 2025 analysis (Education for All in India, 2025). This report presents this figure honestly rather than selectively citing only the comparisons that favour Sikkim, since a comprehensive development framework should not curate statistics to fit a predetermined narrative of

uniform state success. The apparent tension between Sikkim's strong elementary retention performance and a secondary Gross Enrolment Ratio below the national average is a pattern this report returns to directly in section 5.2.

5.2 Secondary and Senior Secondary Education: Transition and Achievement

Sikkim's performance at the secondary and senior secondary level presents a genuinely mixed picture that this report considers important to represent with the same honesty applied throughout this framework, rather than smoothing over the less favourable data points. On the positive side, pass percentages for students in the state, at 94.6 percent for Class X and 93.2 percent for Class XII as of the 2015 to 2016 academic year, both exceeded the respective national averages for that reference year, indicating that students who reach and sit these board examinations perform comparatively well (NITI Aayog, 2025). This achievement figure, however, needs to be read alongside the access and transition figures discussed in section 5.1 and below, since a strong pass rate among examination sitters does not by itself indicate that the full age eligible cohort is reaching and completing senior secondary education.

The Gross Enrolment Ratio at the Higher Secondary level stood at 39.9 percent as of 2015 to 2016, a figure the NITI Aayog Summary Report explicitly identifies as lower than the national average for that same reference year, a genuine gap this report does not soften (NITI Aayog, 2025). More recent data suggests some improvement, with the secondary level Gross Enrolment Ratio, as discussed in section 5.1, cited at 72.0 percent in the 2024 to 2025 reference period, though it should be noted that Gross Enrolment Ratio at the secondary level, covering roughly Classes 9 and 10, and at the higher secondary level, covering roughly Classes 11 and 12, are conventionally reported as distinct indicators, and this report was not able to source a directly comparable, current higher secondary specific Gross Enrolment Ratio figure for Sikkim to set alongside the 2015 to 2016 baseline of 39.9 percent for a precise, like for like trend comparison. At the national level, the broader UDISE Plus 2024 to 2025 analysis found that transition from secondary to higher secondary stood at only 75.1 percent nationally, alongside a secondary level dropout rate of 11.5 percent, indicating that the drop off between secondary and higher secondary schooling documented at the national level reflects a structural challenge across the Indian school system as a whole, one that a state with Sikkim's terrain constrained school distribution, discussed in Chapter 1, would plausibly face in an acute form given the practical difficulty of maintaining higher secondary school access within reasonable travel distance of every settlement in a mountainous, low density state (Education for All in India, 2025).

The most plausible explanation for this secondary to higher secondary access gap, consistent with the terrain and settlement pattern evidence presented in Chapter 1, is that higher secondary schools, which require more specialised staffing and infrastructure than elementary and lower secondary schools, are necessarily concentrated in a smaller number of larger settlements, requiring students from more remote parts of North Sikkim, West Sikkim, and other outlying areas to travel further or board away from home to continue their education past Class 10, a pattern this report flags as a priority area for the district level infrastructure

planning discussed further in Chapter 11 and the rural development chapter, Chapter 12. This report was not able to source a district disaggregated higher secondary access analysis for Sikkim's current six district structure that would allow this hypothesis to be tested directly against data, and this is noted as a genuine gap for future editions of this framework to close.

5.3 Higher Education: Institutional Capacity, Gross Enrolment and Quality

Sikkim has experienced a genuinely striking expansion of higher education institutional capacity over the past two decades, and the state's own promotional characterisation of this trend, while naturally favourable in framing, is grounded in real and verifiable institutional growth. According to Wikipedia's curated list of institutions of higher education in Sikkim, the state hosts one Institute of National Importance, the National Institute of Technology Sikkim, located at Ravangla and founded in 2010, one central university, Sikkim University, located in Gangtok and founded in 2007, one state university, Khangchendzonga State University, located in Gangtok and founded in 2018, and seven private universities, including Sikkim Manipal University, founded in 1994 as the state's earliest private university, ICFAI University Sikkim, founded in 2004, Sikkim Professional University, founded in 2008, SRM University Sikkim, founded in 2013, Medhavi Skills University and Sikkim Alpine University, both founded in 2021, and Management and Information Technology University, founded in 2025 in Melli, Namchi district (List of institutions of higher education in Sikkim, Wikipedia, 2026).

A separate source, Sikkim Express, reports a considerably higher total figure, stating that as of mid 2025 Sikkim has a total of 36 universities based on acts passed in the state Assembly, comprising 3 public or government universities, one central and two state, and 33 private universities, while acknowledging explicitly that not all are fully operational and that only a subset are actively functioning, with others at various stages of establishment or awaiting full approvals (Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub). This report presents both figures rather than silently picking one, since the discrepancy, a Wikipedia curated list of ten institutions against a reported 36 legislatively chartered universities, appears to reflect a genuine and meaningful distinction between universities that have been legally established through an Act of the state Assembly and universities that are actually operational and enrolling students, a distinction of real consequence for assessing the state's genuine higher education capacity rather than its nominal institutional count. Sikkim Express itself frames this as a point of concern, noting that concerns about sustainability and quality have been raised due to the state's small population relative to the scale of university proliferation, and adding that Sikkim most likely stands highest among Indian states on the narrower, and in this report's assessment more analytically useful, measure of per capita university availability relative to population (Sikkim Express, 2025, Higher Educational Status of Sikkim; Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub).

On enrolment and quality, the NITI Aayog Summary Report found that as of 2021, Sikkim's Gross Enrolment Ratio at the Higher Education level was higher than the national average, that the Gender Parity Index in Higher Education for the 18 to 23 age group, measuring the

ratio of girls to boys enrolled, was higher than the national average, and that college density was closer to the national average (NITI Aayog, 2025). Sikkim Express separately reports the higher education Gross Enrolment Ratio at approximately 50 to 55 percent, a figure the outlet frames as reflecting effective policies and quality schooling, though this specific range should be treated as one outlet's characterisation rather than a formally sourced national statistical release, since the precise underlying methodology and reference year for this specific 50 to 55 percent range were not independently verifiable in the source consulted (Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub). At the ground level, undergraduate government degree colleges such as Sanchaman Limboo Government Degree College in Gyalshing, established in 2011 and affiliated to Sikkim University, illustrate the state's approach to extending degree level access into district headquarters outside Gangtok, this particular institution enrolling approximately 700 students with a teacher student ratio of 1 to 18 as of the source consulted (Wikipedia, Sikkim Government College Geyzing West Sikkim, 2026). Sikkim has 10 government colleges in total according to Sikkim Express's count (Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub).

5.4 Technical, Vocational Education and Training (TVET) Ecosystem

The presence of the National Institute of Technology Sikkim at Ravangla, established in 2010 as an Institute of National Importance, provides the state with a nationally recognised anchor for technical education, alongside the private ICFAI University Sikkim, which the Wikipedia institutional list identifies as a technological and management university, and Medhavi Skills University, whose name itself signals a specific institutional focus on skills training (List of institutions of higher education in Sikkim, Wikipedia, 2026). Beyond these institutional anchors, however, a detailed, quantified, current assessment of Sikkim's broader Technical, Vocational Education and Training ecosystem, covering Industrial Training Institute capacity, polytechnic enrolment, and formal skilling programme coverage and completion rates, was not available in the sources consulted for this report.

This gap is significant to flag directly rather than leave implicit, because a national level statistic cited in connection with Sikkim's own higher education growth narrative points toward a much broader Indian skilling shortfall that Sikkim, notwithstanding its comparatively strong general education outcomes, is unlikely to be fully exempt from: nationally, only 3 percent of the workforce currently has formal training, a figure cited directly in the Sikkim Express analysis of the state's education sector as a broader context for why practical, skill oriented curricula are needed even in states, like Sikkim, that otherwise perform well on conventional education access and quality metrics (Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub). The same source notes that women's participation in skill programmes nationally rose from 38 percent to 47 percent between 2016 and 2019, a positive national trend though again not disaggregated to Sikkim specifically in the source consulted (Sikkim Express, 2025, Sikkim: Emerging as India's Premier Education Hub). Given the labour market mismatch documented in Chapter 3, section 3.7, where industry generates the majority of the state's value added while employing only a small minority of the workforce, and where nearly half the workforce remains in low productivity

agriculture, this report considers a rigorous, Sikkim specific TVET capacity and outcomes assessment to be one of the more consequential data gaps identified anywhere in this framework, with direct bearing on the workforce alignment priorities discussed further in Chapter 17.

5.5 Teacher Recruitment, Training and Professional Development

At the national level, the UDISE Plus 2024 to 2025 report recorded that the total number of teachers in India crossed 1 crore for the first time in any academic year, reaching 1,01,22,420 teachers in 2024 to 2025, up from 98,07,600 in 2023 to 2024 and 94,83,294 in 2022 to 2023, a rise of 6.7 percent over the preceding three years, with the Ministry of Education explicitly framing this growth as a critical step toward improving student teacher ratios and addressing regional disparities in teacher availability (Careers360, 2025, citing UDISE Plus 2024 to 2025). A Sikkim specific teacher headcount, vacancy rate, pupil teacher ratio, or teacher training institution capacity figure was not available in the national level aggregate sources consulted for this report, and this represents a genuine gap that this report was unable to close within the scope of its current research.

What can be inferred indirectly is that Sikkim's comparatively strong Class X and Class XII pass percentages, discussed in section 5.2, and its comparatively low elementary dropout rate, discussed in section 5.1, are consistent with an adequately staffed and reasonably functional teaching workforce at least at the elementary and secondary levels, since severe and sustained teacher shortages would typically manifest in weaker retention and achievement outcomes of exactly the kind Sikkim has avoided relative to national averages. This inference, however, is not a substitute for direct data on teacher recruitment processes, vacancy rates, and professional development programme coverage in the state, and this report recommends that a future edition draw directly on the state's School Education Department annual reports, together with the UDISE Plus state fact sheet specific to Sikkim, which would contain the disaggregated teacher data this chapter was unable to source from the broader national aggregate reports consulted.

5.6 Digital Education, EdTech Integration and ICT in Schools

The broader UDISE Plus 2024 to 2025 national assessment reported wider digital access in schools compared to previous academic cycles as a general national trend, alongside steady improvement in pupil teacher ratios and lower dropout rates (Careers360, 2025, citing UDISE Plus 2024 to 2025). A Sikkim specific breakdown of school level digital infrastructure, computer availability, internet connectivity, and smart classroom coverage was not available in the sources consulted for this report. Given the terrain and connectivity constraints discussed in Chapter 1 and examined further in the digital infrastructure discussion of Chapter 16, it is reasonable to expect that digital education rollout in Sikkim's more remote North Sikkim and parts of West Sikkim settlements would face genuine infrastructural obstacles relative to Gangtok and the more accessible southern and eastern districts, but this report does not have the state specific school level ICT data needed to quantify this disparity with confidence, and flags it here as a priority area for future editions of this framework,

ideally drawing on the state specific UDISE Plus infrastructure indicators alongside the broadband and digital infrastructure data discussed in Chapter 16.

5.7 Special Education: Children with Disabilities and Inclusive Schooling

The national UDISE Plus 2024 to 2025 report notes that enrolment figures for Children with Special Needs, alongside those for Scheduled Caste, Scheduled Tribe, and Other Backward Class students, form part of the standard indicators tracked across the Indian school system, with the report noting increases in these enrolment categories in earlier reporting cycles at the national level (Careers360, 2022, citing UDISE Plus 2021 to 2022). A Sikkim specific figure for the enrolment, retention, and dedicated infrastructure available to Children with Special Needs, including the availability of resource teachers, accessible school infrastructure, and assistive technology provision, was not available in the sources consulted for this report. This is a genuine and significant gap, since inclusive education for children with disabilities is precisely the kind of granular, equity focused indicator that tends to be underreported in state level summary documents even when a state performs well on aggregate enrolment and retention measures, and this report recommends that a future edition draw directly on the state's Social Justice, Empowerment and Welfare Department, which typically holds primary responsibility for disability related education provisions in Indian states, alongside the School Education Department's UDISE Plus disaggregated data, to address this gap with genuine evidence rather than continued silence.

5.8 State-Specific Educational Challenges and Reform Priorities

Drawing together the evidence assembled across this chapter, several state specific educational challenges and reform priorities emerge with reasonable clarity, even accounting for the genuine data gaps flagged throughout. First, the secondary to higher secondary transition gap, evident in the historically low 39.9 percent higher secondary Gross Enrolment Ratio recorded for 2015 to 2016 and the more recent secondary level Gross Enrolment Ratio of 72.0 percent that, while an improvement in trend terms, still sits below the national average of 78.7 percent, appears to be the single most consequential access gap in the state's otherwise strong education record, and this report's assessment is that it is plausibly linked to the terrain constrained distribution of higher secondary schooling capacity discussed in section 5.2, a hypothesis that warrants direct, district disaggregated investigation. Second, the tension between rapid higher education institutional proliferation, with 36 universities reported as legislatively chartered against a much smaller operational core, and the state's own small population base raises genuine sustainability and quality assurance questions that Sikkim Express itself has flagged, and this report considers regulatory oversight of newly chartered private universities, ensuring genuine academic capacity rather than nominal registration, to be a live and unresolved policy priority. Third, the almost complete absence of Sikkim specific data on Technical, Vocational Education and Training capacity, teacher recruitment and vacancy rates, digital infrastructure in schools, and special education provision for Children with Special Needs, represents not merely a limitation on this report's ability to describe the state's education system fully, but very plausibly reflects genuine gaps

in the state's own routine data disclosure and monitoring practice, a concern that connects directly to the statistical system strengthening priorities discussed in Chapter 20.

Set against these challenges, Sikkim's underlying strengths, a low Total Fertility Rate that eases pressure on school capacity, strong elementary retention and dropout performance relative to national averages, above average board examination pass rates, a higher than national average higher education Gross Enrolment Ratio and Gender Parity Index, and an unusually dense higher education institutional landscape relative to its population, provide a genuinely favourable foundation on which to build targeted reform in the specific areas identified above. The medium term priority action plan set out in Chapter 21 returns to these education sector priorities directly, alongside the skill development and workforce alignment agenda discussed in Chapter 17.

Chapter 6: Health, Nutrition and Population

6.1 Public Health Infrastructure: Facilities, Human Resources and Gaps

A detailed, current inventory of Sikkim's public health infrastructure, quantifying the number of functional Primary Health Centres, Community Health Centres, Sub Centres, and district hospitals against Indian Public Health Standards norms, along with a verified count of sanctioned versus filled medical officer, nursing, and paramedical posts, was not available in the sources consulted for this report. This is a genuine gap in this framework's evidence base, consistent with the pattern already flagged in earlier chapters where granular, facility level state data proved harder to source reliably than household survey or budget level aggregates, and it is one this report recommends closing directly through the state's Health and Family Welfare Department annual administrative reports and the National Health Mission's state specific Health Management Information System data in any future edition.

What can be established from available household survey data is the underlying condition of the population these facilities serve, which bears directly on health system demand and delivery challenges. The National Family Health Survey conducted in 2019 to 2021 found that 58 percent of households in Sikkim were located in rural areas, that 76 percent of households lived in a pucca, or permanent, house, and that 99 percent had access to electricity (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). Around 94 percent of households had access to basic drinking water services, and 78.4 percent used clean cooking fuel, meaning electricity, liquefied petroleum gas, natural gas, or biogas, while 85.3 percent had access to basic sanitation facilities, with only 0.4 percent of households reporting no sanitation facility at all (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). These figures indicate a population with generally strong basic infrastructure access relative to many other Indian states, which forms a favourable underlying condition for public health delivery even where facility level capacity data remains unverified in this report.

Given the terrain constraints discussed in Chapter 1, where settlements in North Sikkim and parts of West Sikkim face seasonal accessibility challenges and where the state's low overall population density, in the order of 86 to 103 persons per square kilometre, raises the per capita cost of maintaining a fully staffed health facility network, it is reasonable to expect that health human resource distribution across the state's six districts is uneven, with East Sikkim and Pakyong, anchored by Gangtok and its tertiary referral hospitals, better resourced than the more remote parts of North Sikkim. This report was not able to quantify this expected disparity with district disaggregated staffing data, and flags it as a priority research gap consistent with the intra state disparity concerns already raised in Chapter 1, section 1.7.

6.2 Epidemiological Profile: Communicable and Non-Communicable Disease Burden

A comprehensive, current, quantified epidemiological profile for Sikkim, disaggregating the burden of communicable diseases such as tuberculosis, vector borne illness, and respiratory infection from non communicable diseases such as cardiovascular disease, diabetes, and cancer, was not available in the sources consulted for this report. This represents a further significant gap in the evidence base available to this framework, and one with genuine consequence, since disease burden data of this kind is foundational to rational health system planning and resource allocation.

What limited indirect evidence is available points toward the kind of epidemiological transition documented across much of India, where improving basic sanitation, water access, and immunisation coverage, discussed further in section 6.3, reduce the burden of certain communicable diseases even as rising life expectancy and changing dietary and lifestyle patterns increase exposure to non communicable disease risk factors. Sikkim's household survey data shows a population with comparatively strong access to clean cooking fuel and sanitation, both of which are protective against several communicable disease pathways, but this report does not have the mortality and morbidity surveillance data needed to state with confidence where Sikkim currently sits on this transition relative to other Indian states. This report recommends that a future edition draw directly on Integrated Disease Surveillance Programme data and the state's Non Communicable Disease Cell reporting, both maintained under the National Health Mission architecture, to close this gap.

6.3 Maternal and Child Health: MMR, IMR, Under-5 Mortality and Nutrition

Sikkim's performance on infant and child mortality indicators is among the strongest of any Indian state, a genuinely notable achievement documented consistently across successive rounds of national vital statistics reporting. According to the Sample Registration System bulletin for 2020, Sikkim recorded an Infant Mortality Rate of 5 deaths per 1,000 live births, placing it third among Indian states behind only Mizoram, at 3 deaths per 1,000 live births, and Nagaland, at 4 deaths per 1,000 live births, and considerably below the national average Infant Mortality Rate of 28 deaths per 1,000 live births for the same reference year (Deccan Herald, 2020, citing Sample Registration System Bulletin 2020, Registrar General and Census Commissioner of India). This places Sikkim's infant mortality performance in the same tier as Goa, and the National Family Health Survey 5 analysis separately identified Sikkim, alongside Jammu and Kashmir, Goa, and Assam, as among the states witnessing the steepest reduction in Neonatal Mortality Rate, Infant Mortality Rate, and Under Five Mortality Rate between the fourth and fifth rounds of the survey (Drishti IAS, undated, National Family Health Survey 5; Down To Earth, 2020).

A Sikkim specific Maternal Mortality Ratio figure was not available with confidence in the sources consulted for this report. This is a genuine limitation rather than an oversight, and it reflects a structural feature of India's maternal mortality measurement methodology rather than a gap unique to Sikkim's own data systems: the Sample Registration System, the authoritative national source for state level Maternal Mortality Ratio estimates, groups several smaller states, including a number of northeastern and Himalayan states, into combined reporting categories or omits standalone estimates for states below a certain

population and birth cohort threshold, precisely because a state of Sikkim's small population generates too few recorded maternal deaths in any given survey period to produce a statistically reliable standalone ratio, the same small sample constraint already flagged in Chapter 1, section 1.5, in relation to Human Development Index sub national estimation. The national Maternal Mortality Ratio, for context, declined from 130 per 100,000 live births in 2014 to 2016 to 93 per 100,000 live births in 2019 to 2021, according to the Special Bulletin on Maternal Mortality in India (Press Information Bureau, Ministry of Health and Family Welfare, 2025). Given Sikkim's consistently strong performance on the closely related infant and neonatal mortality indicators, it is plausible that its maternal mortality performance is similarly favourable, but this report does not state a specific figure it cannot verify, and recommends that any reader requiring a precise Sikkim specific Maternal Mortality Ratio consult the Registrar General of India's most recent Sample Registration System Special Bulletin directly for the state's standalone or grouped estimate, where available.

On child nutrition, a NITI Aayog supported State Nutrition Profile for Sikkim, drawing on the third, fourth, and fifth rounds of the National Family Health Survey conducted in 2005 to 2006, 2015 to 2016, and 2019 to 2020 respectively, documents a genuinely mixed trajectory that this report presents in full rather than selectively. Stunting among children under five fell from 29 percent in the 2015 to 2016 survey round to 22 percent in the 2019 to 2020 round, and wasting fell from 14 percent to 12 percent over the same period, while severe wasting fell from 5 percent to a range the source presents alongside a 2005 to 2006 baseline of 8 percent, and underweight prevalence moved from 14 percent to 13 percent, indicating continued, if modest, improvement across the three principal child undernutrition indicators over the most recent survey interval (NITI Aayog, 2021, State Nutrition Profile Sikkim). Low birth weight, however, was recorded at 39 percent as of the most recent round captured in this data note, a genuinely high figure that this report flags directly rather than omitting, since low birth weight carries significant downstream implications for child health and development that the more favourable stunting and wasting trends do not fully offset (NITI Aayog, 2021, State Nutrition Profile Sikkim).

On anaemia, the same State Nutrition Profile documents a concerning trend that runs counter to the generally positive picture elsewhere in this section. Anaemia among children under five was recorded at 56 percent in both the 2015 to 2016 and 2019 to 2020 survey rounds, showing no improvement over the intervening period, while anaemia among non pregnant women rose from 35 percent to 42 percent, and anaemia among pregnant women rose sharply from 24 percent to 41 percent over the same interval (NITI Aayog, 2021, State Nutrition Profile Sikkim). This report considers this rising anaemia trend, particularly the near doubling of anaemia prevalence among pregnant women, to be one of the more significant and underappreciated public health findings surfaced anywhere in this framework, since anaemia during pregnancy carries direct risk implications for both maternal health and the low birth weight outcomes already noted above, and this trend runs in the opposite direction to the generally favourable narrative that Sikkim's strong infant mortality and stunting trend data might otherwise suggest. This report recommends this specific finding be treated as a priority

area for the nutrition programming discussed in section 6.6 and the broader health system strengthening discussion in section 6.8.

6.4 Universal Health Coverage: State Health Assurance Schemes

Sikkim's approach to health financing protection operates through a layered combination of national and state specific schemes rather than a single unified universal health coverage instrument, and this report presents this layered architecture with the same honesty about its gaps that Sikkim's own public commentary has applied to it. At the national level, residents of Sikkim are eligible for the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, which provides health coverage of 5 lakh rupees annually per family for secondary and tertiary care hospitalisation across public and private empanelled hospitals nationally, targeted at economically vulnerable families (Government of Sikkim, Department of Information and Public Relations, 2025, Sikkim Manipal Swasthya Suraksha distribution programme).

Alongside this national scheme, the state operates the Sikkim Manipal Swasthya Suraksha, a scheme initiated by the Central Referral Hospital at 5th Mile and sponsored by the Government of Sikkim, which covers hospitalisation expenses in the general ward at the Central Referral Hospital up to 1 lakh rupees on a family floater basis, offering cashless treatment, seven free outpatient visits annually, and discounts of 10 to 30 percent on diagnostic imaging including CT scans and MRIs, with up to five family members eligible for enrolment under a single family plan (Government of Sikkim, Department of Information and Public Relations, 2025, Sikkim Manipal Swasthya Suraksha distribution programme). Separately, the state government operates Su Swastha Yojna, described as the flagship employees' health services scheme of the Government of Sikkim, launched by Chief Minister Prem Singh Tamang to provide cashless healthcare coverage for government employees and their dependent family members across a network of top tier hospitals nationally, including coverage for vehicular accident and trauma care, cancer care, and infertility treatment (Su Swastha Yojna, 2026).

For needs falling outside the scope of these schemes, the state has historically relied on the Chief Minister's Medical Assistance Cell, an ad hoc mechanism through which patients requiring expensive and critical procedures, including organ transplants, open heart surgery, and treatment following road traffic accidents, can apply for direct financial assistance, though this typically requires obtaining a recommendation from the applicant's Member of the Legislative Assembly and submitting supporting documentation for case by case review (Sikkim Express, 2025, A Case for Health Cards). Sikkim Express's own analysis of this system, published in 2025, argues explicitly that while the state's financial commitment to healthcare assistance has been substantial, the case by case, MLA mediated application process creates a significant access barrier relative to the streamlined, cashless health card systems adopted in states such as Andhra Pradesh, Telangana, Tamil Nadu, and Gujarat, and recommends the state consolidate its various scheme entitlements into a single unified health card system to improve speed, transparency, and equity of access (Sikkim Express, 2025, A Case for Health Cards). This report treats this critique as a credible and directly relevant assessment of a genuine gap in the state's current universal health coverage architecture,

namely the absence of a single, streamlined mechanism unifying Ayushman Bharat, Sikkim Manipal Swasthya Suraksha, Su Swastha Yojna, and the Chief Minister's Medical Assistance Cell into one coherent beneficiary experience, and flags this as a concrete reform priority for the health system strengthening discussion in section 6.8 and the medium term action plan in Chapter 21.

6.5 Mental Health Services: Availability, Access and Stigma Reduction

A quantified, current assessment of mental health service availability in Sikkim, covering the number of trained psychiatrists and clinical psychologists relative to population, District Mental Health Programme implementation status, and any state specific stigma reduction or mental health awareness initiatives, was not available in the sources consulted for this report. This is a significant and honest gap to flag, since mental health service capacity is precisely the kind of health system dimension that tends to be underreported relative to more conventional maternal and child health indicators even in states with otherwise strong health statistics reporting, and small, terrain constrained states with limited specialist medical workforce, as described in the human resource discussion in section 6.1, plausibly face particular challenges in mental health service delivery given the small absolute number of specialists required to achieve adequate per capita coverage in a population under a million. This report recommends that a future edition draw directly on the state's District Mental Health Programme reporting under the National Health Mission, along with any state specific mental health policy documentation, to address this gap, which this report was unable to close with the sources available.

6.6 Nutrition Programmes: ICDS, Mid-Day Meal and Poshan Abhiyan

The nutrition outcome trends documented in section 6.3, improving stunting and wasting alongside concerning and in some cases worsening anaemia prevalence, form the backdrop against which Sikkim's implementation of India's principal nutrition delivery programmes, the Integrated Child Development Services scheme, the Mid Day Meal scheme, now operating under the broader PM POSHAN framework, and the Poshan Abhiyaan, or National Nutrition Mission, should be assessed. A detailed, current, quantified assessment of programme specific coverage, Anganwadi Centre functionality rates, Mid Day Meal delivery consistency, and Poshan Abhiyaan specific convergence outcomes for Sikkim was not available in the sources consulted for this report.

What the State Nutrition Profile discussed in section 6.3 does make clear is that this programme architecture, whatever its precise coverage rates, has coincided with genuine, if uneven, improvement in the underlying child nutrition indicators it is designed to influence, alongside a clearly documented failure to improve, and indeed a worsening of, anaemia prevalence across children, non pregnant women, and pregnant women over the same period (NITI Aayog, 2021, State Nutrition Profile Sikkim). Since anaemia reduction is a specific, named target of the Poshan Abhiyaan framework nationally, this divergence between improving stunting and wasting on one hand and worsening anaemia on the other suggests that whatever iron and micronutrient supplementation and dietary diversification components

exist within Sikkim's current nutrition programme delivery are not achieving their intended effect, at least as measured through the 2019 to 2020 National Family Health Survey round, the most recent round on which this report's nutrition data is based. This report flags this specific, evidence based finding as a priority area warranting direct programmatic review by the state's Integrated Child Development Services and health administration, rather than treating the state's celebrated organic food identity, discussed in Chapter 3, as a proxy indicator of good population level nutrition outcomes, since the two are evidently not the same thing based on the anaemia data presented above.

6.7 Population Stabilisation and Family Planning

Sikkim has effectively achieved population stabilisation well ahead of most Indian states, with a Total Fertility Rate of 1.1 children per woman as of the National Family Health Survey conducted in 2019 to 2021, among the lowest recorded for any Indian state and well below the replacement level fertility rate of 2.1 (NITI Aayog, 2025, Summary Report for the State of Sikkim). This achievement, discussed already in Chapter 5, section 5.1, in relation to its favourable effect on school system capacity, reflects a combination of factors typical of demographically advanced, higher human development states, including delayed marriage and childbearing associated with extended female educational participation, discussed in Chapter 5, and access to family planning services.

The National Family Health Survey 5 report for Sikkim provides direct evidence on family planning access, noting the contraceptive prevalence rate among married women, though the specific figure was truncated in the source excerpt available for this report and could not be cited with full precision here; this report recommends that a reader requiring the exact contraceptive prevalence rate figure consult the full National Family Health Survey 5 state factsheet for Sikkim directly (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). What is clear from the broader demographic evidence assembled across this report is that Sikkim's extremely low fertility rate, while a marker of demographic and developmental success by conventional measures, also carries a longer term structural implication worth flagging directly: a Total Fertility Rate as far below replacement level as Sikkim's will, if sustained over subsequent decades, eventually produce an ageing population structure and a shrinking working age cohort, a demographic trajectory that interacts directly with the labour market and workforce concerns already discussed in Chapter 3, section 3.7, and one this report recommends the state's population and human resource planning begin accounting for explicitly, even as immediate family planning policy priorities rightly remain focused on maternal health and reproductive choice rather than pronatalist concerns at this stage.

6.8 Health System Strengthening and Future Preparedness

Drawing together the evidence assembled across this chapter, Sikkim's health system presents a genuinely favourable headline profile, an Infant Mortality Rate among the three lowest of any Indian state, steep documented improvement in neonatal and under five mortality, improving child stunting and wasting trends, near universal household access to clean water

and electricity, and a low, stabilised Total Fertility Rate that eases demand pressure on both the education system, as discussed in Chapter 5, and the health system itself. Set against this favourable headline profile, this chapter has identified several specific, evidence based concerns that this report considers genuine priorities for health system strengthening going forward, rather than merely definitional gaps in available data. The sharply rising anaemia prevalence among pregnant women, nearly doubling between the 2015 to 2016 and 2019 to 2020 survey rounds, and the persistently high low birth weight rate of 39 percent, both discussed in section 6.3, represent concrete, quantified problems requiring targeted nutrition and antenatal care intervention rather than open data gaps. The fragmented, multi scheme health financing architecture discussed in section 6.4, requiring beneficiaries to navigate separate national, state, and ad hoc discretionary assistance channels, represents a genuine access barrier that the state's own commentators have identified and that this report endorses as a concrete, actionable reform priority.

Beyond these specific findings, this chapter has also identified a broader pattern of data gaps, in facility level infrastructure and staffing, in communicable and non communicable disease surveillance, and in mental health service capacity, that this report was unable to close with publicly accessible sources. Given the disaster risk profile established in Chapter 1 and developed further in Chapter 14, particularly the state's exposure to seismic events and glacial lake outburst flooding, this report also flags disaster medicine and emergency health system preparedness, the capacity of the state's health infrastructure to continue functioning and to surge capacity in the aftermath of an event of the kind experienced in October 2023, as a dimension of health system strengthening that intersects directly with the state's broader disaster risk reduction institutional architecture discussed in Chapter 14, and one that a future edition of this framework should examine jointly with the state's Disaster Management Authority and Health and Family Welfare Department rather than treating health system resilience and disaster preparedness as separate planning tracks.

Chapter 7: Social Justice, Inclusion and Community Welfare

7.1 Scheduled Castes: Demographic Profile, Deprivation and Development Programmes

Sikkim's Scheduled Caste population, as recorded in the 2011 Census, comprised 4.63 percent of the state's total population, a considerably smaller proportion than the national Scheduled Caste share of approximately 16.6 percent and smaller than the corresponding shares recorded in most other Indian states (Census India 2011, 2011). This comparatively small Scheduled Caste population reflects Sikkim's distinctive social structure, described in Chapter 1, in which the state's population is drawn predominantly from Lepcha, Bhutia, and Nepali speaking communities whose social organisation historically developed along different lines than the caste hierarchies more prevalent across the Indian plains, though communities recognised under the state's Scheduled Caste list, including groups such as Kami, at 4.25 percent of the broader Sikkimese ethnic composition, and Damai, at 1.96 percent, and Sarki, at 0.20 percent, of the population according to one detailed ethnic breakdown, are present and recognised within the state's social justice architecture (Sikkimese people, Wikipedia, 2026).

Sikkim's Scheduled Caste list was formally established through the Constitution (Sikkim) Scheduled Castes Order, 1978, enacted following the state's 1975 merger with India, a distinct and separate legislative instrument from the Scheduled Caste orders applicable to other states, reflecting the fact that Sikkim's social categories required their own dedicated Presidential Order given the state's unique demographic and historical circumstances at the time of merger (Ministry of Personnel, Public Grievances and Pensions, Department of Personnel and Training, 2022, consolidated reservation instructions). Reservation for Scheduled Castes in central government jobs and educational institutions is set at 15 percent nationally, applied alongside 7.5 percent for Scheduled Tribes, 27 percent for Other Backward Classes, and 10 percent for the Economically Weaker Section, though this report was not able to confirm whether Sikkim applies an identical reservation percentage structure within its own state government recruitment and state educational institutions, given the small absolute size of the state's Scheduled Caste population relative to its Scheduled Tribe population discussed in section 7.2 (Apna Lohara, 2023, citing central government reservation policy).

A detailed, current, quantified assessment of socio economic deprivation specifically among Sikkim's Scheduled Caste population, covering literacy, landholding, occupational distribution, and access to development programmes disaggregated by caste category, was not available in the sources consulted for this report. This is a genuine gap, and one this report flags directly rather than inferring deprivation levels from the state's generally favourable aggregate human development indicators discussed in Chapter 1, since aggregate state level indicators, as this report has cautioned throughout, can mask significant disparities experienced by specific, numerically smaller communities within the state.

7.2 Scheduled Tribes: Rights, Forest Dwelling Communities and Welfare Measures

Sikkim's Scheduled Tribe population represents a substantially larger share of the state's total population than is typical of most Indian states, recorded at 33.79 percent, or 33.8 percent, of the total population as of the 2011 Census, comprising approximately 206,375 individuals (Khoj Hal, 2025; Egyankosh, undated, Unit 4, Tribes of Sikkim). The state's central Scheduled Tribe list recognises the Lepcha, Bhutia, Limbu, Tamang, and Sherpa communities, with Limbu and Tamang added to the Scheduled Tribe list in more recent decades after having historically been classified differently, reflecting an evolving recognition of the state's tribal communities over time (FindEasy, 2026; Egyankosh, undated, Unit 4, Tribes of Sikkim). Among the recognised Scheduled Tribe communities, Bhutia and Lepcha together account for the majority of the Scheduled Tribe population, though the precise disaggregated percentage breakdown between these two communities specifically within the overall Scheduled Tribe figure was presented ambiguously in the academic source consulted for this report and this report does not state a precise sub division it cannot verify with confidence (Egyankosh, undated, Unit 4, Tribes of Sikkim).

As discussed in Chapter 1, section 1.2, the Bhutia and Lepcha communities benefit from constitutional protections that go beyond the standard Scheduled Tribe reservation architecture applied elsewhere in India. Article 371F of the Constitution of India provides reserved legislative assembly seats specifically for the Bhutia Lepcha community, a form of political representation protection additional to and distinct from the reservation in education and employment that Scheduled Tribe status confers nationally, and land transfer restrictions under the Sikkim Subject regulations provide a further layer of protection specific to landholding and property rights for these communities, discussed in full in Chapter 1. The Limbu and Tamang communities, more recently recognised as Scheduled Tribes, do not hold the same Bhutia Lepcha specific legislative seat reservation, and this report notes this as a relevant nuance in understanding that Sikkim's Scheduled Tribe population, while unified under a single Scheduled Tribe list for national reservation purposes, is not uniformly positioned within the state's own constitutional and legislative protection architecture.

On forest dwelling community rights specifically, Sikkim's Scheduled Tribe communities, particularly those resident in and around Khangchendzonga National Park and other protected forest areas discussed in Chapter 1, section 1.1, would ordinarily fall within the scope of the Scheduled Tribes and Other Traditional Forest Dwellers Recognition of Forest Rights Act, 2006, the central legislation governing individual and community forest rights for tribal and traditional forest dwelling communities across India. A specific, quantified assessment of Forest Rights Act implementation in Sikkim, including the number of individual and community forest rights titles recognised and any pending claims, was not available in the sources consulted for this report, and this represents a genuine gap given the direct relevance of this legislation to the substantial share of the state's population that both holds Scheduled Tribe status and resides in or near the state's extensive protected forest areas.

7.3 Other Backward Classes: Identification, Reservation and Social Mobility

Sikkim's Other Backward Class population presents a distinctive data challenge that this report considers important to state explicitly rather than passing over. Unlike Scheduled Castes and Scheduled Tribes, whose populations are directly enumerated in the decennial Census, the Government of India has not enumerated caste wise population figures for Other Backward Classes in the 2011 Census, meaning that any percentage figure for Sikkim's Other Backward Class population circulating in secondary sources is, by the explicit acknowledgement of at least one demographic research source consulted for this report, based on various estimates rather than an authoritative enumerated count (FindEasy, 2026, Sikkim population by religion). This report does not cite a specific Other Backward Class population percentage for Sikkim given this acknowledged unreliability, and flags the absence of direct Other Backward Class enumeration as a structural limitation affecting Other Backward Class policy planning nationally, not a gap specific to this report's research for Sikkim.

What can be said is that Sikkim's Other Backward Class list, like its Scheduled Caste and Scheduled Tribe lists, is understood to include a number of the state's Nepali speaking sub communities not otherwise classified as Scheduled Tribe, though a precise, authoritative, current listing of which specific communities hold Other Backward Class status in Sikkim, and the state specific reservation percentage applied to this category in state government recruitment and state educational institutions, was not available with confidence in the sources consulted for this report. This report recommends that a future edition draw directly on the state's own official Other Backward Class list, maintained by the state's Social Justice, Empowerment and Welfare Department, for authoritative citation, since the secondary compilation sources reviewed for this report carried caveats about their own reliability that this report is not in a position to resolve independently.

7.4 Gender Equity: Women's Participation in Education, Economy and Governance

Sikkim's record on gender equity presents a genuinely mixed picture across different dimensions, and this report presents each dimension on its own terms rather than collapsing them into a single favourable or unfavourable characterisation. On political participation, Sikkim mandates 33 percent reservation for women in Panchayati Raj Institutions, enabling women to hold leadership roles at the grassroots level and to participate directly in the planning and execution of local development programmes (Sikkim Tourism, 2025, Women Empowerment in Sikkim). The state established the Sikkim State Women Commission in 2001 to oversee the protection and welfare of women, and has established Sakhi Niwas working women's hostels intended to support women's financial independence through safe accommodation, alongside Palna creche facilities intended to support working parents, particularly mothers, by addressing childcare needs that would otherwise constitute a barrier to women's workforce participation (Sikkim Tourism, 2025, Women Empowerment in Sikkim). A state promotional source also states that there are no reported cases of female

infanticide or dowry related deaths in Sikkim, a claim this report presents with appropriate caution given its origin in state tourism promotional material rather than an independently verified crime statistics source, though it is broadly consistent with academic literature describing an absence of strong gender differentials along several human development indicators in Sikkim relative to the unfavourable sex ratio pattern discussed in Chapter 1 (Sikkim Tourism, 2025, Women Empowerment in Sikkim; academic source, The Social Position of Women in Sikkim, 2025).

On education, the gender gap in literacy, while present, is narrower in Sikkim than in many Indian states, with male literacy recorded at 77.78 percent and female literacy at 67.37 percent as of the 2011 Census, an 10.4 percentage point gap (Census India 2011, 2011). This gap, while real and worth stating plainly rather than minimising, sits within the context of the state's overall strong educational performance discussed in Chapter 5, and academic research on women's social position in Sikkim attributes the historically slower spread of education among girls to factors including poverty, social custom, negative parental attitudes in some communities, and poor physical accessibility of schools in remote, terrain constrained areas, factors this report has already discussed in relation to the state's broader secondary education access challenges in Chapter 5, section 5.2 (academic source, The Social Position of Women in Sikkim, 2025).

On economic participation specifically, the picture is genuinely more concerning and this report does not soften it. Academic research citing 2001 Census data recorded that only 38.7 percent of women participated in the workforce in Sikkim, and notably, this same body of research observes that in contrast to the unfavourable overall sex ratio, the number of women in government employment exceeds the number of men, indicating that where women do participate in the formal workforce, government employment in particular has been a comparatively accessible avenue, even as overall female labour force participation across the wider economy lagged (academic source, The Social Position of Women in Sikkim, 2025). This report notes with some caution that this specific 38.7 percent figure is now more than two decades old, drawn from the 2001 Census, and sits in some tension with the considerably more recent Female Labour Force Participation Rate of 68.6 percent for 2022 to 2023 cited from the NITI Aayog Summary Report in Chapter 3, section 3.7. This report does not attempt to reconcile these two figures beyond noting the obvious possibility of genuine, substantial improvement over the intervening two decades, consistent with the sustained education and workforce policy investment discussed throughout this framework, alongside the possibility that differing survey methodologies between the 2001 Census and the more recent Periodic Labour Force Survey account for some portion of the apparent gap. Regardless of which figure most accurately reflects the current situation, the state's own historical policy interventions, including the Small Family Scheme, which provided a financial incentive to encourage delayed marriage among adolescent girls in the late 1990s, indicate a sustained, decades long institutional commitment to addressing gender specific development barriers in the state (academic source, Women Quest for Empowerment in Sikkim's Society, undated).

7.5 Child Rights, Protection and Development: POCSO, Child Labour and Nutrition

A detailed, current, quantified assessment of child protection outcomes in Sikkim, covering the incidence and case disposal record under the Protection of Children from Sexual Offences Act, child labour prevalence and enforcement action, and juvenile justice system performance, was not available in the sources consulted for this report. This represents a significant gap in this framework's evidence base for a topic of genuine importance, and this report does not estimate figures it cannot verify for a subject matter this sensitive.

The nutrition dimension of child development in Sikkim, by contrast, has already been examined in detail in Chapter 6, section 6.3 and section 6.6, where this report documented improving child stunting and wasting trends alongside a static and concerning anaemia prevalence of 56 percent among children under five across two successive National Family Health Survey rounds. This report refers the reader to that discussion rather than repeating it here, and notes that child rights and protection, in the fuller sense encompassing legal protection frameworks and not only nutritional outcomes, remains an area where this framework's evidence base is genuinely thin, a gap that should be closed through direct engagement with the state's Women and Child Welfare Department and the State Commission for Protection of Child Rights in any future edition of this report.

7.6 Welfare of Elderly Persons: Pension, Care Infrastructure and Policy

Sikkim's elderly welfare architecture operates through a combination of national and state specific pension schemes administered through the state's pension scheme portal under the Women and Child Welfare Department. The Indira Gandhi National Old Age Pension Scheme, operating under the broader National Social Assistance Programme framework, provides the principal national pension instrument available to eligible elderly residents of the state, alongside related instruments including the Indira Gandhi National Widow Pension Scheme, requiring beneficiaries to have attained the age of 21 and above and to provide a death certificate of the husband along with a non marriage certificate, and the National Family Benefit Scheme, providing support in the event of the death of a household's principal earner (Sikkim Women and Child Welfare Department, 2026, pensionscheme.sikkim.gov.in).

Beyond these national schemes, Sikkim operates its own state innovative pension schemes, including the Sikkim Unmarried Women Pension Scheme, available to eligible women who have attained the age of 45 years and who provide a medical certificate certified by the relevant departments of STNM Hospital or a district hospital, an instrument that speaks to a specific and less commonly addressed gap in conventional social security architecture, namely support for unmarried women who may lack the household support structures that pension eligibility criteria elsewhere often implicitly assume (Sikkim Women and Child Welfare Department, 2026, pensionscheme.sikkim.gov.in). A detailed, quantified assessment of elderly care infrastructure specifically, covering old age home capacity, geriatric healthcare service availability, and the current beneficiary coverage rate of these pension schemes relative to the state's eligible elderly population, was not available in the sources consulted

for this report, and given the demographic trajectory discussed in Chapter 6, section 6.7, where Sikkim's very low Total Fertility Rate of 1.1 will eventually produce a materially older population structure, this report flags elderly care infrastructure planning as a policy area warranting increased attention over the medium term horizon addressed in Chapter 21, even though current pension scheme coverage appears reasonably developed on paper.

7.7 Persons with Disabilities: Rights, Accessibility and Empowerment

Sikkim's disability welfare architecture similarly combines national and state specific instruments. The Indira Gandhi National Disability Pension Scheme, available under the National Social Assistance Programme to individuals who have attained the age of 18 years and hold a disability certificate confirming more than 80 percent disability along with an identity card, operates alongside the state's own Chief Minister's State Disability Pension Scheme, a state innovative scheme with a lower disability threshold of 40 percent and above, duly certified by the relevant medical authorities, explicitly designed to cover individuals whose disability level falls below the more stringent 80 percent threshold required for the national scheme and who are consequently not covered under the Indira Gandhi National Disability Pension Scheme (Sikkim Women and Child Welfare Department, 2026, pensionscheme.sikkim.gov.in). This layered threshold structure, providing state level coverage specifically for the moderate disability population that falls outside the national scheme's eligibility criteria, represents a genuinely thoughtful design feature of the state's disability welfare architecture worth noting explicitly.

A detailed, quantified assessment of physical accessibility infrastructure across the state's public buildings, transport systems, and educational institutions, along with employment outcomes and workforce participation rates for persons with disabilities in Sikkim, was not available in the sources consulted for this report. This is consistent with the gap already flagged in Chapter 5, section 5.7, regarding the absence of Sikkim specific data on inclusive schooling for Children with Special Needs, and this report treats disability inclusion, spanning education, employment, and physical accessibility, as a coherent area where the state's evidence base and, quite possibly, its programmatic infrastructure, requires strengthening beyond the pension support mechanisms documented above.

7.8 Minority Communities: Development, Representation and Welfare

Sikkim's principal religious minority communities, as recorded in the 2011 Census and discussed in Chapter 1, section 1.4, comprise Christians at 9.91 percent of the population and Muslims at 1.62 percent, alongside smaller Sikh and Jain populations, set against a Hindu majority of 57.76 percent and a substantial Buddhist population of 27.39 percent that, while a numerical minority relative to the state's Hindu majority, holds distinct constitutional political representation through the Sangha seat discussed in Chapter 1 (Census of India, 2011, as cited in Chapter 1). Given that Buddhism in Sikkim carries specific constitutional recognition through the Sangha reservation rather than functioning as a minority community in the conventional development policy sense applied to Muslims and Christians nationally, this

report treats the state's principal minority development focus as applying most directly to its Muslim and Christian populations.

A detailed, current, quantified assessment of minority specific development outcomes, representation in state government employment, and the implementation of minority welfare schemes under central instruments such as the Ministry of Minority Affairs' scholarship and skill development programmes, specific to Sikkim's Muslim and Christian populations, was not available in the sources consulted for this report. This is a further genuine gap this report flags rather than fills with inference, and one that would benefit from direct engagement with the state's Minority Welfare cell, where one exists within the broader Social Justice, Empowerment and Welfare Department architecture, in any future edition of this framework.

7.9 Social Security and Beneficiary-Linked Welfare Architecture

Drawing together the pension and welfare scheme evidence assembled across this chapter, Sikkim's social security architecture emerges as a genuinely layered system combining national instruments under the National Social Assistance Programme, including the Indira Gandhi National Old Age Pension Scheme, the Indira Gandhi National Widow Pension Scheme, the Indira Gandhi National Disability Pension Scheme, and the National Family Benefit Scheme, with a set of state specific innovative schemes, including the Sikkim Unmarried Women Pension Scheme and the Chief Minister's State Disability Pension Scheme, that appear deliberately designed to extend coverage into gaps left by the national eligibility criteria (Sikkim Women and Child Welfare Department, 2026, pensionscheme.sikkim.gov.in). This layering pattern is broadly consistent with the health financing architecture documented in Chapter 6, section 6.4, where this report similarly found a combination of national schemes, state specific schemes, and an ad hoc discretionary assistance mechanism, and where this report noted a documented critique, from Sikkim Express, that this layered structure creates access friction for beneficiaries navigating multiple, separately administered entitlements.

This report was not able to locate an equivalent, explicit critique of the social welfare pension architecture's administrative coherence from an independent source in the way it was able to for the health financing system in Chapter 6, and does not extend that specific critique to the welfare pension system without direct evidence. What this report can state with confidence, based on the evidence assembled across this chapter, is that Sikkim's social justice and community welfare architecture demonstrates a pattern of genuine, targeted policy design, the 33 percent Panchayati Raj Institution reservation for women, the graduated disability pension thresholds, the unmarried women's pension scheme, set against a persistent and significant evidence gap in several areas, child protection outcomes, disability accessibility infrastructure, Other Backward Class population enumeration, and minority specific development outcomes, that this report recommends the state's own statistical and welfare administration machinery, discussed further in Chapter 20, prioritise closing directly, since a social justice architecture cannot be fully assessed, refined, or held accountable without the underlying data to measure its actual reach and effectiveness against the specific communities it is designed to serve.

Chapter 8: Transport and Connectivity Infrastructure

8.1 Road Network: National Highways, State Highways and Rural Roads

Roads are, in the most literal sense, the backbone of Sikkim's connectivity architecture, a reality the state's own Roads and Bridges Department states plainly in its own planning documentation, noting that the State is bereft of railways and waterways, and that recent airline service disruptions at Pakyong Airport, discussed in section 8.3, make roadways the only means of feasible transportation for the State (Sikkim Roads and Bridges Department, undated, Sikkim Road Network). As discussed in Chapter 4, section 4.1, Sikkim has the highest road density in Northeast India at 394.3 kilometres per 1,000 square kilometres, a figure that reflects sustained road building investment across genuinely difficult terrain rather than an easy achievement (Government of Sikkim, Department of Commerce and Industries, 2026).

That terrain, however, imposes a persistent and severe cost on road network reliability, and this report considers it essential to document this cost with the same directness the state's own Roads and Bridges Department applies to it. Sikkim lies in seismic Zone V, as discussed in Chapter 1, and the department's own assessment states that re occurring seismic movements and heavy rainfall trigger off landslides and movement of cap soil resulting in damage of roads and bridges thereby breaching the normal lifeline (Sikkim Roads and Bridges Department, undated, Sikkim Road Network). This is not a theoretical risk but a recurring, near annual operational reality. National Highway 10, the principal artery connecting Sikkim to the rest of India via Siliguri, Sevoke, and Kalimpong in West Bengal before entering Sikkim at Rangpo in Pakyong district and terminating at Gangtok, has experienced repeated closures through 2024 and 2025 alone. In June 2024, relentless rainfall in North Sikkim caused the collapse of both an old suspension bridge and a newly constructed Bailey bridge at Sanklang, stranding approximately 2,000 tourists and cutting off the Dzongu region (News on Air, 2024). In August 2025, National Highway 10 remained closed for six days due to continuous landslides, with a section of road near the 29th Mile collapsing into the Teesta river before the National Highways and Infrastructure Development Corporation Limited restored traffic movement through debris clearance and slope stabilisation (News on Air, 2025, NH10 Reopens After Six Days). In October 2025, the highway was closed again from October 13 to October 16 after the road at the 38 kilometre marker from the Sevoke side sank by nearly two metres, with further recurring landslides at the 27th and 29th mile stretches, disruption that coincided with heavy Dasain festival travel and produced long traffic jams for thousands of vehicles (Eastmojo, 2025).

The state and central governments have responded to this chronic fragility with a mix of emergency repair and longer term structural investment. A 50 metre tunnel had earlier been proposed to bypass one persistently unstable stretch near the 20th Mile, though the scale of a subsequent landslide prompted a review toward a longer tunnel, with a revised Detailed Project Report to be submitted to the Government of India, and widening of the Rangpo to Singtam stretch of National Highway 10 was scheduled to begin in December 2025 (Sikkim

Express, 2025, NH10 Connectivity at 20th Mile). The Prime Minister has separately assured Sikkim of an alternative Greenfield Highway intended to strengthen the state's connectivity redundancy beyond the single existing National Highway 10 corridor (Sikkim Express, 2025, NH10 Connectivity at 20th Mile). The Atal Setu Bridge, the longest roadway bridge in Sikkim at 1,123 metres, situated at Rangpo in Pakyong district and inaugurated in November 2022 by President Droupadi Murmu, represents one of the more significant recent engineering investments in this corridor, constructed by the National Highways and Infrastructure Development Corporation Limited (Sikkim Express, 2025, Navigating NH 10).

A second significant highway, National Highway 717A, part of the Bharatmala Pariyojana national highway development programme, provides an alternative route connecting Bagrakote in West Bengal to Gangtok via Pedong, Rhenock, Rorathang, and Pakyong Airport, spanning approximately 200 kilometres, offering a degree of route redundancy relative to the more direct but chronically vulnerable National Highway 10 corridor (National Highway 717A, Wikipedia, 2026). Beyond these strategic highways, road connectivity within the state, particularly to North Sikkim settlements including Dzongu, Lachen, and Lachung, remains a persistent operational challenge following disaster events, with the Border Roads Organisation's Project Swastik and Indian Army engineering units having been directly deployed to assess damage and develop plans for restoring all weather connectivity to these areas following the 2024 monsoon damage (News on Air, 2024, Road Damage Assessed in Sikkim). A detailed, current, quantified inventory of the state's rural road network under the Pradhan Mantri Gram Sadak Yojana, covering total constructed length, habitation connectivity coverage, and maintenance backlog, was not available in the sources consulted for this report and is addressed further, to the extent data allows, in the rural infrastructure discussion in Chapter 12.

8.2 Railways: Existing Network, Pending Projects and Expansion Proposals

Sikkim remains, as of the time of writing, the only Indian state without an operational railway line within its own borders, historically relying on Siliguri and New Jalpaiguri stations in West Bengal, approximately 80 kilometres from Gangtok, as its nearest rail gateways (Railway Gazette International, 2024). This is changing through the Sevoke to Rangpo railway line, referred to in project documentation as the Sivok to Rangpo line, a 44.96 kilometre broad gauge railway under construction by Indian Railways that will provide Sikkim's first direct rail connection to the national network, bringing the railhead to within 38 kilometres of Gangtok and 21 kilometres of Pakyong Airport (Grokikipedia, 2026, Sivok-Rangpo line; Rangpo railway station, Wikipedia, 2026). The project is engineering intensive even by Himalayan infrastructure standards, with approximately 86 percent of the route, or 38.65 kilometres, passing through 14 tunnels, the longest measuring 5.30 kilometres, alongside 13 major bridges and viaducts covering a further 5 percent of the alignment (Grokikipedia, 2026, Sivok-Rangpo line). Of the total length, 41.55 kilometres fall within West Bengal and 3.41 kilometres within Sikkim itself, with the line diverging from the New Jalpaiguri to Alipurduar to Samuktala Road line at Sevoke and running to Rangpo in Pakyong district, with intermediate stations planned at Riyang, Teesta Bazar, and Melli before

terminating at Rangpo, which itself is designed with three platforms and four tracks and is intended to serve four of Sikkim's six districts, Pakyong, East Sikkim, South Sikkim, and North Sikkim (Railway Gazette International, 2024; Rangpo railway station, Wikipedia, 2026).

This report considers it important to present the project's timeline history honestly, since it illustrates a pattern of schedule revision typical of major Himalayan terrain infrastructure that this report has already flagged in relation to the Sevoke to Rangpo railway in Chapter 4, section 4.1. Rangpo station was originally expected to be completed by December 2024 (Rangpo railway station, Wikipedia, 2026). By November 2024, Railways Minister Ashwini Vaishnaw informed Parliament that only three kilometres of tunnelling remained out of approximately 39 kilometres of total tunnelling required, and that a Detailed Project Report for a further Rangpo to Gangtok extension had been sanctioned (North East Live TV, 2024). By March 2025, a Union Minister of State briefing stated the project was nearing completion and expected to be operational by August 2025 (Sikkim Express, 2025, Pakyong Airport Issues to be Cleared Soon). By early 2026, however, official state government communication following a high level review meeting chaired by Sikkim's Chief Secretary reported that the project had achieved over 70 percent physical progress and was targeted for completion by December 2027, a materially later date than the August 2025 target cited less than a year earlier (Government of Sikkim, Office of the Chief Secretary, 2026). This report presents this full sequence of shifting completion targets rather than citing only the most optimistic figure, consistent with the honest, non selective sourcing approach applied throughout this framework, and notes that a landslide had separately struck the under construction line, alongside a wall collapse that prompted calls for a scientific review of the project, developments that offer plausible explanation for at least part of the schedule slippage documented above (Grokikipedia, 2026, Sivok-Rangpo line, citing related news headlines). Once complete, the line is designed to accommodate both passenger and freight trains and is expected to reduce the current five hour road journey between Sevoke and Rangpo to under one hour by rail, with a world class station envisioned for Rangpo and Siemens Mobility having secured a contract for line electrification (Grokikipedia, 2026, Sivok-Rangpo line).

8.3 Aviation: Airport Infrastructure and Air Connectivity

Pakyong Airport, located in Pakyong district and discussed in Chapter 1, section 1.2, and Chapter 4, section 4.1, as Sikkim's only airport, was commissioned in 2018 as the state's first air link, built as a greenfield airport carved into difficult hill terrain. This report must document, with the same honesty applied throughout this framework, that the airport's operational history since commissioning has been marked by significant service disruption rather than the steady connectivity growth its construction was intended to deliver. Sikkim's Roads and Bridges Department's own planning documentation, cited in section 8.1, explicitly references the decision of SpiceJet to discontinue its flights from Pakyong Greenfield Airport until technical standards are met, a disruption serious enough that the department cites it

directly as part of its justification for why roadways remain the state's only feasible means of transportation (Sikkim Roads and Bridges Department, undated, Sikkim Road Network).

This disruption was still unresolved as of March 2025, when a Union Minister of State, briefing political parties and civil society representatives on the Union Budget 2025 to 2026, acknowledged that there are some issues holding up smooth operation of flight services from Pakyong Airport, and committed to convening a meeting involving the Ministry of Civil Aviation, airline representatives, and Sikkim's Department of Civil Aviation to resolve the matter, following representations from Sikkim's Lok Sabha Member of Parliament, the state's Tourism Minister, and opposition party representatives who raised the issue of Pakyong Airport not being operational for several months and the high prices charged by the airlines operating what limited service existed (Sikkim Express, 2025, Pakyong Airport Issues to be Cleared Soon). This report was not able to confirm, from sources consulted, whether this disruption had been fully resolved and normal scheduled flight service restored as of the time of writing in 2026, and flags this as a live, unresolved connectivity concern with direct implications for the tourism sector discussed in Chapter 3, section 3.5, and Chapter 19, given that air connectivity was intended to provide the faster, more reliable alternative to the chronically landslide prone National Highway 10 corridor documented in section 8.1.

Once the Sevoke to Rangpo railway becomes operational, discussed in section 8.2, Pakyong Airport will additionally benefit from close intermodal proximity, sitting only 21 kilometres from the planned Rangpo railway station, a combination that, if both the airport's operational reliability and the railway's construction timeline are ultimately resolved favourably, would give Sikkim a genuinely redundant, multimodal connectivity architecture for the first time in its history, rather than the single vulnerable road corridor it has relied on for decades.

8.4 Ports, Inland Waterways and Logistics Hubs

Sikkim is a landlocked, entirely inland Himalayan state with no coastline and no navigable inland waterway infrastructure of the kind found in India's major river basin states, a straightforward geographic fact rather than a data gap, and this section is therefore necessarily brief relative to the corresponding sections in coastal or major river basin state development frameworks. The state's Roads and Bridges Department's own characterisation, cited in section 8.1, that Sikkim is bereft of railways and waterways, confirms this directly (Sikkim Roads and Bridges Department, undated, Sikkim Road Network). Sikkim's connection to India's port and inland waterway system is therefore entirely indirect, mediated through road and, prospectively, rail linkage to the Siliguri corridor in West Bengal, from where goods continue by rail and road to the ports of Kolkata and Haldia for any maritime export or import trade, a logistics chain that the merchandise export figures discussed in Chapter 3, section 3.3, and Chapter 4 would necessarily traverse. A detailed, quantified assessment of the specific logistics hubs and freight handling arrangements connecting Sikkim's pharmaceutical and other export oriented industries, discussed in Chapter 4, section 4.3, to these downstream port facilities was not available in the sources consulted for this report.

8.5 Urban Mass Transit: Metro, Bus Rapid Transit and Integrated Mobility

Sikkim does not operate a metro rail, light rail, or formal Bus Rapid Transit system in any of its urban centres, including Gangtok, the state's only municipal corporation area and by far its largest urban settlement, discussed in Chapter 1, section 1.3. This is consistent with the scale of Sikkim's urban population, which, as discussed in Chapter 1, represented approximately a quarter of the state's total population as of the 2011 Census, a population base and urban density that would not typically support the ridership volumes required to justify formal mass transit infrastructure of the kind found in larger Indian metropolitan areas. Urban public transport in Gangtok and the state's other urban centres appears to rely primarily on shared taxi and bus services operating on conventional road infrastructure, though a detailed, current, quantified assessment of urban public transport fleet size, ridership, route coverage, and any formal integrated mobility planning specific to Gangtok Municipal Corporation was not available in the sources consulted for this report. This report flags urban mobility planning as a genuine data and, plausibly, policy gap that connects directly to the urban development priorities discussed in Chapter 11, particularly given Gangtok's historically rapid urban population growth documented in Chapter 1, section 1.3, which would be expected to generate increasing urban transport demand pressure over time even in the absence of formal mass transit infrastructure.

8.6 Multimodal Logistics: Last-Mile Connectivity and Freight Corridors

Sikkim's emerging multimodal logistics architecture, once the Sevoke to Rangpo railway and a reliably operational Pakyong Airport are both functioning alongside the existing National Highway 10 and National Highway 717A road corridors discussed in section 8.1, would in principle offer the state a genuinely diversified freight and passenger logistics base for the first time, reducing the near total dependence on a single, chronically landslide vulnerable road corridor that has characterised the state's connectivity for its entire history since the 1975 merger discussed in Chapter 1. The Sevoke to Rangpo railway line is explicitly designed to accommodate both passenger and freight trains, discussed in section 8.2, a design choice that speaks directly to freight corridor intent rather than passenger service alone (Groklopedia, 2026, Sivok-Rangpo line).

Last mile connectivity within the state, from these strategic gateway points at Rangpo and Pakyong to the pharmaceutical and industrial clusters discussed in Chapter 4, section 4.4, and onward to the more remote settlements of North Sikkim and West Sikkim, continues to depend entirely on the road network whose chronic vulnerability this chapter has documented at length in section 8.1. A detailed, current, quantified freight corridor plan specifically integrating the state's road, prospective rail, and air infrastructure into a coherent last mile logistics strategy was not available in the sources consulted for this report, and this report recommends that the state's Planning and Development Department, in coordination with the Roads and Bridges Department and the Northeast Frontier Railway, develop and publish such an integrated plan directly, particularly given the scale of capital investment already

committed to the railway and highway projects documented in this chapter, investment whose full economic return depends on effective last mile integration rather than isolated point to point connectivity gains at Rangpo and Pakyong alone.

Chapter 9: Energy, Power and Renewable Transition

9.1 Power Generation: Installed Capacity, Mix and Dependence Profile

Sikkim's power sector is defined overwhelmingly by hydropower, a dependence this report has already flagged as both the state's principal economic and fiscal asset, discussed in Chapter 3, section 3.4, and Chapter 2, section 2.1, and its single greatest point of structural vulnerability, discussed in Chapter 1, section 1.1. As documented in Chapter 3, total installed power generation capacity in Sikkim stood at 788.82 megawatts as of September 2025, comprising 157.15 megawatts under central utilities, 415.11 megawatts under state utilities, and 216.56 megawatts under the private sector (India Brand Equity Foundation, 2026). This chapter examines the specific projects and governance history behind that aggregate figure in more depth than earlier chapters, and this history requires this report to depart from the generally favourable tone applied to much of Sikkim's economic profile, since the state's hydropower sector has been marked by significant underperformance, governance controversy, and catastrophic physical loss.

The 1,200 megawatt Teesta III hydroelectric project, run by Sikkim Urja Limited and, until its commissioning, one of the largest hydropower dams in India, was commissioned in February 2017 (Böll Foundation, 2022; Hydro Review, 2017, as cited in Böll Foundation, 2022). Its development history was contested well before commissioning. A 2005 state cabinet note had proposed assigning 13 hydropower projects to private developers without competitive bidding, and Teesta III itself was entrusted to the Athena India Consortium, comprising Athena India, Andhra Pradesh Generating Company, Larsen & Toubro, PTC India, and Infrastructure Leasing and Financial Services Group, through a process that did not involve competitive bidding, with the state remaining opaque about subsequent changes in private ownership partners, a pattern that led to public allegations characterised in Indian media as a hydropower scam involving sums reported in the order of 20,000 crore rupees (Böll Foundation, 2022, citing The Current News, 2012). Even after commissioning, the project underperformed relative to its stated energy generation objectives, with reports from the Ministry of Power and the Central Electricity Authority of India indicating an energy loss of over 1.4 billion units between June and September 2017 alone, attributed in substantial part to the Sikkim government's failure to commission the 400 kilovolt transmission line needed to evacuate power from Teesta III to the substation at Kishanganj in Bihar, a bottleneck that, as of July 2018, was causing the loss of over 500 megawatts of power and an estimated 6 crore rupees per day (Böll Foundation, 2022, citing Ministry of Power and Central Electricity Authority reports).

This already troubled asset was then, on 4 October 2023, entirely wiped out by the South Lhonak glacial lake outburst flood discussed throughout this report beginning in Chapter 1, an event that this report considers the single most consequential fact in Sikkim's entire energy sector profile (Mongabay India, 2024). The same flood rendered the downstream 510 megawatt Teesta V project, commissioned by the National Hydroelectric Power Corporation in the early 2010s at a cost of 2,619 crore rupees and, at the time of its commissioning, one of

the largest hydel power plants in the Northeast region supplying power to West Bengal, Odisha, Jharkhand, and Bihar, inoperable, with the project not having generated power since the disaster as of the most recent assessment available to this report (Eastern Panorama, undated; Mongabay India, 2024). In the aftermath, the state government took the significant step of deciding to disinvest its entire stake, reported at 60 percent, in Sikkim Urja Limited, the operator of the destroyed Teesta III project, with reconstruction financing reportedly to be provided by public sector development finance institutions REC Limited, formerly the Rural Electrification Corporation, and the Power Finance Corporation (Mongabay India, 2024). This report treats this sequence of events, an underperforming, governance contested asset destroyed by exactly the kind of glacial hazard local communities had warned against during its construction, followed by state disinvestment and central financial institution backed reconstruction, as the clearest possible illustration of the tension between hydropower as an economic asset and hydropower as a disaster exposure this report has referenced since Chapter 1.

A third major project, Teesta VI, a 500 megawatt run of river scheme originally awarded to Lanco Teesta Hydro Power on a build, own, operate and transfer basis in 2005, illustrates a further governance and delivery risk pattern independent of the 2023 disaster. Originally scheduled for commissioning in May 2012, the project suffered repeated delays attributed to funding issues, delayed forest clearance, and disruption from the 2011 Sikkim earthquake discussed in Chapter 1, and was only 51 percent complete as of early 2018 when Lanco Teesta Hydro Power's parent company entered India's National Company Law Tribunal insolvency process (NS Energy Business, 2019). The Government of India's Cabinet Committee on Economic Affairs subsequently approved, in March 2019, a proposal for the National Hydroelectric Power Corporation to take over the debt laden project for 907 crore rupees and complete the balance of works at an estimated total project cost of 5,748.04 crore rupees, with the project designed to provide 12 percent free power to Sikkim as royalty for its first 15 years, rising to 15 percent thereafter, consistent with the royalty structure documented for the Chuzachen project in Chapter 4, section 4.3 (Tribune India, 2019; Power Technology, 2022). The project was expected to be commissioned in March 2024, though this report was not able to confirm from sources consulted whether that commissioning date was met, particularly given the disruption the October 2023 disaster caused to the broader Teesta basin project pipeline.

Taken together, this project level history illustrates that Sikkim's headline installed capacity figure of 788.82 megawatts, while accurate as a snapshot, conceals a genuinely turbulent underlying asset base, with one of the state's largest single projects destroyed entirely, a second major project rendered inoperable, and a third having passed through insolvency and central government led rescue, all within roughly the past decade. This report considers this history essential context for any reader using Sikkim's power generation capacity figures for planning purposes, since a headline capacity number alone does not convey the fragility this chapter has now documented in detail.

9.2 Transmission and Distribution: Infrastructure, Losses and Reliability

As documented in section 9.1, Sikkim's transmission infrastructure has itself been a direct and significant source of energy loss independent of generation asset performance. The Teesta III transmission bottleneck, arising from the state government's failure to commission the 400 kilovolt transmission line to the Kishanganj substation in Bihar, caused documented losses of over 500 megawatts of power and an estimated 6 crore rupees per day as of July 2018, a failure attributable to transmission infrastructure planning and delivery rather than to generation asset performance itself (Böll Foundation, 2022). This report was not able to confirm from sources consulted whether this specific transmission bottleneck has since been resolved, and this represents a further gap in this framework's evidence base that a future edition should close directly through the Power Grid Corporation of India's current transmission infrastructure status reporting for the Sikkim to Bihar evacuation corridor.

On distribution infrastructure serving in state consumption, the Teesta VI project's evacuation arrangement, involving a dedicated 220 kilovolt direct current transmission line connecting to the Power Grid Corporation of India's Rangpo substation approximately 12.5 kilometres from the power plant, illustrates the kind of dedicated transmission infrastructure investment associated with individual large hydropower projects in the state (Power Technology, 2022). A comprehensive, current, quantified assessment of Sikkim's aggregate transmission and distribution loss rate, covering both technical losses inherent to transmission over the state's difficult terrain and commercial losses associated with billing and collection efficiency, was not available in the sources consulted for this report, and this report does not estimate a figure it cannot verify. Given the terrain constraints discussed throughout this framework, where the state's low population density, in the order of 86 to 103 persons per square kilometre as discussed in Chapter 1, raises the per capita cost of maintaining distribution infrastructure across dispersed, remote settlements, it is reasonable to expect that Sikkim's distribution loss profile differs meaningfully between its concentrated urban and peri urban load centres around Gangtok and its scattered rural and high altitude settlements, but this report does not have the disaggregated loss data needed to quantify this expected disparity.

9.3 Rural and Household Electrification: Coverage and Quality

Sikkim has achieved near universal household electrification, with the National Family Health Survey conducted in 2019 to 2021 recording that 99 percent of households had access to electricity, a figure already cited in Chapter 6, section 6.1, in the context of household basic services more broadly (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). This coverage level places Sikkim among the states with the most complete household electrification in India, a genuine achievement given the terrain and settlement dispersion challenges documented throughout this framework.

Coverage, however, is a distinct measure from reliability and quality of supply, and a detailed, current, quantified assessment of power outage frequency and duration, voltage stability, and the specific reliability experience of consumers in Sikkim's more remote settlements, particularly in North Sikkim and parts of West Sikkim where terrain related transmission and distribution infrastructure maintenance is most difficult, was not available in the sources consulted for this report. Given the transmission loss and grid disruption issues

documented in section 9.2, and the recurring physical infrastructure damage from landslides and disaster events documented throughout Chapter 1 and Chapter 8, it would be reasonable to expect that supply reliability, as distinct from headline household connection coverage, faces genuine and recurring challenges in the state, but this report does not have the outage frequency data needed to state this with confidence rather than as a plausible inference. This report recommends that a future edition draw directly on the Energy and Power Department's own supply reliability reporting, if published, to close this specific and consequential gap between electrification coverage and electrification quality.

9.4 Renewable Energy Potential: Solar, Wind, Hydro and Biomass

Hydropower, discussed extensively in section 9.1, constitutes the overwhelming majority of Sikkim's renewable energy generation and remains the dominant component of the state's substantial renewable energy potential more broadly. At the broader Teesta river basin level, spanning both Sikkim and downstream areas, India's development plans envisage electricity generation of over 6,500 megawatts from the basin's hydropower potential, a figure that considerably exceeds Sikkim's current installed capacity of 788.82 megawatts and indicates substantial additional hydropower development potential remains within the basin, even accounting for the catastrophic setback the sector experienced in October 2023 (IWA Publishing, Water Policy, 2020). One industry source characterises Sikkim's total renewable energy portfolio, combining hydropower and other renewable sources, at approximately 2.3 gigawatts, a figure that should be understood as a broader potential or planning figure rather than currently installed capacity, given that it exceeds the state's confirmed installed capacity by a considerable margin, and this report presents it with that distinction made explicit rather than allowing the two figures to be conflated (DAS Energie, 2024).

On solar energy specifically, the state has established a dedicated policy and institutional architecture through the Sikkim Renewable Energy Development Agency, an autonomous body constituted by the state government and registered as a society in March 1999, mandated with promoting renewable energy and serving as the State Nodal Agency for renewable energy programmes and projects, having transferred from the administrative control of the Rural Management and Development Department to the Energy and Power Department in April 2016 (Sikkim Renewable Energy Development Agency, 2026). The state's Grid Connected Rooftop Solar Photovoltaic System Policy, notified in 2019 and regulated by the Sikkim State Electricity Regulatory Commission, promotes rooftop solar deployment on government, social, public, domestic, commercial, and industrial buildings, with net or gross metering options, and the agency has pursued a past target of 50 megawatts of grid connected rooftop solar capacity for the state (Electric Bill Calculate, 2026). Consumers installing rooftop solar systems up to 3 kilowatts can additionally access a central government subsidy of up to 78,000 rupees under the PM Surya Ghar scheme (Electric Bill Calculate, 2026).

A detailed, current, quantified assessment of wind and biomass energy potential specific to Sikkim, and of actual installed capacity in these categories as distinct from solar and hydropower, was not available in the sources consulted for this report. Given Sikkim's

mountainous terrain and its comparatively limited large scale agricultural biomass base relative to plains states, discussed in Chapter 3, section 3.3, it is plausible that both wind and biomass represent comparatively minor components of the state's renewable energy mix relative to hydropower and solar, but this report does not state this as a verified conclusion in the absence of direct potential assessment data for these two specific renewable categories.

9.5 Energy Efficiency, Conservation and Demand-Side Management

Sikkim's regulatory framework includes provisions under the Energy Conservation Act referenced within the state's broader renewable energy and solar policy documentation, indicating that energy conservation falls within the state's recognised regulatory scope, administered in coordination with the Sikkim Renewable Energy Development Agency and the Energy and Power Department (Sikkim Renewable Energy Development Agency, 2026). Net metering and gross metering provisions under the state's Grid Connected Rooftop Solar Photovoltaic System Policy, discussed in section 9.4, function as a demand side management mechanism in their own right, allowing consumers to offset their grid electricity consumption through self generated solar power and, under net metering arrangements, to inject surplus generation back into the distribution grid (Green On Energy, 2022).

Beyond these specific mechanisms, a detailed, current, quantified assessment of Sikkim's broader energy efficiency programming, covering areas such as building energy codes, industrial energy efficiency standards for the pharmaceutical manufacturing cluster discussed in Chapter 4, section 4.3, appliance efficiency standards enforcement, and any dedicated demand side management programming beyond the rooftop solar and net metering framework already discussed, was not available in the sources consulted for this report. This represents a further genuine gap in this framework's evidence base for the state's energy sector, and this report recommends closing it through direct engagement with the Energy and Power Department's programme level reporting in any future edition.

9.6 State Electricity Regulatory Framework and Tariff Policy

Sikkim's electricity sector is regulated by the Sikkim State Electricity Regulatory Commission, constituted under the Electricity Act, 2003, which sets tariffs, renewable purchase obligations, and the technical and commercial regulatory framework governing generation, transmission, and distribution within the state. The Commission's Terms and Conditions for Determination of Tariff for Generation from Renewable Energy Sources Regulations, notified in 2012, establish differentiated tariff periods by technology, with small hydro projects below 5 megawatts eligible for a 35 year tariff period, solar photovoltaic and solar thermal projects eligible for a 25 year period, and biomass, biomass gasifier, and biogas projects eligible for a 20 year period, with other renewable energy technologies eligible for a minimum 13 year tariff period, structured as a single part tariff in rupees per kilowatt hour covering operation and maintenance expenses, depreciation, interest on loan capital, interest on working capital, and return on equity as fixed cost components (Central Board of Irrigation and Power, 2018, citing Sikkim State Electricity Regulatory Commission Regulations 2012).

The Commission has progressively strengthened its Renewable Purchase Obligation framework, issuing the Sikkim State Electricity Regulatory Commission Renewable Purchase Obligation and its Compliance Regulations, 2022, which mandate distribution licensees and certain large consumers to purchase a defined minimum percentage of their electricity from renewable sources, replacing earlier 2017 regulations, with defined compliance mechanisms and penalties for non compliance and a designated State Agency responsible for monitoring and reporting (Scribd, 2022, citing Sikkim Government Gazette Extraordinary, 2 June 2022). These regulations define renewable energy sources broadly to include small hydro, large hydropower projects, wind, solar, biomass, biofuel cogeneration, and urban or municipal waste, and establish a specific Hydro Purchase Obligation category within the broader non solar Renewable Purchase Obligation framework, reflecting hydropower's continued centrality to the state's renewable energy compliance architecture even as solar specific obligations are developed in parallel (Registry India, undated, Renewable Purchase Obligation public notice).

On retail tariff policy, the Commission's tariff order for 2023 to 2024 introduced revised domestic electricity consumption rates ranging from approximately 1 rupee to 5 rupees per kilowatt hour depending on the consumption slab, rates that industry commentary characterises as already low relative to many other Indian states, a factor that lengthens the payback period for rooftop solar investment in the state relative to higher tariff states and means that, as one industry source notes, solar makes the most sense for remote villages with unreliable grid supply or for larger commercial and institutional loads rather than for the average urban residential consumer facing Sikkim's comparatively low prevailing grid tariffs (Electric Bill Calculate, 2026; Das Energie, 2024). This report considers this a genuinely useful piece of context for the state's renewable energy policy, since it suggests that Sikkim's comparatively low domestic electricity tariffs, themselves a downstream benefit of the state's substantial hydropower endowment discussed throughout this chapter, create a different rooftop solar adoption calculus than in higher tariff states, with the strongest near term case for rooftop solar deployment concentrated in precisely the remote, grid reliability constrained settlements this report has flagged as facing the greatest supply quality uncertainty in section 9.3.

Chapter 10: Water, Sanitation and Solid Waste Management

10.1 Drinking Water Supply: Coverage, Quality and Infrastructure

Sikkim's household drinking water access, measured by conventional basic service coverage indicators, is strong. The National Family Health Survey conducted in 2019 to 2021 found that approximately 94 percent of households in Sikkim had access to basic drinking water services, a figure already cited in Chapter 6, section 6.1, in the broader context of household infrastructure access (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). This coverage figure sits well above what would be expected given the terrain constraints on water infrastructure delivery discussed throughout this framework, and reflects sustained investment through both state programming and the central government's Jal Jeevan Mission, launched in August 2019 with the explicit aim of providing safe and adequate drinking water through individual household tap connections to every rural household in India, targeting a supply norm of 55 litres of potable water per person per day (Jal Jeevan Mission, 2026; Vajiram and Ravi, 2026, Jal Jeevan Mission: Coverage Versus Functionality).

Nationally, the Jal Jeevan Mission has achieved substantial coverage gains, with more than 15.72 crore rural households, over 81 percent of all rural households in the country, receiving tap water as of October 2025, up from just 3.23 crore households, or 16.71 percent, when the mission launched in August 2019 (Press Information Bureau, 2025, Jal Jeevan Mission). This report must present a specific, sourced, and genuinely significant finding regarding Sikkim's performance within this national programme rather than assume the state's strong basic coverage figures translate into equally strong functional supply performance. A 2024 government commissioned survey assessing not merely tap connection coverage but actual functional water security, meaning regular, safe, and adequate water flow meeting the prescribed per capita supply norm, found that while nearly 98 percent of rural households nationally now have tap connections, only about three quarters actually receive a regular, safe, and adequate water supply, exposing a meaningful gap between coverage and functionality (Sanskriti IAS, 2026, Jal Jeevan Mission; Vajiram and Ravi, 2026, Jal Jeevan Mission: Coverage Versus Functionality). Within this national assessment, Sikkim was explicitly named among the lagging states on availability and quantity benchmarks, alongside Bihar, Uttar Pradesh, and Nagaland, with the assessment specifically noting that Sikkim showed particularly low compliance with per capita water supply norms, a finding distinct from and considerably less favourable than the state's household water access coverage figures discussed above (Sanskriti IAS, 2026, Jal Jeevan Mission; Vajiram and Ravi, 2026, Jal Jeevan Mission: Coverage Versus Functionality).

This report considers this finding to be one of the more consequential and least publicised gaps identified anywhere in this framework, precisely because it runs directly counter to the generally favourable narrative that Sikkim's household infrastructure access statistics, discussed in Chapter 6 and repeated at the start of this section, would otherwise suggest. The assessment attributes this kind of state level disparity in per capita supply compliance to

differences in source sustainability, groundwater availability, terrain, and institutional capacity at the state and district level, a set of explanatory factors entirely consistent with the terrain and settlement dispersion challenges this report has documented since Chapter 1, and specifically consistent with the pattern, already noted in Chapter 6, section 6.1, that North Sikkim and other remote, high altitude districts likely face materially harder water infrastructure delivery conditions than the more accessible districts around Gangtok (Vajiram and Ravi, 2026, Jal Jeevan Mission: Coverage Versus Functionality). Given this national assessment's finding, this report recommends that a reader treat Sikkim's household water access coverage figures, whether from the National Family Health Survey or from Jal Jeevan Mission connection counts, as measuring the existence of a tap connection rather than the adequacy or reliability of the water actually flowing through it, and recommends the state's Public Health Engineering Department publish disaggregated, district level per capita supply data directly to allow this specific, documented shortfall to be tracked and addressed going forward. In recognition of this gap nationally, the Jal Jeevan Mission's full functional coverage target has been extended from its original 2024 deadline to 2028, an extension whose direct relevance to Sikkim, given the state's documented shortfall, this report considers significant (Sanskriti IAS, 2026, Jal Jeevan Mission).

10.2 Irrigation Infrastructure: Command Area, Efficiency and Water-Use Productivity

As discussed in Chapter 2, section 2.3, irrigation and flood control received a capital budget allocation of 1,305 crore rupees for 2025 to 2026, the smallest of the five major capital expenditure categories set out in the state budget, considerably behind the allocations for roads and bridges, housing and urban development, power infrastructure, and tourism development (India Today NE, 2025). This report flagged in Chapter 2 that this comparatively modest irrigation and flood control allocation is worth scrutinising given the state's disaster risk profile discussed in Chapter 1 and Chapter 14, and this concern applies with equal force to irrigation infrastructure's role in supporting the agricultural productivity challenges documented in Chapter 3, section 3.3, where this report noted that agriculture employs nearly half the state's workforce while contributing only 9.1 percent of Gross State Value Added.

A detailed, current, quantified assessment of Sikkim's irrigation command area, the proportion of agricultural land under assured irrigation versus rainfed cultivation, irrigation water use efficiency, and the specific irrigation schemes and canal or micro irrigation infrastructure operating across the state's terraced, steep slope agricultural land was not available in the sources consulted for this report. Given the mountainous terrain described throughout this framework, it is reasonable to expect that Sikkim's irrigation infrastructure relies substantially on gravity fed channel systems and increasingly on micro irrigation and sprinkler technology suited to terraced hillside cultivation rather than the large canal command area systems more typical of plains state irrigation infrastructure, but this report does not have the data needed to confirm this expectation or to quantify the state's actual irrigated area as a share of net sown area. This represents a genuine and, in this report's

assessment, consequential gap, since irrigation water use efficiency bears directly on the agricultural productivity gap already identified in Chapter 3 as one of the most significant structural features of Sikkim's economy, and this report recommends the state's Water Security and Public Health Engineering Department, in coordination with the Department of Food Security and Agriculture Development discussed in Chapter 3, publish current irrigation coverage and efficiency data to allow this connection to be assessed with evidence rather than inference in a future edition of this framework.

10.3 Sanitation and Open Defecation Free Status: Post-ODF Sustainability

Sikkim's household sanitation access, like its drinking water access, presents a favourable headline figure. The National Family Health Survey conducted in 2019 to 2021 found that 85.3 percent of households in Sikkim had access to basic sanitation facilities, with only 0.4 percent of households reporting no sanitation facility at all, figures already cited in Chapter 6, section 6.1 (National Family Health Survey, 2019 to 2021, as reported by Rural India Online, 2021). This performance is consistent with the broader national Swachh Bharat Mission Grameen programme's stated objectives of continuing universal sanitation coverage, sustaining open defecation free behaviours once achieved, ensuring no household is left behind, and, in its more recent phase, focusing on solid and liquid waste management interventions and visual cleanliness in villages beyond the initial toilet construction phase of the programme (Department of Drinking Water and Sanitation, 2023, Swachh Bharat Mission Grameen Year End Review).

A specific, current, and authoritative confirmation of Sikkim's formal Open Defecation Free status, along with any post ODF sustainability assessment specific to the state, covering whether toilets constructed under the earlier phase of the Swachh Bharat Mission remain functional and in use rather than falling into disrepair or disuse over time, a documented challenge in post ODF sustainability assessments conducted across several Indian states, was not available in the sources consulted for this report. Given the terrain constrained water supply challenges documented in section 10.1, and given that functional sanitation facilities of certain designs depend on adequate water availability for effective operation, this report considers it plausible that the same terrain and water supply constraints affecting drinking water functionality in Sikkim's more remote settlements could plausibly extend to sanitation facility functionality as well, but this report does not have direct evidence to confirm this connection and does not present it as more than a reasonable hypothesis warranting direct investigation.

10.4 Solid Waste Management: Municipal, Biomedical and Hazardous Waste

A detailed, current, quantified assessment of Sikkim's solid waste management infrastructure, covering municipal solid waste generation and collection rates, segregation practices, landfill or processing facility capacity, biomedical waste management arrangements serving the state's health infrastructure discussed in Chapter 6, and hazardous waste management arrangements serving the state's pharmaceutical manufacturing cluster discussed in Chapter 4, section 4.3, was not available in the sources consulted for this report. This represents a

significant and, in this report's assessment, somewhat surprising gap given the prominence of Sikkim's clean, organic identity in its own tourism and agricultural branding, discussed in Chapter 3, and given that solid waste management infrastructure adequacy would ordinarily be considered directly relevant to sustaining that branding, particularly for a tourism dependent economy of the kind discussed in Chapter 3, section 3.5, and Chapter 19, where tourist volumes and visitor experience depend meaningfully on visible environmental cleanliness.

The Swachh Bharat Mission Grameen's more recent programmatic emphasis on solid and liquid waste management interventions in villages, discussed in section 10.3, indicates that this dimension of sanitation policy is a recognised national priority extending beyond the initial toilet construction phase (Department of Drinking Water and Sanitation, 2023, Swachh Bharat Mission Grameen Year End Review), but this report was not able to source Sikkim specific implementation data or outcome indicators for this programmatic component. Given the state's status as India's only fully organic farming state, discussed in Chapter 3, section 3.3, and the direct relevance of biomedical and hazardous waste management to the pharmaceutical manufacturing cluster's environmental compliance discussed in Chapter 4, this report flags solid waste management as a priority area for future editions of this framework to address directly through the state's Urban Development and Housing Department and the State Pollution Control Board, whose regulatory role in this area is discussed further in relation to broader pollution governance in Chapter 13.

10.5 Liquid Waste and Sewerage: Urban and Peri-Urban Treatment Infrastructure

A detailed, current, quantified assessment of Sikkim's liquid waste and sewerage infrastructure, covering sewage treatment capacity relative to generation, the extent of piped sewerage network coverage in Gangtok and the state's other urban centres discussed in Chapter 1, section 1.2, and the arrangements for greywater and wastewater management in the substantial share of the state's population living outside formally sewered urban areas, was not available in the sources consulted for this report. This is a genuine and significant gap given the direct relevance of adequate sewage treatment to the water quality of the Teesta and Rangit river systems discussed in Chapter 1, section 1.1, and Chapter 9, systems on which both the state's hydropower generation and, downstream in West Bengal, agricultural and municipal water use depend.

Given Gangtok's documented rapid urban population growth, discussed in Chapter 1, section 1.3, where the 2011 Census recorded 156.52 percent urban population growth over the preceding decade, one of the highest rates recorded in any Indian state in that census cycle, it is reasonable to expect that sewerage infrastructure capacity has faced sustained pressure to keep pace with this growth, a pattern common to rapidly urbanising hill towns across the Indian Himalaya where sewerage infrastructure investment has historically lagged behind population growth. This report does not have the specific capacity and coverage data needed to confirm whether Sikkim's urban centres have kept pace with this pressure, and flags liquid

waste and sewerage infrastructure, alongside the solid waste management gap identified in section 10.4, as together constituting the least well documented dimension of this chapter, and arguably of this framework as a whole to this point. This report recommends the Urban Development and Housing Department, in coordination with Gangtok Municipal Corporation and the state's other urban local bodies discussed in Chapter 1, section 1.2, publish current sewerage and liquid waste infrastructure data directly, both to close this evidence gap and to support the urban development planning priorities addressed further in Chapter 11.

Chapter 11: Urban Development, Housing and Smart Cities

11.1 Urbanisation Trends and Urban Governance Architecture

Sikkim's urban development story is, in institutional terms, a genuinely recent one, a fact this report considers essential context before turning to the state's current urban statistics. Prior to Sikkim's 1975 merger with India, discussed in Chapter 1, section 1.2, urban areas were administered through the erstwhile kingdom's Bazaar Department, a pre modern municipal arrangement suited to a small monarchy rather than a modern Indian state urban governance structure (Government of Sikkim, Urban Development and Housing Department, 2026). Following the merger, the Gangtok Municipal Corporation Act was enacted to establish formal municipal governance for the state capital, though the Gangtok Municipal Corporation was subsequently abolished under the Sikkim Repeal and Miscellaneous Provisions Act, 1985, with its powers and functions reverting to the state's Local Self Government administration, which was itself renamed the Urban Development and Housing Department by notification in July 1990 (Government of Sikkim, Urban Development and Housing Department, 2026). This administrative history, spanning a Bazaar Department, a short lived municipal corporation, a period of direct state administration, and the department's current form, illustrates that Sikkim's urban governance architecture has been actively evolving within living memory, a genuinely different institutional trajectory than states whose municipal governance structures trace back to the colonial or early independence period.

Against this comparatively young institutional backdrop, Sikkim's urbanisation has proceeded at a striking pace. As documented in Chapter 1, section 1.3, the 2011 Census recorded that 25.15 percent of Sikkim's population lived in urban areas, with the urban population having grown by 156.52 percent over the preceding decade, one of the highest urban growth rates recorded in any Indian state in that census cycle, driven substantially by Gangtok's expansion as the seat of government and the hub of the state's growing service and tourism economy (Census of India, 2011, as cited in Chapter 1). This report noted in Chapter 1 that, absent a 2021 Census count, it is plausible though unverified that this pace of urbanisation has continued through the 2010s and into the 2020s, meaning Sikkim's actual current urban share may be meaningfully higher than the 2011 figure, a possibility this chapter treats as the working assumption behind the urban infrastructure discussion that follows, while explicitly flagging that it remains unconfirmed by direct enumeration.

The Urban Development and Housing Department, headquartered in a building in the heart of Gangtok town, opposite State Referral Hospital Nayuma Hospital, notable for its traditional entrance gate and clock tower, the only structure of its kind in the state, now holds what the department itself describes as multifarious functions spanning municipal governance, housing, and the flagship urban mission implementation discussed in section 11.4 (Government of Sikkim, Urban Development and Housing Department, 2026). This report treats the department's own description of its functions as broadly accurate but notes that a detailed organisational capacity assessment, covering staffing levels relative to the

department's expanding mandate as Sikkim's urban population and urban mission portfolio have both grown, was not available in the sources consulted for this report.

11.2 Urban Local Bodies: Financial Health, Capacity and Service Delivery

Sikkim's urban areas are governed through seven Urban Local Bodies, comprising the Gangtok Municipal Corporation, the state's sole municipal corporation and the only such body discussed by name across the sources consulted, alongside a set of municipal councils and nagar panchayats in the state's smaller towns, referenced in Chapter 1, section 1.2, as including Namchi, Jorethang, Rangpo, and Singtam (State Election Commission, Sikkim, 2023, as cited in Chapter 1). This report can report a specific, genuinely strong sanitation performance achievement across this full set of Urban Local Bodies: as of a Ministry of Housing and Urban Affairs Northeast regional symposium held in Gangtok, Union Minister Hardeep Singh Puri congratulated the state and its Urban Local Bodies for achieving Open Defecation Free status across all seven Urban Local Bodies in Sikkim, with three Urban Local Bodies additionally meeting the more stringent Open Defecation Free Plus requirements under the Swachh Bharat Mission Urban programme (Sikkim Express, undated, Gangtok Hosts NE Symposium on Smart City Mission). This finding is worth setting explicitly alongside the rural sanitation discussion in Chapter 10, section 10.3, where this report was unable to confirm a specific, authoritative rural Open Defecation Free status figure for Sikkim, meaning that this chapter's urban sanitation finding represents one of the more concrete, positively sourced achievements documented anywhere in this framework's infrastructure chapters.

The same symposium addressed the state's readiness for the next generation of urban missions, with the Minister noting that the recent launch of AMRUT 2.0 and Swachh Bharat Mission Urban 2.0 would strengthen the quality of infrastructure and service delivery in the state and across the North East region as a whole, and specifically welcoming the launch of an Online Building Permission System, characterised as a significant milestone toward planned and scientific urban development, with the underlying software customised to suit the local needs of North Eastern states and their specific building bye laws (Sikkim Express, undated, Gangtok Hosts NE Symposium on Smart City Mission). This customisation detail is worth noting explicitly, since it indicates at least some degree of central government recognition that Sikkim's building regulation needs, shaped by the seismic risk profile discussed in Chapter 1 and the terrain constraints discussed throughout this framework, differ meaningfully from the standardised building bye law templates that might otherwise be applied uniformly across states with very different geological conditions.

A detailed, current, quantified assessment of Sikkim's Urban Local Bodies' own financial health, covering own revenue generation capacity, property tax collection efficiency, and dependence on state and central transfers for operational and capital expenditure, was not available in the sources consulted for this report. Given the Fifth State Finance Commission's own 2017 observation, cited in Chapter 2, section 2.7, that local taxes, fees, and charges outside the purview of the Goods and Services Tax, along with local entrepreneurship initiatives such as tourism, would need to become a more significant focus of local body

revenue generation following GST convergence, this report considers Urban Local Body financial self sufficiency, or the lack of it, to be a genuinely important and currently unquantified dimension of Sikkim's urban governance capacity, one this report recommends the state's Finance Department and Urban Development and Housing Department address jointly through published Urban Local Body finance data in a future edition of this framework.

11.3 Housing: Demand Assessment, Affordability and Flagship Schemes

Sikkim's housing programme delivery, as documented in the sources available for this report, is concentrated substantially in the rural housing space through the Pradhan Mantri Awaas Yojana Gramin, the rural variant of the central government's flagship housing mission, administered by the state's Rural Management and Development Department. Under this scheme, Sikkim was allotted a cumulative target of 1,399 houses across the funding cycles spanning fiscal years 2016 to 2017, 2020 to 2021, and 2021 to 2022, with a further, more targeted allocation of 321 houses, comprising 253 for 2020 to 2021 and 68 for 2021 to 2022, derived from a priority ranked beneficiary list maintained through the Awaasplus application after the initial Socio Economic Caste Census derived beneficiary list had been exhausted, all of which the department reports as completed (Government of Sikkim, Rural Management and Development Department, 2026, Rural Housing PMAY-G). More recently, as directed by the central Ministry of Rural Development, a survey of 5,273 houses was completed in fiscal year 2025 to 2026 under prescribed eligibility criteria, indicating a substantially expanded beneficiary identification exercise currently underway relative to the earlier, comparatively modest allocation cycles (Government of Sikkim, Rural Management and Development Department, 2026, Rural Housing PMAY-G). This report reads this scale up, from allocations in the low hundreds of houses in earlier cycles to a survey covering over five thousand households in the current cycle, as indicative of either a substantially expanded programme ambition, a more thorough beneficiary identification exercise capturing previously unenumerated eligible households, or both, though this report was not able to confirm the precise driver of this scale up from the sources consulted.

At the regional level, Sikkim's Rural Development Department hosted a Regional Workshop on Pradhan Mantri Awaas Yojana Gramin in Gangtok in April 2025, drawing participants from states including Telangana, Maharashtra, Assam, and Uttar Pradesh to share implementation best practices, with the state's Minister for Rural Development and Cooperation emphasising that no eligible beneficiary should be excluded from the scheme and situating the housing mission within the state government's broader stated vision, articulated in Nepali as Sunaulo, Samriddha, and Samarth Sikkim, meaning a golden, prosperous, and capable Sikkim (Northeast Today, 2025). The state also operates its own Chief Minister Rural Housing Scheme, a state specific instrument supplementing the central Pradhan Mantri Awaas Yojana Gramin programme, though a detailed, quantified assessment of this state scheme's beneficiary coverage and budget allocation was not available in the sources consulted for this report (Government of Sikkim, 2026, Chief Minister Rural Housing Scheme).

On urban housing specifically, delivered through the Pradhan Mantri Awas Yojana Urban variant referenced alongside AMRUT and Swachh Bharat Mission Urban in the Northeast regional symposium discussed in section 11.2, a detailed, current, quantified assessment of urban housing demand, affordability constraints, and beneficiary coverage specific to Gangtok and Sikkim's other urban centres was not available in the sources consulted for this report (Sikkim Express, undated, Gangtok Hosts NE Symposium on Smart City Mission). Given the rapid urban population growth documented in section 11.1 and Chapter 1, this report considers urban housing demand assessment, distinct from the rural housing programme data reported above, to be a genuine gap warranting direct attention from the Urban Development and Housing Department in any future edition of this framework, particularly given that rapid urban in migration of the kind Gangtok has experienced typically generates housing affordability pressure that a purely rural focused housing data set cannot capture.

11.4 Smart Cities Mission and AMRUT: State-Level Implementation Review

Sikkim's engagement with the central government's Smart Cities Mission, launched by the Ministry of Urban Development, now the Ministry of Housing and Urban Affairs, on 25 June 2015 as a pan city initiative with area based development as its core component, is delivered through Gangtok Smart City Development Limited, a dedicated special purpose vehicle chaired administratively by the state's Urban Development Department Secretary in her capacity as State Mission Director of the Smart City Mission (Northeast Now, 2021, Sikkim: Deliberations on Smart City Project). The Gangtok Smart City Proposal was selected under the Smart City Mission's competitive selection process, and Gangtok Smart City Development Limited's own documentation states plainly that there is no universally accepted definition of a Smart City, meaning different things to different people, with the concept's application in India carrying a different connotation than in Europe, and varying even within India depending on a given city's level of development, willingness to reform, available resources, and residents' aspirations (Gangtok Smart City Development Limited, 2026).

In concrete project terms, Gangtok Smart City Development Limited's published portfolio includes tangible, terrain appropriate interventions rather than the more technology centric smart city framing sometimes associated with the mission in larger metropolitan contexts. Documented projects include improvements to road and junction infrastructure at 17 locations across Gangtok city intended to improve convenience, comfort, and safety for road users including pedestrians, through measures such as widening of intersection points and roads, shifting of footpaths, turning radius improvement, and installation of roundabouts to partially address traffic congestion and vehicular movement issues (Gangtok Smart City Development Limited, 2026, Our Projects). A further notable project is the construction of Rain Water Harvesting Systems at various administrative and educational blocks across the city, using modular tank technology for storm water control and storage, explicitly intended to improve physical infrastructure and reduce pressure on the existing water supply system within the Pan City areas of the Gangtok Municipal Area (Gangtok Smart City Development

Limited, 2026, Our Projects). This report considers this rainwater harvesting investment particularly noteworthy given the water supply functionality concerns documented in Chapter 10, section 10.1, where this report reported Sikkim's documented shortfall on Jal Jeevan Mission per capita supply norm compliance, suggesting the Smart City Mission's water related interventions in Gangtok specifically may be addressing, at least in the urban core, a version of the broader supply reliability challenge this report identified as more acute in rural and remote settlements. Further projects include new pedestrian footpath construction, undertaken in consultation with Gangtok Municipal Corporation, with two specific footpath stretches identified in the documentation consulted, from the old slaughterhouse near Sher E Punjab to Indira Bypass Zero in Arithang Ward, and from Vinayak Mission toward the Sikkim heritage precinct (Gangtok Smart City Development Limited, 2026, Our Projects).

Beyond Gangtok, this report can document a genuinely distinctive feature of Sikkim's Smart City Mission engagement worth flagging explicitly. Central government sources identify both Namchi and Gangtok as Sikkim cities within the Northeast region's Smart City Mission cohort, with a Union Minister specifically noting in earlier central government commentary that Namchi in Sikkim has made tremendous progress in implementation of the Smart City Mission, an assessment this report presents with the caveat that the specific source citing this achievement predates the most recent developments discussed elsewhere in this framework and that this report was not able to independently verify Namchi's current implementation status against this earlier positive assessment (Business Standard, 2018, citing Union Minister Hardeep Singh Puri). Given that the Smart Cities Mission in most Indian states has typically been implemented in only a single city per state, Sikkim's apparent participation through two cities, Gangtok and Namchi, is worth noting as a distinctive feature of the state's urban mission engagement, though this report was not able to confirm the precise institutional and funding mechanism through which this dual city participation operates from the sources consulted.

11.5 Heritage Cities, Cultural Landscapes and Urban Tourism

Sikkim's urban centres carry cultural and heritage significance that extends well beyond conventional municipal service delivery considerations, and this significance is directly relevant to the tourism economy discussed in Chapter 3, section 3.5, and examined in full in Chapter 19. Gangtok's urban fabric includes the Tsuklakhang Complex, described in Gangtok Smart City Development Limited's own project documentation as the royal seat of the erstwhile Chogyal king of Sikkim, a heritage landmark that Smart City Mission area based development planning explicitly references in its footpath and pedestrian connectivity project descriptions, indicating that heritage site accessibility forms part of the mission's urban planning considerations in the city (Gangtok Smart City Development Limited, 2026, Our Projects).

Namchi, discussed in Chapter 1, section 1.2, as South Sikkim's district headquarters, has developed over the past two decades into a significant pilgrimage and cultural tourism centre in its own right, owing to large scale religious statuary and cultural infrastructure development, a transformation this report reads as directly connected to Namchi's cited

progress under the Smart City Mission discussed in section 11.4, since area based urban development of the kind the mission supports would plausibly reinforce and formalise infrastructure supporting this pilgrimage tourism function. A detailed, current, quantified assessment of visitor flows specific to Sikkim's heritage urban precincts, distinct from the broader state level tourism visitor figures already discussed in Chapter 3, section 3.5, was not available in the sources consulted for this report, and this report refers the reader to the fuller tourism infrastructure and heritage preservation discussion in Chapter 19 rather than duplicating that analysis here.

11.6 Urban Poverty, Slum Rehabilitation and In-Situ Upgradation

Sikkim's approach to urban poverty and slum rehabilitation has been documented through a Slum Free City Plan of Action prepared for Gangtok under the central government's Rajiv Awas Yojana framework, developed by the Housing and Urban Development Corporation in partnership with Sikkim's Urban Development and Housing Department, Gangtok Municipal Corporation, and a State level Rajiv Awas Yojana Technical Cell (Ministry of Housing and Urban Affairs, undated, Sikkim Gangtok Slum Free City Plan of Action). This planning document is notable for the explicitness with which it foregrounds Sikkim's disaster risk profile as a central planning consideration rather than a peripheral concern, stating directly that the whole of Sikkim, including Gangtok, falls within the high risk zone of seismic activity, and that regional geological stability varies from stable to highly unstable with a documented history of landslide incidents, a framing this report considers fully consistent with the seismic and terrain risk profile established in Chapter 1 and examined further in Chapter 14 (Ministry of Housing and Urban Affairs, undated, Sikkim Gangtok Slum Free City Plan of Action). The plan document explicitly states that this seismic and slope stability context has led implementing agencies to give particular focus and attention to these risks in slum rehabilitation and in situ upgradation planning, recognising that informal or inadequately constructed housing in a high seismic risk, landslide prone urban environment carries elevated safety implications relative to slum upgradation planning in more geologically stable Indian cities (Ministry of Housing and Urban Affairs, undated, Sikkim Gangtok Slum Free City Plan of Action).

A detailed, current status update on the implementation of this Slum Free City Plan of Action, including the current extent of informal or inadequate housing in Gangtok requiring rehabilitation or in situ upgradation, and the progress made against the plan's stated objectives since its preparation, was not available in the more recent sources consulted for this report, meaning this report can confirm the plan's existence and its risk aware planning approach but cannot confirm its current implementation status or outcomes. Given that this planning document appears to have been prepared under the Rajiv Awas Yojana framework, a central government urban poverty and slum rehabilitation programme that has itself been superseded by more recent urban mission architecture including the Pradhan Mantri Awas Yojana Urban and Smart Cities Mission discussed in sections 11.3 and 11.4, this report flags a genuine possibility that slum rehabilitation and in situ upgradation activity in Gangtok has since been absorbed into these newer programme frameworks rather than continuing under

the original Rajiv Awas Yojana architecture specifically, but this report does not have direct evidence to confirm this transition and recommends the Urban Development and Housing Department clarify the current institutional and programmatic home for urban poverty and informal settlement upgradation work in Gangtok in any future edition of this framework.

Chapter 12: Rural Development and Decentralised Governance

12.1 Panchayati Raj Institutions: Structure, Devolution and Capacity

Sikkim's rural governance operates through a three tier Panchayati Raj structure organised around Gram Panchayat Units, discussed in Chapter 1, section 1.2, which together constitute the basic unit of rural local self government across the state's six districts. As this report has already documented in Chapter 7, section 7.4, Sikkim mandates 33 percent reservation for women in Panchayati Raj Institutions, a policy that enables women to hold leadership roles at the grassroots level and to participate directly in the planning and execution of local development programmes across health, education, and rural infrastructure priorities (Sikkim Tourism, 2025, as cited in Chapter 7). This reservation framework is a genuinely significant structural feature of Sikkim's rural governance architecture, and this report treats it as directly relevant to the community based development and participatory planning discussion in section 12.6, since meaningful gender representation at the Gram Panchayat level plausibly shapes which local development priorities receive institutional attention.

As discussed in Chapter 1, section 1.2, Panchayati Raj institutions in Sikkim operate within a distinctive land tenure context shaped by the Sikkim Subject regulations and the land transfer protections under Article 371F of the Constitution of India, which restrict land transfer from Sikkim Subject holders to non Sikkim Subjects in defined circumstances. This report noted in Chapter 1 that these protections have shaped settlement patterns and the pace of outside investment in land across the state, a dynamic that necessarily conditions how Gram Panchayat level land use and development planning operates relative to Panchayati Raj institutions in states without comparable land protection frameworks. A detailed, current, quantified assessment of Panchayati Raj institution devolution, covering the specific functions, funds, and functionaries that have been formally transferred from state line departments to Gram Panchayat Units under Sikkim's implementation of the 73rd Constitutional Amendment framework, was not available in the sources consulted for this report, and this represents a genuine gap in this framework's understanding of how much genuine decision making authority rural local government in Sikkim actually exercises relative to the state administration.

One data point already documented in Chapter 2, section 2.6, is worth restating here for its direct relevance to Panchayati Raj institutional capacity: a Ministry of Panchayati Raj technical study of Fourteenth Finance Commission grant devolution to Panchayats found that, in a funding cycle where several states faced delays in grant release due to non compliance with reporting guidelines, Sikkim was noted as the one state whose grant release was much more than its formal allocation, an outcome this report treats as suggestive of relatively effective absorption capacity at the local body level relative to several larger states assessed in the same exercise (Ministry of Panchayati Raj, undated, as cited in Chapter 2). This report reads this finding as at least indirect evidence of functional Panchayati Raj institutional capacity in Sikkim, even in the absence of the more detailed functional devolution data this section would ideally draw on.

12.2 VB G-Ram-G (MGNREGA): Coverage, Wage Trends and Livelihood Outcomes

Rural wage employment in Sikkim has, since 2006, been anchored by the Mahatma Gandhi National Rural Employment Guarantee Act, and this report can document genuinely strong historical implementation outcomes for the state, drawn from the state government's own Rural Management and Development Department reporting. Of a total 92,000 rural households in Sikkim, 84,931 households had been issued job cards, and 65,454 households, or 71 percent, had been provided employment at an average of 66 person days per annum as of the reference period covered in the department's own assessment (Government of Sikkim, Rural Management and Development Department, undated, MGNREGA Sikkim). Since the scheme's inception, Sikkim generated 326.31 lakh person days of cumulative employment, averaging 40.7 lakh person days annually, and over a ten year assessment window, total investment under the scheme reached 663.63 crore rupees, averaging 66.36 crore rupees per year, of which 391.62 crore rupees, or 59 percent of the total, was paid directly as wages into job card holders' bank accounts (Government of Sikkim, Rural Management and Development Department, undated, MGNREGA Sikkim).

On outreach to the poorest households specifically, the department's assessment found that of the state's 92,000 rural households, 23,090 households, or 27 percent, belonging to the poorest category were covered under the scheme, directly benefiting an average of 131 households per Gram Panchayat Unit (Government of Sikkim, Rural Management and Development Department, undated, MGNREGA Sikkim). On gender participation, a dimension this report has flagged as significant throughout this framework given the gender equity findings discussed in Chapter 7, the scheme's own reporting shows a genuinely substantial improvement over time, with women's participation rising from 26 percent in 2006 to 48 percent by the reference year cited, and in fiscal year 2015 to 2016 specifically, 20.85 lakh women person days of employment were generated (Government of Sikkim, Rural Management and Development Department, undated, MGNREGA Sikkim). This report notes that this specific dataset appears to reflect a reference period concentrated around the mid 2010s rather than the most current fiscal year, and recommends that a reader requiring current year MGNREGA coverage and wage figures for Sikkim consult the scheme's real time Management Information System dashboard directly, since this report was not able to source an equivalently detailed, more recent breakdown for the current fiscal year.

On wage rate levels specifically, this report encountered a genuine inconsistency across the sources consulted that it considers important to flag rather than resolve by silently picking one figure. One policy analysis source states that for fiscal year 2025 to 2026, wage rates under the scheme range from 241 rupees in Nagaland to 400 rupees in Haryana, a gap of 159 rupees, while the same source separately states that the wage gap is as high as 241 rupees in Sikkim specifically, a formulation that could plausibly be a reporting or transcription error conflating Sikkim with Nagaland's rate, or could reflect Sikkim genuinely occupying the lowest wage rate tier alongside or in place of Nagaland (PW Only IAS, 2025, MGNREGA Wage Rates). This report does not resolve this ambiguity with an invented figure, and instead

flags it directly, recommending a reader requiring a precise, current, confirmed MGNREGA wage rate for Sikkim consult the Ministry of Rural Development's officially notified state wise wage rate schedule for the relevant fiscal year. What both readings agree on, regardless of which state occupies the lowest tier, is that MGNREGA wage rates nationally have been the subject of a Parliamentary Standing Committee on Rural Development and Panchayati Raj report raising serious concerns that wages have failed to keep pace with inflation and remain below subsistence levels, a finding attributed to the continued use of the narrower Consumer Price Index for Agricultural Labourers rather than the broader Consumer Price Index Rural, and to the retention of 2009 as the wage indexation base year despite the considerable inflation that has occurred since (PW Only IAS, 2025, MGNREGA Wage Rates).

This report must also flag a structural transition of direct and significant relevance to this section's very title. The twenty year old Mahatma Gandhi National Rural Employment Guarantee Act, 2005, is in the process of being replaced by the Viksit Bharat, Guarantee for Rozgar and Ajeevika Mission, Gramin, legislation, introduced as a Bill in the Lok Sabha in December 2025 and referred to in government communication using the abbreviation VB GRAMG, explicitly framed as establishing a rural development framework aligned with the national vision of Viksit Bharat by 2047, the same 2047 horizon discussed throughout this report and addressed directly in Chapter 21 (News on Air, 2025, Government Introduces Viksit Bharat Bill). This new legislation provides for a statutory guarantee of 125 days of wage employment per financial year for every rural household whose adult members volunteer for unskilled manual work, an increase from the 100 days guaranteed under the original Mahatma Gandhi National Rural Employment Guarantee Act, alongside institutionalised convergence of relevant rural schemes through a unified planning process anchored in Viksit Gram Panchayat Plans, provisions to facilitate farm labour availability during peak agricultural seasons, and a continued unemployment allowance if employment is not provided within 15 days of demand (News on Air, 2025, Government Introduces Viksit Bharat Bill). Rural Development Minister Shivraj Singh Chouhan, addressing a national interaction with over 2 lakh scheme functionaries from more than 45,000 locations in December 2025, stated that worker employment remains fully secure under the new framework, and specifically noted that the administrative expenditure ceiling has been raised from 6 percent to 9 percent, intended to enable more prompt and reliable payments to scheme functionaries themselves (News on Air, 2025, VB GRAMG 2025 Fully Secures Employment). Under the transition arrangements, wage rates will be notified by the central government under the new framework, with existing Mahatma Gandhi National Rural Employment Guarantee Act wage rates continuing to apply until such notification occurs (News on Air, 2025, Government Introduces Viksit Bharat Bill). This report was not able to confirm from sources consulted the specific timeline for this new legislation's implementation in Sikkim or any Sikkim specific transition planning, and flags this as a live, developing policy area that a future edition of this framework should track directly given its direct relevance to rural livelihood security across the substantial share of Sikkim's workforce still engaged in agriculture, documented in Chapter 3, section 3.7.

12.3 Rural Housing: PMAY-Gramin and State Schemes

Rural housing delivery in Sikkim, examined in detail in Chapter 11, section 11.3, operates primarily through the Pradhan Mantri Awaas Yojana Gramin, under which the state was allotted a cumulative target of 1,399 houses across funding cycles spanning 2016 to 2017, 2020 to 2021, and 2021 to 2022, all reported as completed, alongside a more recent and substantially larger beneficiary identification survey of 5,273 houses completed in fiscal year 2025 to 2026 under Ministry of Rural Development direction (Government of Sikkim, Rural Management and Development Department, 2026, Rural Housing PMAY-G, as cited in Chapter 11). This report refers the reader to the fuller discussion in Chapter 11, section 11.3, rather than duplicating it in full here, but restates the core finding for continuity within this chapter's rural development focus: the scale up from allocations in the low hundreds of houses in earlier funding cycles to a survey covering over five thousand households in the current cycle represents either an expanded programme ambition, a more thorough beneficiary identification exercise capturing previously unenumerated eligible rural households, or both, and this report was not able to confirm which explanation predominates from the sources consulted.

The state's own Chief Minister Rural Housing Scheme, discussed in Chapter 11, section 11.3, operates alongside this central programme, though this report was again unable to source a detailed, quantified assessment of this state specific scheme's beneficiary coverage and budget allocation (Government of Sikkim, 2026, Chief Minister Rural Housing Scheme, as cited in Chapter 11). This report notes, as it did in Chapter 11, that rural housing quality and disaster resilience considerations, given the seismic and landslide risk profile documented extensively throughout this framework beginning in Chapter 1, warrant particular attention in Sikkim's rural housing construction standards relative to states with lower disaster exposure, and recommends that any future edition of this framework seek direct confirmation from the Rural Management and Development Department on whether current Pradhan Mantri Awaas Yojana Gramin and Chief Minister Rural Housing Scheme construction specifications in Sikkim incorporate seismic resilient building standards consistent with the state's Zone IV and Zone V classification discussed in Chapter 1, section 1.1.

12.4 Livelihood Promotion: SHGs, Cooperatives and Rural Enterprise

Sikkim's rural livelihood promotion architecture operates within the broader national framework of the Aajeevika National Rural Livelihoods Mission, the central government's flagship rural livelihood and Self Help Group promotion programme, referenced within the Indiatat compilation of social and welfare schemes tracked for the state alongside related instruments including the Deen Dayal Upadhyaya Grameen Kaushalya Yojana, a rural skilling programme, and the Prime Minister's Employment Generation Programme, discussed already in Chapter 4, section 4.2, in relation to its role in the state's Micro, Small and Medium Enterprise incentive architecture (Indiatat, 2026, MGNREGA and Social Welfare Schemes, Sikkim). A detailed, current, quantified assessment of Self Help Group formation, membership, savings mobilisation, and credit linkage specific to Sikkim, along with an

assessment of the state's rural cooperative sector beyond the State Bank of Sikkim's treasury and banking role discussed in Chapter 4, section 4.6, was not available in the sources consulted for this report.

This represents a genuine and, in this report's assessment, significant gap, since Self Help Group based livelihood promotion is precisely the kind of intervention that would be expected to address the agricultural productivity and income diversification challenges this report has identified repeatedly since Chapter 3, section 3.3, where nearly half the state's workforce remains engaged in agriculture contributing only 9.1 percent of Gross State Value Added. Academic literature on women's empowerment in Sikkim, cited in Chapter 7, section 7.4, notes that in the grassroots, women's Self Help Groups provide a mechanism through which women achieve financial independence and savings capacity for themselves and their children, indicating that Self Help Group infrastructure does exist and functions in the state, but this report does not have the membership, savings, or credit linkage figures needed to quantify its current scale or reach (academic source, Women Quest for Empowerment in Sikkim's Society, undated, as cited in Chapter 7). This report recommends that the state's Rural Management and Development Department, which typically holds administrative responsibility for Self Help Group federation and rural livelihood promotion under the Aajeevika framework, publish current Self Help Group coverage data to close this gap, one this report considers among the more consequential unaddressed data gaps in this entire framework given its direct bearing on the agricultural income diversification priorities flagged repeatedly since Chapter 3.

12.5 Rural Infrastructure: PMGSY, Connectivity and Market Linkages

Sikkim's rural road connectivity has historically been supported through the Pradhan Mantri Gram Sadak Yojana, the central government's flagship rural road connectivity programme, under a policy framework that explicitly recognised the distinct needs of hill states. The programme's guidelines made specific provision for North Eastern states, hill areas, and comparable regions, including a target of providing all weather road access to all villages and habitations with a population greater than 250 in hill states, explicitly naming Sikkim alongside the North Eastern states, Himachal Pradesh, Jammu and Kashmir, and Uttaranchal, now Uttarakhand, as jurisdictions eligible for this lower population threshold relative to the higher threshold typically applied in plains states, with an original target completion date by the end of the Tenth Five Year Plan, corresponding to 2007 (World Bank, undated, Assessment of PMGSY, citing programme guidelines). This lower population threshold provision reflects direct policy recognition that hill state settlement patterns, with smaller, more dispersed habitations of the kind documented throughout this framework, particularly in North Sikkim as discussed in Chapter 1, section 1.7, require a different rural connectivity standard than the settlement patterns typical of plains states.

A broader national assessment of the Pradhan Mantri Gram Sadak Yojana's implementation performance, conducted by a Parliamentary Standing Committee on Rural Development and Panchayati Raj, found that projects under the scheme frequently do not get completed within their set time frames, with delays causing cost escalation due to inflationary pressure on raw

material expenditure, and further noted that project nodal agencies often fail to secure requisite clearances from ministries including forests, a factor that further prolongs project completion, prompting the Committee to recommend the Department of Rural Development take proactive measures to expedite pending projects through more effective inter agency coordination (Standing Committee on Rural Development and Panchayati Raj, 2025). Given Sikkim's extensive forest cover, discussed in Chapter 1, section 1.1, at over 47 percent of the state's geographical area, and given the forest clearance delays this national assessment identifies as a general driver of Pradhan Mantri Gram Sadak Yojana project delay, this report considers it plausible that Sikkim's rural road projects under this scheme face this specific forest clearance related delay risk in a more acute form than states with less extensive forest cover, though this report does not have Sikkim specific project completion timeline data to confirm this expectation directly.

This report was not able to source a current, quantified inventory of Sikkim's rural road network under the Pradhan Mantri Gram Sadak Yojana, covering total constructed length, habitation connectivity coverage against the 250 population threshold discussed above, and current maintenance backlog, a gap already flagged in Chapter 8, section 8.1, in the broader road network discussion. This chapter restates that gap here with specific reference to its rural development and market linkage implications, since rural road connectivity bears directly on the agricultural marketing and farmer income realisation priorities discussed further in Chapter 18, section 18.3, and on the general rural livelihood diversification priorities this chapter has flagged throughout.

12.6 Community-Based Development Institutions and Participatory Planning

Sikkim's approach to participatory rural development planning draws on the Gram Sabha structure underlying its Panchayati Raj institutions, discussed in section 12.1, and on beneficiary identification mechanisms of the kind documented in section 12.3, where the Pradhan Mantri Awaas Yojana Gramin beneficiary list, once the Socio Economic Caste Census derived list was exhausted, was supplemented through a priority ranking process approved by the Gram Sabha, indicating that Gram Sabha level community validation forms a functioning part of at least this specific beneficiary identification process (Government of Sikkim, Rural Management and Development Department, 2026, Rural Housing PMAY-G, as cited in Chapter 11).

Beyond this specific example, a detailed, current, quantified assessment of the broader landscape of community based development institutions in Sikkim, covering the functioning of Gram Sabhas as deliberative bodies, the extent of genuine participatory planning in Gram Panchayat Development Plan preparation, and the role of community based organisations beyond the Self Help Group structures discussed in section 12.4, was not available in the sources consulted for this report. This represents the final and, taken together with the Self Help Group and cooperative gap identified in section 12.4, arguably the most significant unaddressed evidence gap in this chapter, since participatory planning quality is difficult to assess through the kind of programme level coverage statistics, MGNREGA person days, PMAY-G house counts, that this chapter has otherwise been able to document with

reasonable confidence. This report recommends that a future edition of this framework engage directly with the state's Rural Management and Development Department and with independent civil society assessments, where they exist, of Gram Sabha functioning and participatory planning quality in Sikkim, since the effectiveness of decentralised governance ultimately depends on the substance of community participation in a way that programme delivery statistics alone cannot fully capture.

Chapter 13: Environment and Natural Resource Governance

13.1 Forest Cover, Biodiversity and Wildlife Conservation

Sikkim's forest and biodiversity endowment, introduced in Chapter 1, section 1.1, is among the most consequential natural assets discussed anywhere in this framework, underpinning the state's watershed stability, its hydropower sector examined in Chapter 9, its ecotourism economy examined in Chapter 19, and its constitutional recognition as a UNESCO World Heritage state through Khangchendzonga National Park. According to the India State of Forest Report, Sikkim's total forest area measures 5,841 square kilometres, with actual forest cover, meaning land with tree canopy density above the threshold used in satellite based assessment, covering 3,358 square kilometres as of the 2023 assessment cycle, a figure this report notes is broadly consistent with, though marginally lower than, the 47.11 percent of geographical area, or 3,342.49 square kilometres, recorded in the 2019 assessment cycle, indicating forest cover has remained essentially stable across this more recent assessment interval (The Nature Conservancy, 2026, citing India State of Forest Report 2023; Forest Survey of India, 2019). Within the earlier 2019 assessment, forest canopy density was further disaggregated into 1,101.96 square kilometres of Very Dense Forest, 1,552.31 square kilometres of Moderately Dense Forest, and 688.22 square kilometres of Open Forest, a distribution indicating that the majority of the state's forest cover falls into the moderately to very dense categories rather than degraded open forest (Forest Survey of India, 2019).

Sikkim's Forest, Environment and Wildlife Management Department states that the state hosts 30.77 percent of its 7,096 square kilometre geographical area as protected area, comprising seven wildlife sanctuaries and one national park, a proportion the department describes as the highest in the country, meaning Sikkim has, by this specific protected area to total land area ratio, dedicated more of its territory to formal wildlife protection than any other Indian state (Government of Sikkim, Forest Environment and Wildlife Management Department, 2026). Khangchendzonga National Park, the state's sole national park and the UNESCO World Heritage Site discussed in Chapter 1, section 1.1, anchors this protected area network, and the department reports that forest cover across the state has increased by approximately 4 percent over the preceding 20 years, a trend it attributes to a combination of factors including the rejuvenation of rural water sources, increased wildlife populations, the filling of forest gaps, and reduced soil erosion (Government of Sikkim, Forest Environment and Wildlife Management Department, 2026). Independent academic research corroborates this specific figure and situates it within a documented policy intervention: forest cover in the state increased by about 4 percent between 1999 and 2017, rising from 3,118 square kilometres to 3,379 square kilometres, a trend the research attributes substantially to a grazing exclusion policy adopted by the Government of Sikkim in 1998 in response to growing anthropogenic pressure on grazing lands and protected forests, under which open grazing was phased out over the following six years across all reserved forests, with specific exceptions retained for alpine pastures within Khangchendzonga National Park and in the Lachen and Lachung valleys of North Sikkim (National Center for Biotechnology Information, 2021, Pastoralism in the Highest Peaks).

This grazing exclusion policy's ecological impact has been documented with genuine specificity in follow up research. Studies conducted in the Barsey Rhododendron Sanctuary in West Sikkim found that twelve years after the grazing ban's declaration, carbon stocks in the sanctuary had increased by approximately 585 thousand tonnes, alongside a concurrent increase in the regeneration of species of high conservation value, including *Rhododendron barbatum* (National Center for Biotechnology Information, 2021, Pastoralism in the Highest Peaks). This report considers this a genuinely well documented conservation success story, though it presents the research's own caveat with equal weight: the same body of research also warned of insignificant regeneration of important fodder species and other species of high conservation value, including *Quercus* species, or oaks, indicating that the grazing exclusion policy's ecological benefits have not been uniform across all species categories, with some slower regenerating or grazing dependent species showing more limited recovery than the more general carbon stock and canopy cover metrics might suggest (National Center for Biotechnology Information, 2021, Pastoralism in the Highest Peaks). This report treats this nuance as an important corrective to an otherwise uniformly positive conservation narrative, consistent with the evidence based, non selective approach to sourcing this framework has applied throughout.

On forest type diversity, the state's Forest and Environment Department identifies five principal forest types across Sikkim's elevation gradient, Sub Tropical, Moist Mixed Deciduous, Wet Temperate, Conifer, and Sub Alpine forest, corresponding closely to the ecological zonation this report described in Chapter 1, section 1.1 (Government of Sikkim, Forest and Environment Department, 2026). The department characterises Sikkim as harbouring a host of endemic flora, rare and endangered plant and animal species, and high value medicinal plants, going so far as to describe the state as a botanist's paradise, a characterisation this report treats as promotional in tone but broadly consistent with the state's documented status within the Eastern Himalaya biodiversity hotspot discussed in Chapter 1 (Government of Sikkim, Forest and Environment Department, 2026). Between 1 January 2015 and 5 February 2019, a total of 24.30 hectares of forest land was diverted for non forestry purposes under the Forest Conservation Act, a comparatively modest cumulative diversion figure over this roughly four year window that this report reads as indicative of a genuinely restrictive approach to forest land diversion in the state, though this report was not able to source a more current diversion figure covering the period since 2019 (Forest Survey of India, 2019).

13.2 Land Use Change, Soil Degradation and Land Resource Management

Sikkim's land resource management challenges are inseparable from the extreme terrain characteristics discussed throughout this framework since Chapter 1, where the state's vertical relief, spanning from 280 metres to 8,586 metres, and its Zone IV and Zone V seismic classification combine to make soil stability a persistent and, as documented in Chapter 8, section 8.1, recurring operational challenge for infrastructure delivery. Forest cover functions as the primary land resource management tool available to the state in this context, and the Forest and Environment Department's own assessment credits sustained forest cover

expansion with having checked soil erosion to a larger extent across the state, a claim this report treats as broadly plausible given the well established ecological relationship between forest canopy cover and slope stability, though this report was not able to source a specific, quantified soil erosion rate trend for Sikkim that would allow this claim to be verified against direct measurement data (Government of Sikkim, Forest Environment and Wildlife Management Department, 2026).

The state's Forest and Environment Department maintains a dedicated institutional focus on the treatment of landslides and soil erosion control as a distinct thematic area within its broader land and water management portfolio, alongside wetland and wasteland management, indicating that land degradation is a recognised, actively managed policy priority rather than an unaddressed concern (Government of Sikkim, Forest and Environment Department, 2026). A detailed, current, quantified assessment of the specific extent of degraded, waste, or otherwise land resource compromised terrain across the state, and the pace and effectiveness of active soil conservation and landslide treatment interventions relative to the scale of the challenge, was not available in the sources consulted for this report. Given the recurring landslide disruption to National Highway 10 and related infrastructure documented extensively in Chapter 8, this report considers it likely that active slope failure and land degradation remain a persistent, ongoing challenge in specific high risk corridors even where the state's aggregate forest cover trend points in a positive direction, and flags the reconciliation of these two facts, stable to improving aggregate forest cover alongside recurring, specific landslide events, as worth direct examination in a future edition of this framework, potentially through geospatial landslide susceptibility mapping data that the state's Forest and Environment Department or Land Revenue and Disaster Management Department may maintain but which was not accessible for this report.

13.3 Water Bodies, Wetlands and River Ecosystem Health

Sikkim's river systems, principally the Teesta and Rangit, discussed extensively in Chapter 1, section 1.1, and Chapter 9 in relation to hydropower, are subject to a formal environmental flow requirement introduced by the state government in October 2022. Under a direction issued under Section 5 of the Environment Protection Act, 1986, hydroelectric power projects in Sikkim are required to maintain a minimum environmental flow in the rivers they operate on, a regulatory intervention explicitly intended to ensure that hydropower generation, discussed at length in Chapter 9, does not deplete river flow to a degree that compromises downstream ecological function, aquatic habitat, or the water needs of communities and ecosystems located below a given project's diversion point (State Environment Information System, Sikkim, 2026, Pollution). This report considers this direction directly relevant to the hydropower governance concerns already documented in Chapter 9, section 9.1, since a minimum environmental flow requirement represents exactly the kind of ecological safeguard that critics of the earlier, non competitively bid Teesta III project development process, discussed in Chapter 9, had called for.

The state also maintains a Payment for Ecosystem Services framework, formalised through the Sikkim Payment for Ecosystem Services Rules, 2022, notified in the Sikkim Government

Gazette in July 2022, an instrument this report reads as a genuinely innovative policy mechanism intended to create direct financial incentives for the conservation of ecosystem functions, potentially including watershed protection services of direct relevance to the state's hydropower dependent revenue base discussed in Chapter 2 (State Environment Information System, Sikkim, 2026, Pollution). A detailed, current, quantified assessment of this framework's actual implementation, including which ecosystem services are currently being compensated, at what scale, and to which beneficiary communities, was not available in the sources consulted for this report, and this report flags the Payment for Ecosystem Services framework as a policy innovation worth closer examination in a future edition given its potential relevance to the rural livelihood diversification priorities discussed in Chapter 12.

On wetlands specifically, the Forest and Environment Department maintains a dedicated institutional focus on wetlands as a distinct category within its land and water management portfolio, alongside the department's broader river and water body monitoring conducted jointly with the State Pollution Control Board, discussed further in section 13.5 (Government of Sikkim, Forest and Environment Department, 2026). A detailed, current inventory of Sikkim's wetland extent, ecological condition, and any Ramsar or comparable formal wetland conservation designation was not available in the sources consulted for this report, and this report flags wetland specific data as a further gap in this chapter's evidence base, one this report recommends the Forest and Environment Department's wetland programme documentation address directly in any future edition.

13.4 Mining and Mineral Resource Governance

Sikkim's mining sector, as already noted in Chapter 3, section 3.4, plays a comparatively limited role in the state's industrial base relative to states with substantial mineral reserves, a pattern consistent with both the state's geology and its extensive protected forest area documented in section 13.1. Mining governance in the state falls under a dedicated Ministry of Mines and Geology, currently held, as of assumption of office in June 2024, by the same minister who also holds the Forest and Environment and Science and Technology portfolios, an institutional arrangement that places mineral resource governance and forest and environmental protection under unified ministerial oversight within the state cabinet (Wikipedia, Pintso Namgyal Lepcha, 2026). This report reads this consolidated portfolio structure as potentially significant for coherent natural resource governance, since it removes the institutional separation between mineral extraction promotion and environmental protection that can, in some states, produce conflicting policy incentives across separate ministries.

On the specific minerals present in the state, limestone and dolomite mining activity has been documented in Sikkim, consistent with the state's Himalayan carbonate rock geology, and broader research on limestone and dolomite mining's environmental pollution profile, though not specific to Sikkim in the particular case study consulted, identifies air and water pollution and specific occupational health risks, including elevated tuberculosis incidence among workers attributed to prolonged dust exposure, as characteristic concerns associated with this category of mining activity generally (ResearchGate, 2024, Environmental Pollution Status as

a Result of Limestone and Dolomite Mining). This report was not able to source a Sikkim specific assessment of limestone or dolomite mining's environmental or occupational health impact within the state, and does not extend the general findings from this non Sikkim case study to Sikkim's specific mining operations without direct evidence. A detailed, current, quantified assessment of Sikkim's mineral resource extraction volumes, revenue contribution, environmental clearance compliance record, and occupational health and safety outcomes for the state's mining workforce was not available in the sources consulted for this report, and this report flags mineral resource governance as one of the least well documented sectors examined in this entire framework, one the state's Ministry of Mines and Geology should address directly through published sector data in any future edition.

13.5 Pollution: Air, Water, Noise and Soil — Status and Regulatory Response

Sikkim presents itself, and to a significant extent this report's evidence supports the characterisation, as one of India's cleanest states on conventional pollution indicators. The state's environmental information portal describes Sikkim as enjoying good air and water environment, hosting more than 25 percent of the country's biodiversity, and having amicably sustained its natural resources amid economic and infrastructural development (State Environment Information System, Sikkim, 2026, Pollution). This report treats this framing as promotional but grounds it in the specific regulatory evidence available from the State Pollution Control Board's own monitoring activity.

The State Pollution Control Board's Annual Report for 2023 to 2024 documents an active air quality monitoring programme operating across eight monitoring stations statewide, tracking the Air Quality Index and annual average values of PM10 particulate matter, alongside nitrogen dioxide monitoring at stations including Pelling and Chungthang, and additional dedicated monitoring at Singtam (State Pollution Control Board Sikkim, 2024, Annual Report). Sikkim was formally declared an Air Pollution Control Area under a state gazette notification issued in September 2011, establishing the regulatory basis for this ongoing monitoring programme (Government of Sikkim, Forest and Environment Department, undated, State Pollution Control Board RTI Enclosures). A separate, earlier assessment of air quality monitoring specifically in Gangtok found that all monitored sites met prescribed standards for pollutants including Suspended Particulate Matter, sulphur dioxide, and nitrogen dioxide, and that vehicular emission testing found most petrol and diesel vehicles in compliance with prescribed emission standards, a genuinely favourable finding for the state capital's air quality specifically, though this report notes this assessment appears to predate the more recent 2023 to 2024 Annual Report and should not be assumed to represent current conditions without further verification (Scribd, undated, Sikkim Environmental Pollution in India).

On industrial pollution control specifically, and with direct relevance to the pharmaceutical manufacturing cluster discussed in Chapter 4, section 4.3, the State Pollution Control Board has made Zero Liquid Discharge mandatory for industrial effluent treatment plants, requiring that treated wastewater meeting prescribed standards be recycled and reused for purposes including gardening, flushing, cleaning, and cooling rather than discharged into the

environment, with continuous online effluent monitoring systems established at all pharmaceutical units in the state, operating on a 24 hour basis (Government of Sikkim, Forest and Environment Department, undated, State Pollution Control Board RTI Enclosures). Further, following direction from the High Court of Sikkim, treated water samples from pharmaceutical industrial units' effluent treatment plant outlets are collected fortnightly for independent analysis, indicating active judicial as well as regulatory oversight of this specific industrial pollution control requirement (Government of Sikkim, Forest and Environment Department, undated, State Pollution Control Board RTI Enclosures). This report considers this Zero Liquid Discharge mandate and its associated fortnightly, court supervised sampling regime to be a genuinely robust regulatory response, directly relevant to sustaining the clean production positioning this report noted in Chapter 4, section 4.4, as central to the state's pharmaceutical and biotechnology Special Economic Zone strategy.

Beyond industrial regulation, Sikkim has pursued an unusually broad set of proactive, preventive environmental bans relative to most Indian states, a policy pattern this report considers worth documenting in full given its direct relevance to the state's clean and green branding discussed throughout this framework. The state has imposed bans on the use of firecrackers, the burning of agricultural waste, the use of styrofoam products, the burning of tyres, the use of polythene carry bags, and the use of chemical fertilisers, this last ban directly underpinning the organic farming transition discussed in Chapter 3, section 3.3 (State Environment Information System, Sikkim, 2026, Pollution). More recently, the state notified a ban on plastic water bottles effective from 1 January 2022, a notably aggressive intervention relative to plastic bag bans alone, given how deeply embedded single use plastic water bottles are in tourism and hospitality supply chains of exactly the kind discussed in Chapter 3, section 3.5, and Chapter 19 (State Environment Information System, Sikkim, 2026, Pollution). Sikkim has also developed a set of flagship public mobilisation programmes intended to embed environmental stewardship at the community level, including the State Green Mission, the Ten Minutes to Earth programme, the Smritivan afforestation initiative, and the Paryavaran Mahotsav environmental festival, all of which the state's environmental information portal describes as having greatly mobilised the entire state's populace in plantation and cleanliness activities throughout the state, contributing to Sikkim's characterisation as one of the cleanest states in the country (State Environment Information System, Sikkim, 2026, Pollution). This report treats this specific superlative claim with appropriate caution, since it originates from the state's own environmental information portal rather than an independent comparative assessment, but notes that the combination of specific, verifiable regulatory measures, the plastic bottle ban, the Zero Liquid Discharge mandate, the chemical fertiliser ban underpinning organic certification, provides genuine substantive support for the broader characterisation even without an independent national ranking to confirm the specific superlative.

On water quality monitoring specifically, the State Pollution Control Board participates in the Central Pollution Control Board's National Water Quality Monitoring Programme, established in collaboration with State Pollution Control Boards and Pollution Control Committees nationally to assess the status of water quality across the country's water

resources and to facilitate pollution prevention and control (State Pollution Control Board Sikkim, 2024, Annual Report). A detailed, current, quantified assessment of specific river water quality parameters for the Teesta and Rangit systems, distinguishing point source industrial and municipal pollution from the sediment loading associated with the state's landslide prone terrain discussed in section 13.2, was not available in the sources consulted for this report beyond the general monitoring programme framework described above, and this report recommends a future edition draw directly on the State Pollution Control Board's detailed water quality monitoring data tables for river specific findings.

13.6 Coastal and Marine Resource Management (where applicable)

Sikkim is a landlocked Himalayan state with no coastline, no marine territory, and no coastal or marine ecosystems within its jurisdiction, a straightforward geographic fact already established in Chapter 8, section 8.4, in the context of ports and waterways. This section of the standardised chapter template is explicitly marked as applying only where applicable, and this report confirms directly that it does not apply to Sikkim. The state's water resource governance priorities are instead concentrated entirely on its river, glacial, and wetland systems, addressed in section 13.3 of this chapter, and its glacial lake outburst flood risk specifically, a hazard profile this report has referenced since Chapter 1 and examines in full in Chapter 14, functions as Sikkim's closest structural analogue to the kind of large scale water body risk management that coastal states must apply to storm surge and marine hazard exposure, even though the underlying hazard mechanism, physical setting, and governing regulatory framework are entirely distinct from coastal and marine resource management as conventionally understood.

Chapter 14: Climate Change and Ecological Security

14.1 State Climate Vulnerability and Risk Profile

Sikkim's climate vulnerability profile has been formally documented through successive iterations of the state's own climate planning process, and the most recent revision, referred to in state documentation as SAPCC V2, incorporates a genuinely rigorous climate profiling exercise that analysed historical data spanning 1951 through 2014 and projected climatic shifts forward to 2045 (Government of Sikkim, 2026, Review and Finalization, State Action Plan). This historical and projected analysis found rising annual maximum and minimum temperatures, declining frost days, and increasing variability in monsoon rainfall, three findings that together pose significant challenges to agriculture, water resources, and biodiversity, the very sectors this report has examined at length in Chapter 3, Chapter 10, and Chapter 13 respectively (Government of Sikkim, 2026, Review and Finalization, State Action Plan). This report considers this specific finding on monsoon rainfall variability to be directly relevant to the recurring landslide disruption documented throughout Chapter 8, since increasingly variable and potentially more intense monsoon precipitation would be expected to exacerbate exactly the kind of slope instability that has repeatedly closed National Highway 10 and damaged rural infrastructure, as this report has documented in detail.

The revised action plan's vulnerability assessment was conducted at the district level across six critical sectors, agriculture, forests, water, health, disasters, and socioeconomic conditions, with technical assistance from premier institutes including the Indian Institute of Technology Guwahati and the Indian Institute of Technology Gandhinagar, identifying region specific risks and prioritising adaptation measures accordingly (Government of Sikkim, 2026, Review and Finalization, State Action Plan). This report notes that this six sector, district disaggregated vulnerability assessment represents precisely the kind of granular, evidence based risk mapping that this framework has repeatedly flagged as absent from other sectors examined earlier in this report, and treats its existence within the state's climate planning architecture as a genuine institutional strength, even though this report was not able to access the specific district level findings of this assessment in sufficient detail to summarise them individually.

Sikkim's underlying physical vulnerability, discussed since Chapter 1, arises from an extreme elevation gradient spanning from 300 metres to more than 8,000 metres within a compact 113 kilometre north to south and 64 kilometre east to west extension, a compression of ecological and climatic zones that the state's own climate and health planning documentation identifies as the foundational geographic fact shaping the state's climate sensitive disease burden and broader climate vulnerability (National Centre for Disease Control, 2026, Sikkim SAPCCHH). This report has referenced this same elevation gradient repeatedly since Chapter 1, and this section confirms that the state's own institutional climate risk assessment treats it as the central driver of vulnerability across every sector examined, from health to agriculture to disaster risk.

14.2 State Action Plan on Climate Change: Review and Second Generation Reforms

Sikkim's formal climate planning history began in 2015, when the State Action Plan on Climate Change for Sikkim was released by the Department of Science and Technology and Climate Change, with technical support for the plan's formulation provided by GIZ India, the German development cooperation agency (Asian Development Bank, 2024, Climate Risk and Adaptation Assessment). This original plan devised strategies addressing the state's concerns pertaining to water, agriculture, forests, energy, and urban and rural habitats and communities, and this report notes that the plan explicitly prioritised adaptation over mitigation, on the reasoning that most adaptation measures would carry mitigation co benefits in any case, a sequencing choice this report considers reasonable given Sikkim's genuinely modest contribution to national and global greenhouse gas emissions relative to its acute physical exposure to climate impacts already occurring (Asian Development Bank, 2024, Climate Risk and Adaptation Assessment).

This report must flag directly a specific, honestly documented gap in the original plan's scope, one that carries particular weight given the disaster this chapter examines in detail in section 14.5. The Asian Development Bank's own climate risk assessment states plainly that the Sikkim State Action Plan on Climate Change does not yet have any formal mechanism to address loss and damage arising from extreme and slow onsetting impacts, meaning the plan, as originally conceived, provided adaptation strategy without a corresponding compensation or recovery framework for catastrophic climate linked events (Asian Development Bank, 2024, Climate Risk and Adaptation Assessment). This report reads this specific, documented gap as directly relevant to the institutional response challenges this chapter examines in section 14.4 and section 14.5, since the absence of a formal loss and damage mechanism within the state's own climate planning architecture is consistent with, even if not solely explanatory of, the reconstruction financing arrangements this report already documented in Chapter 9, section 9.1, where post disaster reconstruction of the destroyed Teesta III asset was financed through central development finance institutions rather than through any dedicated state level climate loss and damage fund.

The state's climate planning architecture has continued to evolve since this original 2015 plan. A revised action plan, referred to in state documentation as SAPCC V2, builds upon the original 2014 plan, incorporating advanced scientific analyses, enhanced stakeholder engagement, and explicit integration with India's Nationally Determined Contributions under the Paris Agreement framework and the Sustainable Development Goals discussed in Chapter 1, section 1.5, and Chapter 20 (Government of Sikkim, 2026, Review and Finalization, State Action Plan). Adaptation measures under this revised plan emphasise crop diversification, water conservation, disaster preparedness, and public health resilience, and the plan explicitly highlights the state's 100 percent organic farming milestone discussed in Chapter 3, section 3.3, and Chapter 13, section 13.5, alongside the Mero Rukh Mero Santati afforestation initiative, discussed further in section 14.6, as notable achievements the plan builds upon going forward (Government of Sikkim, 2026, Review and Finalization, State Action Plan).

Institutionally, this climate planning process is supported by the Sikkim State Climate Change Cell, established in October 2014 under the Sikkim State Council of Science and

Technology, itself an autonomous organisation under the Department of Science and Technology, and operating under the National Mission for Sustaining the Himalayan Ecosystem, one of the eight missions constituting India's National Action Plan on Climate Change (Government of Sikkim, Department of Science and Technology, 2026, Sikkim State Climate Change Cell). The Cell's stated objectives include conducting vulnerability and risk assessment at the Gram Panchayat Unit and ward level across what its documentation describes as 178 Gram Panchayat Units and 1,001 wards spread across four districts of Sikkim (Government of Sikkim, Department of Science and Technology, 2026, Sikkim State Climate Change Cell). This report flags directly that this reference to four districts appears to predate the 2021 district reorganisation into six districts discussed in Chapter 1, section 1.2, and this report was not able to confirm from the sources consulted whether the Cell's Gram Panchayat Unit and ward level vulnerability assessment framework has since been updated to reflect the current six district administrative structure, a genuine and, in this report's assessment, consequential gap given the direct relevance of up to date administrative geography to any vulnerability assessment intended to inform current disaster preparedness planning.

A further, sector specific climate plan operates alongside these broader frameworks. The State Action Plan for Climate Change and Human Health, applicable through 2027, was prepared by the Department of Health and Family Welfare and is implemented through the Directorate of Health Services, with an institutional structure headed by the State Disaster Management Authority and including members drawn from the Ministry of Environment, the State Pollution Control Board discussed in Chapter 13, section 13.5, and central health surveillance bodies including the National Centre for Disease Control (National Centre for Disease Control, 2026, Sikkim SAPCCHH). This report notes that the direct institutional linkage between climate health planning and the State Disaster Management Authority, examined further in section 14.4, reflects a genuinely integrated approach to climate and disaster governance, consistent with this report's broader observation in Chapter 6, section 6.8, that health system resilience and disaster preparedness should be treated as jointly planned rather than separate tracks, an integration this specific institutional arrangement appears to have already achieved at least on paper.

14.3 Disaster Risk Profile: Hazard, Exposure and Vulnerability Mapping

Sikkim's disaster risk profile, introduced in Chapter 1, section 1.1, combines seismic hazard across Bureau of Indian Standards Zone IV and Zone V classification with a growing glacial lake outburst flood risk, and this report can document the specific, well established vulnerability of the lake at the centre of the state's most catastrophic recent disaster with genuine precision. South Lhonak Lake, situated in North Sikkim, has been recognised as vulnerable for well over a decade prior to the disaster examined in section 14.5, having expanded to nearly five times its earlier size over roughly six decades of glacial retreat, a rate of expansion that placed it among the fastest expanding glacial lakes in the entire Himalayan region (Down To Earth, 2023, Sikkim Floods: Why Wasn't Early Warning System Set Up). This report considers the documented, long standing recognition of this specific lake's

vulnerability, well before the disaster occurred, to be an essential and sobering piece of context for understanding the institutional preparedness gaps examined in section 14.4.

The scientific characterisation of the disaster mechanism itself, published in the peer reviewed journal *Science* in 2025 by an international team of researchers led by Ashim Sattar of the Indian Institute of Technology Bhubaneswar, provides this report with an unusually precise, authoritative account of the physical hazard involved. The study found that the glacial lake outburst flood was triggered by the collapse of up to 14.7 million cubic metres of frozen lateral moraine material into South Lhonak Lake at an elevation of 5,200 metres above sea level, generating an approximately 20 metre tsunami like impact wave that breached the moraine dam and drained approximately 50 million cubic metres of the lake's water (Sattar et al., 2025, as cited in ICIMOD, 2025; *Science*, 2025). The resulting flood eroded approximately 270 million cubic metres of sediment along its flow path, a sediment entrainment process the researchers identify as a critical factor that current glacial lake outburst flood hazard models frequently underestimate by failing to adequately account for it, a methodological gap the study's authors explicitly flag as requiring urgent correction in future Himalayan hazard modelling (International Centre for Integrated Mountain Development, 2025; *Science*, 2025).

The flood travelled approximately 385 kilometres along its full trajectory, with the first 67 kilometres, between South Lhonak Lake and the town of Chungthang, experiencing the most concentrated destructive impact, a stretch of the Teesta Valley that includes the site of the Teesta III hydropower dam discussed extensively in Chapter 9, section 9.1 (Adaptation at Altitude, 2026, The 2023 South Lhonak Glacial Lake Outburst Flood). The study's lead author characterised the event as a grim reminder for similar high risk lakes across the wider Himalayan region, and the research team's recommendations centre on the urgent implementation of improved early warning and hazard detection systems, alongside a paradigm shift toward glacial lake outburst flood modelling approaches that more accurately incorporate sediment dynamics and unstable lateral moraine behaviour (International Centre for Integrated Mountain Development, 2025).

14.4 Disaster Risk Reduction: Institutional Mechanisms and Preparedness

Sikkim maintains an active institutional culture around disaster risk reduction, and this report can document a specific, meaningful practice worth noting directly: every year on 18 September, Sikkim observes a day of disaster risk reduction in remembrance of the magnitude 6.9 earthquake that struck the state in 2011, discussed in Chapter 1, section 1.1 (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety). In the specific year the South Lhonak disaster occurred, this annual observance had, only weeks earlier, focused explicitly on preparedness for a scenario in which flood waters might come cascading down the Teesta river, a focus this report considers, in retrospect, to have been a genuinely prescient institutional concern that nonetheless proved insufficient to prevent the disaster's scale when it materialised only weeks later (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety).

This report must document, with the same directness applied to the hydropower governance failures discussed in Chapter 9, a specific and troubling institutional preparedness gap that directly preceded the disaster. In early September 2023, a joint team from the National Disaster Management Authority, the Sikkim State Disaster Management Authority, and outside consultants visited South Lhonak Lake specifically to assess its vulnerability and to work toward deploying an early warning system capable of providing real time alerts in the event of a glacial lake outburst (BBC News, 2023, Sikkim: Deadly Indian Glacial Lake Flash Flood; Down To Earth, 2023, Sikkim Floods: Why Wasn't Early Warning System Set Up). Some preliminary work toward establishing this early warning system had reportedly been initiated at South Lhonak specifically, but the system was not yet functional when the lake burst on the night of 3 to 4 October 2023, only weeks after this assessment visit (BBC News, 2023, Sikkim: Deadly Indian Glacial Lake Flash Flood). This report considers this timeline, a formal vulnerability assessment visit in early September followed by a catastrophic failure at the exact same lake in early October, before protective measures could be completed, to be one of the most consequential and directly documented institutional preparedness gaps identified anywhere in this framework.

This gap is made still more striking by a specific piece of scientific prediction history this report considers important to document with precision rather than generalise. Ashim Sattar, the same researcher who subsequently led the definitive 2025 Science journal study on the disaster discussed in section 14.3, had already published a 2021 modelling study projecting that a glacial lake outburst flood would occur at South Lhonak Lake specifically, years before the event actually took place (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety). Sattar's own reaction upon hearing news of the actual disaster, that despite having studied the possibility of this occurring he was numb with shock when he first heard the news, illustrates the genuine gap this report considers most significant across this entire chapter, between accurate, published scientific risk prediction on one hand and the institutional capacity to translate that prediction into completed, functional protective infrastructure before disaster struck on the other (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety). A civil society organisation focused on environmental protection in the Teesta basin, the Affected Citizens of Teesta, had separately raised specific questions about the Teesta III hydropower project's ability to withstand a glacial lake outburst flood scenario, questions this report's sources indicate were not adequately addressed by the relevant authorities before the disaster occurred (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety).

In the aftermath of the disaster, the state has taken concrete institutional steps to strengthen its scientific capacity for this specific hazard category. The Department of Science and Technology has since conducted structured capacity building sessions explicitly focused on strengthening technical capacity in advanced scientific tools for glacial lake outburst flood hazard assessment, drawing participants from multiple state institutions and involving the department's own scientific and research staff directly in reviewing past hazard assessment applications and current methodological gaps (Government of Sikkim, Department of Science and Technology, 2026, The Sikkim State Action Plan on Climate Change). This

report treats this post disaster capacity building investment as a genuine and appropriate institutional response, while noting that it arrives after, rather than before, the catastrophic event this chapter has documented in detail, a sequencing this report considers emblematic of the broader pattern, evident across several sectors examined throughout this framework, in which Sikkim's institutional response to documented risk has at times followed rather than preceded the realisation of that risk.

14.5 Post-Disaster Response, Relief and Reconstruction Framework

The South Lhonak glacial lake outburst flood struck in the early hours of 4 October 2023, following the moraine collapse and lake breach that began the previous night, and this report must document the human toll of this disaster with the same honesty and precision applied to its physical mechanics in section 14.3. This report considers it important to present the full, evolving casualty record rather than citing only a single, final figure, since the reported toll changed substantially across the days and months following the disaster in a way that itself illustrates the genuine difficulty of casualty accounting in a remote, infrastructure devastated disaster zone. Initial reporting on 5 October 2023 recorded 14 confirmed deaths with around 102 people reported missing (News on Air, 2023, October 5). By 9 October 2023, this had risen to at least 35 confirmed deaths with around 104 people still missing (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety). The definitive, peer reviewed 2025 scientific assessment, drawing on more complete post disaster data collection, ultimately recorded 55 casualties, with a further 70 people still listed as missing at the time that assessment was published (International Centre for Integrated Mountain Development, 2025). This report presents this full sequence, from 14 confirmed dead and 102 missing in the disaster's immediate aftermath, to 55 confirmed dead and 70 still missing in the definitive later scientific accounting, rather than collapsing it into a single number, since the progression itself illustrates both the scale of the disaster's disruption to normal accounting processes and the genuine difficulty of achieving a final, confirmed toll in an event of this magnitude and remoteness.

Among more than 20 army personnel swept away by the flood as water levels in the Teesta river rose alarmingly, the disaster's impact extended well beyond civilian settlements to directly affect military personnel stationed along this strategically sensitive border region discussed in Chapter 1, section 1.1 (Down To Earth, 2023, Sikkim Floods: Why Wasn't Early Warning System Set Up). Water levels in the Teesta river rose by approximately 15 to 20 feet, and separately reported as rising by about 50 to 60 feet in height at the point of most concentrated impact, in the affected districts of Sikkim and downstream West Bengal, figures that, while presenting some numerical variation across sources likely reflecting measurement at different points along the flood's course, both convey a flood surge of genuinely extraordinary and destructive scale (Pennsylvania State University, Institutes of Energy and the Environment, undated; News on Air, 2023, October 7). The disaster's downstream reach extended beyond India's borders entirely, with adjoining areas of West Bengal and Bangladesh placed at risk of flooding as the surge continued down the Teesta river's course, illustrating that a hazard originating from a single high altitude glacial lake in North Sikkim

carried transboundary consequences extending well beyond the state's own jurisdiction (Down To Earth, 2023, Sikkim Floods: Why Wasn't Early Warning System Set Up).

Infrastructure destruction, already documented in detail in Chapter 9, section 9.1, in relation to the state's hydropower sector specifically, extended across bridges, highways, and buildings throughout the Teesta Valley, with the flood's initial impact triggering secondary landslides and debris flows that compounded the destruction through exactly the kind of cascading hazard interaction the scientific study discussed in section 14.3 identifies as central to understanding the event's full severity (International Centre for Integrated Mountain Development, 2025). Over a thousand homes were damaged, according to reporting compiled shortly after the disaster (Mongabay India, 2023, No Early Warning System and Insufficient Dam Safety).

Emergency response was mobilised rapidly once the scale of the disaster became apparent, with three National Disaster Response Force teams deployed within the disaster's first day, and two further teams from Guwahati and Patna placed on standby to reinforce the response, including a team based at Chungthang that required airlift deployment once weather conditions permitted, given the road access disruption this report has documented throughout Chapter 8 (News on Air, 2023, October 5). A subsequent regional assessment brief, prepared in collaboration between international mountain development and climate adaptation organisations, characterised the relatively low number of casualties, relative to the disaster's sheer physical scale of 270 million cubic metres of eroded sediment and a 20 metre initial impact wave, as itself demonstrating the partial effectiveness of the early warning and emergency preparedness measures that had been in place, even while the same assessment explicitly identified deficiencies in the underlying hazard assessments, particularly regarding sediment dynamics and unstable lateral moraine behaviour, as requiring urgent correction (Adaptation at Altitude, 2026, The 2023 South Lhonak Glacial Lake Outburst Flood). This report reads this specific framing, genuine appreciation for what emergency response did achieve, combined with clear eyed acknowledgement of what preparedness failed to prevent, as the most balanced and evidence based characterisation of the disaster response available across the sources consulted, and adopts this same balanced framing rather than presenting the response as either an unqualified success or an unqualified failure.

On reconstruction financing specifically, this report refers the reader to the detailed discussion already provided in Chapter 9, section 9.1, where this report documented the state government's decision to disinvest its entire reported 60 percent stake in Sikkim Urja Limited, the operator of the destroyed Teesta III project, with reconstruction financing to be provided through public sector development finance institutions REC Limited and the Power Finance Corporation (Mongabay India, 2024, as cited in Chapter 9). This report does not repeat that discussion in full here, but notes its direct relevance to this chapter's broader theme: that Sikkim's post disaster reconstruction financing architecture, at least for its largest single destroyed asset, has run through conventional central development finance institution channels rather than through any dedicated state level climate loss and damage mechanism of

the kind this report noted, in section 14.2, is explicitly absent from the state's own State Action Plan on Climate Change.

14.6 Green Economy Transition: Opportunities and Structural Challenges

Sikkim's green economy transition draws on a genuinely substantial foundation of prior environmental achievement, several elements of which this report has already documented in detail across earlier chapters. The state's status as India's only fully organic farming state, achieved in 2016 and discussed in Chapter 3, section 3.3, and Chapter 13, section 13.5, is explicitly highlighted within the revised State Action Plan on Climate Change as a notable achievement the state's broader climate strategy builds upon (Government of Sikkim, 2026, Review and Finalization, State Action Plan). Alongside this, the state's Mero Rukh Mero Santati programme, translating from Nepali as My Tree My Legacy, functions as an innovative green initiative explicitly cited within the state's own climate planning documentation as a model for community engaged afforestation, complementing the broader forest cover trends and the Smritivan programme this report documented in Chapter 13, section 13.5 (Government of Sikkim, 2026, Review and Finalization, State Action Plan).

A more forward looking green economy opportunity, distinct from these established achievements, involves the potential for Sikkim's forest resources to generate revenue through voluntary carbon markets. Research supported by The Nature Conservancy, already referenced in Chapter 13, section 13.1, in relation to the state's forest cover data, was explicitly conducted to identify cost effective forest pathways for Sikkim to enter voluntary carbon markets, examining potential interventions based on their cost effectiveness, climate mitigation potential, and community and biodiversity impact, with the explicit aim of providing the state's Forest and Environmental Department with the evidence base needed to make informed decisions in developing carbon projects (The Nature Conservancy, 2026, as cited in Chapter 13). This report considers this carbon market pathway to represent a genuinely promising, if still emergent, opportunity for Sikkim to monetise the same forest conservation achievements already documented in Chapter 13, potentially generating a new revenue stream that could reduce the state's structural fiscal dependence on central transfers discussed throughout Chapter 2, though this report was not able to source a current, quantified assessment of the specific revenue potential or implementation timeline associated with this opportunity.

The structural challenges facing this green economy transition are, in this report's assessment, substantially the same structural challenges this framework has documented throughout: a narrow fiscal base discussed in Chapter 2, a small and terrain constrained population discussed in Chapter 1, and an acute, now catastrophically demonstrated exposure to climate linked disaster risk that can destroy in a single night infrastructure representing years of accumulated capital investment, as this chapter has documented in detail regarding the Teesta III hydropower asset. The state's own Payment for Ecosystem Services Rules, discussed in Chapter 13, section 13.3, and its emerging voluntary carbon market engagement together suggest a state government actively seeking to convert its genuine environmental achievements into sustainable revenue streams, but this report's overall assessment, consistent

with the pattern documented throughout this chapter, is that Sikkim's green economy transition remains, as of the time of writing, a promising strategic direction substantiated by genuine underlying environmental assets rather than a fully realised, quantifiably significant component of the state's current economic base as documented in Chapter 3.

Chapter 15: Administrative Governance Reform

15.1 Structure of State Administration and Inter-Departmental Coordination

Sikkim's state administration operates through a departmental structure that has evolved considerably since the 1975 merger discussed in Chapter 1, section 1.2, from the pre merger Bazaar Department system referenced in Chapter 11, section 11.1, into the current configuration of line departments spanning finance, home, rural management and development, urban development and housing, forest and environment, energy and power, and the sector specific departments this report has examined in detail across preceding chapters. This report has documented, across Chapters 2 through 14, a genuinely wide range of these departments in operation, including the Finance, Revenue and Expenditure Department discussed in Chapter 2, the Department of Commerce and Industries discussed in Chapter 4, the School Education Department discussed in Chapter 5, the Health and Family Welfare Department discussed in Chapter 6, the Roads and Bridges Department discussed in Chapter 8, the Energy and Power Department discussed in Chapter 9, and the Forest and Environment Department discussed in Chapter 13, among others, indicating a conventionally structured, sectorally organised state bureaucracy of the kind found across most Indian states, adapted to the specific institutional history and terrain constraints this framework has documented throughout.

A detailed, current, quantified assessment of inter departmental coordination mechanisms specifically, covering formal cabinet committee structures, secretary level coordination forums, or dedicated convergence mechanisms of the kind that would be needed to align, for example, the Rural Management and Development Department's Aajeevika livelihood programming discussed in Chapter 12 with the Department of Commerce and Industries' MSME policy discussed in Chapter 4, was not available in the sources consulted for this report. This report has, however, documented specific instances of inter departmental collaboration throughout this framework worth restating here as evidence of at least functional, issue specific coordination capacity, including the joint institutional structure underpinning the State Action Plan for Climate Change and Human Health discussed in Chapter 14, section 14.2, which explicitly links the Department of Health and Family Welfare with the State Disaster Management Authority, the State Pollution Control Board, and central health surveillance bodies, and the collaborative Slum Free City Plan of Action for Gangtok discussed in Chapter 11, section 11.6, prepared jointly by the Urban Development and Housing Department, Gangtok Municipal Corporation, and a dedicated technical cell. This report reads this pattern of issue specific, cross departmental institutional architecture, evident wherever this framework has looked closely enough to find it, as suggestive of a genuine administrative capacity for coordination, even in the absence of a single, comprehensive inter departmental coordination assessment covering the state administration as a whole.

15.2 Anti-Corruption Framework: Lokayukta, Vigilance and Enforcement

Sikkim's principal anti corruption institution is the Sikkim Lokayukta, established under the Sikkim Lokayukta and Deputy Lokayukta Act, 2012, and approved by the President of India,

functioning as the state's parliamentary ombudsman with a mandate to address grievances of the public against ministers, legislators, administration, and public servants in matters relating to misuse of power, maladministration, and corruption (Sikkim Lokayukta, Wikipedia, 2026). The institution's jurisdiction is drawn broadly, extending to Chief Ministers and former Chief Ministers, government officials, ministers, Indian Administrative Service officers, and all public servants including those from local administration, police, and customs, as well as heads of companies, societies, and trusts that are partly funded by the state or central government, and state government employees working outside the state but remaining under the state government's administrative control (Sikkim Lokayukta, Wikipedia, 2026). This report reads this jurisdictional breadth, extending explicitly to the public sector undertaking and society structures discussed in Chapter 4, section 4.6, as directly relevant to the governance concerns this report has already documented regarding entities such as the Sikkim Power Investment Corporation Limited, where the Comptroller and Auditor General's 2019 audit findings, discussed in Chapter 4, section 4.6, identified compliance concerns that would fall squarely within the Lokayukta's stated jurisdictional scope.

The current Lokayukta is Justice A. P. Subba, a former judge of the High Court of Sikkim, who assumed office on 10 July 2020 and holds the position for a term of five years or until attaining the age of 70, whichever occurs first, and who holds the distinction of being the first judge from Sikkim itself to be appointed to this role (Sikkim Lokayukta, Wikipedia, 2026). This report notes this last detail, a home state judge holding the office rather than a jurist appointed from outside the state, as a point of some institutional significance, since it suggests a degree of local judicial capacity sufficient to staff this senior anti corruption oversight role from within the state's own legal community rather than requiring an external appointment, a pattern this report contrasts with the judicial appointment history discussed in section 15.3.

Beyond the Lokayukta, Sikkim maintains a dedicated Vigilance Police wing, referenced directly within the state's own government recruitment documentation as a distinct department alongside conventional police, health, finance, and other administrative recruitment categories, indicating that vigilance and anti corruption enforcement functions operate through both the judicial ombudsman route via the Lokayukta and a parallel police based investigative and enforcement route through this dedicated wing (Freshers Now, 2026, Sikkim Government Jobs). A detailed, current, quantified assessment of the Lokayukta's actual caseload, disposal rate, and enforcement outcomes, along with equivalent data for the Vigilance Police wing's investigative activity, was not available in the sources consulted for this report, and this report flags this as a genuine gap, since an anti corruption institution's jurisdictional breadth and formal independence, both of which this report can document with reasonable confidence, do not by themselves establish its actual operational effectiveness, which would require the caseload and outcome data this report was unable to source.

15.3 Legal and Judicial Administration: Pendency, Access and Reform

Sikkim's judicial system presents this report with one of the more genuinely striking positive findings documented anywhere in this framework, alongside a specific, current institutional

controversy this report considers necessary to document with equal honesty. On judicial efficiency, the High Court of Sikkim's own 2025 performance data shows the court disposing of 170 cases during the year, comprising 120 civil and 50 criminal matters, against a total caseload of 437 cases, consisting of 206 cases pending from 2024 and 231 newly filed cases during 2025, leaving only 267 cases pending by year end, comprising 184 civil and 83 criminal matters (India Today NE, 2026). This report considers the specific comparative context supplied alongside these figures to be genuinely remarkable: the High Court functioned at full sanctioned strength throughout 2025, with all three sanctioned judge positions filled, a circumstance the reporting explicitly characterises as uncommon in India's judiciary, where many High Courts nationally face vacancies, and where High Courts operated with nearly 30 percent vacancy rates in 2025 on average, a shortfall that materially affects national disposal rates (India Today NE, 2026). Of Sikkim's pending caseload, 112 cases, or roughly 42 percent, were less than one year old, indicating minimal accumulated delay, and the court recorded very few cases older than two years, a sharp contrast with the national pattern in which cases often take between three and nine years to resolve (India Today NE, 2026). This report treats this as a genuinely well documented, positive institutional achievement, attributable, according to the reporting consulted, to a combination of zero judicial vacancies, efficient case management, and a comparatively lower inflow of fresh cases relative to the court's capacity, itself likely a function of Sikkim's small population discussed throughout this framework since Chapter 1 (India Today NE, 2026).

Sikkim's judiciary has also pursued a genuinely notable technology led reform, with reporting describing the state as home to India's first fully paperless judiciary system, integrating a Case Information System operating at version 3.2 for district courts and version 1.0 for High Courts, interoperable with the National Judicial Data Grid, a public dashboard aggregating pendency and disposal data from computerised courts nationally in real time, alongside an eCourts Services Portal and mobile application allowing citizens to check case status and download orders directly, and a video conferencing platform enabling virtual hearings (Plutus IAS, 2026, Sikkim's Paperless Judiciary). This reform initiative explicitly incorporates artificial intelligence and optical character recognition integration for case pendency analysis and sentencing pattern consistency review, positioned within a national context in which India's courts collectively faced over 5 crore pending cases as of 2025, with the paperless system explicitly intended to reduce pendency through expedited hearings and elimination of delays caused by misplaced physical files (Plutus IAS, 2026, Sikkim's Paperless Judiciary). This report reads Sikkim's low pendency figures and its pioneering paperless judiciary status as mutually reinforcing evidence of a genuinely well functioning judicial administration relative to most Indian states, a finding this report is glad to document plainly given how many chapters of this framework have instead needed to flag significant gaps or governance concerns.

This report must, however, document a specific, current institutional controversy with equal directness, consistent with the honest, non selective sourcing approach applied throughout this framework. In December 2025, a dispute disrupted the anticipated elevation of a senior sitting judge to the position of Chief Justice of the High Court of Sikkim, with

contemporaneous reporting headlined as a Sikkim High Court row that derailed a senior judge's elevation as chief justice, arising from a Registrar's complaint and a letter from a former Chief Justice that together, according to the reporting, unravelled what is characterised as a High Court crisis (Hindustan Times, 2025, as cited in Meenakshi Madan Rai, Wikipedia, 2026). This report was not able to access the full substantive detail of this controversy from the sources consulted, and does not speculate on its underlying merits or resolution beyond what the sourced reporting establishes. What can be confirmed is the resulting sequence of judicial leadership: Chief Justice Biswanath Somadder's term concluded on 14 December 2025, Justice Meenakshi Madan Rai, the senior judge whose elevation had been anticipated, served as Acting Chief Justice from 15 December 2025 to 3 January 2026, and A. Muhamed Mustaque, a judge transferred from the Kerala High Court, was subsequently appointed as the 24th Chief Justice of the Sikkim High Court, assuming office on 4 January 2026 (A. Muhamed Mustaque, Wikipedia, 2026; Meenakshi Madan Rai, Wikipedia, 2026). This report presents this sequence factually rather than characterising the underlying dispute, and notes that the eventual appointment of an external judge, rather than the internally anticipated elevation, represents a departure from what the reporting indicates had been expected, a governance episode this report considers worth flagging directly alongside the otherwise strongly positive judicial performance data documented above, since a comprehensive development framework should not selectively report only the favourable half of its judiciary's recent institutional history.

15.4 Police Modernisation and Internal Security Management

Sikkim's internal security architecture operates within the particular strategic context this report has established since Chapter 1, section 1.1, given the state's international borders with Nepal, Bhutan, and the Tibet Autonomous Region of China, and its role, documented in Chapter 14, section 14.5, in hosting army personnel directly affected by the October 2023 glacial lake outburst flood along the Line of Actual Control adjacent Teesta valley. The state's police administration recruits through the Sikkim Public Service Commission alongside dedicated police recruitment boards, with recent recruitment activity documented in the sources consulted including openings across general police services and the Vigilance Police wing discussed in section 15.2 (Freshers Now, 2026, Sikkim Government Jobs; Rojgar Bee, 2025, Sikkim Govt Jobs).

A detailed, current, quantified assessment of Sikkim's police modernisation programme specifically, covering force strength relative to population, equipment and technology upgrading, border security coordination arrangements with the Indo Tibetan Border Police, whose personnel were directly involved in glacial lake outburst flood documentation and rescue operations as noted in Chapter 14, section 14.3, and any dedicated internal security strategy addressing the state's border proximity, was not available in the sources consulted for this report. This represents a genuine gap in this framework's evidence base for a topic of clear strategic importance to the state, and this report recommends future editions engage directly with the state's Home Department and Police Headquarters for authoritative, current

data on force strength, modernisation investment, and border security coordination arrangements.

15.5 Regulatory Governance: Quality, Consistency and Independence

Sikkim's regulatory governance architecture, as documented across earlier chapters of this framework, comprises a set of sector specific regulatory bodies operating with formal statutory independence from the line departments whose activity they regulate. This report has already examined two such bodies in detail: the Sikkim State Electricity Regulatory Commission, discussed in Chapter 9, section 9.6, which sets tariffs and renewable purchase obligations independently of the Energy and Power Department, and the State Pollution Control Board, discussed in Chapter 13, section 13.5, which enforces environmental compliance, including the Zero Liquid Discharge mandate on the pharmaceutical sector, independently of the Department of Commerce and Industries whose industrial promotion mandate that enforcement activity constrains. This report reads the existence of these formally independent, sector specific regulators, each documented in this framework with concrete, verifiable regulatory action, the Sikkim State Electricity Regulatory Commission's 2022 Renewable Purchase Obligation regulations and 2023 to 2024 tariff order, and the State Pollution Control Board's court supervised effluent monitoring regime, as genuine evidence of functioning regulatory governance in these two specific sectors, even though this report cannot extend that assessment to regulatory governance across the state administration as a whole without equivalent evidence for other regulated sectors.

A detailed, current, comparative assessment of regulatory governance quality and consistency across the full range of Sikkim's sector specific regulators, and any formal mechanism for ensuring regulatory independence from political or departmental influence beyond the statutory structures already documented, was not available in the sources consulted for this report. This report flags regulatory governance as an area where this framework's evidence, while genuinely positive within the two specific sectors it has been able to document in detail, remains necessarily incomplete as a comprehensive state wide assessment.

15.6 Reduction of Red-tapism: Simplification and way forward

Sikkim's efforts to reduce administrative friction for citizens and businesses are documented in this report primarily through two specific initiatives already examined in earlier chapters. The Online Building Permission System, discussed in Chapter 11, section 11.2, launched as part of the state's engagement with the Ministry of Housing and Urban Affairs' Northeast regional urban mission architecture, was explicitly characterised by the Union Minister presiding over its launch as a significant milestone toward planned and scientific urban development, with the underlying software customised to reflect the specific building bye laws applicable in North Eastern states rather than relying on a generic national template (Sikkim Express, undated, Gangtok Hosts NE Symposium on Smart City Mission, as cited in Chapter 11). This report reads this system as a direct, concrete instance of red tape reduction in a specific regulatory domain, building permission approval, that has historically been a significant source of delay and discretionary friction in Indian urban administration generally.

The second documented initiative is the Sikkim Industrial and Investment Policy 2024's simplified registration and clearance framework, discussed in Chapter 4, section 4.1 and section 4.2, which bundles State Goods and Services Tax exemptions, energy subsidies, and stamp duty reimbursements into a coordinated incentive package intended to reduce the transaction cost of investing in the state (Government of Sikkim, Department of Commerce and Industries, 2024, as cited in Chapter 4). This report also recalls, from Chapter 4, section 4.1, that this framework was unable to source a specific, current Ease of Doing Business ranking for Sikkim from the Department for Promotion of Industry and Internal Trade's formal assessment exercise, meaning this report can document the existence of red tape reduction initiatives in specific domains, building permissions and industrial investment clearances, without being able to confirm their cumulative effect on the state's overall regulatory ease ranking relative to other Indian states. This report restates that gap here as directly relevant to this section's subject matter, and recommends a future edition draw on the most recent published Ease of Doing Business assessment cycle to close it.

15.7 Civil service strength: Vacancy rates and Training institutions

Sikkim's civil service recruitment operates through the Sikkim Public Service Commission, which one recruitment focused source characterises directly and, in this report's assessment, usefully as small but centralized, handling nearly all gazetted and non gazetted appointments across the state administration, supported by a State Single Sign On portal that the same source describes as making the application process relatively straightforward for candidates (NE Career Hub, 2026, Latest and Upcoming Sikkim Govt Jobs). This same source notes explicitly that vacancy numbers in Sikkim's civil service are low, but so too is competition for those positions, a characterisation this report reads as consistent with the state's small population base discussed throughout this framework since Chapter 1, which necessarily constrains both the absolute scale of the civil service the state administration requires and the size of the eligible candidate pool competing for available positions (NE Career Hub, 2026, Latest and Upcoming Sikkim Govt Jobs).

Current recruitment activity documented through the Sikkim Public Service Commission's own advertisement records illustrates the practical scale and sectoral distribution of this civil service hiring, including recruitment for 61 Assistant Professor positions under the Education Department, 100 Junior Engineer positions in the Civil discipline under the Roads and Bridges Department discussed extensively in Chapter 8, and three Assistant Professor positions under the Sikkim Government B.Ed College in Soreng, alongside the Commission's ongoing technology upgrade of its recruitment portal to a new Recruitment Process Application version intended to streamline the application process further (Sikkim Public Service Commission, 2026, Advertisement). A broader, current listing of active government job opportunities across the state confirms that recruitment activity spans health care, information technology, state lotteries, finance, the Rural Management and Development Department discussed in Chapter 12, the Excise Department discussed in Chapter 2, section 2.1, in relation to the state's own tax revenue base, the Department of Commerce and Industries discussed in Chapter 4, police services discussed in section 15.4, the Sikkim Public

Service Commission itself, the Legislative Assembly, the Election Department, Raj Bhavan, the Building and Housing Department, and the Vigilance Police wing discussed in section 15.2, indicating recruitment activity distributed across essentially the full breadth of the state administration examined throughout this framework (Freshers Now, 2026, Sikkim Government Jobs).

A detailed, current, quantified assessment of Sikkim's overall civil service vacancy rate, expressed as a proportion of total sanctioned posts across the administration, and a comprehensive inventory of the state's civil service training institutions, covering induction training capacity, mid career professional development programming, and specialised technical training relevant to the sector specific administrative challenges this framework has documented throughout, particularly disaster management training given the institutional preparedness gaps identified in Chapter 14, section 14.4, was not available in the sources consulted for this report. This represents a genuine and, in this report's assessment, significant gap, since civil service capacity, distinct from the recruitment activity this report has been able to document, is a foundational input to the effective implementation of essentially every policy and programme examined across this entire framework, from MGNREGA delivery in Chapter 12 to pharmaceutical sector environmental compliance monitoring in Chapter 13. This report recommends that the state's Department of Personnel, Administrative Reforms and Training, or its equivalent administrative training institution, publish current vacancy rate and training capacity data directly, to allow this foundational dimension of administrative governance to be assessed with evidence in a future edition of this framework.

Chapter 16: Technology-Enabled Service Delivery

16.1 Digital Infrastructure: Broadband, Optical Fibre and Connectivity Coverage

Sikkim's digital infrastructure operates within the broader national BharatNet framework, India's flagship rural broadband connectivity programme, under which approximately 2.18 lakh Gram Panchayats had been made service ready nationally as of March 2025, with the national Optical Fibre Cable network exceeding 42 lakh route kilometres and over 12 lakh Fibre To The Home connections commissioned, alongside more than 1 lakh Wi Fi hotspots installed across rural India (Drishti IAS, 2025, BharatNet Project; Press Information Bureau, 2025, Digital Infrastructure Upgradation). This report was not able to source a Sikkim specific breakdown of Gram Panchayat Unit level BharatNet service readiness, Fibre To The Home connection counts, or Wi Fi hotspot installation figures from the national aggregate data consulted, meaning this report can document the national programme framework within which Sikkim's rural connectivity is being extended, but cannot confirm the state's specific current coverage level against the terrain constrained connectivity challenges this framework has documented since Chapter 1.

What this report can document directly is the state government's own network infrastructure supporting government service delivery. The National Informatics Centre's Sikkim State Centre provides networking services connecting all government departments with free bandwidth delivered through fibre optic or WiMax technology, alongside dedicated cyber security services to ensure departmental data and network integrity, and maintains four video conferencing studios, one each across the state's districts, alongside additional studios at the Chief Minister's Office, Raj Bhavan, Police Headquarters, and the Election office, extensively used for meetings ranging from state to national level (National Informatics Centre Sikkim, 2026, Profile). This report reads this dedicated government network infrastructure as evidence of a genuinely functional digital backbone connecting the state administration internally, distinct from and in addition to the citizen facing rural broadband connectivity discussed above, and notes that the National Informatics Centre's own documentation states that Sikkim is dependent on the Centre for various e-services, network connectivity, and video conferencing services, a dependency the same source states was acutely felt during the two years of the COVID pandemic, when the internet facilities the Centre provided helped deliver government services to the public during a period of acute need (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT).

A detailed, current, quantified assessment of household and individual internet penetration specific to Sikkim, comparable to the national figures of 974.9 million broadband subscribers reported as of May 2025, was not available in the sources consulted for this report (Observer Research Foundation, 2025, Internet Connectivity in Northeast India). This report notes that a broader regional assessment of internet connectivity across Northeast India, a region this report has situated Sikkim within throughout this framework, recommends specific institutional reforms including penalty clauses for project execution delays and incentives for early completion in central and state connectivity projects, to ensure equal internet penetration among states relative to more digitally advanced regions of the country (Observer

Research Foundation, 2025, Internet Connectivity in Northeast India). This report reads this regional recommendation as directly relevant to Sikkim's own digital infrastructure rollout, though it was not able to confirm whether Sikkim specifically has experienced the kind of project delay this recommendation is designed to address.

16.2 e-Governance Architecture and Digital Public Infrastructure

Sikkim's e-governance programme is administered through the state's Department of Information Technology, which describes its ultimate aim as achieving an electronically connected and transparent government, working toward adopting technology to its highest and best use throughout Sikkim's government departments and autonomous bodies to improve the administration of state programmes and services (Government of Sikkim, Information Technology Department, 2026). Institutional oversight for this effort is anchored at the highest level of the state administration, with an Apex Committee chaired by the Chief Secretary constituted specifically for the effective implementation of e-governance schemes across the state, an institutional design this report reads as indicating genuine, senior level administrative commitment to digital governance implementation rather than treating it as a peripheral departmental initiative (Government of Sikkim, Information Technology Department, 2026).

The Department has implemented various Mission Mode Projects under the National e-Governance Plan, the central government's foundational digital governance framework, with the explicit objective of providing services to citizens at their doorsteps, a framing this report considers directly relevant to the citizen service delivery discussion in section 16.3 (Government of Sikkim, Information Technology Department, 2026). This institutional e-governance architecture operates under the formal policy framework of the Information Technology, Electronics and Telecommunication Policy for the State of Sikkim, 2021, which this report was not able to examine in full detail from the sources consulted, but which the state's own departmental documentation lists alongside its cybersecurity guidelines and IT procurement frameworks as a current, operative policy instrument (Government of Sikkim, 2026, Information Technology Department Documents). This report treats the existence of a dedicated, comparatively recent state IT and telecommunications policy as a positive institutional indicator, consistent with the pattern this framework has documented across several sectors of Sikkim's governance architecture, where formal policy instruments exist and are periodically updated even where this report has not always been able to source detailed implementation outcome data to sit alongside the policy framework itself.

16.3 Citizen Service Delivery: CSCs, Service Portals and Mobile Governance

Sikkim's citizen facing digital service delivery architecture is built substantially around the e-District Mission Mode Project, whose stated mission is strengthening district administration to deliver government services in a simplified, transparent, and convenient manner to citizens by leveraging information and communication technologies, on the explicit recognition that districts function as the de facto governmental front end for citizen to government interactions (National Informatics Centre, 2026, Sikkim e-Services). This project has

identified specific services for e-enablement across all of the state's districts, delivered through the Centre for Research and Training in Informatics operating under the Department of Information Technology in Gangtok, with citizens accessing these services through an online citizen registration system (National Informatics Centre, 2026, Sikkim e-Services).

This report can document a genuinely substantial and varied portfolio of specific, operational digital citizen services in Sikkim, developed in partnership with the National Informatics Centre. These include the Certificate of Identification system, a web based application streamlining the delivery of this document, which the National Informatics Centre's own description identifies as essential for accessing state government services in Sikkim broadly, handling application reception, scrutiny, verification, approval, and issuance entirely through digital workflow (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT). The Land Acquisition Management System, a specialised software deployed at District Collectors' offices, streamlines land acquisition processes by assessing land based on type and properties, maintains a comprehensive landowner database, and generates the reports required for accurate land acquisition compensation, a system this report considers particularly relevant given the land tenure protections under Article 371F discussed in Chapter 1, section 1.2, and Chapter 7, section 7.2, since accurate land record digitisation is foundational to fairly administering these protections (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT).

Jeevan Pramaan, the national digital service for government pensioners offering a biometric enabled Digital Life Certificate, is reported as fully operational in Sikkim, directly relevant to the pension architecture this report documented in Chapter 7, section 7.6 and section 7.7, simplifying and streamlining the certification process government pensioners require to continue receiving benefits (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT). The Land Revenue Event Management System, initiated by the District Administration of Gangtok and developed by the National Informatics Centre's East District office, is a mobile application allowing the public to view the monthly schedule of Amin, or surveyor, events and to reserve available dates for their own use, a system the source describes as significantly streamlining the land survey process (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT). A further online platform reduces the need for beneficiaries to visit departmental offices in person for water and sewerage bill processing, currently facilitating the generation of water and sewerage bills, a system this report reads as directly relevant to the Public Health Engineering Department functions discussed in Chapter 10 (National Informatics Centre, 2023, Sikkim: Supporting the Government through ICT).

At the state wide portal level, the Sikkim Government Online, or Sikkim SSO, Single Sign On portal, designed, developed, and hosted by the Department of Information Technology, provides a single window of access to the full range of the state's online services, and the Department has additionally developed mobile governance applications for the Android platform, explicitly framed around the recognition that mobile apps are fast for adoption, easy to learn and operate, and convenient for users, an approach this report considers well suited to

the terrain and connectivity constraints documented throughout this framework, since mobile network coverage, delivered through cellular infrastructure, can in principle extend to areas where fixed line broadband infrastructure of the kind discussed in section 16.1 remains harder to deploy (Government of Sikkim, 2026, Sikkim GO Portal; Government of Sikkim, Information Technology Department, 2026). This report was not able to source specific, current usage statistics, covering active registered users, transaction volumes, or citizen satisfaction outcomes, for any of these individual digital services, and flags usage and outcome data as a genuine gap alongside the otherwise well documented existence and functional description of this service portfolio.

16.4 Data Governance, Open Data Policy and Privacy Framework

Sikkim holds a genuinely distinctive and, in this report's assessment, historically significant position in India's state level open data governance landscape. The state government formulated the Sikkim Open Data Acquisition and Dissemination Policy, known by its acronym SODAAP, designed both to provide authentic data substantiating the state government's development achievements and to gather data on key metrics capable of spurring growth across all areas of human development (Government of Sikkim, Information Technology Department, 2026). Building on this policy, the Sikkim Open Government Data portal was launched on 10 June 2016, and Sikkim's own departmental documentation states plainly that Sikkim is the first state in the country to have established such an Open Government Data portal (Government of Sikkim, Information Technology Department, 2026). This report treats this specific claim of national precedence with somewhat more confidence than similar promotional claims examined elsewhere in this framework, since it is a specific, verifiable, dated institutional fact, a portal launched on a named date, rather than a comparative superlative of the kind this report has flagged for caution in earlier chapters, though this report was not able to independently cross verify the first in the country claim against a comprehensive national open data portal timeline.

This report considers Sikkim's open data policy architecture directly relevant to a theme that has recurred throughout this entire framework: the repeated identification of data gaps across nearly every sector examined, from Other Backward Class population figures in Chapter 7 to police force strength in Chapter 15. A state with a formally established open data acquisition and dissemination policy since 2016, and a functioning Open Government Data portal operating for close to a decade at the time of this report's writing, would appear, on paper, well positioned to close many of the specific data gaps this framework has documented across its preceding fifteen chapters. This report was not able to determine, from the sources consulted, why so many of the granular sector specific datasets this framework sought, disability accessibility infrastructure, irrigation command area, Self Help Group membership figures, teacher vacancy rates, do not appear to be readily available through this portal or through the general web searches this report conducted, and this report flags this apparent gap between Sikkim's stated open data policy commitment and the practical availability of granular sectoral data as worth direct investigation in a future edition, potentially by engaging

with the Sikkim Open Government Data portal directly rather than relying on the secondary and departmental sources this report has drawn on throughout.

On privacy specifically, a detailed, current, quantified assessment of Sikkim's implementation of data protection and privacy safeguards for citizen data collected through the digital services documented in section 16.3, and the state's compliance architecture under India's national Digital Personal Data Protection Act, was not available in the sources consulted for this report. Given the sensitivity of several of the datasets these digital systems handle, land records, pension biometric data, and personal identification documents among them, this report flags citizen data privacy protection as a further, distinct gap within this chapter's broader data governance discussion, one this report recommends the Department of Information Technology address directly through published privacy compliance documentation in a future edition of this framework.

16.5 Cybersecurity: State-Level Institutional Mechanisms

Sikkim maintains a documented, if not fully quantified, cybersecurity institutional architecture spanning both technical infrastructure and policy guidance. At the infrastructure level, the National Informatics Centre's Sikkim State Centre explicitly provides cyber security services to all government departments connected through its networking infrastructure, intended to ensure that both departmental data and the underlying network remain secure (National Informatics Centre Sikkim, 2026, Profile). At the policy level, the Department of Information Technology maintains published Cyber Security Guidelines for Government Employees and separate Guidelines on Information Security Practices for Government Entities, both listed among the Department's current operative policy documents alongside its broader Information Technology, Electronics and Telecommunication Policy discussed in section 16.2 (Government of Sikkim, 2026, Information Technology Department Documents).

This report can document a specific, recent institutional event that indicates active, ongoing attention to cybersecurity capacity building rather than a static policy framework alone: a State Level Workshop on Strengthening Cybersecurity Frameworks for State Data was held as part of the Department's recent events and workshops programme, alongside a separate CodeSummit at Sikkim50 National Hackathon, held in connection with the state's fiftieth anniversary of statehood commemorations, and a UTTARA myScheme workshop, the latter relating to the national myScheme portal that aggregates central and state government welfare scheme eligibility information for citizens (Government of Sikkim, 2026, Information Technology Department Events and Workshops). This report reads this specific, dedicated cybersecurity workshop as evidence of continued institutional investment in this area, consistent with the national trend toward heightened cybersecurity attention across Indian state governments generally, though this report was not able to source the specific outcomes, recommendations, or subsequent implementation actions arising from this particular workshop.

A detailed, current, quantified assessment of Sikkim's actual cybersecurity incident history, covering any reported breaches, ransomware attacks, or data compromise events affecting state government systems, and a comparative assessment of Sikkim's cybersecurity posture relative to other Indian states through any national cybersecurity readiness index or comparable benchmarking exercise, was not available in the sources consulted for this report. This report flags this as a genuine gap, consistent with the pattern this framework has noted, where policy frameworks and institutional structures are frequently well documented while outcome and incident data proves considerably harder to source, and recommends a future edition engage directly with the Department of Information Technology's incident reporting, where such reporting exists and is not restricted for legitimate security reasons, to address this gap.

16.6 Emerging Technologies: AI, Geospatial Systems and Smart Governance

Sikkim's engagement with emerging technology in governance is documented in this report through several specific, concrete initiatives already touched on elsewhere in this framework alongside genuinely new material this section can introduce directly. The Cyber Village programme, a state initiative aimed at extending comprehensive digital connectivity and services to Gram Panchayat Units, has an explicitly stated expansion target, with the Department of Information Technology's own documentation stating that the state now aims to implement the Cyber Village model in an additional 100 Gram Panchayat Units, indicating an existing base of Cyber Village implementation that this specific expansion would build upon (Government of Sikkim, Information Technology Department, 2026). This report was not able to source the current number of Gram Panchayat Units already covered under this programme prior to this stated 100 unit expansion target, which would be needed to assess the programme's current overall coverage relative to the state's total of 178 Gram Panchayat Units referenced in Chapter 14, section 14.2, in relation to the State Climate Change Cell's vulnerability assessment framework.

This report has already documented, in Chapter 15, section 15.3, a further genuinely significant emerging technology initiative directly relevant to this section: the High Court of Sikkim's paperless judiciary system, which explicitly incorporates artificial intelligence and optical character recognition integration for case pendency analysis, sentencing pattern recognition, bail decision consistency assessment, and future litigation forecasting, positioning Sikkim's judicial technology adoption among the most advanced examined anywhere in this framework (Plutus IAS, 2026, as cited in Chapter 15). This report reads this judicial AI application, combined with the Cyber Village digital connectivity expansion and the CodeSummit at Sikkim50 hackathon discussed in section 16.5, as evidence of a state administration actively experimenting with emerging technology applications across multiple governance domains simultaneously, judicial administration, rural connectivity, and technology talent development, rather than confining digital transformation efforts to a single flagship initiative.

A detailed, current, quantified assessment of geospatial technology application in Sikkim's governance, covering areas such as satellite based land use monitoring of the kind that would

support the forest cover assessment discussed in Chapter 13, section 13.1, or geospatial disaster risk mapping of the kind that would directly support the glacial lake outburst flood vulnerability assessment gaps this report identified in Chapter 14, section 14.4, was not available in the sources consulted for this report, beyond the general reference to Emerging Technologies, including Artificial Intelligence and Geospatial Systems, appearing as a named thematic area within the standardised chapter structure this framework follows. Given the direct, demonstrated relevance of exactly this kind of geospatial hazard mapping capability to the institutional preparedness gaps this report documented in such detail in Chapter 14, particularly regarding the specific, prior scientific knowledge of South Lhonak Lake's vulnerability that existed well before the October 2023 disaster, this report considers geospatial disaster risk technology application to be among the most consequential unaddressed gaps identified anywhere in this entire framework, and recommends the Department of Information Technology, in coordination with the Department of Science and Technology's Climate Change Cell discussed in Chapter 14, section 14.2, and the State Disaster Management Authority discussed in Chapter 14, section 14.4, publish a coordinated geospatial hazard monitoring capability assessment directly, given how much this specific technology gap appears to intersect with the single most serious governance failure this entire framework has documented.

Chapter 17: Innovation, Research and Knowledge Economy

17.1 State Innovation Ecosystem: Startups and Accelerators

Sikkim's startup ecosystem has developed through a sustained sequence of policy and institutional investment stretching back nearly a decade, and this report can document its current, most advanced phase with genuine specificity. The Sikkim Startup Policy, 2025, provides the current governing framework, and the state's Commerce and Industries Minister has explicitly framed the government's approach not as merely supporting individual startups in isolation but as developing a complete startup ecosystem, providing aspiring entrepreneurs with the infrastructure, mentorship, institutional support, and policy framework required to build successful enterprises (Sikkim Express, 2026, Sikkim RISE to Boost Startup Ecosystem). As part of this policy's implementation, the Department of Commerce and Industries is establishing a State Innovation Hub at Udyog Bhavan in Gangtok, alongside four incubation centres distributed across the state, of which two, at the Advanced Technical Training Centre in Bardang and the Centre for Computers and Communication Technology in Chisopani, were already operational, with incubation services formally launched on 14 March 2026 across these centres and the State Innovation Hub together, functioning as a single platform delivering both fiscal and non fiscal incentives under the Startup Policy (Sikkim Express, 2026, Sikkim RISE to Boost Startup Ecosystem).

Building on this infrastructure, the state has launched Sikkim RISE, an initiative the Minister described as much more than a competition, functioning instead as a platform to identify talent, encourage innovation, mentor aspiring entrepreneurs, and support startups with genuine potential to generate employment and contribute to the state's economy, incorporating a first of its kind district and state level Ideathon that drew a reportedly high response, and drawing on knowledge partnerships with institutions including the Indian Institute of Management Calcutta and the state's own SEED Cell (Sikkim Express, 2026, Sikkim RISE to Boost Startup Ecosystem). This report reads the involvement of a nationally ranked management institute such as Indian Institute of Management Calcutta as a knowledge partner as a meaningful signal of the seriousness with which this initiative has been designed, extending beyond purely local capacity.

This current institutional density builds on an earlier foundation this report can trace with reasonable precision. The AIC-SMU Technology Business Incubator, established in September 2018 as one of 100 world class incubators envisioned under the Atal Innovation Mission, NITI Aayog's national innovation initiative, holds the distinction of being the first Atal Incubation Centre in Northeast India, located within the campus of Sikkim Manipal Institute of Technology on the banks of the Teesta river discussed throughout this framework since Chapter 1 (TICE News, 2023, Startup Sikkim). This incubator nurtures early stage, technology and innovation based entrepreneurial ventures by providing infrastructure, mentorship, and seed grants, and operates alongside a broader set of incubation centres this report can identify from a specialised compilation, including a Technology Business Incubator at ICFAI University Sikkim, a Gangtok Technology Business Incubator, a Business

Incubation Centre under the North East Rural Livelihood Project, directly relevant to the rural livelihood promotion priorities discussed in Chapter 12, section 12.4, and the Sikkim Food Processing Incubation Centre, directly relevant to the food processing value chain priorities this report flagged in Chapter 3, section 3.9, and examines further in Chapter 18 (Viestories, 2024, Top Incubation Centres for Startups in Sikkim). This report notes that Sikkim was formally recognised as an Emerging Startup Ecosystem in the national States' Startup Ranking exercise in 2019, an early, national level acknowledgement of the ecosystem this framework has now documented in its considerably more developed 2025 to 2026 form (TICE News, 2023, Startup Sikkim).

17.2 Research and Development: Academic-Industry Linkages

Sikkim's research and development infrastructure is anchored institutionally by the National Institute of Technology Sikkim, discussed in Chapter 5, section 5.3 and section 5.4, as the state's sole Institute of National Importance, and by Sikkim University, the state's central university, both of which this report has already established as functioning research institutions within the state's higher education landscape. The direct academic industry linkage this report can document with greatest specificity is the AIC-SMU Technology Business Incubator's location within the Sikkim Manipal Institute of Technology campus, discussed in section 17.1, a physical and institutional co location this report reads as a deliberate design choice intended to embed startup incubation directly within an active higher education research environment rather than operating as a standalone, disconnected facility.

Sikkim's pharmaceutical manufacturing cluster, discussed extensively in Chapter 4, section 4.3, and comprising over 50 companies including Sun Pharma, Alkem Laboratories, Cipla, Zydus, and Torrent Pharmaceuticals, represents the state's most substantial private sector research and development capacity in practical, commercial terms, given that pharmaceutical manufacturing at this scale typically requires ongoing formulation research, quality and process development, and regulatory science capability located at or near the manufacturing site itself. A detailed, current, quantified assessment of the specific research and development investment, patent output, or formal academic partnership arrangements between this pharmaceutical cluster and Sikkim's higher education institutions was not available in the sources consulted for this report, and this represents a genuine gap this report flags directly, since a formal linkage between the state's dominant industrial sector's research capacity and its academic institutions would, if it exists at meaningful scale, represent exactly the kind of academic industry integration this section's template heading anticipates, but this report cannot confirm its extent from the sources available.

More broadly, a comprehensive, quantified assessment of Sikkim's aggregate research and development expenditure as a share of Gross State Domestic Product, comparable to the kind of research intensity metrics used to benchmark states nationally, was not available in the sources consulted for this report. Given the state's comparatively small higher education research base relative to larger states discussed in Chapter 5, section 5.3, and its industrial

base concentrated in manufacturing rather than dedicated research intensive sectors, this report considers it likely that Sikkim's aggregate research and development spending intensity sits below the levels recorded in states with larger, more research oriented university and industrial research laboratory networks, but this report does not have the data needed to confirm this expectation with a specific figure.

17.3 Intellectual Property: Awareness, Registration and Commercialisation

Sikkim's intellectual property ecosystem operates within the broader national Atal Innovation Mission and Startup India architecture this report has documented throughout section 17.1, and this report can situate the state's likely intellectual property activity within the national context these programmes report. Nationally, the Atal Innovation Mission's Technology Business Incubator network, of the kind Sikkim's AIC-SMU incubator forms a part of, has collectively generated over 1,100 pieces of intellectual property across the more than 175 Technology Business Incubators supported nationally, alongside supporting over 12,000 startups and generating over 130,000 jobs through this specific incubator network as of the most recent programme assessment available (Press Information Bureau, 2026, A Decade of Startup India). A Sikkim specific breakdown of this national intellectual property generation figure, isolating the patents, trademarks, or other intellectual property assets registered through the state's own AIC-SMU incubator and its broader startup ecosystem specifically, was not available in the sources consulted for this report.

Beyond the incubator linked national aggregate, a detailed, current assessment of broader intellectual property awareness and registration activity in Sikkim, covering patent filing rates from the state's pharmaceutical manufacturing cluster discussed in section 17.2, geographical indication registration for the state's distinctive agricultural and craft products, of the kind that would be directly relevant to the organic farming branding discussed in Chapter 3, section 3.3, and the tourism and creative economy priorities examined in Chapter 19, and any state specific intellectual property facilitation or subsidy scheme comparable to the intellectual property rebates the national Startup India framework makes available to Democratic Promotion of Industry and Internal Trade recognised startups, was not available in the sources consulted for this report (Legal Service India, 2026, Startup Ecosystem India 2025). This report flags intellectual property commercialisation as one of the least well documented dimensions of this chapter's subject matter, and recommends a future edition engage directly with the Department of Commerce and Industries and the state's designated intellectual property facilitation cell, where one exists, to close this gap.

17.4 Knowledge Institutions as Engines of Development

Sikkim's knowledge institution landscape, examined in full detail in Chapter 5, section 5.3, comprising the National Institute of Technology Sikkim, Sikkim University, Khangchendzonga State University, and the seven private universities this report catalogued in that earlier chapter, provides the foundational institutional base from which the innovation ecosystem discussed throughout this chapter draws its talent and, in the specific case of Sikkim Manipal Institute of Technology, its incubation infrastructure. This report refers the

reader to Chapter 5 for the full institutional inventory and enrolment data rather than repeating it here, but restates its direct relevance to this chapter's subject matter: a state hosting, by one count, 36 legislatively chartered universities relative to its small population, discussed in Chapter 5, section 5.3, carries a theoretically substantial knowledge institution density that this chapter's innovation ecosystem findings suggest is beginning to translate into practical entrepreneurial and research infrastructure, through the incubator network documented in section 17.1, even though this report was unable in Chapter 5 to confirm how many of those 36 chartered universities are genuinely operational at meaningful scale.

This report considers Sikkim's specific institutional pattern, a comparatively large number of higher education institutions relative to population, combined with a comparatively young and still developing dedicated research infrastructure, to represent both an opportunity and a genuine implementation challenge for the knowledge economy priorities this chapter examines. The opportunity lies in the sheer density of higher education institutional presence, which in principle provides multiple potential anchor points for the kind of academic industry linkage discussed in section 17.2. The challenge, consistent with the concerns Sikkim Express itself raised regarding university proliferation in Chapter 5, section 5.3, is ensuring that this institutional density translates into genuine research and knowledge production capacity rather than remaining primarily oriented toward undergraduate degree granting activity, a distinction this report was not able to resolve with the specific research output data needed to assess it directly.

17.5 Building a Youth Innovation and Research Ecosystem

Sikkim's youth innovation ecosystem building efforts are documented in this report most directly through the Sikkim RISE Ideathon discussed in section 17.1, explicitly described as a first of its kind district and state level competition designed to identify talent, encourage innovation, and mentor aspiring entrepreneurs across the state's youth population, drawing knowledge partnership support from the Indian Institute of Management Calcutta and the state's SEED Cell (Sikkim Express, 2026, Sikkim RISE to Boost Startup Ecosystem). This report reads the explicit district and state level, two tier structure of this Ideathon as a deliberate design choice intended to reach youth talent across all six of the state's districts discussed in Chapter 1, section 1.2, rather than concentrating engagement solely in Gangtok and East Sikkim, consistent with the intra state disparity concerns this report has raised repeatedly throughout this framework, most recently in Chapter 5, section 5.2, regarding secondary education access disparities between the state's more and less accessible districts.

This youth innovation infrastructure connects directly to the CodeSummit at Sikkim50 National Hackathon discussed in Chapter 16, section 16.6, held in connection with the state's fiftieth anniversary of statehood commemorations, a technology focused youth engagement event this report reads as complementary to the broader entrepreneurship focused Sikkim RISE Ideathon, together suggesting a coordinated, multi pronged approach to youth innovation engagement spanning both technology skill development and broader entrepreneurial capacity building. The Sikkim Skilled Youth Startup Scheme, discussed further in section 17.6 in its skill development capacity, provides a further, more directly

financial mechanism supporting youth entrepreneurship, offering a financial contribution support component equal to 25 percent of a project's total cost for young entrepreneurs seeking to turn innovative ideas into operating ventures (TICE News, 2023, Startup Sikkim).

A detailed, current, quantified assessment of this youth innovation ecosystem's actual outcomes, covering the number of youth participants engaged through Sikkim RISE, the conversion rate from Ideathon participation to actual registered startup formation, and comparable outcome metrics for the CodeSummit hackathon, was not available in the sources consulted for this report, given that these initiatives appear, based on their reported launch and event dates in 2026, to be genuinely recent, meaning outcome data of the kind this report would ideally cite may simply not yet exist in published form at the time of this framework's writing. This report flags this as a data timing gap rather than a data availability gap in the conventional sense this framework has documented elsewhere, and recommends a future edition of this framework, prepared after these initiatives have had more time to generate measurable outcomes, revisit this section specifically to assess their actual impact.

17.6 Skill Development, Employability and Workforce Alignment

This report has flagged the tension between Sikkim's workforce skill development needs and its actual labour market structure repeatedly throughout this framework, most directly in Chapter 3, section 3.7, where this report documented that industry generates 62.6 percent of the state's Gross State Value Added while employing only a small minority of the workforce, and in Chapter 5, section 5.4, where this report identified Sikkim specific Technical, Vocational Education and Training capacity as one of the more significant data gaps in this entire framework, noting the national context that only 3 percent of India's workforce currently holds formal training. This chapter's skill development discussion must be read as continuous with, rather than separate from, those earlier findings.

The Sikkim Skilled Youth Startup Scheme, already introduced in section 17.5, functions as this report's clearest documented example of a state specific instrument explicitly designed to convert skill development into direct economic self employment outcomes, providing financial contribution support equal to 25 percent of total project cost for young entrepreneurs (TICE News, 2023, Startup Sikkim). This scheme operates alongside the national skill development architecture this report has already referenced in Chapter 12, section 12.4, including the Deen Dayal Upadhyaya Grameen Kaushalya Yojana rural skilling programme, though this report was not able to source Sikkim specific enrolment, completion, or post training employment outcome data for either the state specific Skilled Youth Startup Scheme or the national Deen Dayal Upadhyaya Grameen Kaushalya Yojana as implemented within Sikkim specifically.

Given the labour market mismatch this report has documented since Chapter 3, this report's overall assessment of Sikkim's skill development and workforce alignment position is that the state has assembled a genuinely substantial policy and institutional architecture, the incubation infrastructure documented in section 17.1, the youth innovation programming documented in section 17.5, and the skill focused financial support instruments documented

in this section, but that this report cannot confirm, from the sources available, whether this architecture is succeeding in closing the specific structural gap this framework identified as most consequential in Chapter 3: the fact that nearly half the state's workforce remains engaged in agriculture generating only 9.1 percent of Gross State Value Added, while the pharmaceutical and hydropower sectors generating the bulk of the state's economic value employ only a small fraction of that same workforce. This report considers workforce alignment, understood specifically as the degree to which skill development and entrepreneurship programming succeeds in moving workers from low productivity agricultural livelihoods into higher productivity employment, whether in the industrial sector directly or in the kind of value added agricultural processing and entrepreneurial activity the incubation infrastructure documented in this chapter is explicitly designed to support, to be the single most important unresolved question this chapter raises, and one that only future, outcome focused data collection, rather than continued documentation of programme existence and design, will be able to answer.

Chapter 18: Agriculture, Allied Sectors and Food Security

18.1 Cropping Pattern, Agricultural Productivity and Input Use

Sikkim's cropping pattern reflects the ecological zonation this report established in Chapter 1, section 1.1, with cultivation historically concentrated on maize, rice, cardamom, and vegetables, grown using natural fertilisers including compost, animal manure, and green manure, and emphasising sustainability and self sufficiency rooted in indigenous knowledge and local resources prior to the Green Revolution period, when chemical fertilisers and pesticides began to be introduced to boost yields, over time leading to soil degradation and biodiversity loss that eventually prompted the state's organic policy reversal (BPAS Journals, 2026, Organic Farming in Sikkim). This report has already established, in Chapter 3, section 3.3, that Sikkim achieved full organic farming status in 2016, but this chapter can trace that transition's specific policy history with greater precision than earlier chapters attempted.

The Sikkim Legislative Assembly passed a formal resolution in 2003 committing the state to organic farming, motivated in substantial part by the government's recognition of the trade potential in high value crops such as cardamom and ginger, crops farmers had traditionally never treated with chemical inputs even before the formal organic policy existed (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim). The state's initial ambition, certifying all 78,000 hectares of its agricultural land as organic, proceeded slowly at first: from the 2003 resolution until 2010, only 8,000 hectares had actually achieved certification, a pace this report reads as reflecting the genuine complexity of organic transition and certification processes discussed further in section 18.3 (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim). The launch of the Sikkim Organic Mission in 2010 substantially accelerated this process, and certification of the state's full agricultural land base was achieved by 2016, the milestone this report has referenced since Chapter 3 (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim). The Sikkim Organic Mission has since been renamed the Sikkim Organic Farming Development Agency, which now handles the renewal of organic certificates and the ongoing maintenance of the state's certified organic soil status (Scroll, 2023, Low Earnings and Viability). Certification itself is administered through the Sikkim State Organic Certification Agency, established to certify farms in line with national standards under the National Programme for Organic Production, with farmers adopting composting, vermicomposting, crop rotation, intercropping, and neem based botanical pesticides to replace chemical inputs and maintain soil health (Vajiram and Ravi, 2026, Sikkim Model of Organic Farming).

On productivity specifically, this report must present a genuinely mixed and, in places, concerning picture rather than repeating only the achievement narrative this framework has referenced in earlier chapters. Independent academic research surveying organic farmers in Sikkim found that low yield ranked as the second most severe constraint farmers reported facing, behind only unreliable marketing channels discussed in section 18.3, with a mean severity score of 2.67 on the survey's scale, ahead of pest and disease incidence, competition

from non organic food, and lower profitability relative to conventional farming (ResearchGate, 2021, Integrating Farmer Producer Organisations in Sikkim Organic Mission). This finding is corroborated by the state government's own acknowledgement, reported in a 2023 journalistic investigation, that the mandatory withdrawal of chemical fertilisers resulted in the absence of high yielding crop varieties suited to organic conditions, leaving farmers facing genuinely lower productivity than they had achieved under conventional cultivation (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim). This report treats this yield concern as directly consistent with, and indeed as one likely contributing explanation for, the persistent gap this framework identified in Chapter 3, section 3.3, between agriculture's outsized share of the state's workforce and its comparatively modest 9.1 percent contribution to Gross State Value Added.

18.2 Irrigation and Water Use Efficiency in Agriculture

This report has already documented, in Chapter 10, section 10.2, that a detailed, quantified assessment of Sikkim's irrigation command area, water use efficiency, and the specific irrigation infrastructure serving the state's terraced hillside cultivation was not available in the sources consulted for this framework, a gap this chapter cannot close with the additional research conducted for this section. What this chapter can add, drawing on the organic farming research reviewed in section 18.1, is the specific observation from cardamom cultivation research that Sikkim's hilly topography, spanning altitudes of 600 to 2,000 metres, combined with the state's unique rainfall distribution, has historically created naturally favourable growing conditions for rain fed cultivation of crops such as large cardamom without heavy reliance on engineered irrigation infrastructure, but that increasingly erratic monsoon patterns and unseasonal rainfall now frequently disrupt flowering, fruit set, and yield in ways that irrigation infrastructure, where available, could in principle help mitigate (Farmonaut, 2025, Cardamom Price in Sikkim 2025). This report reads this specific finding as directly relevant to the climate vulnerability profile this framework documented in Chapter 14, section 14.1, where rising temperature variability and increasingly variable monsoon rainfall were identified as significant challenges to agriculture specifically, and considers irrigation infrastructure investment, discussed in Chapter 10 as receiving the smallest share of the state's major capital expenditure categories, to be increasingly consequential precisely because climate variability is eroding the natural rainfall reliability that Sikkim's cropping pattern has historically depended upon.

18.3 Agricultural Marketing, Price Realisation and Farmer Income

This report considers agricultural marketing to be the single most severe, well documented structural weakness in Sikkim's agricultural sector, a finding this report presents with the same directness it has applied to comparably serious findings in earlier chapters, including the hydropower governance concerns in Chapter 9 and the anaemia trends in Chapter 6. The same academic survey of organic farmers cited in section 18.1 found that lack of reliable marketing channels ranked as the single most severe constraint farmers reported, with a mean severity score of 2.87, the highest of any constraint measured, ahead of low yield, pest and

disease incidence, and every other challenge assessed, including exploitation by middlemen, which itself ranked sixth in severity at 2.12 (ResearchGate, 2021, Integrating Farmer Producer Organisations in Sikkim Organic Mission). The state government itself has openly admitted that marketing initiatives are lagging due to the paucity of funds, and has responded by narrowing its promotional focus to four high value crops specifically, large cardamom, ginger, turmeric, and buckwheat, for profitable domestic sale and export, while acknowledging that not every crop can be processed and that marketing of fresh produce such as fruits and vegetables remains a genuine, unresolved challenge (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim).

This report can document the lived economic consequence of this marketing gap through a specific, sourced case example that this report considers more illuminating than any aggregate statistic could be. Sanchamaya Lepcha, a 31 year old farmer in Soreng district, discussed in Chapter 1, section 1.2, as one of Sikkim's six districts and known for cultivating oranges, large cardamom, ginger, turmeric, cherry pepper, baby corn, buckwheat, and pulses, farms one acre of land organically using cow dung based bio fertiliser, and reported harvesting 200 kilograms of potatoes for every 50 kilograms sown, a fourfold yield multiplier that in itself suggests reasonably functional agronomic practice (Scroll, 2023, Low Earnings and Viability). Yet Lepcha reported receiving only approximately 30 rupees per kilogram for her potatoes, and stated that her family's total income across all farming activity amounted to only 2,000 to 3,000 rupees per month (Scroll, 2023, Low Earnings and Viability). A further farmer example from North Sikkim, Chumsang Lepcha, cultivating seven hectares including maize, cardamom, millets, buckwheat, and squash, and operating his own vermicomposting pit, reported that while his crop yield had stabilised since shifting to organic farming in 2010, this stabilised yield still did not translate into a higher price, with the middlemen purchasing his produce explicitly indicating indifference to whether the produce was organically grown or not (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim). This report treats this specific finding, that Sikkim's downstream marketing chain frequently fails to recognise or reward the organic premium that underpins the state's entire agricultural branding strategy discussed throughout this framework, as one of the most consequential and underappreciated findings in this entire report, since it suggests the state's celebrated organic transition may be delivering meaningfully less farmer income benefit than its national and international reputation would suggest.

Against this genuinely difficult marketing picture, this report can also document real, if partial, positive developments. The Sikkim Organic Market, inaugurated near Gangtok's well known Lall Bazaar, provides outlets specifically for farmer cooperatives from across the state, representing a direct, government facilitated marketing channel intended to connect farmers more directly with consumers, bypassing at least some of the middlemen layers this section has documented as a source of value extraction from farmer income (Scroll, 2023, Low Earnings and Viability). Cardamom prices specifically, as of 2025, show a genuinely favourable wholesale trend, ranging between 1,600 and 2,100 rupees per kilogram, with most trade occurring around the 1,800 rupee per kilogram mark, reflecting both regional and international spice market dynamics and, notably, the specific premium that well graded,

organically cultivated cardamom commands given the state's organic status carrying what this report's source describes as global respect (Farmonaut, 2025, Cardamom Price in Sikkim 2025). This report notes, however, that this same source documents genuine downside risk to this price trend: fungal rot and thrips infestation can reduce cardamom yields by up to 40 percent in flare up years, and the 2024 to 2025 season specifically saw extended dry spells followed by sharp storms that resulted in poor fruit development for many small farmers, illustrating that even Sikkim's most successful, best marketed cash crop remains genuinely exposed to the climate variability risk this report discussed in section 18.2 (Farmonaut, 2025, Cardamom Price in Sikkim 2025).

This report also notes, more positively, that despite these marketing and income challenges, independent research on the organic transition's broader effects has documented that farmers reported increased income due to premium pricing for organic products in aggregate, alongside growth in agro tourism as visitors were drawn specifically to Sikkim's organic farming practices, and a documented decline in farmer reported health issues related to pesticide and chemical exposure, benefits that exist alongside, rather than instead of, the marketing and income challenges documented above for specific farmers and specific crops (Sikkim PCS Notes, 2024, Organic Farming in Sikkim). This report presents both findings together, consistent with the balanced, non selective sourcing approach applied throughout this framework, rather than allowing either the achievement narrative or the marketing critique to stand alone as the complete picture.

18.4 Food Processing Industry and Value Chain Development

Sikkim's food processing capacity, already flagged in Chapter 3, section 3.9, as an underdeveloped priority area relative to the state's primary agricultural output, is supported institutionally through the Sikkim Food Processing Incubation Centre, discussed in Chapter 17, section 17.1, as part of the state's broader incubation infrastructure, indicating that food processing specifically has been identified as a priority sector for the entrepreneurship and innovation support architecture this report examined in detail in the preceding chapter. The state government's own strategic focus, discussed in section 18.3, on four specific high value crops, cardamom, ginger, turmeric, and buckwheat, for processing and export, reflects a deliberate value chain prioritisation decision, made explicitly because, in the government's own acknowledged assessment, not every crop grown in the state can be effectively processed, and fresh produce such as fruits and vegetables remains considerably harder to add processing value to at present (Calcutta University, undated, An Enquiry into the Challenges of Organic Farming in Sikkim).

A detailed, current, quantified assessment of Sikkim's actual food processing industry output, covering the number of operational processing units, their combined processing capacity relative to the state's raw agricultural output, and the specific share of the state's cardamom, ginger, turmeric, and buckwheat harvest that is currently processed within the state versus exported as raw or minimally processed produce, was not available in the sources consulted for this report. This report considers this a significant and consequential gap, since the food processing value addition opportunity this report first flagged in Chapter 3, section 3.9, as a

potential growth corridor capable of helping close the gap between agriculture's employment share and its value added contribution, remains, based on the evidence available to this report, more a stated policy aspiration than a demonstrated, quantified achievement.

18.5 Animal Husbandry, Dairy and Poultry: Economic Contribution

A detailed, current, quantified assessment of Sikkim's animal husbandry, dairy, and poultry sectors, covering livestock population, milk and egg production volumes, and the specific economic contribution of these allied agricultural activities to the state's primary sector Gross State Value Added discussed in Chapter 3, section 3.3, was not available in the sources consulted for this report. This report can note, from the sources reviewed in section 18.1 and section 18.3, that livestock, particularly cattle, plays an integrated role within the state's organic farming system specifically through manure production, with the Sikkim Organic Farming Development Agency and its predecessor the Sikkim Organic Mission having historically provided livestock support explicitly for manure production as part of the state's broader organic input strategy, and with individual farmers such as Sanchamaya Lepcha and Chumsang Lepcha, discussed in section 18.3, relying directly on cow dung based bio fertiliser produced through their own household livestock (Vajiram and Ravi, 2026, Sikkim Model of Organic Farming; Scroll, 2023, Low Earnings and Viability). This report reads this pattern as indicating that livestock in Sikkim functions substantially as an input to crop cultivation within an integrated farming system, rather than necessarily as a standalone commercial dairy or meat production sector of the scale found in states with larger, more specialised livestock economies, though this report does not have the production volume data needed to confirm this characterisation with confidence, and flags animal husbandry, dairy, and poultry as among the least well documented sectors examined in this entire framework.

18.6 Fisheries: Inland, Marine and Aquaculture

As established in Chapter 8, section 8.4, Sikkim is an entirely landlocked Himalayan state with no coastline, meaning marine fisheries and marine aquaculture have no application within the state's jurisdiction. Sikkim's fisheries sector is therefore confined entirely to inland fisheries and aquaculture, drawing on the state's river systems, principally the Teesta and Rangit discussed in Chapter 1, section 1.1, and any constructed pond or reservoir based aquaculture infrastructure. A detailed, current, quantified assessment of Sikkim's inland fisheries production, aquaculture pond area, and the sector's economic contribution and employment relative to the state's other agricultural sub sectors was not available in the sources consulted for this report. Given the state's mountainous terrain and its rivers' primary economic function as hydropower generation sources rather than fisheries resources, discussed extensively in Chapter 9, this report considers it plausible that inland fisheries represents a comparatively minor component of Sikkim's primary sector relative to horticulture and cash crop cultivation, but this report does not have the production data

needed to confirm this expectation, and flags fisheries as a further significant data gap within this chapter.

18.7 Horticulture, Floriculture and Medicinal Plants

Sikkim's horticultural sector extends beyond the cardamom, ginger, and turmeric cash crops already discussed at length in this chapter to include a genuinely diverse range of high value fruit and flower crops. The state's organic marketing strategy has specifically targeted high value crops including large cardamom, ginger, turmeric, kiwi, and avocado for niche domestic and international markets, though this report has already documented in section 18.3 that weak market integration has limited consistent price benefits for farmers even for these targeted high value crops (Vajiram and Ravi, 2026, Sikkim Model of Organic Farming). Soreng district specifically, discussed in Chapter 1, section 1.2, as one of the districts created through the 2021 administrative reorganisation, is known for orange cultivation alongside its cardamom, ginger, and turmeric production, indicating citrus horticulture forms a meaningful component of the state's western district agricultural output (Scroll, 2023, Low Earnings and Viability). Floriculture is also documented as a component of the state's organic policy framework, with farmers receiving support for training, capacity building, and crop diversification specifically including good income generating products such as cardamom or flowers, a policy design the futurepolicy.org assessment of Sikkim's organic strategy credits with genuine positive income benefits, noting that many young farmers have been drawn into farming as a result of this diversification support (Future Policy, 2023, Sikkim's State Policy on Organic Farming).

On medicinal plants specifically, this report recalls from Chapter 13, section 13.1, that the state's Forest and Environment Department characterises Sikkim as home to high value medicinal plants as part of its broader biodiversity endowment, but a detailed, quantified assessment of medicinal plant cultivation, wild harvesting regulation, and the specific economic contribution of this sub sector to the state's horticultural output was not available in the sources consulted for either this chapter or Chapter 13, and this report restates that gap here as directly relevant to this section's subject matter.

18.8 Agricultural Credit, Insurance and Risk Management

A detailed, current, quantified assessment of agricultural credit disbursement, crop insurance coverage under central schemes such as the Pradhan Mantri Fasal Bima Yojana, and formal risk management instruments available to Sikkim's farmers was not available in the sources consulted for this report. This report considers this a genuinely significant gap given the specific, documented climate and pest related production risks this chapter has already established in section 18.1 and section 18.3, including the up to 40 percent cardamom yield losses from fungal rot and thrips infestation, and the extended dry spells and sharp storm damage recorded in the 2024 to 2025 cropping season, both of which represent exactly the kind of production risk that crop insurance instruments are designed to mitigate.

This report notes that the broader credit architecture discussed in Chapter 4, section 4.2, in relation to Micro, Small and Medium Enterprise development, including the Credit Guarantee Fund Trust for Micro and Small Enterprises and the Prime Minister's Employment Generation Programme, may in principle extend to agricultural processing enterprises of the kind discussed in section 18.4, but this report was not able to confirm the specific extent to which Sikkim's individual smallholder farmers, as distinct from registered processing enterprises, access formal agricultural credit or crop insurance coverage. Given that this chapter has documented individual farmers reporting monthly household incomes as low as 2,000 to 3,000 rupees, discussed in section 18.3, this report considers the absence of confirmed crop insurance and formal credit access data to represent one of the more consequential unaddressed gaps in this entire framework, since farmers operating at this income level would be particularly exposed to the kind of climate and pest related production shocks this chapter has documented, without the risk mitigation instruments that formal insurance and credit access would provide. This report recommends the state's Department of Food Security and Agriculture Development, together with the National Bank for Agriculture and Rural Development discussed in Chapter 4, section 4.2, publish current, disaggregated data on agricultural credit and crop insurance coverage specific to Sikkim's smallholder farming population in any future edition of this framework.

Chapter 19: Tourism, Culture and Creative Economy

19.1 Tourism Asset Inventory: Natural, Heritage, Religious and Adventure

Sikkim's tourism asset base draws directly on the geographic and cultural endowment this report has documented across earlier chapters, and this section consolidates that endowment specifically through a tourism lens. On natural assets, Kangchenjunga, the third highest peak in the world, discussed in Chapter 1, section 1.1, anchors the state's mountaineering and high altitude trekking identity, with Khangchendzonga National Park, inscribed as a UNESCO World Heritage Site in 2016 as India's first mixed natural and cultural site, discussed in Chapter 1 and Chapter 13, section 13.1, providing the formal conservation and heritage framework around this asset. High altitude natural attractions accessible to tourists include Tsomgo Lake and Gurudongmar Lake, both glacial lakes situated within the protected border areas discussed further in section 19.2, Yumthang Valley, known regionally as the Valley of Flowers for its rhododendron blooms, and Zero Point, or Yumesamdong, at the northern extremity of accessible tourist terrain (Offbeat Sikkim, 2026, Travel Permits in Sikkim; Exploresikkimnow, 2026, Sikkim Permit Complete Information).

On religious and heritage assets, this report has already documented in Chapter 1, section 1.4, the state's network of Buddhist monasteries, including Rumtek, regarded as one of the most significant seats of the Karma Kagyu lineage of Tibetan Buddhism outside Tibet itself, Pemayangtse, Tashiding, and Enchey, each functioning as both an active site of religious practice and a significant tourism draw, hosting annual Chaam masked dance festivals that attract both pilgrims and cultural tourists. Namchi, discussed in Chapter 1, section 1.2, and Chapter 11, section 11.5, has developed over the past two decades into a major pilgrimage and cultural tourism centre through large scale religious statuary and cultural infrastructure investment, a transformation this report connected in Chapter 11 to Namchi's cited progress under the Smart City Mission.

On adventure and border tourism specifically, Nathula Pass, the historic Himalayan trade route connecting Sikkim to the Tibet Autonomous Region discussed in Chapter 4, section 4.8, functions as one of the state's most distinctive tourism assets precisely because of its international border location, alongside Zuluk and the old Silk Route, a historic trade corridor in East Sikkim, and trekking routes including the Dzongri and Goecha La trek and the Singalila trek, both accessed through the Adventure Cell of the state's Tourism and Civil Aviation Department (Darjeeling Tourism, 2026, Sikkim Permit). This report notes that this particular combination of natural, religious, and strategically sensitive border tourism assets within a single small state is genuinely distinctive among Indian tourism destinations, and that this distinctiveness carries direct regulatory consequences examined in section 19.2 and section 19.3.

19.2 Tourism Infrastructure: Hotels, Connectivity and Facilitation

This report has already documented, in Chapter 8, the connectivity infrastructure directly underpinning Sikkim's tourism sector, and restates the most consequential findings here given

their direct relevance to this chapter. National Highway 10, the state's principal road artery, experienced repeated multi day closures through 2024 and 2025 due to landslides, discussed in Chapter 8, section 8.1, disruption that stranded tourists directly, including the approximately 2,000 tourists stranded and the Dzongu region cut off following the June 2024 bridge collapses. Pakyong Airport, the state's sole air link, experienced a sustained service suspension following SpiceJet's withdrawal, discussed in Chapter 8, section 8.3, a disruption this report was unable to confirm had been fully resolved as of the time of writing. The Sevoke to Rangpo railway, discussed in Chapter 8, section 8.2, remains under construction with a target completion date that has shifted repeatedly, most recently to December 2027. This report considers this connectivity fragility to be the single most significant infrastructure constraint on Sikkim's tourism growth potential, since a destination's accessibility reliability directly shapes both visitor volume and visitor experience regardless of the underlying attraction quality documented in section 19.1.

Set against this connectivity fragility, this report can document a genuinely robust and increasingly sophisticated tourist access management system, developed specifically in response to the state's border sensitive geography discussed in Chapter 1, section 1.1. Sikkim operates a multi tiered permit system considerably more elaborate than most Indian states require, comprising the Inner Line Permit, required for all foreign tourists entering the state though not for Indian nationals, the Protected Area Permit, required for both Indian and foreign travellers visiting specific border proximate destinations including Tsomgo Lake, Nathula Pass, Lachen, Lachung, Yumthang Valley, and Gurudongmar Lake, and Restricted Area Permits required for locations closer to military posts, particularly for Indian nationals travelling beyond Chungthang in North Sikkim (Offbeat Sikkim, 2026, Travel Permits in Sikkim; Go Wild Expedition, 2026, Sikkim Travel Permits). As of the 2025 policy framework, foreign nationals face specific additional restrictions, including a prohibition on travel to Nathula Pass entirely, a requirement that foreign tourists travel only in groups of at least two people with solo travel not permitted, mandatory registration through licensed tour operators, and a restriction preventing foreign nationals from travelling beyond Thangu in North Sikkim (Xpress Holidays, 2025, Sikkim Tourist Permit Policy 2025). This report reads this permit architecture as a direct institutional adaptation to the strategic border sensitivity this framework has documented since Chapter 1, and notes that the system has been increasingly digitised, with most permits now processed online through registered tour operators and real time tracking implemented via digital entry logs at permit checkpoints, alongside daily visitor caps introduced at high altitude, ecologically sensitive sites including Gurudongmar Lake and Zero Point (Zentrail, 2025, Sikkim Tourism Boom 2025).

A detailed, current, quantified assessment of Sikkim's hotel and hospitality accommodation capacity, covering total room inventory, occupancy rates, and the specific investment underpinning the tourism infrastructure capital allocation of 3,476 crore rupees discussed in Chapter 2, section 2.3, was not available in the sources consulted for this report. This report flags accommodation capacity data as a genuine gap, particularly relevant given the visitor volume growth documented in section 19.3, since sustained visitor growth without corresponding accommodation capacity expansion would generate exactly the kind of

overtourism pressure that current reporting on the state's tourism sector has begun to flag as an emerging concern.

19.3 Domestic and International Tourist Flows: Trends and Targets

This report can document a genuinely striking tourism recovery trajectory in the aftermath of the October 2023 South Lhonak glacial lake outburst flood examined in detail in Chapter 14. Current tourism industry reporting states plainly that the disaster damaged roads, bridges, and cut off North Sikkim for months, followed through 2024 and into 2025 by what this reporting characterises as a massive recovery, with Sikkim crossing 1.2 million visitors by October 2025 and projected to reach between 1.7 and 1.8 million visitors by the end of the year, a figure this reporting states would surpass pre pandemic visitor levels (Zentrail, 2025, Sikkim Tourism Boom 2025). This report reads this recovery trajectory as directly consistent with, and indeed as confirming, the visitor figures already documented in Chapter 3, section 3.5, where this report cited 15,40,421 domestic tourist visitors recorded in 2024 and tourism's contribution to nearly 10 percent of the state's Gross State Domestic Product as of an April 2025 assessment. This report considers the speed of this recovery, from a disaster that this framework has documented in Chapter 14 as having destroyed major infrastructure and displaced thousands of residents, to a tourism sector surpassing pre pandemic visitor volumes within roughly two years, to be one of the more genuinely remarkable resilience findings documented anywhere in this framework, and reads it as testament both to the underlying strength of the tourism asset base documented in section 19.1 and to the effectiveness of the infrastructure restoration efforts this report has documented across Chapter 8 and Chapter 14.

This rapid recovery, however, carries a documented downside that current reporting flags directly and that this report presents with the same honesty applied throughout this framework. Continuous snowfall and strong winter demand through the 2025 to 2026 season are drawing snow enthusiasts, motorcyclists, and families from across India in volumes sufficient to generate visible crowding at the state's most iconic destinations, Nathula, Tsomgo Lake, Zuluk, and Yumthang Valley, particularly during December, New Year, and long holiday weekends, with current tourism commentary explicitly framing this growth alongside what it terms a scary overtourism concern for the state's fragile mountain ecosystem (Zentrail, 2025, Sikkim Tourism Boom 2025). This report reads the state's institutional response to this concern, the daily visitor caps at high altitude sites, the single use plastic ban specifically within protected zones, and the mandatory eco briefings introduced alongside the digital permit system discussed in section 19.2, as a genuine, proactive attempt to manage this emerging tension between tourism revenue growth and ecological carrying capacity, consistent with the broader environmental governance approach this framework documented in Chapter 13.

On the composition of this tourist flow, the international visitor component remains comparatively modest relative to domestic tourism, with 46,591 foreign travellers recorded through September 2025, a figure already cited in Chapter 3, section 3.5, against domestic visitor numbers in the range of 1.2 million or more discussed above. This report reads this domestic dominance pattern as consistent with the border security restrictions discussed in

section 19.2, which impose meaningfully greater friction on foreign visitors specifically, including the prohibition on foreign nationals visiting Nathula Pass entirely and the restriction preventing foreign travel beyond Thangu in North Sikkim, restrictions that necessarily constrain the state's addressable international tourism market relative to what its natural and cultural asset base, documented in section 19.1, might otherwise support.

19.4 Cultural Heritage Preservation and Institutional Framework

Sikkim's cultural heritage preservation framework operates through the state's Ecclesiastical Department, discussed in Chapter 1, section 1.4, which administers ongoing heritage conservation programming for the state's Buddhist monastery network jointly with central heritage bodies, and through the broader institutional structures this report has documented supporting Namchi's development as a pilgrimage and cultural centre, discussed in Chapter 11, section 11.5. Khangchendzonga National Park's UNESCO World Heritage status, discussed in Chapter 1 and Chapter 13, carries formal international heritage preservation obligations extending beyond the state's own domestic conservation framework, given UNESCO's role in monitoring and reporting on World Heritage Site conservation status globally.

A detailed, current, quantified assessment of Sikkim's cultural heritage preservation budget, the specific conservation status and restoration needs of individual monastery structures given the seismic risk profile this framework has documented since Chapter 1, and any formal heritage impact assessment framework applied to tourism infrastructure development near sensitive cultural sites, was not available in the sources consulted for this report. Given that this framework documented, in Chapter 1, section 1.1, that the entire state falls within Bureau of Indian Standards Zone IV or Zone V seismic classification, and given the 2011 earthquake's documented damage to public buildings, this report considers seismic resilience assessment specifically for the state's historic monastery structures, several of which predate modern seismic building codes by centuries, to be a genuinely significant and currently undocumented heritage preservation priority, one this report recommends the Ecclesiastical Department and the Forest and Environment Department's heritage programming address directly in coordination with the disaster risk reduction institutional architecture discussed in Chapter 14, section 14.4.

19.5 Creative Industries: Handicrafts, Performing Arts and Cultural Economy

Sikkim's performing arts economy is documented in this report primarily through the Chaam masked dance festivals hosted at the state's principal monasteries, discussed in Chapter 1, section 1.4, and section 19.1 of this chapter, which draw both religious pilgrims and cultural tourists and represent a living, actively performed cultural tradition rather than a purely historical or museum based heritage asset. Sikkim's ethnic diversity, discussed extensively in Chapter 1, section 1.4, and Chapter 7, spanning Lepcha, Bhutia, and the multiple Nepali speaking sub communities, would ordinarily be expected to support a correspondingly diverse handicraft and traditional craft economy, given the general pattern across Himalayan

states where distinct ethnic textile, woodcraft, and religious art traditions typically generate meaningful informal and small enterprise economic activity.

A detailed, current, quantified assessment of Sikkim's handicraft sector specifically, covering artisan population, traditional craft categories such as thangka painting, carpet weaving, or wood carving associated with the state's Buddhist cultural tradition, and the sector's economic contribution and export potential, was not available in the sources consulted for this report. This report flags this as a genuine and, in this report's assessment, somewhat surprising gap, given that handicraft and creative industry development would ordinarily be expected to intersect directly with the Micro, Small and Medium Enterprise policy architecture discussed in Chapter 4, section 4.2, and the rural livelihood diversification priorities discussed in Chapter 12, section 12.4, both of which this report identified as underdeveloped areas of documented evidence. This report recommends the Department of Commerce and Industries, in coordination with the state's tourism promotion machinery, publish current handicraft sector data directly, since this sector represents a plausible, currently unquantified opportunity for exactly the kind of value added, culturally distinctive economic activity that could complement the tourism visitor growth documented in section 19.3.

19.6 Film, Media and Content Industries as Economic Drivers

A detailed, current, quantified assessment of Sikkim's film, media, and content industry sector, covering film shooting location promotion, local media production capacity, and any state specific film policy or incentive framework comparable to those operated by states actively courting film production as an economic driver, was not available in the sources consulted for this report. This report was not able to confirm whether Sikkim operates a dedicated film facilitation office or location incentive scheme of the kind several other Indian states, including states with comparably scenic mountain terrain, have developed to attract film and television production as a distinct economic activity separate from conventional tourism.

Given Sikkim's striking natural scenery and its already substantial tourism visitor base documented in section 19.3, this report considers film and media production to represent a plausible, currently unexploited or at least undocumented, extension of the state's broader tourism and creative economy strategy, one that could in principle generate location shooting revenue, media exposure that indirectly promotes tourism visitation, and employment for local media and production support workers. This report flags film, media, and content industries as the least well documented sub sector examined anywhere in this chapter, and recommends the Department of Commerce and Industries or the Tourism and Civil Aviation Department, whichever holds administrative responsibility for this area, publish current policy and activity data directly in any future edition of this framework, since this report was unable to locate evidence either confirming or denying the existence of active state policy in this specific area.

Chapter 20: Cross-Cutting Themes and Integrated Policy Imperatives

20.1 Sustainable Development Goals of the state

This report has documented Sikkim's Sustainable Development Goals performance at several points throughout this framework, most substantially in Chapter 1, section 1.5, and this section consolidates those findings within the specific cross cutting frame this chapter's title indicates. Sikkim was named among the four fastest improving states nationally on the NITI Aayog SDG India Index 2023 to 2024, with its composite score rising by 18 points between the 2018 baseline and the 2023 to 2024 edition, a rate of improvement exceeded only by Uttar Pradesh, Jammu and Kashmir, and Uttarakhand, all considerably larger states (NITI Aayog, 2024, as cited in Chapter 1). This report has also documented, in Chapter 1, section 1.6, that Sikkim's specific goal wise performance on the No Poverty indicator moved into the Front Runner category nationally, though this report was unable, across the full course of this framework, to source the complete goal by goal breakdown across all 16 Sustainable Development Goals that would allow a fully disaggregated assessment of the state's performance.

What this report can offer at this point in the framework, having now examined all preceding sector chapters in detail, is a synthesis of where the evidence assembled across this document suggests genuine strength versus genuine continuing challenge, mapped loosely against the Sustainable Development Goals framework. On health related goals, this report documented in Chapter 6 among the lowest infant mortality rates of any Indian state alongside a genuinely concerning, worsening anaemia trend among pregnant women. On education related goals, this report documented in Chapter 5 strong elementary retention and above average board examination performance alongside a secondary to higher secondary transition gap below the national average. On economic goals, this report documented in Chapter 3 a per capita income ranking first nationally alongside a labour market in which the sector generating the most economic value employs only a small fraction of the workforce. On climate and environmental goals, this report documented in Chapter 13 genuinely strong forest cover and conservation outcomes alongside, in Chapter 14, a catastrophic climate linked disaster that this framework's evidence suggests the state's institutions knew was coming but could not prevent. This report considers this recurring pattern, genuine strength paired with a specific, well documented weakness, to be the defining characteristic of Sikkim's overall Sustainable Development Goals trajectory as this framework has been able to document it, rather than a uniform story of either success or difficulty.

20.2 Gender Mainstreaming Across Sectors

This report has documented gender related findings across multiple preceding chapters, and this section draws them together specifically to assess the degree of gender mainstreaming, meaning the systematic integration of gender considerations across sectoral policy rather than treatment as a standalone women's welfare concern, that this framework's evidence suggests

Sikkim has achieved. On political representation, this report documented in Chapter 7, section 7.4, and Chapter 12, section 12.1, that Sikkim mandates 33 percent reservation for women in Panchayati Raj Institutions, a structural mechanism ensuring gender representation at the grassroots governance level examined throughout Chapter 12. On labour market participation, this report documented in Chapter 3, section 3.7, a Female Labour Force Participation Rate of 68.6 percent as of 2022 to 2023, notably higher than the national average, though this report also flagged, in Chapter 7, section 7.4, an unresolved tension with a considerably lower 2001 Census figure of 38.7 percent that this report was unable to fully reconcile.

On education, this report documented in Chapter 5 a Gender Parity Index in Higher Education higher than the national average, alongside a persistent though comparatively narrow literacy gap of 10.4 percentage points documented in Chapter 7, section 7.4. On rural employment specifically, this report documented in Chapter 12, section 12.2, that women's participation in MGNREGA employment rose from 26 percent in 2006 to 48 percent by the reference year cited in that chapter's sources, a substantial improvement over roughly a decade of programme implementation. This report reads this pattern across political representation, labour force participation, education, and rural employment as evidence of genuine, sustained institutional attention to gender mainstreaming across multiple sectors rather than a single flagship gender programme operating in isolation, though this report also restates, from Chapter 7, section 7.5 and section 7.7, that this framework was unable to source comparable data on gender dimensions of disability, child protection, or minority welfare policy, meaning the gender mainstreaming assessment this section offers remains necessarily incomplete across the full breadth of sectors this framework has examined.

20.3 Youth Policy and Demographic Dividend Realisation

Sikkim's demographic profile, documented throughout this framework beginning in Chapter 1, section 1.3, and examined in its fertility dimension in Chapter 6, section 6.7, presents a genuinely distinctive youth policy context. The state's Total Fertility Rate of 1.1 children per woman as of the National Family Health Survey conducted in 2019 to 2021 means Sikkim has already moved well past the demographic transition point at which most Indian states are still positioned, with direct implications for how this framework understands youth policy and demographic dividend realisation in the state specifically.

This report has documented, in Chapter 17, a genuinely substantial and current youth innovation policy architecture, including the Sikkim RISE initiative and its district and state level Ideathon, the Sikkim Skilled Youth Startup Scheme providing 25 percent project cost financial support, and the CodeSummit at Sikkim50 National Hackathon discussed in Chapter 16, section 16.6. This report reads this concentrated recent policy investment in youth entrepreneurship and innovation as a direct institutional response to the specific demographic dividend realisation challenge this framework has identified since Chapter 3, section 3.7: a youth population that, this report's sources indicate, is comparatively well educated relative to national averages, discussed in Chapter 5, but that faces a labour market in which the state's highest value sectors, pharmaceuticals and hydropower, generate limited direct employment,

discussed in Chapter 3, section 3.7. Given the very low fertility rate already documented, this report considers Sikkim's demographic dividend window, the period during which the working age population share is at its most favourable relative to dependent age groups, to be a narrower and more time limited opportunity for the state than for higher fertility Indian states, since Sikkim's own low fertility rate means its working age population share will begin contracting relatively sooner than in states still further from replacement level fertility, a consideration this report flagged in Chapter 6, section 6.7, in relation to eventual population ageing, and restates here as directly relevant to the urgency of the youth employment and entrepreneurship policy architecture this framework has documented in Chapter 17.

20.4 Migration: Internal, Inter-State and International Dimensions

This report must correct and refine an inference it offered earlier in this framework, consistent with the honest, self correcting approach to evidence this report has applied throughout. In Chapter 1, section 1.3, this report speculated that out migration of working age residents to other states and abroad for education and employment likely explained the gap this framework observed between Sikkim's relatively favourable child sex ratio and its less favourable overall population sex ratio. Dedicated academic research on migration in Sikkim, drawing on Census and State Socio Economic Census data, indicates that the more empirically documented and quantitatively larger migration pattern affecting the state is actually in migration into Sikkim, rather than out migration alone. This research found that Sikkim's migrant population, meaning people who moved into the state from elsewhere, reached 146,564 individuals, accounting for 25.20 percent of the state's total residents as of the reference Census period examined, with this migrant population influx recorded as running notably high in the period following the state's 1975 merger with India discussed in Chapter 1, section 1.2 (Academia.edu, 2025, Migration in Sikkim: Facts or Frictions). Youth migrants specifically, in the 15 to 44 age bracket, constituted 53.41 percent of this in migrant population, indicating that in migration to Sikkim is itself substantially a working age, economically active phenomenon (Academia.edu, 2025, Migration in Sikkim: Facts or Frictions).

This report reads this finding as adding a genuinely important and previously undocumented dimension to this framework's understanding of Sikkim's demographic dynamics, one that sits alongside, rather than replacing, the out migration pattern this report speculated about in Chapter 1, since both in migration and out migration can and plausibly do occur simultaneously in a state experiencing the kind of rapid economic and urban transformation this framework has documented since Chapter 1, section 1.3, and Chapter 11, section 11.1. In migration of this scale carries direct socio economic and cultural implications the source research explicitly flags, and the research's own policy recommendations centre on registration of migrants and youth awareness programmes intended to mitigate adverse effects of this migration pattern (Academia.edu, 2025, Migration in Sikkim: Facts or Frictions). This report was not able to source more recent, post 2011 Census migration data that would confirm whether this in migration pattern has continued, accelerated, or moderated in the years since this research's reference period, a limitation consistent with the broader post

2011 Census data gap this framework has flagged repeatedly since Chapter 1, and this report recommends that any future edition of this framework treat migration, both inward and outward, as a distinct and significant demographic dynamic warranting dedicated, current research rather than treating population change in Sikkim as explicable through natural growth and fertility alone.

20.5 Science, Technology and Innovation for Development

This report has documented Sikkim's science, technology, and innovation architecture across several preceding chapters, and this section consolidates those findings specifically within their cross cutting development policy function. The Department of Science and Technology, discussed in Chapter 14, section 14.2, in its role administering the State Action Plan on Climate Change and the Sikkim State Climate Change Cell, and in Chapter 14, section 14.4, in its post disaster capacity building around glacial lake outburst flood hazard assessment, functions as the state's primary institutional home for applying scientific and technical capacity directly to the disaster risk and climate vulnerability challenges this framework has identified as most consequential across the entire report. This report reads the department's dual role, spanning both climate science and the innovation ecosystem discussed in Chapter 17, as institutionally significant, since it places the state's most acute, scientifically documented risk, the glacial lake outburst flood vulnerability this framework examined in such detail in Chapter 14, and its most forward looking economic development initiative, the Sikkim RISE startup ecosystem discussed in Chapter 17, within reach of coordinated institutional attention, even though this report was not able to confirm the specific extent of practical coordination between these two functions.

The National Institute of Technology Sikkim, discussed in Chapter 5, section 5.3 and section 5.4, and Chapter 17, section 17.2, provides the state's most substantial dedicated science and technology research institutional capacity as an Institute of National Importance, though this report restated in Chapter 17 that it was unable to source quantified research output or academic industry linkage data for this institution specific to Sikkim's own economic priorities. This report's overall assessment, synthesising the evidence from Chapter 14, Chapter 16, and Chapter 17, is that Sikkim possesses a genuinely functioning, actively evolving science, technology, and innovation policy architecture, but that this framework's evidence base does not allow confirmation of how effectively this architecture translates into measurable development outcomes, a limitation this report has now flagged in several distinct but related forms across three separate chapters.

20.6 Statistical System Strengthening and Evidence-Based Policymaking

This report can conclude this cross cutting chapter's most significant section with a genuinely substantial and directly relevant finding: the Sikkim State Data Policy, 2025, provides a comprehensive, current, and formally adopted governance framework addressing precisely the recurring data availability and quality concerns this framework has documented across virtually every one of its preceding nineteen chapters. This report considers it appropriate to examine this policy in some detail, both because of its intrinsic institutional significance and

because of its direct bearing on how a future edition of this framework might be prepared with a considerably stronger evidence base than this edition was able to draw on.

The policy's stated mission is to protect citizen privacy and standardize the process of digitization, storage, and sharing of data within different departments of the state, while also facilitating the sharing of data in the public domain to enable effective and transparent governance, and its stated vision explicitly aims to fundamentally change how the Government of Sikkim uses publicly collected data from various sectors to drive change across society, through enhancing digital skills and data management capacities at all levels of administration to enable evidence based policymaking (Government of Sikkim, 2025, Sikkim State Data Policy). Among its explicitly stated objectives, the policy names minimising errors of inclusion and exclusion in service delivery, directly relevant to the welfare scheme delivery architecture this report examined in Chapter 7, and improving the collection, sharing, and quality maintenance of data across government departments, directly relevant to the sector by sector data gaps this report has flagged repeatedly (Government of Sikkim, 2025, Sikkim State Data Policy).

The policy establishes a formal institutional governance architecture for data management, anchored by a State Data Steering Committee chaired by the Chief Secretary, with membership drawn from Principal Secretaries and Secretaries across the Women and Child Development, Tourism and Civil Aviation, Rural Development, Finance, Education, Land Revenue and Disaster Management, Forest and Environment, Social Welfare, Health and Family Welfare, and Agriculture Development Departments, alongside the Director General of the Directorate of Economic Statistics, Monitoring and Evaluation and the Director General of Police (Government of Sikkim, 2025, Sikkim State Data Policy). This report reads the explicit inclusion of the Directorate of Economic Statistics, Monitoring and Evaluation within this governance structure as directly significant, since this Directorate would be the natural institutional home for closing many of the specific statistical gaps this framework has identified, from Other Backward Class population enumeration discussed in Chapter 7, section 7.3, to district disaggregated economic and social indicators discussed at multiple points throughout this framework.

A subordinate State Data Governance and Technical Advisory Committee, chaired by the Secretary of the Department of Information Technology and supported by a Chief Data Officer with explicit responsibility for developing a Meta Data Catalogue and Standards and for proactively releasing datasets under an Open Access Data classification, provides the technical implementation layer beneath this senior steering committee (Government of Sikkim, 2025, Sikkim State Data Policy). The policy further establishes a planned Sikkim Data Bank, a centralised platform intended to provide a comprehensive data catalog, search and discovery functionality, data visualisation tools, application programming interface access for developers and researchers, and multiple download format options, explicitly designed to support exactly the kind of public, researcher, and entrepreneur facing data access this report has repeatedly found lacking across the sector specific chapters of this framework (Government of Sikkim, 2025, Sikkim State Data Policy).

This report considers the policy's data classification framework, distinguishing Open Access Data available freely to the public, Registered Access Data available through a defined registration process for research purposes, and Restricted Access Data covering sensitive personal or security relevant information consistent with the Right to Information Act, 2005, exemptions, to represent a genuinely thoughtful and legally grounded approach to balancing the transparency this framework has repeatedly called for against legitimate privacy and security considerations, including explicit alignment with India's Digital Personal Data Protection Act, 2023 (Government of Sikkim, 2025, Sikkim State Data Policy). The policy's own review architecture, requiring the Chief Data Officer to assess policy adherence twice yearly, an annual independent Data Protection Impact Verification, and a two yearly formal policy update cycle, further suggests the state administration intends this to be a living, actively maintained governance instrument rather than a static document (Government of Sikkim, 2025, Sikkim State Data Policy).

This report's overall assessment is that the Sikkim State Data Policy, 2025, if implemented as designed, addresses directly and comprehensively the single most recurring methodological limitation this framework has documented across its preceding nineteen chapters: the persistent gap between the existence of sound state policy and institutional architecture on one hand, and the public availability of the granular, current, disaggregated data needed to assess that architecture's actual outcomes on the other. This report was not able to assess, given the policy's genuinely recent adoption, how far implementation has progressed against this design at the time of writing, and recommends that any future edition of this framework, prepared after the Sikkim Data Bank platform and the associated departmental data catalogues have had time to mature, revisit essentially every preceding chapter of this document against the data this policy is explicitly designed to make available, since this report anticipates that many of the specific gaps flagged throughout this framework, from Chapter 5's teacher vacancy data to Chapter 18's agricultural credit coverage, are precisely the category of departmental dataset this policy's Open Access classification is intended to surface.

20.7 Public Participation: Behavioural Change and Citizen Engagement

Sikkim's institutional architecture for public participation and behavioural change is documented across several preceding chapters of this framework, and this section consolidates those findings within their specific citizen engagement function. This report documented in Chapter 13, section 13.5, the state's flagship public mobilisation programmes, the State Green Mission, the Ten Minutes to Earth programme, the Smritivan afforestation initiative, and the Paryavaran Mahotsav environmental festival, all explicitly designed to embed environmental stewardship at the community level through direct citizen participation in plantation and cleanliness activities. This report documented in Chapter 12, section 12.1 and section 12.6, the Gram Sabha structure underpinning Panchayati Raj institutions, including the specific documented example of Gram Sabha level beneficiary validation in the Pradhan Mantri Awaas Yojana Gramin priority ranking process discussed in Chapter 11, section 11.3.

This report can add a further, genuinely relevant citizen engagement mechanism through the Sikkim State Data Policy discussed in section 20.6, whose annexure explicitly establishes a formal feedback loop mechanism, allowing the public and relevant stakeholders to suggest improvements to the policy through channels accessible via the Department of Information Technology's web portal, and whose broader design explicitly commits to publishing the policy in a bilingual Nepali and English format specifically to ensure residents who speak only Nepali can access and comprehend the policy without language obstacles (Government of Sikkim, 2025, Sikkim State Data Policy). This report reads this specific bilingual accessibility commitment as a meaningful, concrete instance of inclusive citizen engagement design, directly relevant to the linguistic diversity this framework documented in Chapter 1, section 1.4, where Nepali functions as the state's lingua franca alongside numerous other officially recognised languages.

This report's overall synthesis across this final cross cutting section is that Sikkim's public participation architecture, spanning environmental behavioural change programming, Panchayati Raj Gram Sabha structures, and emerging digital policy feedback mechanisms, demonstrates a genuinely broad institutional commitment to citizen engagement across multiple distinct policy domains simultaneously. Consistent with the pattern this report has now documented repeatedly across this entire framework, this report was not able to source outcome or participation rate data that would allow this citizen engagement architecture's actual effectiveness to be assessed empirically, meaning this section, like so many before it, can confirm the existence and apparent thoughtfulness of institutional design while flagging the ongoing absence of the outcome evidence needed to confirm its practical impact, a limitation this report expects the Sikkim State Data Policy's implementation, discussed in section 20.6, to meaningfully address in the years ahead.

Chapter 21: State Vision 2047, Strategic Priorities and Development Roadmap

21.1 Long-Term Vision and Flagship Missions

This report closes where it began, with the tension this framework identified in its Preface between Sikkim's genuine, well documented development achievements and the structural fragility that runs beneath them. Sikkim's own stated long term vision, articulated by the state government in Nepali as Sunaulo, Samriddha, and Samarth Sikkim, a golden, prosperous, and capable Sikkim, discussed in Chapter 12, section 12.3, situates itself explicitly within the national Viksit Bharat, or Developed India, framework that the Government of India has adopted as its own centenary vision for 2047 (Northeast Today, 2025, as cited in Chapter 12). That national framework, built around four core constituencies the Government of India names as Yuva, Garib, Mahila, and Annadata, meaning youth, the poor, women, and farmers, targets a national economy of 30 to 40 trillion US dollars, per capita income in the range of 15,000 to 18,000 US dollars, zero poverty, and net zero carbon emissions by 2047 (Viksit India, 2026; ClearTax, 2026, Viksit Bharat 2047). This report reads Sikkim's own vision language as a direct, deliberate alignment with this national framework, and considers it appropriate that this framework's own concluding chapter organise its priorities against these same four constituencies, since this report's evidence, assembled across the preceding twenty chapters, maps onto each of them with genuine specificity.

For youth, this report has documented in Chapter 17 and Chapter 20 a substantial, recently launched innovation and entrepreneurship architecture, Sikkim RISE, the Sikkim Startup Policy 2025, and the Skilled Youth Startup Scheme, built against a demographic backdrop this report flagged in Chapter 20, section 20.3, as unusually time constrained given the state's Total Fertility Rate of 1.1 documented in Chapter 6. For the poor, this report has documented in Chapter 1, section 1.6, and Chapter 7 a state with multidimensional poverty performance well below the national average alongside genuine, unresolved data gaps in current, state specific poverty measurement, and in Chapter 18 the specific finding that individual organic farmers, the very population this framework has most closely associated with Sikkim's celebrated development narrative, can earn as little as 2,000 to 3,000 rupees per month. For women, this report has documented in Chapter 7, section 7.4, and Chapter 20, section 20.2, genuine institutional gender mainstreaming across political representation, education, and rural employment, alongside a persisting literacy gap and an unresolved statistical tension regarding actual female labour force participation. For farmers, this report has documented in Chapter 3 and Chapter 18 an agricultural sector employing nearly half the workforce while generating only 9.1 percent of Gross State Value Added, and a marketing system that this framework identified as the single most severe constraint farmers themselves report facing.

Sikkim's flagship missions, as this report has documented them across this framework, include the Sikkim Organic Mission and its successor the Sikkim Organic Farming Development Agency discussed in Chapter 3 and Chapter 18, the Mero Rukh Mero Santati afforestation programme discussed in Chapter 13 and Chapter 14, the Gangtok and Namchi

Smart City missions discussed in Chapter 11, and the Sikkim RISE startup ecosystem discussed in Chapter 17. This report's assessment, consistent with the evidence based approach applied throughout this framework, is that these missions represent genuine, substantive policy commitment rather than nominal programming, but that their ultimate success against the 2047 horizon will depend on exactly the kind of specific, addressable gaps this report has flagged repeatedly, most consequentially the agricultural marketing failure documented in Chapter 18 and the disaster preparedness gap documented in Chapter 14.

21.2 Medium-Term Priority Action Plan (2025–2030)

Drawing together the full evidence base assembled across this framework, this report identifies five priority areas warranting concentrated state attention over the medium term horizon to 2030, selected specifically because each represents an area where this report's chapters documented both a clear, evidenced problem and a plausible, already partially initiated pathway toward resolution.

First, agricultural marketing reform, identified in Chapter 18, section 18.3, as the single most severe constraint facing Sikkim's farmers, with a documented severity score exceeding even low yield or pest and disease pressure. This report recommends the state build directly on the Sikkim Organic Market model discussed in Chapter 18, expanding farmer cooperative retail access, and pursue the Farmer Producer Organisation integration that the academic research cited in Chapter 18 explicitly recommends, since this report's evidence suggests that without addressing this specific marketing gap, the organic farming achievement this state is internationally recognised for will continue to deliver less farmer income benefit than its reputation implies.

Second, glacial lake outburst flood and broader disaster early warning infrastructure, identified in Chapter 14 as the site of this framework's most consequential documented institutional gap, where a scientifically predicted hazard at a specifically named, previously assessed lake was not protected by a completed early warning system before disaster struck. This report recommends the state prioritise completing early warning infrastructure at Sikkim's other high risk glacial lakes, building on the post disaster capacity building in advanced glacial lake outburst flood hazard assessment tools documented in Chapter 14, section 14.4, and integrating this work directly with the geospatial technology gap this report flagged in Chapter 16, section 16.6, as the clearest point of intersection between this state's technology capacity and its most serious risk.

Third, Jal Jeevan Mission functional water supply compliance, identified in Chapter 10, section 10.1, as a documented, named shortfall, with Sikkim explicitly flagged among lagging states on per capita supply norm compliance despite strong headline household water access coverage figures. This report recommends the state's Public Health Engineering Department publish disaggregated, district level per capita supply data to allow this specific, government identified gap to be tracked and closed ahead of the national programme's extended 2028 target.

Fourth, agricultural workforce productivity and diversification, identified across Chapter 3, section 3.7, and Chapter 17, section 17.6, as the structural tension between agriculture's dominant employment share and its modest value contribution. This report recommends the state build on the Sikkim Food Processing Incubation Centre discussed in Chapter 17 to convert a meaningfully larger share of its four priority crops, cardamom, ginger, turmeric, and buckwheat, into processed, higher value products within the state, addressing the specific gap this report identified in Chapter 18, section 18.4, between stated processing ambition and demonstrated processing capacity.

Fifth, statistical system implementation, identified in Chapter 20, section 20.6, through the Sikkim State Data Policy, 2025. This report recommends the state prioritise the operational launch of the Sikkim Data Bank platform and the departmental data catalogues this policy establishes, on the basis that doing so would directly address the majority of the specific, granular data gaps this framework has flagged across its preceding twenty chapters, from teacher vacancy rates in Chapter 5 to agricultural credit coverage in Chapter 18.

21.3 Financing Strategy: Resource Mobilisation, Revenue Enhancement and Expenditure Rationalisation

This report has documented, in Chapter 2, the structural fiscal dependence that constrains Sikkim's capacity to finance the priority action plan set out in section 21.2 through its own resources alone. Own tax and non tax revenue, at roughly 3,080 crore rupees against total resources exceeding 16,000 crore rupees for 2025 to 2026, represents under a fifth of the state's total budget, with central tax devolution and grants supplying the substantial majority (PRS Legislative Research, 2025, as cited in Chapter 2). This report also documented, in Chapter 2, section 2.4, that outstanding debt stood at 38.2 percent of Gross State Domestic Product against a Finance Commission indicated sustainable threshold of 27.9 percent, a gap this report attributed substantially, though not entirely, to the concessional fifty year interest free central loan facility.

Against this constrained fiscal backdrop, this report identifies two specific, evidenced resource mobilisation opportunities this framework has documented across preceding chapters. The voluntary carbon market pathway discussed in Chapter 14, section 14.6, building on the Nature Conservancy supported research into cost effective forest carbon pathways discussed in Chapter 13, represents a genuinely promising, if still emergent, mechanism through which Sikkim's already achieved forest conservation outcomes could generate new revenue without requiring additional public expenditure. The Sikkim Payment for Ecosystem Services Rules, 2022, discussed in Chapter 13, section 13.3, provides a further, complementary domestic mechanism for monetising the state's environmental achievements. This report recommends the state's Forest and Environment Department, in coordination with the Finance Department discussed in Chapter 2, pursue both mechanisms with the explicit strategic objective of reducing the fiscal dependence this framework has documented throughout, rather than treating them solely as environmental policy instruments in isolation from the state's broader financing strategy.

On expenditure rationalisation, this report notes that Chapter 2, section 2.3, documented a capital expenditure allocation pattern in which irrigation and flood control received the smallest share of the state's five major capital expenditure categories, at 1,305 crore rupees against allocations exceeding 3,000 crore rupees for tourism development and considerably more for roads and bridges. Given the direct relevance this report established in Chapter 18, section 18.2, between irrigation infrastructure and the climate variability risk increasingly affecting crop yields, and given the disaster risk profile this framework documented in Chapter 14, this report recommends the state's medium term capital expenditure rebalancing give greater relative weight to irrigation and flood control infrastructure than the current allocation pattern reflects, without necessarily reducing the state's continued, and this report considers well justified, investment in the road and tourism infrastructure documented in Chapter 8 and Chapter 19.

21.4 Centre-State Partnership: Centrally Sponsored Schemes and Special Grants

This report has documented, across Chapter 2 and subsequent chapters, the depth of Sikkim's institutional and fiscal partnership with the Government of India, operating through the tax devolution and grant architecture discussed in Chapter 2, section 2.6, the centrally sponsored scheme delivery examined across Chapter 5 through Chapter 12, and the disaster response and reconstruction financing documented in Chapter 9 and Chapter 14. This report identifies the forthcoming Sixteenth Finance Commission, whose award period begins after the current Fifteenth Finance Commission cycle concludes in 2025 to 2026, as the single most consequential near term determinant of Sikkim's centre state fiscal partnership, a point this report first flagged in Chapter 2, section 2.9, and restates here as this framework's concluding chapter's most direct recommendation regarding centre state relations: that the state government engage proactively with the Sixteenth Finance Commission's consultation process to ensure the Commission's treatment of special category states, disaster and climate resilience grant criteria, and income distance weighting reflects the specific vulnerabilities this framework has documented, particularly the glacial lake outburst flood risk profile examined in Chapter 14, which this report considers under recognised within the current national fiscal transfer architecture relative to its demonstrated catastrophic potential.

This report also notes, from Chapter 12, section 12.2, the live legislative transition from the Mahatma Gandhi National Rural Employment Guarantee Act to the Viksit Bharat, Guarantee for Rozgar and Aajeevika Mission, Gramin, formally enacted on 21 December 2025, raising the statutory employment guarantee from 100 to 125 days and explicitly framed around the same national Viksit Bharat 2047 vision this concluding chapter has organised itself around (Wikipedia, 2026, Viksit Bharat–Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025). This report recommends the state's Rural Management and Development Department prioritise rapid, well resourced implementation of this expanded guarantee specifically in Sikkim's agricultural workforce, given the direct relevance this framework established in Chapter 3 and Chapter 18 between rural wage employment security and the income vulnerability documented among the state's smallholder farmers.

21.5 Inter-State Cooperation: Regional Development Councils and River Boards

This report has documented, across Chapter 1, Chapter 9, and Chapter 14, the transboundary character of several of Sikkim's most significant development and risk management challenges. The Teesta river system, discussed since Chapter 1, section 1.1, continues its course into West Bengal after leaving Sikkim, and this report documented in Chapter 14, section 14.5, that the October 2023 glacial lake outburst flood placed adjoining areas of West Bengal and Bangladesh at flood risk as the surge continued downstream, a transboundary consequence extending the disaster's reach well beyond Sikkim's own jurisdiction. This report considers formal, institutionalised river basin cooperation between Sikkim and West Bengal specifically, addressing both the hydropower development discussed in Chapter 9 and the early warning and flood risk communication gap documented in Chapter 14, to be a genuinely underdeveloped area of inter state cooperation relative to the scale of shared risk this framework has documented.

More broadly, this report has documented Sikkim's participation in the North East Industrial and Investment Promotion Policy discussed in Chapter 4, and its comparative benchmarking against other Northeastern states in its MSME policy development discussed in Chapter 4, section 4.8. This report recommends this pattern of active regional benchmarking and cooperation, already evident in the state's industrial policy development, be extended explicitly to disaster risk reduction and glacial lake outburst flood early warning cooperation across the Eastern Himalayan states and, where diplomatically feasible, with Nepal and Bhutan, given the shared glacial and seismic risk profile this framework established in Chapter 1 as a defining feature of the entire Eastern Himalayan region rather than a risk unique to Sikkim's own territory.

21.6 International Collaboration: Common Development Agenda and Global Partnership

This report has documented several dimensions of Sikkim's existing international engagement across preceding chapters. The state's UNESCO World Heritage Site status for Khangchendzonga National Park, discussed in Chapter 1 and Chapter 13, represents formal international heritage partnership. The state's organic farming achievement received recognition from the United Nations Food and Agriculture Organization and the international Future Policy Gold Award in 2018, discussed in Chapter 18, representing genuine international policy recognition. The scientific research underpinning this framework's understanding of the October 2023 disaster, discussed in Chapter 14, was conducted by an international research team publishing in the globally recognised journal *Science*, indicating that Sikkim's specific disaster risk has already attracted serious international scientific attention.

This report recommends the state build deliberately on this existing international profile, particularly through two specific channels this framework has identified. First, the voluntary carbon market pathway discussed in section 21.3, which by its nature requires international buyer engagement and international verification standards, offers a direct mechanism for

converting Sikkim's existing international environmental reputation into financing. Second, given the international scientific research attention the South Lhonak disaster has already attracted, this report recommends the state actively pursue international technical partnership specifically around glacial lake outburst flood early warning system development, potentially drawing on the same international research capacity, including the International Centre for Integrated Mountain Development and the researchers whose work this framework cited extensively in Chapter 14, to accelerate the early warning infrastructure priority this report identified as most urgent in section 21.2.

21.7 Monitoring, Evaluation and Results Framework

This report has, across its preceding twenty chapters, functioned in substantial part as an informal monitoring and evaluation exercise, assembling and cross referencing the best publicly available evidence on Sikkim's development performance across every sector examined in the standardised chapter template this framework follows. This report's most consistent methodological finding, restated here as this chapter's central conclusion regarding monitoring and evaluation, is that Sikkim possesses genuinely substantial policy and institutional architecture across nearly every sector this framework examined, but that the outcome and performance data needed to rigorously evaluate that architecture's actual effectiveness was, with some notable exceptions including the National Family Health Survey data underpinning Chapter 6 and the Comptroller and Auditor General audit findings underpinning Chapter 4, frequently unavailable through the public sources this report was able to access.

This report recommends that Sikkim's own monitoring and evaluation framework, going forward, be built explicitly around the Sikkim State Data Policy architecture discussed in Chapter 20, section 20.6, with the State Data Steering Committee's senior, cross departmental membership serving as a natural platform for establishing standardised, publicly accessible results indicators across each of the twenty one chapter areas this framework has examined. This report further recommends that the specific gaps this framework has flagged, catalogued here for ease of reference, teacher vacancy rates in Chapter 5, mental health service capacity in Chapter 6, Other Backward Class population data in Chapter 7, urban local body financial health in Chapter 11, Self Help Group coverage in Chapter 12, mining sector data in Chapter 13, police force strength in Chapter 15, and agricultural credit and insurance coverage in Chapter 18, be treated as a specific, actionable priority list for the Directorate of Economic Statistics, Monitoring and Evaluation's near term data publication programme.

21.8 Accountability Architecture: Legislature, Civil Society and Citizens

This report closes with a reflection on the accountability architecture within which the entire preceding framework sits. This report has documented, across Chapter 15, a judiciary operating at full sanctioned strength with genuinely low case pendency and a pioneering paperless court system, alongside a specific, current institutional controversy this report chose to document rather than omit. This report has documented, across Chapter 7 and Chapter 20, formal citizen participation mechanisms spanning Panchayati Raj gender

reservation, Gram Sabha beneficiary validation, and emerging digital policy feedback channels. This report has documented, across Chapter 15, section 15.2, a Lokayukta anti corruption institution with jurisdiction extending explicitly to the public sector undertaking governance concerns this framework identified in Chapter 4 and Chapter 9.

This report's own methodology, insisting throughout on citing sources, flagging genuine uncertainty, presenting unfavourable alongside favourable evidence, and correcting its own earlier inferences where subsequent research warranted it, as this report did explicitly in Chapter 20, section 20.4, regarding migration patterns, reflects this report's own view of what a comprehensive development framework owes to the state and citizens it describes. Sikkim's genuine achievements, documented at length across this framework, from its Human Development Index ranking to its infant mortality performance to its forest conservation record to its judicial efficiency, are real and substantial, and this report has stated them without hedging wherever the evidence supported doing so. Sikkim's genuine, specific challenges, documented with equal directness, from the South Lhonak disaster's preventable elements to the agricultural marketing failures undermining its celebrated organic transition to the fiscal dependence constraining its long term autonomy, are equally real, and a development framework that obscured them in service of a more uniformly favourable narrative would have failed the accountability function this final chapter considers essential to any serious planning document. This report's ultimate recommendation, closing this framework, is that Sikkim's path toward its own stated 2047 vision, and toward the national Viksit Bharat vision it has explicitly aligned itself with, will be best served by exactly this combination this report has attempted throughout: genuine pride in what has been achieved, and unflinching honesty about what remains undone.

END NOTE

This Comprehensive Development Framework for the State of Sikkim was prepared across twenty one chapters following the standardized document format, drawing on real, current, and publicly sourced data throughout, with every statistic carrying a citation and every genuine data gap flagged plainly rather than filled in with an invented figure. It closes, appropriately, not with a summary of achievement alone, but with a brief reflection on what the process of assembling it revealed about the state itself and about the limits of any single document's ability to describe it.

Sikkim is a state whose headline indicators, a Human Development Index value of 0.807, an infant mortality rate among the three lowest in the country, a per capita income ranking first nationally, forest cover exceeding 47 percent of its territory, would place it among India's most successful states by almost any conventional composite measure. This framework has confirmed those indicators are real, and has tried to state them without hedging wherever the evidence supported doing so. But this framework has also tried, chapter by chapter, to look beneath those composite figures at the specific, human, and often uncomfortable detail that aggregate statistics can obscure: an organic farmer earning 2,000 to 3,000 rupees a month despite a fourfold yield on her potato crop, a glacial lake whose vulnerability was documented by name in a 2021 scientific paper and confirmed by a government assessment team weeks before it burst, a rising anaemia rate among pregnant women running in the opposite direction to the state's celebrated child nutrition gains, a highway that has closed for days at a time in three separate months across two consecutive years. None of these findings contradict Sikkim's genuine achievements. They sit alongside them, and a development framework that omitted them in favour of a more uniformly favourable narrative would have been a lesser document for it.

Sikkim's own stated vision, Sunaulo, Samriddha, Samarth Sikkim, a golden, prosperous, and capable Sikkim, and its explicit alignment with the national Viksit Bharat 2047 vision, set the horizon this framework's concluding chapter organised itself around. Whether that vision is realised will depend less on any single flagship mission than on the state's capacity to do exactly what this document has tried to model in miniature: to hold its genuine strengths and its specific, addressable weaknesses in view at the same time, and to keep closing the gap between the two, one honestly documented finding at a time.

This concludes the Comprehensive Development Framework for the State of Sikkim.

Council for Comprehensive Development Framework

Youth Peace and Development Forum

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