

Ratanakiri Economic Development Based on the Rectangular Strategy

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Abstract

This study examined the economic development of Ratanakiri, Cambodia, within the framework of rectangular strategy (2018–2023), emphasizing infrastructure, human resource development, agriculture, and private sector promotion. By employing a mixed-methods design, data were collected from 154 samples of 250 stakeholders, including provincial officials, households, and small- and medium-sized enterprises (SMEs). Quantitative analysis was conducted to assess provincial outcomes in relation to national development objectives. Qualitative analysis was employed to determine the perceptions of economic development. Results revealed notable improvements in road accessibility, electricity coverage, internet penetration, literacy rates, health service provision, and SME employment. Despite these gains, the province continued to face significant challenges, including geographical isolation, socio-ethnic disparities, and limited institutional capacity, which constrained full realization of development goals. By using Amartya Sen's Development Theory as the analytical lens (Sen, 1999), this study interpreted development not solely as the economic growth but as the expansion of human capabilities and freedoms, highlighting the importance of enabling people to lead lives they value. Based on these findings, the study recommends strategic investments in infrastructure, enhanced education and vocational training programs, support for inclusive private sector growth, and strengthened governance and institutional capacity to maximize the effectiveness of the Rectangular Strategy. This study contributed to promote equitable, sustainable, and human-centered development in Ratanakiri, offering insights for policymakers and development practitioners in similar remote provinces.

Key words: *Rectangular Strategy, Economic Development, Human Capabilities, Provincial Governance, Practitioner*

1. Introduction

Cambodia has experienced sustained economic growth averaging around 7% per year in the decade preceding 2020, positioning itself as one of the fastest-growing economies in Southeast Asia (World Bank, 2021). This economic trajectory is underpinned by a combination of domestic reforms, foreign direct investment, and active engagement with international development partners. Structural reforms in governance, trade liberalization, and fiscal management have created an enabling environment for private sector growth, while investment in physical infrastructure and human capital has sought to

enhance the country's productive capacity (Asian Development Bank [ADB], 2019). Cambodia's national development planning is the Rectangular Strategy (RS), introduced in 2004 and periodically updated to align with the Royal Government's long-term goals (Royal Government of Cambodia, 2018). The RS provides a comprehensive framework aimed at promoting sustained economic growth, social equity, efficiency in public administration, and employment creation (Royal Government of Cambodia, 2018). Its four strategic pillars—agriculture development, human resource development, physical infrastructure improvement, and private sector growth—reflect an integrated approach to development, emphasizing both economic expansion and social inclusion. The strategy has been complemented by Cambodia's alignment with the Sustainable Development Goals (SDGs), particularly those relating to poverty reduction, education, gender equality, and environmental sustainability (United Nations, 2015).

While the RS has contributed to significant national-level economic gains, its impact is uneven across provinces, particularly in remote and underdeveloped areas (ADB, 2019). Ratanakiri Province, located in northeastern Cambodia, represents a region where socio-economic disparities remain pronounced. The province is characterized by mountainous terrain, dense forests, and a sparse population distribution, which pose inherent challenges to infrastructure development, market access, and service delivery (UNDP, 2020). Historically, Ratanakiri has lagged behind the national average in indicators such as per capita income, literacy, healthcare access, and employment opportunities (ADB, 2019). Ratanakiri's economy remains predominantly agrarian, with subsistence and commercial agriculture forming the backbone of livelihoods. Rubber, cashew nuts, cassava, and other cash crops have increasingly contributed to household income, though agricultural productivity remains constrained by limited access to modern technologies, irrigation, and market linkages (FAO, 2018). Forestry, another key sector, is both an economic resource and a critical environmental asset; sustainable management of forest resources is essential for ecological balance and long-term development (World Bank, 2021). Moreover, ecotourism has emerged as a potential avenue for inclusive economic growth, given the province's rich biodiversity, scenic landscapes, and cultural heritage. However, the lack of adequate transport, hospitality infrastructure, and skilled labor has limited the sector's full potential (UNWTO, 2019).

Human capital development in Ratanakiri is a central concern. Educational attainment is lower than national average, with significant gaps in secondary and tertiary enrollment rates (UNESCO, 2019). Vocational training opportunities are limited, and the province faces a shortage of skilled professionals capable of supporting emerging industries and modern public

administration (ADB, 2019). In addition, health outcomes and access to medical services are suboptimal, reflecting broader development challenges that intersect with infrastructure, governance, and socio-economic factors (WHO, 2020). The RS's focus on infrastructure and human resource development is particularly relevant to Ratanakiri. Investments in roads, electricity, and digital connectivity can enhance access to markets, facilitate investment, and stimulate private sector activity (Royal Government of Cambodia, 2018). Concurrently, targeted human resource development programs, including vocational training and capacity-building initiatives, can equip local populations with the skills needed to participate effectively in economic and social development (ADB, 2019). Assessing how the RS has been implemented in Ratanakiri provides the valuable insights into the effectiveness of national strategies in remote provinces, highlighting both successes and gaps in policy translation (UNDP, 2020).

Further, Ratanakiri presents a unique case for understanding the dynamics of the sub-national development in Cambodia. Its multi-ethnic population—including indigenous communities with distinct cultural and land-use practices—necessitates development approaches that are sensitive to local contexts and inclusive of marginalized groups (UNDP, 2020). Policies that prioritize agricultural modernization, sustainable resource management, and community-based development are essential for promoting equitable growth while preserving cultural and environmental heritage (FAO, 2018; UNWTO, 2019). In light of these considerations, this study aims to examine the economic development of Ratanakiri during 2018–2023, with a specific focus on the role of the Rectangular Strategy in shaping infrastructure, human resource capacity, and private sector growth. By analyzing quantitative and qualitative data on the economic activities, investment trends, and social indicators, the study seeks to assess the effectiveness, challenges, and opportunities associated with the national development strategies at the provincial level (ADB, 2019; UNDP, 2020). An investigation contributes to both academic discourse and policy-making by providing evidence. Key challenges include limited infrastructure and connectivity, insufficient energy and digital infrastructure, and constraints in human resource development and capacity building, particularly for ethnic minority communities. This study mainly focuses on the analysis of Ratanakiri's economic structure and development trends (2018–2023), assessment of RS pillar implementation at the provincial level, identity of successes and challenges in provincial strategy implementation, evaluation of moderating factors (geography, ethnic composition, institutional capacity), and provision of evidence-based policy recommendations.

2. Literature Review & Theoretical Framework

Theoretical Framework of Economic Development

The study linked RS practices to provincial economic outcomes, moderated by geographic, demographic, and institutional factors. Development is multi-dimensional, encompassing economic growth, human capabilities, and social well-being. Amartya Sen emphasizes expanding capabilities and freedoms as central measure of development. Understanding foundations of economics provided a framework for analyzing provincial development and policy interventions, such as those under Cambodia's Rectangular Strategy. Economic theory and methods guided decision-making, resource allocation, and policy design, helping scholars and policymakers interpret complex socio-economic dynamics. With the nature and methods of economics, economics was the study of how the individuals, firms, and governments allocated scarce resources to meet competing needs and wants (Samuelson & Nordhaus, 2010). It explored interactions between production, distribution, and consumption of goods and services, providing insights into the economic behaviors and societal welfare.

Macroeconomics examined aggregate phenomena, including national income, employment, inflation, and economic growth, providing the basis for policy formulation. Economics also had the practical applications for citizenship and personal decision-making. Citizens used economic principles to understand markets, make informed choices about the consumption and savings, and evaluate public policies. Economic analysis employs systematic methods to understand patterns, trends, and causal relationships. Descriptive economics focused on the patterns and trends in employment, income, productivity, and trade (Mankiw, 2019). Economic theory went beyond description to explain the mechanisms driving economic growth, resource allocation, and market behavior. Industrialization, structural change, and development economics clarified how infrastructure, human capital, and private sector development interact to promote provincial economic growth (Todaro & Smith, 2015). Economic theory also guided predictive modeling, scenario planning, and policy recommendations.

Policy and Normative Economics

Policy economics applies economic analysis to guide decision-making and governance, helping translate theory into actionable strategies. It is generally divided into two complementary approaches, such as positive and normative economics. Positive economics dealt with objective description and analysis of economic facts, identifying causation and relationships without value judgments (Friedman, 1953). This approach provided evidence-based inputs for planning and evaluating provincial programs. Normative economics

incorporated the value judgments and prescriptive recommendations to guide policy choices (Sen, 1999).

The economizing problem addressed the fundamental challenge of limited resources and unlimited human wants, which lied at the core of economic analysis (Samuelson & Nordhaus, 2010). Understanding this problem was critical for evaluating the development strategies and resource allocation. The principle of economy required that the resources were used efficiently, minimizing waste while maximizing output and social welfare. Governments, households, and enterprises must prioritize spending, production, and investment decisions under conditions of scarcity. Human wants were virtually unlimited, ranging from basic needs like food, water, and shelter to higher-order needs such as education, health, and leisure. Resources, however, were finite, including land, labor, capital, and infrastructure. The relative scarcity of resources necessitated careful planning, choice-making, and trade-offs, particularly in remote provinces where infrastructure and human capital are limited.

Economic activity involved the production, distribution, and consumption of goods and services. Efficiency measured how well resources were utilized to achieve the desired outcomes. Economic growth was achieved when activity increased output and income, but growth must be inclusive and sustainable to improve human well-being (Todaro & Smith, 2015). The economizing problem highlighted the importance of forward-looking strategies, such as investment in education, health, and infrastructure, to expand future opportunities. In line with Sen's development framework, addressing scarcity was not only about producing more goods but also about expanding human capabilities, freedoms, and quality of life, ensuring that development was equitable and sustainable.

Understanding of Economic Development Theory

Amartya Sen's Development Theory provided a human-centered approach to understanding the development, emphasizing that true progress was not measured solely by economic growth or GDP, but by the enhancement of people's capabilities, freedoms, and well-being (Sen, 1999). This theoretical lens was particularly relevant to provinces, where development challenges were shaped by geographical isolation, limited infrastructure, ethnic diversity, and low human capital. Sen's framework allowed policymakers and researchers to evaluate development outcomes beyond income metrics, considering the qualitative aspects of human life. Capabilities referred to the real opportunities or abilities that individuals possessed to pursue the life they value. They encompassed a broad range of skills, knowledge, and resources that enabled people to make meaningful choices in their lives (Sen, 1999).

Functioning are the realized achievements or states of being and doing that result from the exercise of capabilities. These include tangible outcomes such as literacy, employment, health status, and participation in community life (Sen, 1999). Functioning were the observable indicators that provided measurable evidence of the effectiveness of development initiatives. While capabilities represented potential, functioning reflected the extent to which that potential was translated into real improvements in people's lives. Freedom was an intrinsic goal and instrumental means of the development. Political freedoms, such as the ability to participate in governance, and economic freedoms, such as access to markets and resources, expanded the individual choices and collective welfare (Sen, 1999). A key insight of Sen's framework was that poverty should be understood as capability deprivation rather than merely income deficiency (Sen, 1999). Infrastructure projects, human resource development, agricultural programs, and private sector promotion were evaluated not only in terms of economic impact but also in terms of their effect on local capabilities, functioning, and freedoms.

Key Factors for Economic Growth

Key Factors affected the economic growth, including human and physical capital, institutions, political stability, technological advancement, natural resources, macroeconomic policy. The economic growth and policy helped processing structural transformation, institutional effectiveness, and human behavior in the context of sub-national development. Industrialization theory emphasized the role of industrial development in driving economic growth and structural transformation (Lewis, 1954). According to this theory, shifting labor from low-productivity agriculture to higher-productivity industrial sectors generated increased income, employment, and capital accumulation. Industrialization theory underscored the importance of promoting industrial activities alongside agricultural modernization to achieve sustained economic growth. Structural change theory focused on the dynamic reallocation of the resources between sectors (Kuznets, 1966). Mixed economic development theory posited that sustainable growth required a combination of the market mechanisms and state intervention (Hirschman, 1958). While private sector investment drove efficiency and innovation, government policies ensuring equity, provided public goods, and regulated externalities.

New institutional economics (NIE) highlighted the importance of formal and informal institutions, rules, and governance structures in shaping economic outcomes (North, 1990). Institutions reduced the transaction costs, provided incentives, and stabilized economic interactions. Strong institutional capacity was critical for efficient public service delivery, investment facilitation, and poverty reduction. Public policy implementation theory examined the processes through which policies were translated into action and achieve

intended outcomes (Pressman & Wildavsky, 1973). This perspective was essential for understanding how national strategies, such as the Rectangular Strategy, are operationalized at the provincial level. Policy success depended on clear objectives, administrative capacity, stakeholder coordination, and continuous monitoring. Implementation theory also highlighted the potential obstacles, such as resource limitations, coordination failures, or socio-cultural barriers, that can impede policy effectiveness.

Economic behavior theory explored how the individual and organizational decision-making, incentives, and behavioral patterns affected the economic outcomes (Simon, 1955). This theoretical lens provided insights into how households, SMEs, and local officials responded to the policy interventions, market opportunities, and infrastructure improvements. Collectively, these theories provided a multi-dimensional framework for analyzing provincial development. Industrialization and structural change theories explained the economic transformation, mixed development theory and public policy theory that focused on government-market interactions and implementation, while new institutional economics and economic behavior theory highlighted governance, institutions, and human decision-making.

Governance and Institutional Theories

Understanding the economic development required a thorough analysis of governance and institutional dynamics. Governance and institutional theories provided frameworks for examining how the public administration, policy implementation, decentralization, and local empowerment influenced the development outcomes, particularly in regions with geographical isolation, multi-ethnic populations, and limited institutional capacity. Governance theory emphasized the structures, processes, and practices through which the public, private, and civil society actors interacted to manage resources, deliver services, and achieve collective goals (Kooiman, 2003). Good governance was characterized by transparency, accountability, participation, and responsiveness. Decentralization theory posited that transferring decision-making authority from central to sub-national levels improved efficiency, accountability, and responsiveness to local needs (Rondinelli, Nellis, & Cheema, 1983).

Local empowerment theory focused on building capacities of communities and individuals to participate meaningfully in development decision-making (Narayan, 2002). Empowered communities can identify priorities, manage resources, and engage in economic activities. Empowerment initiatives may include participatory planning, vocational training, and local governance committees that enabled citizens to influence infrastructure, education, and economic policies. Besides, the sustainable development theory integrated economic growth, social equity, and environmental protection to ensure long-

term prosperity (Brundtland Commission, 1987). For this sense, governance and institutional mechanisms were central to achieving sustainability by enforcing the regulations, allocating the resources efficiently, and engaging communities in environmental stewardship.

Institutional theories also examined provincial inequalities and their origins in administrative capacity, resource distribution, and policy implementation (Rodrik, 2000). Governance and institutional frameworks were essential for reducing these inequalities, through targeted policies, capacity-building programs, and effective monitoring and evaluation mechanisms. With the policy framework and legal norms, Cambodia's socio-economic development was guided by a set of strategic policies and legal norms that align national objectives with provincial development priorities. These strategies served as the policy backbone for translating Rectangular Strategy (RS) into actionable programs across sectors, including agriculture, tourism, trade, industry, and revenue mobilization. In addition, regional integration frameworks, such as ASEAN, provided the comparative benchmarks and highlighted the potential research gaps in local policy implementation. The Agricultural and Rural Development Strategy (ARDS) emphasized the sustainable agricultural production, rural livelihoods, and food security (Royal Government of Cambodia, 2015). The strategy prioritized modernization of crop production, irrigation expansion, soil management, and rural infrastructure to increase productivity and income for farmers.

Revenue Tourism and Mobilization Strategy

Tourism Development Strategy (TDS) aimed to promote Cambodia as a competitive and sustainable tourism destination while generating income and employment, particularly in rural provinces (Ministry of Tourism, 2015). This strategy focused on eco-tourism and community-based tourism, leveraging natural landscapes, indigenous culture, and biodiversity. Policy priorities included developing tourist infrastructure, training local service providers, ensuring environmental conservation, and enhancing safety standards. Despite these efforts, limitations in road connectivity, hospitality services, and marketing continue to hinder full tourism potential. The Trade and Economic Integration Strategy (TEIS) was designed to enhance Cambodia's participation in regional and global markets by reducing trade barriers, strengthening institutional frameworks, and supporting export-oriented industries (Ministry of Commerce, 2015). However, the challenges included limited logistics infrastructure, low awareness of market standards, and inadequate support for micro and small enterprises to scale operations.

Similarly, the industrial and energy development strategy (IEDS) focused on industrial diversification, energy security, and promotion of sustainable manufacturing and energy sectors (Ministry of Industry, Science, Technology

& Innovation, 2015). Industrial hubs, energy generation projects, and small-scale processing units were prioritized to create employment and stimulate regional economies. Further, Revenue Mobilization Strategy (RMS) aimed to strengthen domestic revenue collection, improve tax compliance, and ensure sustainable fiscal capacity (Ministry of Economy and Finance, 2019). Enhanced revenue enables the government to fund infrastructure, social services, and human development initiatives, particularly in underserved provinces. With the National Development Strategy: Rectangular Strategy Phases I–IV (2003–2023), Rectangular Strategy (RS) served as Cambodia’s overarching national development blueprint, with four phases spanning 2003–2023. Each phase has emphasized growth, equity, efficiency, and employment, operationalized through sector-specific strategies, including agriculture, human resource development, infrastructure, and private sector promotion (Royal Government of Cambodia, 2018). The RS provided policy coherence across the multiple ministries, linking national priorities with provincial development.

Research Gaps

Comparative analysis with ASEAN member states provided the insights into effective policy implementation and identifies research gaps. For example, Vietnam and Thailand demonstrated successful integration of rural provinces into national growth through targeted infrastructure, human resource investment, and private sector facilitation (World Bank, 2020). The Philippines similarly leveraged community-based tourism and agricultural modernization to promote inclusive development.

3. Research Methodology

This study adopted a mixed methods-research design, combining quantitative and qualitative research approaches. The quantitative component was used to examine the measurable outcomes of Rectangular Strategy implementation in Ratanakiri, including infrastructure, human resource development, and private sector growth. The qualitative component explored perspectives from local targeted stakeholders, providing insights into challenges, governance effectiveness, and capability expansion. The mixed methods-research design allowed in ensuring comprehensive understanding by integrating statistical analysis with the in-depth qualitative interpretations. This approach was appropriate given the multi-dimensional nature of economic development, including social, institutional, and geographic factors.

The target population included households, local government officials, SMEs, and ethnic minority community representatives in Ratanakiri. 154 samples of 250 participants were employed, with random sampling, based on the representativeness and logistical feasibility. Households: 54 participants, sampled from rural and semi-urban areas. Provincial officials and community

leaders: 60 participants, purposively selected to provide expert insights. SMEs and business owners: 40 participants, selected from main economic sectors such as agriculture, trade, and tourism. Sampling Method included random sampling for quantitative research in ensuring that the proportional representation from different districts and ethnic groups. Purposive Sampling was used to target the key informants who possess in-depth knowledge of policy implementation and provincial governance.

With Data Collection Methods, survey-questionnaires were employed to distribute to households and SMEs in collecting quantitative data on income, employment, market access, infrastructure use, and economic activities. The Key Informant Interviews (KIIs) were conducted with provincial officials, local administrators, and development partners to understand governance practices, capacity-building initiatives, and RS implementation challenges. In addition, focus group discussions (FGDs) were used in holding with the community representatives and ethnic minority groups to capture qualitative perspectives on human capability, social inclusion, and local economic opportunities. Document Review was also used in examining government reports, RS progress documents, statistical data, and policy briefs to validate findings and contextualize local development outcomes.

With the data analysis methods, this used the descriptive statistics analysis for examine the mean, percentage, growth rate in order to summarize trends in infrastructure, literacy, health access, and SME employment. Correlation and cross-tabulation analyses were also used to explore relationships between RS pillars and provincial development indicators. However, thematic coding of interview and FGD transcripts were employed for qualitative analysis in order to identify recurring patterns, governance challenges, and stakeholder perceptions. Integration with Amartya Sen's framework was used to assess whether the RS interventions effectively expanded the human capabilities and freedoms.

By ensuring the reliability and validity of this study, instrument pre-testing, such as survey and interview guides were piloted in select villages to ensure clarity and relevance. Triangulation was also used for cross-verification of data from surveys, interviews, FGDs, and official reports enhances reliability. Likely, peer review, such as independent review of qualitative coding and interpretation ensures analytical rigor were conducted.

With ethical considerations and informed consent, participants were informed about the purpose, procedures, and voluntary nature of the study. This study carried out the confidentiality with the personal identifiers that were removed to protect privacy. The study protocol received approval from provincial authorities and adheres to ethical research guidelines.

4. Results and Discussion

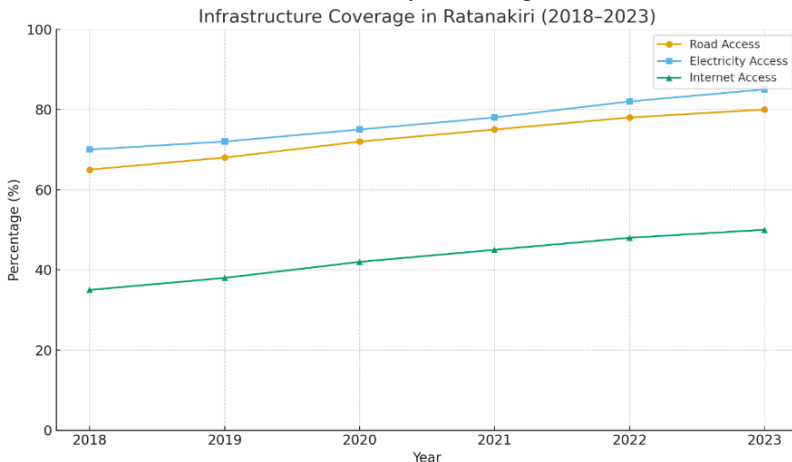
Economic and Social Situation of Ratanakiri

This study showed the geography and demographics, economic sector, infrastructure, social protection, and governance. The geography and demographics focused on the remote, mountainous, multi-ethnic population (~200,000–250,000). Geographic isolation affected the market access and service delivery. Economic Sector, such as agriculture dominated livelihoods, forestry and ecotourism emerging. Land ownership and conflicts remained challenges and SME development and trade expansion. Furthermore, the infrastructure included road network, such as progress from 65% paved (2018) to 80% (2023). Electricity was with the coverage 70% to 85%. The digital connectivity was about 35% to 50%, and human capital was with the literacy rate: 75% to 82%. Health access consists of 60% to 72%. This study also mentioned the social protection that focused on the vulnerable populations, such as children, elderly, disabled, clean water, sanitation, and health infrastructure improvements. Governance was important for decentralization that initiative improving local accountability and citizen participation in communal decisions increasing.

Infrastructure and Connectivity

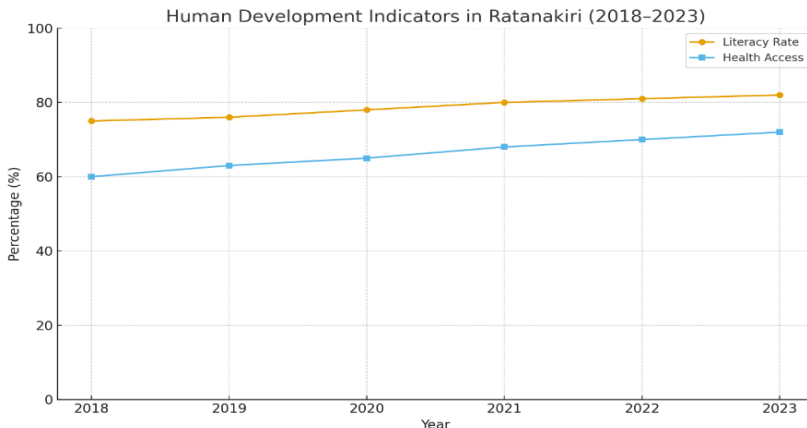
Incremental improvements enhanced economic activity and market access

Line chart illustration: Road, electricity, internet growth 2018–2023.



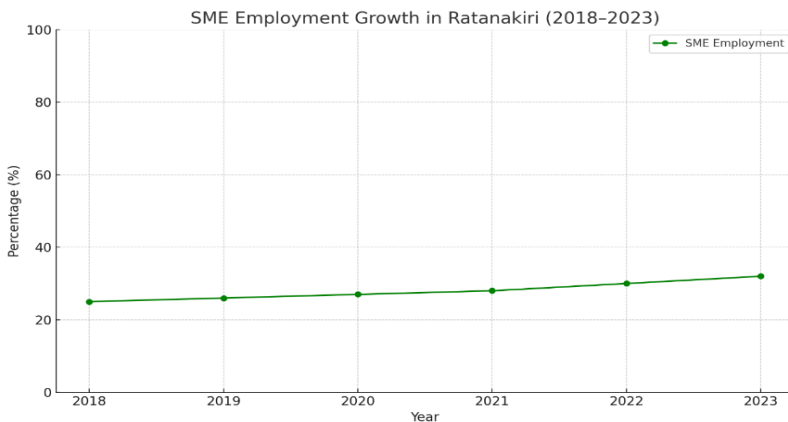
Human Resource Development

Developing the human resource focused on the literacy and health improvements, vocational training impact on employment. Line chart illustrated the literacy and health access trends.



Agriculture and Private Sector Promotion

SME employment growth was from 25% to 32%. Diversification of agribusiness and ecotourism was with the line chart illustration: SME employment growth.



Based upon the research results, economic development is very important for Ratanakiri, where needs to have measurable progress under RS pillars. However, the geographic and institutional constraints persist in developing the provincial economic. With the comparison with the ASEAN provinces, Ratanakiri has the similar rural development challenges. Importantly, Policy alignment and local adaptation are crucial for effectiveness of economic development, emphasizing on the human-centered growth rather than output-only metrics.

4. Conclusion

This study examined the economic development in Ratankiri, focusing on the road, electricity, and internet coverage that were significantly increased. Literacy and health outcomes were improved. SME employment and income diversification were also increased. However, the gaps in remote areas, ethnic minorities, and institutional capacity were remained. With economic policy, Ratanakiri prioritized the remote area infrastructure and expanded vocational and educational programs for the key factors for economic development. Similarly, strengthening the inclusive private sector development was needed. It was essential to enhance governance and capacity building at sub-national levels. This study significantly contributed to evaluate RS Phase V outcomes (2023–2028), conduct the comparative studies across provinces and ASEAN countries, and detailed gender and minority-focused economic impact studies.

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