

# Energy Reserves and Industrial Development in Northeast India

Changwei Liu<sup>1,\*</sup>

<sup>1</sup> Collaborative Innovation Center for Security and Development of Western Frontier China, Sichuan University, Chengdu, Sichuan, 61000, China.

**Abstract.** The northeast of India is rich have abundant natural resources and has superior energy reserves, but the economic development of the region is backward which is difficult to forming industrial effects. Based on the energy conditions and economic endowment of northeast of India, this paper examines the development dilemma of this region and analyzes the policies adopted by India to promote the economic and industrial development of the region, so that the local economic potential can be released, energy development can be enhanced, and the industrial layout can be more reasonable.

## 1 Introduction

The northeast of India has superior natural resources and energy reserves. It is estimated that this region has one-fifth of India's total oil and gas reserves. However, due to the region's long-term backward development, lagging infrastructure development and underdeveloped transportation, the rich resources are difficult to be transformed into economic drivers, affecting industrial development and economic layout.

## 2 Energy reserves and economic endowment of Northeast India

The northeast region of India includes seven states, namely Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim.<sup>1</sup>

Assam is the third largest producer of oil and gas in India. Assam-Arakan holds about a quarter of the country's oil reserves and produces about 12 percent of its total oil. Assam is an agricultural state and agriculture plays an important role in the economy. The pillar industry is the tea industry, with the state producing 65,352 tons of tea during 2018-19, accounting for half of India's production.

The mainstay of Manipur is agriculture, with about 70% of the population dependent on agricultural production. Apart from agriculture, forestry, trade and handlooms also occupy an important place. With about 3,268 square kilometers of bamboo forests, Manipur is one of the largest bamboo producing places in India, compared to 10,687 square kilometers of bamboo forests across India.

Meghalaya is also an agricultural state with about 80% of population depending on agriculture for their livelihood. Meghalaya has a rich mineral resource base, including the minerals coal, limestone, silica, kaolin and granite, which have great industrial potential.

About 60% of the people in Mizoram are engaged in agriculture and its related activities. It is one of the major bamboo producers in India, supplying 14% of the country's bamboo. Sericulture is an important handicraft industry, with nearly 8,000 households in over 300 Mizo villages involved.

In Nagaland, there was about 68% of the population is engaged in agriculture. Nagaland have significant natural mineral, petroleum and hydro resources, with approximately 600 million tons of unproven crude oil reserves, 1 billion tons of recoverable limestone reserves and 315 million tons of coal reserves. Nagaland's agro-climatic conditions provide business opportunities for floriculture and horticulture. The state is home to 650 species of medicinal and aromatic plants.

More than half of population in Tripura dependent on agriculture and related activities, which is also the country's second largest producer of natural rubber. Tripura have large gas reserves, estimated to hold 400 billion cubic meters of natural gas, of which 16 billion cubic meters are recoverable. The state is also rich in minerals such as glass sand, limestone, plastic clay and hard rock.

Sikkim is also dependent on agriculture in economically, which is the largest area under cardamom cultivation, accounting for over 80% of India's total production.<sup>2</sup> Sikkim lacks a large-scale industrial base, with brewing, distilling, tanning and watchmaking being the main industries. In addition, Sikkim has some mining industry, mainly mining minerals such as copper, graphite, quartzite, coal, and zinc.<sup>3</sup>

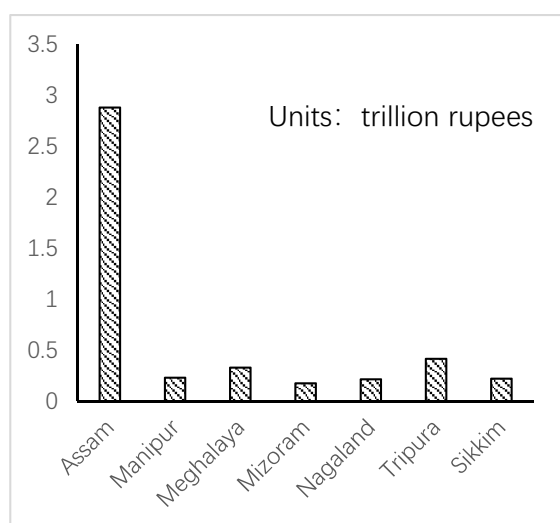
It can be seen that the energy base of Northeast India is mainly concentrated in Assam, Nagaland and Tripura, where the main energy sources are coal, oil and gas.

\*Author e-mail: liu527946443@qq.com

### 3 The development dilemma of Northeast India

The problems of economic development in the northeast of India are striking. For a long time, the northeastern region of India has been isolated from the interior of India for historical reasons, such as the failure of successive Indian central dynasties to substantially conquer and annex the northeastern region. There are also have policy reasons, such as the "exclusion policy" during the British colonial period. Geographical reasons also very important, northeast of India has long been isolated from the interior of India, and access to the rest of the country is limited by the Siliguri corridor, which is only about 27 kilometers wide, limiting the movement of goods and people. Although the region is endowed with excellent natural resources, the isolation in development and the backwardness in exploitation and transportation made local resources have not been effectively used.

There is a huge gap between Northeast India and the whole country in GDP, industrial structure, labor productivity and other aspects. The GDP of the northeastern states is almost at the bottom of the list in the whole of India. The industrial structure of Northeast India is extremely unreasonable. Although the three major industries are distributed in Northeast India, most of the residents still rely on agriculture for their livelihood. In terms of industrial distribution, the region's secondary sector lags behind, accounting for only 9% to 14% of the state's net production. The primary sector consistently accounts for about 25% of the state's net production and the tertiary sector for more than 62%. The region is very backward in industry, especially manufacturing, and has entered a period of predominantly service industries without industrialization and while agriculture still accounts for a large share. Thus, in fact, the development of the tertiary sector in the northeast of India has not been solidly supported by the primary and secondary sectors.<sup>4</sup>



**Fig. 1.** GDP distribution in Northeast India.

The infrastructure development in northeast India is also extremely backward, which restricts the local economic development. Infrastructure generally includes

transportation and communication, water conservancy and urban water supply and drainage, power supply facilities, etc. It is one of the elements of sustainable social development and an important tool to enhance the flow rate of logistics, people, capital and information flow. Whether the infrastructure is in good condition becomes an important prerequisite for a region to attract foreign investment and is closely related to the sustainable development of the region's economy. Due to insufficient investment and technical barriers, infrastructure development in northeast India has been difficult to develop rapidly. For example, the length of roads in Meghalaya is about 7,633 km, of which 3,691 km are hardened and the remaining 3,942 km are non-hardened, and the main transportation in the state is done by roads. There is and only one railway station, Mendipasa Railway Station in Resubelpara city, with only one line to Gauhati in Assam. Nagaland has 365.3 km of national highways and 1,094.5 km of state highways, with Dimapur being the only railway station in Nagaland. It is worth noting that while in India, including its northeastern frontier, has a very large road network, claiming more than 5 million kilometers, it is counting all the roads in the country, even the mud-covered village roads. As to the condition of the roads, even at the state level, is not optimistic.

In addition, the security problems and social problems in the northeast of India, such as security, insurgency, smuggling, and illegal immigration, have also seriously affected the development of the local economy. All in all, the economic development of northeast India is relatively backward and the economic problems it faces are very complicated.

### 4 Policies to promote industrial development in Northeast India

#### 4.1 The North-Eastern Council

In order to promote the political, economic and social development of the Northeast, the North-Eastern Council (NEC) was established in Shillong on November 7, 1972, under the North-Eastern Council Act (1971), with the primary responsibility of coordinating the economic development of the Northeast. The NEC was originally established as an advisory body, with its key members appointed directly by the Prime Minister of India, and with the heads and chief ministers of the northeastern states as ex-officio members of the NEC. The NEC was primarily responsible for coordinating economic development issues in the northeast. In the early stages of its establishment, however, the states were suspicious of the central government's intentions in setting up the NEC, seeing it as an ultra vires act of the central government that was intended to encroach on local administrative and economic autonomy. Moreover, in legally, the NEC has only an advisory role and does not have mandatory regional planning powers. As a result, the states have taken a more passive attitude toward the NEC and have made their own development plans.

Since 2002, the NEC has been approved as the development planning agency for the Northeast. Its functions have been sufficiently strengthened with the power to discuss any matter in which the Northeastern states have a common interest and to plan and arrange accordingly. It provides support to the economic and social development plans of the Northeastern states and provides mediation in case of disputes between the states. The fund of NEC 56% from the state government and the rest by central government departments. The 3-year plan released in 2017 envisages an annual budget of INR 250 billion, of which 40% comes from the government and the remaining 60% from the Ministry of Development of North Eastern Region (NLCPR). In terms of financial outlays, 47% of financial resources are allocated for transport and communication, 14% for agriculture, 11% for human resource development and education, 9% for power, 4% for health and 3% for tourism. These have greatly improved the infrastructure environment and investment environment in the Northeast region, and through subsidies and public services, have led to steady social construction in the Northeast region, which is conducive to resource development and utilization and industrial development.

#### **4.2 Investment of resources and funding**

The Indian government has invested heavily in the Northeast region. In addition to the government's annual financial allocations to the states, the State Bank of India (SBI) has also led the major banks in providing credit facilities to the Northeast region, continuing to increase the infusion of funds to provide the economic base for the development of the Northeast region. In the 1980s, the Indian government formulated a new policy for the Northeast. Political, social, and ethnic conflicts and corresponding integration problems would be alleviated if development institutions were established and funds were consistently injected into the region. As a result, public spending in the region increased significantly in the 1980s, and the Indian prime minister announced several programs to promote development during each visit to the region. In 1996, after a visit to the region, the Indian prime minister, H.D. Deve Gowda, announced an economic development program worth Rs. 61 billion, and his successor, I.K. Gujral also expressed support for the program. To accelerate economic development in the region, the National Democratic Alliance (NDA) government, led by Prime Minister Atal Bihari Vajpayee, announced another package worth Rs. 102.17 billion in 1998. In October 1996, under the New Initiatives for North Eastern Region (NER), at least 10 percent of the budget of each central government department was mandated to be spent on the development of the Northeast. Between 1990-91 and 2002-03, the region received about Rs. 10850.4 billion.

After investing heavily in development, the region continues to suffer from underdevelopment. One of the problems that has arisen is that the projected development packages have largely not been realized, and this has occurred because of the lack of effective regulatory

mechanisms, the absence of appropriate accountability systems, and non-compliance with established plans. Therefore, it is not useful to simply announce development plans, but more attention needs to be paid to the proper use of funds and the government, bureaucracy must be re-structured to meet the requirements of development.

#### **4.3 Look East Policy(LEP)**

India's Look East Policy (LEP) was introduced in 1992, it renamed to the Act East by the current Prime Minister Narendra Modi in 2014. The Act East policy provides an interface between Northeast India and the ASEAN region for a variety of bilateral and regional cooperation to strengthen connectivity between the Northeast and the ASEAN region through trade, culture, human exchanges, and infrastructure development.

The northeast region of India provides an excellent platform for local development by interconnecting its neighbors in South and Southeast Asia through geographical accessibility. With abundant energy resources including oil, gas, coal, limestone and other mineral resources, and a rich water supply system in the Brahmaputra River and its tributaries. Northeast India objectively has the potential to develop into a new growth area for the Indian economy. The region is also rich in horticultural products, such as vegetables, spices, rare herbs and medicinal plants. The region is also rich in tourism resources, with many rare flora and fauna, untouched nature, and unique ethnic arts and crafts of all kinds.

As former Indian President Pranab Mukherjee has noted, Northeast India has tremendous potential to exploit under geographic opportunities. As the development paradigm shifts from state-centrism to global and regional cooperation, India is aware of the geopotential of the Northeast as a gateway to East and Southeast Asia."<sup>5</sup> If the Look East Policy(LEP) is to be pursued vigorously, India's cooperation with its eastern neighbors in trade and investment, technology, transport and communications, energy and tourism should be deepened.<sup>6</sup> On this basis, the pace of energy development and utilization in the Northeast has been further accelerated, and industrial upgrading based on regional cooperation has been undertaken.

On July 2, 2008, the Government of India released the North Eastern Region Vision 2020 (NERV 2020), a document that identifies the challenges to achieving peace and prosperity in the Northeast by 2020, while also formulating development strategies for the region. The development goals of the NERV 2020 can be summarized as follows: firstly, to fully empower the people; secondly, to create development opportunities; thirdly, to develop sectors of comparative advantage; fourthly, to enhance human development and promote institutional change; fifthly, to create an excellent investment environment; and sixthly, to invest heavily in the public and private sectors. According to the NERV 2020, the Northeast plays a crucial role in the "Look East Policy" and is a

manifestation of further institutional integration of the region, with full empowerment of localities and people based on institutional and institutional reforms, which is also a necessary requirement for modern governance. In the words of Manmohan Singh, the Northeast is India's rising sun, and it is time to let the sun shine on it and make it shine.

## 5 Conclusions

Due to its special geographical location, the northeast region of India is not only socially and politically distant from the inland areas, but also economically different from them. The economic development level is backward, the transportation is difficult, and the information communication is poor. Although there is a certain basis of handicraft industry, but mostly cottage industry, the volume is not large. Industries are resource-intensive such as mining, tea, and forestry, and although the energy conditions are extremely rich, they are not sufficiently developed. In order to solve the industrial development problems of the northeast region of India, the Indian government established the North-Eastern Council (NEC) to coordinate the economic development of the northeast region, also invest a lot of resources and funds for local development, and to provide a new platform for the development of the northeast frontier region of India through the Look East Policy (LEP). These policies have not only brought a large amount of development funds to the northeast region, but also improved the local infrastructure and further unlocked its economic potential, which is conducive to the development of energy and industrial progress.

However, the tilting of resources and economic inputs are difficult to implement without corresponding institutional support, which is an important obstacle to the economic development of the Northeast region and needs to be effectively addressed by the Indian government in the process of institutional integration, and a corresponding policy operation system needs to be established to guarantee the implementation of various economic policies and energy policies

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