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Semiconductor in Assam: A Prospect of Employment Opportunity

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Abstract:

The purpose of this paper is to highlight future employment opportunities in Assam's semiconductor project. This study employs a descriptive research design. To reduce excessive dependence on the agricultural sector and raise per capita income, rapid industrialization is essential. Although numerous attempts have been made toward industrialization, significant success has yet to be achieved. In this context, the semiconductor project in Assam offers prospects not only for ITC experts but also for unemployed youth at all levels. It is regarded as a milestone for absorbing unemployed manpower and is expected to play a crucial role in strengthening the production sector.

Key words: *Employment Opportunity*.

Introduction:

Uplifting the socio-economic status of citizens is a common goal for all underdeveloped countries. Efforts are being made to improve the standard of living for every citizen, and various strategies are being implemented toward this end. The Government of India has also introduced several initiatives to address unemployment and enhance citizens' lifestyles. However, regional socio-economic disparities have remained a strong barrier since the very beginning of India's independence.

With a broad visionary outlook towards employment generation in rural sector through industrialization a project was inaugurated on 3rd of August, 2024 in Jagiroad, Morigaon district. The joint venture project of state government and Tata Group was approved by the Union Cabinet chaired by Prime Minister Narendra Modi on 29 February 2024. The event was attended by key figures, including Assam's Chief Minister Himanta Biswa Sarma and Tata Sons Chairman N Chandrasekaran. The ceremony was a significant milestone, signaling the commencement of what is considered a game-changing project for the region and the entire country.

The semiconductor project of Assam is the outcome of the systematic studies accomplished by the thinkers over the course of time. Every citizen has a dream to mitigate the unemployment problem through industrialization. Various initiatives have been taken by the government of state as well as central since the independence of India, still yet to succeed. The government of Assam has taken a strategic initiative to control the unemployment problem as well as to absorb the huge rush in agricultural sector. In parallel way, skill development progreamme has been expedited to engage the unemployed manpower and lessening the disguised unemployment exists in the agriculture sector. In a nut shell, semiconductor in Assam could be affirmed as the pave the way for enhancing individual cum national turn over in the near future period of time.

As the hasty industrialization expedite the growth and development of some countries of the global perspective the project to set up semiconductor in Assam is highly admissible and urges to the entire production sector.

With a goal of becoming Assam a significant player in India's semiconductor industry, and investment plan Rs 27,000-crore, is expected to start production in 2025 or 2026, producing up to 48 million chips daily once operational. Further, it is intended to create thousands of jobs and position Assam as a tech hub in Northeast India.

The high rate of population growth and increasing dependency burdens necessitate hasty revolution in case of production sector. The primitive agriculture system fails to cater the rising demand. In that perspective, rapid industrialization urges to absorb the rising manpower population. Although attempt towards industrialization are being initiated, yet it is very limited. The set up of semiconductor in Assam is a prospective sign to hold the unemployed. It is proposed that, the sustainability of this project definitely will be helpful for future generation and will make a milestone in the way of prosperity.

Pollution free technique:

Concerning with a full of hope of environmentally friendly attempts are being taken in manufacturing as well as cooling process of semiconductor in Assam.

Although it is difficult to say as entirely pollution free in as of large scale industry, still environmental safe guards is prime attempt along with some other objectives of semiconductor of Assam. To meet modern environmental standard it is designed as a Greenfield project.

1. Green power and Water: for sustainable chip making the semiconductor is strategically located to access high quality water and green energy.

2. Zero Liquid Discharge: according to this approach the industrial waste water is recycle through advance treatment. It is not release in the environment.

3. Hazardous Waste Management: the plant very much concern regarding waste of the industry and environment. It is adhere to the norms of both central and state pollution control board.

4. Biodiversity and Protection: another important aspect of this projects that special care is imposed to mitigate ecological impact and wild life protection.

Objectives of the Study:

This study is basically proposed to accomplish on the basis of optimistic conceptualization. By analyzing the strategies adopted by the joint venture authority necessarily be evaluated in deft and suggest remedial measure.

1. To analyze the diversified employment opportunity.
2. To analyze the prospects of semiconductor project towards socio-economic aspect.

Research Methodology:

This study is categorized as an exploratory or analytical study. It aims to explore the potential for employment opportunities that may arise from the development of the semiconductor industry in Assam. Rather than reporting original research data or conducting a detailed empirical investigation, this study analyzes current trends, regional advantages, and the broader socio-economic impact of the semiconductor sector in the region.

The approach includes a descriptive analysis of the context, prospects, and policy implications, and it addresses recommendations and the need for skill development and strategic planning, which are relevant to policymakers and stakeholders. As such, this paper is both a descriptive study and a policy-oriented discussion, proposing pathways for future employment opportunities in Assam through the establishment and growth of the semiconductor industry.

Types of Job Opportunities:

As course of action designed by the semiconductor project of Assam following categories of jobs likely to be emerged. To manage packaging processes, quality control, designed and execute testing protocols, especially for flip-chip and ISP etc., following portfolios will be assumed to recruit.

Table-1

Prospects of Jobs Portfolios

1. **Technical / Engineering Roles**	(i)Process engineers	(ii)Test engineers	(iii)Packaging engineers
2. **Technician & Operator Role**	(i)Clean-room operators	(ii)Packaging line operators	(iii)Test-equipment operator
3. **Quality Assurance & Inspection**	(i)QA analysts	(ii)Failure analysis teams	(iii)Inspection and measurement roles
4. **Facilities & Maintenanc**	(i)Maintenance of clean room infrastructur	(ii)Utility management (power, cooling, water	(iii)Environmental, health & safety teams
5. **Supply Chain & Logistics**	(i)Managing the inbound wafers, materials, and outbound packaged chips	(ii)Material planning, procuremen	
6. **Management / Support**	(i)Project management	(ii)HR, operations, procurement	(iii)Vendor management, especially as semiconductor ecosystem grows
7. **Skilling & Training**	(i)Trainers for technicians	(ii)Collaboration with local educational institutes to build a local talent pipeline	

As categorized in the above table-1, there are seven numbers of main portfolios of jobs proposed to be occurred and two or three sub portfolios will in per category. In fact, apart from these portfolios another technical cum non technical job folios definitely be occurred in semiconductor of Assam to absorb huge numbers of youth manpower.

Future socio-economic prospects:

Striving for industrialization and rush in agriculture is the common characteristic of almost all the under develop nation like India. In that perspective, the semiconductor project in Assam is assumed to be the milestone of industrialization. The intention of set up of this projects is not only the economic growth but it aims to encompass the all round development also which can be elaborate as below. Further, through the semiconductor project of Morigaon unit of Assam, it is not only expected technological development, but it brings significant socio-economic benefits by generating 15,000 direct and 11,000-13,000 indirect jobs, contributing to regional economic growth in Assam and nearby areas also. It is

proposed to high-capacity production site, the facility's daily output will serve both domestic and international markets. It is expected that, India will able to track a competitive force in the global semiconductor supply market.

1. To provide employment opportunities:

To absorb the unemployed youth they must be competent for the stipulated vacancy positions. It will demand for skilled manpower. However, attempts are being taken some collaborative skill orientation programme in higher educational technical institutes like IIT, NIT,ITI etc., along with some vocational training, specialized courses in local educational institutes.

2. To control over rush in agriculture:

People belong to the rural areas have a common intention due to non existence of alternative scope to engage they try to involve in agriculture, consequently harms in per capita income. Therefore, semiconductor in Assam is targeting to focus on that part so that manpower could be converted towards industrialization.

3. Industrialization:

Industrialization was nothing but dream for under develop areas like Assam which is going to be reality through semiconductor project. Policy makers, thinkers urges only one way to all round development of a nation that is industrialization. Therefore, it is proposed to set up the socio economic upliftment through this semiconductor project in Assam.

4. Export promotion:

Export promotion is another important aim of semiconductor mission. It is highly expected that the output of semiconductor of Assam will able to occupy the national cum international market and will able to be earned foreign currency. In fact, turning Assam into a tech-manufacturing hub is the basic goal of this project.

5. To control the migration of labour:

The prevailing of brain drain is a serious issue. Lack of proper scope manpower goes out. The government wants to control this issue through semiconductor mission. It is proposed that paying higher amount for high-skill jobs people choose to stay in Assam and return, reducing migration.

6. To control the unnatural death of labour:

The vulnerable groups of people go out for seeking job and survive in minimum level of life security. Consequently, unnatural death of labour is the common incident taken place in outside area. Therefore, this issue will propose to be resolved through this project.

7. To boast up the rural socio-economic status:

Attacking vicious cycle of poverty boast up the socio economic status in rural sector is the goal of semiconductor of Assam. Maintenance of infrastructural development, skill manpower and sustainable development through employment generation are another vision of semiconductor project of Assam.

8. To place the social peace of labours family arise due to extra marital affairs:

From the experience of almost last fifteen to twenty years it is seen that the extra marital affairs attacking the social peace. It is basically taken place mainly due to migration of male labour towards outside for long period of time. The semiconductor project is proposed to resolve such type of problem absorbing local labour of entire north east area.

Conclusion:

The semiconductor project of Assam is very challenging because of sector wise dependent of labour data perspective both of agriculture and industry. Factors basically, low level technical atmosphere, lack of technical knowledge, low literacy rate, over dependency on primitive agriculture etc., horrible to absorb local human resources controlling brain drain.

The India's labour force is employed in agriculture 45%–46%, while the industrial sector employs approximately 24%–26% as of 2023–24, still agriculture's share of GDP is around 18%.

Like that, the labor force in Assam remains heavily dependent on agriculture, with estimates indicating that approximately 69% to 70% of the total workforce is engaged in agriculture and allied activities such as tea, fishing, and forestry as of 2024–2025. Conversely, the industrial sector including manufacturing, mining, and construction absorbs a significantly smaller portion of the workforce, with studies indicating that around 30–31% of the workforce is employed in non-agricultural sectors, including industries and services.

Therefore, to attain the goal of semiconductor project of Assam, labour intensive technique would be more appropriate to apply along with capital intensive technique, so that absorption of labour will increase. There needs to circulation cum execution of technical education in more expensive mode from the early stage of the education system. Communication programme with higher technical educational institutes and other educational institutes should be conducted frequently so that the volume of inspiration towards technical education will boost up.

However, with a broad visionary outlook towards employment generation in rural sector through industrialization with joint venture of Assam Government, Central Government and Tata Group it is expected that semiconductor project of Assam will be a mile stone in near future as well as considered as a game-changing project for the region and the entire country. It is proposed that the state cum union government able to put their foot in worldwide market and able to change current employment opportunity scenario. Therefore, this initiative could be considered as the strategic attempt to mitigate from the vicious cycle of poverty.

End Notes:

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