Transformative Initiatives In Mining: Analysing The S&T-PRISM Program's Impact On Innovation And Sustainability

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Introduction:

The announcement that was made on the 15th of November, 2023 by the Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), which is under the Ministry of Mines, Government of India, represents a groundbreaking opportunity for organisations that are involved in the mining and mineral sector.[1] The objective of the programme known as "Promotion of Research and Innovation in Startups and MSMEs in Mining, Mineral Processing, Metallurgy, and Recycling Sector (S&T-PRISM)" is to bring about a revolution in the industry by providing financial assistance to innovative projects that have a direct impact on the mineral sector.

For the purpose of this article, we will delve deeper into the key features of the S&T-PRISM programme, with a particular emphasis on the relevant mining laws, guidelines, and emerging trends in the industry.

Key Features of S&T-PRISM

1. Objective and Focus Areas

The S&T-PRISM program's primary objective is to facilitate the transition from research to technology within the mineral sector. This transition is intended to become more efficient. In order to accomplish this, there is a shift towards the application and sustainability of mining, which encompasses essential areas such as prospecting, exploration, mining methods, metallurgy, and environmental protection.

2. Thrust Areas

The program identifies specific thrust areas to concentrate efforts on:

- Prospecting and exploration, with a particular focus on the search for rare earth minerals that are strategically important.
- Rock mechanics, mine design, mining equipment, energy conservation, environmental protection, and mine safety are all topics that are included in the research on mining methods.
- Focusing on improving efficiency in processes and operations, recovering by-products, and making use of lower-grade and finer-size ores is the primary objective of metallurgy and mineral beneficiation.
- Circular Economy and Green Technology: Incorporating research and development in order to establish a circular economy, decarbonization, and the development of green technology in industries that are based on minerals.

3. Eligibility Criteria

The program is open to Startups, MSMEs, and individual innovators, with special consideration for those from the North East Region and women-led enterprises. Collaboration with academia and research organizations is encouraged to enhance the scope and depth of the projects.

4. Evaluation Criteria

The selection process involves a comprehensive evaluation based on:

- Assessing the practicability and reasonableness of technical claims, validation methodologies, and the road map for the development of technology is what is meant by the term "technical feasibility assessment."
- Environmental sustainability, market size, customer demographics, and the impact of the technology on these aspects are all factors that should be considered when evaluating potential impact.
- Novelty refers to the process of analysing the distinctive selling points of the technology, as well as its relationships with national significance and how it differs from other solutions currently available.
- The process of analysing the utilisation of technology to create a product or service, as well as its positioning, value addition for the customers who are intended to purchase it, and the strategy for going to market is referred to as commercialization strategy.
- The evaluation of the team's technical and business expertise, including the provision of mentoring opportunities.

5. Funding and Milestones

The structure of the financial support is determined by the milestones of the project. The amount of funding ranges from 50 lakhs of rupees for new businesses to 2 crores of rupees for technological products that require a higher investment. In accordance with the milestones, the disbursement will take place in four instalments.

6. Procurement and Pilot Opportunities

To ensure that the products and services developed by startups and micro, small, and medium-sized enterprises (MSMEs) become financially viable over time, the programme provides mechanisms. Opportunities to participate in pilot projects are made available in the mining, mineral processing, metallurgy, and recycling industries.

7. Incubation and Mentoring Support

Mentorship and technical advisory support are provided to the beneficiaries who have been chosen, ensuring that a holistic approach is taken to the development of the project. As part of the support, one shall receive guidance on expanding operations, expanding network, tapping into resources, and in developing business plans.

8. Financial Details and Usage of Funds

Research and development, prototyping, testing, trials, and piloting are all

processes that should be encouraged to receive funding. However, there are some expenses that are not allowed, such as those related to human resources (HR), power, tools and machinery, and office expenses.

Benefits of the Program

In the mining industry, the (S&T-PRISM) programme acts as a catalyst for the development of transformative benefits. This initiative actively promotes technological advancements in the areas of prospecting, exploration, mining methods, and environmental protection by providing financial support to projects that are at the "Proof of Concept (POC)" level. S&T-PRISM encourages startups and micro, small, and medium-sized enterprises (MSMEs) to bring innovative technologies into applications that are used in the real world. It serves as an important bridge between development and commercialization. Sustainability and regional development are both fostered by the program's strategic focus on circular economy initiatives, green technology, and inclusivity.

Additionally, the programme gives preference to startups and businesses led by women in the North East Region. The implementation of a funding strategy that is based on progress milestones guarantees accountability and transparency. Opportunities for pilot projects in the mining industry provide supported ventures with valuable exposure and validation, which contributes to the economic viability of the market. Not only does the programme facilitate the development of projects, but it also fosters the growth of scalable business models, which is in line with the government's vision of economic growth and employment generation.

Mentorship and advisory support are provided by the programme. In order to position India as a frontrunner in the global mining landscape, S&T-PRISM helps to foster innovation, sustainability, and economic prosperity. This is accomplished by placing an emphasis on strategic areas and providing support to ventures that have the potential to be of nationwide significance.

Conclusion

As the mining and mineral industry continues to evolve, the S&T-PRISM programme has emerged as a shining example of innovation and sustainability. Through the promotion of collaboration, the concentration on strategic areas, and the provision of structured financial support, the initiative is in line with the overarching objectives of the industry, which are to encourage research and methods that are environmentally responsible.

Initiatives such as S&T-PRISM play a pivotal role in driving technological advancements, ensuring environmental sustainability, and promoting a circular economy within mining-related industries. This is because the mineral sector is undergoing a transformation at the same time. Additionally, the programme serves as a demonstration of the government's dedication to promoting a culture of innovation and sustainability within the mining industry, which is of critical importance.

[1] https://mines.gov.in/admin/storage/app/uploads/6555fc5fae7b51700133983.pdf

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