The Forests' Bioenergy Opportunity: Investments Powering Sustainability

Roundtable Summary Note

The Investment Roundtable on "The Forests' Bioenergy Opportunity," hosted on 15th February 2024, marked a significant congregation at the Indian School of Business, Hyderabad. This event organized by GIZ and the Initiative on the Forest Economy (IoFE) at Bharti Institute of Public Policy, ISB was a convergence of minds from varied sectors, each bringing a unique perspective to the forefront of the forest bioenergy discourse.

The Roundtable was centered around exploring the untapped potential of forests in the bioenergy sector and the potential for & role of the investment sector in enabling the forests' bioenergy opportunity. The event aimed to harness this potential through a collective effort of diverse stakeholders. The discussion was designed to transcend traditional boundaries, aligning thoughts and strategies across a wide spectrum of industry players, ranging from producers to buyers and investors in the bioenergy sector.

The roundtable was structured to facilitate a seamless transition from theoretical underpinnings to practical insights. The contributions from the industry partners and investor community were crucial, as they provided a ground-level perspective to the discussions. This blend of theory and practice provided a holistic view of the forest economy, where the deliberations resulted in initial and actionable pathways for investments in the forest-based energy sector.

Potential of the Forest Economy in the Bioenergy Sector

Forest Economy can play a substantial role in addressing climate change and the decarbonization of energy sources in the country. The Initiative on the Forest Economy, with the forests-based bioenergy opportunity, is a multifaceted and progressive endeavor that envisions transforming underutilized forest resources across vast forest landscapes into sustainable energy solutions. This initiative encompasses a two-tiered approach, addressing both immediate and medium-term opportunities within the forest economy and, resting on a harmonious balance between economic development and environmental stewardship.

The first level of the approach is about capitalizing on readily accessible opportunities, exemplified by the sustainable utilization of bamboo forests and Sal forests for bioenergy production. These resources represent a significant untapped potential for immediate bioenergy applications. The emphasis is on effectively and sustainably utilizing these resources, to ensure that their utilization not only benefits the economy but also positively impacts the environment.

The second level of this approach targets extensive forest landscapes, specifically those that are open and/or degraded, previously native habitats for fast-growing species like bamboo—a valuable bio-energy resource that reaches maturity within four to five years. Regeneration of these regions through required innovative and bespoke models will enable their integration into the bioenergy economy. The aim here is to create sustainable bioenergy solutions that are tailor-made for the unique ecological and social contexts of these regions. This aspect of the strategy represents a

medium-term opportunity, requiring complex planning, financing, and execution, and with the potential for significant and large-scale impact.

The underlying strategy for realizing the forest economy's potential in bioenergy is anchored in three key pillars:

(a)Security of Tenure for Local Communities: This pillar focuses on the critical role of local communities in the sustainable management of forest resources. Local forest-based communities are vital stewards of these resources, and their active participation is essential for sustainable forest management. With the security of tenure, the communities have the required legal ownership and management rights of the forest landscapes and their resources. With tenurial rights, combined with their intrinsic knowledge and connection to the forests, communities become critical partners in forest-based bioenergy value chains and the wealth creation.

(b)Economies of Scale: The initiative acknowledges the limitations of local community capacities in managing large-scale operations. Thus, it advocates for the development of enterprises that operate at a landscape scale. Community-led enterprises can reduce the risk of over exploitation of the forest and accountable management of the degraded areas while also undertaking forest regeneration and carbon sequestration efforts towards net zero mission. This approach enables the harnessing of technological efficiencies and economies of scale, making bioenergy projects viable and impactful.

(c)Project-Based Approach: The strategy calls for a project-level approach to investment and business modelling in the bioenergy sector. This involves creating an ecosystem that includes entrepreneurs, investors, and buyers, all working together to develop and implement successful bioenergy projects. This collaborative approach aims to foster innovation, attract investment, and ensure the commercial viability of bioenergy ventures.

Industry and Market Perspectives

The roundtable discussion delved into several aspects of the bioenergy sector, highlighting the potential and challenges of leveraging seasonal forest products for sustainable energy solutions. Key insights from the discussion included:

Midstream and Downstream Challenges: Challenges to overcome in the midstream and downstream segments of bioenergy projects were noted, including the lack of maturity in midstream technology and undeveloped market mechanisms. These issues create uncertainty in the value chains, affecting the feasibility and future viability of projects.

Investment in Upstream Value chain: Analogies were drawn between the biomass and fossil fuel industries, underscoring the need for substantial upstream investment to ensure a reliable supply of biomass. The lack of investment in upstream projects within the biomass sector was noted, along with high working capital requirements to address seasonal variability.

Pilot Project Expansion: The idea of initiating a larger number of small-scale pilot projects was suggested to gain broader learning experiences and decrease the probability of failures. This approach acknowledges the possibility for failure but also the potential for success, allowing stakeholders to identify and build upon successful models.

Public-Private Partnership and Other Collaboration Models: The implementation of public-private partnership (PPP) models was discussed as a possible pathway, given its effectiveness so far in the Northeast. Alongside, the importance of models that are market-driven, secure, and visible was discussed and the opportunity for collaboration between the local communities with secure tenure

and the private sector was highlighted as well. The focus was placed on sustainable practices and, equitable and just profit distribution with indigenous communities.

Resource Aggregation and Government Engagement: Two main challenges identified were the aggregation of resources such as pine needles, bamboo, or Karanj, and changing government systems that could come in the way of building continuity in business/business models. The complexity of navigating government policies and mandates in the bioenergy sector was emphasized. It was shared that working with community-owned enterprises, anchored in secure tenure, would help build and viable secure supply chains for the long term.

Lack of Clarity and Research: A lack of education and clarity regarding biomass handling, pricing, and translating biomass into biofuel output was highlighted. Yield structures, calorific value, and other indicators/matrix need to be further studied and researched to scientifically estimate and validate the close range for industrial application levels. This extends from collectors to end-users, wherein an absence of detailed research or documentation on biomass use cases for biofuels from forests presents challenges in setting realistic prices and understanding yield structures.

Learning from Solar Energy Development: Insights were shared drawing parallels with the early stages of solar energy development in India. The importance of government support in making the bioenergy sector attractive for investment was underscored, alongside the need to redirect investment strategies towards sustainable initiatives such as bioenergy.

Carbon credits: The carbon opportunity in models that involve forests' restoration for bio-energy sources, thereby, benefitting the industry, communities, and forests, alike was discussed.

These discussions reflect the multifaceted nature of the bioenergy sector, highlighting the need for innovative solutions, collaborative efforts, and strategic approaches to overcome challenges and harness the potential of forests for sustainable bioenergy production.

Investment and Financial Insights

The roundtable discussion brought forth significant insights regarding investment and financial strategies in the bioenergy sector, focusing on the need for innovative and collaborative financial solutions. One of the main topics discussed was the development of business models capable of demonstrating recurrent revenue streams to meet investor return requirements. The potential of carbon markets was highlighted as a significant opportunity, particularly for emerging markets like India. These markets, which involve the trading of carbon credits to offset CO2 emissions, are evolving and offer avenues to unlock capital from companies aiming to offset their carbon footprint.

A key insight mentioned the importance of collaboration between different capital sources in project financing. It was explained that international investors might be more willing to participate in projects if there is also local investment, providing an additional layer of assurance and security on returns and vice-versa. This perspective identified voluntary carbon markets as a major opportunity for emerging markets like India, especially given that compliance markets are still in the development phase.

The role of concessional capital in supporting new sectors was also emphasized, stressing the importance of philanthropic capital to showcase successful projects. However, it was noted that this support need not be limited to grants alone. Tailored financial mechanisms, such as guarantees or risk mitigation strategies, can considerably enhance the investability of projects.

Another perspective focused on the importance of introducing diverse financing forms, including securing low-cost loans from Development Finance Institutions (DFIs). These investments, structured to be affordable and attractive for investors, also emphasize respecting the needs and rights of local communities. The approach involves making financing more accessible and transparent for local communities, ensuring they are not overburdened with risk and can benefit from affordable financing options.

Moreover, the discussion emphasized the importance of fostering equity for individuals and organizations directly engaged in projects, especially those involving grassroots entities such as NGOs and cooperatives. This strategy promotes a sense of ownership and long-term dedication among stakeholders. Initiatives were described as initial support for the beneficiaries through long-term loans at minimal interest rates, eventually converted into equity.

The challenges faced in securing financing from Indian lenders due to high-interest rates and stringent requirements were also addressed. It was noted that these issues led to seeking funding from international investors, emphasizing the misalignment between the perceived risk by Indian banks and the actual risk of such projects. The discussion underscored the importance of demonstrating project success to secure future financing from Indian institutions and the potential role of organizations in supporting similar projects.

These insights collectively highlight the need for a multifaceted approach to financing in the bioenergy sector, involving a combination of donor capital, commercial investment, and guarantees. The discussions underscored the importance of structuring financing mechanisms that are fit for purpose, ensuring the involvement of multiple stakeholders, and respecting the socio-economic contexts of local communities.

Policy, Regulatory frameworks & Governance

The roundtable underscored critical issues and potential solutions regarding government involvement and regulatory mechanisms in the bioenergy sector and, the opportunity for community participation. The key drivers for industrial bioenergy transition are (i) Availability (ii) Accessibility and (iii) Affordability of biomass over a medium to long term perspective. Interruptions in terms of tendering, tariffs or transits can be detrimental to the development of markets, machines and mechanisms for biomass supply chain. Uncertainty of supplies and price points of biomass have adversely impacted the industry in the past and it needs policy and/or market interventions to bridge the trust deficits.

At the forefront of the conversation was the critical role communities play in the initial stages of the value chain, empowered by thoughtful policy and conducive to effective governance. The dialogue emphasized how integrating communities—not just as stewards of forest resources but as foundational elements for scalable enterprises—could transform forest management into a formal, visible, and secure endeavour. Yet, a recognized challenge was the trust gap existing among stakeholders. Identifying markets as efficient solutions for sustainable operations highlighted the necessity for collaborative efforts to construct these value chains, advocating for mutual trust and active participation from all entities, including the forest department.

Further discussion explored different models at the beginning of the value chain, such as Community Forest Resource Rights (CFRR), Joint Forest Management, and Forest Development Corporations. The conversation suggested that to shield governance from political shifts, CFRR might be the most resilient approach.

On policy frameworks, the necessity for a central coordinating body or mechanism within ministries as a nodal agency responsible for bioenergy was debated to enhance effectiveness and streamline operations.

The role of Forest Development Corporations was discussed as well as potential players in transforming forest land into productive biomass sources. As partnerships between the forest department and the industry, these corporations could offer a structured approach to biomass production, particularly in underutilized large land areas. However, it was discussed that this could likely be subject to shifts in policy/governance focus.

Overall, the discussion highlighted the need for a structured and collaborative approach involving multiple stakeholders, from government bodies to local communities, to harness the potential and navigate the complexities of the bioenergy sector. The emphasis was on creating a conducive ecosystem for the sustainable development of bioenergy projects, building on existing enabling policy frameworks (such as the Forest Rights Act for security of tenure), combined with additional focus on policies for the bioenergy sector.

Way Forward

The roundtable's strategic vision for moving forward in the forest bioenergy sector centers on creating a comprehensive document that outlines the myriad of opportunities within this field. The document aims to extend its reach to the investment sector at large, providing awareness of opportunities, constraints and financing options available in the forest economy. It is envisioned as a roadmap that will guide further development and investment, charting a path for the sector's sustainable growth.

A key part of this strategy is the suggestion to reconvene in three months. This follow-up session is set to focus on more concrete project proposals, bringing together a wider range of stakeholders, including government entities and major buyers. The objective is to engage in deeper discussions and establish definitive steps for leveraging the forest economy toward sustainable bioenergy production.

Bioenergy is a sunrise sector in India wherein significant investments will be forthcoming from domestic as well as overseas agencies. Development Financial Institutions like NABARD have recently added a new department to address challenges in climate actions and sustainability. As the sector has several new aspects to learn, experiment, and develop, innovative projects and interventions in the bioenergy space need to be supported with concessional and blended financing options. Viability Gap Funding by government and impact investment institutions can support the early traction of bioenergy projects which will help the transition to become replicable at scale.

This roundtable represents a proactive and collaborative approach to harnessing the potential of the forest bioenergy sector. It underscores the importance of continuous engagement, capacity building, and the development of a comprehensive and inclusive framework to drive investment in this emerging field.

End of note.