LOST CIRCULATION MATERIALS (LCMS)
INVESTMENT PROPOSITION

General Information

Sector: Energy
Sub-Sector: Oil and Gas

1. Abstract

Namibia's nascent offshore drilling boom presents a timely opportunity to locally produce Lost Circulation Materials (LCMs), which are specialized additives used to seal fractures and cavities during drilling. With at least 5 deepwater wells projected to be drilled annually, significant volumes of LCM (such as calcium carbonate, graphite, and fibrous materials) will be required to combat downhole fluid losses. Establishing a Namibian LCM production facility would leverage the country's mineral wealth (limestone, barite, clays) and strategic port infrastructure to supply drilling campaigns quickly and cost-effectively. This proposal outlines how local LCM manufacturing can reduce dependency on imports, create jobs, and integrate into Namibia's broader industrialization agenda as offshore exploration accelerates.

2. Value Proposition

Localizing LCM production offers clear strategic advantages for Namibia. A facility at Walvis Bay or Lüderitz would be near the offshore drilling theater, enabling rapid delivery of LCM blends to rigs and minimizing costly downtime during loss-of-circulation events. Namibia also possesses abundant limestone and other minerals that can serve as base materials for LCMs. For example, locally mined limestone (or marble) can be ground into calcium carbonate bridging agents, while potential clay deposits could yield bentonite, which is a common LCM and drilling mud additive. By producing in Namibia, suppliers gain duty-free access to the Southern African Customs Union and broader African markets via AfCFTA. This opens export opportunities to other drilling hubs in the region (e.g. Angola or South Africa) where operators currently import LCMs. Blending LCMs is relatively low-tech (primarily mineral processing and packaging), making it one of the easier consumable categories to localize. A Namibian LCM facility could with minimal added investment expand into related products; for instance, preparing weighting agents (barite blends) and other drilling fluid additives to diversify revenue streams and aligning with Namibia's ambitions to capture maximum local content in the upstream petroleum supply chain. Moreover, some LCM products (like cellulose fibers) could be sourced from local agriculture or biomass, creating linkages to farming and bush-clearing industries. Ultimately, local LCM production reduces import costs and lead times for operators while stimulating the domestic economy by building skills and a local supplier base.

3. Market Analysis

Drilling ultra-deepwater wells can consume substantial LCM volumes. Each well can experience severe fluid losses requiring dozens of LCM pills; in practice a single deep well may use on the order of hundreds of sacks (several tons) of LCM to cure losses. Thus, annual demand could reach tens of tons of varied LCM materials (graded calcium carbonate, mica, fibers, etc.), valued at millions of Namibian dollars. This demand will rise as exploration and development drilling intensifies toward first oil in 2029/30.

Currently, all LCMs are imported by international service companies. A Namibian plant could capture this market by offering custom-formulated loss control blends tailored to local geology, at lower cost and with on-demand availability. In the SACU region, no dedicated LCM manufacturer exists, so Namibia could become a regional supplier, exporting to neighboring Angola (a major drilling market) and other African oil provinces under AfCFTA terms. Given Walvis Bay's role as a regional shipping hub, a Namibian LCM facility could efficiently ship to West and East African markets, which import similar materials. Key LCM ingredients can be sourced both locally and abroad. Namibia's limestone deposits (e.g. at Otavi and Karibib) can provide high-purity calcium carbonate for bridging agents. While specialty fibers and certain polymers might need importing initially, opportunities exist to utilize local agro-waste (for example, encroacher bush woodchips) as eco-friendly LCMs. Bentonite clay, used both as a mud additive and loss circulation medium, is not currently produced in Namibia; however, regional supply from South Africa or Botswana could be imported and milled locally. Overall, the facility would combine local minerals and imported additives to produce a full suite of LCM products. This venture could also serve Namibia's onshore water-well drilling and mining sector. By catering to these parallel markets, the plant achieves economies of scale and steady demand beyond the oil sector.

4. Business Model Considerations

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A local LCM facility would likely be structured around mineral processing and chemical blending, with major cost drivers including raw material procurement, milling/granulation equipment, and logistics. Cost Drivers: Sourcing minerals like barite (for weighting agents) or gilsonite might entail import and transport costs if local mining is unavailable, so securing regional suppliers or developing a Namibian barite mine would be advantageous. Energy costs for grinding and drying operations will also impact unit costs – here Namibia's relatively affordable power (and potential future green energy from solar/wind) could help keep production competitive. Labor and skill requirements are moderate; Namibia's existing mining and processing workforce can be upskilled to operate the plant. Co-Location Opportunities: It would be beneficial to co-locate the LCM facility within an oilfield services hub at Walvis Bay, alongside drilling mud plants and cement bulk storage. Indeed, global service firms are already setting up such infrastructure – Halliburton is planning a liquid mud and dry additive plant at Walvis Bay Port (Berth 8) that will store barite, bentonite, and calcium carbonate

A local investor could partner in or complement these operations, perhaps through a joint venture using Halliburton/Baker Hughes technology while qualifying as a local supplier. Proximity to the port allows direct import of any needed chemicals and export of finished products to rigs or other countries. Operational Synergies: A versatile plant could produce multiple products with minimal extra capital – for example, using the same milling equipment to produce fine-ground calcium carbonate for LCM and also grind silica or slag for cementing additives. Storage silos and handling systems could be shared between drilling fluid additives and cement extenders. Such cross-utilization means one facility could service both drilling and cementing material needs, improving capacity use and profitability. There are also synergies in distribution: the same fleet of supply vessels/trucks that deliver drilling mud can carry LCM products. Market Entry and Scale-Up: Initially, the business can secure

offtake by focusing on the confirmed domestic demand (exploration wells by Shell, TotalEnergies, etc., which under local content rules would be encouraged to buy Namibian-made LCM). As operations prove reliable, the facility can scale up to bid for regional contracts. Key partnerships – with mud service companies for technology licensing, or with local mining firms for raw material – will strengthen the model. Risk Mitigation: To address variability in drilling activity, the facility should maintain flexibility to supply other sectors (mineral processing industry, civil engineering grouts, etc.). By designing the plant for multipurpose output, downturns in oil drilling can be buffered by sales to mining or construction companies that use similar materials.

(a). Top 3-5 Major Cost Drivers

The largest contributors of cost to developing and operating the proposed project.

Cost Driver	Description
Raw Material Procurement	Includes the cost of acquiring base materials such as cellulose, mica, calcium carbonate, and graphite—either imported or locally sourced—critical to LCM formulation.
Processing and Blending Equipment	Capital expenditure on mixers, granulators, dryers, and packaging systems required to process and formulate various LCM types (fibrous, granular, flake).
Utilities and Infrastructure	Operating costs for power, water, and waste management; as well as infrastructure such as warehousing, roads, and industrial land.
Labor and Technical Expertise	Costs related to hiring and training skilled workers, including process engineers, quality control personnel, and plant operators.
Regulatory Compliance and HSE	Expenditures related to environmental permits, health and safety systems, material handling certifications, and quality control laboratories

(b). Revenue Streams

The revenue created by the proposed project, i.e. the by product and any other revenue line attached to the project.

Revenue Stream	Description
Direct Sales to International Oil Companies (IOCs)	Revenue generated from selling LCMs directly to exploration and production companies operating offshore in Namibia.
Sales to Oilfield Service Companies	Earnings from supplying LCMs to drilling service providers such as Halliburton, Schlumberger, or Baker Hughes who manage well construction.
Sales to Adjacent Industries	Additional revenue from supplying similar materials to mining, geothermal, and civil engineering sectors which also require circulation control products.
Toll Blending or Contract Manufacturing	Revenue from providing blending and packaging services to third parties that supply their own LCM formulations or require local market access.

5. Legal/Policy Considerations

List and define the key enabling policies and legislations that support the investment in the proposed project.

Policy/Legislation	Description	Relevance to Project
Draft Upstream Petroleum Local Content Policy	A policy aimed at maximizing local participation in Namibia's oil and gas value chain through preferential procurement, employment, and capacity building.	Encourages IOCs and service companies to procure LCMs locally, increasing demand and improving market security for the facility.
Environmental Management Act (2007)	Provides for sustainable development by requiring Environmental Impact Assessments (EIAs) for activities that may have significant environmental impacts.	The LCM facility must comply with EIA and obtain environmental clearance certificates for site development and operations.
Public Procurement Act (2015)	Regulates government and SOE procurement processes to promote transparency and local sourcing.	Enables local producers of LCMs to participate in public tenders and benefit from local supplier preferences.

6. High-Level Risk Profile

- Demand for LCMs is tied directly to offshore drilling activity, which may fluctuate depending on exploration outcomes and global oil prices.
- Reliance on imported raw materials (e.g. cellulose, graphite, calcium carbonate) can lead to delays and cost volatility.
- Limited local experience in blending and quality control of LCMs could result in production inefficiencies or product quality failures.
- Exposure to exchange rate fluctuations may impact the cost of imported equipment and raw materials, affecting profitability.

For more information regarding this opportunity, please contact us at catalogue@nipdb.com.