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The Catalyst NEWSLETTER

Impact Beyond Borders

From Timber To Technology

KSL's GRP Innovation Rewrites the Story of Safety, Sustainability and Maritime Progress on Lake Victoria

By Rhoda Atieno

In a rapidly evolving maritime landscape, the waters of Lake Victoria tell two intertwined stories: one of livelihoods sustained by generations of artisanal fishing, and another of persistent danger caused by aging, unstable vessels. For decades, wooden boats—favoured for their low cost and easy local construction—have dominated the lake. Yet their structural weaknesses, susceptibility to rot, and vulnerability to violent storms and unpredictable currents have made them a silent but deadly risk.

It is against this backdrop that Kenya Shipyards Limited (KSL) has introduced Glass Reinforced Polymer (GRP) artisanal boats—a modern, purpose-built solution designed to enhance safety, sta-

Catalyzing Shipbuilding Industry

MANDATE

To lead and catalyze the introduction of the new shipbuilding industry in Eastern Africa with a focus on meeting the local demand from Kenya Navy, Ministries, Departments and Agencies with maritime assets and other public and private domestic and regional clients.

VISION

To be the leading catalyst in the development of the shipbuilding industry in Eastern Africa.

MISSION

To establish and develop the growth of shipbuilding industry through the provision of world-class construction, refit, maintenance and repair of ships and other maritime services in a sustainable and efficient manner.

CORE VALUES

1. Integrity: Observing the highest standards of ethics, honesty and accountability always.
2. Professionalism: Delivering the best quality service to customers with utmost rigor and efficiency.
3. Team Spirit: Working together in a spirit of creativity and mutual respect to achieve common objectives.
4. Excellence: Quest for the highest level of performance through continuous improvement of skills and best practices.

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GRP boats are constructed using fiberglass reinforcements bonded with marine-grade resin and finished with a protective gel coat. The result is a strong, waterproof and corrosion-resistant hull

bility, longevity and environmental compliance. The advent of GRP boats has enabled KSL to drive meaningful change in the maritime space, responding decisively to both local safety concerns and evolving global environmental standards.

"The GRP boats represent far more than just new vessels on our waters. They symbolize progress and signal a new era where innovation meets tradition—where we respect the age-old practice of fishing while embracing modern technology that enhances safety, durability and operational efficiency," said Major General Said Mohammed Farah, Managing Director, Kenya Shipyards Limited.

The shift from wood to technology was neither incidental nor cosmetic. It was born out of an urgent call for safer waters.

"The construction of GRP boats was necessitated by an enquiry from the Government of Kisumu County. The wooden boats fishermen were using were structurally unsound, leading to water accidents and loss of life. This presented both an opportunity and a challenge to locally design and construct modern, efficient and safe watercraft tailored for Lake Victoria," explains Captain Mungai, Yard Manager at Kisumu Shipyard.

For years, Lake Victoria has recorded alarming levels of water-related fatalities, largely attributed to drifting currents, violent storms and unstable vessels. Past estimates placed annual deaths between 3,000 and 5,000. While sustained regulatory interventions and awareness campaigns have helped reduce the figure to about 1,000 annually, the inherent limitations of wooden boats—which absorb water, weaken over time and deteriorate rapidly—remain a critical risk factor.

KSL's response was deliberate, research-driven and anchored in engineering rigour. Through targeted technical training, feasibility assessments and structured design processes, the shipyard developed a GRP prototype with safety embedded at its core.

Unlike wooden vessels, GRP boats are constructed using fiberglass reinforcements bonded with marine-grade resin and finished with a protective gel coat. The result is a strong, waterproof and corrosion-resistant hull capable of withstanding the demanding conditions of Lake Victoria. Seamless hull construction enhances balance, wave resistance and overall seaworthiness, directly addressing the root causes of instability and capsizing.

"For far too long, our fishermen have braved Lake Victoria in wooden boats that demand constant repairs, are prone to rot and fall short of modern safety standards. The GRP boats KSL is introducing are more stable, longer-lasting and require significantly less maintenance, while offering better protection from the elements—allowing fishermen to focus on what they do best: feeding our communities and sustaining our economy," Major General Farah said in a recent launch event.

Most critically, the boats are engineered with integrated buoyancy.

"The GRP boats incorporate an integrated buoyancy feature that provides unsinkable capability," notes Captain Mungai. "Even in the event of hull damage, the vessel remains afloat. We also ensure a minimum laminate thickness of 8 millimetres to guarantee rigidity, impact resistance and reliability."

Each vessel is also equipped with essential lifesaving appliances, including life jackets, flares and other safety equipment—ensuring that fishermen can enjoy every mile of their journey with a superior experience that puts their lives first. In this regard, GRP boats are catalysts of progress as far as marine safety is concerned, transforming fishing from a high-risk necessity into a safer, dignified enterprise.

Beyond safety, the GRP initiative reflects KSL's alignment with global environmental priorities. In line with the IMO 2020 sulphur cap and broader de-carbonisation efforts, GRP boats are lighter and more fuel-efficient, enabling operation with smaller engines and reduced emissions. Their extended service life significantly reduces timber consumption and minimizes waste associated with frequent replacement of wood-

en vessels—advancing both environmental stewardship and sustainability.

While the upfront cost of a GRP boat is higher than that of a wooden alternative, the long-term economic case is compelling.

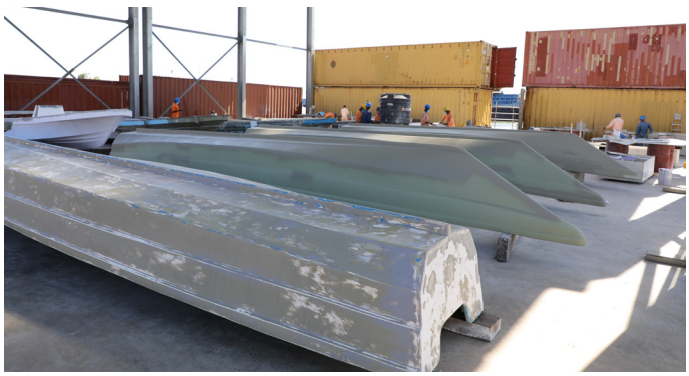
"Wooden boats often require replacement within six to eight months due to constant exposure to water and harsh operating conditions," Captain Mungai explains. "In contrast, GRP boats can last 15 years or more with minimal maintenance. Over time, they are significantly more cost effective."

To ensure accessibility, KSL is actively engaging financial institutions, SACCOs and cooperative societies to structure flexible financing arrangements for Beach Management Units and individual fishermen. By spreading costs across manageable repayment plans, the transition to GRP boats becomes practical, inclusive and scalable. In doing so, GRP boats will drive future revenue growth for local fisher folk by reducing downtime, lowering maintenance costs and enhancing operational efficiency.

Adoption is already gaining momentum. The County Government of Kisumu has acquired five fishing boats and one patrol boat, while Siaya County operates six fishing vessels. The Kenya Wildlife Research Institute operates a KSL-built utility boat, while Shoreline Sacco and Hisani Foundation have each acquired fishing boats.

In parallel, KSL continues to provide GRP maintenance and repair services to institutions such as the Kenya Coast Guard Service, Kenya Wildlife Service, Kenya Revenue Authority and Kenya Power & Lighting Company—underscoring growing confidence in the yard's GRP expertise. Further engagements with the Kenya Maritime Authority and county governments including Uasin Gishu, Homa Bay and Busia signal expanding opportunities across commercial fishing, offshore patrol, rescue services, marine transport and leisure craft.

What began as a targeted intervention to save lives is steadily evolving into a transformative maritime strategy. Through innovation, technical excellence and strategic partnerships, Kenya Shipyards Limited is not only redefining artisanal fishing on Lake Victoria, but also reinforcing its role as a national industrial champion—one that is shaping safer waters, stronger livelihoods and a more sustainable maritime future.



Repowering ageing rail stock

How Kenya Shipyards Limited is Driving Rail–Lake Logistics Integration

By Belinda Osoro

Kenya's national railway system remains a critical artery in the country's logistics and trade ecosystem. Now, an unlikely but strategic intervention by Kenya Shipyards Limited (KSL) is giving ageing locomotives a new lease on life—demonstrating that sometimes, the fastest route forward lies in engineering a reliable second life for existing assets.

Through a collaborative project with Kenya Railways Corporation (KRC), KSL is undertaking the rehabilitation and remanufacture of legacy locomotives at KRC workshops, strengthening freight capacity across Kenya's metre-gauge rail network. The initiative underscores a pragmatic approach to infrastructure renewal—balancing cost efficiency, sustainability and operational readiness.

At first glance, the question seems obvious: what business does a shipbuilder have working kilometres inland with trains? The answer lies at the heart of heavy engineering and integrated transport planning. Kenya's maritime and inland logistics systems are inseparably linked—and ships depend on trains as much as trains depend on ports.

In western Kenya, the wagon ferries MV Uhuru I and MV Uhuru II rely on rehabilitated locomotives to marshal cargo originating from across the country. The metre-gauge railway (MGR) network feeds directly into the Kisumu Link Span, enabling seamless loading of wagons onto the ferries. Recent upgrades to Kisumu port rail lines have further enabled rail-to-lake connectivity, unlocking a truly multimodal corridor across the Lake Victoria basin. Within the industry, it is increasingly described as a perfect "ship–rail handshake."

From Retirement to Active Service

Inside KRC's central workshops, ageing locomotives are being systematically stripped down, re-engineered and returned to service. This is not cosmetic refurbishment.

Strategic intervention by Kenya Shipyards Limited (KSL) is giving ageing locomotives a new lease on life—demonstrating that sometimes, the fastest route forward lies in engineering a reliable second life for existing assets.

Engines are replaced, systems modernised and operational lifespans significantly extended—bringing dormant assets back into productive use while avoiding the high costs and long lead times associated with importing new rolling stock.

KSL's rationale is straightforward: to facilitate sustainable freight transportation that strengthens Kenya's national logistics network. By prioritising remanufacturing and rehabilitation, the company is advancing lower-carbon transport solutions while reinforcing trade corridors critical to regional commerce under the African Continental Free Trade Area.

According to KRC, rehabilitated locomotives are currently deployed along the Longonot–Malaba metre-gauge section and the Nakuru–Kisumu branch line. Their reliability has already been demonstrated under demanding conditions, including a notable operation in which a rehabilitated locomotive hauled approximately 600,000 litres of fuel over 755 kilometres from the Shimanzi terminal in Mombasa to the Vivo Energy depot in Nanyuki.

"This collaboration with KRC underscores KSL's commitment to integrated transport solutions and infrastructure resilience aligned with Vision 2030 in the wake of cross-border trade," said WO II Nyawara, Project Foreman at the KSL–KRC Project, speaking to The Catalyst.

Engineering Solutions to Legacy Challenges

Engineer David Methu, KSL Consultant on the project, explained that the initiative emerged after earlier efforts encountered practical constraints.

"This project came about after an initial scope of 31 overhaul locomotives project, signed in June 2021, faced some challenges after delivery of seven locomotives due to spare parts obsolescence and long delivery lead times," Engineer Methu said.

Despite those constraints, progress has been steady. "So far, KSL has remanufactured three Class 92 locomotives and rehabilitated ten Class 93/94 locomotives in the just-concluding contract. All the locomotives are in use by KRC," he told The Catalyst.

He added that the project has also enabled valuable institutional learning. "It is gratifying to report that KSL has in-house capability to rehabilitate locomotives, having rehabilitated a total of 17 KRC locomotives since the inception of this project. When it comes to remanufacturing the locomotives, we have outsourced the service as we develop in-house KSL capability for

> ***"Behind the scenes, KSL has quietly positioned itself as the engine room of rehabilitation and remanufacturing of locomotives"***

remanufacturing to maturity," Methu observed.

In collaboration with SMH Rail of Malaysia, KSL has overseen the refurbishment of over-40-year-old heavy-haulage locomotives, fitting them with 16V Series 4000 MTU engines delivering 2,200 kW each. The engines—part of Rolls-Royce's advanced rail propulsion technology—offer improved reliability, durability and fuel efficiency, enabling the locomotives to haul heavier loads across challenging terrain.

A Broader Mandate Beyond the Shipyard

Incorporated on 29 September 2020, KSL was established with a mandate to lead and catalyse the introduction of a shipbuilding industry in Eastern Africa. Its focus includes meeting domestic demand from the Kenya Navy, ministries, departments and agencies, as well as serving regional public and private clients.

The locomotive rehabilitation programme aligns squarely with KSL's mission of establishing and developing the shipbuilding industry through world-class construction, refit, maintenance and repair services delivered in a sustainable and efficient manner. It also reflects the company's vision of being the leading catalyst in the development of the shipbuilding industry in Eastern Africa—recognising that modern shipbuilding does not operate in isolation from national transport systems.

With Kenya operating over 2,000 kilometres of metre-gauge railway alongside the standard gauge railway and serving inland container depots in Nairobi, Naivasha, Eldoret, Kisumu and Malaba, the importance of reliable locomotives cannot be overstated.

Behind the scenes, KSL has quietly positioned itself as the engine room of rehabilitation and remanufacturing—delivering sustainable, cost-effective and timely solutions that keep freight moving. As Kenya expands its rail network and deepens rail-lake integration, each revived locomotive becomes another link in a logistics chain that keeps the economy on track.

Rehabilitation and remanufacturing of KRC locomotives

9210 Before

The Process...

After

"The locomotive rehabilitation programme aligns squarely with KSL's mission."

9324 Before

The Process...

9324 After

"KSL has quietly positioned itself as the engine room of rehabilitation and remanufacturing"