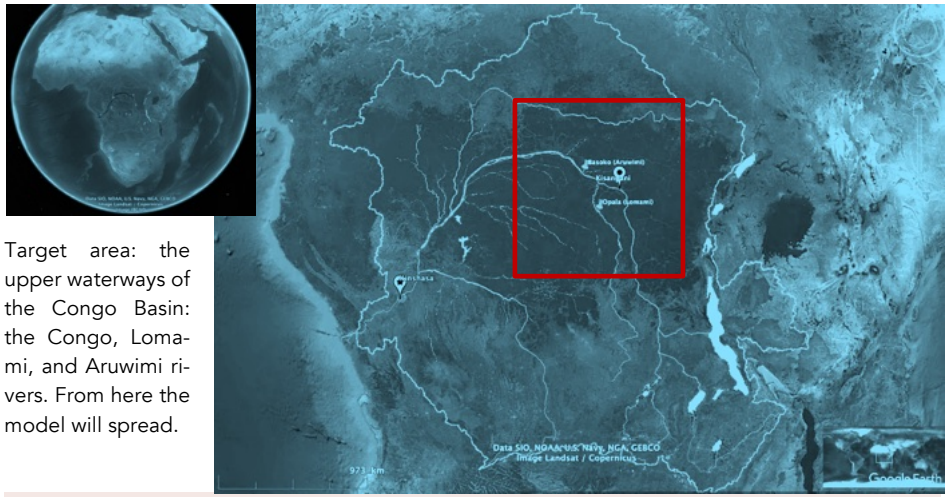
Project packages

- A Research and development
- B Construction materials
- C Propulsion system
  - C1 Electric motors, PV system with battery
  - C2 Diesel generators / engines
  - C3 Height-adjustable rudder propellers
- D Onboard systems and accessories
- E Transport, logistics, construction
- F Knowledge transfer: shipyard school, vocational training, internship abroad
- G Video tutorials
- H Fees, commissioning & test operation
- I Coordination



Target area: the upper waterways of the Congo Basin: the Congo, Lomami, and Aruwimi rivers. From here the model will spread.

Become a partner

We are looking for private, public or corporate partners to donate components (e.g. steel, marine engines, rudder propellers, electric drive, PV system/battery, etc.) or to fund individual project packages. Donations are tax-deductible (donation receipt issued by Mobeka gUG). As a partner, you will be featured on the flagship vessel, in the press and in the video tutorials.

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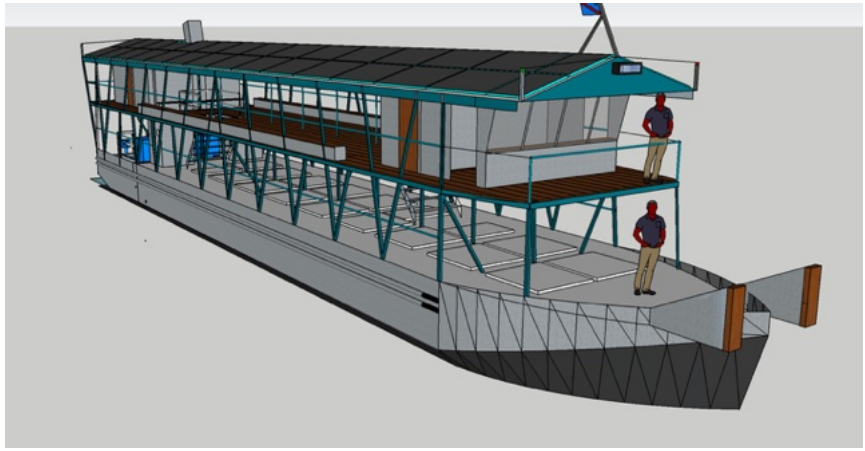
MB MOBEKA HYBRID

A steel vessel with hybrid propulsion as a sustainable model for local river transport in the Congo Basin

PARTNERSHIP REQUEST

September 2026



Sketch of the replicable prototype for the upper Congo

safe · efficient · robust · durable · locally replicable

The challenge

Central Africa's fast-growing river towns are supplied by wooden cargo vessels known as „Baleinières". These frequently have accidents, cost lives and ruin hundreds of small traders. Their short service life (5–8 years) also drives deforestation of the rainforest.

On top of this comes the propulsion problem: the up to seven low-tech, single-cylinder engines per vessel are a poor solution for the continuous operation required, consume far too much fuel, and must be replaced roughly every six months.

⇨ The switch to steel and to a more economical, long-lasting propulsion system is unavoidable – yet an affordable, replicable model is missing.

Wooden baleinière on the upper Congo (2024)

Single-cylinder engines (2023) (photos: P. Lambertz)

Our solution

Together with the Chair of "Design and Operation of Maritime Systems" *(EBMS)* at TU Berlin, the non-profit Mobeka gUG is developing and building the first replicable prototype of a diesel-electric steel freighter for local traders on the upper Congo: safe, economical, robust, durable and locally reproducible.

- **Steel vessel designed for local use** – considerably lighter yet more stable than the wooden baleinières; replicable with simple means.
- **Purpose-built, low-vibration propulsion system**: height-adjustable rudder propellers, driven by one solar powered motor and two diesel-electric motors.

Impact

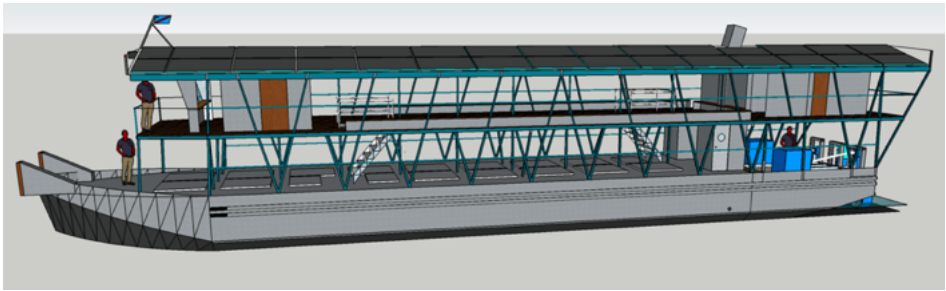
- **Safety:** fewer accidents, protected livelihoods for thousands of small traders, food security for the river towns.
- **Economy:** longer vessel service life; an economical drive instead of an engine swap every six months; local value creation.
- **Climate:** up to 30 % less fuel; less deforestation for shipbuilding.
- **Prospects:** strengthening local actors, tackling technological inequality and the root causes of migration.

Knowledge transfer & local capacity

- **Shipyard school:** Construction doubles as a shipyard school for local shipbuilding talent.
- **Training:** Onboard electricians are trained thoroughly and specifically.
- **Video tutorials:** Every step is documented in Lingala as free video tutorials.

FACTS & FIGURES

Location: Kisangani, DR Congo
Fleet: ~80 wooden baleinières in Kisangani alone
Vessel: 28 m × 7 m; ~150 t payload + ~150 passengers
Propulsion: 2× diesel + 1× solar electric motor with battery; 3× rudder propellers
Target replication cost: locally < €120,000
Duration: 24 months; start 01/01/2027



Side view of the prototype – steel hull, solar roof and two decks