



Vessel: *Na Mata-i-Sau*

GRT: 274 LWL: 27.8m

Built: 1978 Total sail area: 201 sq m

Type: Interisland pax/cargo

Owned: Fiji Government Shipping Service

Funder: Asian Development Bank (US\$40k)

Soft-sail Retrofit Trials in Fiji (1984-86)

This trial investigated the practicality of retro-fitting sail to existing small cargo and passenger carrying motor ships in Fiji. Southampton University and Macalister Elliot & Partners Ltd from the UK undertook an evaluation of the technical, economic and social impacts during normal ship operations. The results showed excellent rates of return on investment.

The vessel was selected as it was representative of typical small motor ships being used in the Pacific Islands. Selection criteria included: physical suitability of vessel and layout; hull parameters and stability; vessel operation and tasks; vessel routes and passage lengths; and age and condition off vessel, refit plans and remaining years of service.

Key Findings:

- 11.5-23% fuel savings at 9-19 knots boat speed
- 24.5-49% fuel savings at 7-8 knots boat speed
- 30% reduced engine wear
- Performed better than expected under pure sail alone
- Economic investment rate of return (EIRR) 123% best routes 30% average routes

Other unquantifiable benefits included:

- increased steadiness at sea which made passages more comfortable for passengers and crew
- secondary form of propulsion in case of engine failure
- Increased pride taken in their ship by Government Shipping Service crew in exercising their skill as sailors

In January 1985 *Na Mata-i-Sau* was lost on a reef during Tropical Cyclone Eric, but not before the passengers (which included the Prime Minister of Fiji) and crew were put ashore under sail alone after the engine failed. The Board of Enquiry found that the auxiliary sail had probably prevented the loss of all the passengers and crew at sea. The rig was later salvaged and components used on another Government vessel the *Cagidonu*.



Vessel: *Tai Kabara*

GRT: 50

Built: 1984-7

Type: Interisland pax/cargo trader

Owned: Lau Provincial Council

Funder: European Union

New Build Trial in Fiji (1984-2006)

This was a small cargo/passenger trading ketch-rigged vessel built by local shipbuilders on the remote island of Kabara, in the southern Lau, Fiji, an island with a long history of canoe building because of the presence of the heavy hardwood, *Intsia bijuga* (*vesi*), which has excellent strength and seasoning properties and natural durability. The vessel was built by villagers on the beach using local materials, and using primarily hand tools (adzes). She was operated by the islanders themselves for the first three years under sail alone. When the decision to fit a diesel motor was made, the ownership and management was transferred to the Lau Provincial Council, in order to cover the loan repayments that were required.

The project envisaged a fleet of three such vessels to service the Lau and Southern Lomaiviti island groups of Fiji. Only the first vessel was built. The full project was curtailed when fuel prices dropped in the mid-late 1980s.

Key Findings:

- Designed in Fiji by the local maritime school, similar in design to traders that used to be the backbone of the local shipping fleet.
- Built, and initially owned and operated by the villagers on Kabara.
- Operated successfully under sail alone for the first 3 years.
- She was the mainstay of local transport for the southern Lau for over twenty years, often the only vessel servicing these remote and economically marginal islands.
- Ownership and management disputes lead to lack of maintenance and eventual sinking were the main reason the vessel ultimately failed.
- The project design failed to adequately consider the economic operating and ownership/management environment.
- The donor has no corporate knowledge of the project but the islanders are very proud of the vessel and their boat building ability and are ready to build again if funding becomes available.

In 2006 *Tai Kabara* was scuttled in Suva harbour as a result of ownership and management disputes. Records from the Court hearing into her sinking provide the only written records of the vessel, and the records on Kabara were destroyed during a cyclone.