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Mariners

The Maritime Aid Agency

The Caia Ferry.

Final Report to USAID

on Contract No.

656-0237-C-5003-00

PREPARED JANUARY 1996

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Background to Extension

Please note. additional reports handed into USAID reference the Caia ferry:

Title

"Report by Mariners for USAID
on the Ferry Operation at Caia."

Date of Survey :27 to 30 September 1994
Follow-up :10 to 11 October 1994

&

"The Caia Ferry.
A Report to USAID"

Covering contract period: 22 December 1994 to 30 June 1995 and contract extension to 31 July 1995

On 22 December 1994, Mariners signed a fixed price contract with USAID Swaziland. At the time the contract was signed, a private company called Transmar was operating the Caia ferry on DNEP's behalf. There were eight objectives to this contract, however the main and overall objectives were to assist DNEP with the tender documentation for the leasing of the ferry, training of crew and implementation of control systems once the successful bidder was on site.

A timetable was agreed upon between DNEP, USAID and Mariners. Mariners completed and handed-in the tender documentation as required by the timetable within the required time frame. However due to various reasons the contract was awarded much later than scheduled.

The delay mentioned above, made it impossible to complete all the objectives in the contract between USAID and Mariners. This was because many of the objectives laid down in the "scope of work" entailed training the crew and management of the ferry in certain control systems once the leasing contract had been awarded.

USAID therefore granted and funded an additional three months to allow us to complete the objectives still outstanding. This amendment/ modification included one new objective which was to provide on site monitoring of traffic and revenue. The amendment also transferred the administration of the contract from RCO. USAID /Swaziland to RCO. USAID /Mozambique.

At the end of this period even though DNEP had chosen a private company to operate the ferry, they still had not finalised the leasing contract. Therefore Mariners requested USAID to extend the contract for an additional two months at no extra cost to allow the training/ monitoring to be completed.

This extension (amendment) allowed us to complete all objectives required.

Objectives dealt with under the Contract Amendment (extension) period.

These were:

1. ***Prepare and put into operation the following control systems;***
   – passenger embarking and disembarking
   – passenger safety while onboard
   – vehicle loading and discharge
   – vehicle safety while onboard
   – terminal security
   – ticket system
   – accounting system

2. ***Provide appropriate training for the sub-contractor's staff in the continued operations and maintenance of the ferry;***

3. ***To provide on site monitoring of traffic and fees collection at the Caia Ferry.***

Results set against objectives

1. ***Prepare and put into operation the following control systems;***

– passenger embarking and disembarking

Initially tickets were being purchased approximately 5 metres from the ramp of the ferry. At certain times the ticket collector was getting overwhelmed by

passengers, as there was no facility to get them organised into a queue. Apart from the time lost by this, it was extremely dangerous as passengers were constantly in the way of moving vehicles.

Mariners resolved the above problem by building terminals on both sides of the river. These terminals were made of bamboo which is available locally and is relatively inexpensive to purchase. Now passengers are kept well away from the vehicles by means of a fence. *(NB. For diagram please see terminal security)*

Crew members are positioned on the ramp to stop passengers disembarking before it is safe to do so. Passengers are instructed by the crew to disembark and this is done before the vehicles are allowed to move.

– passenger safety while onboard

Previously there was no control of passengers whilst onboard. They were allowed to sit under un-chocked vehicles and also pass freely between them while the vessel was in motion. Signs were made to inform passengers not to sit under vehicles or pass between the front or rear of them. Crew members were also taught to control the movement of passengers onboard.

Passengers were often found urinating behind engine room access's. This is extremely dangerous as this area is unprotected by guard rails *(rails around a vessel that prevents passengers/ crew falling overboard)* and is slippery due to oil spillage's. The addition of the Harbormaster driving units to the ferry meant that moving machinery parts on deck added to the danger. A rail was built in front of the driving units with signs informing passengers that this area is out of bounds.

Vehicles often damaged the guard rails and little attempt was made to repair them. The maintenance team now understand the importance of repairing these rails as soon as they are damaged.

Life jackets are available from two boxes positioned port and starboard aft. Life rings are also positioned around the vessel with rope attached in the event of man overboard.

-- vehicle loading and discharge

Before the terminals existed vehicles used to arrive and go straight to the front of the queue causing arguments between drivers. Now vehicles can be organised before entering the terminal area creating less confusion therefore cutting down loading time. Vehicles are guided onboard by the captain of the ferry.

The level of the river varies depending on the time of the year and the amount of water released from Cahora Bassa dam. There should be permanent approaches made on both sides of the river to allow for this variation. At present the approaches are earth and are totally inadequate. When the river is extremely high. vehicles are unable to board. When the level of the river falls, the approaches crumble making loading difficult.

Passengers are not permitted to remain in their vehicles when they are being loaded and discharged.

-- vehicle safety while onboard

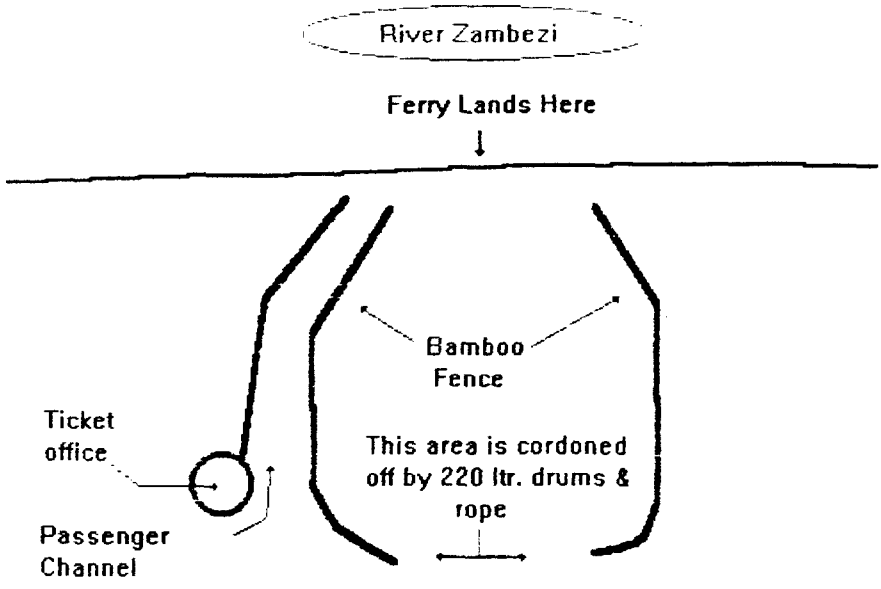
Once the vehicle is safely onboard the driver is instructed to apply the handbrake. Crew members are designated to chock the vehicle's wheels both front and back.

The crew ensure that drivers stay with their vehicles whilst crossing. Passengers are not allowed to enter a vehicle whilst the ferry is crossing.

-- terminal security

Areas on both sides of the river where the ferry operates are now full of movement due to many bars that have been built since the ferry started operating. Even now more bars are being built in this area.

Mariners organised the building of ferry terminals on both sides of the river. These terminals are vital as one of their main functions is to keep foot passengers away from vehicles that are manoeuvring onto the ferry.



Within these terminals are signs explaining the tariffs for crossing and instructions to both foot passengers and vehicle drivers on how to enter the ferry and what to do once onboard.

Transmar's director Sr. Orlando Comé and myself met with Caia's administrator to see if he would consider having the terminals controlled by police. Sr. Comé

suggested that the cost of such policing could be met by Transmar. The administrator is considering the possibility.

-- ticket system

DNEP are still supplying the ferry operators with tickets for all tariff categories. Once the contract has been signed by both DNEP and Transmar, Transmar will be responsible for supplying their own tickets.

Tickets for vehicles are purchased once the vehicle is loaded and passenger tickets are purchased at the ticket kiosk.

Passenger tickets are checked by crew members as they are boarding and are torn in two to prevent re-use.

Each evening the number of tickets sold are checked by the ferry manager against the cash taken by the ticket collector.

-- accounting system

At present Transmar have their own accounting system operating as follows:
a. All expenses are recorded on a Transmar expense sheet.
b. All revenue received is recorded.
c. At the end of each month the records and the receipts are sent to the Transmar's accountant in Maputo.

As this system seemed to be working reasonably well Mariners only introduced a new cash book system whereby the expenses are broken down into a fourteen column cash book so that at a glance, expenses for any line item can be identified i.e. Fuel, spares and repairs, transport, salaries, etc.

The excess revenue is deposited at a bank in Quelimane then transfered to Maputo.

Procurement and stock control systems were almost non exsistent. Mariners implemented new systems that were easy to understand and provide a three way check system. Our financial controller spent time in Caia, training the management in these systems and monitoring their progress. Attached are the systems that were impemented. *NB. see Annex One.*

2. ***Provide appropriate training for the sub-contractor's staff in the continued operations and maintenance of the ferry;***

Training was given in stock control and procurement as explained above.
No history of maintenance or repair was kept for the driving units of the ferry. Mariners arranged log books for each driving unit in which all faults, repairs and maintenance carried out can be registered. These log books also register how many litres of diesel and lubricants each unit uses per day. They are kept up to date by the chief mechanic onboard the ferry.

It must be noted that there is an attitude problem with most of the crew. This stems from poor working conditions and extremely poor man management. Most of the senior management in Caia have their own bars that always take priority over the ferry. Transmar replaced the ferry manager, Sr. Zimba at the end of December 1995. He was replaced by Sr. Mondalane who has been monitoring the financial side of the ferry operation for the past few months.

3. ***To provide on site monitoring of traffic and fees collection at the Caia Ferry.***

Please find attached traffic patterns and revenue figures gathered over the three month period.

NB. see:	*Traffic Patterns*	*Annex Two*
	Revenue	*Annex Three*

ACCOUNTING SYSTEMS

Procurement

Stock that requires constant replenishment, should have a controlled minimum level. When this level is reached the storeman should send in a requisition to the Ferry Manager so that new supplies can be ordered. This should alleviate the ferry running out of fuel, oil, filters, etc.

1. Store Controller to give a written, signed requisition to the Ferry Manager for supplies needed. This should be in a duplicate pre numbered requisition book.

If fuel is required and other supplies are nearing their limit, they should all be ordered at the same time. As Caia is isolated, it would be preferable for all supplies to be purchased at one time so that there are not recurring transport costs for logistical personnel and goods. Therefore a little foresight is needed on behalf of the storeman.

2. When the Ferry Manager receives the requisition he should sign both copies and record the date he received it. The top copy remains with the ferry manager. The duplicate remains in the storemans book.

3, The ferry manager then makes out a purchase order, in duplicate. One copy goes with the money to the supplier. One copy remains in Caia on file.

4. Once the goods are purchased the person sent to either Beira or Quelimane to do the purchasing, must issue guias to the transporter for the goods being carried. The guia should be in duplicate and signed received by the driver. One copy remains with the driver, the other copy remains with Transmar's employee.

The transporter should not be paid in full prior to delivery, this will enable Transmar to have some redress if there is stock missing.

5, Once the goods arrive in Caia the storeman should check the goods against the guia and once he is satisfied that all the goods are present and correct, he should sign the drivers guia "received." If there are goods missing the storeman should contact the ferry manager immediately so the issue can be resolved with the transporter.

6, All goods purchased should be entered onto store fiche control cards.

Issuing Stock.

1. There should be one duplicate prenumbered requisition book kept on the ferry. If fuel or spares are required. a requisition should be made out by the Chief. This requisition should go to the workshop manager for approval, then to the ferry manager for authorization. The top copy must go to the stores and the duplicate remains in the requisition book.

2. The stock is then issued by the storeman to the Chief Mechanic who dates and signs the requisition received.

3. The storeman then files the requisition and takes the stock off his fishe control card.

4. If the spares required are not in stock. the storeman must make out a requisition as per procurement procedure and give the stores requisition to the ferry manager for purchasing.

Controls.

1. The Chief Mechanic will have a log book for each engine. All fuel, oil, spares etc. must be recorded in the engine log books. The date it is put into the engines and the quantity.

2. At the end of every month the Ferry Manager is to take the log books and add up the amount of oil . fuel etc. used by each engine. This is to be recorded on the monthly engine log book (Copy attached.). This monthly log sheet is a good control system because it gives you the exact amount of fuel, oil and spares used on each engine, so if there is a sharp rise in consumption it is easily picked up. It also enables Transmar to have some idea of the cost effectiveness of each engine.

3. The Ferry Manger can check the fuel entered into the log books against the fuel signed out from stores on the fuel stock card. He can also add up the amounts of fuel requisitioned and check it balances with the fuel taken off the stock card. If this system is carried out it should prevent all fuel theft as it is a three way check. He should also ensure that all fuel requisitions are authorised.

4. By keeping accurate records in the form of requisitions if the ferry is stopped due to lack of spares or fuel the person who is responsible for the delay can easily be traced by checking the dates of the requisitions and the time taken to react to them.

5. There should be a full stock check carried out at least once a month by the Ferry Manager.

MONTHLY FERRY ENGINE LOG SHEET

ENGINE 1

	JAN	FEB	MARCH	APRIL	MAY	JUNE	TOTAL
FUEL							
OIL							
BATTERIES							
ELECTRICAL SPARES							
MECHANICAL SPARES							
OTHER							

ENGINE 2

	JAN	FEB	MARCH	APRIL	MAY	JUNE	TOTAL
FUEL							
OIL							
BATTERIES							
ELECTRICAL SPARES							
MECHANICAL SPARES							
OTHER							

N.B. Fuel and oil in litres
Batteries in number
Spares in cash value

Traffic Patterns

Date	Pedestrian	Bicycle/ Luggage	Motorcycl	Car	Pick up	Truck	Truck w/Trailer	Articulated Truck	Total
4/10/95	600	22			4	27	2	7	
5/10/95	360	200			12	30	4	6	
6/10/95	572	30	1	3	15	27	3	2	
7/10/95	600	71	1	1	18	29	2	1	
8/10/95	570	30		3	9	27	2	7	
9/10/95	432	27	1		8	22	1	5	
10/10/95	592	37		1	12	23		6	
11/10/95	678	22			13	23	1	5	
12/10/95	600	33	1	2	12	25	2	5	
13/10/95	400	53		3	13	18		5	
14/10/95	600	14	1	1	10	27	1	8	
15/10/95	405	23	8	1	6	20	1	5	
16/10/95	143	6		1	6	9		2	
17/10/95	470	10			11	22	1	4	
18/10/95	448	6		1	6	21		9	
19/10/95	327	9		2	8	16		1	
23/10/95	600	5		1	28	43		7	
24/10/95	455			1	6	28		8	
25/10/95	500			2	17	14	2	7	
26/10/95	400	20	1	2	12	23		5	
27/10/95	500	25	6	3	15	24		7	
28/10/95	305				5	14	1	2	
29/10/95	440	10	7	1	14	24	2	1	
30/10/95	290	10			7	13	1	3	
TOTAL	11,287	663	27	29	267	549	26	118	
Tariff	500	1,000	2,500	10,000	30,000	60,000	120,000	120,000	
Revenue	5,643,500	663,000	67,500	290,000	8,010,000	32,940,000	3,120,000	14,160,000	64,894,000
								1st to 3rd/ 10	4,865,000
								Total	69,759,000
					Difference in cash =			25/10/95	-10000
								10/10/95	+15000
								Total	69,764,000

Annex Two (j)

Date	Pedestrian	Bicycle/ Luggage	Motorcycl	Car	Pick up	Truck	Truck w/Trailer	Articulated Truck	Total
13/11/95	375	20		2	10	35	1	13	
14/11/95	371	2		1	10	15	1	11	
15/11/95	220	10			17	16	1	11	
16/11/95	364	23			10	15	1	10	
17/11/95	285	10		1	10	15	1	12	
18/11/95	400				10	25		4	
19/11/95	235				10	10		7	
20/11/95	340			1	9	10		7	
21/11/95	350			1	20	17		1	
22/11/95	330			1	12	15		3	
Total	3270	65	0	7	118	173	5	79	
Tariff	500	1,000	2,500	10,000	30,000	60,000	120,000	120,000	
Revenue	1,635,000	65,000	0	70,000	3,540,000	10,380,000	600,000	9,480,000	25,770,000

Annex Two (iii)

Date	Pedestrian	Bicycle/ Luggage	Motorcycl	Car	Pick up	Truck	Truck w/Trailer	Articulated Truck	Total
3/12/95	385				8	32	2	10	
4/12/95	325				3	16	2	7	
5/12/95	495			1	8	16		10	
6/12/95	600	15		1	13	31	2	5	
7/12/95	765				11	20	1	3	
8/12/95	695			1	10	23		4	
9/12/95	600	15			10	17	3	6	
10/12/95	559	28		1	17	16	3	7	
11/12/95	350				8	13	2	2	
21/12/95	40			3	9	5			
22/12/95	780	10		5	23	36		13	
23/12/95	1106			5	19	20	2	9	
24/12/95	718			1	7	10	1	2	
25/12/95	346				6	6		4	
26/12/95	164			1	7	7		1	
27/12/95	500	22		2	9	19	2		
28/12/95	570	19		6	16	16	2		
29/12/95	78				5	3			
30/12/95	400	18			15	20	1	1	
31/12/95	182		1	1	3	5		2	
1/1/96	214			1	5	6	1	2	
2/1/96	158				6				
3/1/96	218			2	10	10			
Total	10,248	127	1	31	228	347	24	88	0
Tariff	500	1,000	2,500	10,000	30,000	60,000	120,000	120,000	
	5,124,000	127,000	2,500	310,000	6,840,000	20,820,000	2,880,000	10,560,000	46,663,500

Annex Two (III)

Number of voyages per month

October 1995 (from the 4th)

Date	Voyages	Observations
4/10/95	10	Monitoring started
5/10/95	10	
6/10/95	10	
7/10/95	12	
8/10/95	12	
9/10/95	7	Low water level
10/10/95	8	Truck Stuck on ramp Voyage 5
11/10/95	8	Hydromaster brokedown repaired Between 11.00-14.20hrs
12/10/95	10	
13/10/95	8	
14/10/95	14	Two trips empty as all traffic on one side of river
15/10/95	10	
16/10/95	4	Replaced Uniflote & realignment of Engine No. 2.
17/10/95	8	
18/10/95	12	
19/10/95	8	Ferry stopped after 19th until 23rd due to low water level
23/10/95	14	
24/10/95	10	
25/10/95	10	
26/10/95	10	
27/10/95	10	
28/10/95	8	
29/10/95	12	
30/10/95	8	Ferry stopped after 30th until 13th Nov. due to low water level
Total	**233**	

November 1995

Date	Voyages	Observations
13/11/95	16	Ferry stopped before this date due to low water level
14/11/95	12	
15/11/95	12	
16/11/95	16	
17/11/95	16	
18/11/95	14	
19/11/95	10	
20/11/95	10	
21/11/95	10	
22/11/95	8	Ferry stopped after 22nd until 3rd Dec. due to low water level
Total	**124**	

December 1995

Date	Voyages	Observations
3/12/95	14	
4/12/95	10	
5/12/95	12	
6/12/95	12	
7/12/95	10	
8/12/95	10	
9/12/95	8	
10/12/95	10	
11/12/95	10	
21/12/95	2	High water level hampered movement of ferry
22/12/95	14	
23/12/95	16	
24/12/95	10	
25/12/95	6	
26/12/95	4	High water level hampered movement of ferry
27/12/95	10	
28/12/95	10	
29/12/95	2	High water level hampered movement of ferry
30/12/95	8	
31/12/95	4	High water level hampered movement of ferry
1/1/96	4	High water level hampered movement of ferry
2/1/96	2	High water level hampered movement of ferry
3/1/96	6	
Total	**194**	

REVENUE RECEIVED AND EXPENSES
CAIA FERRY

OCTOBER

The ferry did not operate for three days during this period, due to the low level of water in the river.

Revenue received	69,764,000.00 mts
Expenses	45,539,835.00 mts
Gross profit	24,224,165.00 mts

October Expenses Caia Ferry

Fuel	16,772,870.00 mts
Oil	5,907,065.00 mts
Stationery	75,500.00 mts
Cleaning Material	90,000.00 mts
Food for crew	1,550,000.00 mts
Salaries	8,490,000.00 mts
Telephone	1,010,200.00 mts
Advert. ferry stoppage	262,500.00 mts
Welding machine hire	341,000.00 mts
Spares ferry	1,600,000.00 mts
Repairs & maint. ferry	198,200.00 mts
Vehicle hire	3,620,000.00 mts
Sundries	114,000.00 mts
Dinner Service	800,000.00 mts
Maputo Staff food	1,704,500.00 mts
Meals & lodging Quel	2,923,000.00 mts
Office Supplies	81,000.00 mts
Total	45,539,835.00 mts

NOVEMBER

The ferry only operated for ten days during the month of November due to the low water level in the river.

Revenue received	25.770.000.00 mt
Less Expenses	43.455.859.00 mt
Gross profit	(8.685.859.00 mt)

November Expenses Caia Ferry

Fuel	13.068.000.00 mts
Oil	4.358.115.00 mts
Food for crew	1.500.000.00 mts
Salaries	8.939.666.00mts
Telephone	1.177.140.00 mts
Advert. ferry stoppage	522.500.00 mts
Postage	178.000.00 mts
Tools	40.000.00 mts
Repairs & maint. ferry	1.090.783.00 mts
Vehicle hire	1.262.000.00 mts
Maputo Staff food	1.105.000.00 mts
Medicine crew member	180,155.00 mts
Meals & lodging Quel.	916.000.00 mts
Office Supplies	118.500.00 mts
Total	34.455.859.00 mts

Payment of repairs and maintencance for ferry by Mariners.

1/11/95	Electrodes	420,000.00
1/11/95	Padlocks, Hasp & staples	363,000.00
16/11/95	Injector repair	1,607,500.00
17/11/95	40 kg Nails	880,000.00
24/11/95	Paint	650,000.00
24/11/95	Acetylene	1,596,600.00
24/11/95	Thinners	154,000.00
24/11/95	Sand paper	7,000.00
24/11/9 5	Insulation tape	15,000.00
27/11/95	Jerry cans	175,000.00
Total		5,868,100.00 mts

N.B. The above expenses paid for by Mariners should be taken into account when calculating the ferry expenses.

DECEMBER

The ferry operated for twenty days during December due to the fluctuating water level.

Revenue received	44,388,500.00 mts
Less expenses	32,238,200.00 mts
Gross profit	12,150,300.00 mts

December Expenses Caia Ferry

Fuel	8,604,200.00 mts
Food for crew	3,048,000.00 mts
Paid Dismissed Emp.	560,000.00 mts
Salaries	12,406,500.00 mts
Fax	117,000.00 mts
Advert. ferry stoppage	262,500.00 mts
Postage	98,000.00 mts
Tools	150,000.00 mts
Repairs & maint. ferry	1,500,000.00 mts
Vehicle hire	2,483,000.00 mts
Maputo Staff food	1,477,500.00 mts
Funeral expen. crew son	50,000.00 mts
Sign painted	50,000.00 mts
2 Staff to Maputo (Travel)	1,000,000.00 mts
Transport Chire 1 staff	215,000.00 mts
Office Supplies	216,500.00 mts
Total	32,238,200.00 mts
Nov. Exp from Cash	523,194.00 mts
Loan to Crew member	1,000,000.00 mts
Total	33,761,394.00 mts

Payment of repairs and maintencance for ferry by Mariners.

8/12/95	Hinges,screws,gasket sealer	225,300.00
13/12/95	Paint, thinners, tubing.	4,235,000.00
18/12/95	Repair cutting torch	300,000.00
Total		4,760300.00 mts

N.B. The above expenses paid for by Mariners should be taken into account when calculating the ferry expenses.