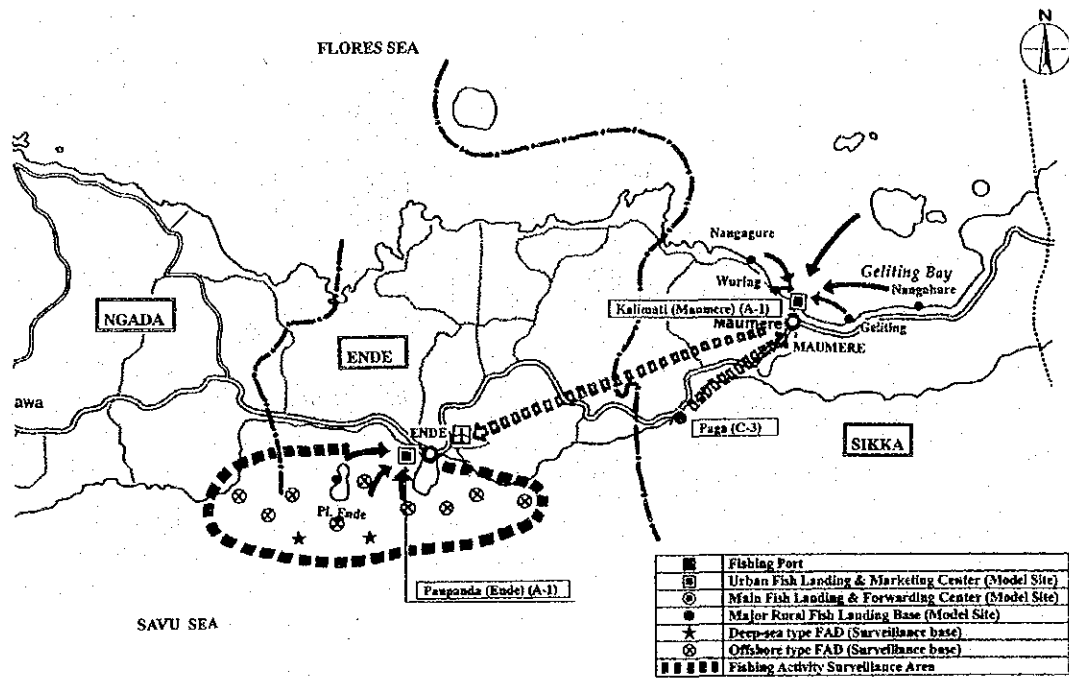


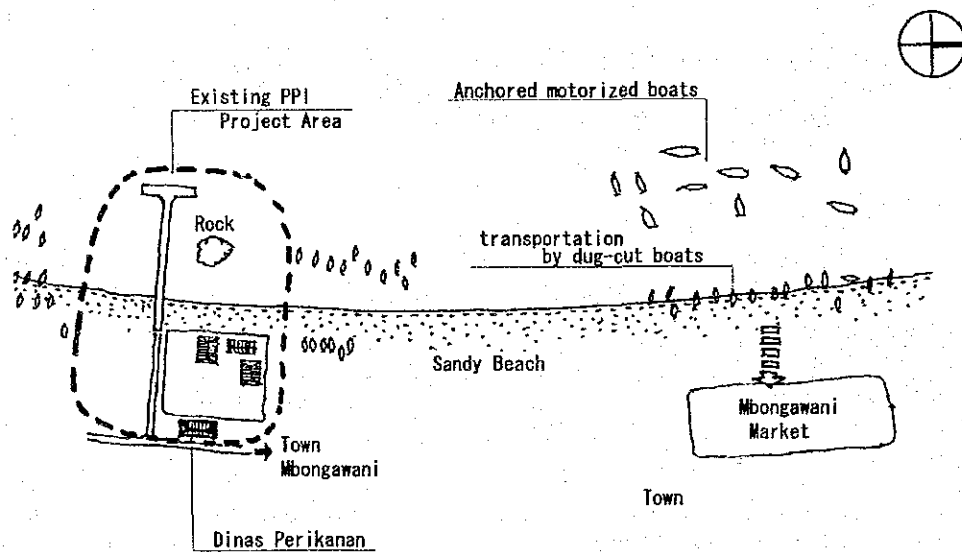
## 6 Ende District

### (1) Overall Network Plan



### (2) Project Site (Model Site)

#### 1) Paupanda (Ende)



### (3) Target Scale

Model Site		Paupanda (Ende)		
Effectuated Area		Ende, Ende Selatan, Pulau Ende, Nangapanda		
No. of fishing households		7,464		
Estimated Fish Catch 1999-2012		4,159 - 4,879 ton/year		
Average daily fish landing		11.4 - 13.4 ton/day		
Ditto (at peak season)		17.1 - 20.1 ton/day		
No. of fishing boats	Non-powered	868		
	Outboard	21		
	Inboard	188 (3 Bagan, 49 purse-seine)		
Daily fresh fish dealing		11.1 - 13.0 ton/day		
Daily processed fish		6.0 - 7.0 ton/day		
Major markets		Ende-Mbongawani (500m), Bajawa (3 hrs. by car), Ruteng (6 hrs. by car), Sumba Island (14 hrs. by ferry)		
No. of fish buyers per day (fish landing site)		20 fish agents, 80-150 beach traders (Mbongawani)		
Ende Fish Market		Mbongawani	Potulando	Wolwona
No. of fish retailers		80-200 persons/day	25-50 persons/day	N/D
Estimated sales volume		8.0-20.0 (average 11.0)	2.5-5.0 (average 3.1)	N/D
Opening hours		06:00-12:00	16:00-20:00	06:00-18:00

### (4) Site Plan

Model Site	Area (m <sup>2</sup> )
Paupanda (Ende)	5,315
Mbongawani market (Ende)	1,790

## (5) Facilities & Equipment Plan

### 1) Facilities

Function	Facilities	Brief Specification	Scale / Area		
			Paupanda	P. Ende	Mbongawani
Fishing port basic facilities	Landing jetty	For motorised boats	Existing	-	-
	Mooring facility	For small boats, simple structure	84m	-	-
	Slipway	For repair & maintenance of motorised boats	7m	-	-
	Boat ramp		90m2	-	-
	Boat repair lot		80m2	-	-
	In-site roads		-	-	-
	Revetment	For securing sea-side access	100m	-	-
	Removal of rocks	Removal of rocky bases around the jetty.	1,000m3	-	-
Fish handling, marketing, processing and sales	Handling/auction hall		Existing	-	-
	Fresh fish storage	Space for keeping cool boxes	78m2	-	-
	Fish agent office	For fish collectors	500m2 (20 booths)	-	-
	Fish retail market		-	-	800m2 (100 units)
	Model fish processing facility	For boiled/dried fish (Improved type)	1,130m2	-	-
	Fishery products diversification centre	Processing room, cooking room, mess for extension, etc.	200m2	-	-
	Ice plant & storage	Space only	86m2	-	-
	Office	Fisheries & coop. office, kiosk, training/meeting room (community meeting room)	Existing	-	-
Fishing activity support	Mini-workshop	For maintenance of engine, manufacturing of cool box, etc.	80m2	-	-
	Net yard	Net drying yard, repair yard, work space, storage	1,650m2	-	-
	Fuel depot	Gasoline and diesel oil	80m2 (4kl)	-	-
	Public toilet		50m2	-	50m2
	Garbage depot		1 lot	-	1 lot
	Parking lot		575m2	-	350m2
	Fishing village environment	Village road/drainage		-	-
	Water supply	Piping from water source, reservoir tank	-	1 lot	-

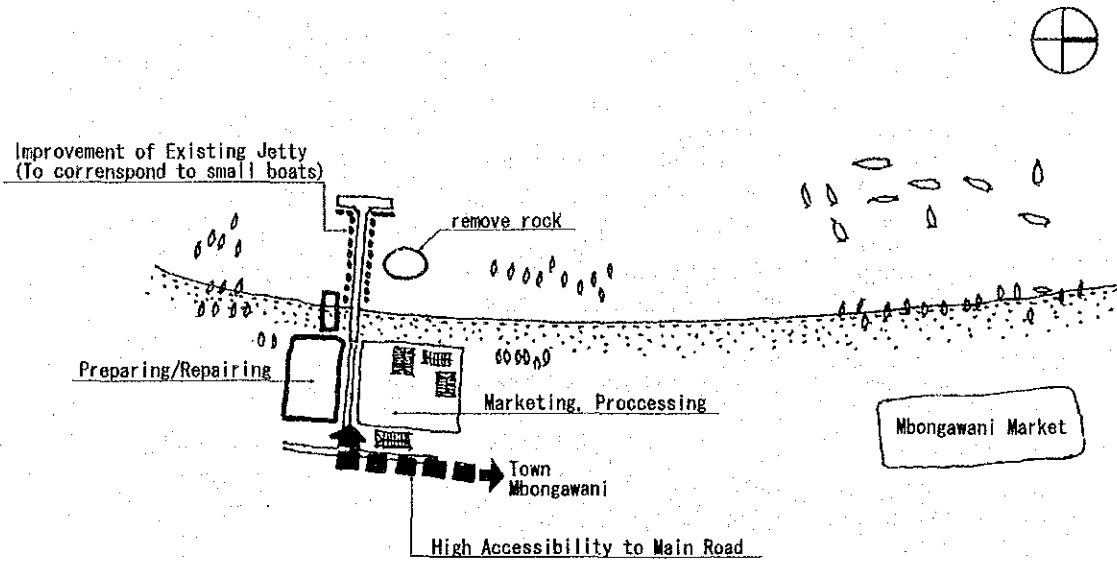
Note 1. Paupanda: The existing PPI would be improved for effective utilisation through strengthening of fish marketing system and appropriate linkage with the existing Mbongawani fish market. It is also necessary to improve the connecting road among the PPI, central part of city, and Mbongawani fish market.

2. Mbongawani (market): It is necessary to make an overall utilisation plan (zoning) of market not only for fish but also for other products.

## 2) Equipment

Function	Equipment	Brief Specification	Capacity / Quantity		
			Paupanda	P. Ende	Mbongawani
Fresh fish marketing	Ice making plant	Block ice (25kg)	8 ton/day	-	-
	Ice storage		32m <sup>3</sup>	-	-
	Cool box	25L/45L/80L/200L	495 pcs.	-	-
Fish processing	Materials for dried fish	Drying rack (1m wide, w/cover)	360 m	-	-
	processing	Drying pallet (50x80cm)	1,410 pcs.	-	-
		Boiling kiln (for 5 pallets boiling)	15 units	-	-
		Storage shelves (for 15 pallets)	47 units	-	-
	Packing equipment	Work table, vacuum packer	3 sets	-	-
Experimental equipment	Equipment for fish ball, cracker, smoked fish, cooking equipment, etc.	1 unit	-	-	
Fish shipment & information	Multi-purpose transport boat	12m long, 40hp, fish hold approx. 3m <sup>3</sup> , GPS/VHF radio	-	-	-
	Multi-purpose vehicle	For shipping of fish, procurement of fuels, etc., 3 ton payload	2 units	-	-
	Fax	For market information network	-	1 unit	-
Fishing grounds diversification	Small engine	For motorization, 5.5-22hp	-	52 units	-
	Fishing materials	For gill nets and hand-lines	-	For 52 boats	-
	Model fishing boat	Approx. 15GT, purse-seine	-	1 unit	-
Fishing grounds management	Deep-sea FAD	For creation of fishing grounds and surveillance bases of coastal waters	-	2 units	-
	Offshore FAD		-	9 units	-
	Shallow FAD		-	-	-
	VHF radio	For land station and field use	1 unit	11 units	-
	GPS	Portable, for search of boat position	-	11 units	-
	Speed boat	7-8m long, 75hp x 2 units, fish finder/GPS/VHF radio	1 unit	-	-
	Data analysis set	For database of registered boats and fishery statistics	1 unit	-	-
Fishing activity support	Hand tools	For carpentry and mechanical repair works	1 lot	-	-

3) Facilities Zoning Plan  
Paupanda (Ende)



(6) Implementation Plan

1) Implementation Schedule

Year	2002	2007	2012
Strengthening of fish coops.	-----		
Training of fishermen and staff	-----		
F/S & detailed designing	-----		
Construction & procurement		-----	
Operation & management			-----
Extension to neighbour areas			-----

Note: 1. Extension to neighbour areas includes the following.

2. Extension to Maubasa area using the Paupanda model.
3. Extension to north coast of Ende using the Maumere model (Sikka district).

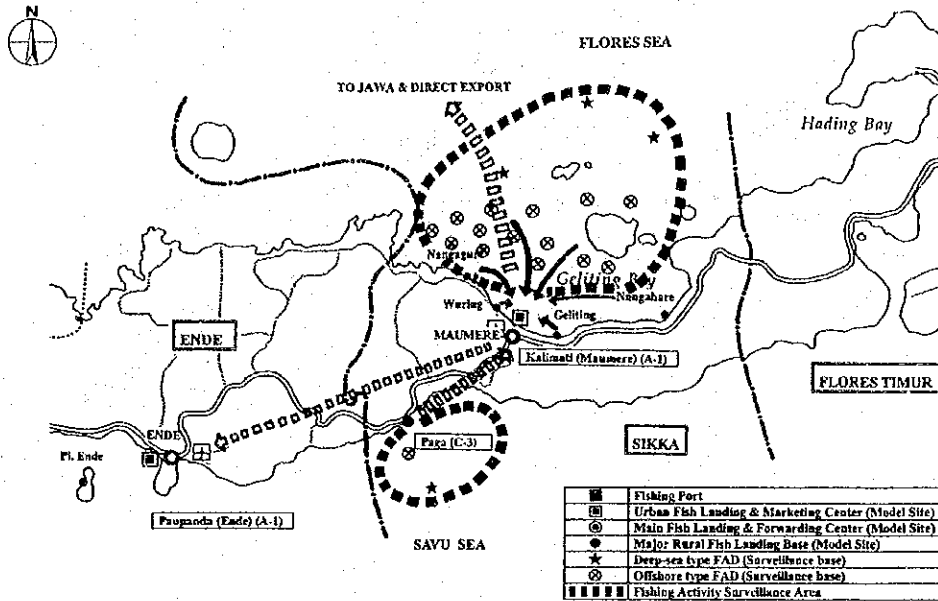
2) Project Cost

Model Site	Unit: billion Rp			
	Construction	Equipment	Activity	Total
Paupanda (Ende)	5.6	4.7	2.6	12.9
Mbongawani market (Ende)	2.2	-	0.6	2.8
Sub-Total	7.8	4.7	3.2	15.7
Contingency (sub-total x 30%)	2.3	1.4	1.0	4.7
Total	10.1	6.1	4.2	20.4

Note: Cost of activity covers necessary costs before the completion of construction such as for study, designing & supervision, and education & training, assuming 25% of construction and equipment costs.

## 7 Sikka District

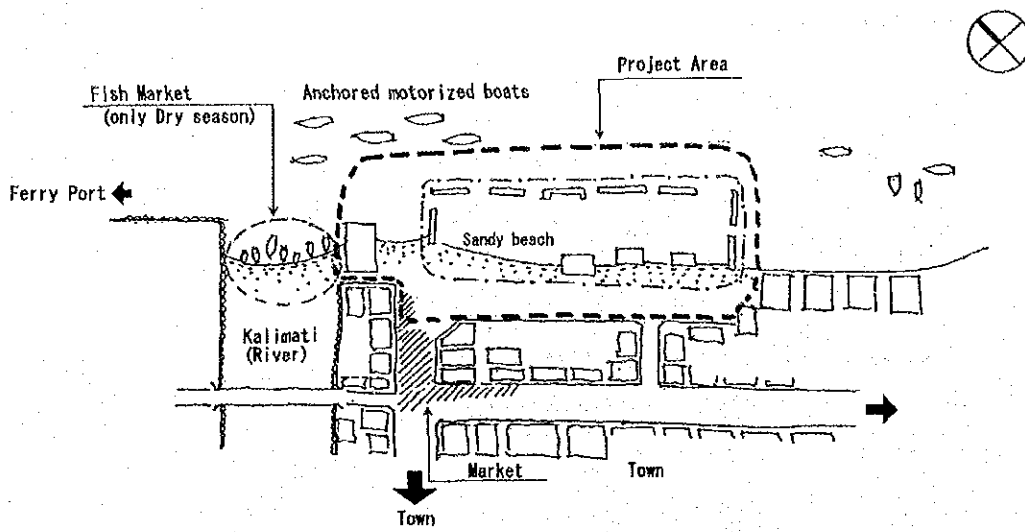
### (1) Overall Network Plan



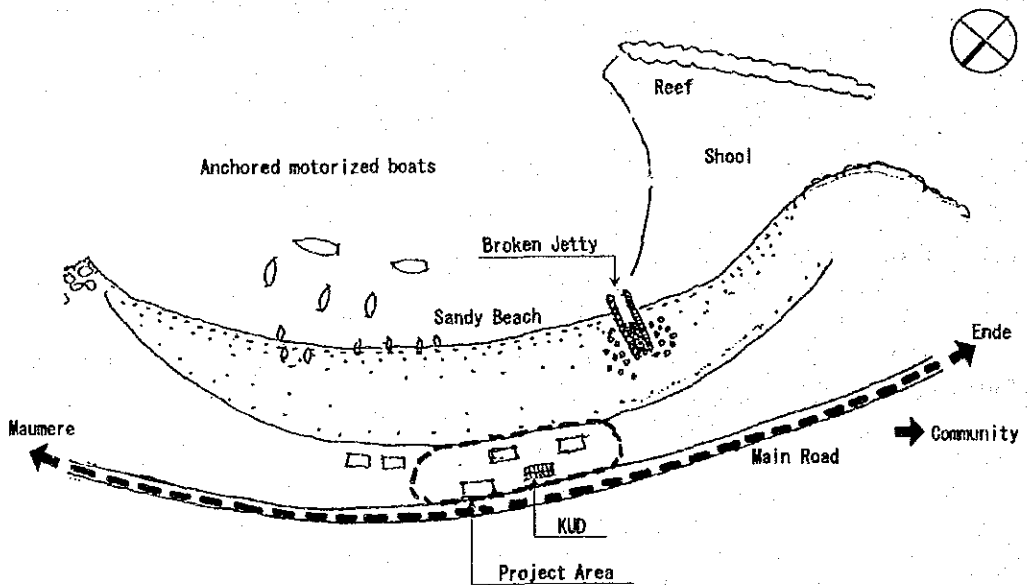
### (2) Project Site (Model Site)

The existing conditions of the model sites, namely Kalimati, Paga are shown in the following page.

1) Kalimati (Maumere)



2) Paga (Paga)



### (3) Target Scale

Model Site		Kalimati (Maumere)	Paga (Paga)
Effected Area		Kec. Maumere & Kec. Alok coasts	Kec. Paga coast
No. of fishing households		Full-time 890, Part-time 808	Full-time 98, Part-time 27
Estimated Fish Catch 1999-2012		5,098 - 8,983 ton/year	332 - 585 ton/year
Average daily fish landing		14.0 - 24.6 ton/day	0.9 - 1.6 ton/day
Ditto (at peak season)		21.0 - 36.9 ton/day	1.4 - 2.4 ton/day
No. of fishing boats	Non-powered	938	106
	Outboard	168	1
	Inboard	401 (48 Bagan, 85 purse-seine, 56 pole-and-line)	23 (22 purse-seine)
Daily fresh fish dealing		13.6 - 24.0 ton/day	0.9 - 1.6 ton/day
Daily processed fish		7.3 - 12.9 ton/day	0.5 - 0.8 ton/day
Major markets		Maumere (market at landing place) Ende (4 hrs. by car)	Paga's vicinity (1 hr. by motorcycle) Ende (3 hrs. by car)
No. of fish buyers per day (fish landing site)		30-50 village women 30-50 beach traders (men)	50-60 beach traders (men)
Maumere Fish Market		Kalimati market	Pasar Baru market
No. of fish retailers		60-150 persons/day	25-50 persons/day
Estimated sales volume		4.5-11.2 ton/day (average 6.2 ton/day)	0.6-1.2 ton/day (average 0.8 ton/day)
Opening hours		06:00-09:00	09:00-18:00

### (4) Site Plan

Model Site	Area (m2)
Kalimati (Maumere)	7,140
Paga (Paga)	1,645
Wuring	1,730



## (5) Facilities & Equipment Plan

### 1) Facilities

Function	Facilities	Brief Specification	Scale / Area		
			Maumere	Paga	Wuring
Fishing port basic facilities	Landing jetty	For motorised boats	216m	-	-
	Mooring facility	For small boats, simple structure	88m	-	-
	Slipway	For repair & maintenance of	16m	-	-
	Boat ramp	motorised boats	200m <sup>2</sup>	-	-
	Boat repair lot		200m <sup>2</sup>	-	-
	In-site roads		300m	-	-
	Revetment	For securing sea-side access	300m	100m	200m
Fish handling, marketing, processing and sales	Handling/auction hall		430m <sup>2</sup>	70m <sup>2</sup>	-
	Fresh fish storage	Space for keeping cool boxes	81m <sup>2</sup>	-	-
	Fish agent office	For fish collectors	-	-	-
	Fish retail market		600m <sup>2</sup> (100 units)	-	-
	Model fish processing facility	For boiled/dried fish (Improved type)	1,395m <sup>2</sup>	-	-
	Fishery products diversification centre	Processing room, cooking room, mess for extension, etc.	200m <sup>2</sup>	-	-
	Ice plant & storage	Space only	147m <sup>2</sup>	30m <sup>2</sup>	100m <sup>2</sup>
Fishing activity support	Office	Fisheries & coop. office, kiosk, training/meeting room (community meeting room)	270m <sup>2</sup>	160m <sup>2</sup>	-
	Mini-workshop	For maintenance of engine, manufacturing of cool box, etc.	80m <sup>2</sup>	40m <sup>2</sup>	-
	Net yard	Net drying yard, repair yard, work space, storage	1,500m <sup>2</sup>	990m <sup>2</sup>	1,470m <sup>2</sup>
	Fuel depot	Gasoline and diesel oil	140m <sup>2</sup> (10kl)	20m <sup>2</sup>	-
	Public toilet		50m <sup>2</sup>	30m <sup>2</sup>	30m <sup>2</sup>
	Garbage depot		1 lot	1 lot	1 lot
	Parking lot		475m <sup>2</sup>	75m <sup>2</sup>	-
Fishing village environment	Village road/drainage		-	-	-
	Water supply	Piping from water source, reservoir tank	-	1 lot	-

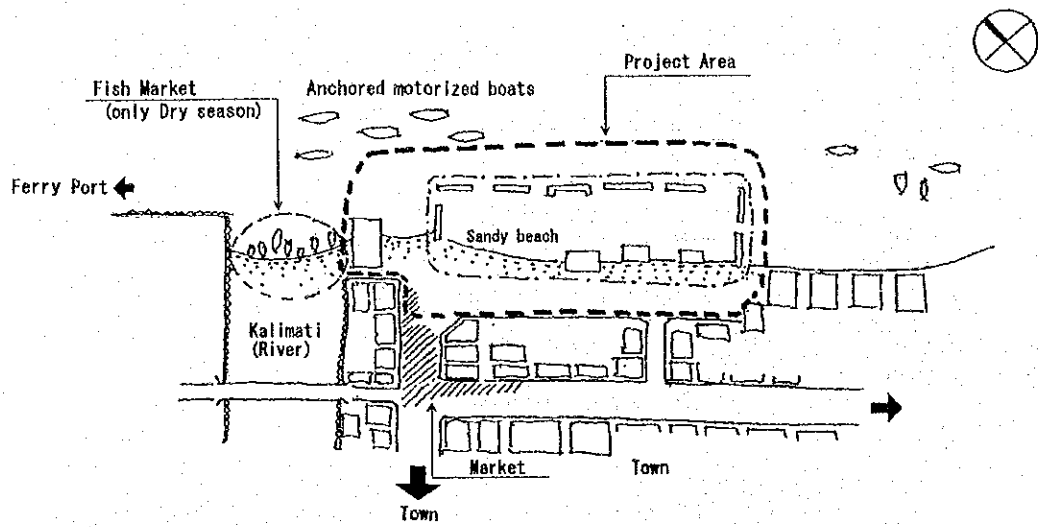
- Note 1. Kalimati (Maumere): It is indispensable to secure the land where used to be the factory of PT. Bali Raya before 1992's Tsunami, as well as the mouth of Kalimati river. Some parts of facilities such as net yard would be allocated in Wuring. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.
2. Paga: On-land facilities would be improved at the existing fish landing site. Due to the swell directly coming from Indian Ocean, marine civil facilities would not be able to install in front of the project site. The area behind the S-shaped reef would be suitable for placing the marine structure but the appropriate linkage with on-land facilities have to be carefully considered. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, water resources, environmental effects.
  3. Wuring (fishing village): The shortage of land area of Kalimati would be covered, and fishing village environment would be improved at Wuring. The sanitary sense on the people's life would have to be improved before everything. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.

## 2) Equipment

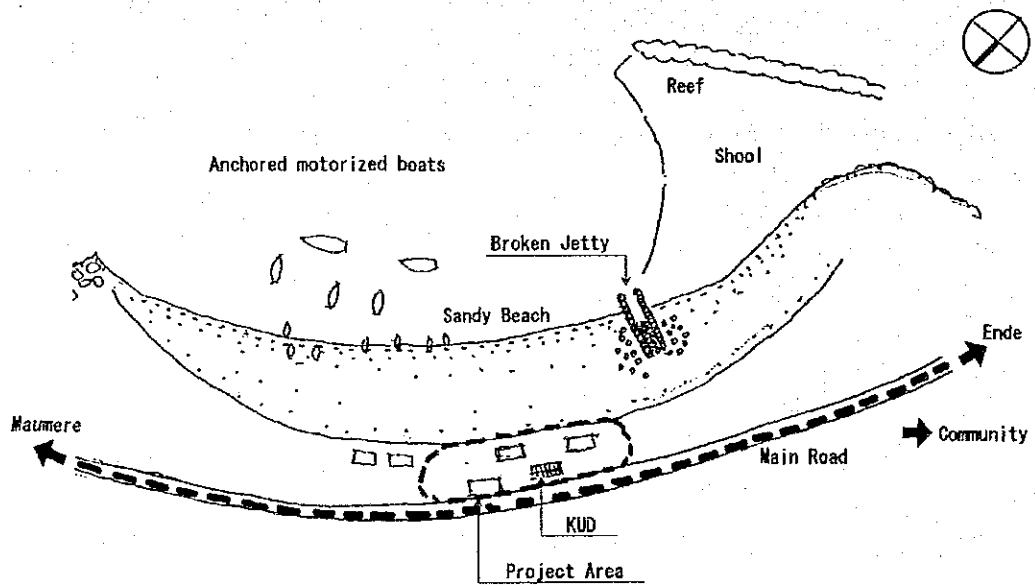
Function	Equipment	Brief Specification	Capacity / Quantity		
			Maumere	Paga	Wuring
Fresh fish marketing	Ice making plant	Block ice (25kg)	10 ton/day	1 ton/day	-
	Ice storage		36 m3	5 m3	-
	Cool box	25L/45L/80L/200L	608 pcs.	42 pcs.	-
Fish processing	Materials for dried fish processing	Drying rack (1m wide, w/cover)	650 m	50m	-
		Drying pallet (50x80cm)	2,590 pcs.	180 pcs.	-
		Boiling kiln (for 5 pallets boiling)	26 units	2 units	-
		Storage shelves (for 15 pallets)	87 units	6 units	-
	Packing equipment	Work table, vacuum packer	5 sets	1 set	-
	Experimental equipment	Equipment for fish ball, cracker, smoked fish, cooking equipment, etc.	1 lot	-	-
Fish shipment & information	Multi-purpose transport boat	12m long, 40hp, fish hold approx. 3m3, GPS/VHF radio	-	-	-
	Multi-purpose vehicle	For shipping of fish, procurement of fuels, etc., 3 ton payload	3 units	1 unit	-
	Fax	For market information network	1 unit	1 unit	-
Fishing grounds diversification	Small engine	For motorization, 5.5-22hp	56 units	6 units	-
	Fishing materials	For gill nets and hand-lines	For 56 boats	For 6 boats	-
Fishing grounds management	Model fishing boat	Approx. 15GT, purse-seine	1 unit	1 unit	-
	Deep-sea FAD	For creation of fishing grounds and surveillance bases of coastal waters	3 units	1 unit	-
	Offshore FAD		14 units	1 unit	-
	Shallow FAD		-	2 units	-
	VHF radio	For land station and field use	18 units	3 units	-
	GPS	Portable, for search of boat position	17 units	2 units	-
	Speed boat	7-8m long, 75hp x 2 units, fish finder/GPS/VHF radio	1 unit	1 unit	-
	Data analysis set	For database of registered boats and fishery statistics	1 unit	1 unit	-
Fishing activity support	Hand tools	For carpentry and mechanical repair works	1 lot	1 lot	-

3) Facilities Zoning Plan

a) Kalimati (Maumere)



b) Paga (Paga)



(6) Implementation Plan

1) Implementation Schedule

Year	2002	2007	2012
Strengthening of fish coops.			
Training of fishermen and staff			
F/S & detailed designing			
Construction & procurement			
Operation & management			
Extension to neighbour areas			

Note: Extension to neighbour areas includes the following.

1. Extension to other areas of north coast (Gelitung area (Sikka district), Maurelo and Melo areas (Ende district)) using the Maumere model.
2. Extension to other areas of south coast (Lata and Bola areas) using the Paga model.

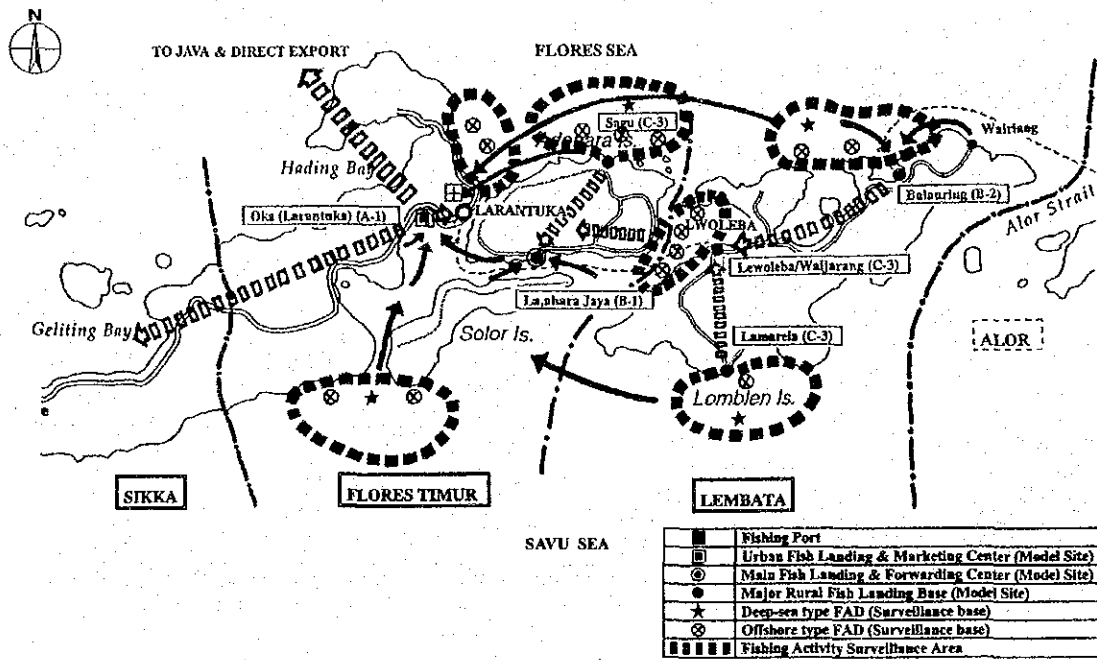
2) Project Cost

Model Site	Unit: billion Rp			
	Construction	Equipment	Activity	Total
Kalimati (Maumere)	16.7	5.7	5.6	28.0
Paga (Paga)	2.1	1.5	0.9	4.5
Wuring village	1.6	(Included in Maumere)	0.4	2.0
Sub-Total	20.4	7.2	6.9	34.5
Contingency (sub-total x 30%)	6.1	2.2	2.1	10.4
Total	26.5	9.4	9.0	44.9

Note: Cost of activity covers necessary costs before the completion of construction such as for study, designing & supervision, and education & training, assuming 25% of construction and equipment costs.

## 8 Flores Timur District

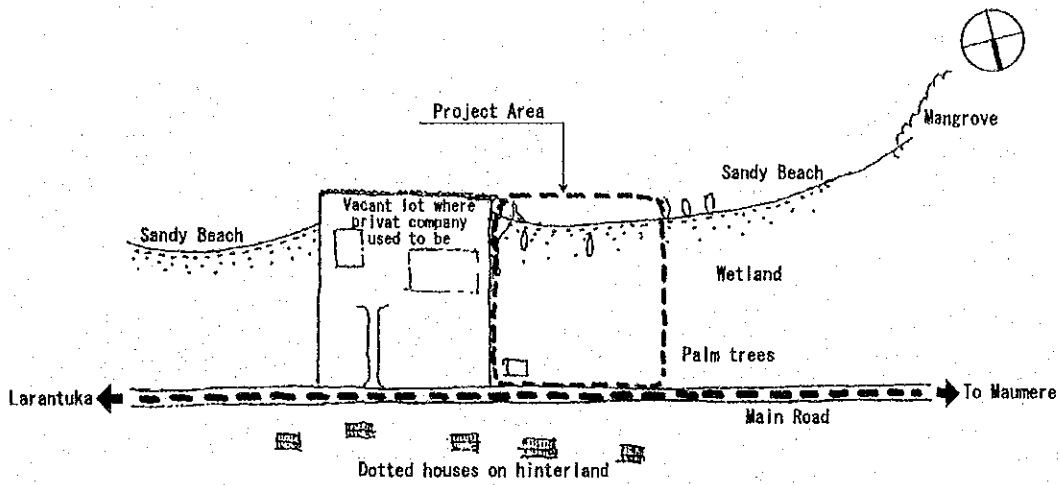
### (1) Overall Network Plan



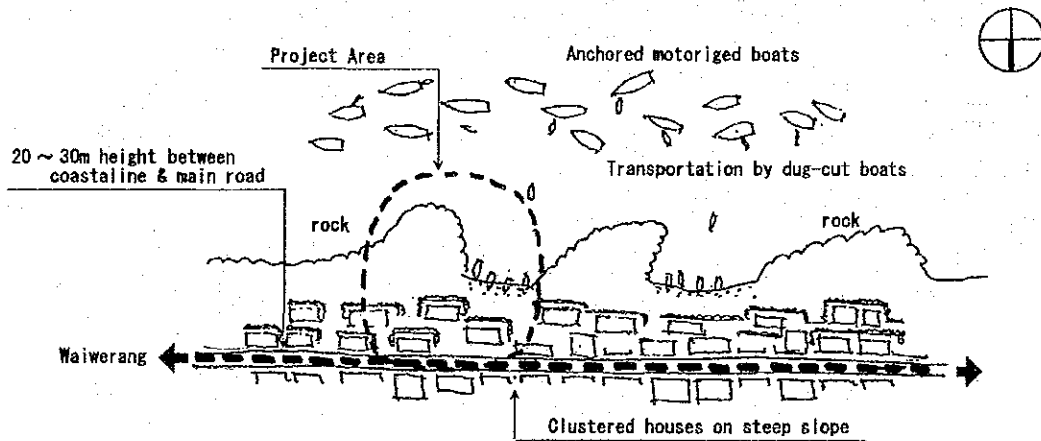
### (2) Project Site (Model Site)

The existing conditions of the model sites, namely Oka, Lamahala Jaya, and Sagu, are shown in the following page.

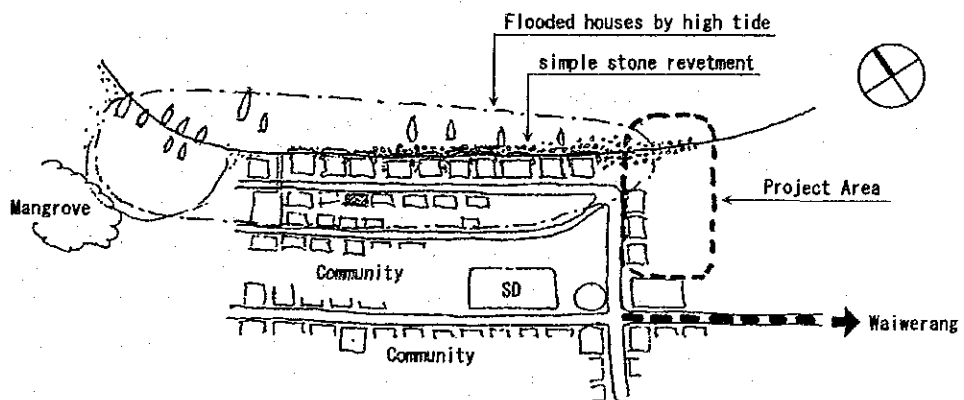
1) Oka (Larantuka)



2) Lamahala Jaya (Adonara Timur)



1) Sagu (Adonara Timur)



**(3) Target Scale**

Model Site	Oka (Larantuka)	Lamahara Jaya (Adonara T.)	Sagu (Adonara T.)
Effectuated Area	Kec. Larantuka coast	Sel. Solor coast	North coast of Adonara
No. of fishing households	Full-time 1,080 Part-time 582	Full-time 888, Part-time 56	
Estimated Fish Catch 1999-2012	2,886 - 5,526 ton/year	2,040 - 3,906 ton/year	291 - 558 ton/year
Average daily fish landing	7.9 - 15.1 ton/day	5.6 - 10.7 ton/day	0.8 - 1.5 ton/day
Ditto (at peak season)	11.9 - 22.7 ton/day	8.4 - 16.1 ton/day	1.2 - 2.3 ton/day
No. of fishing boats	Non-powered	542	421
	Outboard	28	87
	Inboard	125 (47 Bagan, 6 purse-seine, 68 pole-and-line)	113 (3 Bagan, 96 purse-seine)
Daily fresh fish dealing	7.7 - 14.8 ton/day	5.5 - 10.4 ton/day	0.8 - 1.4 ton/day
Daily processed fish	4.2 - 7.9 ton/day	2.9 - 5.6 ton/day	0.4 - 0.8 ton/day
Major markets	Larantuka (15 min. by car) Mauwere (3 hrs. by car) Ende (7 hrs. by car)	Larantuka (1.5 hrs. by boat) Waiwerang (5 min. by car)	Waiwerang (1 hr. by car) Larantuka (2 hrs. by boat)
No. of fish buyers per day (fish landing site)	80-100 village women 30-50 beach traders (women)	50-60 village women	10-20 village women
Larantuka fish market	No. of fish retailers: fresh fish 60-120 persons/day, dried fish 10 persons/day Estimated sales volume: 2.8-6.4 ton/day (average 3.7 ton/day) Opening hours: 06:00-18:00		

**(4) Site Plan**

Model Site	Area (m2)
Oka (Larantuka)	3,955
Lamahara Jaya (Adonara T.)	5,055
Sagu (Adonara T.)	1,295

(5) Facilities & Equipment Plan

1) Facilities

Function	Facilities	Brief Specification	Scale / Area		
			Larantuka	Lamahara	Sagu
Fishing port basic facilities	Landing jetty	For motorised boats	84m	140m	14m
	Mooring facility	For small boats, simple structure	52m	30m	10m
	Slipway	For repair & maintenance of motorised boats	7m	7m	4m
	Boat ramp		110m <sup>2</sup>	110m <sup>2</sup>	60m <sup>2</sup>
	Boat repair lot		100m <sup>2</sup>	100m <sup>2</sup>	50m <sup>2</sup>
	In-site roads		100m	100m	300m
	Revetment	For securing sea-side access	200m	100m	300m
Fish handling, marketing, processing and sales	Handling/auction hall		240m <sup>2</sup>	170m <sup>2</sup>	40m <sup>2</sup>
	Fresh fish storage	Space for keeping cool boxes	78m <sup>2</sup>	-	-
	Fish agent office	For fish collectors	-	-	-
	Fish retail market		200m <sup>2</sup> (50 units)	-	-
	Model fish processing facility	For boiled/dried fish (Improved type)	800m <sup>2</sup>	565m <sup>2</sup>	105m <sup>2</sup>
	Fishery products diversification centre	Processing room, cooking room, mess for extension, etc.	200m <sup>2</sup>	-	-
	Ice plant & storage	Space only	158m <sup>2</sup>	14m <sup>2</sup>	3m <sup>2</sup>
	Office	Fisheries & coop. office, kiosk, training/meeting room (community meeting room)	220m <sup>2</sup>	160m <sup>2</sup>	160m <sup>2</sup>
Fishing activity support	Mini-workshop	For maintenance of engine, manufacturing of cool box, etc.	60m <sup>2</sup>	40m <sup>2</sup>	40m <sup>2</sup>
	Net yard	Net drying yard, repair yard, work space, storage	330m <sup>2</sup>	3,300m <sup>2</sup>	400m <sup>2</sup>
	Fuel depot	Gasoline and diesel oil	80m <sup>2</sup> (3kl)	60m <sup>2</sup>	40m <sup>2</sup>
	Public toilet		40m <sup>2</sup>	30m <sup>2</sup>	30m <sup>2</sup>
	Garbage depot		1 lot	1 lot	1 lot
	Parking lot		425m <sup>2</sup>	150m <sup>2</sup>	-
	Fishing village environment	Roads & drainage		-	-
Water supply		Piping from water source, reservoir tank	-	-	-
Village electrification		Diesel generator, etc.	-	-	1 lot

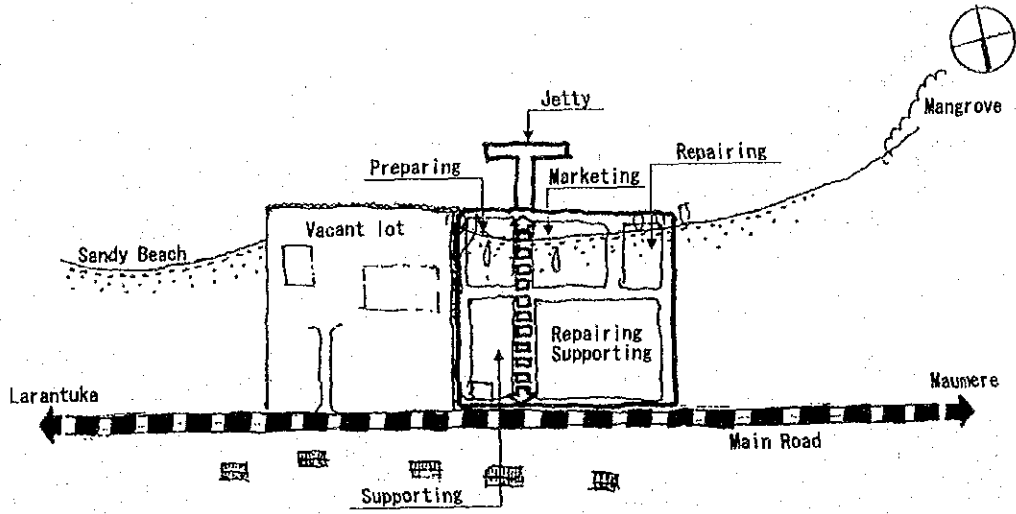
- Notes
1. Oka (Larantuka): The facilities would be utilised as the main fishing activity centre for Flores Timur and Lembata. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.
  2. Lamahara Jaya: It is necessary to take countermeasure against swell from Indian Ocean if marine structures such as landing jetty would be improved. Due to the narrow and sharp slope of the site, land reclamation would be necessary. Land necessary for construction of access road between beach and main road would be indispensable, and any marine structure would not be effective without appropriate access road. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.
  3. Sagu: It is necessary to obtain the community's consensus on construction of marine structure not only for mooring of small boats but also for protection of flood and keeping of public access at sea-side of the village. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.



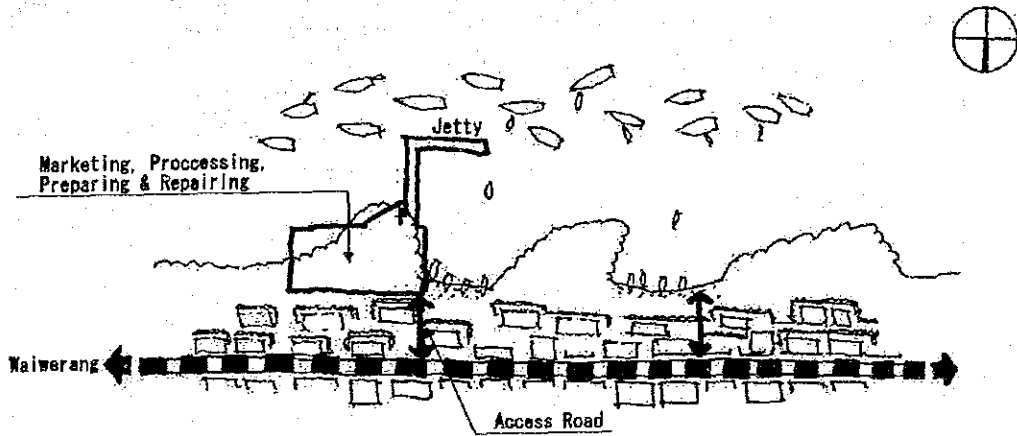
## 2) Equipment

Function	Equipment	Brief Specification	Capacity / Quantity		
			Larantuka	Lamahara	Sagu
Fresh fish marketing	Ice making plant	Block ice (25kg)	10 ton/day	-	-
	Ice storage		23 m3	18 m3	5 m3
	Cool box	25L/45L/80L/200L	344 pcs.	245 pcs.	36 pcs.
Fish processing	Materials for dried fish	Drying rack (1m wide, w/cover)	400 m	290m	50m
	processing	Drying pallet (50x80cm)	1,600 pcs.	1,130 pcs.	170 pcs.
		Boiling kiln (for 5 pallets boiling)	16 units	12 units	2 units
		Storage shelves (for 15 pallets)	54 units	38 units	6 units
	Packing equipment	Work table, vacuum packer	3 sets	2 sets	1 set
	Experimental equipment	Equipment for fish ball, cracker, smoked fish, cooking equipment, etc.	1 lot	-	-
Fish shipment & information	Multi-purpose transport boat	12m long, 40hp, fish hold approx. 3m3, GPS/VHF radio	-	3 units	1 unit
	Multi-purpose vehicle	For shipping of fish, procurement of fuels, etc., 3 ton payload	2 units	-	1 unit
	Fax	For market Information network	1 unit	1 unit	1 unit
Fishing grounds diversification	Small engine	For motorization, 5.5-22hp	33 units	-	25 units
	Fishing materials	For gill nets and hand-lines	For 33 boats	-	For 25 boats
	Model fishing boat	Approx. 15GT, purse-seine	1 unit	1 unit	1 unit
Fishing grounds management	Deep-sea FAD	For creation of fishing grounds and surveillance bases of coastal waters	1 unit	-	1 unit
	Offshore FAD		4 units	-	3 units
	Shallow FAD		-	7 units	-
	VHF radio	For land station and field use	6 units	1 unit	5 units
	GPS	Portable, for search of boat position	5 units	-	4 units
	Speed boat	7-8m long, 75hp x 2 units, fish finder/GPS/VHF radio	1 unit	1 unit	1 unit
	Data analysis set	For database of registered boats and fishery statistics	1 unit	1 unit	1 unit
Fishing activity support	Hand tools	For carpentry and mechanical repair works	1 unit	1 unit	1 unit

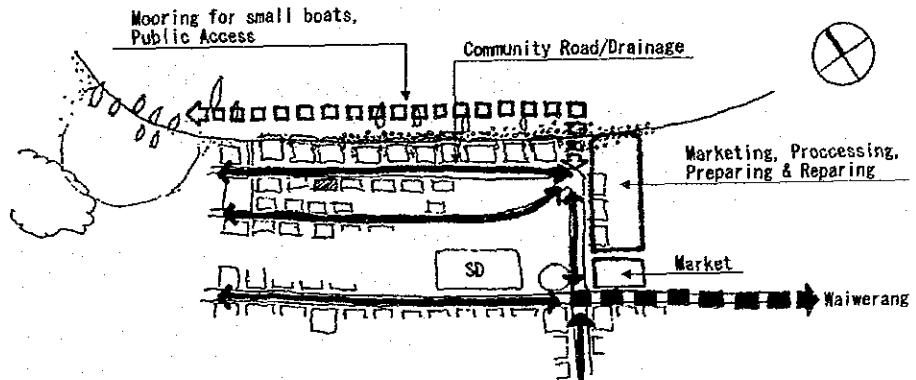
- 3) Facilities Zoning Plan  
 a) Oka (Larantuka)



- b) Lamahala Jaya (Adonara Timur)



- c) Sagu (Adonara Timur)



(6) Implementation Plan

1) Implementation Schedule

Year	2002	2007	2012
Strengthening of fish coops.	-----		
Training of fishermen and staff	-----		
F/S & detailed designing	-----		
Construction & procurement	-----		
Operation & management		-----	
Extension to neighbour areas		-----	

Note: Extension to neighbour areas includes the following.

Extension to northern peninsular area (Waikibang) and southern coastal area (Waiteba) using the Lantuka model.

2) Project Cost

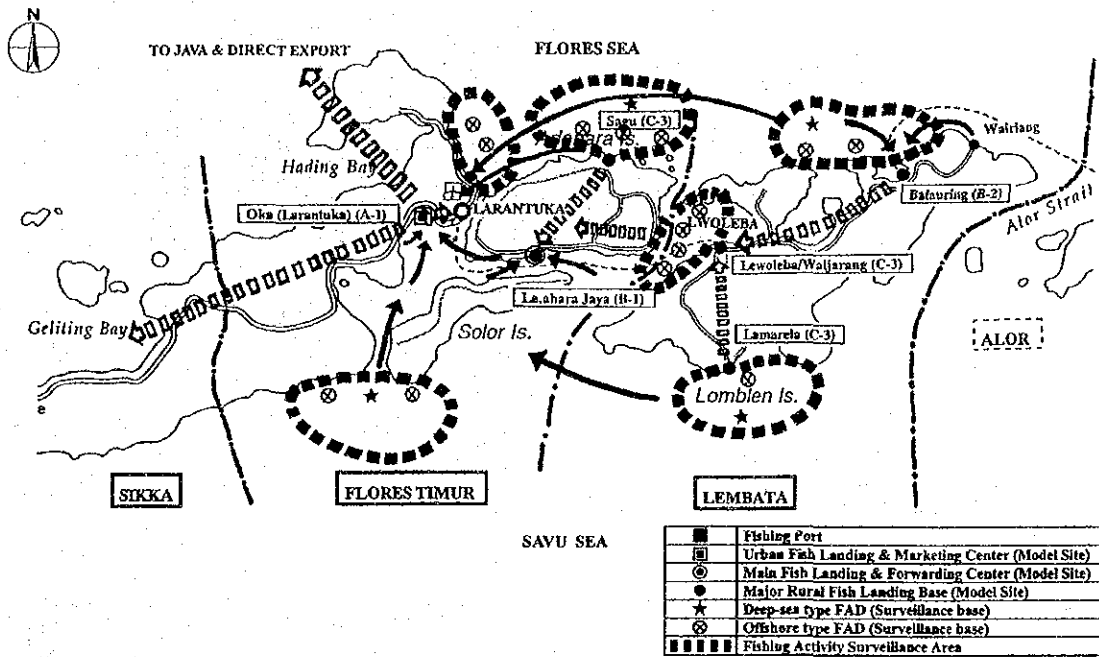
Model Site	Construction	Equipment	Activity	Total
Oka (Larantuka)	8.6	4.8	3.4	16.8
Lamahara Jaya (Adonara T.)	5.7	2.0	1.9	9.6
Sagu (Adonara T.)	4.3	1.8	1.5	7.6
Sub-Total	18.6	8.6	6.8	34.0
Contingency (sub-total x 30%)	5.6	2.6	1.7	8.5
Total	24.4	11.2	8.5	42.5

Unit: billion Rp

Note: Cost of activity covers necessary costs before the completion of construction such as for study, designing & supervision, and education & training, assuming 25% of construction and equipment costs.

## 9 Lembata District

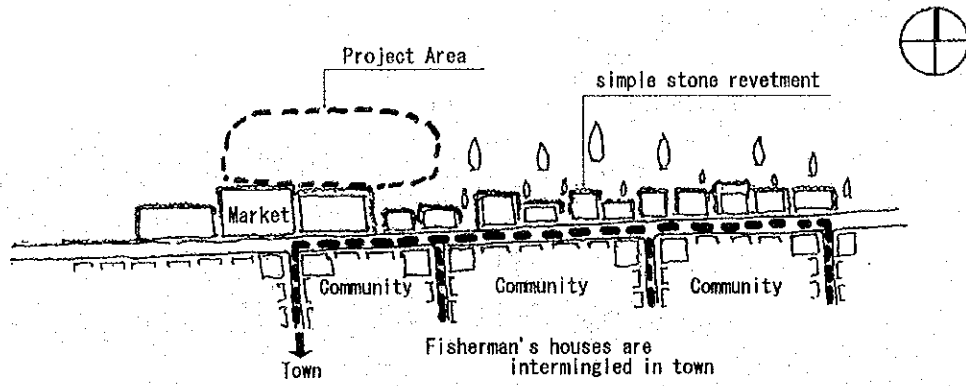
### (1) Overall Network Plan



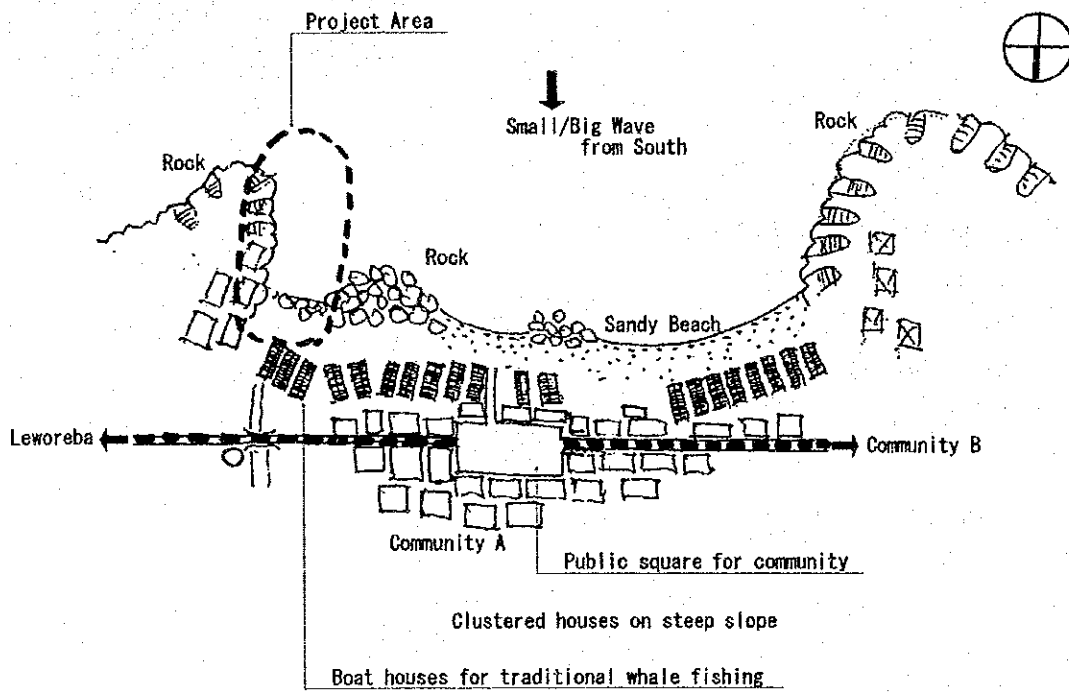
### (2) Project Site (Model Site)

The existing condition of the two sites, namely Lewoleba and Lamalera is shown in the following page.

1) Lewoleba (Nubatukan)



2) Lamalera (Nubatukan)



### (3) Target Scale

Model Site	Lewoleba (Nubatukan)	Balauring (Omesuri)	Lamalera (Nubatukan)
Effected Area	Lewoleba	Lembata	Lembata
No. of fishing households	Full-time 229 Part-time 159	Full-time 79 Part-time 564	Approx. 500 (hearing)
Estimated Fish Catch 1999-2012	337 - 645 ton/year	295 - 565 ton/year	76 - 146 ton/year
Average daily fish landing	0.9 - 1.5 ton/day	0.8 - 1.3 ton/day	0.2 - 0.3 ton/day
Ditto (at peak season)	1.4 - 2.3 ton/day	1.2 - 2.0 ton/day	0.3 - 0.5 ton/day
No. of fishing boats	Non-powered Outboard Inboard	210 16 53	355 21 29
	(50 Bagan, 3 purse-seine)		
Daily fresh fish dealing	0.9 - 1.5 ton/day	0.8 - 1.3 ton/day	0.2 - 0.4 ton/day
Daily processed fish	0.5 - 0.8 ton/day	0.4 - 0.7 ton/day	0.1 - 0.2 ton/day
Major markets	Lewoleba (landing site) Larantuka (3 hrs by boat)	Lewoleba (3 hrs. by car) Larantuka (7 hrs. by boat)	Larantuka (6 hrs. by boat) Lewoleba (3 hrs. by car)
No. of fish buyers per day (fish landing site)	20-30 village women	20-30 village women	20-30 village women
Lewoleba fish market	No. of fish retailers: fresh fish 10-20 persons/day Estimated sales volume: 0.5-1.0 ton/day (average 0.6 ton/day) Opening hours: 06:00-18:00		

### (4) Site Plan

Model Site	Area (m <sup>2</sup> )
Lewoleba (Nubatukan)	1,245
Balauring (Omesuri)	965
Lamalera (Nubatukan)	635

(5) Facilities & Equipment Plan

1) Facilities

Function	Facilities	Brief Specification	Scale / Area		
			Lewoleba	Balauring	Lamalera
Fishing port basic facilities	Landing jetty	For motorised boats	14m	24m	14m
	Mooring facility	For small boats, simple structure	20m	36m	28m
	Slipway	For repair & maintenance of motorised boats	4m	4m	-
	Boat ramp	Ditto	50m2	50m2	-
	Boat repair lot	Ditto	40m2	40m2	-
	In-site roads		-	-	-
	Revetment	For securing sea-side access	300m	-	-
Fish handling, marketing, processing and sales	Handling/auction hall		40m2	40m2	10m2
	Fresh fish storage	Space for keeping cool boxes	11m2	-	-
	Fish agent office	For fish collectors	-	-	-
	Fish retail market		Existing	-	-
	Model fish processing facility	For boiled/dried fish (Improved type)	110m2	105m2	45m2
	Fishery products diversification centre	Processing room, cooking room, mess for extension, etc.	-	-	-
	Ice plant & storage	Space only	23m2	3m2	3m2
	Office	Fisheries & coop. office, kiosk, training/meeting room (community meeting room)	160m2	160m2	160m2
Fishing activity support	Mini-workshop	For maintenance of engine, manufacturing of cool box, etc.	40m2	40m2	40m2
	Net yard	Net drying yard, repair yard, work space, storage	330m2	100m2	-
	Fuel depot	Gasoline and diesel oil	50m2	30m2	-
	Public toilet		30m2	30m2	30m2
	Garbage depot		1 lot	1 lot	1 lot
	Parking lot		75m2	100m2	100m2
	Roads & darinage		-	-	-
	Water supply	Piping from water source, reservoir tank	-	-	-
Fishing village environment	Village electrification	Diesel generator, etc.	-	-	1 lot

- Note 1. Lewoleba: It is necessary to make clear the linkage with Waijarang where is planned to move the fishing village from Lewoleba. It is necessary to obtain the community's consensus on construction of marine structure not only for mooring of small boats but also for keeping of public access at sea-side of the village. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.
2. Balauring: For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), environmental effects.
  3. Lamalera: Although the utilisation rate of multi-purpose jetty would be low due to swell and strong wave directly coming from Indian Ocean, breakwater would not be constructed due to the high cost. For the implementation of the project, it is necessary to do detailed survey and analysis on geographic and soil conditions, sea conditions (wave, tide, current, etc.), land ownership, environmental effects.

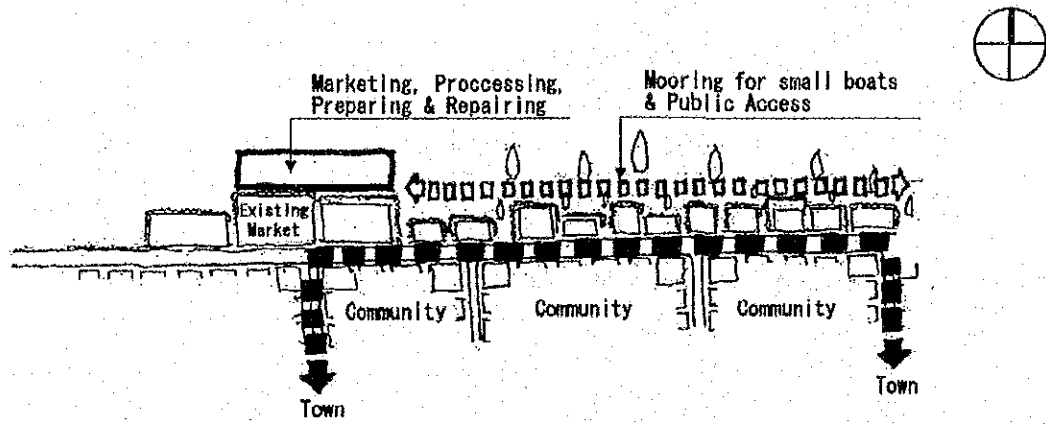
## 2) Equipment

Function	Equipment	Brief Specification	Capacity / Quantity		
			Lewoleba	Balauring	Lamalera
Fresh fish marketing	Ice making plant	Block ice (25kg)	2 ton/day	-	-
	Ice storage		5 m3	5 m3	5 m3
	Cool box	25L/45L/80L/200L	42 pcs.	37 pcs.	11 pcs.
Fish processing	Materials for dried fish processing	Drying rack (1m wide, w/cover)	50 m	40m	10m
		Drying pallet (50x80cm)	170 pcs.	150 pcs.	40 pcs.
		Boiling kiln (for 5 pallets boiling)	2 units	2 units	1 unit
		Storage shelves (for 15 pallets)	6 units	5 units	2 units
	Packing equipment	Work table, vacuum packer	1 set	1 set	1 set
	Experimental equipment	Equipment for fish ball, cracker, smoked fish, cooking equipment, etc.	-	-	-
Fish shipment & information	Multi-purpose transport boat	12m long, 40hp, fish hold approx. 3m3, GPS/VHF radio	2 units	2 units	2 units
	Multi-purpose vehicle	For shipping of fish, procurement of fuels, etc., 3 ton payload	-	1 unit	1 unit
	Fax	For market information network	1 unit	1 unit	1 unit
Fishing grounds diversification	Small engine	For motorization, 5.5-22hp	13 units	21 units	8 units
	Fishing materials	For gill nets and hand-lines	For 13 boats	For 21 boats	For 8 boats
	Model fishing boat	Approx. 15GT, purse-seine	1 unit	1 unit	1 unit
Fishing grounds management	Deep-sea FAD	For creation of fishing grounds and surveillance bases of coastal waters	-	1 unit	1 unit
	Offshore FAD		4 units	2 units	1 unit
	Shallow FAD		3 units	5 units	2 units
	VHF radio	For land station and field use	5 units	4 units	3 units
	GPS	Portable, for search of boat position	4 units	3 units	2 units
	Speed boat	7-8m long, 75hp x 2 units, fish finder/GPS/VHF radio	1 unit	1 unit	1 unit
	Data analysis set	For database of registered boats and fishery statistics	1 unit	1 unit	1 unit
Fishing activity support	Hand tools	For carpentry and mechanical repair works	1 lot	1 lot	1 lot

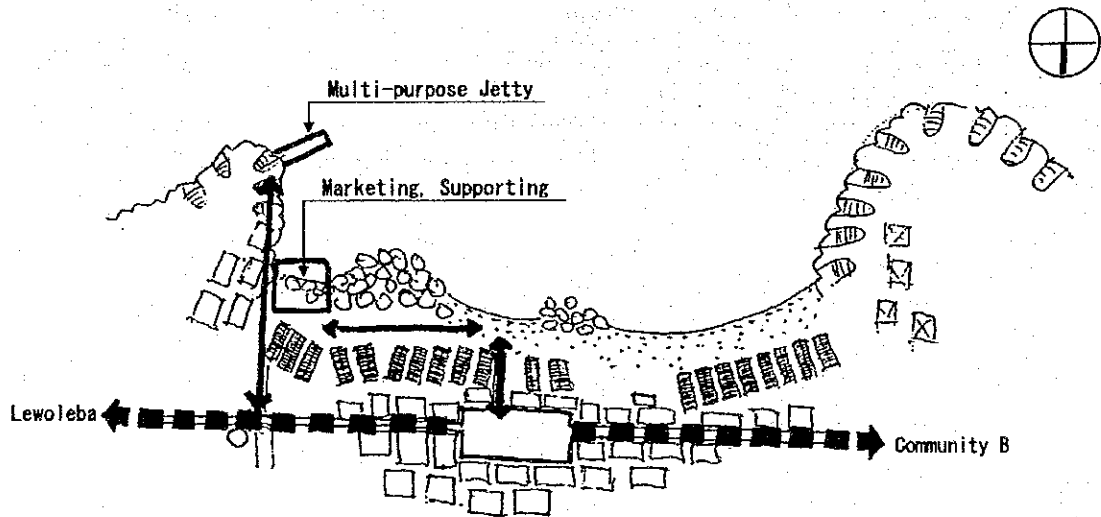


3) Facilities Zoning Plan

a) Lewoleba (Nubatukan)



b) Lamalera (Nubatukan)



(6) Implementation Plan

1) Implementation Schedule

Year	2002	2007	2012
Strengthening of fish coops.	-----		
Training of fishermen and staff	-----		
F/S & detailed designing	-----		
Construction & procurement	-----		
Operation & management		-----	
Extension to neighbour areas		-----	

Notes: 1. Extension to neighbour areas includes the following.

- a. Extension to Hadakewa area using the Lewoleba model.
  - b. Extension to north coast of Ili Api peninsular (Tokojaeng area) using the Balauring model.
  - c. Expansion of fishing grounds along the south coast (Atadei area, etc.) from Lamalera
2. The project at Lewoleba area would have to be executed after the progress of transfer plan of ferry port to Wajjarang is made sure.

2) Project Cost

Model Site	Unit: billion Rp			
	Construction	Equipment	Activity	Total
Lewoleba (Nubatukan)	3.0	2.2	1.3	6.5
Balauring (Omesuri)	2.1	2.0	1.0	5.1
Lamalera (Nubatukan)	1.9	1.9	1.0	4.8
Sub-Total	7.0	6.1	3.3	16.4
Contingency (sub-total x 30%)	2.1	1.8	1.0	4.9
Total	9.1	7.9	4.3	21.3

Note: Cost of activity covers necessary costs before the completion of construction such as for study, designing & supervision, and education & training, assuming 25% of construction and equipment costs.

Table 1 Justification of Scale of Equipment for Fishing Area Expansion and Surveillance

(1) Fishing Capacity at Each Model Site

Kabupaten	Zone	Model Site	Effected Kecamatan to Model Site	Landing Volume	Jukung	No. of non-motorized fishing boats (units)				No. of motorized boats			Breakdown of Motorized Boats				No. of motorized boats except Bagan		
						Small	Medium	Large	Total	Outboard	Inboard	Total	Bagan	Purse-Seine	Pole & line	Others	Outboard	Inboard	Total
Sumbawa	West coast	Lab.Lalar	Taliwang	587	169	5	5	1	180	118	1	119	0	0	0	119	118	1	119
	North coast	Lab.Sumbawa	Sumbawa	975	88	3	3	1	94	126	24	150	0	8	0	142	126	24	150
Dompu	TL.Saleh	Santong	Plampang	8,048	115	3	4	1	123	184	59	243	67	0	0	176	184	0	184
	TL.Saleh	Kempo	Kempo	2,599	247	0	0	0	247	118	41	159	33	10	0	116	118	8	126
Bima	TL.Bima	Hvu	Hvu	1,879	210	0	0	0	210	121	10	131	0	10	0	121	121	10	131
	TL.Waworada	Waworada	Rakanac, Wera, Bolo, Donga	509	43	14	0	0	37	90	252	442	25	0	0	467	30	317	407
Manggarai	TL.Sape	Sape	Rangle, Belo, Moma	7,074	62	20	0	0	82	84	308	392	139	15	0	338	84	169	251
	Selat/Teluk	Lab.Bajo	Komodo	11,799	30	10	0	0	40	45	836	881	183	25	0	673	45	653	678
Flores Timur	North coast	Reo	Reo	3,806	141	149	9	0	299	0	226	226	204	0	0	22	0	22	22
	South coast	Mborong	Mborong	1,038	61	65	4	0	130	0	22	22	6	1	0	15	0	16	16
Ngada	North coast	Kotajoko	Alsesa, Riang	830	18	19	1	0	38	0	7	7	0	7	0	0	0	7	7
	South coast	Almoro	Almoro	1,553	39	77	15	0	131	67	23	90	0	19	0	71	67	23	90
Sikka	North coast	Maurele	Maurele, Alok	464	22	43	8	0	73	3	7	10	0	7	0	3	3	7	10
	South coast	Paga	Paga	4,159	99	769	0	0	868	21	188	209	3	49	0	157	21	185	206
Lembata	North coast	Balauring	Omesari, Buyasari	1,060	3	19	0	0	22	1	40	41	13	0	0	25	1	27	28
	South coast	Lamakra	Lamakra	5,098	880	58	0	0	938	168	401	569	48	85	56	380	168	353	521
Lombok	North coast	Lewoleba	Nubanakan, Lebanukan	337	180	23	7	0	210	16	53	69	62	3	0	4	16	0	16
	South coast	Lamakra	Atadel	76	120	15	5	0	140	0	0	0	0	0	0	0	0	0	0

(2) No. of Target Boats for Motorisation at Each Model Site

District	Zone	Model Site	Jukung	No. of boats for motorization (1st stage)				Total
				Small	Medium	Large	Total	
Sumbawa	West coast	Lab.Lalar	10	0	0	0	10	
	North coast	Lab.Sumbawa	5	0	0	0	5	
Dompu	TL.Saleh	Santong	7	0	0	0	7	
	TL.Saleh	Kempo	15	0	0	0	15	
Bima	TL.Cempul	Hvu	13	0	0	0	13	
	TL.Bima	Bima	3	1	0	0	4	
Manggarai	TL.Waworada	Waworada	4	1	0	0	5	
	TL.Sape	Sape	2	1	0	0	3	
Flores Timur	Selat/Teluk	Lab.Bajo	8	9	1	0	18	
	North coast	Reo	4	4	0	0	8	
Ngada	South coast	Mborong	1	1	0	0	2	
	North coast	Kotajoko	2	5	1	0	8	
Sikka	South coast	Almoro	1	3	0	0	4	
	North coast	Maurele	6	46	0	0	52	
Lombok	North coast	Balauring	0	1	0	0	1	
	South coast	Lamakra	53	3	0	0	56	
Lombok	North coast	Paga	6	0	0	0	6	
	South coast	Sagu	22	3	1	0	26	
Lombok	Sel. Solor	Lamahara	28	4	1	0	33	
	P. Flores	Lamatuka	18	2	1	0	21	
Lombok	North coast	Balauring	11	1	0	0	12	
	Teluk/Selat	Lewoleba	7	1	0	0	8	
Lombok	South coast	Lamakra	7	1	0	0	8	
	Total No. of motors to be introduced (1st stage)		223	86	6	0	315	

Note:  
 No. of motors are calculated based on the following assumption:  
 (1) No. of boats for motorization; Jukung a 30%, Small boat a 50%, Medium/Large boat a 100%  
 (2) The targets of 1st stage of motorization account for 20% of total numbers of boats to be motorized.  
 (20%/stage (2 years) x 5 stages = 100%/10 years)

(3) Capacity of Fuel Station

Daily fuel demand (m <sup>3</sup> /day)	Weekly demand (m <sup>3</sup> /day)	Facilities	Means of transport	Based on Present Demand (1999)			Based on Future Demand (2012)					
				Transport agent	No. of drum / can / 3 days	No. of truck / boat	Capacity of fuel tank (m <sup>3</sup> )	No. of drum / can / 3 days	No. of truck / boat	Capacity of fuel tank (m <sup>3</sup> )		
1999	2012	1999	2012									
0.6	0.9	4.2	6.1	Drum-can	truck	coop.	9	1	13	1		
0.8	0.9	5.3	6.2	Drum-can	truck	coop.	12	1	14	1		
1.2	1.4	8.5	9.8	Fuel depot	Tank roll	Pertamina			5.0	5.0		
0.8	1.2	5.6	8.2	Fuel depot	Tank roll	Pertamina			3.0	5.0		
0.7	1.0	4.6	6.8	Drum-can	truck	coop.	10	1	15	1		
2.2	2.3	15.3	16.1	Fuel depot	Tank roll	Pertamina			8.0	9.0		
2.0	2.1	13.7	14.6	Fuel depot	Tank roll	Pertamina			7.0	8.0		
4.4	4.5	30.8	31.3	Fuel depot	Tank roll	Pertamina			16.0	16.0		
1.1	1.6	7.9	11.0	Fuel depot	Tank roll	Pertamina			4.0	6.0		
0.1	0.3	0.8	2.1	Drum-can	truck	coop.	2	1	5	1		
0.0	0.1	0.2	0.6	Drum-can	truck	coop.	1	1	2	1		
0.5	0.6	3.2	4.5	Drum-can	truck	coop.	7	1	10	1		
0.1	0.2	0.4	1.1	Drum-can	truck	coop.	1	1	3	1		
1.0	2.3	7.3	16.4	Fuel depot	Tank roll	Pertamina			4.0	9.0		
0.2	0.2	1.4	1.7	Drum-can	truck	coop.	4	1	4	1		
2.8	4.3	19.9	29.8	Fuel depot	Tank roll	Pertamina			10.0	15.0		
0.1	0.3	0.8	2.0	Drum-can	truck	coop.	2	1	5	1		
1.0	1.6	7.0	11.4	Drum-can	boat	coop.	15	2	25	3		
0.8	1.6	5.4	11.0	Fuel depot	Tank roll	Pertamina			3.0	6.0		
0.3	0.8	1.8	5.5	Drum-can	boat	coop.	4	1	12	3		
0.3	0.7	2.4	4.6	Drum-can	boat	coop.	6	2	10	3		
0.0	0.2	0.0	1.5	Drum-can	boat	coop.	0	0	4	2		
324.8	643.4						73	14	60.0	122	20	79.0

Note:  
 (1) The Pertamina may not be able to supply fuel by his own tank-rolly to the stations where the weekly fuel demand is less than 8 m<sup>3</sup>.  
 (2) In case of multi-purpose boats, 2 drum cans per trip would be carried back with fuel on the way back to transport fish (Lembata; once 2 days, Adonara; everyday).  
 (3) In case of 13-ton truck, 10 drum-cans would be transported per time (twice every 3 days).  
 (4) Capacity of fuel tank is calculated based on the assumption that the supply of fuel by Pertamina tank-rolly would be twice a week.

(4) No. of FADs to be Installed at Each Model Site

District	Zone	Model Site	No. of FAD to be installed (1st stage)				Remarks
			Shallow	Offshore	Deep-Sea	Total	
Sumbawa	West coast	Lab.Latar	0	4	1	5	Limited place to install shallow-water type
	North coast	Lab.Sumbawa	6	5	0	11	
Dompu	TL.Saleh	Samong	7	6	0	13	Limited place to install deep-sea type
	TL.Saleh	Kempo	6	5	0	11	Limited place to install deep-sea type
Bima	TL.Cempi	Huu	0	4	1	5	Limited place to install shallow-water type
	TL.Bima	Bima	0	9	2	11	Limited place to install shallow-water type
Manggarai	TL.Waworada	Waworada	0	3	2	5	
	TL.Sape	Sape	21	7	1	31	
Ngada	Selau/Teluk	Lab.Bajo	4	2	1	7	
	North coast	Reo	2	1	1	4	
Ende	South coast	Mborong	1	1	1	3	
	South coast	Kotajeko	4	2	1	7	
Sikka	South coast	Aimere	1	1	1	3	
	South coast	Ende	0	9	2	11	Limited place to install shallow-water type
Flores Timur	North coast	Maurle	2	1	1	4	
	North coast	Maurere	0	14	3	17	Limited place to install shallow-water type
Lombok	South coast	Paga	2	1	1	4	
	South coast	Saga	0	3	1	4	
Lombok	Sel. Solor	Lamuhara	7	0	0	7	Limited place to install offshore/deep-sea types
	P. Flores	Lamuhaka	0	4	1	5	Limited place to install shallow-water type
Lombok	North coast	Baburing	5	2	1	8	
	Teluk/Selat	Luwoleba	3	4	0	7	Limited place to install deep-sea type
Lombok	South coast	Lamalera	2	1	1	4	
	South coast	Lamalera	2	1	1	4	
Total No. of FADs to be introduced			81	89	25	195	
Water depth (m)			up to 200	200-1,000	1,000-2,000		
Distance from shore (miles)			within 2	within 4	4 - 12		

Note:

No. of FADs are calculated based on the following assumption:

(1) Units of FADs to be installed per 100 units of motorized boats except Bagan, purse-seine and pole-and-line fishing boats: 15 units of shallow water type,

5 units of offshore type and 2 units of deep-sea type.

(2) Number of shallow water and offshore type FADs covers only 20% of total at the initial stage, and would be increased by using revolving fund for subsequent years (20%/stage (2 years) x 5 stages = 100%/10 years).

All necessary number of deep-sea type FADs (100%) would be installed at 1st stage considering the every year's renewal by community.

(5) Equipment for Fishing Activity Surveillance

District	Zone	Model Site	Equipment for fishing activity surveillance				
			Fisheries Office (Landing Site)			Local Community	
			VHF station	Speed boat	Computer	VHF handy	GPS handy
Sumbawa	West coast	Lab.Latar	1	1	1	5	5
	North coast	Lab.Sumbawa	1	1	1	5	5
Dompu	TL.Saleh	Samong	1	1	1	6	6
	TL.Saleh	Kempo	1	1	1	5	5
Bima	TL.Cempi	Huu	1	1	1	5	5
	TL.Bima	Bima	1	1	1	11	11
Manggarai	TL.Waworada	Waworada	1	1	1	5	5
	TL.Sape	Sape	1	1	1	10	10
Ngada	Selau/Teluk	Lab.Bajo	1	1	1	3	3
	South coast	Mborong	1	1	1	2	2
Ende	South coast	Kotajeko	1	1	1	2	2
	South coast	Aimere	1	1	1	3	3
Sikka	North coast	Maurle	1	1	1	2	2
	North coast	Maurere	1	1	1	17	17
Flores Timur	South coast	Paga	1	1	1	2	2
	South coast	Saga	1	1	1	4	4
Lombok	Sel. Solor	Lamuhara	1	1	1	0	0
	P. Flores	Lamuhaka	1	1	1	5	5
Lombok	North coast	Baburing	1	1	1	3	3
	Teluk/Selat	Luwoleba	1	1	1	4	4
Lombok	South coast	Lamalera	1	1	1	2	2
	South coast	Lamalera	1	1	1	114	114
Total			23	23	23	114	114
Brief Specifications			50W	7.8m long		10W	
				7.5hp x 2			

Note: Speed boat shall be equipped with VHF radio, GPS and echo sounder.

Table 2 Justification of Scale of Equipment for Fish Marketing and Processing

(1) Estimate of Fish Landing Volume at Each Model Site by Type of Treatment (1999 and 2012)

Kabupaten	Zone	Model Site	Based on Fish Landing Volume 1999			Expected Fish Landing Volume 2012			Percentage of fish by type of treatment		Volume of fish by treatment (1999)		Volume of fish by treatment (2012)		
			Annual fish landing 1999 (ton/year)	Daily average landing (ton/day)	Max. average landing at peak season	Rate of increase (1993/99)	Annual fish landing 2012 (ton/year)	Daily average landing (ton/day)	Max. average landing at peak season	For fresh fish marketing	For fish processing (%)	For fresh fish marketing	For fish processing	For fresh fish marketing	For fish processing
Sumbawa	West coast	Lab. Lalar	597	1.6	3.4	1.18	777	2.1	3.2	50%	15%	1.2	0.4	1.6	0.5
	North coast	Lab. Sumbawa	975	2.7	4.0	1.18	1,290	3.5	5.3	50%	15%	2.0	0.6	2.7	0.8
	Tl. Saleh	Santong	8,048	22.0	33.1	1.18	10,648	29.2	43.8	50%	15%	16.5	5.0	21.9	6.6
Dompu	Tl. Saleh	Kempe	2,599	7.1	10.7	1.17	3,436	9.4	14.1	50%	15%	5.3	1.6	7.1	2.1
	Tl. Compi	Huu	1,829	5.0	7.3	1.17	2,418	6.6	9.9	50%	15%	3.8	1.1	5.0	1.5
Bima	Tl. Bima	Bima	509	1.4	2.1	1.12	529	1.7	2.6	50%	15%	1.0	0.3	1.3	0.4
	Tl. Waworada	Waworada	7,074	19.4	29.1	1.12	8,736	23.9	35.9	50%	15%	14.5	4.4	19.0	5.4
Manggarai	Tl. Sape	Sape	11,799	32.3	48.5	1.12	14,571	39.9	59.9	50%	15%	24.2	7.3	29.9	9.0
	Selat/Teiuk	Lab. Bajo	1,806	10.4	15.6	0.91	3,002	8.2	12.3	50%	15%	7.8	2.3	5.5	1.9
Ngada	North coast	Reo	1,038	2.8	4.3	0.91	819	2.2	3.4	50%	15%	2.1	0.6	1.5	0.5
	South coast	Mborong	830	2.3	3.4	0.91	655	1.8	2.7	50%	15%	1.7	0.5	1.2	0.4
Ende	North coast	Kotajoko	1,593	4.3	6.4	1.09	1,828	5.0	7.5	50%	15%	3.2	1.0	3.8	1.1
	South coast	Aimere	464	1.3	1.9	1.09	546	1.5	2.2	50%	15%	1.0	0.3	1.1	0.3
Sikka	North coast	Ende	4,159	11.4	17.1	1.09	4,879	13.4	20.1	50%	15%	8.5	2.6	10.0	3.0
	South coast	Maurole	1,060	2.9	4.4	1.09	1,244	3.4	5.1	50%	15%	2.2	0.7	2.6	0.8
Flores Timur	North coast	Paga	5,098	14.0	21.0	1.54	8,983	24.5	36.9	50%	15%	10.5	3.1	15.5	4.5
	South coast	Sagu	332	0.9	1.4	1.54	585	1.6	2.4	50%	15%	0.7	0.2	0.5	0.2
P. Flores	North coast	Lamulera	291	0.8	1.2	1.73	518	1.5	2.3	50%	15%	0.6	0.2	0.4	0.1
	South coast	Lamulera	2,040	5.6	8.4	1.73	3,906	10.7	16.1	50%	15%	4.2	1.3	5.0	1.5
Lembata	North coast	Baluring	2,886	7.9	11.9	1.73	5,226	15.1	22.7	50%	15%	8.9	1.8	11.4	3.4
	South coast	Lewoleba	295	0.8	1.2	1.44	490	1.3	2.0	50%	15%	0.6	0.2	0.4	0.1
Total	North coast	Maurole	337	0.9	1.4	1.44	560	1.5	2.3	50%	15%	0.7	0.2	0.5	0.2
	South coast	Lamalera	76	0.2	0.3	1.44	126	0.3	0.5	50%	15%	0.2	0.0	0.1	0.0
Total			57,685	158.0	237.1		76,212	208.8	313.2			118.3	35.6	156.6	47.0

Note:

- (1) Max. average landing of fish at peak season is roughly estimated at 1.5 times of daily average.
- (2) Percentage of fish processing is expected 0% during lean fishing season and 50% at peak season. Annual average is expected to reduce from 40% at present to 35% in the future through the improvement of fresh fish marketing.
- (3) Volume of fish by type of treatment is estimated based on the max. average landing volume of fish.

(2) Capacity of Ice Plant & Storage (Based on Present Demand for Ice 1999)

Kabupaten	Zone	Model Site	Required ice (ton/day)			Fish processing	Total	Capacity of ice plant (ton/day)	Capacity of ice storage (m3)
			One-day selling	Overnight preservation	Fresh				
Sumbawa	West coast	Lab. Lalar	0.3	0.4	0.2	0.9	2.0	3.0	
	North coast	Lab. Sumbawa	0.5	0.6	0.4	1.5	2.0	9.0	
	Tl. Saleh	Santong	4.1	5.0	2.9	12.0	15.0	54.0	
Dompu	Tl. Saleh	Kempe	1.3	1.6	0.9	3.9	5.0	19.0	
	Tl. Compi	Huu	0.9	1.1	0.7	2.7	4.0	14.0	
Bima	Tl. Bima	Bima	0.3	0.3	0.2	0.8	1.0	3.0	
	Tl. Waworada	Waworada	3.6	4.4	2.5	10.5	13.0	50.0	
Manggarai	Tl. Sape	Sape	6.1	7.3	4.2	17.6	22.0	81.0	
	Selat/Teiuk	Lab. Bajo	2.0	2.3	1.4	5.7	7.0	27.0	
Ngada	North coast	Reo	0.5	0.6	0.4	1.5	2.0	9.0	
	South coast	Mborong	0.4	0.5	0.3	1.2	2.0	9.0	
Ende	North coast	Kotajoko	0.8	1.0	0.6	2.3	3.0	14.0	
	South coast	Aimere	0.2	0.3	0.2	0.7	1.0	5.0	
Sikka	North coast	Ende	2.1	2.6	1.5	6.2	8.0	32.0	
	South coast	Maurole	0.5	0.7	0.4	1.6	2.0	9.0	
Flores Timur	North coast	Maurole	2.6	3.1	1.8	7.6	10.0	36.0	
	South coast	Paga	0.2	0.2	0.1	0.5	1.0	5.0	
P. Flores	North coast	Sagu	0.1	0.2	0.1	0.4	-	5.0	
	South coast	Lamulera	1.0	1.2	0.7	3.0	-	18.0	
Lembata	North coast	Baluring	1.5	1.8	1.0	4.3	10.0	41.0	
	South coast	Lewoleba	0.2	0.2	0.1	0.4	-	5.0	
Total	North coast	Lamalera	0.2	0.2	0.1	0.5	2.0	5.0	
	South coast	Lamalera	0.0	0.0	0.0	0.1	-	5.0	
Total			29.6	35.6	20.7	85.9	112.0	443.0	

Note:

- (1) Ice ratio to fish to be applied: 0.25 for one-day selling by fresh (max. 8 hrs), 1.0 for overnight preservation (max. 36 hrs), and 0.25 for keeping during processing.
- (2) Ice plant capacity was calculated based on 300-days operation per annum to meet the daily average demand.
- (3) Ice storage capacity = Daily average required ice (ton/day) x 1.5 days x 3.0 (effective storage rate).

(3) Capacity of Ice Plant & Storage (Based on Future Demand for Ice 2012)

Kabupaten	Zone	Model Site	Required ice for fish marketing (ton/day)			Required ice for fishing boats (ton/day)			Total ice demand (ton/day)	Capacity of ice plant (ton/day)	Capacity of ice storage (m3)
			One-day selling	Overnight preservation	Fresh processing	Sub-Total	for motorized boats	for model purse seine			
Sumbawa	West coast	Lab. Lalar	0.4	0.5	0.3	1.2	1.3	0.2	1.6	2.7	2.0
	North coast	Lab. Sumbawa	0.7	0.8	0.5	1.9	0.7	0.2	0.9	2.9	3.0
	Tl. Saleh	Santong	5.5	6.6	3.8	15.9	0.9	0.2	1.2	17.0	20.0
Dompu	Tl. Saleh	Kempe	1.8	2.1	1.2	5.1	1.8	0.2	2.1	7.2	7.0
	Tl. Compi	Huu	1.2	1.5	0.9	3.6	1.6	0.2	1.8	5.4	5.0
Bima	Tl. Bima	Bima	0.3	0.4	0.2	0.9	0.4	0.2	0.7	1.6	2.0
	Tl. Waworada	Waworada	4.5	5.4	3.1	13.0	0.6	0.2	0.9	13.9	16.0
Manggarai	Tl. Sape	Sape	7.5	9.0	5.2	21.7	0.3	0.2	0.5	22.2	27.0
	Selat/Teiuk	Lab. Bajo	1.5	1.9	1.1	4.5	2.2	0.2	2.5	6.9	6.0
Ngada	North coast	Reo	0.4	0.5	0.3	1.2	1.0	0.2	1.2	2.4	2.0
	South coast	Mborong	0.3	0.4	0.2	1.0	0.3	0.2	0.5	1.5	2.0
Ende	North coast	Kotajoko	0.8	1.1	0.7	2.7	1.0	0.2	1.2	3.9	4.0
	South coast	Aimere	0.2	0.3	0.2	0.8	0.5	0.2	0.8	1.6	1.0
Sikka	North coast	Ende	2.5	3.0	1.8	7.3	6.4	0.2	6.7	13.9	9.0
	South coast	Maurole	0.6	0.8	0.4	1.9	0.2	0.2	0.4	2.3	3.0
Flores Timur	North coast	Maurole	4.6	5.5	3.2	13.4	6.9	0.2	7.2	20.6	17.0
	South coast	Paga	0.3	0.4	0.2	0.9	0.8	0.2	1.0	1.9	2.0
P. Flores	North coast	Sagu	0.2	0.3	0.2	0.8	3.1	0.2	3.4	4.2	-
	South coast	Lamulera	2.0	2.4	1.4	5.8	0.0	0.2	0.2	6.1	-
Lembata	North coast	Baluring	2.8	3.4	2.0	8.2	4.0	0.2	4.3	12.5	19.0
	South coast	Lewoleba	0.3	0.3	0.2	0.7	2.6	0.2	2.9	3.6	-
Total	North coast	Lamalera	0.3	0.3	0.2	0.8	1.6	0.2	1.8	2.6	3.0
	South coast	Lamalera	0.1	0.1	0.0	0.2	1.0	0.2	1.3	1.5	-
Total			39.2	47.0	27.4	113.5	39.2	5.7	44.9	158.5	559.0

(4)-1 Capacity of Cool Boxes &amp; Storage (Based on 1999 Present Demand)

Kabupaten	Zone	Model Site	Total capacity of cool boxes (Litres)			Total number of cool boxes				Cool box storage (m <sup>2</sup> )	
			for one-day selling	for overnight preservation	for keeping at process	25L	45L	80L	200L	Area (m <sup>2</sup> )	Location
Sumbawa	West coast	Lab. Lalar	1,809	868	1,266	33	18	14	7	9	Lab. Lalar
	North coast	Lab. Sumbawa	3,005	1,442	2,104	54	30	23	11	134	S. Besar
	TL Saleh	Samong	34,805	11,907	17,364	441	245	184	87	-	-
Dompu	TL Saleh	Kempe	8,011	3,845	5,607	143	80	60	29	39	Dompu
	TL Cempli	H'uu	5,637	2,706	3,946	101	56	42	20	25	H'uu
Bima	TL Bima	Bima	1,569	753	1,098	28	16	12	6	287	Bima
	TL Waworada	Waworada	21,803	10,466	15,262	388	216	162	77	-	-
	TL Sape	Sape	36,367	17,456	25,437	646	359	270	128	-	-
Manggarai	Selat/Teluk	Lab. Bajaj	11,731	5,631	8,212	209	116	87	42	84	Ruteng
	North coast	Reo	3,199	1,536	2,240	57	32	24	12	-	-
	South coast	Mborong	2,458	1,228	1,791	46	26	19	9	-	-
Ngada	North coast	Kotajoko	4,787	2,298	3,351	86	48	36	17	30	Bajawa
	South coast	Ainsere	1,430	686	1,001	26	15	11	6	-	-
	South coast	Ende	12,819	6,133	8,973	228	127	95	45	78	Paupanda
Ende	North coast	Msurule	3,267	1,568	2,287	59	33	25	12	-	-
	North coast	Msumere	15,713	7,542	10,990	280	156	117	55	81	Kalimati
	South coast	Paga	1,023	491	716	19	11	8	4	-	-
Flora Timur	North coast	Sage	898	431	629	16	9	7	4	-	-
	Sel. Solor	Lamahara	6,287	3,018	4,401	112	63	47	23	-	-
	P. Flores	Laranuka	8,893	4,270	6,227	158	88	66	32	78	Oka
Lembata	North coast	Balauring	909	436	636	17	9	7	4	-	-
	Teluk/Selat	Lewoleba	1,039	499	727	19	11	8	4	11	Lewoleba
	South coast	Lamalera	234	112	164	5	3	2	1	-	-
Total			177,795	83,342	124,437	3,171	1,767	1,326	635	859	

Note:

(1) Capacity of cool boxes (litre) = (Fish + Ice weight (kg)) x 1.2

(2) Size and No. of cool boxes: a) 3 sizes of boxes (25L, 45L and 80L) for transport, overnight keeping and selling of fish depending on the scale of activities (each 30%, 30% and 40% in weight), and b) 1 size (200L) used for keeping during processing.

(3) Cool boxes storage area (m<sup>2</sup>) = (Total capacity of cool boxes for overnight preservation (litre)) / 100

(4)-2 Capacity of Cool Boxes &amp; Storage (Based on 2012 Future Demand)

Kabupaten	Zone	Model Site	Total capacity of cool boxes (Litres)			Total number of cool boxes				Cool box storage (m <sup>2</sup> )	
			for one-day selling	for overnight preservation	for keeping at process	25L	45L	80L	200L	Area (m <sup>2</sup> )	Location
Sumbawa	West coast	Lab. Lalar	2,394	1,149	1,676	43	24	18	9	12	Lab. Lalar
	North coast	Lab. Sumbawa	3,976	1,909	2,783	71	40	30	14	177	S. Besar
	TL Saleh	Samong	32,820	15,754	22,974	583	324	243	115	-	-
Dompu	TL Saleh	Kempe	10,591	5,084	7,414	189	105	79	38	51	Dompu
	TL Cempli	H'uu	7,453	3,578	5,217	133	74	56	27	36	H'uu
Bima	TL Bima	Bima	1,937	930	1,356	35	20	15	7	355	Bima
	TL Waworada	Waworada	26,926	12,924	18,848	479	266	200	95	-	-
	TL Sape	Sape	44,910	21,557	31,437	798	444	333	158	-	-
Manggarai	Selat/Teluk	Lab. Bajaj	9,254	4,442	6,478	165	92	69	33	67	Ruteng
	North coast	Reo	2,524	1,211	1,767	45	25	19	9	-	-
	South coast	Mborong	2,018	969	1,413	36	20	15	8	-	-
Ngada	North coast	Kotajoko	5,633	2,704	3,943	101	56	42	20	36	Bajawa
	South coast	Ainsere	1,683	808	1,178	30	17	13	6	-	-
	South coast	Ende	15,039	7,219	10,527	268	149	112	53	91	Paupanda
Ende	North coast	Msurule	3,833	1,840	2,683	69	38	29	14	-	-
	North coast	Msumere	27,688	13,290	19,382	492	274	205	97	142	Kalimati
	South coast	Paga	1,803	866	1,262	33	18	14	7	-	-
Flora Timur	North coast	Sage	1,720	825	1,204	31	17	13	7	-	-
	Sel. Solor	Lamahara	12,038	5,778	8,427	214	119	90	43	-	-
	P. Flores	Laranuka	17,033	8,176	11,923	303	169	127	60	148	Oka
Lembata	North coast	Balauring	1,511	725	1,058	27	15	12	6	-	-
	Teluk/Selat	Lewoleba	1,726	829	1,208	31	18	13	7	18	Lewoleba
	South coast	Lamalera	389	187	273	7	4	3	2	-	-
Total			234,900	112,752	164,430	4,183	2,328	1,750	835	1,133	

(5) Capacity of Fish Collector/Agent Office, Fish Retail Market and Transportation &amp; Communication equipment (Based on 1999 Present Demand)

Kabupaten	Zone	Model Site	Fish collector/agent office		Fish retail market to be expanded and/or improved		Fish transportation & communication equipment				
			No. of booth (units)	Total area (m <sup>2</sup> )	Location	No. of units	Average size per unit (m <sup>2</sup> )	Total Area (m <sup>2</sup> )	3-ton truck	Multipurpose boat (12m)	Insulated truck (2 ton)
Sumbawa	West coast	Lab. Lalar	1	25	-	-	-	0	1	0	1
	North coast	Lab. Sumbawa	8	200	S. Besar	-	-	0	0	0	1
	TL Saleh	Samong	2	50	-	-	-	0	0	0	1
Dompu	TL Saleh	Kempe	4	100	Dompu	100	2	400	0	0	1
	TL Cempli	H'uu	-	-	-	-	-	0	0	0	1
Bima	TL Bima	Bima	3	75	Bima	100	2	400	0	0	1
	TL Waworada	Waworada	3	75	-	-	-	0	0	0	1
	TL Sape	Sape	22	550	-	-	-	0	0	0	1
Manggarai	Selat/Teluk	Lab. Bajaj	3	125	Ruteng	20	4	160	0	0	1
	North coast	Reo	-	-	-	-	-	0	0	0	1
	South coast	Mborong	-	-	-	-	-	0	0	0	1
Ngada	North coast	Kotajoko	-	-	Bajawa	50	2	200	0	0	1
	South coast	Ainsere	-	-	-	-	-	0	0	0	1
	South coast	Ende	20	500	Mbongawami	100	4	800	0	0	2
Ende	North coast	Msurule	-	-	-	-	-	0	0	0	1
	North coast	Msumere	-	-	Kalimati	100	4 & 2	600	0	0	3
	South coast	Paga	-	-	-	-	-	0	0	0	1
Flora Timur	North coast	Sage	-	-	-	-	-	1	1	0	1
	Sel. Solor	Lamahara	-	-	-	-	-	0	5	0	1
	P. Flores	Laranuka	-	-	Oka	50	2	200	0	0	2
Lembata	North coast	Balauring	-	-	-	-	-	1	2	0	1
	Teluk/Selat	Lewoleba	-	-	Lewoleba	-	-	-	0	2	0
	South coast	Lamalera	-	-	-	-	-	1	2	0	1
Total			68	1,700				3	11	8	23

Note:

(1) Number of fish collector / agent office (only for fresh fish) is estimated based on the present scale and activity.

(2) Fish retail market would be expanded / improved where it is necessary based on the present type and scale of activity.

(3) At each regional fish market, the cooperatives association's office would be located in the future for cooperative's own fish marketing and exchange of market information.

(6)-1 Capacity of Model Fish Processing Facility (Based on 1999 Present Demand)

Kabupaten	Zone	Model Site	Model Fish Processing Facility (Boiled/Dried Fish)		Drying rack (m)	Drying space (m <sup>2</sup> )	Boiling kiln (units)	Boiling space (m <sup>2</sup> )	Pallets shelfe/unit	Vacuum packer/unit	Packing & storage (m <sup>2</sup> )	Total area (m <sup>2</sup> )	
			Target production (kg/day)	Drying pallets (pcs.)									
			Raw material	Products									
Sumbawa	West coast	Lab.Lalar	430	150	50	125	2	30	6	1	30	185	
	North coast	Lab.Sumbawa	710	240	80	200	3	45	10	1	50	295	
	TL.Saleh	Santong	5,790	1,930	2,320	580	1450	24	360	79	4	390	2,200
Dompu	TL.Saleh	Kempe	1,870	630	750	190	475	8	120	25	2	125	720
	TL.Cempl	Huu	1,320	440	530	140	350	6	90	18	1	90	530
Bima	TL.Bima	Bima	370	130	150	40	100	2	30	5	1	25	155
	TL.Waworada	Waworada	5,090	1,700	2,040	510	1275	21	315	68	4	340	1,930
	TL.Sape	Sape	8,490	2,850	3,400	850	2125	34	510	114	6	570	3,205
Manggarai	Selat/Teluk	Lab.Bajo	2,740	920	1,100	280	700	11	165	37	2	185	1,050
	North coast	Reo	750	250	300	80	200	3	45	10	1	50	295
	South coast	Mborong	600	200	240	60	150	3	45	8	1	40	235
Ngada	North coast	Kotajoko	1,120	380	450	120	300	5	75	15	1	75	450
	South coast	Aimere	340	120	140	40	100	2	30	5	1	25	155
	Ende	Ende	3,000	1,000	1,200	300	750	12	180	40	2	200	1,130
Sikka	North coast	Maurole	770	260	310	80	200	4	60	11	1	55	315
	North coast	Maumere	3,670	1,230	1,470	370	925	15	225	49	3	245	1,395
	South coast	Paga	240	80	100	30	75	1	15	4	1	20	110
Flores Timur	North coast	Sagu	210	70	90	30	75	1	15	3	1	15	105
	Sel.Solor	Lamahara	1,470	490	590	150	375	6	90	20	1	100	565
Lembata	P. Flores	Larantuka	2,050	700	840	210	525	9	135	28	2	140	800
	North coast	Balauring	220	80	90	30	75	1	15	3	1	15	105
	Teluk/Selat	Lewolaba	250	90	100	30	75	1	15	4	1	20	110
	South coast	Lamalera	60	20	30	10	25	1	15	1	1	5	45
Total			41,590	13,940	16,710	4,280	10,650	175	2,625	562	40	2,810	16,087

(6)-2 Capacity of Model Fish Processing Facility (Based on 2012 Future Demand)

Kabupaten	Zone	Model Site	Model Fish Processing Facility (Boiled/Dried Fish)		Drying rack (m)	Drying space (m <sup>2</sup> )	Boiling kiln (units)	Boiling space (m <sup>2</sup> )	Pallets shelfe/unit	Vacuum packer/unit	Packing & storage (m <sup>2</sup> )	Total area (m <sup>2</sup> )	
			Target production (kg/day)	Drying pallets (pcs.)									
			Raw material	Products									
Sumbawa	West coast	Lab.Lalar	560	190	60	150	3	45	8	1	40	235	
	North coast	Lab.Sumbawa	930	310	380	100	250	4	60	17	1	65	375
	TL.Saleh	Santong	7,660	2,560	3,070	770	1925	31	465	103	6	515	2,905
Dompu	TL.Saleh	Kempe	2,480	830	1,000	250	625	10	150	34	2	170	945
	TL.Cempl	Huu	1,740	580	700	180	450	7	105	24	2	120	675
Bima	TL.Bima	Bima	460	160	190	50	125	2	30	7	1	35	190
	TL.Waworada	Waworada	6,200	2,100	2,320	630	1575	26	390	84	5	420	2,385
	TL.Sape	Sape	10,480	3,500	4,200	1,050	2625	42	630	140	7	700	3,955
Manggarai	Selat/Teluk	Lab.Bajo	2,160	720	870	220	550	9	135	29	2	145	630
	North coast	Reo	500	200	240	60	150	3	45	8	1	40	235
	South coast	Mborong	480	160	200	50	125	2	30	7	1	35	190
Ngada	North coast	Kotajoko	1,320	440	530	140	350	6	90	18	1	90	530
	South coast	Aimere	400	140	160	40	100	2	30	6	1	30	160
	Ende	Ende	3,510	1,170	1,410	360	900	15	225	47	3	235	1,360
Sikka	North coast	Maurole	900	300	360	90	225	4	60	12	1	60	345
	North coast	Maumere	6,470	2,160	2,590	650	1625	26	390	87	5	425	2,450
	South coast	Paga	430	150	180	50	125	2	30	6	1	30	185
Flores Timur	North coast	Sagu	410	140	170	50	125	2	30	6	1	30	185
	Sel.Solor	Lamahara	2,810	940	1,130	280	725	12	180	38	2	190	1,095
Lembata	P. Flores	Larantuka	3,950	1,330	1,600	400	1000	16	240	54	3	270	1,510
	North coast	Balauring	360	120	150	40	100	2	30	5	1	25	155
	Teluk/Selat	Lewolaba	410	140	170	50	125	2	30	6	1	30	185
	South coast	Lamalera	100	40	40	10	25	1	15	2	1	10	60
Total			54,030	18,380	22,090	5,590	13,975	229	3,435	744	50	3,720	21,130

- Note:
- (1) Target production = (Total volume to be processed at each site) x 50%
  - (2) No. of drying pallets (Size: 50 x 80 cm/pc.) = Raw materials (kg/day) / 5kg/pallet/time x 2 days (for drying)
  - (3) Total length of drying rack (1 m wide) = No. of drying pallets (pcs.) / 2 days x 0.5 m (width of pallet)
  - (4) Drying space (m<sup>2</sup>) = Total length of drying rack (m) x 1 m (width of rack) x 2.3 (considering the working space)
  - (5) No. of boiling kiln (units) = No. of drying pallets (pcs.) / 2 days / 5 pcs. of drying pallets per time / 10 times boiling per kiln per day
  - (6) Boiling space (m<sup>2</sup>) = (No. of boiling kiln) x 15 m<sup>2</sup> (working space for gutting, placing fish on pallets, etc.)
  - (7) No. of pallets shelves (units) = No. of drying pallets (pcs.) / 2 days / 15 pcs. of drying pallets stored per shelf
  - (8) No. of vacuum packers (units) = Target production (products, kg/day) / 500 kg per day packing per machine
  - (9) Packing & storage area (m<sup>2</sup>) = No. of pallets shelves (units) x 5 (considering working space)

(7) Capacity of Fishery Products Diversification Center

Fishery Products Diversification Center					Total (m <sup>2</sup> )
Processing Room (m <sup>2</sup> )	Cooking Room (m <sup>2</sup> )	Dining / lecture room	Utility space (m <sup>2</sup> )		
50	50	50	50		200
50	50	50	50		200
50	50	50	50		200
50	50	50	50		200
50	50	50	50		200
50	50	50	50		200
300	300	300	300		1,200

Table 3 Cost Breakdown of Equipment

																				(Unit: Rp.000)		
District	Zone	Model Site	Ice Plant	Ice Storage	Cool Box	Processing materials	Process equipment	Transport boat	Iron truck	Iron insulate truck	Fax	Small engine	Fishing gears	Purse seine boat	FAD	VHF	CPS	Speed boat	Computer	Workshop tools	Total	
Sumbawa	West coast	Lab.Lalay	400,000	25,000	9,875	31,150		200,000	0	0	3,000	27,000	16,200	500,000	130,000	70,000	15,000	400,000	15,000	100,000	2,042,225	
	North coast	Lab.Sumbawa	400,000	45,000	16,000	37,400	500,000	0	0	0	3,000	14,100	8,460	600,000	130,000	70,000	15,000	400,000	15,000	100,000	2,355,960	
		Tl.Saleh	3,000,000	270,000	128,675	256,350		0	0	0	3,000	18,450	11,070	600,000	155,000	80,000	18,000	400,000	15,000	100,000	5,055,545	
Dompu	Tl. Saleh	Kempe	1,000,000	90,000	42,225	84,500		0	0	0	3,000	37,050	22,230	600,000	130,000	70,000	15,000	400,000	15,000	100,000	2,609,005	
		Tl. Compi	Hiau	800,000	70,000	29,475	71,500		0	0	0	3,000	31,500	18,900	600,000	130,000	70,000	15,000	400,000	15,000	100,000	2,354,373
Blina	Tl. Blina	Blina	200,000	25,000	8,500	28,950	500,000	0	0	0	3,000	8,550	5,130	600,000	287,000	130,000	34,000	400,000	15,000	100,000	2,345,130	
		Tl.Waworada	Waworada	2,600,000	250,000	113,500	212,100		0	0	0	3,000	12,300	7,380	600,000	200,000	70,000	15,000	400,000	15,000	100,000	4,598,280
		Tl.Sape	Sape	4,400,000	405,000	188,850	325,500		0	0	0	3,000	6,000	3,600	600,000	395,000	120,000	30,000	400,000	15,000	100,000	6,991,930
Manggani	Selsa/Teluk	Lab.Baje	1,400,000	135,000	61,325	78,850	500,000	0	0	250,000	3,000	44,850	26,910	600,000	110,000	50,000	9,000	400,000	15,000	100,000	3,783,925	
		Reo	400,000	45,000	17,075	31,200		0	0	0	3,000	19,500	11,700	600,000	80,000	40,000	6,000	400,000	15,000	100,000	1,758,475	
		South coast	Mborong	400,000	45,000	13,400	29,000		0	0	0	3,000	5,700	3,420	600,000	75,000	40,000	6,000	400,000	15,000	100,000	1,758,520
Ngada	North coast	Ketajoke	600,000	70,000	25,150	44,550		0	0	0	3,000	19,650	11,790	600,000	110,000	50,000	9,000	400,000	15,000	100,000	2,058,240	
		South coast	Alimere	200,000	25,000	8,100	27,800		0	0	0	3,000	10,950	6,570	600,000	75,000	40,000	6,000	400,000	15,000	100,000	1,517,420
Ende	South coast	Ende	1,600,000	160,000	66,350	123,550	500,000	0	0	500,000	3,000	130,200	78,120	600,000	287,000	130,000	34,000	400,000	15,000	100,000	4,727,420	
		North coast	Maurole	400,000	45,000	17,475	36,300		0	0	0	3,000	3,300	1,980	600,000	80,000	40,000	6,000	400,000	15,000	100,000	1,748,055
Sikka	North coast	Maurone	2,000,000	180,000	81,650	214,950	500,000	0	0	750,000	3,000	140,700	84,420	600,000	424,000	190,000	50,000	400,000	15,000	100,000	5,733,720	
		South coast	Paga	200,000	25,000	5,725	28,400		0	0	0	3,000	15,900	9,540	600,000	80,000	40,000	6,000	400,000	15,000	100,000	1,528,565
Flores Timur	North coast	Sagu		25,000	5,150	28,350		200,000	150,000	0	3,000	63,150	37,890	600,000	110,000	60,000	12,000	400,000	15,000	100,000	1,809,540	
		Sel. Solor	Lamahara	90,000		33,250	91,150		600,000	0	0	3,000	0	0	600,000	35,000	20,000	0	400,000	15,000	100,000	1,987,400
		P. Flores	Lamauka	2,000,000	115,000	46,350	131,000	500,000	0	0	300,000	3,000	81,300	48,780	600,000	130,000	70,000	15,000	400,000	15,000	100,000	4,755,630
Lembais	North coast	Balawing		25,000	5,225	27,250		400,000	150,000	0	3,000	53,250	31,950	600,000	115,000	50,000	9,000	400,000	15,000	100,000	1,984,675	
		Teluk/Selat	Leweloh	400,000	25,000	5,725	28,350		400,000	0	0	3,000	31,500	18,900	600,000	95,000	60,000	12,000	400,000	15,000	100,000	2,194,475
		South coast	Lamalera		25,000	1,475	22,700		400,000	150,000	0	3,000	21,000	12,600	600,000	80,000	40,000	6,000	400,000	15,000	100,000	1,876,775
<b>Total</b>			22,400,000	2,215,000	930,925	1,990,950	3,000,000	2,200,000	450,000	2,000,000	69,000	795,900	477,540	13,800,000	3,443,000	1,500,000	343,000	9,200,000	345,000	2,300,000	67,560,315	

Note:

Unit Price of each equipment (including transportation and installation costs)	200,000/ton	5,000/m2	25L: 75/pc	Drying rack	500,000/lot	200,000/unit	150,000/unit	250,000/unit	3,000/unit	2,500/unit	1,500/unit	600,000/unit	Deep-sea	Station type	3,000/pc	400,000/unit	15,000/lot	100,000/lot
			45L: 100/pc	50/m									50,000/unit	20,000/unit				
			80L: 125/pc	Pallet									Offshore	Handy type				
			200L: 500/pc	5/pc.									20,000/unit	10,000/unit				
				Boiling kiln									Shallow					
				1,000/unit									5,000/unit					
				Store shelf														
				500/unit														
				Packing op.														
				20,000/unit														



Table 4 (I): Scale of Main Facilities For Proeject Design - Number of Fishing Boats for Landing Facilities

Districts	Model Site	Category	a Total number of motorized boats	b (Number of Bagan boats)	a-b Number of motorized boats	Major type	Average tonnage (GT)	d Average length (m)	d x 1.15 Required berth length (m)	No. of non- powered small boats	e Average width (m)	e x 1.15 Required berth length (m)			
Sumbawa	Lab. Lalar	C-1	119	0	119	Outboard	1	7	8	180	3.5	4.0			
	Lab. Sumbawa	C-1	150	0	150	Outboard	3	10	12	94	3.5	4.0			
	Santong	B-1	243	59	184	Outboard	1-10	10	12	123	3.5	4.0			
Dompu	Soro (Kempo)	B-1	159	33	126	Outboard	1-5	10	12	247	3.5	4.0			
	Hu'u	B-3	131	0	131	Outboard	1-3	10	12	210	3.5	4.0			
Bima	Kel. Tanjung (Bima)	C-1	442	35	407	Inboard	1	7	8	57	3.5	4.0			
	Rompo (Waworada)	B-1	392	139	253	Inboard	1-5	10	12	82	3.5	4.0			
	Bugis (Sape)	B-1	881	183	698	Inboard	1-5	10	12	40	3.5	4.0			
Manggarai	Lab. Bajo	B-3	226	204	22	Inboard	1-7	10	12	299	3.5	4.0			
	Reo	C-3	22	6	16	Inboard	1-5	10	12	130	3.5	4.0			
	Mborong	-	7	0	7	Inboard	1-5	10	12	38	3.5	4.0			
Ngada	Kotajoko (Aisesa)	B-2	90	0	90	Outboard	1-5	10	12	131	3.5	4.0			
	Aimere	C-3	10	0	10	Inboard	5-7	12	14	73	3.5	4.0			
Ende	Pupanda (Ende)	A-1	209	3	206	Inboard	1-5	10	12	868	3.5	4.0			
	Maurole	-	41	13	28	Inboard	1-5	10	12	22	3.5	4.0			
Sikka	Kalimati (Mauwere)	A-1	569	48	521	Inboard	1-5	10	12	938	3.5	4.0			
	Paga	C-3	24	0	24	Inboard	1-3	10	12	106	3.5	4.0			
Flores Timur	Sagu	C-3	200	3	197	Inboard	5-7	12	14	421	3.5	4.0			
	Lamahala Jaya	B-1													
	Oka (Larantuka)	A-1	153	47	106	Inboard	1-15	12	14	542	3.5	4.0			
Lembata	Balauring	C-2	50	0	50	Inboard	1-3	10	12	355	3.5	4.0			
	Wajjarang / Lewoleba	C-3	69	53	16	Inboard	1-3	10	12	210	3.5	4.0			
	Lamarela	C-3	0	0	0	Inboard	1	7	8	140	3.5	4.0			

Note: Number of fishing boats are using port on the Standard Day.

Average length of motorized fishing boats : 0-1GT: 7m, 1-7GT: 10m, 5-7GT: 12m

Table 4 (2): Scale of Main Facilities For Project Design -Landing Facilities

Districts	Model Site	Category	Number of motorized boats	Landing volume in 1999 (ton)	Landing volume on the Standard Day (ton)	Landing volume per boat on the Standard Day (kg)	Landing time (hr)	No. of boats landing on the Standard Day	Landing time per boat (min)	Required berth length per boat (m)	No. of required berth	No. of required berth (round off)	Required length (m)	Note
Sumbawa	Lab. Lalar	C-1	119	587	2.4	25	4	95	7	8	2.8	3	24	
	Lab. Sumbawa	C-1	150	975	4.0	33	4	120	10	12	5.0	5	60	
	Santong	B-1	184	8,048	33.1	170	5	147	20	12	9.8	10	120	Existing facilities
Dompu	Soro (Kempo)	B-1	126	2,599	10.7	84	5	101	15	12	5.0	6	72	Existing facilities
	Hu'u	B-3	131	1,829	7.5	72	4	105	12	12	5.2	6	72	Non-improvement
Bima	Kel. Tanjung (Bima)	C-1	407	509	2.1	6	4	326	7	8	9.5	10	80	
	Rompo (Waworada)	B-1	253	7,074	29.1	93	4	202	7	12	5.9	6	72	
	Bugis (Sape)	B-1	698	11,799	48.5	69	5	558	10	12	18.6	19	228	
Manggarai	Lab. Bajo	B-3	22	3,806	15.6	87	4	18	7	12	0.5	1	14	
	Reo	C-3	16	1,038	4.3	242	4	13	15	12	0.8	1	14	Non-improvement
	Mborong	-	7	830	3.4	609	4	6	20	12	0.5	1	14	
Ngada	Kotajoko (Aisesa)	B-2	90	1,553	6.4	89	4	72	15	12	4.5	5	60	
	Aimere	C-3	10	464	1.9	238	4	8	20	14	0.7	1	14	
Ende	Pupanda (Ende)	A-1	206	4,159	17.1	102	4	165	15	12	10.3	11	132	Existing facilities
	Maurole	-	28	1,060	4.4	133	4	22	10	12	0.9	1	14	
Sikka	Kalimati (Mauwere)	A-1	521	5,098	21.0	46	4	417	10	12	17.4	18	216	
	Paga	C-3	24	332	1.4	71	4	19	15	12	1.2	2	24	Non-improvement
Flores Timur	Sagu	C-3	197	291	1.2	7	4	158	15	14	9.9	10	140	Multi-purpose
	Lamahala Jaya	B-1		2040	8.4									
	Oka (Larantuka)	A-1	106	2,886	11.9	97	4	85	15	14	5.3	6	84	
Lembata	Balauring	C-2	50	295	1.2	30	4	40	10	12	1.7	2	24	Multi-purpose
	Waijarang / Lewoleba	C-3	16	337	1.4	25	4	13	7	12	0.4	1	14	
	Lamarela	C-3	0	76	0.3		2	0	15	8	0.0	0	14	Multi-purpose

Note: Motorized boats except Bagan are used for calculation of landing berth length. Average landing volume are considered with Bagan fishing boats.

80% of total boats are operated a day. Operating days are 300 days a year.

Landing volume in peak season is 1.5 times of average landing volume. Landing volume per day in peak season = (annual landing volume/365days)\*1.5

Landing time are in accordance with the actual fishing activities at the sites.

Average landing time per boat are depend on landing volume. 0-50ton/day: 7min, 50-100to /day: 10min, 100-200ton/day: 15min, more than 200ton/day: 20min

Number of required berth = number of boats a day / (landing time / landing time per boat)

Minimum berth length are 14m in consideration with mooring model purse-seine boat (15GT) and speed boat (7-8m long).

Table 4 (3): Scale of Main Facilities For Proejct Design -Landing Facilities for Small Boats

Districts	Model Site	Category	Number of non-powered small boats	Landing volume in 1999 (ton)	Landing volume on the Standard Day (ton)	Landing volume per boat on the Standard Day (kg)	Landing time (hr)	No. of boats landing on the Standard Day	Landing time per boat (min)	Required berth length per boat (m)	No. of required berth	No. of required berth (round off)	Required length for small boats (m)	Note
Sumbawa	Lab. Lalar	C-1	180	587	2.4	25	4	144	7	4	4.2	5	20	
	Lab. Sumbawa	C-1	94	975	4.0	33	4	75	7	4	2.2	3	12	
	Santong	B-1	123	8,048	33.1	170	5	98	7	4	2.3	3	12	
Dompu	Soro (Kempo)	B-1	247	2,599	10.7	84	5	198	7	4	4.6	5	20	
	Hu'u	B-3	210	1,829	7.5	72	4	168	7	4	4.9	5	20	Non-improvement
Bima	Kel. Tanjung (Bima)	C-1	57	509	2.1	6	4	46	7	4	1.3	2	8	
	Rompo (Waworada)	B-1	82	7,074	29.1	93	4	66	7	4	1.9	2	8	
	Bugis (Sape)	B-1	40	11,799	48.5	69	5	32	7	4	0.7	1	4	
Manggarai	Lab. Bajo	B-3	299	3,806	15.6	87	4	239	7	4	7.0	7	28	
	Reo	C-3	130	1,038	4.3	242	4	104	7	4	3.0	4	16	Non-improvement
	Mborong	-	38	830	3.4	609	4	30	7	4	0.9	1	4	
Ngada	Kotajoko (Aisesa)	B-2	131	1,553	6.4	89	4	105	7	4	3.1	4	16	
	Aimere	C-3	73	464	1.9	238	4	58	7	4	1.7	2	8	
Ende	Pupanda (Ende)	A-1	868	4,159	17.1	102	4	694	7	4	20.3	21	84	
	Maurole	-	22	1,060	4.4	133	4	18	7	4	0.5	1	4	
Sikka	Kalimati (Maurere)	A-1	938	5,098	21.0	46	4	750	7	4	21.9	22	88	
	Paga	C-3	106	332	1.4	71	4	85	7	4	2.5	3	12	Non-improvement
Flores Timur	Sagu	C-3	421	291	1.2	7	4	337	7	1	9.8	10	10	
	Lamahala Jaya	B-1		2040	8.4					3			30	
	Oka (Larantuka)	A-1	542	2,886	11.9	97	4	434	7	4	12.6	13	52	
Lembata	Balauring	C-2	355	295	1.2	30	4	284	7	4	8.3	9	36	
	Waijarang / Lewoleba	C-3	210	337	1.4	25	4	168	7	4	4.9	5	20	
	Lamarela	C-3	140	76	0.3		2	112	7	4	6.5	7	28	

Note: 80% of total boats are operated a day. Operating days are 300 days a year.

Landing volume in peak season is 1.5 times of average landing volume. Landing volume per day in peak season = (annual landing volume/365days)\*1.5

Landing time are in accordance with the actual fishing activities at the sites.

Average landing time per boat are evenly 7min.

Number of required berth = number of boats a day / (landing time / landing time per boat)

Table 4 (4): Scale of Main Facilities For Proeject Design -On-Land Facilities (Handling &amp; Auction Hall, Ice Plant &amp; Storage)

Districts	Model Site	Category	Number of motorized boats	Landing volume in 1999 (ton)	Landing volume on the Standard Day (ton)	Handling & Auction Hall				Ice Plant & Ice Storage			
						Shed Area S1(m2)	Incidental Facilities S2(m2)	Total Area (m2)	Ground Area (m2)	Ice Plant (ton/day)	Ice Storage (m3)	Total Area (m2)	Ground Area (m2)
Sumbawa	Lab. Lalar	C-1	119	587	2.4	57	17	70	120	2	9	25	50
	Lab. Sumbawa	C-1	150	975	4.0	95	29	120	200	2	9	25	50
	Santong	B-1	184	8,048	33.1	525	157	680	1,130	15	68	184	310
Dompu	Soro (Kempo)	B-1	126	2,599	10.7	170	51	220	370	5	23	62	110
	Hu'u	B-3	131	1,829	7.5	119	36	160	270	4	18	49	90
	Dompu	-	-	-	-	-	-	-	-	-	-	-	-
Bima	Kel. Tanjung (Bima)	C-1	407	509	2.1	50	15	60	100	1	5	13	30
	Rompo (Waworada)	B-1	253	7,074	29.1	461	138	600	1,000	12	54	147	250
	Bugis (Sapc)	B-1	698	11,799	48.5	770	231	1,000	1,670	20	90	245	410
Manggarai	Lab. Bajo	B-3	22	3,806	15.6	248	74	320	530	5	23	62	110
	Reo	C-3	16	1,038	4.3	102	30	130	220	2	9	25	50
	Mborong	-	7	830	3.4	81	24	110	180	1	5	13	30
Ngada	Kotajoko (Aisesa)	B-2	90	1,553	6.4	152	46	200	330	3	14	37	70
	Aimere	C-3	10	464	1.9	45	14	60	100	1	5	13	30
Ende	Pupanda (Ende)	A-1	206	4,159	17.1	271	81	350	580	7	32	86	150
	Maurole	-	28	1,060	4.4	104	31	130	220	2	9	25	50
Sikka	Kalimati (Maumere)	A-1	521	5,098	21.0	333	100	430	720	12	54	147	250
	Paga	C-3	24	332	1.4	32	10	40	70	1	5	13	30
Flores Timur	Sagu	C-3	197	291	1.2	28	9	40	70	-	5	3	10
	Lamahala Jaya	B-1	197	2040	8.4	133	40	170	280	-	27	14	30
	Oka (Larantuka)	A-1	106	2,886	11.9	188	56	240	400	14	36	158	270
Lembata	Balauring	C-2	50	295	1.2	29	9	40	70	-	5	3	10
	Waijarang / Lewoleba	C-3	16	337	1.4	33	10	40	70	2	5	23	40
	Lamarcla	C-3	0	76	0.3	7	2	10	20	-	5	3	10

Note: Fish Handling & Auction Hall: Necessary shed area (S1) =  $N/(R*a*P)$ , N: Planned handling volume (ton/day) for each lot, P: Handling volume per m2 (ton/m2), R: Shed turnover, a: Share

\*  $P=30\text{kg/m}^2$ (basket),  $R=3$  times/day (N 10ton/day),  $R=2$  times/day (N 10ton/day),  $a=0.7$

Incidental Facilities (ice storage, auction room and port-related people's waiting room: S2):  $S2=S1*30\%$

Ground area (A) = (shed + incidental facilities) / building coverage ratio(60%)

Ice Plant:

Total area = ice making room + ice storage room + machinery room (including electricity room)

Ground area (A) = Total area / building coverage ratio(60%)

Table 4 (5): Scale of Main Facilities For Proejct Design -On-la-Land Facilities (Fuel Depot)

Districts	Model Site	Category	Number of motorized boats (Outboard)	Number of motorized boats (Inboard)	Number of motorized boats	Fuel Depot						
						Fuel oil requirement t (kl/day)	Fuel oil requirement t (kl/week)	Type of facility	No. of drum (for 3days)	Fuel depot area (m2)	Capacity of oil tank	Ground Area (m2)
Sumbawa	Lab. Lalar	C-1	118	1	119	0.6	4.2	Drum	9	30		60
	Lab. Sumbawa	C-1	126	24	150	0.8	5.3	Drum	12	30		60
	Santong	B-1	184	59	243	1.2	8.5	Oil Tank			5	80
Dompu	Soro (Kempo)	B-1	118	41	159	0.8	5.6	Oil Tank			3	70
	Hu'u	B-3	121	10	131	0.7	4.6	Drum	10	30		60
	Dompu	-	-	-	-	-	-	-	-	-	-	-
Bima	Kel. Tanjung (Bima)	C-1	90	352	442	2.2	15.5	Oil Tank			8	120
	Rompo (Waworada)	B-1	84	308	392	2.0	13.7	Oil Tank			7	100
	Bugis (Sape)	B-1	45	836	881	4.4	30.8	Oil Tank			16	160
Manggarai	Lab. Bajo	B-3	0	226	226	1.1	7.9	Oil Tank			4	80
	Reo	C-3	0	22	22	0.1	0.8	Drum	2	10		20
	Mborong	-	0	7	7	0.0	0.2	Drum	1	10		20
Ngada	Kotajoko (Aisesa)	B-2	67	23	90	0.5	3.2	Drum	7	20		40
	Aimere	C-3	3	7	10	0.1	0.4	Drum	1	10		20
Ende	Pupanda (Ende)	A-1	21	188	209	1.0	7.3	Oil Tank			4	80
	Maurole	-	1	40	41	0.2	1.4	Drum	4	10		20
Sikka	Kalimati (Maumere)	A-1	168	401	569	2.8	19.9	Oil Tank			10	140
	Paga	C-3	1	23	24	0.1	0.8	Drum	2	10		20
Flores Tinur	Sagu	C-3	87	113	200	1.0	7.0	Drum	5	20		40
	Lamahala Jaya	B-1							10	30		60
	Oka (Larantuka)	A-1	28	125	153	0.8	5.4	Oil Tank			3	80
Lembata	Balauring	C-2	21	29	50	0.3	1.8	Drum	4	10		30
	Waijarang / Lewoleba	C-3	16	53	69	0.3	2.4	Drum	6	20		50
	Lamarcla	C-3	0	0	0	0.0	0.0	Drum	0	0		0

Note: Fuel Depot: Fuel oil requirement, type of facility, No. of drum and capacity of oil tank are according to attached data.

Fuel depot area (drum) = drum (200L) area \* 9 ( allowance: 3 times of one side)

Ground area (drum) = fuel depot area / building coverage ratio (50%)

Ground area (tank) = (diameter of oil tank \* 4.2) \* (diameter of oil tank \* 4.2)

Table 4 (6): Scale of Main Facilities For Proejct Design - (Net Yard)

Districts	Model Site	Category	Number of motorized boats	Gear Drying Area				Open Pile Area		Total Area of Net Yard (m <sup>2</sup> )	Note
				No. of purse-seine boats	No. of unit per day	No. of unit (round off)	Ground Area (m <sup>2</sup> )	No. of unit per day	Ground Area (m <sup>2</sup> )		
Sumbawa	Lab. Lalar	C-1	119	0	0.0	0	0	24	240	240	
	Lab. Sumbawa	C-1	150	8	0.8	1	330	30	0	330	
	Santong	B-1	184	0	0.0	0	0	37	370	370	
Dompu	Soro (Kempo)	B-1	126	10	1.0	1	330	25	0	330	
	Hu'u	B-3	131	10	1.0	1	330	26	0	330	
	Dompu	-	-	-	-	-	-	-	-	-	
Bima	Kel. Tanjung (Bima)	C-1	407	0	0.0	0	0	81	820	820	
	Rompo (Waworada)	B-1	253	15	1.5	2	660	51	0	660	
	Bugis (Sape)	B-1	698	25	2.5	3	990	140	0	990	
Manggarai	Lab. Bajo	B-3	22	0	0.0	0	0	4	50	50	
	Reo	C-3	16	1	0.1	1	330	3	0	330	
	Mborong	-	7	7	0.7	1	330	1	0	330	
Ngada	Kotajoko (Aisesa)	B-2	90	19	1.9	2	660	18	180	840	
	Aimere	C-3	10	7	0.7	1	330	2	0	330	
Ende	Pupanda (Ende)	A-1	206	49	4.9	5	1,650	41	0	1,650	
	Maurole	-	28	0	0.0	0	0	6	60	60	
Sikka	Kalimati (Maumere)	A-1	521	85	8.5	9	2,970	104	0	2,970	*1,470m <sup>2</sup> at Wuring
	Paga	C-3	24	22	2.2	3	990	5	0	990	
Flores Timur	Sagu	C-3	197	0	0.0	0	0	39	400	400	
	Lamahala Jaya	B-1		96	9.6	10	3,300	0	0	3,300	
	Oka (Larantuka)	A-1		106	6	0.6	1	330	21	0	330
Lembata	Balauring	C-2	50	0	0.0	0	0	10	100	100	
	Wajjarang / Lewoleba	C-3	16	3	0.3	1	330	3	0	330	
	Lamarela	C-3	0	0	0.0	0	0	0	0	0	

Note: Gear Drying Area: No. of unit = No. of purse-seine boats. Drying every 30 days, 3days a time ( using wooden frame). Using area per net = 25m\*8m=200m<sup>2</sup>  
Necessary area per net= using area per net / 60% = 200m<sup>2</sup>/0.6=330m<sup>2</sup>  
Ground area = No. of unit ( No. of boats ) \* 3days / 30 days \* 330m<sup>2</sup>  
Open Pile Area No. of unit = No. of total unit \* 20% (80% of total unit bring back fishing gear to their houses)  
Ground area = No. of total unit ( No. of boats ) \* 20% \* necessary area per unit (10m<sup>2</sup>)

Table 4 (7): Scale of Main Facilities For Project Design - (Slipway &amp; Others)

Districts	Model Site	Category	Number of motorized boats (Outboard)	Number of motorized boats (Inboard)	Number of motorized boats	Slipway			Boat Ramp		Boat Repair Lot			Total Ground Area (m <sup>2</sup> )
						Number of boats	No. of boats per day	Length (m)	Average length (m)	Ground Area (m <sup>2</sup> )	Number of boats	Necessary area per boat (m <sup>2</sup> )	Ground Area (m <sup>2</sup> )	
Sumbawa	Lab. Lamar	C-1	118	1	119	119	1	4	7	40	1	14	30	70
	Lab. Sumbawa	C-1	126	24	150	150	2	7	10	90	2	20	80	170
	Santong	B-1	184	59	243	243	2	7	10	90	2	20	80	170
Dompu	Soro (Kempo)	B-1	118	41	159	159	2	7	10	90	2	20	80	170
	Hu'u	B-3	121	10	131	131	2	7	10	90	2	20	80	170
	Dompu	-	-	-	-	-	-	-	-	-	-	-	-	-
Bima	Kel. Tanjung (Bima)	C-1	90	352	442	442	4	13	7	110	4	14	120	230
	Rompo (Waworada)	B-1	84	308	392	392	4	13	10	160	4	20	160	320
	Bugis (Sape)	B-1	45	836	881	881	8	25	10	300	8	20	320	620
Manggarai	Lab. Bajo	B-3	0	226	226	226	2	7	10	90	2	20	80	170
	Reo	C-3	0	22	22	22	1	4	10	50	1	20	40	90
	Mborong	-	0	7	7	7	1	4	10	50	1	20	40	90
Ngada	Kotajoko (Aisesa)	B-2	67	23	90	90	1	4	10	50	1	20	40	90
	Aimere	C-3	3	7	10	10	1	4	12	60	1	24	50	110
Ende	Pupanda (Ende)	A-1	21	188	209	209	2	7	10	90	2	20	80	170
	Maurole	-	1	40	41	41	1	4	10	50	1	20	40	90
Sikka	Kalimati (Maumere)	A-1	168	401	569	569	5	16	10	200	5	20	200	400
	Paga	C-3	1	23	24	24	1	4	10	50	1	20	40	90
Flores Timur	Sagu	C-3	87	113	200	200	1	4	12	60	1	24	50	110
	Lamahala Jaya	B-1					2	7	12	110	2	24	100	210
	Oka (Larantuka)	A-1	28	125	153	153	2	7	12	110	2	24	100	210
Lembata	Balauring	C-2	21	29	50	50	1	4	10	50	1	20	40	90
	Waijarang / Lewoleba	C-3	16	53	69	69	1	4	10	50	1	20	40	90
	Lamarela	C-3	0	0	0	0	0	0	7	0	0	14	0	0

Note:

Slipway:

Slipway is used for motorized boats except outrigger-boats, dug-out boats and Bagan boats.

Fishing boats use at once every year, 3days every time.

Necessary length per boat = average width of boats (2m) + working space (1m), Necessary length =  $\sum B+b(n+1)$ 

Boat Ramp

Ground area = No. of boats per day \* Average length of maximum boats using boat ramp (including surplus length)

Boat Repair Lot

Ground area = No. of boats per day \* using area for a boat (L\*B) / 0.5

Table 4 (8): Scale of Main Facilities For Project Design -On-Land Facilities (Management Office &amp; Others)

Districts	Model Site	Category	Total number of boats	Management Office (m <sup>2</sup> )							Mini-workshop		Public Toilet	
				Office	Toilet	Kiosk	Utility Space	Training/ Meeting Room	Building Area (m <sup>2</sup> )	Ground Area (m <sup>2</sup> )	Building Area (m <sup>2</sup> )	Ground Area (m <sup>2</sup> )	Building Area (m <sup>2</sup> )	Ground Area (m <sup>2</sup> )
Sumbawa	Lab. Lalar	C-1	299	25	20	20	25	70	160	320	40	80	30	60
	Lab. Sumbawa	C-1	244	25	20	20	25	70	160	320	40	80	30	60
	Santong	B-1	366	25	20	20	25	70	160	320	40	80	30	60
Dompu	Soro (Kempo)	B-1	406	25	20	20	25	70	160	320	40	80	30	60
	Hu'u	B-3	341	25	20	20	25	70	160	320	40	80	30	60
	Dompu	-	-	25	25	-	25	-	75	150	-	-	30	60
Bima	Kel. Tanjung (Bima)	C-1	499	25	20	20	25	70	160	320	40	80	30	60
	Rompo (Waworada)	B-1	474	25	20	20	25	70	160	320	40	80	30	60
	Bugis (Sape)	B-1	921	50	30	40	30	70	220	440	60	120	40	80
Manggarai	Lab. Bajo	B-3	525	50	30	40	30	70	220	440	60	120	40	80
	Reo	C-3	152	25	20	20	25	70	160	320	40	80	30	60
	Mborong	-	45	25	20	20	25	70	160	320	40	80	30	60
Ngada	Kotajoko (Aisesa)	B-2	221	25	20	20	25	70	160	320	40	80	30	60
	Aimere	C-3	83	25	20	20	25	70	160	320	40	80	30	60
Ende	Pupanda (Ende)	A-1	1,077	70	40	50	40	70	270	540	80	160	50	100
	Maurole	-	63	25	20	20	25	70	160	320	40	80	30	60
Sikka	Kalimati (Mauwere)	A-1	1,507	70	40	50	40	70	270	540	80	160	50	100
	Paga	C-3	130	25	20	20	25	70	160	320	40	80	30	60
Flores Timur	Sagu	C-3	621	25	20	20	25	70	160	320	40	80	30	60
	Lamahala Jaya	B-1	-	25	20	20	25	70	160	320	40	80	30	60
	Oka (Larantuka)	A-1	695	50	30	40	30	70	220	440	60	120	40	80
Lembata	Balauring	C-2	405	25	20	20	25	70	160	320	40	80	30	60
	Waijarang / Lewoleba	C-3	279	25	20	20	25	70	160	320	40	80	30	60
	Lamarela	C-3	140	25	20	20	25	70	160	320	40	80	30	60

Note: Management Office Building area = office + toilet + kiosk + utility space + training/meeting room, Ground area = building area / building coverage ratio (50%)  
 Area of each room are classified by total No. of boats using facilities as less than 500, 500-1000 and more than 1000.  
 Training/meeting room also serves as community center. Area are evenly 70m<sup>2</sup> (capacity of 30 people).  
 Mini-workshop Mini-workshop are used for maintenance of engines, making fish boxes, etc.  
 Public Toilet Building area are accordance with total No. of boats; less than 500: 40m<sup>2</sup>, 500-1000: 60m<sup>2</sup>, more than 1000: 80m<sup>2</sup> Building coverage: 50%  
 Building area are accordance with total No. of boats; less than 500: 30m<sup>2</sup>, 500-1000: 40m<sup>2</sup>, more than 1000: 50m<sup>2</sup> Building coverage: 50%



Table 4 (9): Scale of Main Facilities For Proejct Design -On-Land Facilities (Parking Lot)

Districts	Model Site	Category	Total number of boats	Parking Lot								
				Cool box (m3)	Transport car	Traders *30%	Management car	3ton Truck	Bemo/ Carriage	No. of vehicle	Ground Area (m2)	
Sumbawa	Lab. Lalar	C-1	299	2.8	1	1	1	0	2	5	125	
	Lab. Sumbawa	C-1	244	4.5	1	3	1	0	2	7	175	
	Santong	B-1	366	36.8	4	1	2	0	3	10	250	
Dompu	Soro (Kempo)	B-1	406	12.0	2	2	2	0	3	9	225	
	Hu'u	B-3	341	8.4	1	0	1	0	1	3	75	
	Dompu	-	-	-	3	-	1	0	10	14	350	*Including transport car from Kempo, Hu'u
Bima	Kel. Tanjung (Bima)	C-1	499	2.4	12	1	1	0	10	24	600	*Including transport car from Waworada, Sape
	Rompo (Waworada)	B-1	474	32.4	4	1	2	0	3	10	250	
	Bugis (Sape)	B-1	921	53.9	8	7	2	0	3	20	500	
Manggarai	Lab. Bajo	B-3	525	17.4	2	2	1	1	1	7	175	
	Reo	C-3	152	4.8	1	0	1	0	1	3	75	
	Mborong	-	45	3.8	1	0	1	0	1	3	75	
Ngada	Kotajoko (Aisesa)	B-2	221	7.2	1	0	1	0	1	3	75	
	Aimere	C-3	83	2.2	1	0	1	0	1	3	75	
Ende	Pupanda (Ende)	A-1	1,077	19.0	2	6	3	2	10	23	575	*For 10 cars at Mbongawani
	Maurole	-	63	5.0	1	0	1	0	1	3	75	
Sikka	Kalimati (Maumere)	A-1	1,507	23.4	3	0	3	3	10	19	475	
	Paga	C-3	130	1.6	1	0	1	0	1	3	75	
Flores Timur	Sagu	C-3	621	1.4	1	0	1	1	1	4	100	
	Lamahala Jaya	B-1		9.4	1	0	2	0	3	6	150	
	Oka (Larantuka)	A-1	695	13.2	2	0	3	2	10	17	425	
Lembata	Balauring	C-2	405	1.4	1	0	1	1	1	4	100	
	Waijarang / Lewoleba	C-3	279	1.6	1	0	1	0	1	3	75	
	Lamarela	C-3	140	0.4	1	0	1	1	1	4	100	

Note: Parking lot:

Parking lot are used for 3ton truck, vehicles for management officer, fishermen traders etc., motorcycles, bicycles, etc.

No. of vehicles are considering with landing volume, cool boxes for transportation and No. of traders in peak season. Necessary area a vehicle: 5m\*2.5m

Transport car = capacity of cool box / 10m<sup>3</sup> / car. Management car = A-1: 3 cars, B-1: 2 cars, others: 1 car. Traders car = traders \* 30%.

Market sites (Dompu &amp; Bima) and A-1 are considering with using bemo.

Bemo = markets/A-1: 10 cars, B-1: 3 cars, C-1: 2 cars, others: 1 car.

No. of vehicles = transport car + 3ton truck + management car (1 car) + traders car + bemo.

Ground area = parking area / 50%

Table 4 (10): Scale of Main Facilities For Project Design -On-Land Facilities (Others &amp; Community Environment)

Districts	Model Site	Category	Other Facilities for Fishing Port				Community Environment				
			Road (m)		Revetment (m)		Community road/drainage (m)	Water supply	Electrification	Garbage Depot	
Sumbawa	Lab. Lalar	C-1	500	Main road-Fishery base	-		500	1		1	Fishery Yard
	Lab. Sumbawa	C-1	50	Main road-Fishery base	100	*					
	Santong	B-1	-		300	Community				1	Fishery Yard
Dompu	Soro (Kempo)	B-1	-		700	Community/Existing PPI	-	1		1	Fishery Yard
	Hu'u	B-3	-		200	*				1	Fishery Yard
	Dompu	-	-		-					1	Market
Bima	Kel. Tanjung (Bima)	C-1	-		200						
	Rompo (Waworada)	B-1	500	Main road	700	Community/Road	500	1		1	Fishery Yard
	Bugis (Sape)	B-1	-		200					1	Fishery
Manggarai	Lab. Bajo	B-3	-		320	PPI				1	Fishery
	Reo	C-3	200	Main road-Fishery base	100	River revetment					
	Mborong	-	-		-						
Ngada	Kotajoko (Aisesa)	B-2	-		-						
	Aimere	C-3	-		-			1		1	Fishery Yard
Ende	Pupanda (Ende)	A-1	-		100	Fishery Yard				1	Fishery
	P. Ende	-	-		-			1		1	Community
	Mnongawani	-	-		-						
Sikka	Kalimati (Mauwere)	A-1	300	In-side road	300	Fishery Yard				1	Fishery
	Paga	C-3	-		100	Fishery Yard		1		1	Fishery Yard
	Wuring	-	-		200	Community/Fishery Yard				1	Community
Flores Timur	Sagu	C-3	300	Main road-Fishery base	300	Community	300		1	1	Fishery Yard
	Lamahala Jaya	B-1	100	Stairway	100	Fishery Yard				1	Fishery Yard
	Oka (Larantuka)	A-1	100	Main road-Fishery base	200	Fishery Yard				1	Fishery
Lembata	Balauring	C-2	-		-					1	Fishery Yard
	Waijarang / Lewoleba	C-3	-		300	Community				1	Fishery Yard
	Lamarela	C-3	-		-				1	1	Fishery Yard

Note: Other Facilities for fishing port Road: Between main road and fishery base.  
 Revetment: Simple revetment ( added mooring function for small boats). \*marked: for protection of fishery yards behind of sandy beach.  
 Community Environment Community road/drainage: Inside of community and along sandy beach.  
 Water supply: Water tank and pipe laying.  
 Garbage depot: For isolated villages and A-1.