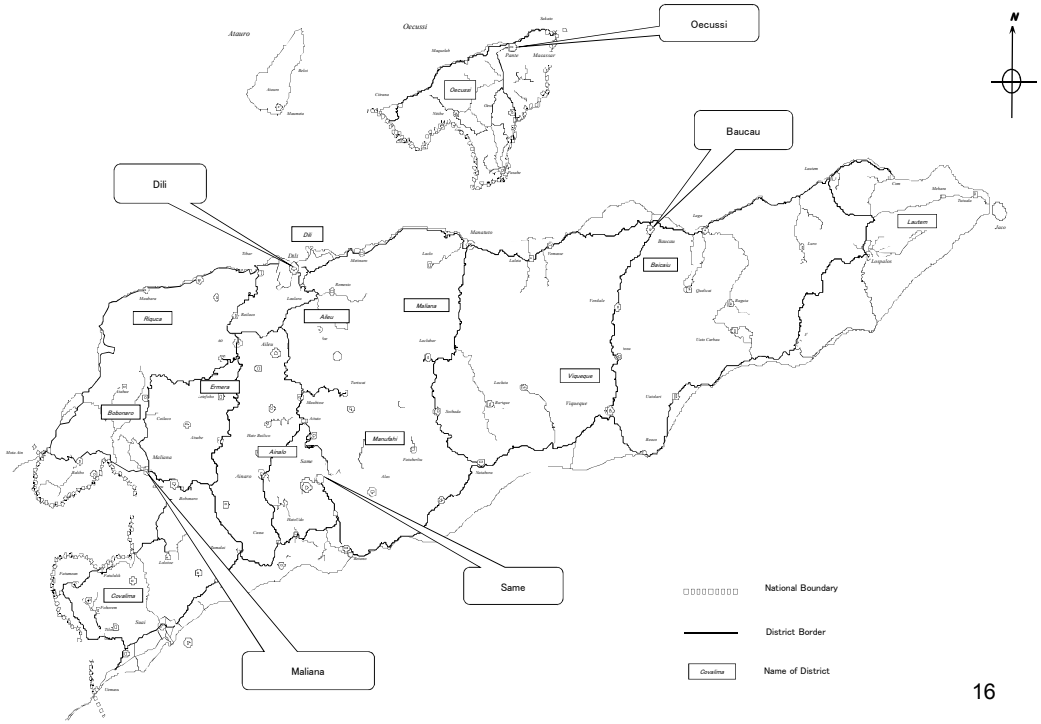
Equipment Supplied by JICA (1/1)

Item No.	Equipment	Quantity
1.	Movable Asphalt Sprayer with Kettle	5 units
2.	Plate Compactor	10 units
3.	Tamping Rammer	10 units
4.	Asphalt Cutter	10 units
5.	Concrete Breaker	5 units
6.	Total Station	5 units
7.	Leveling Instrument	5 units
8.	GPS Instrument	5 units
9.	Truck with Crane	5 units

Detail Explanation is done later

15

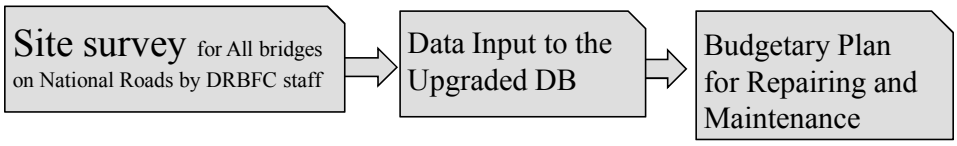
National Roads in Timor-Leste



16

Recommendation (1/6)

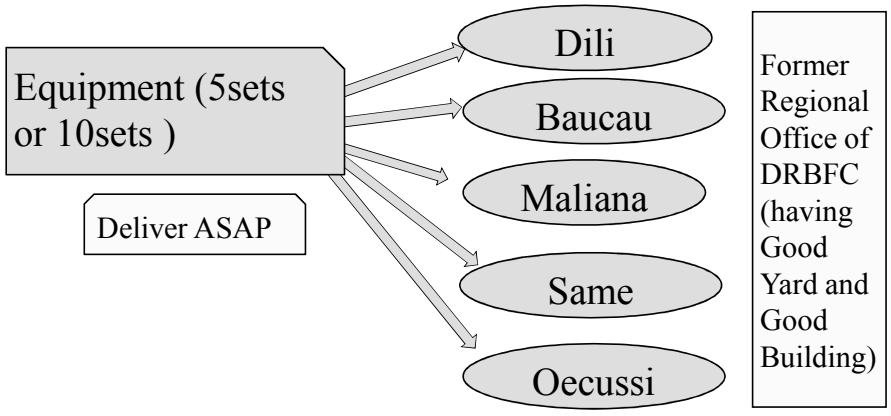
1) **Site survey for the Bridge Register Database should be continued by DRBFC staff themselves based on the upgraded DB, since they can manage by themselves DB according to training and instruction from CDRW Expert. After survey and input the data to DB, all repairing and maintenance cost can be found roughly in DB automatically. Then, DRBFC can plan the repair and maintenance schedule based on the budgetary plan of all bridge on National Roads in Timor-Leste.**



17

Recommendation (2/6)

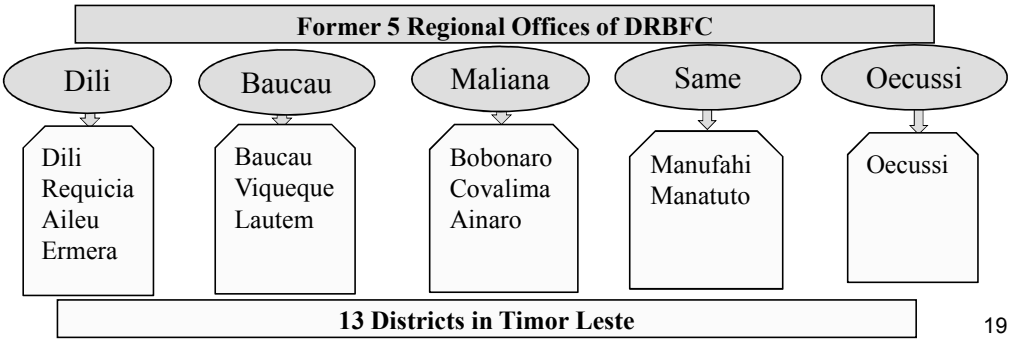
2) **Equipment supplied by JICA should be properly used for routine maintenance works of roads. And equipment should be delivered to local offices like Baucau, Maliana, Same, Oecussi and Dili office as soon as possible.**



18

Recommendation (3/6)

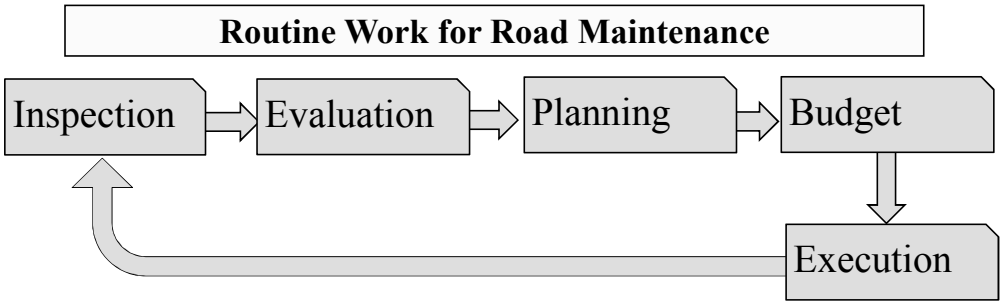
3) **Former regional offices shall be kept strongly by DRBFC since those are good facilities and staffs at those offices in order to maintain the national roads in Timor-Leste. We propose respective regional offices should fact as a key local offices for managing roads, bridges and flood control. We propose respective former regional office should manage the following 13 Districts.**



19

Recommendation (4/6)

4) **Road Maintenance Database shall be updated in every year just after rainy season. Routine work for road maintenance like Inspection, Evaluation, Planning , Budget, Execution, Inspection shall be rooted in DRBFC systematically by the Road Maintenance DB.**



20

Recommendation (5/6)

5) **Keeping of Budget for road maintenance works is important issue in order to keep the good road condition and to save the infrastructure cost. MPW, DRBFC shall do continuous efforts to keep the maintenance budget.**

6) **And, it is recommended that maintenance budget for road shall be used under approval from MPW or DRBFC since quick action will be required as to maintenance works.**

7) **Reference to Road Maintenance is mentioned hereinafter.**

21

Reference (1 /6)

1. Important issue for road sustainability is to maintain the road with systematically and properly and quickly

Maintenance activities to roads are the most important factor comparing to the other Infra. Facilities like Buildings, Dams, Irrigation facilities, Flood control facilities, Water supply facilities, etc.

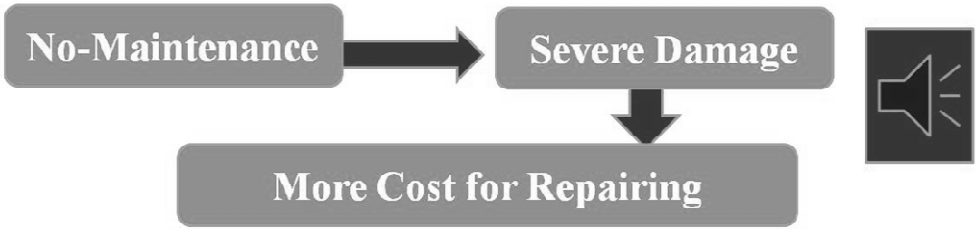
Roads should be cared in every time like babies, children and women.

22

Reference (2 /6)

2. Project Maintenance of roads is important so as :

a) To avoid and to arrest deterioration progress of roads.
b) To avoid at small and minor defect portions to get severe conditions and to take much repairing cost and period.



23

Reference (3 /6)

Routine Maintenance Works

a) Cleaning of vegetation, rubbish and debris at mainly side ditches for roads.
b) Restoring or cleaning an eroded portion of embankment and cut slopes and other earth works to be necessary.
c) Pavement repairs like small pot holes, damaged edges, etc.



24

Reference (4/6)

Periodic Maintenance Works

a) All types of maintenance activities with rather large scale repairing works.
b) Repairing works including with some rehabilitation and improvement works.
c) Takes a time to start this works for proper procurement methods in Timor-Leste

25

Reference (5/6)

Emergency Maintenance Works

a) Immediate repairs to roads affected by road disasters caused by heavy rains, flooding, slope collapse, etc.
b) Some special emergency activities urgently when traffics are blocked by road disasters.
c) Temporary repairing first of all to keep the traffic. After, permanent works are required.

26

Reference (6/6)

3. Systematic and proper maintenance works should be carried out according to the regular inspection work on the roads:

a) **Road/bridge inspection is important to maintain the roads properly and timely.**
b) **Updating of road maintenance database should be carried out at least once a year after rainy season.**
c) **Moreover, road patrol should be carried out during rainy season periodically.**
d) **Road patrol system should be established so as to execute regular patrol and survey of road conditions.**

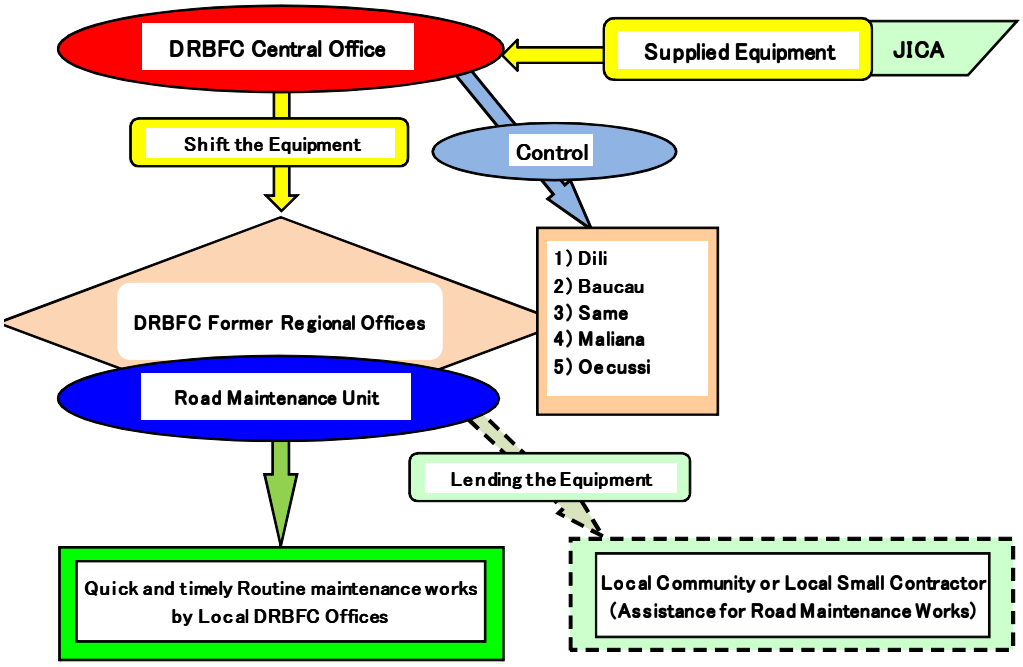



27

28

Equipment Supplied by JICA For Routine Maintenance

29



Flow Chart of Usage Structure for the Supplied Equipment

30

Basic Concept for Equipment Supply

① Simple and **Handy/Manual Operated** Equipment

② Use for **Routine maintenance** works by Regional/District Offices to repair easy damaged places like pot holes etc. quickly and timely

③ Survey equipment for Planning and Basic Design

31

1) Movable Asphalt Sprayer with Kettle (5 Nos.)

Repairing for damaged asphalt pavement and pot hall on the roads

32

2) Plate Compactor (10 Nos.)

Compaction of base course and sub-base for asphalt pavement or pot hole on the road
Other places to be required for compaction

33

3) Tamping Rammer (10 Nos.)

Compaction of base course and sub-base for asphalt pavement or pot hole on the road, and
other places to be required for compaction

34

4) Asphalt Cutter (10 Nos.)

Repairing for damaged asphalt pavement and pot hall on the roads

35

5) Concrete Breaker (5 Nos.)

Repairing for damaged asphalt pavement and pot hall on roads and repairing for existing small road structures

36

6) Total Station (5 Nos.)

Topographic survey for planning/design to be required road rehabilitation works, and construction supervision work

37

7) Leveling Instrument (5 Nos.)

8) GPS Instrument (5 Nos.)

38

9) Truck with Crane (5 Nos.)

Transportation of the equipment to the required place

39

For Equipment — Sample 1

REPÚBLICA DEMOCRATICA DE TIMOR LESTE
MINISTERIO DAS OBRAS PUBLICAS
SECRETARIA DE ESTADO DAS OBRAS PÚBLICAS
DIRECÇAO NACIONAL DE ESTRADAS, PONTES E CONTROLO DE CHEIAS (SPCC)
Av. Martires da Patria – Mandarin Telp. 331068 Dili

Date :

Ref. : MOP...../SEOP/ SPCC/ month / 2014

To : Director Mr. Rui Hernani Freitas Guterres

Cc. : Chief of Maintenance in the Central office and Origin of request (District Engineer)

Subject : Request of Approval for Mobilization of Equipment supplied by JICA

You are kindly requested to approve following mobilization based on the description in below.

Detail of Use:

Requested Equipment	Requested Numbers	Duration of mobilization	Area or Project to mobilize
Asphalt Sprayer			
Asphalt Cutter			
Plate Compactor			
Tamping Rammer			
Beaker			
Truck with Crane			

Responsible of Mobilization by Chief of Maintenance: _____

Responsible of Operation by Chief of District: _____

Prepared by: Martinho Jacob C. Ribeiro, Logistic of DRBFC

Approved by: Rui Hernani Freitas Guterres, Director of DRBFC

For Survey Instrument — Sample 2

REPÚBLICA DEMOCRATICA DE TIMOR LESTE
MINISTERIO DAS OBRAS PUBLICAS
SECRETARIA DE ESTADO DAS OBRAS PÚBLICAS
DIRECÇAO NACIONAL DE ESTRADAS, PONTES E CONTROLO DE CHEIAS (SPCC)
Av. Martires da Patria – Mandarin Telp. 331068 Dili

Date :

Ref. : MOP...../SEOP/ SPCC/ month / 2014

To : Director Mr. Rui Hernani Freitas Guterres

Cc. : Origin of request issuance (Chief of District or Chief of Department)

Subject : Request of Approval for Mobilization of Survey Instrument supplied by JICA

You are kindly requested to approve following mobilization based on the description in below.

Detail of Use:

Requested Equipment	Requested Numbers	Duration of mobilization	Area or Project to mobilize
Total Station			
GPS			
Auto Level			

Responsible of Operation by Chief of (District or Department): _____

Prepared by: Martinho Jacob C. Ribeiro, Logistic of DRBFC

Approved by: Rui Hernani Freitas Guterres, Director of DRBFC

Sample Form of Usage Request for the Supplied Equipment

40

Recommendation

① Use for **Routine maintenance** works and the Small Works presented in the Road Maintenance Database.

② Use by **Local Offices** to repair defect quickly and timely.

③ Practice until one can do/ Build up Specialist in DRBFC.

41

Thank You (^-^)v

42

ATTCHMENT 5.5

Handover Note and Attendant List for Handover Ceremony

HANDOVER NOTE FOR THE EQUIPMENT SUPPLIED BY JICA

THE PROJECT FOR THE CAPACITY DEVELOPMENT OF ROAD WORKS

Hereby the Japan International Cooperation Agency (JICA) would like to handover the equipment as listed in the Attachment herewith to National Directorate of Road and Flood Control (DRBFC) under Ministry of Public Works (MPW), the Government of the Democratic Republic of Timor-Leste.

The handover equipment is provided based on the request of the Ministry of Public Works for routine maintenance works to be carried out by DRBFC. On the occasion of the handover of the equipment, it is agreed by MPW and JICA that:

1) DRBFC under MPW shall have ownership of the equipment and ensure the equipment will be exclusively used for the routine maintenance works of National roads in Timor-Leste, and will distribute the equipment to 5 local offices such as Dili, Baucau, Maliana, Same and Oecussi offices, in Timor-Leste;
2) DRBFC under MPW including local offices shall well maintain and handle the equipment with great care and shall bear the expenses necessary for or in connection with the use of the equipment; and
3) When JICA asks the condition of equipment, DRBFC central office, which is responsible to supervise all local offices in Timor-Leste, shall report their utilizations and conditions to JICA.

It is also agreed by both parties that JICA and MPW shall consult each other in the event of any dispute for the handover equipment.

September 5, 2014 by

Dili

Er. Gastao Francisco de Sousa
Minister of Public Works
The Democratic Republic of Timor-Leste

Mr. Hikoyuki Ukai
Chief Representative
Japan International Cooperation Agency

Witnessed by

Mr.Rui Hermani
Director of DRBFC, MPW

Mr. Koji Naito
Team Leader, CDRW

ATTACHMENT

List of Handover Equipment from JICA

Item No.	Equipment	Specifications	Quantity
1.	Movable Asphalt Sprayer with Kettle	Hanta Asphalt Sprayer, Model CS-PT35K2 - Gasoline Engine with strainer, nozzle	5 units
2.	Plate Compactor	Sakai Plate Compactor, Model PC100 - Diesel Engine	10 units
3.	Tamping Rammer	Sakai Tamping Rammer, Model RS45 - Gasoline Engine	10 units
4.	Asphalt Cutter	Exen Asphalt Cutter, Model ERC16DSB - Gasoline Engine with 5 Blade, 5 B-Belt	10 units
5.	Concrete Breaker	Maruzen Concrete Breaker, Model BG231 - Mixed Fuel (Gasoline + 2 cycle oil) with 2 Flat Chisel, 3 Nail Point	5 units
6.	Total Station	Nikon Total Station, Nivo 5C with Tripod, 4 hand poles and 3 prisums	5 units
7.	Leveling Instrument	Nikon Auto Level, AP-8 with Tripod, 3 Staffs	5 units
8.	GPS Instrument	GARMIN GPSMAP 62s with cover case	5 units
9.	Truck with Crane	Flat Bed Truck with Crane with Standard Accessories and Special Accessories like Crane equipped, Truck bed, Audio, Air conditioner, etc.	5 units

LIST OF ATTENDANT
FOR
HANDOVER CEREMONY

Title : **Handover Ceremony for the Equipment supplied by JICA**
Place : **Conference Room of DRBFC, MPW**
Date / Time : **September 05 (Friday), 2014, 9:30 to 11:00 a.m.**

NO	NAME	DESIGNATION/POSITION	SIGNATURE
1	Gastão de Sousa	MOP	[signature]
2	Hiroyuki Ukai	JICA	[signature]
3	José Piedade	DG OP	[signature]
4	Avião Pedro Amaral	EPCC	[signature]
5	João Gama	EPCC	[signature]
6	Jose Freitas	— " —	[signature]
7	Lourenço Luis	— " —	[signature]
8	MILTON MONTEIRO	"	[signature]
9	Rogerio de C. Freitas	— " —	[signature]
10	IPUTU ARI SAPUTRA	advisor Minister MOP	[signature]
11	NAZARIO DJ FREITAS	EPCC	[signature]
12	ALFredo E. dos Santos	M.P.W	[signature]
13	Candido Amaral	EPCC	[signature]
14	Octaviana	JICA	[signature]
15	AUGUSTO C. M	MEDIA-MOP	[signature]
16	ISABEL	EPCC	[signature]
17	LEONARDA	EPCC	[signature]
18	Mariana Gama	EPCC	[signature]
19	António Ramos	GPMOP	[signature]
20	Angelo Ribeiro	EPCC	[signature]

1/3

LIST OF ATTENDANT
FOR
HANDOVER CEREMONY

Title : **Handover Ceremony for the Equipment supplied by JICA**
Place : **Conference Room of DRBFC, MPW**
Date / Time : **September 05 (Friday), 2014, 9:30 to 11:00 a.m.**

NO	NAME	DESIGNATION/POSITION	SIGNATURE
1	José Lobato	Câmeraman TVTL	
2	Elda Hornai	Repórter (magang)	
3	Eduarda Peregrina	Repórter TVTL	
4	Julito Pereira	Epcc	
5	Gonçalo Lemos	Epcc Rep. Dili	
6	Duarte X. Sebas	Epcc	
7	Leopoldina R.	Epcc	
8	Marcos da Costa	DNEPCC	
9	Odete Sereno	— " —	
10	Afrão Vieira	Bridge Eng.	
11	Pascoeca Brites	— " —	
12	Nelson A. Araujo	EPCC	
13	Marcos da Silva	Timor port	
14	Domingos da Costa	Independente	
15	Aboyto da Silva	RTL	
16	Veronica P. Ribeiro	RTL	
17	Martino Fernandes	DNEPCC	
18	Jaime Kimura	Epcc	
19	Yukihiro Tateyama	DRBFC Advisor	
20			

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HANDOVER CEREMONY

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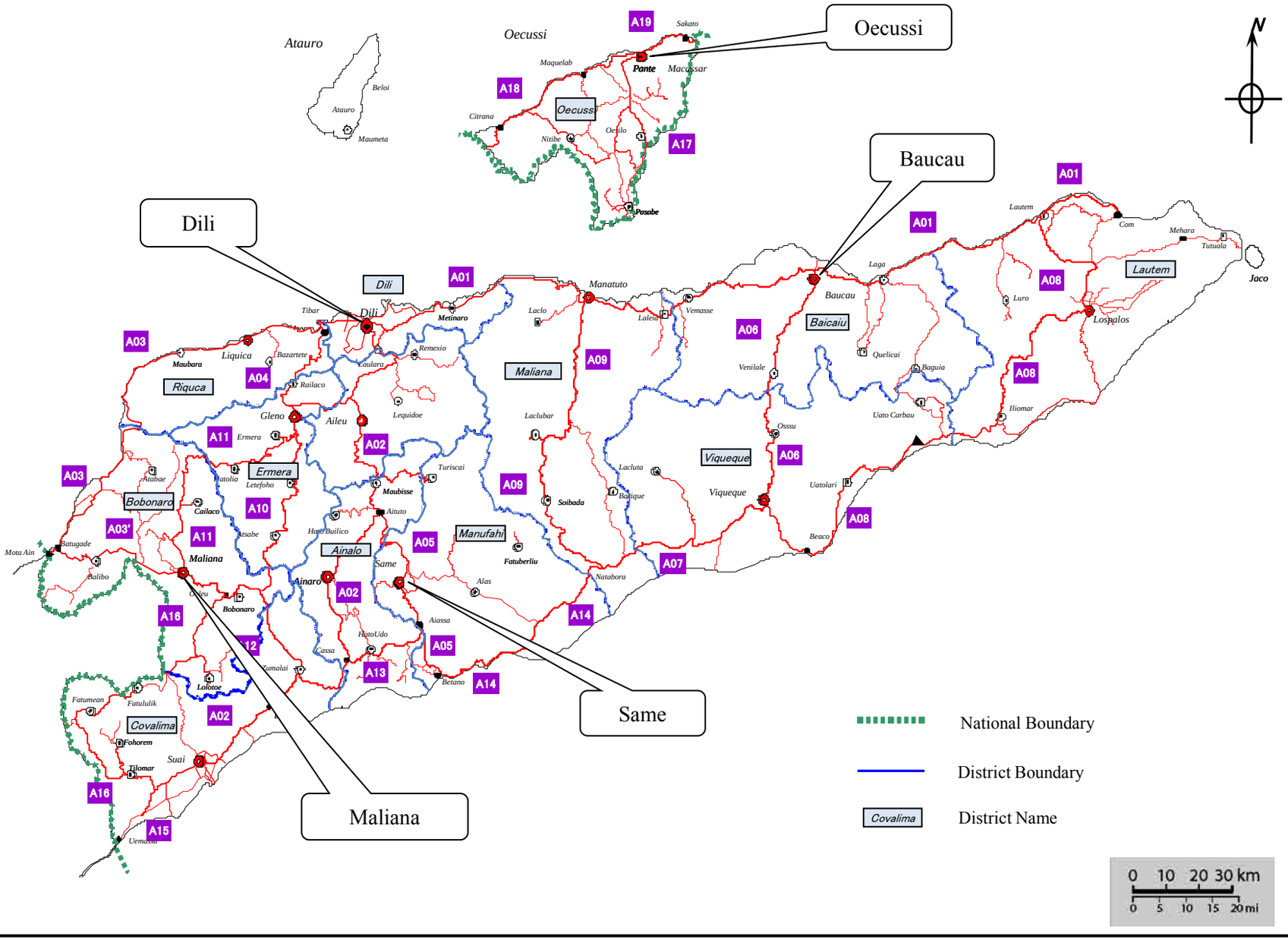
Date / Time : **September 05 (Friday), 2014, 9:30 to 11:00 a.m.**

NO	NAME	DESIGNATION/POSITION	SIGNATURE
1	Koji NAITO	T/L Jr. CDRW	
2	Haruhiko AOYAMA	CDRW	青山 治彦
3	Nobuyuki KURIHARA	CDRW	
4	Sisto CARANJINHA	EPCC	
5	JOÃO GAMA	EPCC	
6	ISABEL GUTERRES	EPCC	
7	Rogério Freitas	EPCC / Design Principle	
8	Adelio da Silva Reis	EPCC	
9	José A.I.S. Freitas	EPCC	
10	Francisco Gomes	EPCC / Reg. Dili	
11	NATALIO DE FREITAS	EPCC	
12	Elsa H. Alves	Reporter (Magan) TVTL	
13	Eduarda Peregrina	Repórter TVTL	
14	Marcos da Silva	Timor Post	
15	Domingos da Costa	Independente	
16	Luis S. da Cruz	EPCC	
17	Lourenço Pereira	EPCC / ANALISG.	
18	Estevão de Carvalho	EPCC / Construções	
19	Gerardo Lemos	EPCC / Reg. Bob	
20	JOAQUIM da costa	DN EPCC	
21.	SATURNINO DA C.A.	PSC-MOP.	
22.	Arcelo Ribeiro	EPCC/External	
23.	Julio L. Fehy	EPCC / Projecto	
24.	Martinho Cristóvão	EPCC / PTLO.	

Arterial (National) Roads in Timor-Leste



2.2 Basic Policy for Implementation

In the 4th Year of CDRW, we show the basic policy for resolving the aforementioned issues, and list the details thereafter. With regard to the strengthening and improvement of staff, it is necessary to take into account the limited number of DRBFC staff and the staff's ability. These projects activities in the 4th Year must take the experiences and training of the third year into consideration when engaging in work. In particular, the key is to plan taking into account the C/P governing ability (Preparation time for funding the site survey, providing for transportation methods, daily maintenance of computers for data entry, as well as office budget allocation and management).

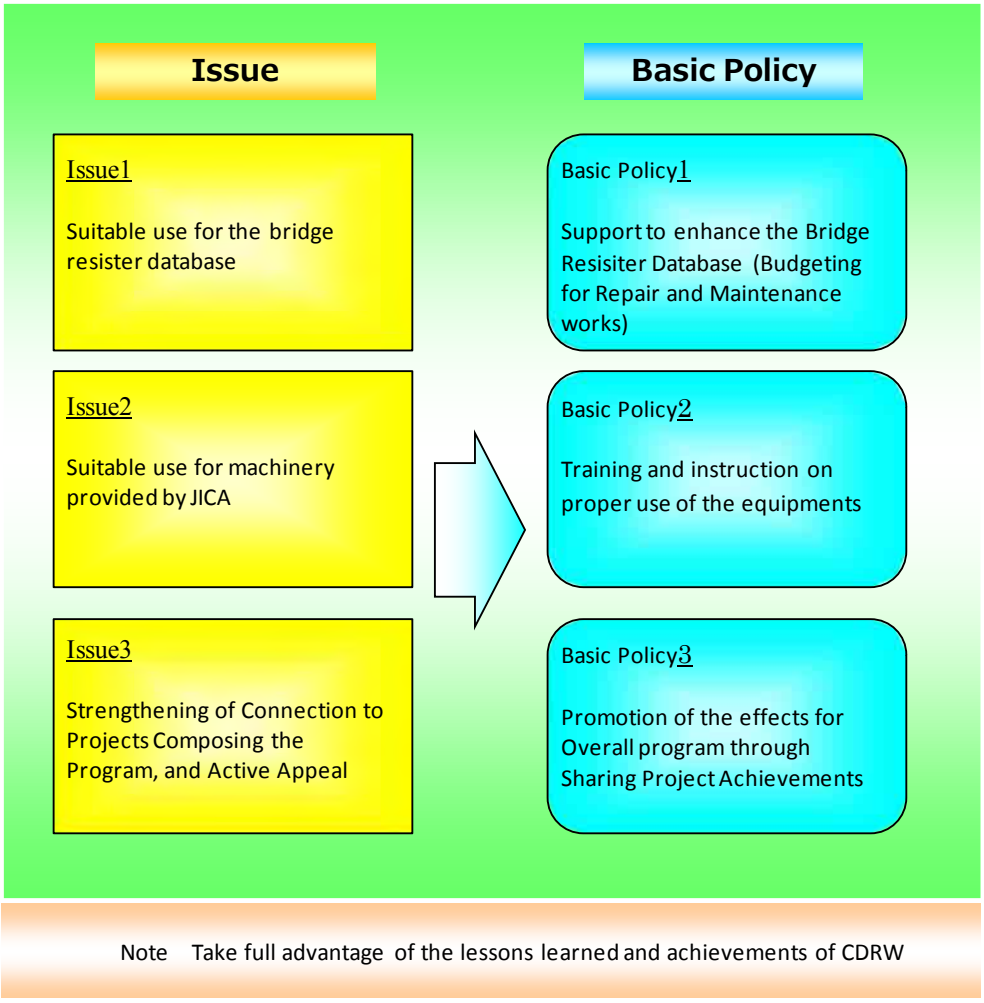


Figure 2.2.1 Project Issues and Basic Policy

some data could not be obtained as the corresponding projects have not yet been accepted by construction contractors, or the construction plan has not yet been confirmed.

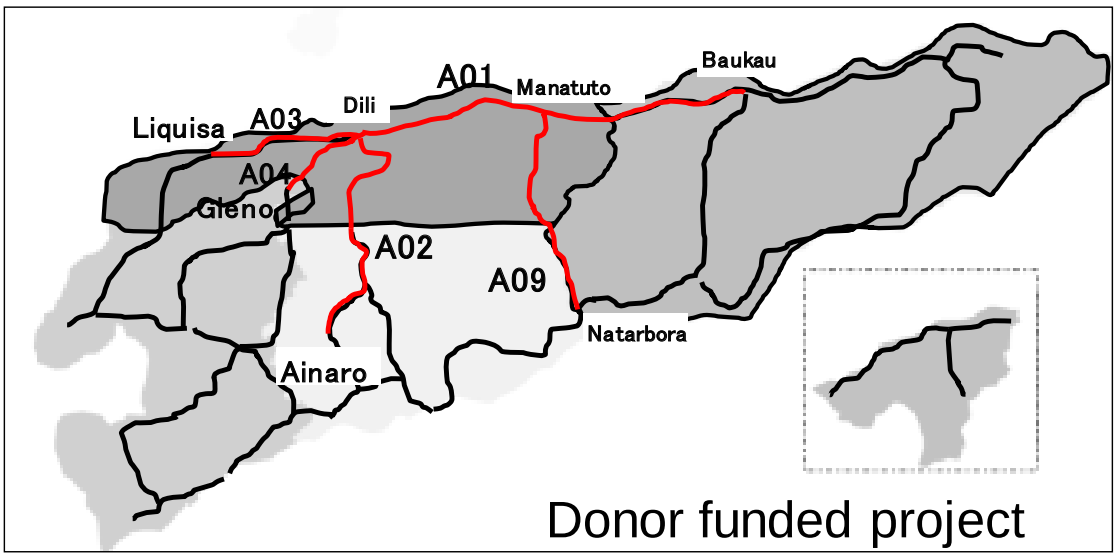


Figure 3.3.1 Location of Projects Relating to Road Widening and Bridge Rebuilding by Aid Organisations.

(Red line)

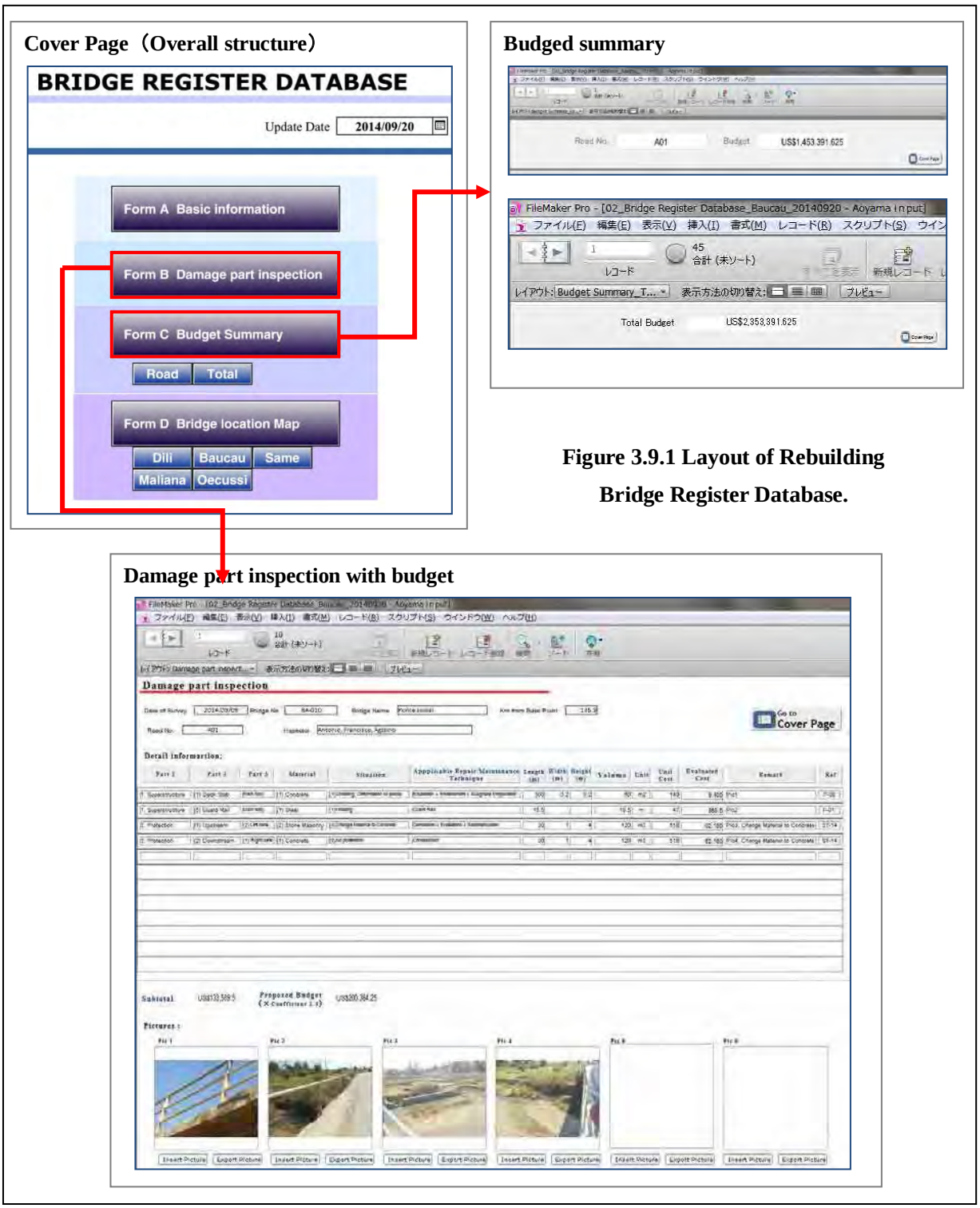


Figure 3.9.1 Layout of Rebuilding Bridge Register Database.

3.10 Training Operation at Site Using the Improved Database

We conducted the training from 8th Sep 2014 to 10th Sep 2014 between Baucau to Com A01 road, 10 bridges. On this training, the DRBFC staffs became able to

1) Diagnose damaged parts
2) Judge techniques to be applied
3) Estimate the Volume for budget

This OJT reinforced the DBFRC staffs to estimate the budget for bridge renovation work.

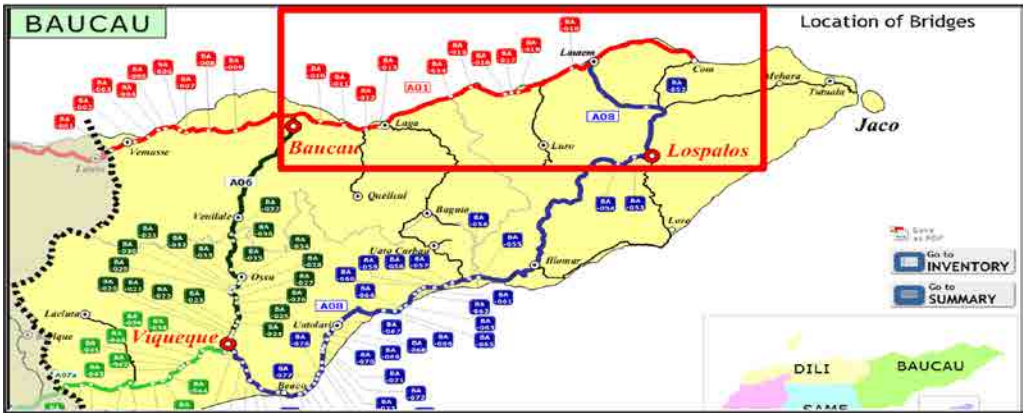


Figure 3.10.1 Site survey Location map（Baucau-Com）

Figure 3.10.2 Picture of Bridge Resister Database Site Survey

Bridge Resister Database Inspection Sheet

Basic Data

Date	Inspector	Road Name	Bridge Name	km from B.P.
09/09/2014	Francisco	A01	BA-011 Laga mulia	140.6

Damage Part information

Part 1	Part 2	Material	Situation	Length (m)	Width (m)	Height (m)
1. Superstructure	(1) Deck Slab	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar			
	(2) Garter (beam)	(1) Concrete (2) Steel	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar (3)Corrosion(rust)			
	(3) Culvert	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar			
	(4) Truss	(1) Steel	(1)Cracking, Deformation or partial loss (2)Corrosion(rust)			
	(5) Guard Rail	-	(1)Missing			
2. Substructure	(1) Foundation (Base structure)	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Scouring "For Apron"	5	7.1	2
			(2)Scouring "For River Bed Protection"	5	7.1	2
	(2) Abutment	(1) Concrete (2) Stone Masonry (3) Gabion (4) Others	(1)Cracking, Deformation or partial loss (2)Scouring			
	(3) Pier	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Scouring			
	(4) Others	(1) Concrete (2) Stone Masonry (3) Gabion (4) Others	(1)Cracking, Deformation or partial loss (2)Scouring			
3. Protection	(1) Upstream	(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
		(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
	(2) Downstream	(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
		(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1

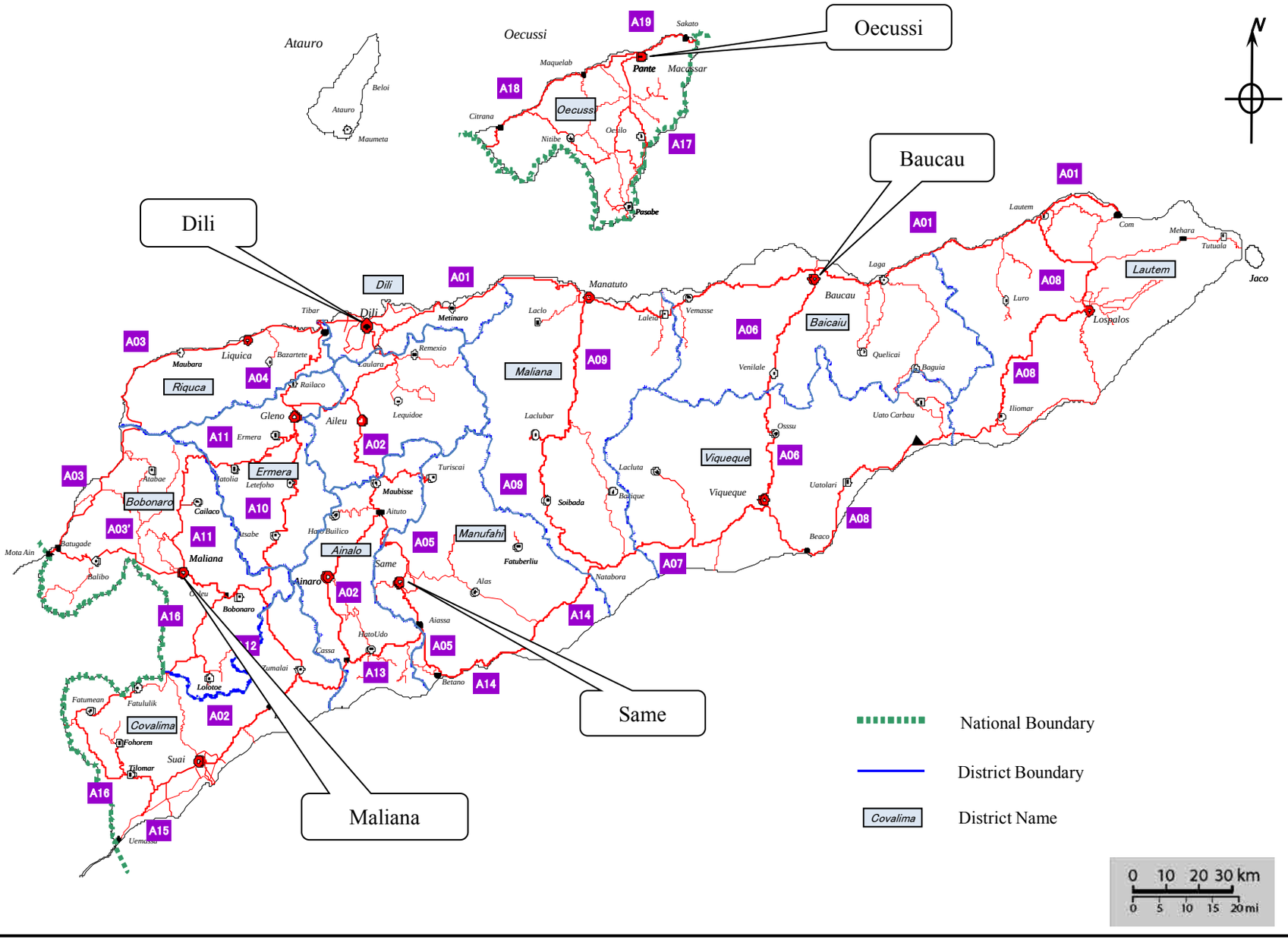
Figure 3.10.3 Example of Damage Part Inspection Sheet

3.11 Calculate Budget for Repair and Maintenance Work for Bridges

We calculated an estimated budget at this survey (Baucau to Com, 10bridge) using the bridge resister database following the results of the proposed co-operative work and in-house training. The budget is 1,453,391US$. (Protection work cost is major in this budget)

In future, DRBFC staffs continue to investigate the total budget for bridge maintenance and repair work based on this track record.

Arterial (National) Roads in Timor-Leste



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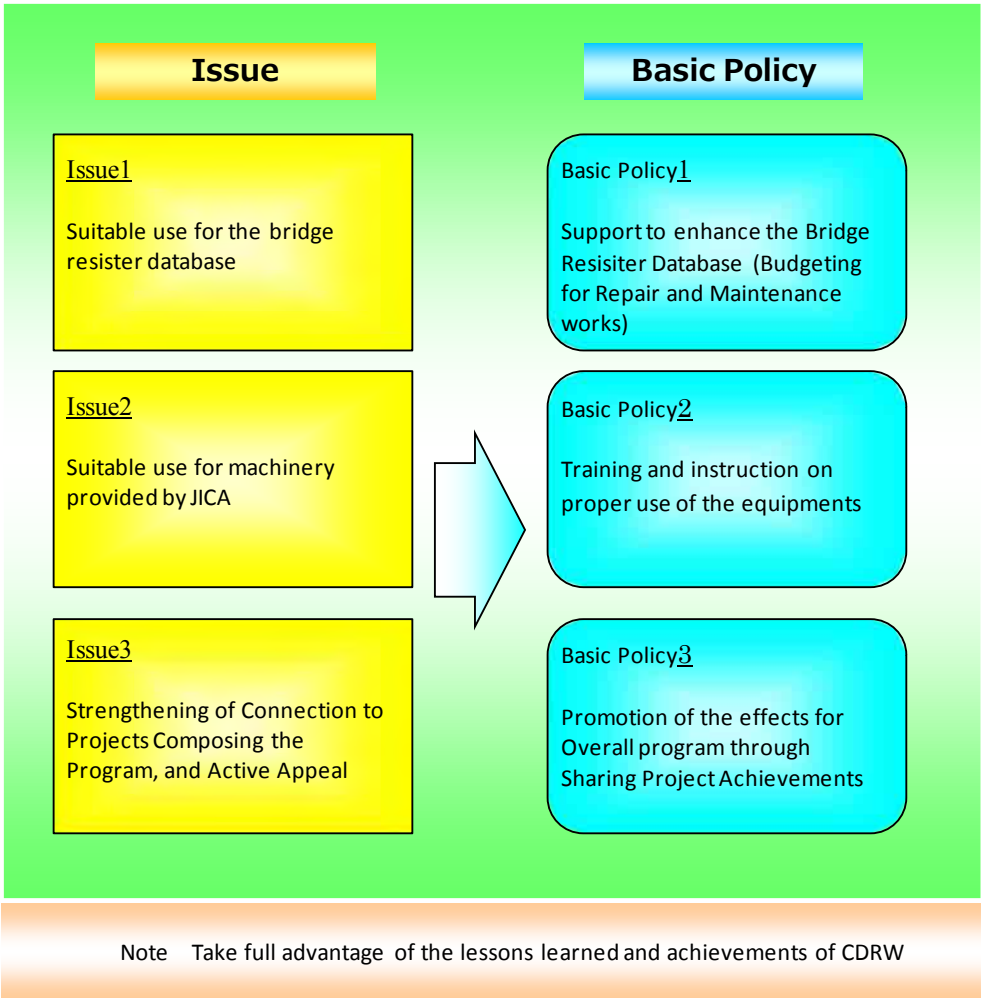

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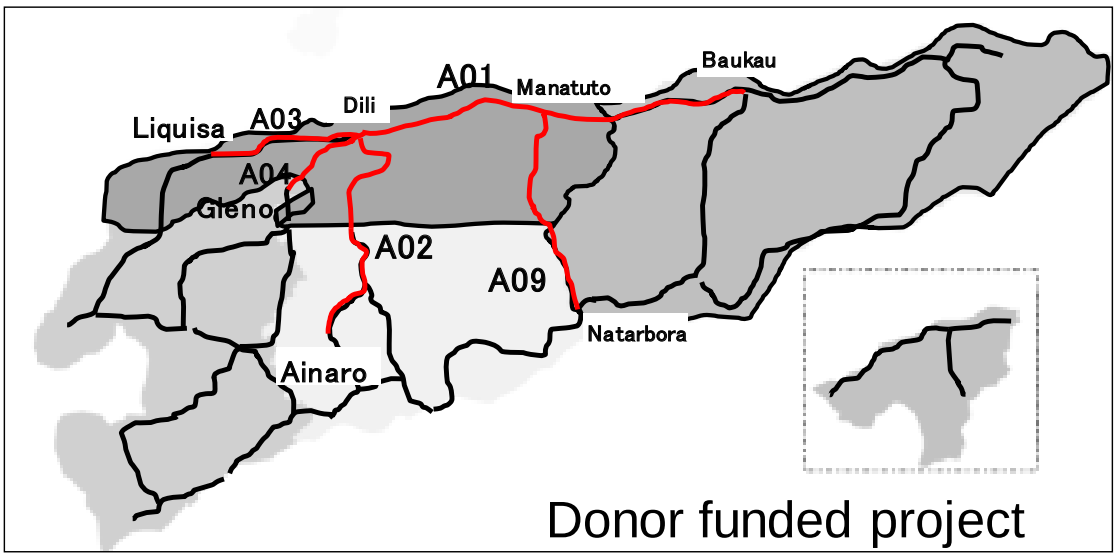

Figure 3.3.1 Location of Projects Relating to Road Widening and Bridge Rebuilding by Aid Organisations.

(Red line)

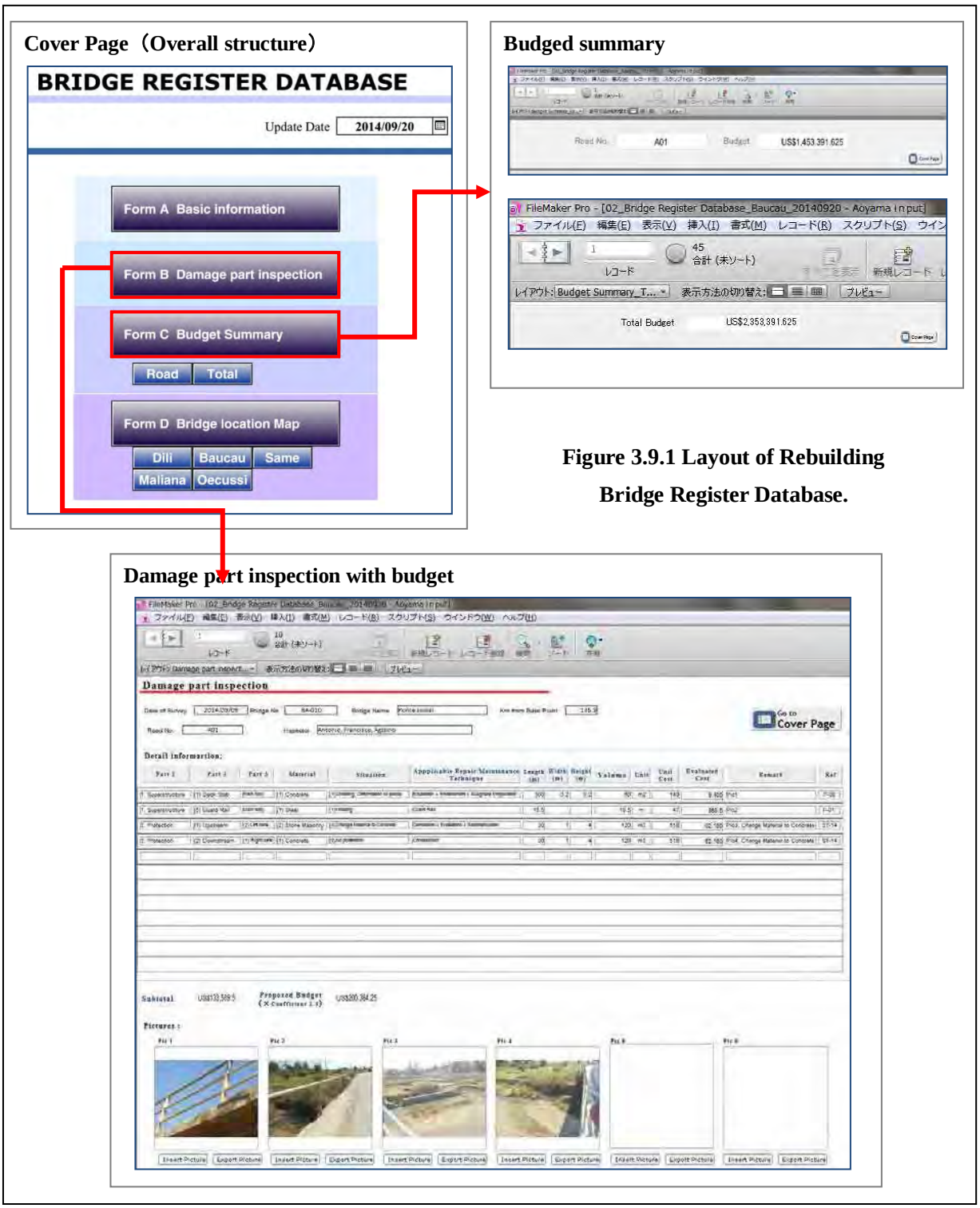

Figure 3.9.1 Layout of Rebuilding Bridge Register Database.

3.10 Training Operation at Site Using the Improved Database

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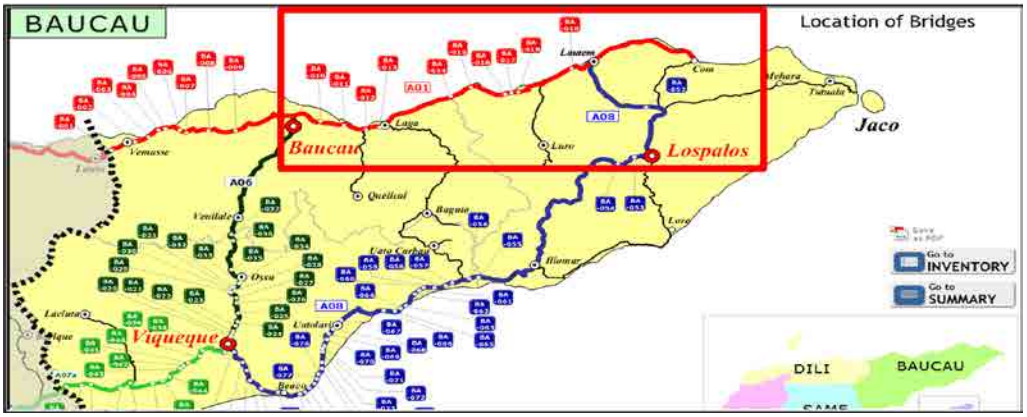

Figure 3.10.1 Site survey Location map（Baucau-Com）

Figure 3.10.2 Picture of Bridge Resister Database Site Survey

Bridge Resister Database Inspection Sheet

Basic Data

Date	Inspector	Road Name	Bridge Name	km from B.P.
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Part 1	Part 2	Material	Situation	Length (m)	Width (m)	Height (m)
1. Superstructure	(1) Deck Slab	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar			
	(2) Garter (beam)	(1) Concrete (2) Steel	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar (3)Corrosion(rust)			
	(3) Culvert	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Exposure of Reinforcing bar			
	(4) Truss	(1) Steel	(1)Cracking, Deformation or partial loss (2)Corrosion(rust)			
	(5) Guard Rail	-	(1)Missing			
2. Substructure	(1) Foundation (Base structure)	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Scouring "For Apron"	5	7.1	2
			(2)Scouring "For River Bed Protection"	5	7.1	2
	(2) Abutment	(1) Concrete (2) Stone Masonry (3) Gabion (4) Others	(1)Cracking, Deformation or partial loss (2)Scouring			
	(3) Pier	(1) Concrete	(1)Cracking, Deformation or partial loss (2)Scouring			
	(4) Others	(1) Concrete (2) Stone Masonry (3) Gabion (4) Others	(1)Cracking, Deformation or partial loss (2)Scouring			
3. Protection	(1) Upstream	(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
		(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
	(2) Downstream	(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1
		(1) Concrete (2) Stone Masonry (3) Gabion	(1)Cracking, Deformation or partial loss (2)No protection	10	2	1

Figure 3.10.3 Example of Damage Part Inspection Sheet

3.11 Calculate Budget for Repair and Maintenance Work for Bridges

We calculated an estimated budget at this survey (Baucau to Com, 10bridge) using the bridge resister database following the results of the proposed co-operative work and in-house training. The budget is 1,453,391US$. (Protection work cost is major in this budget)

In future, DRBFC staffs continue to investigate the total budget for bridge maintenance and repair work based on this track record.