

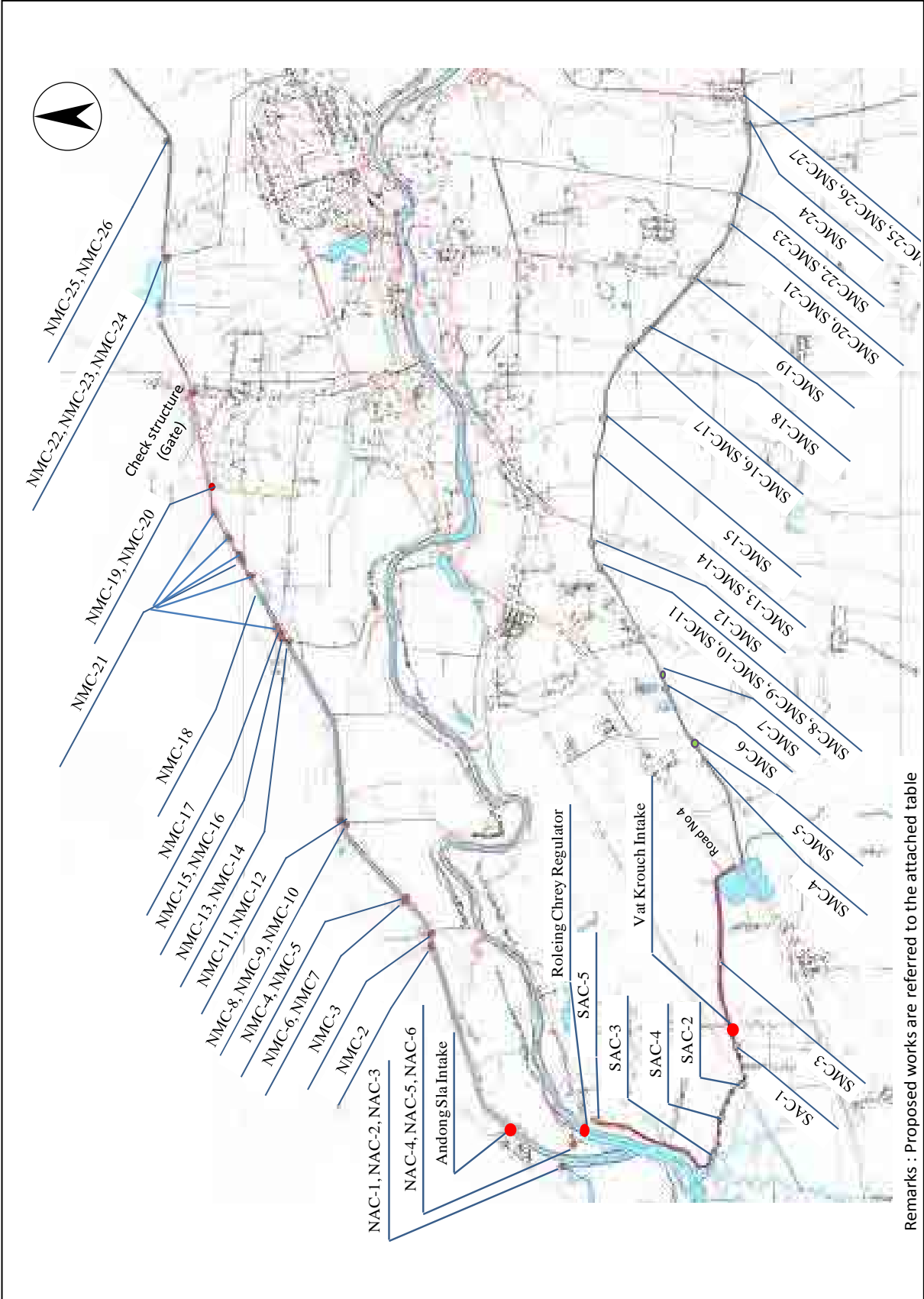
# ***ANNEX D***

## ***Attachments***

# ***ANNEX D***

## ***Attachment – 1***

*Results of Inventory Survey for  
Proposed Rehabilitation Works in  
Roleang Chrey Headworks Rehabilitation Sub-project*



Remarks : Proposed works are referred to the attached table

<p>PREPARATORY SURVEY FOR IRRIGATION AND DRAINAGE SYSTEM REHABILITATION AND IMPROVEMENT PROJECT</p>	<p>Location Map of Proposed Rehabilitation Works for RCHRS</p>
<p>Japan International Cooperation Agency</p>	

## (1) North Main Canal

Map Ref. No.	Canal	Distance form Intake	Left or Right	Proposed Works	Details
<b>North Approach Channel</b>					
NAC-1	SC	0.6 km (upstream)	L	Rehabilitation of Phum Thmey Andong Sla SC with construction of structures	L = 3.1 km, (A = 300 ha) Improvement of embankment, 4 turnouts and 3 drain inlets
NAC-2	Approach Channel	0.6 km (upstream)	L	Replacement of turnout for Phum Thmey Andong Sla SC	Turnout for Phum Thmey Andong Sla SC (A =300 ha)
NAC-3	SC	0.6 km (upstream)	L	Improvement of Kraing Speu SC	Raising of canal bank of Kraing Speu SC embankment L = 1 km, W = 3 m, H = 1 m from existing
NAC-4	SC	0.68 km (upstream)	R	Rehabilitation of Andong Thor SC with construction of structures	L = 1.45 km, A = 120 ha 4 checks / diversions structures
NAC-5	Approach Channel	0.68 km (upstream)	R	Replacement of turnout for Andong Thor S.C	Replacement of concrete pipe for turnout for Andong Thor SC (A = 120 ha)
NAC-6	Approach Channel	0.68 km (upstream)	R	Repair of embankment of flood protection dike	L = 350 m, W = 6m, H = 2m (Additional)
NAC-7	Approach Channel	1.15 km ~ 0 km (upstream)	L/R	Improvement of embankment	Repair and provision of laterite pavement (both side)
<b>North Main Canal</b>					
NMC-1	NMC	0 km ~ 10 km	L/R	Laterite pavement with repair of embankment	Repair and provision of laterite pavement (both sides)
NMC-2	SC	1.95 km	L	Rehabilitation of Thmey-1 SC and construction of structures	L = 2.5 km (A = 125 ha) 3 outlets and 3 drain inlets
NMC-3	NMC	2 km	-	Improvement of concrete bridge	Replacement of abutment of bridge
NMC-4	SC	2.4 km		Rehabilitation of Phum Thmey-2 SC	L = 850 m, A = 13 ha 2 checks/diversions
NMC-5	NMC	2.4 km	R	Improvement of turnout	Provision of pipe culvert for Phum Thmey-2 SC (A = 13 ha)
NMC-6	SC	2.43 km	L	Rehabilitation of Thmey-3 SC	L = 3 km, A = 300 ha 3 checks/diversions
NMC-7	NMC	2.43 km	L	Replacement of turnout	Turnout for Thmey SC-3 (A = 300 ha)
NMC-8	SC	3.35 km	R	Rehabilitation of Kravein-1 SC with construction of structures	L = 2.45 km (A = 120 ha), 3 drainage and 8 outlet structures
NMC-9	SC	3.35 km	R	Rehabilitation of Kravein-2 SC with construction of structures	L = 810 m (A = 40 ha) 2 drain inlets and 3 turnouts
NMC-10	NMC	3.35 km	R	Repair of turnout	Turnout for Kravein SC (A = 160 ha)
NMC-11	NMC	3.45 km	L	Replacement of turnout	Turnout for Sampov-1 SC (A = 100 ha)
NMC-12	SC	3.45 km	L	Rehabilitation of Sampove SC-1 and construction of structures	L = 5 km (A =100 ha) 2 Checks/Turnout
NMC-13	NMC	5.1 km	R	Replacement of turnout	Turnout for Prey Beng SC-1 (A = 60 ha)
NMC-14	SC	5.1 km	R	Rehabilitation of Prey Beng SC-1 with construction of structures	L = 1.64 km (A = 60 ha) 6 Checks/Turnout
NMC-15	NMC	5.2 km	L	Replacement of turnout	Turnout for Sampov-2 SC (A = 100 ha)
NMC-16	SC	5.2 km	L	Rehabilitation of Sampove-2 SC and construction of structures	L = 1.2 km (A = 100 ha) 3 checks/diversions
NMC-17	NMC	5.25 km	-	Replacement of concrete bridge	
NMC-18	NMC	5.25 km ~ 7.75 km	L/R	Enlargement of canal section with improvement of both canal banks	


Map Ref. No.	Canal	Distance form Intake	Left or Right	Proposed Works	Details
NMC-19	SC	5.6 km	R	Rehabilitation of Prey Beng-2 SC with construction of structures	L = 1.8 km, (A = 70 ha) 4 checks/diversions
NMC-20	NMC	5.6 km	R	Replacement of turnout	Turnout for Prey Beng-2 SC (A=70 ha)
NMC-21	NMC	5.3 ~ 6.5 km	R/L	Provision of 6 drain inlets (Concrete pipe)	at 6.5 km, 6.25 km, 6.05 km, 6.0 km, 5.75 km, and 5.3 km points
NMC-22	NMC	8.55 km ~ 9.1 km	R	Replacement of 3 outlets for small irrigation area	Provision of concrete pipe culvert
NMC-23	NMC	8.55 km ~ 9.1 km	L/R	Construction of embankment with flood spillway	Left side : L = 1.1 km at level crossing reservoir with flood spillway structure (Siphon is proposed by PDOWRAM) Right side : Repair and provision of laterite pavement
NMC-24	NMC	8.8 km	R	Repair of turnout	Turnout for Thmat Pong SC L = 6.2 km, (A = 265 ha)
NMC-25	NMC	10 km	L	Construction of pump station with check structure	SC (5.2 km) has already been constructed (A = 300 ha)
NMC-26	NMC	10 km	R	Provision of a drain inlet	


## (2) South Main Canal


Map Ref. No.	Canal	Distance form Intake	Left or Right	Proposed Works	Details
<b>South Approach Channel</b>					
SAC-1	Approach Channel	0.2 km (upstream)	L	Construction of drain inlet and field drain	Both side : drain inlet Left side : drain canal
SAC-2	Approach Channel	0.58 km (upstream)	L	Improvement of concrete bridge	Remove bottom slab and excavate 1 m depth
SAC-3	Approach Channel	0.95 km (upstream)	L	Improvement of turnout (Concrete pipe)	Turnouts for Tompoung-1 SC (A = 10 ha) Provision of pipe culvert
SAC-4	Approach Channel	1.35 km (upstream)	L	Improvement of turnout (Concrete pipe)	Turnout for Tompoung-2 SC (A=10 ha) Provision of pipe culvert
SAC-5	SC	2.6 km (upstream)	L	Rehabilitation and Construction of structures of Kraheng SC	L = 1.75 km (A = 125 ha) 4 Checks/Turnouts
SAC-6	Approach Channel	2.6 km ~ 1.65 km	L	Laterite pavement with raising of embankment	Repair and provision of laterite pavement (both sides) H = 1 m (additional), W = 6 m
SAC-7	Approach Channel	1.65 km ~ 0 km	L	Improvement of canal section (Excavation of canal bottom)	Excavation : 1 m depth
<b>South Main Canal</b>					
SMC-1	SMC	0 km ~ 7.8 km	L	Laterite pavement with improvement of embankment	Left side : improvement of embankment (laterite pavement) H = 1 m (Additional), W = 6m
SMC-2	SMC	7.8 km ~ 9.62 km	L/R	Construction of embankment with flood spillway	Left side : Enlargement of embankment (W = 6 m) Right side : Construction of new embankment at level crossing reservoir
SMC-3	SMC	0.6 km	R	Provision of drain inlet	Diameter of pipe : 0.8 m to 1 m
SMC-4	SMC	2.7 km	L/R	Provision of drain inlet	Diameter 0.8 m to 1 m (both sides)
SMC-5	SMC	2.95 km	-	Construction of check structure	Check structure with new bridge at existing steel bridge
SMC-6	SMC	3.5 km	-	Removing check structure and construction of concrete bridge	
SMC-7	SMC	3.65 km		Construction of drain inlets	(Both side)
SMC-8	SMC	4.75 km	L/R	Replacement of turnouts	Left side : Replacement of turnout for Koh Té SC-1 (A = 80 ha)
SMC-9	SMC	4.75 km	L/R	Construction of turnouts	Right side : Construction of turnout for Koh Té SC-2 (A = 110 ha)
SMC-10	SC	4.75 km	R	Rehabilitation of Koh Té-1 SC with construction of structures	L = 1 km (A = 80 ha) 3 checks/Turnouts
SMC-11	SC	4.75 km	L	Rehabilitation of Koh Té-2 SC with construction of structures	L = 1.75 km (A = 110 ha) 3 checks/Turnouts
SMC-12	SMC	5 km	L/R	Replacement of check structure	
SMC-13	SMC	5.85 km	L/R	Replacement of turnout and drain inlet	Left side: Turnout for Thnol Bom Bek SC (A = 100 ha) Right side : Construction of drain inlet
SMC-14	SC	5.85 km	L	Rehabilitation of Thnol Bom Bek SC with construction of structures	L = 2.15 km (A = 100 ha) 6 Checks / Turnouts
SMC-15	SMC	6.2 km	-	Replacement of bridge	Removing existing steel bridge and construction of new concrete bridge
SMC-16	SMC	6.95 km	L	Construction of turnout	Turnout for Phum Rong SC (A = 80 ha)
SMC-17	SC	6.95 km	L	Rehabilitation of Phum Rong SC with construction of structures	L = 3km (A = 80 ha) 6 Checks/Turnouts

Map Ref. No.	Canal	Distance form Intake	Left or Right	Proposed Works	Details
SMC-18	SMC	7.15 km	L/R	Construction of embankment with provision of new drainage gate and improvement of spillway	Right side : Construction of embankment (L =700 m) with drainage structure (gate)
SMC-19	SMC	7.8 km	L	Replacement of turnout	Replacement of concrete pipe of Turnout for Road-110 SC, L=2.2 km (A = 20 ha)
SMC-20	SMC	8.4 km	L	Replacement of turnout	Turnout for Phum Skous-1 SC (A = 25 ha)
SMC-21	SC	8.4 km	L	Rehabilitation of Phum Skous-1 SC with construction of structures	L = 2 km (A = 25 ha) 2 Checks/Turnouts
SMC-22	SMC	8.7 km	L	Replacement of turnout	Turnout for Phum Skous-2 SC (A = 100 ha)
SMC-23	SC	8.7 km	L	Rehabilitation of Phum Skous-2 SC with construction of structures	L = 2.8 km (A =100 ha) 5 Checks/Turnouts and 2 drain inlets
SMC-24	SMC	9.4 km	L	Repair of spillway	
SMC-25	SMC	9.62 km	L	Repair of Bak Thmenh gate	Repair of Bak Thmenh gate for Bak Thmenh drainage canal for SC (A = 60 ha)
SMC-26	SC	9.62 km	L	Rehabilitation of Bak Thmenh S.C	L = 6 km (A = 60 ha)
SMC-27	SMC	9.62 km	R	Construction of embankment and spillway	Construction of embankment and spillway at level crossing reservoir

**Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (1/12)**

Canal No.: NMC	Proposed Works	Rehabilitation of Phum Thmey Andong Sla SC with construction of structures		Remarks: L = 3.1 km, (A = 300 ha) Improvement of Phum Thmey Andong Sla SC with 4 Turnouts and 3 Drain inlets
Station: 0.00+600	Map Ref. NAC-1	Coordinate	X: 0439329 Y: 1265317	
				
Existing channel (just after turnout)		Upstream reach of existing channel		Middle reach of existing channel




Canal No.: NMC	Proposed Works	Replacement of turnout for Phum Thmey Andong Sla SC		Remarks: Turnout for Phum Thmey Andong Sla SC (A=300 ha)
Station: 0.00+600	Map Ref. NAC-2	Coordinate	X: 0439329 Y: 1265317	
				
Existing Turnout		Existing Turnout (Downstream View)		



Canal No.: NMC	Proposed Works	Improvements of Kraing Speu embankment		Remarks: Raising of Kraing Speu embankment L = 1 km, W = 3 m, H = additional 1 m
Station: 0.00+600	Map Ref. NAC-3	Coordinate	X: Y:	
				
Upstream View (Inundation area)		Existing embankment		Existing embankment



Remarks: Coordinate X, Y; Universal Transverse Mercator system





**Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (2/12)**


Canal No.: NMC	Proposed Works	Rehabilitation of Andong Thor SC with construction of structures		Remarks: L = 1.45 km (A = 120 ha) 4 checks / diversions structures
Station: 0.00+680	Map Ref. NAC-4	Coordinate	X: 0439125 Y: 1265416	
  				
Upstream View		Existing canal		Downstream View




Canal No.: NMC	Proposed Works	Replacement of turnout for Andong Thor SC		Remarks: Replacement of concrete pipe for turnout for Andong Thor SC (A = 120 ha)
Station: 0.00+680	Map Ref. NAC-5	Coordinate	X: 0439125 Y: 1265416	
 				
Upstream View		Downstream View		

Canal No.: NMC	Proposed Works	Repair of embankment for flood protection dike		Remarks: L = 350 m, W = 6m, H = 2m (Additional)
Station: 0.00+680	Map Ref. NAC-6	Coordinate	X: Y:	
 				
Upstream View		Downstream View		




## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (3/12)




Canal No.: NMC	Proposed Works	Improvement of embankment	Remarks: Repair and provision of laterite pavement (both side)
Station: 0.00 ~ 1.00+150	Map Ref. NAC-7	Coordinate X: Y:	
			
Upstream View		Downstream View	



Canal No.: NMC	Proposed Works	Improvement of embankment	Remarks: Repair and provision of laterite pavement (both sides)
Station: 0.00 ~ 10.0 +0	Map Ref. NMC-1	Coordinate X: Y:	
			
General View			

Canal No.: NMC	Proposed Works	Rehabilitation of Thmey-1 SC and construction of structures	Remarks: L = 2.5 km (A = 125 ha) 3 outlets and 3 drain inlets
Station: 1.00+950	Map Ref. NMC-2	Coordinate X: 0441188 Y: 1266620	
			
Existing secondary canal		Outlet (View from downstream)	
			
Existing pump station			



## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (4/12)



Canal No.: NMC	Proposed Works	Improvement of bridge		Remarks: Replacement of abatement of bridge
Station: 2.00+000	Map Ref. NMC-3	Coordinate	X: 0441313 Y: 1266615	
  				
Upstream View		Downstream View		Existing bridge



Canal No.: NMC	Proposed Works	Rehabilitation of Thmey-2 SC		Remarks: L = 850 m, A = 13 ha 2 checks/diversions
Station: 2.00+400	Map Ref. NMC-4	Coordinate	X: 0441656 Y: 1266846	
  				
Existing secondary canal		Existing secondary canal		Existing secondary canal

Canal No.: NMC	Proposed Works	Improvement of turnout for Phum Thmey-2 SC		Remarks: Provision of pipe culvert for Phum Thmey-2 SC (A = 13 ha)
Station: 2.00+400	Map Ref. NMC-5	Coordinate	X: 0441656 Y: 1266846	
 				
Existing turnout (Inlet)		Existing turnout (Outlet)		



**Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (5/12)**




Canal No.: NMC	Proposed Works	Rehabilitation of Thmey SC-3		Remarks: L = 3 km (A = 300 ha) 3 checks/diversions
Station: 2.00+430	Map Ref. NMC-6	Coordinate	X: 0441611 Y: 1266870	
				
Existing secondary canal		Existing secondary canal		



Canal No.: NMC	Proposed Works	Replacement of turnout for Thmey SC-3		Remarks: Turnout for Thmey-3 SC (A = 300 ha)
Station: 2.00+430	Map Ref. NMC-7	Coordinate	X: 0441611 Y: 1266870	
				
Existing turnout		Existing turnout		

Canal No.: NMC	Proposed Works	Rehabilitation of Kravein-1 SC with construction of structures		Remarks: L = 2.45 km (A = 120 ha), 3 drainage and 8 outlet structures
Station: 3.00+350	Map Ref. NMC-8	Coordinate	X: 0442340 Y: 1267398	
				
Upstream View		Existing secondary canal		


## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (6/12)


Canal No.: NMC	Proposed Works	Rehabilitation of Kravein-2 SC with construction of structures	Remarks: L = 810 m (A = 40 ha) 2 drain inlets and 3 turnouts
Station: 3.00+350	Map Ref. NMC-9	Coordinate X: 0442340 Y: 1267398	
			
Existing secondary canal		Existing secondary canal	


Canal No.: NMC	Proposed Works	Repair of turnout for Kravein SC	Remarks: Turnout for Kravein SC (A = 160 ha)
Station: 3.00+350	Map Ref. NMC-10	Coordinate X: 0442340 Y: 1267398	
			
Existing turnout (Inlet)		Existing turnout (Inlet)	
			Existing turnout (Outlet box)

Canal No.: NMC	Proposed Works	Replacement of turnout for Sampove-1 SC	Remarks: Turnout for Sampove-1 SC (A = 100 ha)
Station: 3.00+450	Map Ref. NMC-11	Coordinate X: 0442385 Y: 1267452	
			
Existing turnout (Inlet box)		Existing turnout (Outlet)	



## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (7/12)




Canal No.: NMC	Proposed Works	Rehabilitation of Sampove-1 SC and construction of structures	Remarks L = 5 km (A =100 ha) 2 Checks/Turnout
Station 3.00+450	Map Ref. NMC-12	Coordinate X: 0442385 Y: 1267452	
			
Existing secondary canal			




Canal No.: NMC	Proposed Works	Replacement of turnout for Prey Beng-1 SC	Remarks: Turnout for Prey Beng-1 SC (A = 60 ha)
Station: 5.00+100	Map Ref. NMC-13	Coordinate X: 0444065 Y: 1267913	
			
Existing turnout (Inlet)		Existing turnout (Outlet)	

Canal No.: NMC	Proposed Works	Rehabilitation of Prey Beng-1 SC	Remarks: L = 1.64 km (A = 60 ha) 6 Checks/Turnout
Station: 5.00+100	Map Ref. NMC-14	Coordinate X: 0444065 Y: 1267913	
			
Existing turnout (Outlet)		Existing secondary canal	Existing secondary canal


## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (8/12)


Canal No.: NMC	Proposed Works	Replacement of turnout for Sampove-2 SC		Remarks: Turnout for Sampov-2 SC (A = 100 ha)
Station: 5.00+200	Map Ref. NMC-15	Coordinate	X: 0444100 Y: 1267986	
				
Existing turnout (Inlet)		Existing turnout (Outlet)		


Canal No.: NMC	Proposed Works	Rehabilitation of Sampove-2 SC and construction of structures		Remarks: L = 1.2 km (A = 100 ha) 3 checks/diversions	
Station: 5.00+200	Map Ref. NMC-16	Coordinate	X: 0444100 Y: 1267986		
					
Existing secondary canal			Existing secondary canal		Existing secondary canal

Canal No.: NMC	Proposed Works	Replacement of concrete bridge		Remarks:
Station: 5.00+250	Map Ref. NMC-17	Coordinate	X: 0444148 Y: 1268005	
				
Upstream View		Downstream View		Existing bridge

## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (9/12)




Canal No.: NMC	Proposed Works	Enlargement of canal section with improvement of both canal banks	Remarks:
Station: 5+250 ~ 7+750	Map Ref. NMC-18	Coordinate X: 0445272 Y: 1268599	
			
Existing narrow section	Existing narrow section	Existing narrow section	




Canal No.: NMC	Proposed Works	Rehabilitation of Prey Beng-2 SC with construction of structures	Remarks: L = 1.8 km, (A = 70 ha) 4 checks/diversions
Station: 5.00+600	Map Ref. NMC-19	Coordinate X: 0444468 Y: 1267961	
			
Existing secondary canal	Existing secondary canal	Road along secondary canal	



Canal No.: NMC	Proposed Works	Replacement of turnout for Prey Beng-2 SC	Remarks: Turnout for Prey Beng-2 SC (A=70 ha)
Station: 5.00+600	Map Ref. NMC-20	Coordinate X: 0444468 Y: 1267961	
			
Existing turnout (Outlet)	Existing turnout (Outlet)		





**Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (10/12)**



Canal No.: NMC	Proposed Works	Provision of drain inlet		Remarks:
Station: 5.00+300	Map Ref. NMC-21	Coordinate	X: 0444186 Y: 1268033	
				
Existing drain inlet pipe (View from downstream)		Existing drain inlet pipe (View from upstream)		Drainage area


Canal No.: NMC	Proposed Works	Provision of drain inlet		Remarks:
Station: 6.00+000	Map Ref. NMC-21	Coordinate	X: 0444828 Y: 1268349	
				
Upstream View		Upstream View		Downstream View

Canal No.: NMC	Proposed Works	Provision of drain inlet		Remarks:
Station: 6.00+250	Map Ref. NMC-21	Coordinate	X: 0444883 Y: 1268374	
				
Drainage area		Proposed site of drain inlet		



## Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (11/12)




Canal No.: NMC	Proposed Works	Provision of drain inlet	Remarks:
Station: 6.00+500	Map Ref. NMC-21	Coordinate X: 0445039 Y: 1268473	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Upstream View</span> <span>Downstream View</span> </div>			



Canal No.: NMC	Proposed Works	Replacement of 3 outlets for small irrigated area	Remarks:
Station: 8+550 ~ 9+100	Map Ref. NMC-22	Coordinate X: 0447376 Y: 1269055	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Existing turnout (Inlet)</span> <span>Existing turnout (Outlet)</span> </div>			

Canal No.: NMC	Proposed Works	Construction of embankment with flood spillway	Remarks:
Station: 8+550 ~ 9+100	Map Ref. NMC-23	Coordinate X: 0447680 Y: 1269034	L = 1.1 km at level crossing reservoir with flood spillway structure (Siphon is proposed by PDOWRAM)
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Upstream View</span> <span>Downstream View</span> </div>			


**Results of Inventory Survey for Proposed Rehabilitation Works on North Main Canal (12/12)**


Canal No.: NMC	Proposed Works	Repair of turnout for Thmat Pong SC		Remarks: Turnout for Thmat Pong SC L = 6.2 km, (A = 265 ha)
Station: 8.00+800	Map Ref. NMC-24	Coordinate	X: 0447680 Y: 1269034	
 				
<p style="text-align: center;">Downstream View                      Existing turnout</p>				


Canal No.: NMC	Proposed Works	Construction of New Pumping Station		Remarks : Off taking secondary canal has already been constructed
Station: 10+000(E.P.)	Map Ref. NMC-25	Coordinate	X: 0448778 Y: 1269033	
  				
<p style="text-align: center;">Proposed site of pump station              Downstream View of proposed pump station site              Existing secondary canal</p>				

Canal No.: NMC	Proposed Works	Provision of a drain inlet		Remarks:
Station: 10+00	Map Ref. NMC-26	Coordinate	X: 0448778 Y: 1269033	
 				
<p style="text-align: center;">Upstream View                      Downstream View</p>				

**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (1/12)**



Canal No.: SMC	Proposed Works	Construction of drain inlet and field drain		Remarks: Both side : drain inlet Left side : drain canal
Station: 0+ 200 (B.P.)	Map Ref. SAC-1	Coordinate	X: 0440262 Y: 1263825	
				
Preaent condition of embankemnt		Preaent condition of embankemnt		Preaent condition of embankemnt



Canal No.: SMC	Proposed Works	Improvement of concrete bridge		Remarks: Bottom should be 1 m lower than existing level
Station: 0.00+580	Map Ref. SAC-2	Coordinate	X: 0439893 Y: 1263773	
				
Upstream View		Downstream View		Existing bridge


Canal No.: SMC	Proposed Works	Improvement of turnout (Concrete pipe)		Remarks: Turnout for Tompoung SC-1 (A = 10 ha) Provision of pipe culvert
Station: 0.00+950	Map Ref. SAC-3	Coordinate	X: 0439581 Y: 1263963	
				
Existing turnout (Upstream View)		Downstream View		

Remarks: Coordinate X, Y; Universal Transverse Mercator system



**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (2/12)**




Canal No.: SMC	Proposed Works	Improvement of turnout (Concrete pipe)		Remarks: Turnout for Tompoung -2 SC (A=10 ha) Provision of pipe culvert
Station: 1.00+350	Map Ref. SAC-4	Coordinate	X: 0439231 Y: 1264040	
				
Upstream View (Inlet side)		Downstream View (Tompoung -2 SC)		



Canal No.: SMC	Proposed Works	Rehabilitation and Construction of structures of Kraheng SC		Remarks: L = 1.75 km (A = 125 ha) 4 Checks/Turnouts
Station: 2.00+600	Map Ref. SAC-5	Coordinate	X: 0439553 Y: 1265107	
				
Existing Kraheng SC		Existing Kraheng SC		

Canal No.: SMC	Proposed Works	Laterite pavement with raising of embankment		Remarks: Repair and provision of laterite pavement (both sides) H = 1 m (additional), W = 6 m
Station: 1+ 650 ~ 2+600	Map Ref. SAC-6	Coordinate	X: Y:	
				
Existing embankment				



**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (3/12)**



Canal No.: SMC	Proposed Works	Improvement of canal section (Excavation of canal bottom)	Remarks: Excavation : 1 m depth
Station: 0.00 ~ 1+650	Map Ref. SAC-7	Coordinate X: Y:	
			
Upstream View		Downstream View	




Canal No.: SMC	Proposed Works	Laterite pavement with improvement of embankment	Remarks:
Station: 0.00 ~7+800	Map Ref. SMC-1	Coordinate X: Y:	
			
General View		General View	
		General View	

Canal No.: SMC	Proposed Works	Construction of embankment with flood spillway	Remarks: Left side : Enlargement of embankment (W = 6 m) Right side : new embankment at level crossing reservoir
Station: 7+800 ~ 9+620	Map Ref. SMC-2	Coordinate X: Y:	
			
Upstream View		Downstream View	

**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (4/12)**

Canal No.: SMC	Proposed Works	Provision of drain inlet		Remarks: Diameter of pipe : 0.8 m to 1 m
Station: 0.00+ 600	Map Ref. SMC-3	Coordinate	X: 0441034 Y: 1263964	
				
Upstream View		Downstream View		


Canal No.: SMC	Proposed Works	Provision of drain inlet		Remarks: Diameter 0.8 m to 1 m (both sides)
Station: 2.00 + 700	Map Ref. SMC-4	Coordinate	X: 0442935 Y: 1264112	
				
Existing condition (SMC right bank)		Existing condition (SMC side, zoomed in)		


Canal No.: SMC	Proposed Works	Construction of check structure		Remarks: Check structure with new bridge at existing steel bridge
Station: 2.00 + 950	Map Ref. SMC-5	Coordinate	X: 0443137 Y: 1264220	
				
Upstream View		Downstream View		









**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (6/12)**




Canal No.: SMC	Proposed Works	Construction of turnouts (Right side)		Remarks: Turnout for Koh Té-2 SC (A = 110 ha)
Station: 4.00 + 750	Map Ref. SMC-9	Coordinate	X: 0444752 Y: 1265073	
				
Present condition (No structure)				




Canal No.: SMC	Proposed Works	Rehabilitation of Koh Té-1 SC with construction of structures		Remarks: L = 1 km (A = 80 ha) 3 checks/Turnouts
Station: 4.00 + 750	Map Ref. SMC-10	Coordinate	X: 0444752 Y: 1265073	
				
Upstream View at turnout			Upstream of Koh Té-1 secondary canal	

Canal No.: SMC	Proposed Works	Rehabilitation of Koh Té-2 SC with construction of structures		Remarks: L = 1.75 km (A = 110 ha) 3 checks/Turnouts
Station: 4.00 + 750	Map Ref. SMC-11	Coordinate	X: 0444752 Y: 1265073	
				
Present condition (No structure)			Downstream View	

**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (7/12)**




Canal No.: SMC	Proposed Works	Construction of check structure		Remarks:
Station: 5.00 + 0.00	Map Ref. SMC-12	Coordinate	X: 0444986 Y: 1265147	
  				
<p style="text-align: center;">Upstream View                      Downstream View                      Existing bridge</p>				




Canal No.: SMC	Proposed Works	Construction of turnout and drain inlet		Remarks: Left side: Turnout for Thnol Bom Bek SC (A = 100 ha) Right side : Construction of drain inlet
Station: 5.00+850	Map Ref. NMC-13	Coordinate	X: 0445815 Y: 1265104	
  				
<p style="text-align: center;">Inlet of existing turnout                      Outlet of existing turnout                      Existing turnout</p>				




Canal No.: SMC	Proposed Works	Rehabilitation of Thnol Bom Bek SC with construction of structures		Remarks: L = 2.15 km (A = 100 ha) 6 Checks / Turnouts
Station: 5.00 +850	Map Ref. NMC-14	Coordinate	X: 0445815 Y: 1265104	
  				
<p style="text-align: center;">Thnol Bom Bek SC just after turnout                      Upstream of Thnol Bom Bek SC                      Downstream View</p>				





**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (9/12)**



Canal No.: SMC	Proposed Works	Construction of embankment at level crossing reservoir		Remarks: Embankment (Right side, L = 700 m) with provision of new drainage gate and improvement of spillway
Station: 7.00+150	Map Ref. SMC-18	Coordinate	X: 0446993 Y: 1264648	
  				
<p style="text-align: center;">Level crossing reservoir                      Existing spillway                      Existing spillway (View from downstream)</p>				



Canal No.: SMC	Proposed Works	Replacement of turnout		Remarks: Replacement of Turnout for Road-110 SC (A = 20 ha)
Station: 7.00+800	Map Ref. SMC-19	Coordinate	X: 0447469 Y: 1264229	
  				
<p style="text-align: center;">Existing turnout                      View from Upstream                      View from Downstream</p>				

Canal No.: SMC	Proposed Works	Replacement of turnout for Phum Skous-1 SC		Remarks: Turnout for Phum Skous-1 SC (A = 25 ha)
Station: 8.00+400	Map Ref. SMC-20	Coordinate	X: 0447980 Y: 1263876	
  				
<p style="text-align: center;">Existing turnout                      Existing turnout (Inlet)                      Existing turnout (Outlet)</p>				


## Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (10/12)


Canal No.: SMC	Proposed Works	Rehabilitation of Phum Skous-1 SC with construction of structures	Remarks: L = 2 km (A = 25 ha) 2 Checks/Turnouts
Station: 8.00+400	Map Ref. SMC-21	Coordinate X: 0447980 Y: 1263876	
			
Existing Phum Skous-1 SC		Existing Phum Skous-1 SC	


Canal No.: SMC	Proposed Works	Replacement of turnout for Phum Skous-2 SC	Remarks: Turnout for Phum Skous-2 SC (A = 100 ha)
Station: 8.00+700	Map Ref. SMC-22	Coordinate X: 0448274 Y: 1263799	
			
Upstream View		Downstream View	

Canal No.: SMC	Proposed Works	Rehabilitating of Phum Skous-2 SC with construction of structures	Remarks: L = 2.8 km (A =100 ha) 5 Checks/Turnouts and 2 drain inlets
Station: 8.00+700	Map Ref. SMC-23	Coordinate X: 0448274 Y: 1263799	
			
Existing Phum Skous-2 SC (View from turnout)		Existing Phum Skous-2 SC	


**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (11/12)**

Canal No.: SMC	Proposed Works	Repair of spillway	Remarks:
Station: 9.00+400	Map Ref. SMC-24	Coordinate X: Y:	
			
Existing spillwat	Existing spillwat (View from inspection road)		Existing spillwat (spillout)

Canal No.: SMC	Proposed Works	Repair of Bak Thmenh gate for Bak Thmenh drainage canal	Remarks: Repair of Bak Thmenh gate for Bak Thmenh drainage cane
Station: 9.00+620	Map Ref. SMC-25	Coordinate X: 0448981 Y: 1263728	
			
Existing drainage gate	Downstream view from drainage gate		View from drainage canal

Canal No.: SMC	Proposed Works	Rehabilitation of Bak Thmenh S.C	Remarks: L = 6 km SC in downstream (A = 60 ha)
Station: 9.00+620	Map Ref. SMC-26	Coordinate X: 0448981 Y: 1263728	
			
Downstream view from drainage gate	Turnout (View form Downstream)		

**Results of Inventory Survey for Proposed Rehabilitation Works on South Main Canal (12/12)**

Canal No.: SMC	Proposed Works	Construction of embankment and spillway		Remarks: Construction of embankment and spillway at level crossing reservoir
Station: 9.00+620	Map Ref. SMC-27	Coordinate	X: 0448981 Y: 1263728	
				
Level crossing reservoir		Level crossing reservoir (Upstream view)		Level crossing reservoir (Downstream view)

# ***ANNEX D***

## ***Attachment 2***

*Report on Capability of Local Gate Manufacturer*



## Report on Capability of Local Gate Manufacturer

### 1. General

It was informed by MOWRAM that “Prak Kov manufacturer” that is only one gate manufacture in Cambodia and located in Phnom Penh and he has been experienced for manufacturing and installation of several automatic flap gates installed in MOWRAM projects. In order to check that whether he has capability for design, manufacturing and installation of hydromechanical equipment for Roleang Chrey headworks, the shop inspection was made on July 26, 2011 by JICA Survey Team. The following company profile such as shop facility, manpower and past experience was obtained from the shop inspection as shown below.

### 1. Main Shop Facilities

The main shop facilities are shown on Table blow.

**List of Main Shop Facilities**

No.	Equipment	Quantity	Specifications
1	Overhead travelling crane	1	Electrically driven, 10ton capacity
2	Lathe	6	Max. capacity: 630 mm in diameter x 3.0 m length
3	Welding machine	8	Max. capacity: 400A
4	Plate cutting machine	1	Shearing type Capacity: 14mm thickness, 3m in width
5	Press machine	1	Capacity: 8mm thickness, 3m in width
6	Drilling machine	5	Max. capacity: 25mm in diameter

### 2. Manpower

The manpower is shown on Table blow.

**List of Manpower**

No.	Classification	Number
1	Owner and director	2
2	Design engineer	2
3	Welders	10
4	Mechanic	4
5	Technician	3
6	Common labor	6
7	Total	27

### 3. Past Experience

The past experience for automatic flap gates is shown on Table blow

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**List of Past Experience of Automatic Flap Gates**

No.	Gate Name	Dimension and Quantity	Completion Year
1	Spillway gates in Kpob Tobek Reservoir, Takeo Province	8.0 m wide x 2.0 m high x 6 sets	2005
2	Spillway gates in Damnak Ampil Diversion Weir, Prosin Province	10.0m wide x 4.0 m high x 7sets	2006
3	Spillway gates in Stung Stang Reservoir, Kampong Thom Province	14.0 m wide x 4.0 m high x 2 sets	2007
4	Spillway gates in Basac Reservoir, Bintam Bang Province	8.0 m wide x 3.5 m high x 7 sets	2008
5	Spillway gates in Okabear Reservoir, Kampong Speu Province	8.0m wide x 2.5m high x 2 sets	2008
6	Spillway gates in Char Rpeuk Diversion Weir, Kampong Spue Provice	10.0m widex 2.5m high x 8 sets	2009
7	Spillway gates in Kpaab Krous Reservoir, Kampong Speu	8.0m wide x 2.0m high x 4 sets	2010

Further, the small and low head type of slide gates with manually operated bevel gear type hoist were also manufactured and installed.

It was informed that he has no experience for design, manufacturing and installation of the following type of gates:

- Electrically driven wire rope type hoist
- Electrically driven spindle type hoist
- Fixed wheel gates

### 3. Others Information

- Prak Kov manufacturer area of factory: 2,520 m<sup>2</sup> (36m x 70m)
- Establishment: 1995

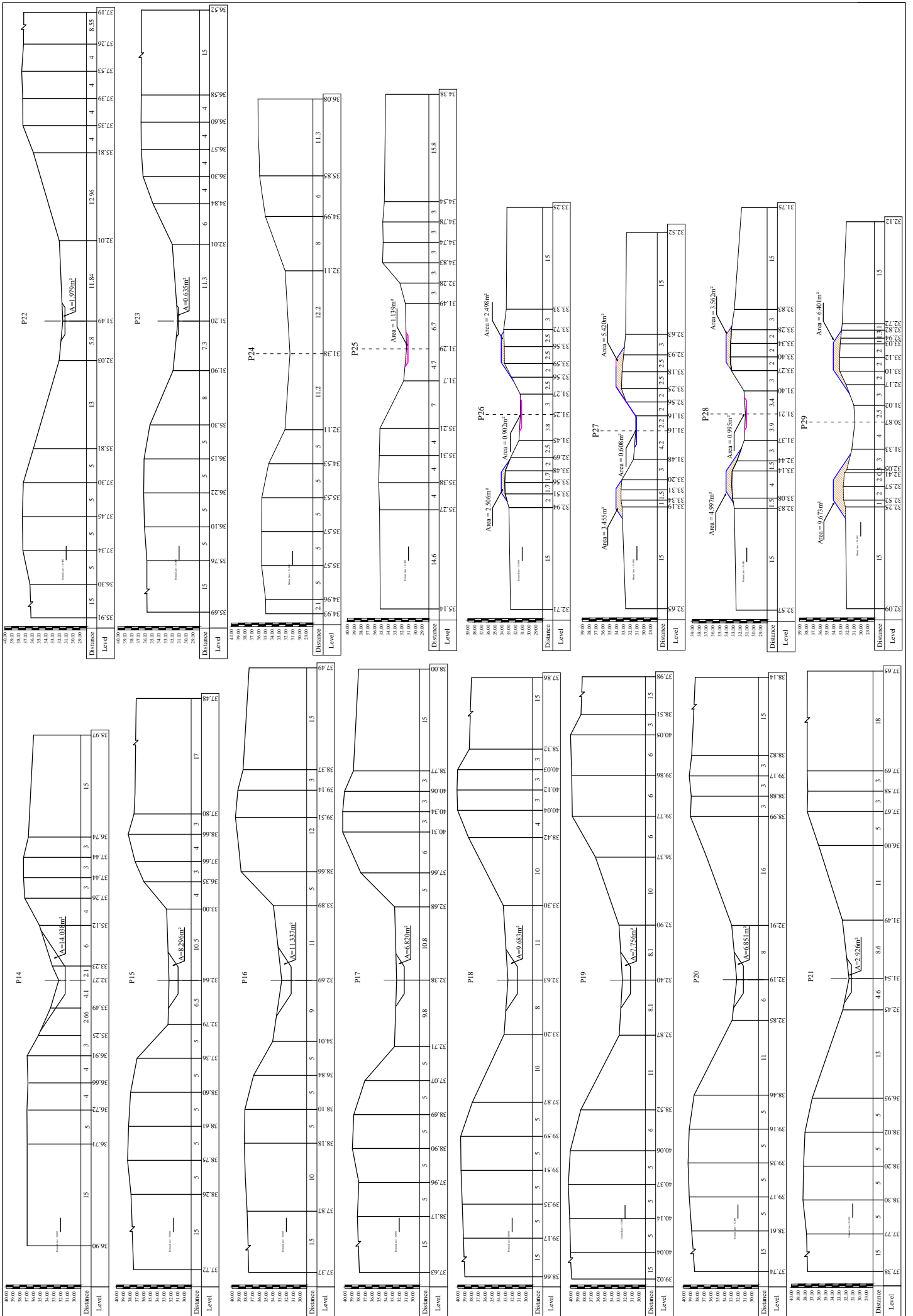
It is judged from the above information obtained from the shop inspection that Prak Kov manufacturer has no capability to perform the design, manufacturing and installation of all hydromechanical equipment for Roleang Chrey Headworks.

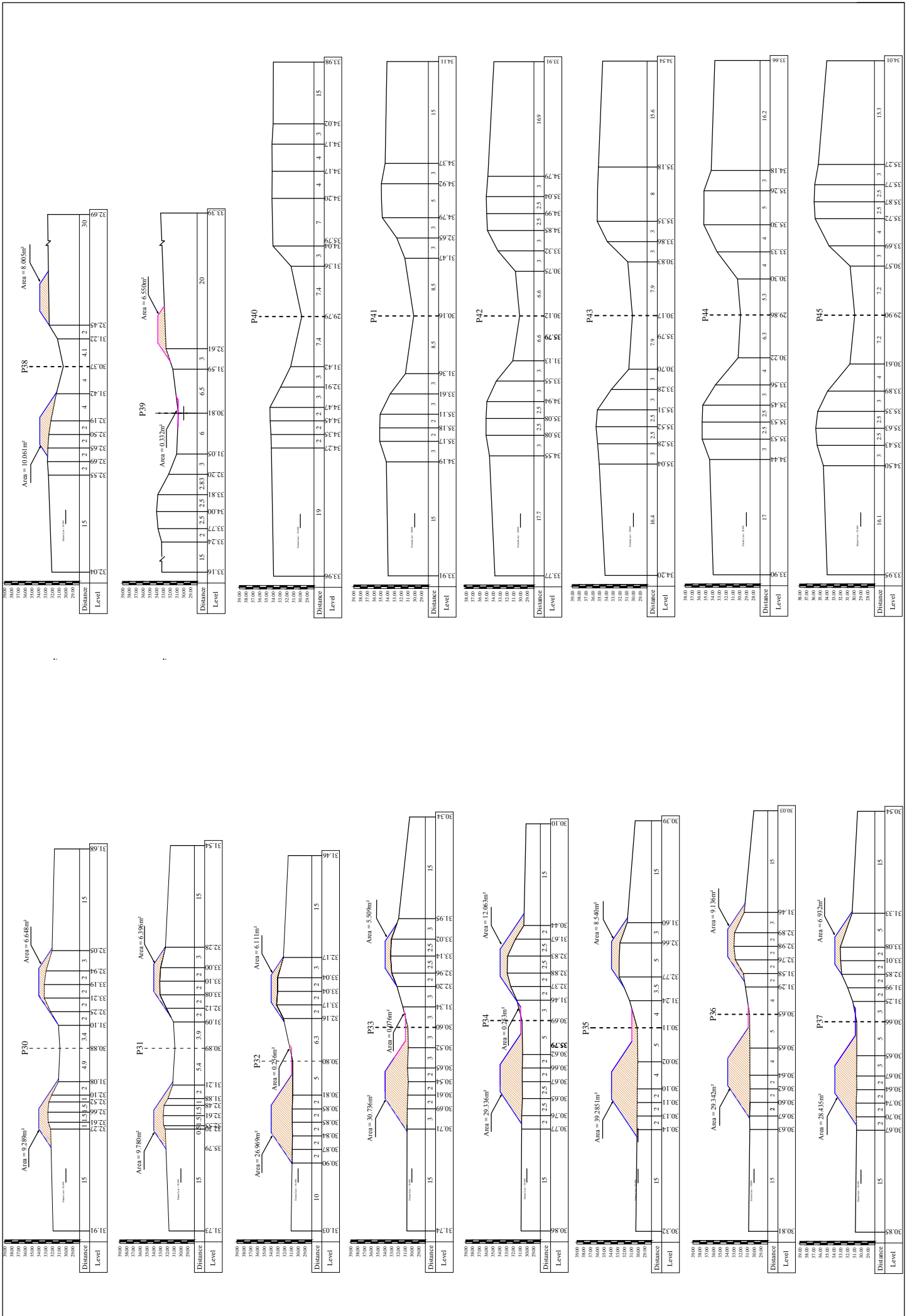
# ***ANNEX D***

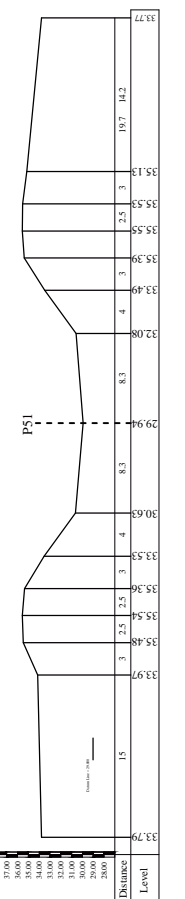
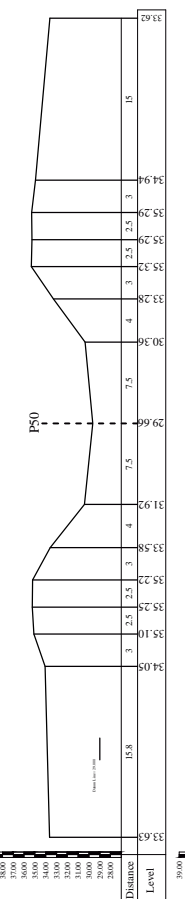
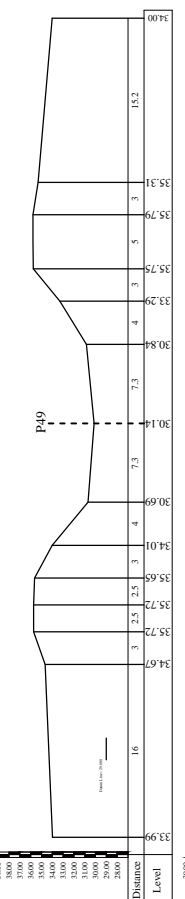
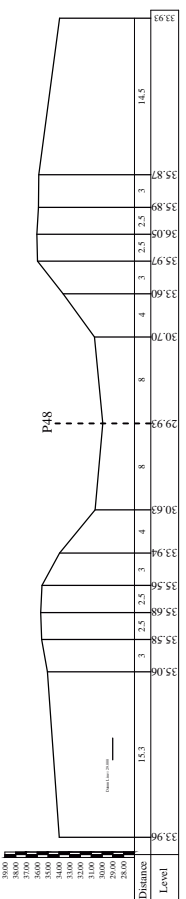
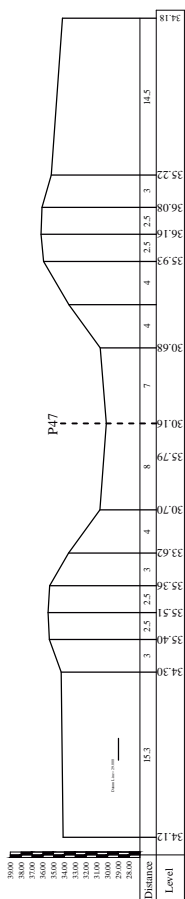
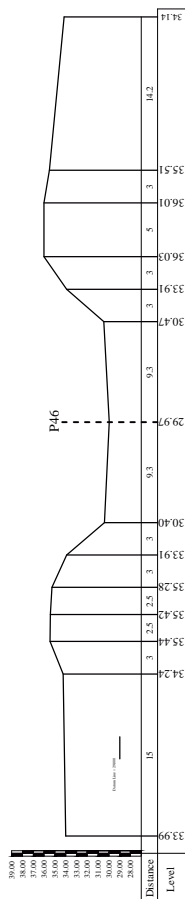
## ***Attachment – 3***

*Results of Sample Topographic Survey and Preliminary  
Design of NMC, SMC and Secondary Canals*



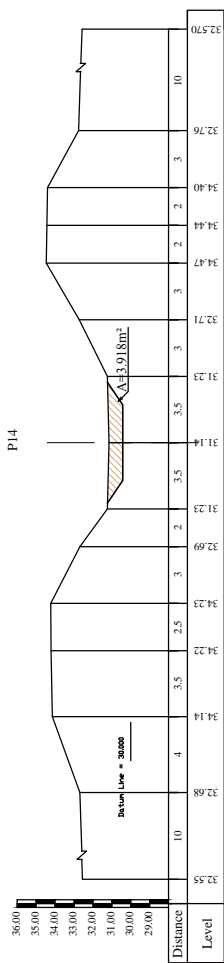
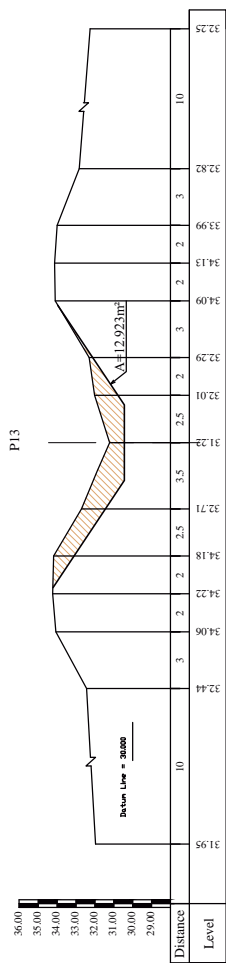
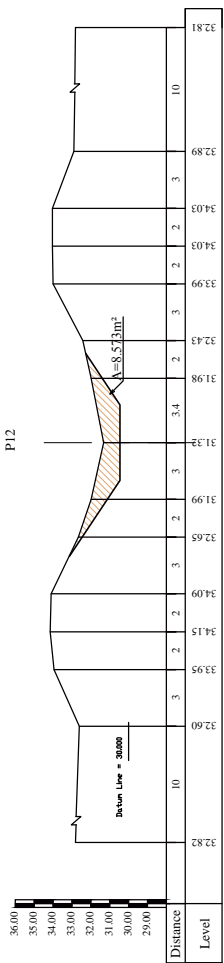




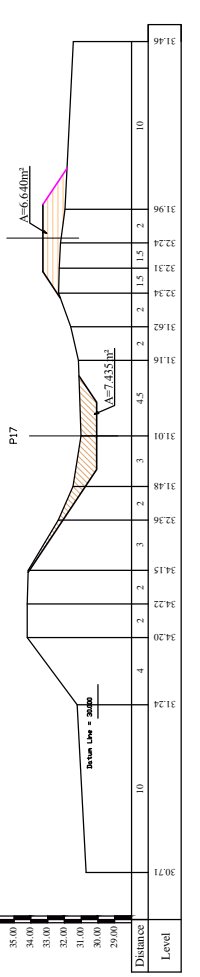
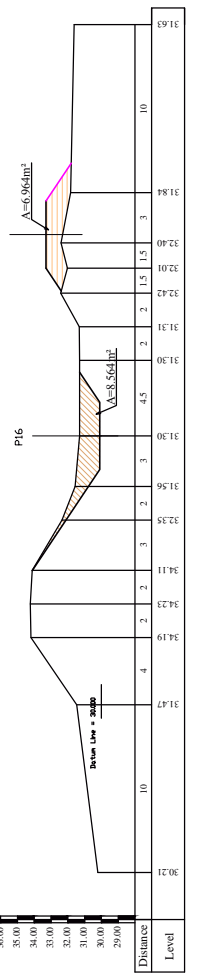
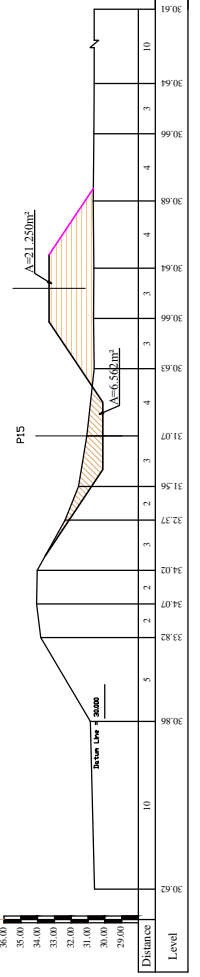
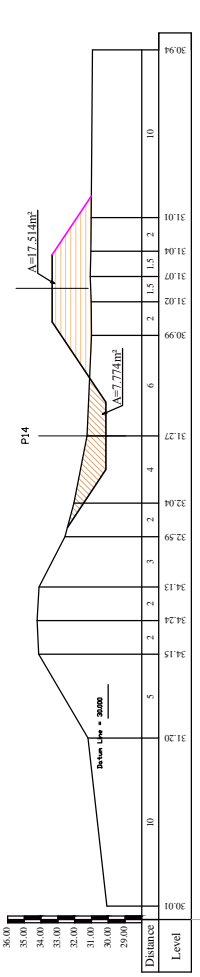
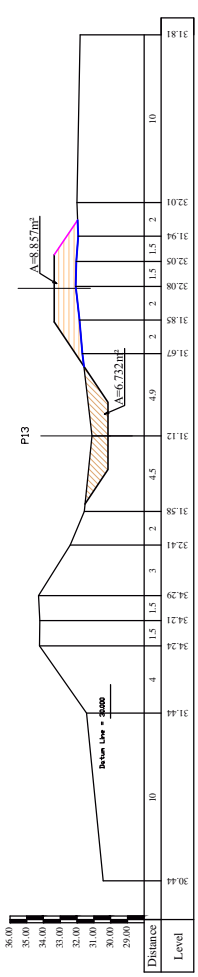
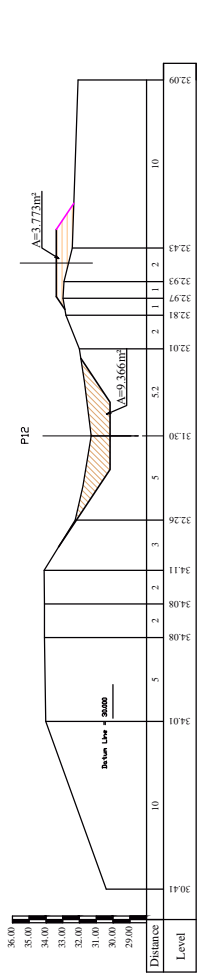
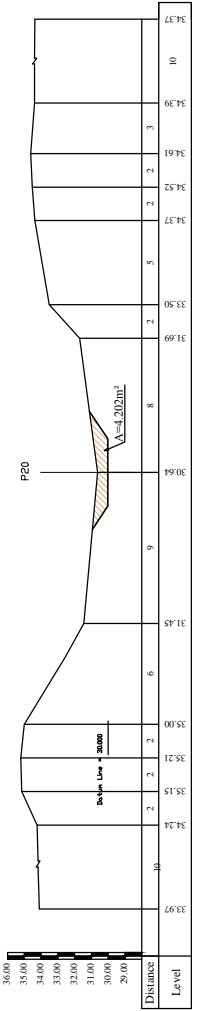
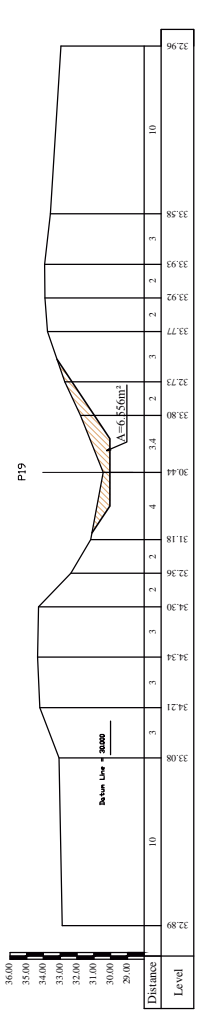
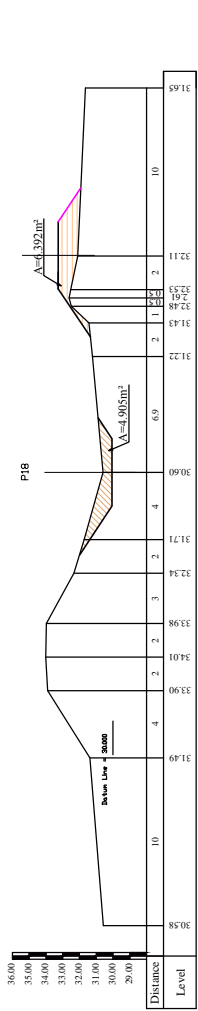




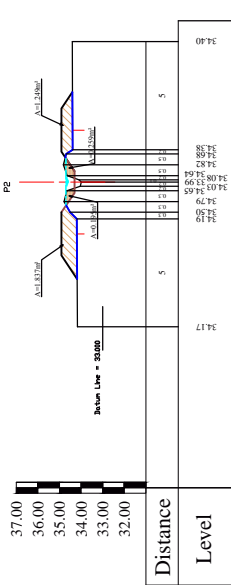
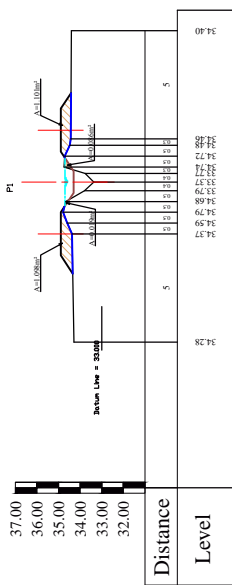
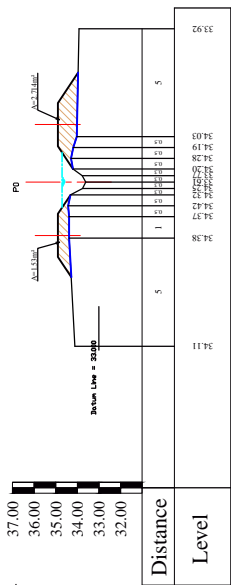




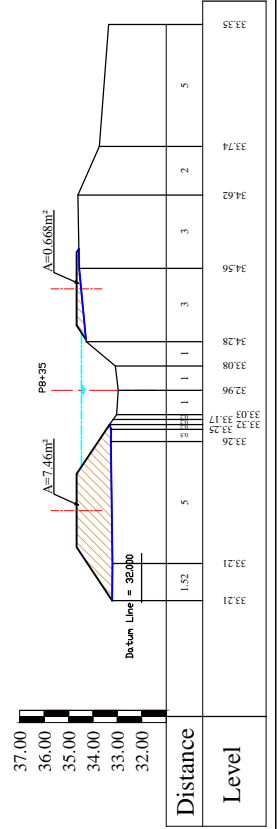
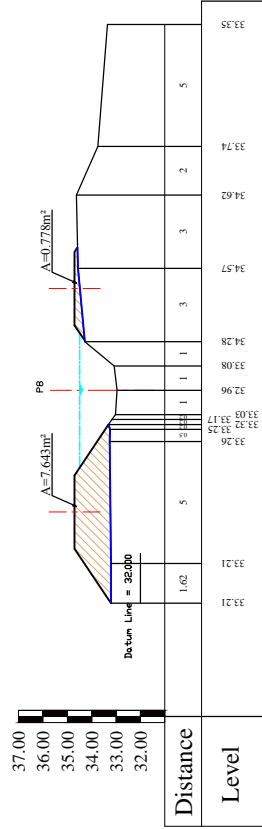
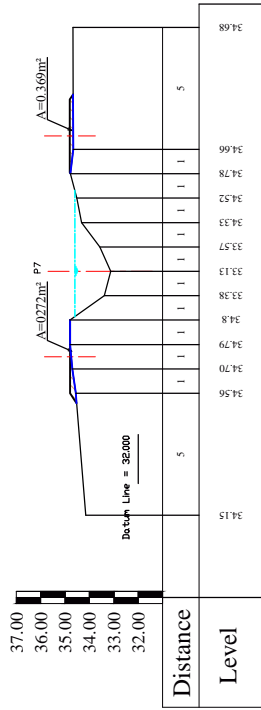
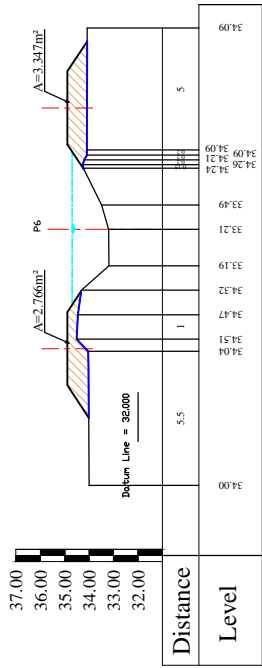
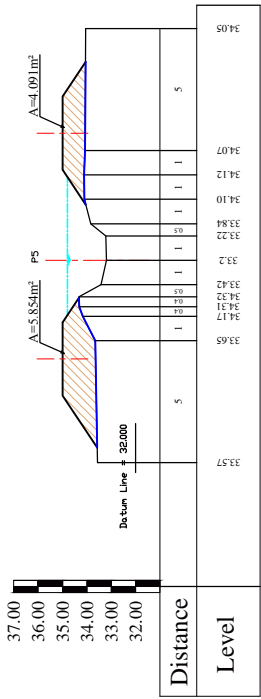
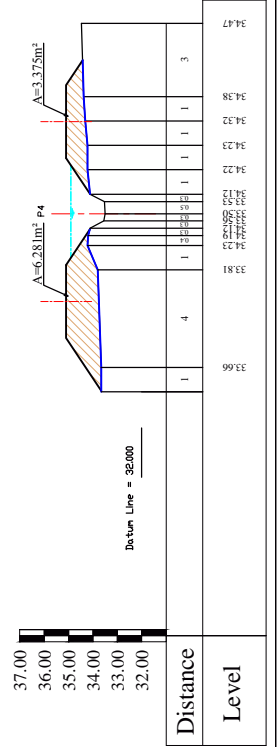
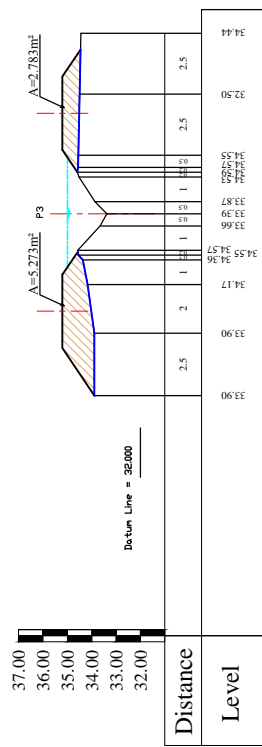
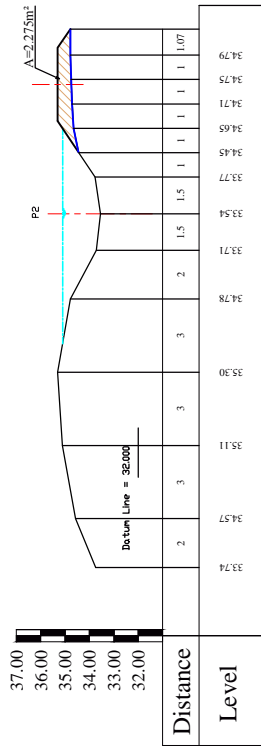
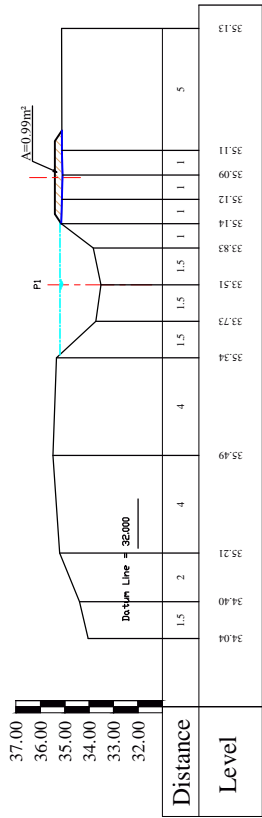
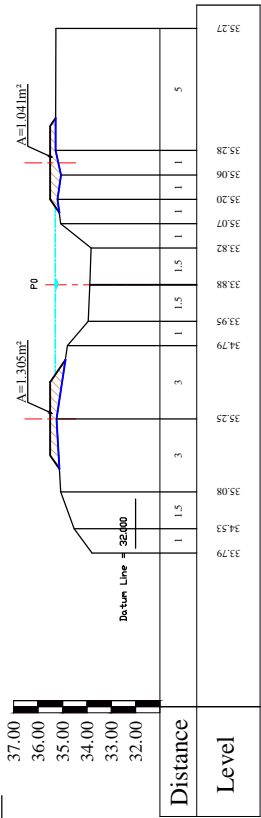




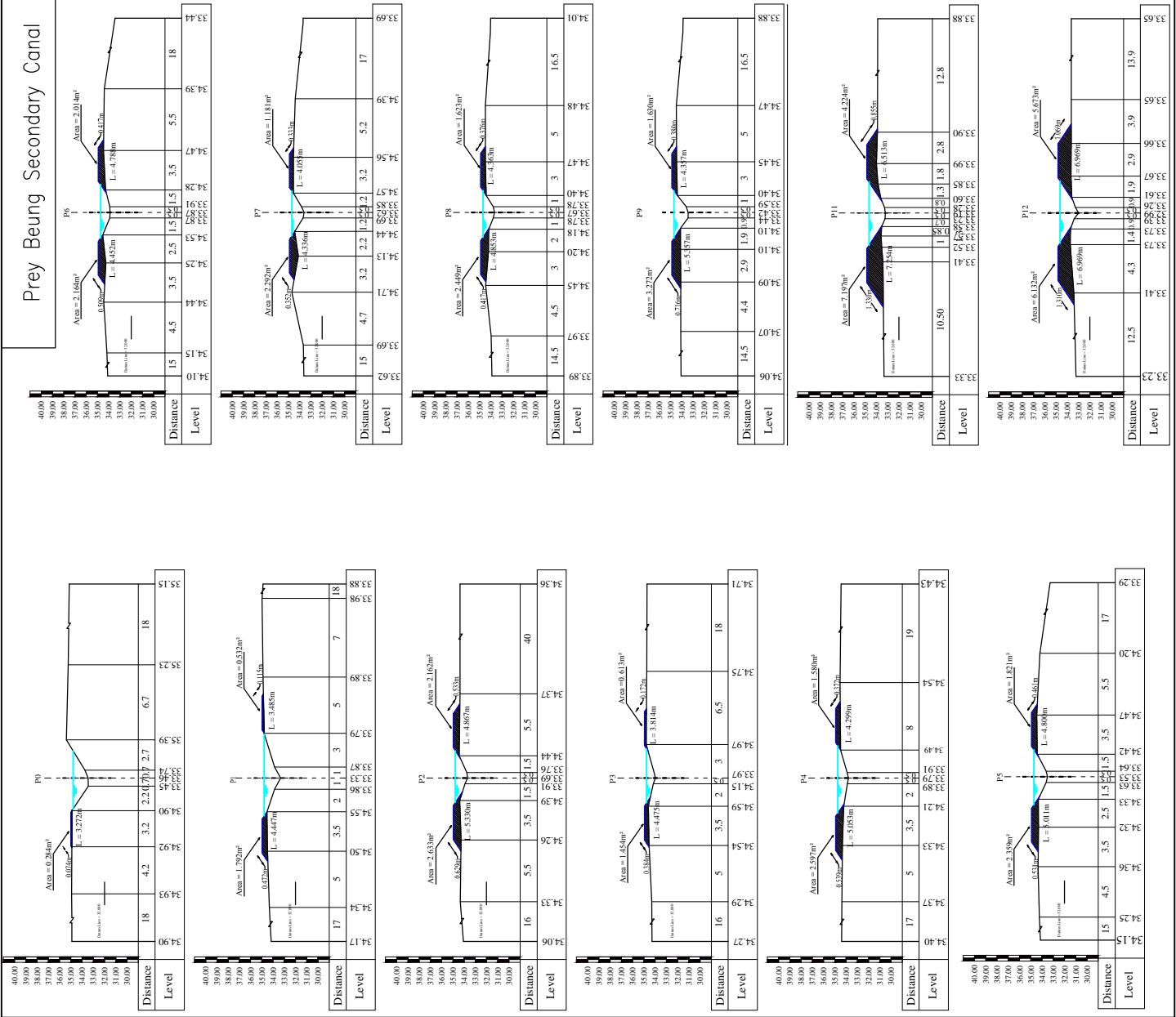
**Sampove-1 SC**



**Sampove-2 SC**



Prey Beung Secondary Canal



# ***ANNEX D***

## ***Attachment – 4***

*Results of Inventory Survey for Irrigation and Drainage  
Facilities in Upper Slakou Irrigation System  
Rehabilitation Sub-Project*

**No. or Nos. of Structures Identified through Inventory Survey**

**(Revised after PR-1)**

(Unit: nos.)

Canals	Survey length (m)	Division Structure	Culvert with grooves (Regulator)**	Public bridge/culvert	Private bridge/culvert	Buildings within ROW#	Total
Diversion canal	9,000	0	0	4	3	0	7
Main canal 33*	7,730	4	7	7	45	25	88
Secondary canals	53,840	1	21	58	212	60	352
C20	(7,930)	(0)	(2)	(9)	(28)	(3)	(42)
C20S	(990)	(0)	(0)	(1)	(8)	(1)	(10)
C21	(8,280)	(0)	(6)	(9)	(26)	(0)	(41)
C22	(9,850)	(0)	(2)	(8)	(26)	(1)	(37)
C23	(10,700)	(0)	(4)	(14)	(40)	(1)	(59)
C24	(6,050)	(1)	(0)	(6)	(12)	(0)	(19)
3U*	(1,510)	(0)	(2)	(1)	(7)	(7)	(17)
3D*	(8,530)	(0)	(5)	(10)	(65)	(47)	(127)
<b>Total</b>	<b>70,570</b>	<b>5</b>	<b>28</b>	<b>69</b>	<b>260</b>	<b>85</b>	<b>447</b>

\*: Since Main canal, 3U and 3D run along National Road 130 A, many buildings were constructed

\*\* : Grooves are provided at inlet of culverts to place planks, but no gate is placed

#: ROW: Right of Way for canal and road

Source: Inventory Survey conducted by JICA Survey Team in June and July 2011








## Inventory Survey of Existing Canals and Structures: Diversion Canal



Canal name: Diversion Canal				Survey in June-July, 2011 by JICA Survey Team			
Sta.	E	N	Structure	Condition	Evaluation	Remarks	
0	440717	1229277	B.P.				
410	440753	1229045	Canal section	Canal section is wide with more than 10 m and rain water remained	B		
1,390	440826	1228585	Canal section	Canal section is wide with more than 10 m and rain water remained	B		
2,160	440902	1227877	Road Bridge (Concrete, Tropeang Skear in 2010)	Existing bridge, 18 m span	A	Public road constructed in 2010 (New)	
2,680	441020	1227390	0				
3,180	441135	1226910	Pagoda Bridge	Canal is completely re-filled for the village road	D	Canal is malfunctioned by this embankment; Need bridge	
3,680	441475	1226554	Canal section	Canal slope is eroded and some earth and sands flowed into the canal section	C		
4,180	441816	1226194	Canal section		C		
4,580	442031	1225862	Road Bridge (National Road 130A)		B	Bridge on National Road 130A	
5,220	442509	1225476	Canal section				
5,300	442559	1225426	Bridge (Small, Private)	Wooden bridges (3 nos)	C		
5,800	442963	1225144	Canal section		C		
6,290	443378	1224915	Canal section		C		
6,950	443316	1224841	Canal section		C		
8,200	444028	1223936	Road Bridge (Built by Royal Government Social Fund in 2000)	Existing bridge	B	Public road	
9,000	445169	1223317	<u>Lan Ches Bridge</u> ( <u>May, 2007</u> )	<u>Existing bridge</u>	<u>B</u>	Public road	

Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A		1	
Bridges/ Culvert	7	B		3	
Public	4	C		3	
Concrete	4	D			
Wooden	0	Total		7	0
Private	3	<u>Evaluation of Canal and structures</u>			
Concrete	0	Canal sections are remained for passing irrigation and drain water			
Wooden	3	Two bridges were constructed after F/S in 2002			
Total	7				
A: Fully functioning	No house on the canal route				
B: Partly deteriorated but function is maintained					
C: Deteriorated, and does not function well	Possibility of mine contamination exist according to the CMAC				
D: Completely damaged, and does not function					

### Result of Inventory Survey of Diversion Canal (1/5)



Canal No.: D.C.	Kind of structure(s): Gate	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1229277 Easting: 440717	Check Gate
		
Up Stream View	Down Stream View	B.P.




Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 0.00+410	Coordinate< Northing: 1229045 Easting: 440753	Routine Survey
		
Up Stream View	Down Stream View	

Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 1.00+390	Coordinate< Northing: 1228585 Easting: 440826	Routine Survey
		
Up Stream View	Down Stream View	



### Result of Inventory Survey of Diversion Canal (2/5)




Canal No.: D.C.	Kind of structure(s): Concrete Bridge	Remarks: Tropeang Skear Bridge (Constructed in 2010)
Station: 2.00+160	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 5px;">                     Northing: 1227877                      Easting: 440902                 </div>	
		
Down Stream View		Structure



Canal No.: D.C.	Kind of structure(s): Canal	Remarks: Routine Survey
Station: 2.00+680	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 5px;">                     Northing: 1227390                      Easting: 441020                 </div>	
		
Up Stream View		Down Stream View

Canal No.: D.C.	Kind of structure(s): Landfill Road	Remarks: Road to Pagoda
Station: 3.00+180	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 5px;">                     Northing: 1226910                      Easting: 441135                 </div>	
		
Up Stream View	Down Stream View	Side View (Road)



### Result of Inventory Survey of Diversion Canal (3/5)

Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 3.00+680	Coordinate< Northing: 1226554 Easting: 441475	Routine Survey
		
Up Stream View		Down Stream View



Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 4.00+180	Coordinate< Northing: 1226194 Easting: 441816	Inflow from right bank
		
Up Stream View		Down Stream View
		
Right bank		

Canal No.: D.C.	Kind of structure(s): Concrete Bridge	Remarks:
Station: 4.00+580	Coordinate< Northing: 1225862 Easting: 442031	National Road Crossing D.C.
		
Up Stream View		Down Stream View
		
National Road 130A		

### Result of Inventory Survey of Diversion Canal (4/5)




Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 5.00+220	Coordinate< Northing: 1225476 Easting: 442509	Routine Survey
 		
Up Stream View		Down Stream View




Canal No.: D.C.	Kind of structure(s): Bridge	Remarks:
Station: 5.00+300	Coordinate< Northing: 1225426 Easting: 442559	Private Bridge
  		
Up Stream View		Structure
Side View		

Canal No.: D.C.	Kind of structure(s): Bridge	Remarks:
Station: 5.00+800	Coordinate< Northing: 1225144 Easting: 442963	Private Concrete Bridge under Construction
  		
Up Stream View		Concrete Bridge under Construction
Down Stream View		

### Result of Inventory Survey of Diversion Canal (5/5)

Canal No.: D.C.	Kind of structure(s): Canal	Remarks:
Station: 6.00+950(EP)	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1224841                      Easting: 443316                 </div>	Confluence point of D.C. and Osaray stream
		
Up Stream View	Down Stream View	Confluence point

Canal No.: D.C.	Kind of structure(s): Concrete Bridge	Remarks:
Station: 8.00+200	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1223936                      Easting: 444028                 </div>	Constructed in 2000
		
Up Stream View	Down Stream View	Side View

Canal No.: D.C.	Kind of structure(s): Concrete Bridge	Remarks:
Station: 9.00	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1223317                      Easting: 445169                 </div>	Constructed in 2006 ~ 2007
		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures: Main Canal 33 (1/2)

Canal name: Main Canal 33

Survey in June-July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Regulator	Bridge	Buildings	Evaluation for Regulator	Evaluation for Bridge/Culvert	Remarks (W: width of bridge)
0	0448340	1223198	B.P. (Intake & Gate Structure)						Structure of Kpob Trobek resesvoir
240	0448556	1223143	Bridge 1 (Concrete)		Concrete	Private		B	2.5m x 4 span, 1,7 m high
440	0448760	1223111	Bridge 2 (Private Wooden)		Wooden	Private		W=0.5m	
470	0448793	1223104	Bridge 3 (Private Wooden)		Wooden	Private			W=0.5m
500	0448834	1223097	Canal Section						
520	0448854	1223088	Bridge 4 (Private Wooden)		Wooden	Private			W=1 m
540	0448878	1223087	Bridge 5 (Private Wooden)		Wooden	Private			W=1 m
580	0448918	1223074	Bridge 6 (Private Wooden)		Wooden	Private			W=1 m
640	0448974	1223066	Bridge 7 (Private Wooden)		Wooden	Private			W=1 m
740	0449071	1223069	House (Double)						
740	0449081	1223063	Bridge 8 & Groove	Regulator-1	Concrete	Public-1	C	C	no gate, 2 m x 1.2 m x 2 nos, flow section is not enough, Old
800	0449125	1223068	Bridge 9 (Private)		Wooden	Private		To be replaced	
860	0449178	1223070	Bridge 10 (Private)		Concrete	Private		B	W=3 m
900	0449220	1223066	Bridge 11 (Private)		Concrete	Private		B	W=2.5 m
930	0449239	1223070	House on Bridge		Concrete	Private	Shop	B	W=8 m
960	0449265	1223069	House on Bridge		Concrete	Private	Store	B	W=8 m
1,000	0449313	1223076	Canal Section						Canal section remains as canal
1,130	0449407	1223077	Bridge 12 (Publici)		Concrete	Public-2		B	W=3.2 m 6 m x 2 m, Commune road, Nippa made
1,130	0449416	1223083	House				Store & Hut		
1,190	0449463	1223073	Bridge 13 (Private)		Wooden	Private			W=3 m
1,190	0449478	1223075	Bridge 14 (Private) & House		Wooden	Private	Repair shop		House is on canal dike, W=2 m
1,190	0449498	1223083	Bridge 15 (Private) & House		Wooden	Private	Shop		W=1.5 m
1,240	0449557	1223087	Bridge 16 (Private) & House		Wooden	Private	Canteen		W=0.5 m
1,260	0449591	1223090	Bridge 17 (Private) & House		Wooden	Private	Storage		Full section of canal used for storage, W= 2 m
1,500	0449835	1223100	Canal Section						Canal section is wide of more than 20 m
1,660	0449981	1223096	Bridge 18 & Groove (Ta Mek)	Regulator-2	Concrete	Public-3	C	C	No gate 2 m x 1.2 m x 2 nos, flow section is not enough, Old, bridge for Commune road,
2,020	0450317	1223101	Canal Section					To be replaced	
2,170	0450453	1223048	Bridge 19 (Private)		Wooden	Private			Width of water surface is just 3 m, W-1 m
2,180	0450465	1223052	House				Canteen		Within ROW, not on canal
2,210	0450500	1223044	House				Canteen		Within ROW, not on canal
2,260	0450558	1223026	Bridge 20 (Private) & House (Double)		Wooden	Private	Store		Nippa hut nearly broken, W=2 m
2,430	0450703	1222979	Bridge 21 (Private) & House (Double)		Concrete	Private	Store	B	W=2.5m 6 m x 1.8 m
2,530	0450792	1222950	Canal Section						Canal section has been eroded
2,610	0450852	1222922	Bridge 22 (Private)		Concrete	Private		B	W=2 m 4.5 m span x 1.8 m high
2,700	0450935	1222904	House		Nippa house	Private	Canteen		Half section of canal used for canteen W=8 m
2,700	0450953	1222896	Bridge 23 (Private) & House (Triple)		Concrete	Private		B	W=2.2 m 4.0 m span x 1.8 m high
2,730	0450995	1222884	House				Shop		Pillars are on canal section
2,730	0451005	1222873	Bridge 24 (Private) & Groove	Regulator-3	Concrete	Public-4	C	C	No gate 2 m x 1.3 m x 2 nos, flow section is not enough, Old, bridge for Commune road,
2,850	0451096	1222846	Bridge 25 (Private) & House (Double)		Concrete	Private	Shop & Canteen	B	
3,020	0451202	1222789	Bridge 26 (Private)		Concrete	Private		B	W=2 m 4.5 m x 1.8 m high
3,070	0451247	1222769	House				Storage		Pillars are on canal section
3,090	0451262	1222758	Water Obstruction & Groove (Community)	Regulator-4 for C23				C	To be replaced by new one
3,530	0451590	1222535	Canal Section						w/o bridge
3,630	0451662	1222484	Bridge 27 (Private Wooden)		Wooden	Private			W=1 m
3,710	0451708	1222445	Bridge 28 (Private Wooden)		Wooden	Private			W=1 m
3,920	0451858	1222344	Bridge 29 (Private Wooden)		Wooden	Private			W=1.5 m
3,950	0451880	1222329	Bridge 30 (Private Wooden)		Wooden	Private			W=1.5 m
4,030	0451949	1222286	House				Temp. hut		Within ROW, not on canal
4,140	0452037	1222215	Bridge 31, Groove & Culvert (Commune)	Regulator-5	Concrete	Public-5	C	C	W=4 m 1.8 m x 1.4 m x 2 nos, flow section is not enough, Old, for C-22 without gate,
4,250	0452134	1222150	Bridge 32 (Private)		Wooden	Private		To be replaced	
4,300	0452164	1222119	Bridge 33 (Private Double)		Concrete	Private		C	W=0.8 m 2 nos., 3 m x 1.6 m (h) x 1 span

## Inventory Survey of Existing Canals and Structures: Main Canal 33 (2/2)

Canal name: Main Canal 33




Survey in June-July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Regulator	Bridge	Buildings	Evaluation for Regulator	Evaluation for Bridge/Culvert	Remarks (W: width of bridge)	
4,330	0452201	1222119	House & Bridge 34 (Private)		Wooden Private				W=4 m	
4,340	0452219	1222089	House		Wooden Private	Storage			Almost full section of	
4,350	0452230	1222076	Bridge 35 (Private) & House		Concrete Private	shop		B	W=2 m 4 m x 1.6 m (h)	
4,420	0452271	1222041	Bridge 36 (Private)		Wooden Private				W=1 m	
4,510	0452330	1221998	House on Bridge (Triple)		Concrete Private	shops; full section of canal used for scanteen		B	W=8 m, 4 m x 1.6 m (h)	
4,530	0452353	1221979	Canal Section						Width of flow section become small of 1.5 m and	
4,620	0452394	1221938	Bridge 37 (Private)		Wooden Private				W=1 m	
5,030	0452669	1221688	House & Bridge 38 (Private)		Concrete Private			B	W=2.5 m 2 m x 1.8 m x 2 nos	
5,090	0452712	1221637	Bridge 39 (Private)		Wooden Private				W=1.5 m	
5,560	0453056	1221337	Canal Section							
5,640	0453109	1221279	Bridge 40 (Private)		Wooden Private				W=1 m	
6,060	0453411	1220999	Canal Section						Canal section is wide of more than 30 m, and many grasses covered the section	
6,200	0453494	1220918	House & Bridge 41 & Groove (Commune)	Regulator-6 for C-21	Concrete	Public-6	Bridge for commune	C Deteriorated	B	W=3.6 m 6 m x 4 m (h), flow capacity is OK
6,340	0453586	1220844	House				Barber			Almost broken, pillars are on canal
6,340	0453600	1220834	Bridge 42 (Private)		Concrete Private			B	W=2.2 m 2.3 m x 1.6 m x 2 nos	
6,390	0453636	1220807	Bridge 43 (Private)		Concrete Private			B	W=4 m 2.3 m x 1.6 m x 2 nos	
6,420	0453666	1220787	House (Double)				Canteen & store			Pillars are on canal section
6,440	0453682	1220774	Bridge 44 (Commune)		Concrete	Public-7			B	Access to commune office, W=2.5 m
6,580	0453793	1220714	Canal Section							Canal section covered by grass and width of water flow is 3 m only; gentle slope
6,680	0453871	1220663	Bridge 45 (Private)		Wooden Private					W=1 m
6,930	0454046	1220569	Bridge 46 (In Pol Pot regime 25-05-1977)	Regulator-7 Not functional				D To be delished		Ruins constructed in Pol Pot regime.No slab on bridge
7,040	0454144	1220516	Bridge 47 (Private)		Concrete Private				B	W=2 m 2.3 m x 2.3 m x 2 nos
7,080	0454185	1220496	Canal Section							
7,390	0454429	1220347	Bridge 48 (Private)		Wooden Private					W=0.4 m
7,510	0454520	1220272	Bridge 49 (Private)		Concrete Private			B	W=2 m 2 m x 1.6 m x 2 nos	
7,580	0454576	1220220	Canal Section							Canal section remains as canal and in good condition
7,730	0454696	1220150	E.P.							




Structure	Nos.	Evaluation	Regulators	Intakes	Public bridge	Private Conc. Bridge	Private buildings within ROW
Regulators with drops	7	A					
Bridges	52	B	1		3	17	
Public	7	C	5	4	4	1	
Concrete	7	D	1		0	0	
Wooden	0	Total	7	4	7	19	25
Private	45	<u>Evaluation of Canal</u>					
Concrete	18	Canal sections are remained for passing drain water but many piers and pillars of private bridges and buildings are obstructing flows. No control of land within right of way (ROW) and maintenance of canal section has been made by PDWRAM: The canal could be utilized with reshaping of sections as proposed in F/S and construction of regulating and intake structures					
Wooden	27	Note: Main Canal 33 runs along National Road 130A All regulator has no gate, but grooves for plank stop logs are provided					
Total	59	<u>Evaluation of Concrete Bridges</u>					
		B: The bridge has a flow area of more than 6 sq-m (equiv to the flow capacity of 1.8 to 3.4 m3/s)					
		C: Deteriorated, and does not function well, To be replaced					
		It is considered that all bridges at the existing regulating structures are old and less flow section. So, replacement would be needed. On the other hand, most of private bridges have enough flow area, except few.					
		<u>Evaluation of Wooden Bridges</u>					
		All bridges are C only. These bridges would be re-constructed even after removal.No analysis is made.					






### Result of Inventory Survey of Main Canal 33 (1/26)



Canal No.: MC33	Kind of structure: Gate (Intake)	Remarks:
Station: 0.00(B.P.)	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1223190</span> <span>Easting: 448349</span> </div>	Cross the national road
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private Concrete)	Remarks:
Station: 0.00+240	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1223143</span> <span>Easting: 448556</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private )	Remarks:
Station: 0.00+440	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1223111</span> <span>Easting: 448760</span> </div>	Made by wood
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Main Canal 33 (2/26)




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+470	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1223104</span> <span>Easting: 448793</span> </div>	Made by wood
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 0.00+500	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1223097</span> <span>Easting: 448834</span> </div>	Routine survey Length: 500m
		
Up Stream View	Down Stream View	

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+520	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1223088</span> <span>Easting: 448854</span> </div>	Made by wood
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Main Canal 33 (3/26)**

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+540	Coordinate< Northing: 1223087 Easting: 448878	Made by wood
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+580	Coordinate< Northing: 1223074 Easting: 448918	Made by wood
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+640	Coordinate< Northing: 1223066 Easting: 448974	Made by wood
		
Up Stream View	Down Stream View	Side View


### Result of Inventory Survey of Main Canal 33 (4/26)


Canal No.: MC33	Kind of structure: House (Double)	Remarks:
Station: 0.00+740	Coordinate< Northing: 1223069 Easting: 449071	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+740	Coordinate< Northing: 1223063 Easting: 449081	There is a groove
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+800	Coordinate< Northing: 1223068 Easting: 449125	Routine survey
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Main Canal 33 (5/26)



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+860	Coordinate< Northing: 1223070 Easting: 449178	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+900	Coordinate< Northing: 1223066 Easting: 449220	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+930	Coordinate< Northing: 1223070 Easting: 449239	There is a house on the bridge
		
Up Stream View	Down Stream View	Side View


### Result of Inventory Survey of Main Canal 33 (6/26)




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:  There is a house on the bridge
Station: 0.00+960	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1223069</span> <span>Easting: 449265</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 1000m
Station: 1.00	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1223076</span> <span>Easting: 449313</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:  Routine survey
Station: 1.00+130	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1223077</span> <span>Easting: 449407</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




### Result of Inventory Survey of Main Canal 33 (7/26)




Canal No.: MC33	Kind of structure: House	Remarks:
Station: 1.00+130	Coordinate Northing: 1223083 Easting: 449416	Routine survey
		
Up Stream View	Down Stream View	Structure




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 1.00+190	Coordinate Northing: 1223073 Easting: 449463	Routine survey
		
Up Stream View	Down Stream View	Structure

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 1.00+190	Coordinate Northing: 1223075 Easting: 449478	There is a house
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Main Canal 33 (8/26)**



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 1.00+190	Coordinate< Northing: 1223083 Easting: 449498	There is a house
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 1.00+240	Coordinate< Northing: 1223087 Easting: 449557	There is a house
		
Up Stream View	Down Stream View	Side View



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 1.00+260	Coordinate< Northing: 1223090 Easting: 449591	There is a house
		
Up Stream View	Down Stream View	Side View






### Result of Inventory Survey of Main Canal 33 (9/26)




Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 1500m
Station: 1.00+500	Coordinate< Northing: 1223100 Easting: 449835	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




Canal No.: MC33	Kind of structure: Bridge (Ta Mek)	Remarks:  There is a groove
Station: 1.00+660	Coordinate< Northing: 1223096 Easting: 449981	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 2000m
Station: 2.00+20	Coordinate< Northing: 1223101 Easting: 450317	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




**Result of Inventory Survey of Main Canal 33 (10/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+170	Coordinate< Northing: 1223048 Easting: 450453	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: MC33	Kind of structure: House	Remarks:
Station: 2.00+180	Coordinate< Northing: 1223052 Easting: 450465	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: House	Remarks:
Station: 2.00+210	Coordinate< Northing: 1223044 Easting: 450500	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Main Canal 33 (11/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+260	Coordinate< Northing: 1223026 Easting: 450558	There are houses in double
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+430	Coordinate< Northing: 1222979 Easting: 450703	There are houses in double
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 2.00+530	Coordinate< Northing: 1222950 Easting: 450792	Routine survey Length: 2500m
		
Up Stream View	Down Stream View	




**Result of Inventory Survey of Main Canal 33 (12/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+610	Coordinate< Northing: 1222922 Easting: 450852	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: House	Remarks:
Station: 2.00+700	Coordinate< Northing: 1222904 Easting: 450935	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+700	Coordinate< Northing: 1222896 Easting: 450953	There are houses in triple
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Main Canal 33 (13/26)**




Canal No.: MC33	Kind of structure: House	Remarks:
Station: 2.00+730	Coordinate< Northing: 1222884 Easting: 450995	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+ 730	Coordinate< Northing: 1222873 Easting: 451005	There is a groove
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 2.00+850	Coordinate< Northing: 1222846 Easting: 451096	There are houses in double
		
Up Stream View	Down Stream View	Side View



**Result of Inventory Survey of Main Canal 33 (14/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks: Routine survey Length: 3000m
Station: 3.00+20	Coordinate< Northing: 1222789 Easting: 451202	
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: House	Remarks: Routine survey
Station: 3.00+70	Coordinate< Northing: 1222769 Easting: 451247	
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Water obstruction (community)	Remarks: There are 3 columns with groove to obstruct the water
Station: 3.00+90	Coordinate< Northing: 1222758 Easting: 451262	
		
Up Stream View	Down Stream View	Structure




### Result of Inventory Survey of Main Canal 33 (15/26)




Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 3500m
Station: 3.00+530	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222535</span> <span>Easting: 451590</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




Canal No.: MC33	Kind of structure: Wooden Bridge (Private)	Remarks: Routine survey
Station: 3.00+630	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222484</span> <span>Easting: 451662</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

Canal No.: MC33	Kind of structure: Wooden Bridge (Private)	Remarks: Routine survey
Station: 3.00+710	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222445</span> <span>Easting: 451708</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

**Result of Inventory Survey of Main Canal 33 (16/26)**




Canal No.: MC33	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 3.00+920	Coordinate< Northing: 1222344 Easting: 451858	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 3.00+950	Coordinate< Northing: 1222329 Easting: 451880	There is a house
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: House	Remarks:
Station: 4.00+30	Coordinate< Northing: 1222286 Easting: 451949	Routine survey Length: 4000m
		
Up Stream View	Down Stream View	Side View






**Result of Inventory Survey of Main Canal 33 (17/26)**




Canal No.: MC33	Kind of structure: Bridge (Commune)	Remarks:
Station: 4.00+140	Coordinate< Northing: 122215 Easting: 452037	There are groove and pipe culvert
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+250	Coordinate< Northing: 1222150 Easting: 452134	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private Double)	Remarks:
Station: 4.00+300	Coordinate< Northing: 1222119 Easting: 452164	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Main Canal 33 (18/26)




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+330	Coordinate Northing: 1222099 Easting: 452201	There is a house
		
Up Stream View	Down Stream View	Side View



Canal No.: MC33	Kind of structure: House	Remarks:
Station: 4.00+340	Coordinate Northing: 1222089 Easting: 452219	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+350	Coordinate Northing: 1222076 Easting: 452230	There is a house
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Main Canal 33 (19/26)




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+420	Coordinate< Northing: 1222041 Easting: 452271	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+510	Coordinate< Northing: 1221998 Easting: 452330	There are houses in triple
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 4.00+530	Coordinate< Northing: 1221979 Easting: 452353	Routine survey Length: 4500m
		
Up Stream View	Down Stream View	



**Result of Inventory Survey of Main Canal 33 (20/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 4.00+620	Coordinate< Northing: 1221938 Easting: 452394	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 5.00+30	Coordinate< Northing: 1221688 Easting: 452669	Routine survey Length: 5000m
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 5.00+90	Coordinate< Northing: 1221637 Easting: 452712	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Main Canal 33 (21/26)**




Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 5500m
Station: 5.00+560	Coordinate< Northing: 1221337 Easting: 453056	
		
Up Stream View		Down Stream View




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks: Routine survey
Station: 5.00+640	Coordinate< Northing: 1221279 Easting: 453109	
		
Up Stream View		Down Stream View
		
Side View		

Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 6000m
Station: 6.00+60	Coordinate< Northing: 1220999 Easting: 453411	
		
Up Stream View		Down Stream View




**Result of Inventory Survey of Main Canal 33 (22/26)**




Canal No.: MC33	Kind of structure: Bridge (Commune)	Remarks:
Station: 6.00+200	Coordinate< Northing: 1220918 Easting: 453494	There are a house and groove
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: House	Remarks:
Station: 6.00+340	Coordinate< Northing: 1220844 Easting: 453586	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 6.00+340	Coordinate< Northing: 1220834 Easting: 453600	Routine survey
		
Up Stream View	Down Stream View	Side View



**Result of Inventory Survey of Main Canal 33 (23/26)**




Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 6.00+390	Coordinate< Northing: 1220807 Easting: 453636	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: House (Double)	Remarks:
Station: 6.00+420	Coordinate< Northing: 1220787 Easting: 453666	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Bridge (Commune)	Remarks:
Station: 6.00+440	Coordinate< Northing: 1220774 Easting: 453682	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Main Canal 33 (24/26)**




Canal No.: MC33	Kind of structure: Canal	Remarks: Routine survey Length: 6500m
Station: 6.00+580	Coordinate< Northing: 1220714 Easting: 453793	
		
Up Stream View		Down Stream View



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks: Routine survey
Station: 6.00+680	Coordinate< Northing: 1220663 Easting: 453871	
		
Up Stream View		Down Stream View
		
Side View		




Canal No.: MC33	Kind of structure: Bridge (in Pol Pot regime 25-05-1977)	Remarks: Routine survey
Station: 6.00+930	Coordinate< Northing: 1220569 Easting: 454046	
		
Up Stream View		Down Stream View
		
Structure		






**Result of Inventory Survey of Main Canal 33 (25/26)**



Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 7.00+40	Coordinate< Northing: 1220516 Easting: 454144	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 7.00+80	Coordinate< Northing: 1220496 Easting: 454185	Routine survey
		
Up Stream View	Down Stream View	

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 7.00+390	Coordinate< Northing: 1220347 Easting: 454429	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Main Canal 33 (26/26)**

Canal No.: MC33	Kind of structure: Bridge (Private)	Remarks:
Station: 7.00+510	Coordinate< Northing: 1220272 Easting: 454520	Routine survey
  		
Up Stream View	Down Stream View	Side View

Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 7.00+580	Coordinate< Northing: 1220220 Easting: 454576	Routine survey Length: 7500m
 		
Up Stream View	Down Stream View	

Canal No.: MC33	Kind of structure: Canal	Remarks:
Station: 7.00+730(EP)	Coordinate< Northing: 1220129 Easting: 454696	Routine survey
  		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures: Canal 20 (1/2)




Canal name: C20




Survey in June-July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
0	454696	1220124	B.P (Bridge 1 & Groove)	Entrance of inlet on main canal is checked by earth dike to divert water, since no regulator on main canal is available	D		
70	454736	1220137	Culvert 1	Single pipe with 0.6 m dia and 4 m long	B	c	house access
360	454996	1220136	Culvert 2	Single pipe with 0.8 m dia and 6 m long	B	c	on village road
460	455100	1220131	Culvert 3	Single pipe with 0.6 m dia and 2 m long	B	c	house access
500	455133	1220135	Culvert 4	Single pipe with 0.6 m dia and 4 m long	B	c	house access
570	455209	1220134	Double Culvert 5	Two pipes with 0.2 m dia and 4 m long	D	c	house access pipe size is too small
680	455323	1220128	Culvert 6	Single pipe with 0.6 m dia and 4 m long	B	c	farm access
760	455408	1220125	Culvert 7	Single pipe with 0.4 m dia and 3 m long	B	c	farm access
1,000	455642	1220117	Bridge 2 & Culvert 8 (Commune)	Bridge with 1 m span and 6 m width, and pipe with 0.4 m dia	B	c	on commune road
1,160	455788	1220124	Culvert 9	Single pipe with 0.4 m dia and 5 m long	B	c	farm access
1,270	455902	1220119	Culvert 10	Single pipe with 0.4 m dia and 4 m long	B	c	house access
1,400	456009	1220119	Culvert 11	Single pipe with 0.2 m dia and 6 m long	B	c	house access
1,480	456074	1220117	Culvert 12	Single pipe with 0.2 m dia and 2 m long	B		house access
1,500	456085	1220116	Canal section	Canal section remains with 5 m bottom width and 1.5 m high	C		
1,610	456198	1220116	Embankment 1	Enrth banking of 1 m thick	B		access or check
1,700	456284	1220116	Culvert 13	Single pipe with 0.2 m dia and 4 m long	B	c	house access
1,850	456415	1220114	Culvert 14	Single pipe with 0.3 m dia and 3 m long	B	c	house access
1,950	456497	1220078	Embankment 2	Enrth banking of 1 m thick for checking water level			house access
2,000	456522	1220045	Canal section	Canal section remains with 5 m bottom width and 1.5 m high	C		
2,050	456555	1220021	Culvert 15	Single pipe with 0.3 m dia and 2 m long	B	c	house access
2,120	456618	1220015	Culvert 16	Single pipe with 0.3 m dia and 5 m long	B	c	house access
2,200	456694	1220050	Embankment 3	Enrth banking of 2m thick for checking water level	D		farm access
2,270	456762	1220079	Culvert 17	Single pipe with 0.3 m dia and 3 m long	B	c	farm access
2,330	456820	1220105	Culvert 18	Single pipe with 0.4 m dia and 4 m long	B	c	house access
2,500	456982	1220096	Canal section	Canal section remains with 5 m bottom width and 1.5 m high	C		
2,520	457008	1220106	Bridge 3 & Groove	Bridge with 2 m span x 2 nos. and 4.5 m width,Goorves for stop planks are provided	C	b	on Village road Regulator
3,000	457448	1220091	Canal section	Canal section is flat for more than 8 m	C		
3,240	457676	1220093	Bridge 4 (Private)	Wooden bridge of 1 m wide	C		Wooden bridge, house access
3,500	457916	1220084	Canal section	Use for drainge canal?	D		may be no use for irrigation
3,550	457939	1220093	Private Bridge 5 & Culvert 19	Wooden bridge of 1 m wide, nealy broken	D		Wooden bridge, house access
3,640	458021	1220090	Culvert 20 (4 units)	Culvert with four (4) pipes with 0.5 m dia and 4 m long	B	b	on village road
3,970	458322	1220090	Bridge 6 & Culvert 21 (Triple)	Bridge with 1.4 m span and 2 m width	B	c	house access
4,010	458363	1220080	Canal section	Canal section remains with water ponding	C	-	
4,210	458544	1220083	Bridge 7 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
4,370	458691	1220079	Bridge 8 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
4,460	458775	1220080	Bridge 9 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
4,510	458825	1220075	0			-	
4,520	458838	1220073	House	Shop and canteen, pillars are on canal		-	House
4,530	458844	1220083	Culvert 22 (Double)	Double pipes 0.6 m dia	B	b	on village road
5,010	459278	1220078	Bridge 10 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
5,200	459461	1220070	Bridge 11 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
5,290	459543	1220068	Bridge 12 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
5,380	459637	1220071	Bridge 13 (Private)	Wooden bridge of 1 m wide	C	-	Wooden bridge, house access
5,470	459717	1220065	Division Structure	Intake for tertiary canal	C	-	
5,510	459753	1220069	Canal section				






### Result of Inventory Survey of Canal 20 (1/20)




Canal No.: C20	Kind of structure(s): Bridge	Remarks: - Under National Road 130A - There is a Groove
Station: 0.00(B.P.)	Coordinate< Northing: 1220130 Easting: 0454695	
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks: Routine survey Under village road
Station: 0.00+70	Coordinate< Northing: 1220137 Easting: 0454736	
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks: Routine survey Under cart road
Station: 0.00+360	Coordinate< Northing: 1220136 Easting: 454996	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 20 (2/20)**




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 0.00+460	Coordinate< Northing: 1220131 Easting: 0455100	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 0.00+500	Coordinate< Northing: 1220135 Easting: 0455133	Routine survey Length: 500m
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Pipe culvert (Double)	Remarks:
Station: 0.00+570	Coordinate< Northing: 1220134 Easting: 0455209	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 20 (3/20)




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 0.00+680	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220128</span> <span>Easting: 0455323</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 0.00+760	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220125</span> <span>Easting: 0455408</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Bridge (Commune)	Remarks:
Station: 1.00	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220117</span> <span>Easting: 0455642</span> </div>	There is a pipe culvert under the bridge Length: 1000m
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Canal 20 (4/20)**




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+160	Coordinate< Northing: 1220124 Easting: 0455788	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+270	Coordinate< Northing: 1220119 Easting: 0455902	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+400	Coordinate< Northing: 1220119 Easting: 0456009	Routine survey
		
Up Stream View	Down Stream View	Side View






### Result of Inventory Survey of Canal 20 (5/20)




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+480	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220117</span> <span>Easting: 0456074</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 1.00+500	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220116</span> <span>Easting: 0456085</span> </div>	Routine survey Length: 1500m
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C20	Kind of structure(s): Embankment	Remarks:
Station: 1.00+610	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220116</span> <span>Easting: 0456198</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		



**Result of Inventory Survey of Canal 20 (6/20)**




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+700	Coordinate< Northing: 1220116 Easting: 0456284	Routine survey
  		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 1.00+850	Coordinate< Northing: 1220114 Easting: 0456415	Routine survey
  		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Embankment	Remarks:
Station: 1.00+950	Coordinate< Northing: 1220078 Easting: 0456497	Routine survey
 		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 20 (7/20)




Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 2000m
Station: 2.00	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220045</span> <span>Easting: 0456522</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks: Routine survey
Station: 2.00+50	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220021</span> <span>Easting: 0456555</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks: Routine survey
Station: 2.00+120	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220015</span> <span>Easting: 0456618</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



**Result of Inventory Survey of Canal 20 (8/20)**




Canal No.: C20	Kind of structure(s): Embankment	Remarks:
Station: 2.00+200	Coordinate Northing: 1220050 Easting: 0456694	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 2.00+270	Coordinate Northing: 1220079 Easting: 0456762	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 2.00+330	Coordinate Northing: 1220105 Easting: 0456820	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 20 (9/20)



Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 2500m
Station: 2.00+500	Coordinate< Northing: 1220096 Easting: 0456982	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C20	Kind of structure(s): Bridge (Commune)	Remarks: Routine survey There is a Groove
Station: 2.00+520	Coordinate< Northing: 1220106 Easting: 0457008	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 3000m
Station: 3.00	Coordinate< Northing: 1220091 Easting: 0457448	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




**Result of Inventory Survey of Canal 20 (10/20)**




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 3.00+240	Coordinate< Northing: 1220093 Easting: 0457676	Routine survey
  		
Up Stream View	Down Stream View	Side View



Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 3.00+500	Coordinate< Northing: 1220084 Easting: 0457916	Routine survey Length: 3500m
 		
Up Stream View	Down Stream View	

Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 3.00+550	Coordinate< Northing: 1220093 Easting: 0457939	There is a pipe culvert under the bridge
  		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 20 (11/20)




Canal No.: C20	Kind of structure(s): Pipe culvert (4 Units)	Remarks:
Station: 3.00+640	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220090</span> <span>Easting: 0458021</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 3.00+970	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220090</span> <span>Easting: 0458322</span> </div>	There are 3 pipe culverts under the bridge
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 4.00+10	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 0458363</span> <span>Easting: 1220080</span> </div>	Routine survey Length: 4000m
		
Up Stream View	Down Stream View	

### Result of Inventory Survey of Canal 20 (12/20)



Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 4.00+210	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220083</span> <span>Easting: 0458544</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 4.00+370	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220079</span> <span>Easting: 0458691</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 4.00+460	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220080</span> <span>Easting: 0458775</span> </div>	Routine survey Made by Concrete (incomplete)
		
Up Stream View	Down Stream View	Side View






### Result of Inventory Survey of Canal 20 (13/20)




Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 4500m
Station: 4.00+510	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220075</span> <span>Easting: 0458825</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




Canal No.: C20	Kind of structure(s): House	Remarks: Routine survey
Station: 4.00+520	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220073</span> <span>Easting: 0458838</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

Canal No.: C20	Kind of structure(s): Pipe culvert (Double)	Remarks: Routine survey
Station: 4.00+530	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220083</span> <span>Easting: 0458844</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




**Result of Inventory Survey of Canal 20 (14/20)**




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks: Routine survey Length: 5000m
Station: 5.00+10	Coordinate< Northing: 1220078 Easting: 0459278	
		
Up Stream View	Down Stream View	Side View



Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks: Routine survey
Station: 5.00+200	Coordinate< Northing: 1220070 Easting: 0459461	
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks: Routine survey
Station: 5.00+290	Coordinate< Northing: 1220068 Easting: 0459543	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 20 (15/20)**



Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 5.00+380	Coordinate< Northing: 1220071 Easting: 0459637	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Division structure	Remarks:
Station: 5.00+470	Coordinate< Northing: 1220065 Easting: 0459717	Routine survey There a pipe culvert under the road
		
Up Stream View	Down Stream View	Side View

Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 5.00+510	Coordinate< Northing: 1220069 Easting: 0459753	Routine survey Length: 5500m
		
Up Stream View	Down Stream View	



**Result of Inventory Survey of Canal 20 (16/20)**




Canal No.: C20	Kind of structure(s): Bridge (Private)	Remarks:
Station: 5.00+760	Coordinate< Northing: 1220061 Easting: 0459986	Routine survey
  		
Up Stream View	Down Stream View	Side View




Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 5.00+980	Coordinate< Northing: 1220060 Easting: 0460183	Routine survey Length: 6000m
 		
Up Stream View	Down Stream View	

Canal No.: C20	Kind of structure(s): Bridge (Village)	Remarks:
Station: 6.00+220	Coordinate< Northing: 1220061 Easting: 0460399	Routine survey Made by wood
  		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 20 (17/20)



Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 6500m
Station: 6.00+480	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220058</span> <span>Easting: 0460652</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C20	Kind of structure(s): House	Remarks: Routine survey
Station: 6.00+670	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220054</span> <span>Easting: 0460832</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C20	Kind of structure(s): Bridge (Community)	Remarks: Bridge: L= 7m, W= 3m, H= 2m
Station: 6.00+690	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220058</span> <span>Easting: 0460865</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




### Result of Inventory Survey of Canal 20 (18/20)



Canal No.: C20	Kind of structure(s): House	Remarks:
Station: 6.00+690	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220053</span> <span>Easting: 0460871</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




Canal No.: C20	Kind of structure(s): Canal	Remarks:
Station: 6.00+980	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220052</span> <span>Easting: 0461151</span> </div>	Routine survey Length: 7000m
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C20	Kind of structure(s): Pipe culvert	Remarks:
Station: 7.00+220	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220048</span> <span>Easting: 0461380</span> </div>	Diameter of pipe culvert = 1 m There is a crossing point
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



### Result of Inventory Survey of Canal 20 (19/20)

Canal No.: C20	Kind of structure(s): Bridge (Commune)	Remarks: There is a Groove Bridge was built in Pol Pot Regime
Station: 7.00+390	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220049</span> <span>Easting: 0461541</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

Canal No.: C20	Kind of structure(s): Canal	Remarks: Routine survey Length: 7500m
Station: 7.00+480	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220048</span> <span>Easting: 0461625</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C20	Kind of structure(s): Bridge (Village)	Remarks: Routine survey
Station: 7.00+720	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1220045</span> <span>Easting: 0461839</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

### Result of Inventory Survey of Canal 20 (20/20)


Canal No.: C20	Kind of structure(s): Water Blockade	Remarks: Routine survey Length: 8000m End point of Canal 20
Station: 7.00+930(EP)	Coordinate< Northing: 1220040 Easting: 0462027	
		
Up Stream View		Down Stream View






### Result of Inventory Survey of Canal 20S (1/6)


Canal No.: C20S	Kind of structure: Pipe culvert(Double)	Remarks:
Station: 0.00(B.P.)	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219045</span> <span>Easting: 460168</span> </div>	Along the village road



Up Stream View




Down Stream View




Side View


Canal No.: C20S	Kind of structure: Bridge (Private)	Remarks:
Station: 0.00+210	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219055</span> <span>Easting: 460368</span> </div>	Routine survey



Up Stream View




Down Stream View




Side View


Canal No.: C20S	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+310	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219057</span> <span>Easting: 460458</span> </div>	Routine survey



Up Stream View








Down Stream View






Side View




### Result of Inventory Survey of Canal 20S (2/6)




Canal No.: C20S	Kind of structure: Bridge (Private)	Remarks: There is a pipe culvert under the bridge
Station: 0.00+350	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219058</span> <span>Easting: 460502</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




Canal No.: C20S	Kind of structure: Right Bank Culvert	Remarks: Routine survey
Station: 0.00+390	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219061</span> <span>Easting: 460554</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C20S	Kind of structure: Bridge (Private)	Remarks: Routine survey Length: 500m
Station: 0.00+500	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1219066</span> <span>Easting: 460637</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




### Result of Inventory Survey of Canal 20S (3/6)



Canal No.: C20S	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+550	Coordinate Northing: 1219070 Easting: 460698	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C20S	Kind of structure: House (Cottage)	Remarks:
Station: 0.00+700	Coordinate Northing: 1219078 Easting: 460838	Routine survey
		
Up Stream View	Down Stream View	Structure

Canal No.: C20S	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+740	Coordinate Northing: 1219077 Easting: 460862	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 20S (4/6)




Canal No.: C20S	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 0.00+950	Coordinate Northing: 1219089 Easting: 461061	Routine survey
  		
<span style="display: inline-block; width: 30%; text-align: center;">Up Stream View</span> <span style="display: inline-block; width: 30%; text-align: center;">Down Stream View</span> <span style="display: inline-block; width: 30%; text-align: center;">Side View</span>		



Canal No.: C20S	Kind of structure: Canal	Remarks:
Station: 1.00	Coordinate Northing: 1219091 Easting: 461125	Routine survey Length: 1000m
 		
<span style="display: inline-block; width: 45%; text-align: center;">Up Stream View</span> <span style="display: inline-block; width: 45%; text-align: center;">Down Stream View</span>		

Canal No.: C20S	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 1.00+20	Coordinate Northing: 1219094 Easting: 461150	Routine survey
  		
<span style="display: inline-block; width: 30%; text-align: center;">Up Stream View</span> <span style="display: inline-block; width: 30%; text-align: center;">Down Stream View</span> <span style="display: inline-block; width: 30%; text-align: center;">Side View</span>		



### Result of Inventory Survey of Canal 20S (5/6)

Canal No.: C20S	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 1.00+280	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1219106</span> <span>Easting: 461405</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Structure</span> </div>		

Canal No.: C20S	Kind of structure: Pipe culvert	Remarks:
Station: 1.00+380	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1219111</span> <span>Easting: 461509</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Structure</span> </div>		

Canal No.: C20S	Kind of structure: Canal	Remarks:
Station: 1.00+500	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1219117</span> <span>Easting: 461625</span> </div>	Routine survey Length: 1500m
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

### Result of Inventory Survey of Canal 20S (6/6)

Canal No.: C20S	Kind of structure: Canal	Remarks:
Station: 1.00+890(EP)	Coordinate< Northing: 1219138 Easting: 462012	Routine survey
		
Up Stream View		Down Stream View

## Inventory Surver of Existing Canals and Structures: Canal 21 (1/2)

Canal name: C21			Survey in June-July, 2011 by JICA Survey Team				
Sta.	E	N	Structure	Condition	Evaluation	Flow Capacity	Remarks
0	453448	1220976	B.P	Just downstream of BP was encroached by people owned land nearby			To be returned land by land owner
200	453578	1221006	Culvert 1	one pipe with 60 cm dia and 1 m long without inlet and putlet, just laying pipe	C	v	Private and temporary
220	453609	1221002	Culvert 2	one pipe with 60 cm dia and 4 m long for village raod	B	c	Public access
500	453889	1221001	Canal section	Canal section with bottom width of 2 m remains, though grass are grwoing	C		Canal is not properly used because of no inflow from the main canal
510	453903	1220997	Culvert 3	Single pipe with 0.5 m dia and 3 m long		c	Farm access
570	453969	1220983	Culvert 4	Single pipe with 0.4 m dia and 1 m long		c	Farm access
710	454601	1220957	Culvert 5	Single pipe with 0.4 m dia and 4 m long		c	House access
830	454222	1220938	Culvert 6	Single pipe with 0.6 m dia and 3 m long		c	Farm access
900	454288	1220930	Culvert 7	Single pipe with 0.5 m dia and 8 m long		c	Public access, village road
940	454335	1220930	Culvert 8	Single pipe with 0.5 m dia and 3.5 m long		c	House access
970	454363	1220933	0	Canal section still remain with 2 m bottom wide	B		
1,030	454423	1220932	Culvert 9	Single pipe with 0.5 m dia and 3 m long		c	Farm access
1,080	454470	1220929	Culvert 10	Single pipe with 0.4 m dia and 3 m long		c	House access
1,080	454654	1220938	Culvert 11	Single pipe with 0.5 m dia and 3 m long		c	Farm access
1,210	454787	1220960	Culvert 12	Single pipe with 0.5 m dia and 2 m long		c	Farm access
1,280	454851	1220971	Canal section	The canal area is used as paddy field	D		Paddy is grwon by rain and draiange water from upper fields
1,400	454969	1220978	Culvert 13	Single pipe with 0.5 m dia and 3 m long		c	Farm access
1,450	455016	1220983	Tertially Crossing point	Tertiary canal was constructed			
1,610	455163	1221019	Culvert 14	Single pipe with 0.8 m dia and 3.5 m long		c	Farm access
1,780	455330	1221053	Canal section	Canal section with bottom width of 1.5 m remains, though grass are grwoing			
1,930	455472	1221080	Soil Filling Point (90m disappeared)	Road embankment occupy canal section	D		To be re-aligned the road route
2,280	455718	1221137	Bridge 1 & Groove (Commune Cheng Torng)	6 m wide and 3 m span on commune road, Grooves for planks are provided but now not used	B	b	Public access Regulating structure (not functioned now)
2,360	455790	1221133	Water Obstruction Structure & Groove	Regulating structure made by hollow bricks, 80 cm wide x 2 nos.	B		Regulating structue for controlling water level made recently, but no gate
2,580	456003	1221135	Canal section	Canal sections are remained as canal	B		
2,720	456142	1221128	Bridge 2 & Groove	4 m wide and 2 m span for village road, grooves are provided but not for use	B	b	Bridge is recently rehabilitated (plastered)
2,880	456282	1221130	Water Obstruction Structure & Groove	Regulating structue without bridge; 2 m wide x 2 nos; functional	B		No gate is installed, structure is made by bricks and concrete pillars
2,960	456350	1221130	Bridge 3 (Private)	Wooden bridge W= 1 m		b	House access
3,060	456444	1221130	Bridge 4 (Private)	Wooden bridge W= 1 m		-	House access
3,560	456914	1221129	Canal section	Canal sections are remained as canal, width of water is about 3 m	B		
3,660	457020	1221128	Bridge 5 & Groove	3 m wide and 2 m span for village road, grooves are provided but not for use	B	b	Public access Regulating structure (not functioned now)
3,870	457214	1221126	Water Obstruction Structure & Groove	Regulating structue with wooden deck; 1.2 m wide x 2 nos; functional	B	-	Functional regulating structure made by farmers, no gate
4,060	457390	1221130	Canal section	Canal sections are remained as			



## Inventory Surver of Existing Canals and Structures: Canal 21 (2/2)



Canal name: C21



Survey in June-July, 2011 by JICA Survey Team



Sta.	E	N	Structure	Condtion	Evaluation	Flow Capacity	Remarks
4,130	457445	1221124	Double Culvert 15 (Commune)	Double pipe culvert, 0.9 m dia, for commune raod of 4 m wide; no riprap protection at inlet and outlet	B	b	Public access
4,210	457519	1221126	Bridge 6 (Private)	Wooden bridge W= 1 m		-	House access
4,220	457526	1221124	Water Obstruction Structure & Groove	Regulating structue with wooden deck; 0.7 m wide x 2 nos; functions	B		Functional regulating structure made by farmers
4,390	457704	1221124	Bridge 7 (Private)	Wooden bridge W= 1 m		-	House access
4,560	457862	1221121	Canal section	Canal section remains as canal, mainly for evacuating excess water: many grass are on the canal	B		
4,770	458044	1221124	Bridge 8	Bridge of 2.8 m wide and 2 span on village road	B	b	Public access
4,970	458230	1221123	Double Bridge 9 & Groove	Double pipe culvert, 0.9 m dia, for house access; no riprap protection at inlet and outlet	B	b	House access
#REF!	#REF!	1221126	Canal section	Groove is provided, not not used Canal section remains as canal, mainly for evacuating excess water: many grass are on the canal			
#REF!	458361	1221124	Bridge 10 (Private)	Concrete bridge of 1.8 m wide	B	b	House access
#REF!	458505	1221126	Water Blockade	Temporary Regulator with plastick sheet and planks	D	-	Tempo regulator to be replaced proper structure
#REF!	458642	1221126	Embankment	Earth filling to divert water to paddy field	D	-	To be removed
#REF!	458682	1221124	Bridge 11 (Private )	Wooden bridge W= 1 m		-	House access
#REF!	458771	1221124	Culvert 16 (Double)	Two pipes of 0.8 m dia each, 2 m long		b	House access
#REF!	458821	1221127	Canal section	Canal section remains as canal	C		
#REF!	459034	1221124	Bridge 12 & Groove	Bridge of 2.5 m wide and 1.6 span on village road; groove is provide for diverting water to tertiary canal	B	b	Public access
#REF!	459119	1221125	Bridge 13 (Private)	Concrete bridge of 2 m wide		b	House access
#REF!	459304	1221127	Canal section	Canal section remains as canal			
#REF!	459521	1221124	Private Bridge 14 (Pol Pot regime)	Concrete bridge of 2.5 m wide	C	b	
#REF!	459733	1221123	Bridge 15 (Brasac Organization)	Bridge of 3.6 m wide and 1.6 span on village road	B	b	Canal is not properly used because of no inflow from the main canal
#REF!	459809	1221126	Canal section	Canal section remains as canal			
#REF!	460214	1221116	Bridge 16 & Division private Structure	Wooden bridge W= 1 m	C		Private bridge (wooden)
#REF!	460308	1221121	Canal section	Canal section remains as canal			
#REF!	460746	1221120	Wooden Bridge 17 (Private)	Wooden bridge W= 1 m		-	Private bridge (wooden)
#REF!	460790	1221119	Canal section	Canal section remains as canal, mainly for evacuating excess water: many grass are on the canal	C		No use for irrigation
#REF!	461020	1221115	Bridge 18 (Commune)	Bridge of 3.6 m wide and 2.0 span on commune road	B	b	Public access
#REF!	461166	1221117	Bridge 19 (Private)	Wooden bridge W= 1 m		-	
#REF!	461284	1221114	Canal section	Canal section remains as canal			
#REF!	461500	1221112	E.P				

Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	6	A			
Bridges/ Culvert	35	B	5	15	
Public	9	C	1	20	
Concrete	9	D			
Wooden	0	Total	6	35	0
Private	26	<u>Evaluation of Canal and structures</u>			
Concrete	18	Canal sections are remained for passing irrigation and drain water			
Wooden	8	Four (4) regulators are constructed foly for checking the water, and others are using grooves just on culverts and bridge but no gate is placed			
Total	41	Many house and farm access for private use were constructed privately without permissoono of PDWRAM			
A: Fully functioning		<u>Flow Area of culvers and bridges (excl. wooden bridges)</u>			
B: Partly deteriorated but function is maintained		b: enough sectional area	c: not enough, and to be removed/ replaced	Total	
C: Deteriorated, and does not function well		13	14	27	
D: Completely damaged, and does not function					



### Result of Inventory Survey of Canal 21 (1/20)



Canal No.: C21	Kind of structure: Pipe culvert	Remarks:  - Cross the national road N° 2
Station: 0.00(B.P.)	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220976</span> <span>Easting: 0453448</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C21	Kind of structure: Pipe culvert	Remarks:  Routine survey
Station: 0.00+200	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1221006</span> <span>Easting: 0453578</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C21	Kind of structure: Pipe culvert	Remarks:  Under commune road
Station: 0.00+220	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1221002</span> <span>Easting: 0453609</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




**Result of Inventory Survey of Canal 21 (2/20)**



Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 500m
Station: 0.00+500	Coordinate< Northing: 1221001 Easting: 0453889	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+510	Coordinate< Northing: 1220997 Easting: 0453903	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+570	Coordinate< Northing: 1220983 Easting: 0453969	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




**Result of Inventory Survey of Canal 21 (3/20)**



Canal No.: C21	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+710	Coordinate< Northing: 1220957 Easting: 0454106	Routine survey
  		
Up Stream View	Down Stream View	Side View



Canal No.: C21	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+830	Coordinate< Northing: 1220938 Easting: 0454222	Routine survey
 		
Up Stream View	Down Stream View	

Canal No.: C21	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+900	Coordinate< Northing: 1220930 Easting: 0454288	Routine survey
 		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 21 (4/20)




Canal No.: C21	Kind of structure: Pipe culvert	Remarks:  Under house entrance road
Station: 0.00+940	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220930</span> <span>Easting: 0454335</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 1000m
Station: 0.00+970	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220933</span> <span>Easting: 0454363</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C21	Kind of structure: Pipe culvert	Remarks:  Routine survey
Station: 1.00+30	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1220932</span> <span>Easting: 0454423</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		



**Result of Inventory Survey of Canal 21 (5/20)**




Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey Under house entrance road
Station: 1.00+80	Coordinate< Northing: 1220929 Easting: 0454470	
  		
Up Stream View	Down Stream View	Structure



Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey Under small carte road
Station: 1.00+80	Coordinate< Northing: 1220938 Easting: 0454654	
  		
Up Stream View	Down Stream View	Structure

Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 1.00+210	Coordinate< Northing: 1220960 Easting: 0454787	
 		
Up Stream View	Down Stream View	



**Result of Inventory Survey of Canal 21 (6/20)**



Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 1500m
Station: 1.00+280	Coordinate< Northing: 1220971 Easting: 0454851	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Up Stream View</p> <p>Down Stream View</p> </div>		




Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey Under a hill
Station: 1.00+400	Coordinate< Northing: 1220978 Easting: 0454969	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Up Stream View</p> <p>Down Stream View</p> <p>Structure</p> </div>		

Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey
Station: 1.00+450	Coordinate< Northing: 1220983 Easting: 0455016	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <p>Up Stream View</p> <p>Down Stream View</p> </div>		

### Result of Inventory Survey of Canal 21 (7/20)




Canal No.: C21	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 1.00+610	Coordinate< Northing: 1221019 Easting: 0455163	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 2000m
Station: 1.00+780	Coordinate< Northing: 1221053 Easting: 0455330	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C21	Kind of structure: Pipe culvert	Remarks: - Routine survey - Canal is filled by road soil
Station: 1.00+930	Coordinate< Northing: 1221080 Easting: 0455472	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		






### Result of Inventory Survey of Canal 21 (8/20)




Canal No.: C21	Kind of structure: Bridge	Remarks: - Under commune road - There is a groove
Station: 2.00+280	Coordinate< Northing: 1221137 Easting: 0455718	
		
Up Stream View	Down Stream View	Side View



Canal No.: C21	Kind of structure: Check structure	Remarks: - Concrete column used for obstruction of water
Station: 2.00+360	Coordinate< Northing: 1221133 Easting: 0455790	
		
Up Stream View	Down Stream View	Structure

Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 2500m
Station: 2.00+580	Coordinate< Northing: 1221135 Easting: 0456003	
		
Up Stream View	Down Stream View	



### Result of Inventory Survey of Canal 21 (9/20)



Canal No.: C21	Kind of structure: Bridge (Box culvert)	Remarks: - Under a village road - There is a groove
Station: 2.00+720	Coordinate< Northing: 1221128 Easting: 0456142	
		
Up Stream View	Down Stream View	Side View




Canal No.: C21	Kind of structure: Water obstruction	Remarks: - Concrete column - Wood and plastic - There are grooves
Station: 2.00+880	Coordinate< Northing: 1221130 Easting: 0456282	
		
Up Stream View	Down Stream View	Side View

Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks: Routine survey
Station: 2.00+960	Coordinate< Northing: 1221130 Easting: 0456350	
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 21 (10/20)



Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks: Routine survey Length: 3000m
Station: 3.00+60	Coordinate< Northing: 1221130 Easting: 0456444	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 3500m
Station: 3.00+560	Coordinate< Northing: 1221129 Easting: 0456914	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C21	Kind of structure: Bridge	Remarks: There is a groove which is box culvert
Station: 3.00+660	Coordinate< Northing: 1221128 Easting: 0457020	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




### Result of Inventory Survey of Canal 21 (11/20)



Canal No.: C21	Kind of structure: Check structure (Water obstruction)	Remarks:  Totally broken
Station: 3.00+870	Coordinate< Northing: 1221126 Easting: 0457214	
  		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Structure</span> </div>		




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 4000m
Station: 4.00+60	Coordinate< Northing: 1221130 Easting: 0457390	
 		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C21	Kind of structure: Pipe culvert (Double)	Remarks: Routine survey Under commune road
Station: 4.00+130	Coordinate< Northing: 1221124 Easting: 0457445	
  		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



### Result of Inventory Survey of Canal 21 (12/20)




Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 4.00+210	Coordinate< Northing: 1221126 Easting: 0457519	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: C21	Kind of structure: Water obstruction structure	Remarks:
Station: 4.00+220	Coordinate< Northing: 1221124 Easting: 0457526	Routine survey
		
Up Stream View	Down Stream View	

Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 4.00+390	Coordinate< Northing: 1221124 Easting: 0457704	Routine survey
		
Up Stream View	Down Stream View	Structure



### Result of Inventory Survey of Canal 21 (13/20)




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 4500m
Station: 4.00+560	Coordinate< Northing: 1221121 Easting: 0457862	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C21	Kind of structure: Bridge	Remarks: - Routine survey - Under a village road
Station: 4.00+770	Coordinate< Northing: 1221124 Easting: 0458044	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Structure</p> </div> </div>		

Canal No.: C21	Kind of structure: Bridge (Double culvert)	Remarks: Under house entrance road
Station: 4.00+970	Coordinate< Northing: 1221123 Easting: 0458230	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Structure</p> </div> </div>		




### Result of Inventory Survey of Canal 21 (14/20)




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 5000m
Station: 5.00+60	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1221126</span> <span>Easting: 0458339</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C21	Kind of structure: Bridge (Private)	Remarks: Routine survey
Station: 5.00+80	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1221124</span> <span>Easting: 0458361</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C21	Kind of structure: Water blockade	Remarks: - Concrete column with plastic
Station: 5.00+230	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1221126</span> <span>Easting: 0458505</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

### Result of Inventory Survey of Canal 21 (15/20)




Canal No.: C21	Kind of structure: Embankment	Remarks:
Station: 5.00+380	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1221126</span> <span>Easting: 0458642</span> </div>	- Embankment is soil
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>




Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 5.00+420	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1221124</span> <span>Easting: 0458682</span> </div>	Routine survey
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>




Canal No.: C21	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 5.00+500	Coordinate< <div style="display: flex; flex-direction: column; align-items: flex-start;"> <span>Northing: 1221124</span> <span>Easting: 0458771</span> </div>	<ul style="list-style-type: none"> <li>- Routine survey</li> <li>- Under a village road</li> </ul>
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>





### Result of Inventory Survey of Canal 21 (16/20)




Canal No.: C21	Kind of structure: Canal	Remarks: - A groove takes water to fields - Length: 5500m
Station: 5.00+560	Coordinate< Northing: 1221127 Easting: 0458821	
		
Up Stream View	Down Stream View	Side View




Canal No.: C21	Kind of structure: Bridge	Remarks: - Under a village road - There is a groove
Station: 5.00+780	Coordinate< Northing: 1221124 Easting: 0459034	
		
Up Stream View	Down Stream View	Structure

Canal No.: C21	Kind of structure: Bridge (Private)	Remarks:  Under a carte road
Station: 5.00+870	Coordinate< Northing: 1221125 Easting: 0459119	
		
Up Stream View	Down Stream View	Structure



**Result of Inventory Survey of Canal 21 (17/20)**




Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 6000m
Station: 6.00+60	Coordinate< Northing: 1221127 Easting: 0459304	
		
Up Stream View		Down Stream View



Canal No.: C21	Kind of structure: Bridge (Private)	Remarks: Routine survey
Station: 6.00+280	Coordinate< Northing: 1221124 Easting: 0459521	
		
Up Stream View		Down Stream View
		
Side View		

Canal No.: C21	Kind of structure: Bridge (Brasac Organization)	Remarks: Under a village road
Station: 6.00+490	Coordinate< Northing: 1221123 Easting: 0459733	
		
Up Stream View		Down Stream View
		
Side View		




### Result of Inventory Survey of Canal 21 (18/20)



Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 6500m
Station: 6.00+560	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1221126</span> <span>Easting: 0459809</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks: - Routine survey - There is a secondary canal
Station: 6.00+970	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1221116</span> <span>Easting: 0460214</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C21	Kind of structure: Canal	Remarks: Routine survey Length: 7000m
Station: 7.00+70	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1221121</span> <span>Easting: 0460308</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




### Result of Inventory Survey of Canal 21 (19/20)



Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 7.00+530	Coordinate< Northing: 1221120 Easting: 0460746	Under house entrance road
		
Up Stream View	Down Stream View	Structure



Canal No.: C21	Kind of structure: Canal	Remarks:
Station: 7.00+570	Coordinate< Northing: 1221119 Easting: 0460790	Routine survey Length: 7500m
		
Up Stream View	Down Stream View	

Canal No.: C21	Kind of structure: Bridge (Commune)	Remarks:
Station: 7.00+810	Coordinate< Northing: 1221115 Easting: 0461020	Under a village road
		
Up Stream View	Down Stream View	Structure

**Result of Inventory Survey of Canal 21 (20/20)**

Canal No.: C21	Kind of structure: Wooden Bridge (Private)	Remarks:
Station: 7.00+950	Coordinate< Northing: 1221117 Easting: 0461166	Under house entrance road
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Structure</p>

Canal No.: C21	Kind of structure: Canal	Remarks:
Station: 8.00+70	Coordinate< Northing: 1221114 Easting: 0461284	Routine survey Length: 8000m
 <p>Up Stream View</p>	 <p>Down Stream View</p>	

Canal No.: C21	Kind of structure: Canal	Remarks:
Station: 8+280(E.P)	Coordinate< Northing: 1221112 Easting: 0461500	Routine survey
 <p>Up Stream View</p>	 <p>Down Stream View</p>	

## Inventory Survey of Existing Canals and Structures: Canal 22 (1/2)

Canal name: C22			Survey in June-July, 2011 by JICA Survey Team				
Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
0	452306	1222016	B.P (Culvert 1 & Groove)	Inlet of culvert is closed by planks, Single pipe of 0.8 m dia. 6 m long on NR-130A			This structure is counted as one on main canal
50	452367	1222025	Bridge 1	4 m span and 2 m wide	B	b	House access
230	452534	1222032	Culvert 2	Broken Sigle pipe of 0.8 m dia.	D	-	farm access
340	452635	1222036	Bridge 2	4 m span and 3 m wide	C	b	on village road
620	452758	1222030	Canal section	3 m water width	C		
650	452793	1222036	Crossing Pipe	Wooden aqueduct cross over C-22			
720	452860	1222036	Crossing Pipe	Wooden aqueduct cross over C-22			
990	453118	1222050	Future Bridge	Pillars are on the canal			
1,120	453240	1222049	Canal section	Canal section remain with bottom width of 2 m	C		
1,240	453366	1222051	Tertially Crossing Point				
1,500	453598	1222045	Bridge 3 (Double)	Two pipes of 1 m dia each and 3.5 m long	C	b	on village road
1,630	453717	1222046	Canal section	Canal section remain with bottom width of 2 m	C		
2,140	454183	1222039	Canal section	Canal section remain with water surface width of 3 m	C		
2,420	454450	1222026	Blockade & Groove (Obstruct water to sub-canal)	Regulating structure constructed recently	C		Regulator-1
2,510	454530	1222024	Bridge 4 (Private)	Wooden bridge of 1 m wide	D	-	Wooden bridge, house access
2,650	454677	1222023	Bridge 5	2.5 m span and 2 m wide	C	b	house access
2,900	454916	1222015	Bridge 6 (Private)	Wooden bridge of 0.5 m wide	D	-	Wooden bridge, house access
3,150	455077	1222009	Canal section	Canal section remain with bottom width of 3 m	C		
3,680	455524	1221989	Canal section	Canal section remain with bottom width of 2 m	C		
3,950	455782	1221982	Culvert 3 (Commune)	Single pipe of 0.8 m dia and 6 m long	B	b	on commune road
4,190	455996	1221961	Canal section	Canal section remain as canal	C		
4,500	456299	1221938	Bridge 7 & Groove	1.4 m span and 2 m wide	C	b	house access
4,570	456361	1221939	Culvert 4 (Double)	Two pipes of 0.9 m dia each and 1 m long	C	b	house access
4,690	456457	1221960	Culvert 5 (Double)	Two pipes of 0.8 m dia each and 1 m long	C	b	house access
5,190	456913	1221946	Canal section	Canal section remain with bottom width of 2 m	C		
5,320	457033	1221935	Bridge 8 & Groove	Regulator	C	c	Regulator-2, Old structure
5,690	457373	1221924	Canal section	Canal section remain with bottom			
5,990	457652	1221914	Culvert 6 & Groove (Commune)	1.6 m span and 3 m wide with grooves for planks	C	b	on commune road
5,990	457658	1221911	House	nipa hut on canal			House-1
6,090	457755	1221908	Culvert 7 (Double)	Newly constructed culvert Two pipes of 0.9 m dia each and 1.8 m long	C	b	House access
6,170	457838	1221908	Bridge 9 (Private)	Wooden bridge (logs) of 1 m wide	D	-	Wooden bridge, house access
6,210	457878	1221906	Bridge 10 (Double)	2 m span and 1.5 m wide	C	b	House access
6,320	457985	1221898	Bridge 11 (Double)	3 m span and 2.2 m wide	C	b	House access
6,370	458040	1221883	Turning Point Division Structure	Canal route turn to left direcion			Embankment is deviated the canal route
6,670	458295	1221907	Canal section	Canal section remain with bottom width of 2 m	C		
7,050	458644	1221887	Culvert 8 (Double)	Two pipes of 0.5 m dia each and 3 m long	C	-	House access
7,170	458759	1221889	Canal section		C		
7,200	458803	1221887	Bridge 13 & Groove	1.6 m span and 3 m wide with grooves for planks	C	b	on village road
7,440	459033	1221887	Bridge 14 (Private)	1.6 m span and 3 m wide with grooves for planks	C	b	House access
7,680	459254	1221890	Bridge 15 (Private)	2.5 m span and 3 m wide with grooves for planks	C	b	House access
7,730	459301	1221886	Bridge 16 (Private)	2.2 m span and 2.5 m wide with grooves for planks	C	b	House access
7,930	459590	1221886	Bridge 17 (Private)	1.6 m span and 3 m wide with grooves for planks	C	b	House access
8,200	459754	1221887	Canal section	Canal section remain with bottom width of 1.5 m	C		
8,210	459852	1221887	Culvert 9 (Triple)	Three pipes of 0.5 m dia each, 3 m long	C	c	Farm access
8,360	459998	1221891	Culvert 10 (Private)	Wooden bridge of 1 m wide	D	-	Wooden bridge, house access
8,610	460221	1221889	Bridge 18 & Groove	1.6 m span and 2.8 m wide with grooves for planks	C	b	on village road
8,810	460405	1221889	Culvert 11 (Private)	Wooden bridge of 1 m wide	D	-	Wooden bridge, house access

## Inventory Survey of Existing Canals and Structures: Canal 22 (2/2)

Canal name: C22


Survey in June-July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
9,010	460591	1221880	Culvert 11 (Triple)	Three pipes of 0.5 m dia each, 3 m long	C	c	on village road
9,110	460679	1221893	Canal section	Canal section remain with bottom width of 2 m	C		
9,180	460749	1221891	Culvert 12 (Private)	Wooden bridge of 2 m wide	D	-	House access
9,250	460822	1221893	Tertially Crossing Point				
9,410	460976	1221892	Culvert 13 (Double)	Two pipes of 0.7 m dia each and 2.8 m long	C	b	on village road
9,550	461114	1221898	Bridge 19 (private)	Wooden bridge of 1 m wide	D	-	Wooden bridge, house access
9,650	461199	1221897	Culvert-14 (private)	2 m span and 2.5 m wide with grooves for planks	B	b	House access
9,690	461237	1221900	Canal section	Canal section remain with bottom width of 2 m	B		
9,980	461517	1221900	E.P (Bridge 19)	1.8 m span and 3 m wide with grooves for planks	B		House access


Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	2	A			
Bridges/ Culvert	34	B	2	4	
Public	8	C		23	
Concrete	8	D		7	
Wooden	0	Total	2	34	1
Private	26	<u>Evaluation of Canal and structures</u>			
Concrete	19	Canal sections are remained for passing irrigation and drain water			
Wooden	7	Regulator mentioned above is just provided grooves at the inlet of culverts to place planks, but no gate is placed			
Total	36	Many house and farm access for private use were constructed privately without permission of PDWRAM			
A: Fully functioning		No buidling on the canal			
B: Partly deteriorated but function is maintained					
C: Deteriorated, and does not function well					
D: Completely damaged, and does not function					
		<u>Flow Area of culvers and bridges (excl. wooden bridges)</u>			
		b: enough sectional area	c: not enough, and to be removed/ replaced	Total	
		21	6	27	

### Result of Inventory Survey of Canal 22(1/19)


Canal No.: C22	Kind of structure(s): Pipe culvert	Remarks: - Groove - Under national road N0 2
Station: 0.00(B.P.)	Coordinate< Northing: 1222016 Easting: 0452306	



Up Stream View




Down Stream View




Side View


Canal No.: C22	Kind of structure(s): Bridge (Concrete)	Remarks: Under house entrance road
Station: 0.00+50	Coordinate< Northing: 1222025 Easting: 0452367	



Up Stream View




Down Stream View




Side View


Canal No.: C22	Kind of structure(s): Pipe culvert	Remarks: - Totally broken - Water flows out of culvert
Station: 0.00+230	Coordinate< Northing: 1222032 Easting: 0452534	



Up Stream View






Down Stream View







Side View





### Result of Inventory Survey of Canal 22(2/19)



Canal No.: C22	Kind of structure(s): Concrete bridge	Remarks: Under commune road
Station: 0.00+340	Coordinate< Northing: 1222036 Easting: 0452635	
		
Up Stream View	Down Stream View	Side View



Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 500m
Station: 0.00+620	Coordinate< Northing: 1222030 Easting: 0452758	
		
Up Stream View	Down Stream View	

Canal No.: C22	Kind of structure(s): Crossing pipe	Remarks: Routine survey
Station: 0.00+650	Coordinate< Northing: 1222036 Easting: 0452793	
		
Up Stream View	Down Stream View	



### Result of Inventory Survey of Canal 22(3/19)




Canal No.: C22	Kind of structure(s): Crossing Pipe	Remarks: - Made by wood (palm tree)
Station: 0.00+720	Coordinate< Northing: 1222036 Easting: 0452860	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C22	Kind of structure(s): Future bridge	Remarks: - Routine survey - Concrete column
Station: 0.00+990	Coordinate< Northing: 1222050 Easting: 0453118	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 1000m
Station: 1.00+120	Coordinate< Northing: 1222049 Easting: 0453240	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



### Result of Inventory Survey of Canal 22(4/19)




Canal No.: C22	Kind of structure(s): Tertiary crossing point	Remarks: Routine survey
Station: 1.00+240	Coordinate< Northing: 1222051 Easting: 0453366	
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: Under commune road
Station: 1.00+500	Coordinate< Northing: 1222045 Easting: 0453598	
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 1500m
Station: 1.00+630	Coordinate< Northing: 1222046 Easting: 0453717	
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




### Result of Inventory Survey of Canal 22(5/19)



Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 2000m
Station: 2.00+140	Coordinate< Northing: 1222039 Easting: 0454183	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C22	Kind of structure(s): Blockade	Remarks: - Groove takes water into secondary canal
Station: 2.00+420	Coordinate< Northing: 1222026 Easting: 0454450	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Structure</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Wooden Bridge	Remarks: - Made by wood
Station: 2.00+510	Coordinate< Northing: 1222024 Easting: 0454530	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



### Result of Inventory Survey of Canal 22(6/19)




Canal No.: C22	Kind of structure(s): Concrete Bridge	Remarks: - Under village road - Length: 2500m
Station: 2.00+650	Coordinate< Northing: 1222023 Easting: 0454677	
		
Up Stream View	Down Stream View	Side View



Canal No.: C22	Kind of structure(s): Bridge (Wooden)	Remarks: - Made by wood
Station: 2.00+900	Coordinate< Northing: 1222015 Easting: 0454916	
		
Up Stream View	Down Stream View	

Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 3000m
Station: 3.00+150	Coordinate< Northing: 1222009 Easting: 0455077	
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 22(7/19)



Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 3500m
Station: 3.00+680	Coordinate< Northing: 1221989 Easting: 0455524	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C22	Kind of structure(s): Pipe culvert (Commune)	Remarks: - Under commune road
Station: 3.00+950	Coordinate< Northing: 1221982 Easting: 0455782	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 4000m
Station: 4.00+190	Coordinate< Northing: 1221961 Easting: 0455996	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

### Result of Inventory Survey of Canal 22(8/19)

Canal No.: C22	Kind of structure(s): Bridge	Remarks: - Under house entrance road - There is a groove
Station: 4.00+500	Coordinate< Northing: 1221938 Easting: 0456299	
  		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: Routine survey
Station: 4.00+570	Coordinate< Northing: 1221939 Easting: 0456361	
 		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		



Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: Routine survey Length: 4500m
Station: 4.00+690	Coordinate< Northing: 1221960 Easting: 0456457	
 		
<div style="display: flex; justify-content: space-around;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		











### Result of Inventory Survey of Canal 22(10/19)




Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: Routine survey Under commune road
Station: 5.00+990	Coordinate< Northing: 1221914 Easting: 0457652	
		
Up Stream View	Down Stream View	Side View




Canal No.: C22	Kind of structure(s): House (Cottage)	Remarks: Routine survey
Station: 5.00+990	Coordinate< Northing: 1221911 Easting: 0457658	
		
Up Stream View	Down Stream View	

Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: - Under village road
Station: 6.00+90	Coordinate< Northing: 1221908 Easting: 0457755	
		
Up Stream View	Down Stream View	Side View



### Result of Inventory Survey of Canal 22(11/19)



Canal No.: C22	Kind of structure(s): Wooden Bridge	Remarks: - Under a small bicycle road - Length: 6000m
Station: 6.00+170	Coordinate< Northing: 1221908 Easting: 0457838	
		
Up Stream View	Down Stream View	Side View




Canal No.: C22	Kind of structure(s): Bridge	Remarks: Under house entrance road
Station: 6.00+210	Coordinate< Northing: 1221906 Easting: 0457878	
		
Up Stream View	Down Stream View	Side View

Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: Under small bicycle road
Station: 6.00+320	Coordinate< Northing: 1221898 Easting: 0457985	
		
Up Stream View	Down Stream View	Side View



### Result of Inventory Survey of Canal 22(12/19)




Canal No.: C22	Kind of structure(s): Turning point	Remarks:
Station: 6.00+370	Coordinate< Northing: 1221883 Easting: 0458040	Routine survey
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C22	Kind of structure(s): Canal	Remarks:
Station: 6.00+670	Coordinate< Northing: 1221907 Easting: 0458295	Routine survey Length: 6500m
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks:
Station: 7.00+50	Coordinate< Northing: 1221887 Easting: 0458644	Under a village road
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




### Result of Inventory Survey of Canal 22(13/19)




Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 7000m
Station: 7.00+170	Coordinate< Northing: 1221889 Easting: 0458759	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Up Stream View         </div> <div style="text-align: center;">  Down Stream View         </div> </div>		




Canal No.: C22	Kind of structure(s): Bridge	Remarks: - Box culvert - Under a small road
Station: 7.00+200	Coordinate< Northing: 1221887 Easting: 0458803	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Up Stream View         </div> <div style="text-align: center;">  Down Stream View         </div> <div style="text-align: center;">  Side View         </div> </div>		

Canal No.: C22	Kind of structure(s): Bridge	Remarks: - Under a village road - Groove (pipe culvert) take water to secondary canal
Station: 7.00+440	Coordinate< Northing: 1221887 Easting: 0459033	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Up Stream View         </div> <div style="text-align: center;">  Down Stream View         </div> <div style="text-align: center;">  Side View         </div> </div>		



### Result of Inventory Survey of Canal 22(14/19)




Canal No.: C22	Kind of structure(s): Bridge	Remarks: Under village road Length: 7500m
Station: 7.00+680	Coordinate< Northing: 1221890 Easting: 0459254	
		
Up Stream View	Down Stream View	Side View



Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: Under small village road
Station: 7.00+730	Coordinate< Northing: 1221886 Easting: 0459301	
		
Up Stream View	Down Stream View	Side View

Canal No.: C22	Kind of structure(s): Bridge (Village)	Remarks: Under small village road
Station: 7.00+930	Coordinate< Northing: 1221886 Easting: 0459490	
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 22(15/19)




Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 8000m
Station: 8.00+200	Coordinate< Northing: 1221887 Easting: 0459754	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C22	Kind of structure(s): Pipe culvert (Triple)	Remarks: Under a small carte road
Station: 8.00+210	Coordinate< Northing: 1221887 Easting: 0459852	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C22	Kind of structure(s): Wooden Bridge (Private)	Remarks: Routine survey
Station: 8.00+360	Coordinate< Northing: 1221891 Easting: 0459998	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



### Result of Inventory Survey of Canal 22(16/19)




Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: Under small bicycle road Length: 8500m
Station: 8.00+610	Coordinate< Northing: 1221889 Easting: 0460221	
		
Up Stream View	Down Stream View	Side View




Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: Routine survey
Station: 8.00+810	Coordinate< Northing: 1221889 Easting: 0460405	
		
Up Stream View	Down Stream View	Side View

Canal No.: C22	Kind of structure(s): Pipe culvert (Triple)	Remarks: Under a village road
Station: 9.00+10	Coordinate< Northing: 1221880 Easting: 0460591	
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Canal 22(17/19)




Canal No.: C22	Kind of structure(s): Canal	Remarks: Routine survey Length: 9000m
Station: 9.00+110	Coordinate< Northing: 1221893 Easting: 0460679	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: - Routine survey - Under house entrance road
Station: 9.00+180	Coordinate< Northing: 1221891 Easting: 0460749	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




Canal No.: C22	Kind of structure(s): Pipe culvert	Remarks: Routine survey Tertiary crossing
Station: 9.00+250	Coordinate< Northing: 1221893 Easting: 0460822	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Tertiary crossing</p> </div> </div>		






### Result of Inventory Survey of Canal 22(18/19)




Canal No.: C22	Kind of structure(s): Pipe culvert (Double)	Remarks: Under commune road
Station: 9.00+410	Coordinate< Northing: 1221892 Easting: 0460976	
		
Up Stream View	Down Stream View	Side View

Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: - Routine survey - Made by wood
Station: 9.00+550	Coordinate< Northing: 1221898 Easting: 0461114	
		
Up Stream View	Down Stream View	Side View

Canal No.: C22	Kind of structure(s): Bridge (Private)	Remarks: Routine survey
Station: 9.00+650	Coordinate< Northing: 1221897 Easting: 0461199	
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Canal 22(19/19)

Canal No.: C22	Kind of structure(s): Check structure	Remarks: - Totally broken - Groove takes water into secondary canal, Length: 9500m
Station: 9.00+690	Coordinate< Northing: 1221900 Easting: 0461237	
		
Up Stream View	Down Stream View	Structure(s)

Canal No.: C22	Kind of structure(s): Bridge	Remarks: Under small village road (E.P.)
Station: 9.00+980(EP)	Coordinate< Northing: 1221900 Easting: 0461517	
		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures: Canal 23 (1/4)

Canal name: C23

Survey in June-July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
0	451262	1222762	B.P	Canal section was narrowed by land owner for expanding his garden	D		To be removed the encroachment
40	451274	1222801	Culvert 1 groove	Division structure, No gate but two grooves were provided to control the water level.	B	c	Concrete dia is 0.7 m.
290	451513	1222792	Culvert 2	Culvert of 50 cm dia with 2.5 m long for crossing village road; condition is rather good.	B	c	Vilalge road access
400	451614	1222783	Culvert 3	Temporary check made by earth; concrete pipe of 15-20 cm dia was installed	D	c	To be removed
500	451715	1222779	Canal section	Canal section is flat and not function	D		
520	451738	1222781	Culvert 4	Culvert of 50 cm dia with 2.5 m long for farm access, condition is rather in good condition	B	c	Private farm access
600	451821	1222780	Culvert 5	Culvert of 50 cm dia with 2.6 m long for house access, condition is rather in good condition	D	c	Private house access
640	451859	1222776	Culvert 6	Culvert of 50 cm dia with 3.6 m long for house access, condition is rather in good condition	C	c	Private house access
670	451902	1222774	Culvert 7	Culvert of 50 cm dia with 3.6 m long for house access, condition is rather in good condition	B	c	Private house access
740	451948	1222809	Culvert 8	Culvert of 50 cm dia with 3 m long for house access, condition is rather in good condition	C	c	Private house access
770	451974	1222813	Culvert 9	Culvert of 50 cm dia with 3.6 m long for house access, condition is rather in good condition	C	c	Private house access
780	451992	1222814	Culvert 10	Culvert of 50 cm dia with 2.5 m long for house access, condition is rather in good condition	C	c	Private house access
850	452056	1222811	Culvert 11	Culvert of 30 cm dia with 2.5 m long for house access, condition is rather in good condition	D	c	Private house access
930	452108	1222774	Earth Check	Canal section is obstructed by earth embankment	D		Temporary measure
970	452164	1222774	Culvert 12	Culvert of 20 cm dia with 0.5 m long for farm access	D	c	Temporary measure
1,000	452190	1222770	Canal section	Canal section with bottom width of 2 m remains, though grass are grwoing	B		Canal section
1,100	452237	1222777	Culvert 13	Culvert of 20 cm dia with 0.5 m long for farm access	C	c	Temporary measure
1,420	452538	1222780	Culvert 14	Culvert of 50 cm dia with 4 m long for village road, no inlet and outlet structure	B	c	Culvert on village road
1,470	452649	1222777	Culvert 15	Culvert of 40 cm dia with 2 m long for farm access; canal section is rather in good condtion	B	c	Private farm access Road portion is newly embanked by laterite
1,500	452759	1222773	0	Canal section with bottom width of 2 m remains, though grass are grwoing	B		Canal section
1,580	452830	1222774	Embankment	Embankment with slit for flowing water; road embankment is newly constructed	B		Canal section is rather in good condtion
2,010	453242	1222779	0	Secion is obstructed by many dampy soils and holes	D		Hardly use as canal
2,130	453350	1222806	Culvert 16	New culvert with 0.8 m dia	A	c	New road is constructed??
2,460	453610	1222792	Bridge 1	Private wooden bridge with 30 cm wide	C	-	Private wooden footpath bridge
2,490	453619	1222818	Culvert 17	Double pipe culvert, 1 m dia, for crossing commune road: no riprap protection	B	b	Pipe culvert for public road crossing
2,590	453714	1222805	Wooden Bridge 2	Private wooden bridge with 30 cm wide and 2.5 m long	B	-	Private wooden footpath bridge
2,990	454081	1222794	Canal section	Canal section remains as canal	B		

## Inventory Survey of Existing Canals and Structures: Canal 23 (2/4)

Canal name: C23

Survey in June-July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
3,260	454357	1222806	Culvert 18 (Double)	Double pipe culvert, 0.4 m dia, for house access; no riprap protection at inlet and outlet	B	c	Private house access
3,290	454375	1222806	Culvert 19	Culvert of 60 cm dia with 2 m long for house access, no protection for inlet and outlet	B	c	Private house access
3,300	454395	1222806	Culvert 20 (Double)	Double pipe culvert, 0.4 m dia, for house access; no riprap protection at inlet and outlet	B	c	Private house access
3,510	454595	1222811	Canal section	Canal section remains as canal, but not used, bottom width is 4 m and canal height is 1 m	B		
3,940	455011	1222822	Culvert 21	Culvert of 60 cm dia with 4 m long for village road, no inlet and outlet structure	B	c	Culvert on public road
4,010	455089	1222824	Canal section	Canal section remains as canal: rain water is ponded	B		
4,140	455214	1222828	Culvert (22)	Culvert of 50 cm dia with 2 m long for house access, no protection for inlet and outlet	B	c	Private house access Road along the canal seems be well maintained and functional
4,440	455529	1222834	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		Road is used for motor cycles
4,780	455851	1222842	Bridge 3 (Commune)	Box culvert with 1 m wide and 1 m high, and 6 m long on the commune road	A	b	for Public access Temporaty hut was constructed on the canal near the bridge
5,000	456002	1222845	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
5,160	456172	1222851	Culvert 23 (Double)	Two pipes with 50 cm dia, 1 m long for farm access	B	c	Private farm access
5,330	456326	1222857	Culvert 24 (Double)	Two pipes with 50 cm dia, 3.5 m long for vilage road	B	c	for Public access
5,400	456398	122853	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
5,590	456577	1222860	Culvert 25 (Double)	Two pipes with 50 cm dia, 1.8 m long for house access	B	c	Private house access
5,820	456806	1222865	Culvert 26 (Double)	Two pipes with 50 cm dia, 2 m long for farm access	B	c	Private farm access
5,910	456891	1222867	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
6,070	457046	1222872	Bridge 4 and Groove	Cpncrete bridge on village road, 2 m long and 2.5 wide, two grooves are provided for checking water level	B		for Public access Regulating structure
6,410	457373	1222882	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		Rain water ponded
6,910	457857	1222899	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	C		Tne sectionis not used for long time
6,940	457883	1222898	Bridge 5 and Groove (Commune)	Pipe culvert on commune raod, with 80 cm dia, 5 m long, no protection for both inlet aned outlet, two grooves are provided for cheking water level	B	b	for Public access Regulating structure
7,150	458052	1222873	Bridge 7 & Groove	Bridge of 3.8 m wide and 1.8 m span for private access Intake structure for tertiary canal exists		b	Private access Regulating structure with turnout
7,440	4583309	1222832	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		No road for cart is found along the canal
7,570	458429	1222816	Culvert 27	Culvert of 60 cm dia with 1.6 m long for house access, no protection for inlet and outlet	C	c	Private house access
7,590	458449	1222812	Culvert 28 (Double)	Two pipes with 50 cm dia, 2.8 m long for house access, no protection for inlet and outlet; wingwall is made by bricks	B	c	Private house access

## Inventory Survey of Existing Canals and Structures: Canal 23 (3/4)



Canal name: C23




Survey in June-July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation*	Flow Capacity	Remarks
7,660	458508	1222798	Culvert 29 (Double)	Two pipes with 50 cm dia, 2.8 m long for house access, no protection for inlet and outlet; wingwall is made by bricks	B	c	Private house access The canal is used as draiange canal
7,720	458569	1222784	Culvert 30 (Double)	Two pipes with 50 cm dia, 2.8 m long for house access, no protection for inlet and outlet; wingwall is made by bricks	B	c	Private house access The canal is used as draiange canal
7,820	458652	1222774	Bridge 8 (Private)	Bridge of 2.5 m wide and 1.6 m span for private access	B	b	Private house access
7,970	458778	1222774	Culvert 31 (Dia.=1m)	Culvert of 80 cm dia with 2.8 m long for house access, no inlet and outlet are made by hollow bricks	B	b	Private house access
8,020	458829	1222769	Culvert 32 (Double)	Two pipes with 50 cm dia, 2.6 m long for house access, no protection for inlet and outlet	B	c	Private house access
8,100	458904	1222760	Culvert 33 (Double)	Two pipes with 50 cm dia, 2.8 m long for farm access, no protection for inlet and outlet	B	c	Private farm access
8,180	458978	1222758	Culvert 34 (Double)	Two pipes with 50 cm dia, 3 m long for farm access, no protection for inlet and outlet	B	c	Private house access
8,250	459038	1222753	Bridge 9 (Private)	Bridge of 2.5 m wide and 1.6 m span for private access	B	b	Private house access
8,320	459115	1222743	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
8,540	459315	1222728	Culvert 35 (Double)	Two pipes with 50 cm dia, 3 m long for house access, no protection for inlet and outlet, inlet is protected by sand bags	B	c	Private house access
8,630	459392	1222721	Culvert 36 (Double)	Two pipes with 50 cm dia, 3 m long for house access, no protection for inlet and outlet, inlet is protected by sand bags	B	c	Private house access
8,820	459565	1222705	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
9,070	459794	1222684	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
9,220	459943	1222677	Culvert 37	Culvert of 80 cm dia with 4 m long for Village Road, inlet and outlet are reapried recently	B	b	for Public access
9,370	460093	1222667	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
9,510	460239	1222667	Culvert 38	Culvert of 80 cm dia with 2.5 m long for Village Road, inlet and outlet are reapried recently	B	b	for Public access
9,630	460350	1222659	Canal section	Canal section remains as canal, mainly for evacuating excess water: bottom width is about 2 m	B		
9,760	460486	1222660	Bridge 10 & Groove	Old bridge with 2.5 m wide and 1.6 m wide, grooves are provided to check water level	D	d	No function at all as regulator and bridge
9,830	460563	1222666	Culvert 39 (Double)	Two pipes with 30 cm dia, 2 m long for house access, no protection for inlet and outlet; wingwall is made by sand bags	C	c	Private house access
9,930	460650	1222666	Culvert 40	Culvert of 50 cm dia with 2.5 m long for farm access, upstream wall is made by brick but no protection for inlet and outlet	D	c	Broken
9,970	460677	1222663	Culvert 41	Culvert of 40 cm dia with 2 m long for farm access, upstream wall is made by brick but no protection for inlet and outlet	C	c	Nealy broken
10,140	460854	1222668	Culvert 42 (Double)	Two pipes with 50 cm dia, 3.6 m long for village road, no protection for inlet and outlet; wingwall is made by hollow blocks with plastering	B	c	Public access
10,200	460921	1222667	House	Nipa hut on the canal, meeting space (?)	D		To be removed





### Result of Inventory Survey of Canal 23 (1/27)



Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under National Road 130A
Station: 0.00(B.P.)	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222762</span> <span>Easting: 451255</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under house entrance road
Station: 0.00+40	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222801</span> <span>Easting: 451274</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Structure</span> </div>		

Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Pipe culvert under carte road
Station: 0.00+290	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222792</span> <span>Easting: 451513</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		

### Result of Inventory Survey of Canal 23 (2/27)




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+400	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222783                      Easting: 451614                 </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C23	Kind of structure: Dry canal	Remarks: Dry canal Length: 500m
Station: 0.00+500	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222779                      Easting: 451715                 </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+520	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222781                      Easting: 451738                 </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		






### Result of Inventory Survey of Canal 23 (3/27)




Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+600	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222780</span> <span>Easting: 451821</span> </div>	Routine survey Under house entrance road
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+640	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222776</span> <span>Easting: 451859</span> </div>	Under house entrance road
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+670	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222774</span> <span>Easting: 451902</span> </div>	Under house entrance road
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 23 (4/27)



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+740	Coordinate< Northing: 1222809 Easting: 451948	Routine survey
		
Up Stream View	Down Stream View	Side View



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+770	Coordinate< Northing: 1222813 Easting: 451974	Under house entrance road
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+780	Coordinate< Northing: 1222814 Easting: 451992	Under house entrance road
		
Up Stream View	Down Stream View	Side View



### Result of Inventory Survey of Canal 23 (5/27)



Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under house entrance road
Station: 0.00+850	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222811</span> <span>Easting: 452056</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		




Canal No.: C23	Kind of structure: Earth Check	Remarks: Earth check cross C23
Station: 0.00+930	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222774</span> <span>Easting: 452108</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		

Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Routine check
Station: 0.00+970	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 5px;"> <span>Northing: 1222774</span> <span>Easting: 452164</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		




### Result of Inventory Survey of Canal 23 (6/27)



Canal No.: C23	Kind of structure: Secondary Canal	Remarks:
Station: 1.00	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222770</span> <span>Easting: 452190</span> </div>	Routine survey Length : 1000m
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 1.00+100	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222777</span> <span>Easting: 452237</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 1.00+420	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222780</span> <span>Easting: 452538</span> </div>	Under commune road (laterite road)
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		



### Result of Inventory Survey of Canal 23 (7/27)




Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 1.00+470	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222777                      Easting: 452649                 </div>	Along commune road
		
Up Stream View	Down Stream View	Side View



Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 1.00+500	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222773                      Easting: 452749                 </div>	Big erosion Length : 1500m
		
Up Stream View	Down Stream View	

Canal No.: C23	Kind of structure: Embankment	Remarks:
Station: 1.00+580	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222774                      Easting: 452830                 </div>	Routine survey
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 23 (8/27)



Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 2.00+10	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222779                      Easting: 453242                 </div>	Routine survey Length: 2000m
		
Up Stream View		Down Stream View



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 2.00+130	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222806                      Easting: 453350                 </div>	Under commune road
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Bridge	Remarks:
Station: 2.00+460	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222792                      Easting: 453610                 </div>	Routine survey Wooden bridge
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 23 (9/27)




Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 2.00+490	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222818                      Easting: 453619                 </div>	Under commune road
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Wooden Bridge	Remarks:
Station: 2.00+590	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222805                      Easting: 453714                 </div>	Routine survey
		
Up Stream View	Down Stream View	

Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 2.00+990	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222794                      Easting: 454081                 </div>	Routine survey Length: 3000m
		
Up Stream View	Down Stream View	

### Result of Inventory Survey of Canal 23 (10/27)



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 3.00+260	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222806</span> <span>Easting: 454357</span> </div>	
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under house entrance road
Station: 3.00+290	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222806</span> <span>Easting: 454375</span> </div>	
		
Up Stream View	Down Stream View	Side View



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 3.00+300	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222806</span> <span>Easting: 454395</span> </div>	
		
Up Stream View	Down Stream View	Side View





**Result of Inventory Survey of Canal 23 (11/27)**



Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under small village road
Station: 3.00+510	Coordinate< Northing: 1222811 Easting: 454595	
		
Up Stream View		Down Stream View




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 3.00+940	Coordinate< Northing: 1222822 Easting: 455011	
		
Up Stream View		Down Stream View
		
Side View		

Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey Length: 4000m
Station: 4.00+10	Coordinate< Northing: 1222824 Easting: 455089	
		
Up Stream View		Down Stream View



### Result of Inventory Survey of Canal 23 (12/27)



Canal No.: C23	Kind of structure: Bridge (Commune)	Remarks: Under commune road
Station: 4.00+140	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222828</span> <span>Easting: 455214</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey Length : 4500m
Station: 4.00+440	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222834</span> <span>Easting: 455529</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: C23	Kind of structure: Bridge (Commune)	Remarks: Under commune road
Station: 4.00+780	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222842</span> <span>Easting: 455851</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		



### Result of Inventory Survey of Canal 23 (13/27)




Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey Length : 5000m
Station: 5.00	Coordinate< Northing: 1222845 Easting: 456002	
		
Up Stream View		Down Stream View




Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Routine survey
Station: 5.00+160	Coordinate< Northing: 1222851 Easting: 456172	
		
Up Stream View		Down Stream View

Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under village road
Station: 5.00+330	Coordinate< Northing: 1222857 Easting: 456326	
		
Up Stream View	Down Stream View	Side View



### Result of Inventory Survey of Canal 23 (14/27)




Canal No.: C23	Kind of structure: Canal	Remarks: Length : 5500m
Station: 5.00+400	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222853</span> <span>Easting: 456398</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 5.00+590	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222860</span> <span>Easting: 456577</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Routine survey
Station: 5.00+820	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222865</span> <span>Easting: 456806</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




### Result of Inventory Survey of Canal 23 (15/27)




Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey
Station: 5.00+910	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222867</span> <span>Easting: 456891</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: C23	Kind of structure: Bridge & groove	Remarks: Bridge is under village road
Station: 6.00+70	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222872</span> <span>Easting: 457046</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Groove</p> </div> </div>		

Canal No.: C23	Kind of structure: Canal	Remarks: Length of canal : 6500m
Station: 6.00+410	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222882</span> <span>Easting: 457373</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



### Result of Inventory Survey of Canal 23 (16/27)




Canal No.: C23	Kind of structure: Canal	Remarks: Length : 7000m
Station: 6.00+910	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222899</span> <span>Easting: 457857</span> </div>	
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Bridge	Remarks: Under commune road
Station: 6.00+940	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222898</span> <span>Easting: 457883</span> </div>	
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Bridge & groove	Remarks: Under house entrance road Groove : water flow into pond
Station: 7.00+150	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222873</span> <span>Easting: 458052</span> </div>	
		
Up Stream View	Down Stream View	Structure




### Result of Inventory Survey of Canal 23 (17/27)




Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 7.00+440	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222832</span> <span>Easting: 458309</span> </div>	Routine survey Length : 7500m
		
Up Stream View		Down Stream View




Canal No.: C23	Kind of structure: Pipe Culvert	Remarks:
Station: 7.00+570	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222816</span> <span>Easting: 458429</span> </div>	Under house entrance road
		
Up Stream View		Down Stream View
		
Side View		

Canal No.: C23	Kind of structure: Pipe Culvert (Double)	Remarks:
Station: 7.00+590	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222812</span> <span>Easting: 458449</span> </div>	Under house entrance road
		
Up Stream View		Down Stream View
		
Side View		

### Result of Inventory Survey of Canal 23 (18/27)




Canal No.: C23	Kind of structure: Pipe Culvert (Double)	Remarks: Under house entrance road
Station: 7.00+660	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222798</span> <span>Easting: 458508</span> </div>	
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Pipe Culvert (Double)	Remarks: Routine survey Under house entrance road
Station: 7.00+720	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222784</span> <span>Easting: 458569</span> </div>	
		
Up Stream View	Down Stream View	Side View




Canal No.: C23	Kind of structure: Bridge (Box culvert)	Remarks: Under house entrance road
Station: 7.00+820	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222774</span> <span>Easting: 458652</span> </div>	
		
Up Stream View	Down Stream View	Side View






**Result of Inventory Survey of Canal 23 (19/27)**




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under house entrance road Diameter of pipe : 1m
Station: 7.00+970	Coordinate< Northing: 1222774 Easting: 458778	
		
Up Stream View	Down Stream View	Side View



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 8.00+20	Coordinate< Northing: 1222769 Easting: 458829	
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under small bicycle road There is a groove (to pond)
Station: 8.00+100	Coordinate< Northing: 1222760 Easting: 458904	
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 23 (20/27)




Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 8.00+180	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222758</span> <span>Easting: 458978</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Side View</span> </div>		



Canal No.: C23	Kind of structure: Bridge (Private)	Remarks: Under house entrance road A groove (to secondary canal)
Station: 8.00+250	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222753</span> <span>Easting: 459038</span> </div>	
<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> <span>Structure</span> </div>		

Canal No.: C23	Kind of structure: Canal	Remarks: Length : 8500m
Station: 8.00+320	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222743</span> <span>Easting: 459115</span> </div>	
<div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Up Stream View</span> <span>Down Stream View</span> </div>		



### Result of Inventory Survey of Canal 23 (21/27)




Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under village road
Station: 8.00+540	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222728</span> <span>Easting: 459315</span> </div>	
		
Up Stream View	Down Stream View	Side View



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 8.00+630	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222721</span> <span>Easting: 459392</span> </div>	
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey Length : 9000m
Station: 8.00+820	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1222705</span> <span>Easting: 459565</span> </div>	
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 23 (22/27)



Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 9.00+70	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222684</span> <span>Easting: 459794</span> </div>	Routine survey Length : 9250m
		
Up Stream View		Down Stream View



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 9.00+220	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222677</span> <span>Easting: 459943</span> </div>	Under bicycle road
		
Up Stream View	Down Stream View	Side View

Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 9.00+370	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222667</span> <span>Easting: 460093</span> </div>	Routine survey Length :9750m
		
Up Stream View		Down Stream View




### Result of Inventory Survey of Canal 23 (23/27)



Canal No.: C23	Kind of structure: Pipe culvert	Remarks:
Station: 9.00+510	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222667</span> <span>Easting: 460239</span> </div>	Routine survey Pipe for Pumping up
		
Up Stream View	Down Stream View	Pumping Pipe




Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 9.00+630	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222659</span> <span>Easting: 460350</span> </div>	Routine survey Length : 10,000m
		
Up Stream View	Down Stream View	

Canal No.: C23	Kind of structure: Bridge (Unused)	Remarks:
Station: 9.00+760	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222660</span> <span>Easting: 460486</span> </div>	There is a groove
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 23 (24/27)



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under house entrance road
Station: 9.00+830	Coordinate< Northing: 1222666 Easting: 460563	
		
Up Stream View	Down Stream View	Structure




Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 9.00+930	Coordinate< Northing: 1222666 Easting: 460650	
		
Up Stream View	Down Stream View	

Canal No.: C23	Kind of structure: Pipe culvert	Remarks: Under house entrance road
Station: 9.00+970	Coordinate< Northing: 1222663 Easting: 460677	
		
Up Stream View	Down Stream View	Structure



### Result of Inventory Survey of Canal 23 (25/27)



Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under village road
Station: 10.00+140	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222668                      Easting: 460854                 </div>	
		
Up Stream View	Down Stream View	Structure



Canal No.: C23	Kind of structure: House	Remarks: House is under canal
Station: 10.00+200	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222667                      Easting: 460921                 </div>	
		
Up Stream View	Down Stream View	

Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Routine survey Under village road
Station: 10.00+300	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1222671                      Easting: 461009                 </div>	
		
Up Stream View	Down Stream View	Structure

### Result of Inventory Survey of Canal 23 (26/27)



Canal No.: C23	Kind of structure: Canal	Remarks: Routine survey Length : 10,500m
Station: 10.00+470	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222674</span> <span>Easting: 461176</span> </div>	
		
Up Stream View		Down Stream View

Canal No.: C23	Kind of structure: Pipe culvert	Remarks: All pipe culverts are broken
Station: 10.00+670	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222680</span> <span>Easting: 461373</span> </div>	
		
Up Stream View		Down Stream View

Canal No.: C23	Kind of structure: Pipe culvert (Double)	Remarks: Under village road
Station: 10.00+700	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1222680</span> <span>Easting: 461409</span> </div>	
		
Up Stream View		Down Stream View



**Result of Inventory Survey of Canal 23 (27/27)**

Canal No.: C23	Kind of structure: Canal	Remarks:
Station: 10.00+830 (EP)	Coordinate< Northing: 1222682 Easting: 461544	Routine survey End Point of canal
 <p align="center">Up Stream View</p>		 <p align="center">Down Stream View</p>

## Inventory Survey of Existing Canals and Structures: Canal 24 (1/2)




Canal name: C24




Survey in June-July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Flow Capacity	Remarks
0	447987	1223268	B.P.		A		On the reservoir
50	447998	1223308	Division Structure with gate	Gates are functional, outlet is eroded a little	A		Constructed under Urgent rehabilitation work by MOWRAM in 2005
250	448003	1223436	Pipe Culvert 1	Single pipe of 0.9 m dia and 3 m long	B	c	Hosue access
340	448011	1223508	Pipe Culvert 2	Single pipe of 0.9 m dia and 3 m long	B	c	Hosue access
420	448015	1223581	Pipe Culvert 3 & Groove	Division structure for two canals, culvert of 0.9 m dia and 3 m long, inlet of culvert has grooves	D	c	Division structure and CV on village road
500	448015	1223667	Canal section	Canal section is well maintained; water surface width is about 2 m	B		
810	448029	1223888	Pipe Culvert 4	Single pipe of 0.7 m dia and 2.2 m long	D	c	on inspection road
1,000	448240	1223883	Pipe Culvert 5 & Groove	Single pipe of 0.6 m dia and 4 m long, grooves on the inlet	C	c	Farm access
1,110	448344	1223886	Pipe Culvert 6	Single pipe of 0.5 m dia and 2 m long	C	c	Farm access
1,500	448702	1223890	Canal section	Canal section is remained, but not maintained due to no irrigation water ; bottom width is about 2 m	C		
1,590	448783	1223886	Pipe Culvert 7 & Groove	Division structure for two canals with grooves Single pipe of 0.8 m dia and 2.5 m long, but inlet portion is buried by 0.4 m.	B	c	CV with check groove on village road
1,730	448897	1223889	Pipe Culvert 8	Single pipe of 0.6 m dia and 1 m long	C	c	Farm access
1,940	449073	1223931	Pipe Culvert 9	Single pipe of 1.0 m dia and 4 m long	B	b	on vilalge road
2,000	449157	1223949	Canal section	Canal section is remained, but not maintained due to no irrigation water ; bottom width is about 2 m	C		
2,160	449327	1223949	Interesting Point	Canal is bended to left			
2,500	449578	1223889	Canal section	Canal section is remained, but not maintained due to no irrigation water ; bottom width is about 2 m	C		
2,740	449803	1223892	Embankment	The canal is obstructed by earth to check up water level and divert water			To be removed
2,960	449989	1223888	Pipe Culvert 10	Single pipe of 0.6 m dia and 3.2 m long, constructed with assistance of WFP in 1999		c	on vilalge road irrigation water is supplied by main canal from north to south canal, but not from C24
3,000	450052	1223886	Canal section	Canal section is remained, but not maintained, irrigation water is supplied by main canal; bottom width is about 2 m	C		
3,060	450102	1223887	Tertially Canal Crossing Point				
3,190	450205	1223880	Pipe Culvert 11	Double pipes on village road, 0.4 m dia x 2 nos.		c	on vilalge road
3,500	450494	1223879	Canal section	Canal section is remained, but many grasses in the canal			
3,520	450503	1223880	Earth Check	The canal is obstructed by earth to divert the water to tertiary canal			
4,000	451021	1223859	Division Structure	Ruins; no function at present	D		No function
4,420	451415	1223849	Pipe Culvert 12 (Private)	Single pipe of 0.5 m dia and 2 m long	B	c	Farm access
4,500	451562	1223847	Pipe Culvert 13 (Private)	Single pipe of 0.5 m dia and 2 m long		c	Farm access
4,710	451727	1223848	Pipe Culvert 14 (Private)	Single pipe of 0.5 m dia and 1 m long		c	Farm access
4,830	451821	1223842	Bridge (Culvert-15) on commune road	1.6 m span and 0,6 m high, 5 m long	B	b	On commune road
5,000	451979	1223843	Canal section	Canal section is remained, but many grasses in the canal	C		
5,500	452484	1223827	Pipe Culvert 16	Single pipe of 0.6 m dia and 4 m long	B	c	on vilalge road
5,720	452701	1223822	Pipe Culvert 17 (Private)	Single pipe of 0.5 m dia and 3 m long	C	c	Farm access
6,000	453002	1223820	Pipe Culvert 18 (Double Unit)	Two pipes of 0.5 m dia each and 2 m long	C	c	Farm access






### Result of Inventory Survey of Canal 24 (1/11)




Canal No.: C24	Kind of structure(s): Gate	Remarks: Intake Gate
Station: 0.00(B.P.)	Coordinate< Northing: 1223268 Easting: 447987	
		
Up Stream View	Down Stream View	B.P.



Canal No.: C24	Kind of structure(s): Gate	Remarks: Inflow from Left(westward) Gate
Station: 0.00+50	Coordinate< Northing: 1223308 Easting: 447998	
		
Up Stream View	Down Stream View	Inflow Gate

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks:
Station: 0.00+250	Coordinate< Northing: 1223436 Easting: 448003	
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Canal 24 (2/11)




Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks:
Station: 0.00+340	Coordinate< Northing: 1223508 Easting: 448011	
		
Up Stream View	Down Stream View	Side View




Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: In/Out-flow from both bank
Station: 0.00+420	Coordinate< Northing: 1223581 Easting: 448015	
		
Up Stream View	Down Stream View	Groove (Right Bank)




Canal No.: C24	Kind of structure(s): Canal	Remarks: Routine survey (every 500m)
Station: 0.00+500	Coordinate< Northing: 1223677 Easting: 448015	
		
Up Stream View	Down Stream View	

**Result of Inventory Survey of Canal 24 (3/11)**



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Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: Canal turning point (Direction change from North to East)
Station: 0.00+810	Coordinate< Northing: 1223888 Easting: 448029	
		
Up Stream View	Down Stream View	Northward Pipe Culvert



Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: - Pipe culvert with groove - Routine survey
Station: 1.00	Coordinate< Northing: 1223883 Easting: 448015	
		
Up Stream View	Down Stream View	Side View

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks:
Station: 1.00 + 110	Coordinate< Northing: 1223886 Easting: 448344	
		
Up Stream View	Down Stream View	Structure(s)




### Result of Inventory Survey of Canal 24 (4/11)



Canal No.: C24	Kind of structure(s): Canal	Remarks: - Routine survey
Station: 1.00+ 500	Coordinate< Northing: 1223890 Easting: 448702	
		
Up Stream View		Down Stream View




Canal No.: C24	Kind of structure(s): Pipe Culver	Remarks: - Pipe culvert with groove - In/Out flow from/to left bank
Station: 1.00 + 590	Coordinate< Northing: 1223886 Easting: 448783	
		
Up Stream View	Down Stream View	Side View

Canal No.: C24	Kind of structure(s): Pipe Culver	Remarks:
Station: 1.00 + 730	Coordinate< Northing: 1223889 Easting: 448897	
		
Up Stream View	Down Stream View	

### Result of Inventory Survey of Canal 24 (5/11)



Canal No.: C24	Kind of structure(s): Pipe Culver	Remarks: Pipe culvert under commune road
Station: 1.00 + 940	Coordinate< Northing: 1223931 Easting: 449073	
		
Up Stream View	Down Stream View	Side View


Canal No.: C24	Kind of structure(s): Canal	Remarks: Routine survey
Station: 2.00	Coordinate< Northing: 1223949 Easting: 449157	
		
Up Stream View	Down Stream View	




Canal No.: C24	Kind of structure(s): Canal	Remarks: Turning point to the right(southward)
Station: 2.00+160	Coordinate< Northing: 1223949 Easting: 449327	
		
Up Stream View	Turning point (rightward)	Turning point(leftward)





### Result of Inventory Survey of Canal 24 (6/11)

Canal No.: C24	Kind of structure(s): Canal	Remarks: Routine survey
Station: 2.00+500	Coordinate< Northing: 1223889 Easting: 449578	
		
Up Stream View		Down Stream View




Canal No.: C24	Kind of structure(s): Embankment	Remarks: Embankment across C24 canal
Station: 2.00 +740	Coordinate< Northing: 1223892 Easting: 449803	
		
Up Stream View		Down Stream View
		
Tertiary Canal		

Canal No.: C24	Kind of structure(s): Pipe culvert	Remarks: Pipe culvert under commune road
Station: 2.00+960	Coordinate< Northing: 1223888 Easting: 449989	
		
Up Stream View		Down Stream View
		
Commune Road over C24		



### Result of Inventory Survey of Canal 24 (7/11)



Canal No.: C24	Kind of structure(s): Embankment	Remarks:
Station: 3.00	Coordinate< Northing: 1223886 Easting: 450052	Routine survey
		
Up Stream View		Down Stream View




Canal No.: C24	Kind of structure(s): Tertiary canal	Remarks:
Station: 3.00+60	Coordinate< Northing: 1223887 Easting: 450102	Tertiary canal crossing point
		
Up Stream View		Down Stream View
		
Tertiary Canal		

Canal No.: C24	Kind of structure(s): Pipe culvert	Remarks:
Station: 3.00+190	Coordinate< Northing: 1223880 Easting: 450205	Village Road Crossing
		
Up Stream View		Down Stream View
		
Side View (Village Road)		




### Result of Inventory Survey of Canal 24 (8/11)



Canal No.: C24	Kind of structure(s): Embankment	Remarks: Routine survey
Station: 3.00+500	Coordinate< Northing: 1223879 Easting: 450494	
		
Up Stream View		Down Stream View



Canal No.: C24	Kind of structure(s): Embankment	Remarks: Embankment across C24 canal
Station: 3.00+ 520	Coordinate< Northing: 1223880 Easting: 450503	
		
Up Stream View		Down Stream View

Canal No.: C24	Kind of structure(s): Division structure	Remarks: Routine survey Structure without almost function
Station: 4.00	Coordinate< Northing: 1223859 Easting: 451021	
		
Up Stream View	Down Stream View	Structure




### Result of Inventory Survey of Canal 24 (9/11)



Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks:
Station: 4.00+420	Coordinate< Northing: 1223849 Easting: 451415	
		
Up Stream View	Down Stream View	Side View




Canal No.: C24	Kind of structure(s): Canal	Remarks: Routine Survey
Station: 4.00 +500	Coordinate< Northing: 1223847 Easting: 451562	
		
Up Stream View	Down Stream View	Side View

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: Private Road
Station: 4 +710	Coordinate< Northing: 1223848 Easting: 451727	
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 24 (10/11)



Canal No.: C24	Kind of structure(s): Culvert	Remarks: Commune Road Crossing C24 Canal
Station: 4.00 +830	Coordinate< Northing: 1223842 Easting: 451821	
		
Up Stream View	Down Stream View	Side View (Commune Road)



Canal No.: C24	Kind of structure(s): Canal	Remarks: Routine survey
Station: 5.00	Coordinate< Northing: 1223843 Easting: 451979	
		
Up Stream View	Down Stream View	

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: Routine survey
Station: 5.00+500	Coordinate< Northing: 1223827 Easting: 452484	
		
Up Stream View	Down Stream View	Side View (Crossover Road)

### Result of Inventory Survey of Canal 24 (11/11)

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+720	Coordinate< Northing: 1223822 Easting: 452701	
		
Up Stream View	Down Stream View	Side View

Canal No.: C24	Kind of structure(s): Pipe Culvert	Remarks: Double Pipe culvert
Station: 6.00	Coordinate< Northing: 1223820 Easting: 453002	
		
Up Stream View	Down Stream View	

Canal No.: C24	Kind of structure(s): Canal	Remarks: E.P.
Station: 6.00+50(EP)	Coordinate< Northing: 1223818 Easting: 453058	
		
Up Stream View	Down Stream View	

## Inventory Survey of Existing Canals and Structures: Canal 3D (1/3)

Canal name: 3D				Survey in June-July, 2011 by JICA Survey Team			
Sta.	E	N	Structure	Condition	Evaluation	Flow Capacity	Remarks
0	0454726	1220131	B.P.				
90	0454803	1220081	Embankment	Use of village road			Village road
150	0454848	1220047	Pipe Culvert 1	Single pipe with 0.1m dia and 2.5m long	B		House access
220	0454906	1220008	Pipe Culvert 2	More than 20 m	B		House access (use as house yard)
280	0454952	1219976	Pipe Culvert 3	Single pipe with 0.1m dia and 2.5m long	B		House access
350	0455016	1219937	Pipe Culvert 4	Single pipe with 0.1m dia and 2.5m long	B		Farm access
470	0455114	1219876	Pipe Culvert 5	Single pipe with 0.2m dia and 4.5m long	B		House access
490	0455126	1219867	Pipe Culvert 6	Single pipe with 0.2m dia and 4.5m long	B		House access
540	0455168	1219841	Pipe Culvert 7	Single pipe with 0.1m dia and 2.5m long	B		House access
630	0455247	1219796	Pipe Culvert 8	Single pipe with 0.3m dia and 2.5m long	B		House access
660	0455274	1219777	Pipe Culvert 9	Single pipe with 0.1m dia and 1m long	B		Farm access
700	0455309	1219752	House-1	Parmanent house with brick fence & Repair shop for bike			Shop
780	0455374	1219711	Shops/Houses (B.P.1)	Shop on canal			(B.P.1) :up to Sta. 1,690
1,270	0455810	1219485	Canal section	No canal section remains			
1,690	0456227	1219418	Shops/Houses (E.P.1)	House on Row			(E.P.1) :23 Shops/Houses
1,750	0456291	1219409	Canal section	No canal section remains			
2,000	0456538	1219363	B.P.	Canal section remains with 2 m bottom width			
2,100	0456630	1219337	Embankment	Canal section is under re-filling for housing			House yard
2,180	0456704	1219322	Pipe Culvert 10	Single pipe with 0.2m dia and 3m long	B		House access
2,260	0456778	1219306	Pipe Culvert 11 (Small)	Single pipe with 0.1m dia and 3m long	B		House access
2,310	0456821	1219291	House-2/ Pipe Culvert 12	Canteen/ Culvert on village road, single pipe with 0.1m and 3m long	B		House is fully occupied the canal area/ <b>Public access</b>
2,390	0456903	1219274	Pipe Culvert 13	Single pipe with 0.2m dia and 3m long	B		Farm access
2,420	0456929	1219264	Pipe Culvert 14	Single pipe with 0.3m dia and 2.5m long	B		Farm access
2,440	0456948	1219264	House-3	Nipa hat			House
2,450	0456956	1219259	Pipe Culvert 15	Single pipe with 0.3m dia and 4m long	B		Farm access
2,470	0456975	1219273	House-4	Wood and Galvanized House			House
2,500	0456995	1219245	Pipe Culvert 16	Single pipe with 0.2m dia and 4m long	B		Farm access
2,520	0457017	1219244	Pipe Culvert 17	Single pipe with 0.1m dia and 4.5m long	B		Farm access
2,600	0457092	1219229	Embankment	Embankmen for housing			Canal area is fully re-filled
2,660	0457151	1219208	Embankment	Embankmen for housing			Canal area is fully re-filled
2,670	0457160	1219209	Embankment	Embankmen for housing			Canal area is fully re-filled
2,790	0457278	1219176	Embankment	Embankmen for housing			Canal area is fully re-filled
2,880	0457367	1219154	Pipe Culvert 18	Single pipe with 0.1m dia and 4m long	B		Farm access
2,950	0457438	1219135	Pipe Culvert 19	Single pipe with 0.4m dia and 10m long	B		House access
3,020	0457503	1219122	Pipe Culvert 20	Single pipe with 0.3m dia and 8m long	B		House access
3,060	0457543	1219109	House-5	Hut is no longer used			House
3,090	0457568	1219103	Pipe Culvert 21	Single pipe with 0.3m dia and 3m long	B		House access
3,160	0457635	1219086	Pipe Culvert 22	Single pipe with 0.3m dia and 3m long	B		House access
3,190	0457664	1219079	Embankment	More than 20 m			House yard
3,260	0457727	1219062	Pipe Culvert 23	Single pipe with 0.4m dia and 3m long	B		House access
3,270	0457738	1219062	Pipe Culvert 24	Single pipe with 0.1m dia and 2.5m long	B		Village road
3,570	0457996	1218917	Shops/Houses (B.P.2)	Nipa hut Shop on canal			(B.P.2):up to Sta. 5,880
3,580	0457998	1218929	Bridge-1 & Groove	1.4m span and 2.5m wide with grooves for planks	B/D		House access
3,680	0458083	1218880	Embankment				House yard
3,710	0458112	1218872	Pipe Culvert 25	Single pipe with 0.5m dia and 3m long	B		House access
3,770	0458162	1218845	Pipe Culvert 26	Single pipe with 0.5m dia and 2m long	B		House access
3,820	0458203	1218819	Pipe Culvert 27	Single pipe with 0.5m dia and 2.5m long	B		House access

## Inventory Survey of Existing Canals and Structures: Canal 3D (2/3)

Canal name: 3D				Survey in June-July, 2011 by JICA Survey Team			
Sta.	E	N	Structure	Condition	Evaluation	Flow Capacity	Remarks
3,840	0458220	1218806	Pipe Culvert 28	Single pipe with 0.4m dia and 6m long	B		House access
3,910	0458283	1218776	Pipe Culvert 29	Single pipe with 0.3m dia and 2.5m long	B		House access
3,990	0458351	1218739	Pipe Culvert 30 (Double)	Two pipe with 0.6m dia each and 6m long	B		Village road
4,100	0458448	1218684	Pipe Culvert 31	Single pipe with 0.3m dia and 3m long	B		House access
4,130	0458472	1218675	Pipe Culvert 32	Single pipe with 0.4m dia and 3m long	B		House access
4,170	0458506	1218657	Pipe Culvert 33	Single pipe with 0.4m dia and 2.5m long	B		House access
4,280	0458602	1218604	Pipe Culvert 34	Single pipe with 0.5m dia and 3m long	B		Farm access
4,320	0458641	1218590	Pipe Culvert 35	Single pipe with 0.3m dia and 2m long	B		Farm access
4,370	0458678	1218562	Pipe Culvert 36	Single pipe with 0.3m dia and 3m long	B		Farm access
4,480	0458772	1218513	Pipe Culvert 37	Single pipe with 0.5m dia and 2.5m long	B		Farm access
4,530	0458813	1218489	Pipe Culvert 38	Single pipe with 0.5m dia and 6m long	B		House access
4,560	0458839	1218474	Pipe Culvert 39	Single pipe with 0.2m dia and 2m long	B		House access
4,610	0458884	1218455	Pipe Culvert 40	Single pipe with 0.7m dia and 4m long	B		House access
4,620	0458889	1218453	Pipe Culvert 41	Single pipe with 0.5m dia and 3m long	B		House access
4,700	0458959	1218414	Pipe Culvert 42	Single pipe with 0.6m dia and 3m long	B		Farm access
4,740	0458991	1218396	Bridge & Groove	Regulating structure, gates was installed before? 1.3m span and 3m wide with grooves for planks	B		Village road
4,800	0459047	1218364	Pipe Culvert 43	Single pipe with 0.5m dia and 3m long	B		Farm access
4,820	0459060	1218356	Pipe Culvert 44 & Shops/Houses (E.P.2)	Single pipe with 0.5m dia and 7m long House on canal	B		(E.P.2) 4 Shops/Houses
4,930	0459161	1218306	Pipe Culvert 45	Single pipe with 0.5m dia and 3m long	B		Farm access
5,000	0459220	1218273	Embankment	Embankmen for housing			House access
5,030	0459249	1218255	Canal section		C		House yard
5,080	0459293	1218240	Pipe Culvert 46	Single pipe with 0.5m dia and 2.5m long			Village road
5,280	0459463	1218143	House-6	small hut is no longer used on canal			House
5,410	0459577	1218085	Pipe Culvert 47	Single pipe with 0.4m dia and 2m long	B		Farm access
5,430	0459594	1218078	Pipe Culvert 48	Single pipe with 0.5m dia and 3m long	B		House access
5,460	0459624	1218062	Bridge-2 (Private Wooden)	W=1.5m	B		Wooden bridge
5,540	0459692	1218024	Canal section				
5,600	0459748	1217996	Pipe Culvert 49	Single pipe with 0.5m dia and 2.5m long	B		Farm access
5,650	0459788	1217969	Pipe Culvert 50 & House-7	Single pipe with 0.6m dia and 7m long Shop on canal	B		House access
5,700	0459835	1217941	Embankment (Village Road)	Embankmen for village road			Public road access
5,790	0459911	1217886	House-8	Canteen on RoW			Canal section is fully filled for building
5,810	0459926	1217882	Embankment (Fence)	Fence (Volleyball field)			Canal section is fully filled for field
5,910	0460018	1217834	House-9	House on RoW			House
6,020	0460131	1217831	Canal section				
6,180	0460293	1217807	School	Fence on canal			Canal section is fully filled for school building
6,360	0460473	1217789	Third B.P.				
6,470	0460577	1217773	Pipe Culvert 51	Single pipe with 0.5m dia and 2.5m long	B		Farm access
6,500	0460608	1217766	Canal section	Canal section remains			
6,610	0460714	1217755	Bridge-3 (Private)	W=2.5m	B		House access
6,630	0460729	1217757	Pipe Culvert 52	Single pipe with 0.7m dia and 2.5m long	B		House access
6,660	0460760	1217748	Pipe Culvert 53/ House-10	Single pipe with 0.6m dia and 2.5m long/Shop on canal	B		Shop
6,720	0460817	1217739	Bridge-4 (Private)	W=2.5m made by concrete	B		House access
6,760	0460859	1217729	Bridge-5 (Private)	W=2m made by wood	B		House access
6,880	0460976	1217704	Pipe Culvert 54	Single pipe with 0.8m dia and 2m long	B		House access






## Inventory Survey of Existing Canals and Structures: Canal 3D (3/3)



Canal name: 3D Survey in June-July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Flow Capacity	Remarks
6,890	0460989	1217707	Bridge-6 (Private) & Groove	Regulating structure, 1.6m span and 4m wide with grooves for planks	B/D		Village road
6,930	0461032	1217697	Bridge-7 (Private)/ House-11	W=2.2m made by wood/ House on canal	B		House
6,970	0461067	1217685	Bridge-8 (Private)	W=1.6m made by wood	B		House access
7,000	0461093	1217683	Bridge-9 (Private)	W=2.5m made by concrete	B		House access
7,030	0461120	1217677	Pipe Culvert 55	Single pipe with 1.5m dia and 4.5m long at one side (upstream) and three pipes 0.5m dia each at other side (downstream)	B		House access
7,190	0461275	1217644	Bridge-10 (Private)	W=1.5m made by wood	B		House access
7,300	0461386	1217622	Bridge-11 (Private) & House-12	W=4m made by concrete/ Shop on canal	B		Shop
7,320	0461402	1217619	Shops/Houses (B.P.3)	Canteen & house on canal			(B.P.3):up to Sta. 7,830
7,420	0461500	1217602	Pipe Culvert 56 (Double)	Two pipes with 0.8m dia each and 3m long	B		Village road
7,500	0461575	1217581	Pipe Culvert 57 (Triple)	Three pipes with 0.5m dia each and 2.5m long	B		House access
7,670	0461741	1217551	Pipe Culvert 58 (Double) & Groove	Regulating structure, gates was installed before? Two pipes with 1m dia each and 2.5m	B/D		No use at present
7,830	0461902	1217517	Bridge-12 (Private) & Shops/Houses (E.P.3)	2m span and wide 2.5m made by concrete Shop on canal	B		(E.P.3):8 Shops/Houses
7,940	0462014	1217494	Bridge-13 (Private) & Groove	Regulating structure, 1.4m span and 4m wide with grooves for planks	B/D		Village road
7,970	0462048	1217489	Canal section	Canal section remains			
8,160	0462230	1217452	Pipe Culvert 59 (Triple) & Bridge-14 (Pol Pot Regime)	Three pipes with 0.8m dia each and 7m long	B		Under national road 130A
8,240	0462306	1217441	Pipe Culvert 60 (Double)	Two pipes with 1m dia each and 3m long	B		House access
8,430	0462491	1217411	Bridge-15 & Groove (Village)	Regulating structure, 1.4m span and 3m wide with grooves for planks	B/D		Public
8,530	0462517	1217400	E.P.	Canal section remains			

Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	5	A			
Bridges/ Culvert	75	B		75	
Public	10	C			
Concrete	10	D	5		
Wooden	0	Total	5	75	47
Private	65	<u>Evaluation of Canal and structures</u>			
Concrete	60	Many canal sections have been filled for making house yard and house and farm accesses Regulator mentioned above is just provided grooves at the inlet of culverts to place planks, but no gate is placed			
Wooden	5	Many house and farm accesses for private use were constructed privately without permission of PDWRAM			
Total	80	<u>Removal of obstructions on canal route is to be decided by MOWRAM</u>			
A: Fully functioning		3D is rather free from flood inflow, since the Main canal 33 received the drain water from higher area			
B: Partly deteriorated but function is maintained					
C: Deteriorated, and does not function well					
D: Completely damaged, and does not function					




### Result of Inventory Survey of Canal 3D (1/35)




Canal No.: 3D	Kind of structure: Canal	Remarks: - Cross the National Road 130A
Station: 0.00(B.P.)	Coordinate< Northing: 1220131 Easting: 454726	
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: Embankment	Remarks: Routine survey
Station: 0.00+80	Coordinate< Northing: 1220081 Easting: 454803	
		
Up Stream View	Down Stream View	

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+160	Coordinate< Northing: 1220047 Easting: 454848	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (2/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+240	Coordinate< Northing: 1220008 Easting: 454906	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+280	Coordinate< Northing: 1219976 Easting: 454952	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+360	Coordinate< Northing: 1219937 Easting: 455016	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (3/35)




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+480	Coordinate< Northing: 1219876 Easting: 455114	Routine survey
		
Up Stream View	Down Stream View	Side View


Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+500	Coordinate< Northing: 1219867 Easting: 455126	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+540	Coordinate< Northing: 1219841 Easting: 455168	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Canal 3D (4/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+640	Coordinate< Northing: 1219796 Easting: 455247	Routine survey
  		
Up Stream View	Down Stream View	Side View



Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+660	Coordinate< Northing: 1219777 Easting: 455274	Routine survey
  		
Up Stream View	Down Stream View	Side View



Canal No.: 3D	Kind of structure: House	Remarks:
Station: 0.00+700	Coordinate< Northing: 1219752 Easting: 455309	Routine survey
  		
Up Stream View	Down Stream View	Structure





**Result of Inventory Survey of Canal 3D (5/35)**



Canal No.: 3D	Kind of structure: House	Remarks: Routine survey Secondary B.P.
Station: 0.00+740	Coordinate< Northing: 1219711 Easting: 455374	
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: Canal	Remarks: Routine survey
Station: 1.00+260	Coordinate< Northing: 1219485 Easting: 455810	
		
Up Stream View	Down Stream View	

Canal No.: 3D	Kind of structure: Canal	Remarks: Routine survey
Station: 1.00+760	Coordinate< Northing: 1219409 Easting: 456291	
		
Up Stream View	Down Stream View	




### Result of Inventory Survey of Canal 3D (6/35)



Canal No.: 3D	Kind of structure: Canal	Remarks: Routine survey Sub B.P.
Station: 2.00+50	Coordinate< Northing: 1219363 Easting: 456538	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: 3D	Kind of structure: Embankment	Remarks: Routine survey
Station: 2.00+140	Coordinate< Northing: 1219337 Easting: 456630	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+240	Coordinate< Northing: 1219322 Easting: 456704	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

**Result of Inventory Survey of Canal 3D (7/35)**




Canal No.: 3D	Kind of structure: Pipe culvert(small)	Remarks: Routine survey
Station: 2.00+300	Coordinate< Northing: 1219306 Easting: 456778	
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: House	Remarks: Routine survey
Station: 2.00+330	Coordinate< Northing: 1219291 Easting: 456821	
		
Up Stream View	Down Stream View	




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+370	Coordinate< Northing: 1219282 Easting: 456865	
		
Up Stream View	Down Stream View	Structure






**Result of Inventory Survey of Canal 3D (8/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+400	Coordinate< Northing: 1219274 Easting: 456903	
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+430	Coordinate< Northing: 1219264 Easting: 456929	
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+440	Coordinate< Northing: 1219259 Easting: 456956	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (9/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+470	Coordinate< Northing: 1219245 Easting: 456995	
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+480	Coordinate< Northing: 1219244 Easting: 457017	
		
Up Stream View	Down Stream View	Structure

Canal No.: 3D	Kind of structure: Embankment	Remarks: Routine survey
Station: 2.00+530	Coordinate< Northing: 1219229 Easting: 457092	
		
Up Stream View	Down Stream View	Structure




**Result of Inventory Survey of Canal 3D (10/35)**




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 2.00+590	Coordinate< Northing: 1219208 Easting: 457151	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 2.00+590	Coordinate< Northing: 1219209 Easting: 457160	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 2.00+710	Coordinate< Northing: 1219176 Easting: 457277	Routine survey
		
Up Stream View	Down Stream View	Structure




**Result of Inventory Survey of Canal 3D (11/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+810	Coordinate< Northing: 1219154 Easting: 457367	
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pip culvert	Remarks: Routine survey
Station: 2.00+890	Coordinate< Northing: 1219135 Easting: 457438	
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 2.00+960	Coordinate< Northing: 1219122 Easting: 457503	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (12/35)**




Canal No.: 3D	Kind of structure: House	Remarks: Routine survey
Station: 2.00+990	Coordinate< Northing: 1219109 Easting: 457543	
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 3.00+10	Coordinate< Northing: 1219103 Easting: 457568	
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 3.00+70	Coordinate< Northing: 1219086 Easting: 457635	
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (13/35)**




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 3.00+110	Coordinate< Northing: 1219079 Easting: 457664	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 3.00+200	Coordinate< Northing: 1219062 Easting: 457727	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 3.00+200	Coordinate< Northing: 1219062 Easting: 457738	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (14/35)**




Canal No.: 3D	Kind of structure: Bridge	Remarks:
Station: 3.00+500	Coordinate< Northing: 1218929 Easting: 457998	There is a groove
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 3.00+610	Coordinate< Northing: 1218880 Easting: 458083	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 3.00+620	Coordinate< Northing: 1218872 Easting: 458112	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Canal 3D (15/35)**




Canal No.: 3D	Kind of structure: Pipe Culvert	Remarks:
Station: 3.00+710	Coordinate< Northing: 1218845 Easting: 458162	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe Culvert	Remarks:
Station: 3.00+770	Coordinate< Northing: 1218819 Easting: 458203	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 3.00+780	Coordinate< Northing: 1218806 Easting: 458220	Routine survey
		
Up Stream View	Down Stream View	Side View






### Result of Inventory Survey of Canal 3D (16/35)




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 3.00+870	Coordinate< Northing: 1218776 Easting: 458283	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 3.00+990	Coordinate< Northing: 1218739 Easting: 458351	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+100	Coordinate< Northing: 1218684 Easting: 458448	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (17/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+120	Coordinate< Northing: 1218675 Easting: 458472	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+160	Coordinate< Northing: 1218657 Easting: 458506	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+250	Coordinate< Northing: 1218604 Easting: 458602	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (18/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+290	Coordinate< Northing: 1218590 Easting: 458641	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+360	Coordinate< Northing: 1218562 Easting: 458678	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+470	Coordinate< Northing: 1218513 Easting: 458772	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (19/35)




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+500	Coordinate< Northing: 1218489 Easting: 458813	Routine survey
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+540	Coordinate< Northing: 1218474 Easting: 458839	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+600	Coordinate< Northing: 1218455 Easting: 458884	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (20/35)




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+610	Coordinate< Northing: 1218453 Easting: 458889	Routine survey
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+690	Coordinate< Northing: 1218414 Easting: 458959	Routine survey
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>

Canal No.: 3D	Kind of structure: Bridge	Remarks:
Station: 4.00+750	Coordinate< Northing: 1218396 Easting: 458991	There is a groove
 <p>Up Stream View</p>	 <p>Down Stream View</p>	 <p>Side View</p>




**Result of Inventory Survey of Canal 3D (21/35)**



Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+810	Coordinate< Northing: 1218364 Easting: 459047	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+840	Coordinate< Northing: 1218356 Easting: 459060	There is a house
		
Up Stream View	Down Stream View	Structure

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 4.00+940	Coordinate< Northing: 1218306 Easting: 459161	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (22/35)




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 5.00+10	Coordinate< Northing: 1218273 Easting: 459220	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 5.00+40	Coordinate< Northing: 1218255 Easting: 459249	Routine survey Length: 4000m
		
Up Stream View	Down Stream View	

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 5.00+80	Coordinate< Northing: 1218240 Easting: 459293	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Canal 3D (23/35)**




Canal No.: 3D	Kind of structure: House	Remarks:
Station: 5.00+270	Coordinate< Northing: 1218143 Easting: 459463	Routine survey
		
Up Stream View	Down Stream View	Structure



Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 5.00+410	Coordinate< Northing: 1218085 Easting: 459577	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 5.00+440	Coordinate< Northing: 1218078 Easting: 459594	Routine survey
		
Up Stream View	Down Stream View	Structure






**Result of Inventory Survey of Canal 3D (24/35)**




Canal No.: 3D	Kind of structure: Bridge(private)	Remarks:
Station: 5.00+460	Coordinate< Northing: 1218062 Easting: 459624	Made by wood
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 5.00+550	Coordinate< Northing: 1218024 Easting: 459692	Routine survey Length: 4500m
		
Up Stream View	Down Stream View	

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 5.00+610	Coordinate< Northing: 1217996 Easting: 459748	Routine survey
		
Up Stream View	Down Stream View	Side View

**Result of Inventory Survey of Canal 3D (25/35)**




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 5.00+650	Coordinate< Northing: 1217969 Easting: 459788	There is a house
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: Embankment	Remarks:
Station: 5.00+700	Coordinate< Northing: 1217941 Easting: 459835	There is a village road
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: House	Remarks:
Station: 5.00+810	Coordinate< Northing: 1217886 Easting: 459911	Routine survey
		
Up Stream View	Down Stream View	Structure




**Result of Inventory Survey of Canal 3D (26/35)**




Canal No.: 3D	Kind of structure: House	Remarks:
Station: 5.00+830	Coordinate< Northing: 1217882 Easting: 459926	Routine survey
		
Up Stream View	Down Stream View	Structure



Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 6.00+50	Coordinate< Northing: 1217831 Easting: 460131	Routine survey Length: 5000m
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: School House	Remarks:
Station: 6.00+230	Coordinate< Northing: 1217807 Easting: 460293	Routine survey
		
Up Stream View	Down Stream View	Structure




### Result of Inventory Survey of Canal 3D (27/35)




Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 6.00+410	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1217789                      Easting: 460473                 </div>	Third B.P.
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 6.00+520	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1217773                      Easting: 460577                 </div>	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 6.00+550	Coordinate< <div style="display: inline-block; vertical-align: middle; margin-left: 10px;">                     Northing: 1217766                      Easting: 460608                 </div>	Routine survey Length: 5500m
		
Up Stream View	Down Stream View	



**Result of Inventory Survey of Canal 3D (28/35)**




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+650	Coordinate< Northing: 1217755 Easting: 460714	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 6.00+670	Coordinate< Northing: 1217757 Easting: 460729	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 6.00+710	Coordinate< Northing: 1217748 Easting: 460760	There is a house (cottage)
		
Up Stream View	Down Stream View	Structure




**Result of Inventory Survey of Canal 3D (29/35)**




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+750	Coordinate< Northing: 1217739 Easting: 460817	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+790	Coordinate< Northing: 1217729 Easting: 460859	Routine survey
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 6.00+910	Coordinate< Northing: 1217704 Easting: 460976	Routine survey
		
Up Stream View	Down Stream View	Side View




**Result of Inventory Survey of Canal 3D (30/35)**




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+920	Coordinate< Northing: 1217707 Easting: 460989	There is a groove
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+970	Coordinate< Northing: 1217697 Easting: 461032	There is a house
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 6.00+990	Coordinate< Northing: 1217685 Easting: 461067	Routine survey
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Canal 3D (31/35)




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 7.00+20	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1217683</span> <span>Easting: 461093</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Pipe culvert	Remarks:
Station: 7.00+50	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1217677</span> <span>Easting: 461120</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 7.00+220	Coordinate< <div style="display: flex; justify-content: space-between; padding: 0 10px;"> <span>Northing: 1217644</span> <span>Easting: 461275</span> </div>	Routine survey
		
Up Stream View	Down Stream View	Side View






**Result of Inventory Survey of Canal 3D (32/35)**




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 7.00+340	Coordinate< Northing: 1217622 Easting: 461386	There is a house
		
Up Stream View	Down Stream View	Structure




Canal No.: 3D	Kind of structure: House (Double)	Remarks:
Station: 7.00+360	Coordinate< Northing: 1217619 Easting: 461402	Routine survey
		
Up Stream View	Down Stream View	Structure

Canal No.: 3D	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 7.00+450	Coordinate< Northing: 1217602 Easting: 461500	Routine survey
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (33/35)



Canal No.: 3D	Kind of structure: Pipe culvert (Triple)	Remarks:
Station: 7.00+550	Coordinate< Northing: 1217581 Easting: 461575	Routine survey
		
Up Stream View	Down Stream View	Structure



Canal No.: 3D	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 7.00+720	Coordinate< Northing: 1217551 Easting: 461741	There is a groove
		
Up Stream View	Down Stream View	Side View

Canal No.: 3D	Kind of structure: Bridge (private)	Remarks:
Station: 7.00+900	Coordinate< Northing: 1217517 Easting: 461902	There is a house
		
Up Stream View	Down Stream View	Side View




### Result of Inventory Survey of Canal 3D (34/35)




Canal No.: 3D	Kind of structure: Bridge (private)	Remarks: There is a groove
Station: 8.00+10	Coordinate< Northing: 1217494 Easting: 462014	
		
Up Stream View	Down Stream View	Side View



Canal No.: 3D	Kind of structure: Canal	Remarks: Routine survey Length: 7000m
Station: 8.00+50	Coordinate< Northing: 1217551 Easting: 461741	
		
Up Stream View	Down Stream View	

Canal No.: 3D	Kind of structure: Bridge (Pol Pot regime)	Remarks: There is a pipe culvert (triple)
Station: 8.00+240	Coordinate< Northing: 1217452 Easting: 462230	
		
Up Stream View	Down Stream View	

### Result of Inventory Survey of Canal 3D (35/35)



Canal No.: 3D	Kind of structure: Pipe culvert (Double)	Remarks:
Station: 8.00+320	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1217441</span> <span>Easting: 462306</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




Canal No.: 3D	Kind of structure: Bridge (village)	Remarks:
Station: 8.00+510	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1217411</span> <span>Easting: 462491</span> </div>	There is a groove
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




Canal No.: 3D	Kind of structure: Canal	Remarks:
Station: 8.00+530(EP)	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1217400</span> <span>Easting: 462517</span> </div>	Routine survey
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		






### Result of Inventory Survey of Canal 3U (1/6)




Canal No.: 3U	Kind of structure: House	Remarks: - Cross the National Road 130A
Station: 0.00(B.P.)	Coordinate< Northing: 1223101 Easting: 449634	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		



Canal No.: 3U	Kind of structure: House (Cottage)	Remarks: House is under canal
Station: 0.00+50	Coordinate< Northing: 1223100 Easting: 449674	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Structure</p> </div> </div>		

Canal No.: 3U	Kind of structure: Pipe culvert (Small)	Remarks: Routine survey
Station: 0.00+110	Coordinate< Northing: 1223103 Easting: 449731	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		




### Result of Inventory Survey of Canal 3U (2/6)




Canal No.: 3U	Kind of structure: Intake	Remarks:
Station: 0.00+180	Coordinate< Northing: 1223106 Easting: 449801	Routine survey
		
Up Stream View	Down Stream View	Structures




Canal No.: 3U	Kind of structure: Earth Check	Remarks:
Station: 0.00+230	Coordinate< Northing: 1223106 Easting: 449845	Routine survey
		
Up Stream View	Down Stream View	Structure

Canal No.: 3U	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+260	Coordinate< Northing: 1223121 Easting: 449881	Pipe culvert is along the National road
		
Up Stream View	Down Stream View	

### Result of Inventory Survey of Canal 3U (3/6)



Canal No.: 3U	Kind of structure: Pipe culvert	Remarks: - Under commune road - There is a groove
Station: 0.00+360	Coordinate< Northing: 1223118 Easting: 449982	
		
Up Stream View	Down Stream View	Structure



Canal No.: 3U	Kind of structure: Pipe culvert	Remarks: Routine survey
Station: 0.00+500	Coordinate< Northing: 1223122 Easting: 450087	
		
Up Stream View	Down Stream View	Side View




Canal No.: 3U	Kind of structure: Pipe culvert	Remarks: Pipe Culvert is under the land
Station: 0.00+550	Coordinate< Northing: 1223125 Easting: 450138	
		
Up Stream View	Down Stream View	Side View






### Result of Inventory Survey of Canal 3U (4/6)



Canal No.: 3U	Kind of structure: Pipe culvert (Small)	Remarks: Pipe Culvert is under the land
Station: 0.00+600	Coordinate< Northing: 1223127 Easting: 450180	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		




Canal No.: 3U	Kind of structure: Pipe Culvert	Remarks: Pipe Culvert is under the land
Station: 0.00+620	Coordinate< Northing: 1223117 Easting: 450232	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: 3U	Kind of structure: Pipe culvert	Remarks: Pipe Culvert is under the land
Station: 0.00+660	Coordinate< Northing: 1223114 Easting: 450272	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Structures</p> </div> </div>		



### Result of Inventory Survey of Canal 3U (5/6)



Canal No.: 3U	Kind of structure: Structure Party	Remarks:
Station: 0.00+710	Coordinate< Northing: 1223112 Easting: 450328	Routine survey
		
Up Stream View	Down Stream View	Side View




Canal No.: 3U	Kind of structure: Canal	Remarks:
Station: 0.00+790	Coordinate< Northing: 1223088 Easting: 450387	Routine survey Second B.P.
		
Up Stream View	Down Stream View	

Canal No.: 3U	Kind of structure: Pipe culvert	Remarks:
Station: 0.00+950	Coordinate< Northing: 1223046 Easting: 450511	Routine survey
		
Up Stream View	Down Stream View	Side View

### Result of Inventory Survey of Canal 3U (6/6)

Canal No.: 3U	Kind of structure: Canal	Remarks: Routine survey House is along the canal
Station: 1.00+30	Coordinate< Northing: 1223024 Easting: 450573	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: 3U	Kind of structure: Canal	Remarks: Private road is on the canal
Station: 1.00+100	Coordinate< Northing: 1222999 Easting: 450653	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> </div>		

Canal No.: 3U	Kind of structure: Pipe Culvert	Remarks: There are Groove and Intake
Station: 1.00+510(EP)	Coordinate< Northing: 1222891 Easting: 450993	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Up Stream View</p> </div> <div style="text-align: center;">  <p>Down Stream View</p> </div> <div style="text-align: center;">  <p>Side View</p> </div> </div>		

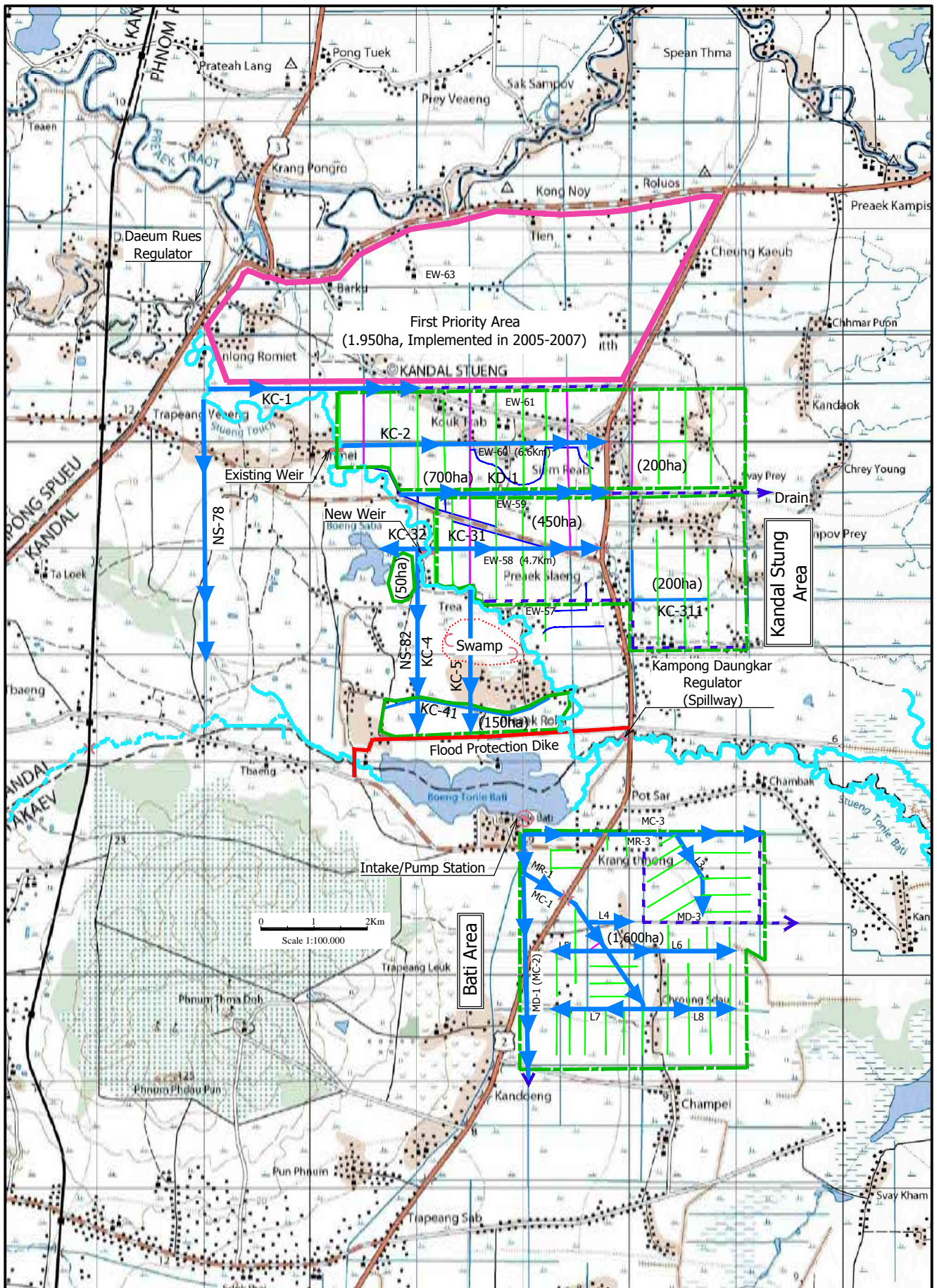
# ***ANNEX D***

## ***Attachment 5***

*Results of Inventory Survey for Irrigation and Drainage*

*Facilities in Kandal Stung – Bati Irrigation System*

*Rehabilitation Sub-project*



PREPARATORY SURVEY FOR IRRIGATION AND DRAINAGE SYSTEM  
REHABILITATION AND IMPROVEMENT PROJECT  
IN THE KINGDOM OF CAMBODIA

Japan International Cooperation Agency  
(JICA)

Title of Drawing

**Name of Canal Route for Inventory Survey  
(Kandal Stung and Bati Areas)**

Date:

Mar. 2012

DWG. No.

KSB-01

**Summary of Nos. of Structures and Houses Identified by Inventory Survey**

(Unit: nos.)

Canals	Survey length (m)	Off-take	Regulator incl. Culvert with grooves*	Public bridge/culvert	Private bridge/culvert	Huts and houses within ROW**	Total
<b>A. Kandal Stung Extension Area (Roung Kou and Saba areas)</b>							
1. Pol Pot Canals							0
KC-1	4,850	2	1	3	3	0	9
KC-2	4,530	5	6	9	8	0	28
KC-3-1	3,400	3	3	3	1	0	10
KC-3-2	800	0	0	0	0	0	0
KC-4 (NS82)	3,500	1	1	4	0	0	6
KC-5 (NS83)	3,000	1	2	2	1	0	6
KD-1	4,250	1	0	5	3	0	9
NS-78	4,800	1	0	3	0	0	4
Sub-total	29,130	14	13	29	16	0	72
2. Flood Protection dike (Northern part of Tonle Bati Lake)							
	6,000	0	0	6	0	0	6
3. Total (A)	35,130	14	13	35	16	0	78
<b>B. Tonle Bati Area (First Priority Area specified by JICA-F/S)</b>							
1. Main canals							
MC-1	6,370	0	2	10	1	5	18
MC-2	3,810	1	0	4	0	8	13
MC-3	5,700	10	4	7	7	0	28
Sub-total	15,880	11	6	21	8	13	59
2. Laterals							
L3	2,050	0	0	0	4	0	4
L4	640	0	1	0	0	0	1
L5	1,110	0	0	1	3	0	4
L6	2,010	0	0	1	10	0	11
L7&L8	2,200	0	0	2	5	0	7
Sub-total	8,010	0	1	4	22	0	27
3. Total (B)	23,890	11	7	25	30	13	86
<b>C. Total (A+B)</b>	<b>59,020</b>	<b>25</b>	<b>20</b>	<b>60</b>	<b>46</b>	<b>13</b>	<b>164</b>

\*: Grooves are provided at inlet of culverts to place planks, but no gate is placed

\*\* : Nos of house/hut located within the objective area of 1,600 ha

**Inventory Survey of Existing Canals and Structures**  
**(Kandal Stung Area)**

**Canal name: KC-1**

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	478161	1260992	Intake for KC-1	No gate is equipped (lost long time ago, used as bridge)	C	Bridge (W=4m, L=5.7m)
770	478718	1261001	Wooden Bridge (Private)	Abandoned bridge, no slab plate	D	
1,500	479318	1260994	Foot path bridge (Broken)	Submerged food bridge, Abandoned	D	
1,710	479521	1261000	Bridge with groove	Commune road bridge	B	W=5m, L=3m
2,280	480025	1260997	Bamboo made check	Temporary check mainly for fish catching	-	
2,390	480109	1261003	Pipe Culvert, Double (Private)	Temporary made, just install pipes and filled by earth on pipes	C	L=2.8m, W=1.5 m, dia=0.5m
2,450	480161	1261012	Bamboo made check	Temporary check mainly for fish catching	-	
2,650	480358	1261015	Canal Section	Slope of canal is covered by thick grass and trees, no maintenance is made for long time	C	Width of water surface is 4-5m
2,790	480743	1261015	Turn Out	Turn out was broken and location is higher than rice field	C	PDOWRAM staff said function in wet season
3,000	480597	1261003	Canal Section	Slope of canal is covered by thick grass and trees, no maintenance is made for long time	C	
3,020	480628	1261003	Turn Out (Broken)	Turnout was broken and location is higher than rice field	D	Pipe dia=0.3m
3,420	480994	1261005	Regulator	New structure and functioned well	A	Constructed by TSC, MOWRAM in Dec. 2010 (Financial Assistance of JICA)
4,020	480994	1261005	Drain Inlet W=4m, dia=1m	New structure and functioned well	A	Constructed by TSC, MOWRAM in Dec. 2010 (Financial Assistance of JICA)
4,060	481506	1261011	Drain Inlet W=4m, dia=1m	New structure and functioned well	A	Constructed by TSC, MOWRAM in Dec. 2010 (Financial Assistance of JICA)
4,180	: 481612	1261008	Pipe Culvert on commune road	New structure and functioned well	A	Constructed by TSC, MOWRAM in Dec. 2010 (Financial Assistance of JICA) (Double) W=4m, dia=1m
4,850	481943	1261011	E.P, Pipe Culvert on provincial road	New structure and functioned well	A	Constructed by TSC, MOWRAM in Dec. 2010 (Financial Assistance of JICA) (Double) W=6m, dia=1.5m

Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	1	A	1	2	
Bridges/ Culvert	6	B		1	
Public	3	C		1	
Concrete	3	D		2	
Wooden	0	Total	1	6	0
Private	3				
Concrete	0				
Wooden	3				
Total	0				




- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function



#### Evaluation of Canal and structures




1. Many canal sections and slops are covered by grass and trees, and eroded and deteriorated.
2. The dike is accessible only by foot and/or motor cycle from St. 0.8- 3.2km.
3. Many structures were broken, and been abandoned.
4. From St.3.4to 4.8 km was rehabilitated as main drain by MOWRAM in 2010









Canal No.: KC-1	Kind of structure(s): Intake	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1260992 Easting: 478161	Intake from Stung Touch
		
Up Stream View	Down Stream View	B.P.



Canal No.: KC-1	Kind of structure(s): Wooden bridge	Remarks:
Station: 0.00+770	Coordinate< Northing: 1261001 Easting: 478718	Temporary
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Foot path bridge	Remarks:
Station: 1.00+500	Coordinate< Northing: 1260994 Easting: 479318	Broken
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Bridge	Remarks:
Station: 1.00+710	Coordinate< Northing: 1261000 Easting: 479521	Bridge with groove
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Check structure	Remarks:
Station: 2.00+280	Coordinate< Northing: 1260997 Easting: 480025	Check structure cum fish net by bamboo barrage (Temporary)
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Pip culvert	Remarks:
Station: 2.00+390	Coordinate< Northing: 1261003 Easting: 480109	Pip culvert (Double)
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Check structure	Remarks:
Station: 2.00+450	Coordinate< Northing: 1261012 Easting: 480161	Check structure by bamboo net (Temporary)
		
Up Stream View	Down Stream View	Side View



Canal No.: KC-1	Kind of structure(s): Canal section	Remarks:
Station: 2.00+650	Coordinate< Northing: 1261015 Easting: 480358	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Turn Out	Remarks:
Station: 2.00+790	Coordinate< Northing: 1261015 Easting: 480743	Abandoned (use in wet season)
		
Up Stream View	Down Stream View	Side View


Canal No.: KC-1	Kind of structure(s): Canal Section	Remarks:
Station: 3.00+000	Coordinate< Northing: 1261003 Easting: 480597	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-1	Kind of structure(s): Turn out	Remarks:
Station: 3.00+020	Coordinate< Northing: 1261003 Easting: 480628	Broken
		
Up Stream View	Down Stream View	Side View


Canal No.: KC-1	Kind of structure(s): Regulator	Remarks:
Station: 3.00+420	Coordinate< Northing: 1261005 Easting: 480994	Regulator on commune road with 3 gates
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-1	Kind of structure(s): Regulator	Remarks:
Station: 3.00+420	Coordinate< Northing: 1261005 Easting: 480994	Regulator with 2 gates
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-1	Kind of structure(s): Drain Inlet	Remarks:
Station: 4.00+020	Coordinate< Northing: 1261005 Easting: 480994	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-1	Kind of structure(s): Drain Inlet	Remarks:
Station: 4.00+060	Coordinate< Northing: 1261011 Easting: 481506	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 4.00+180	Coordinate< Northing: 1261008 Easting: 481612	Double Culverts
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 4.00+850 (E.P)	Coordinate< Northing: 1261011 Easting: 481943	Double Culverts on Provincial Road
		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures

### (Kandal Stung Area)

**Canal name: KC-2**

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	480212	1260282	B.P. Intake for KC-2 with bridge (public)	Existing weir exists about 100 m downstream, no gate is equipped	C	Bridge; W=4.8m, L=3.2m,
200	480345	1260284	Drain Inlet,	Pipe and wing wall is still in good condition	B	W=4m, L=1.2m, dia=0.6m
400	480597	1260289	Bridge on commune road	Bridge is still functioned	C	W=6.5m, L=3m
400	480597	1260289	Regulator	2 nos. of slide gates without lifting spindle and gear	C	W=3m, L=3m
500	480699	1260292	Canal Section	-	-	
800	4800960	1260299	Turnout	Outlet wall has been deteriorated	C	(Private), dia=0.3m
900	481101	1260298	Turnout dia=0.3 m	Outlet wall has been deteriorated	C	(Private), dia=0.3m
1,000	481211	1260302	Canal Section	Section is still remained, but covered by grass and trees	C	
1,400	481611	1260312	Drain Inlet	Broken	D	dia=0.3m
1,500	481682	1260310	Box Culvert with groove (public)	Structures looks new, not jeevable but for motor cycles	B	W=1.3m, L=1.5m
			Drain inlet	Temporarily installed pipe	C	W=1.3m, L=1m, dia=0.3m
2,000	482075	1260316	Bridge on commune road	Reconstructed bridge but rather damaged	C	W=2.5m, L=4.8m
			Drain Inlet	Temporarily installed pipe	C	dia=0.6m
2,350	482476	1260324	Bridge (Private),	House access	C	W=2.5m, L=2.5m
2,400	482530	1260328	Wooden Bridge (Private),	House access	C	W=0.5m, L=5m
2,430	482583	1260329	Turnout	with Box Culvert with groove	C	W=4.5m, L=3.5m
			Bridge with groove Commune road	Surface of bridge is damaged lot	C	W=4 m, L=3.5m
2,450	482612	1260323	Pipe Culvert Private	Canal section is blocked by dike and small pipe is clogged	C	L=6m, dia=0.6m
2,500	482688	1260327	Wooden Bridge (Private)	Temporary bamboo bridge	-	W=0.5m, L=6 m
2,950	4883105	1260334	Canal Section	Section is still remained though eroded, and covered by grass	C	
3,000	483158	1260343	Pipe Culvert (Double), on village road	Rather in good condition	B	W=2.5m, L=2.5m, dia=1m
3,200	483372	1260347	Bridge with groove on commune road	Broken handrail	B	W=4.5m, L=4.5m

3,400	483619	1260347	Pipe Culvert (Double) on village road	Recently repaired	B	W=4m, L=5m, dia=1m
3,500	483693	1260341	Turnout	Burried by earth, not functioned	D	Pipe portion: W=4m, L=1m, dia=1m
3,700	483910	1260344	Turnout	Burried by earth, not functioned		Pipe portion: W=5m, L=1.2m, dia=0.6
3,800	483984	1260345	Wooden Bridge (Private)	House access	C	W=1.2m, L=6m
4,000	484211	1260347	Canal Section	Many water plants obstructs water flow	C	
4,150	484424	1260350	Check Structure	Check wall with groove, but no use at present	C	, W=2m, L=0.8m
			Bridge on village road	Good condtion	B	W=4m, L=8m
4,400	484605	1260354	Pipe Culvert (private; house access)	Good condtion	B	W=5m, L=4m, dia=0.8m (Double)
4,430	484635	1260356	Wooden Bridge (Private),	village area	C	W=2.5m, L=5m
4,500	484731	1260350	Canal Section	Section is covered by thick grass and trees	D	No use as canal at present
4,530	484772	1260354	E.P. Pipe Culvert (Private)	Access to School "Siem Reap	C	W=5m, L=3m, D=0.6m (3 culverts)




Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	6	A		1	
Bridges/ Culvert	17	B	3	18	
Public	9	C	3	5	
Concrete	9	D		1	
Wooden	0	Total	6	25	0
Private	8				
Concrete	4				
Wooden	4				
Total					




- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function




#### Evaluation of Canal and structures




1. It seems that no gravity irrigation has practiced in dry season; mobile pumping machine lifted remain water in the canal for rice fields. Canal sections have been eroded and widened.
2. Most of the culverts and bridges are still functioning









Canal No.: KC-2	Kind of structure(s): Bridge with groove	Remarks: No gate on the Intake
Station: 0.00 (B.P.)	Coordinate< Northing: 1260282 Easting: 480212	
		
Up Stream View	Down Stream View	B.P.




Canal No.: KC-2	Kind of structure(s): Drain Inlet	Remarks:
Station: 0.00+200	Coordinate< Northing: 1260284 Easting: 480345	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Bridge & Regulator	Remarks: On commune road
Station: 0.00+400	Coordinate< Northing: 1260289 Easting: 480597	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Turn-out (Off-take)	Remarks:
Station: 0.00+400	Coordinate< Northing: 1260289 Easting: 480597	No lifting gear, though gates were installed
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Canal Section	Remarks:
Station: 0.00+500	Coordinate< Northing: 1260292 Easting: 480699	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Turnout	Remarks:
Station: 0.00+800	Coordinate< Northing: 1260299 Easting: 4800960	(Private)
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Turnout	Remarks: (Private)
Station: 0.00+900	Coordinate< Northing: 1260298 Easting: 481101	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+000	Coordinate< Northing: 1260302 Easting: 481211	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Drain Inlet	Remarks: (Broken)
Station: 1.00+400	Coordinate< Northing: 1260312 Easting: 481611	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Box Culvert	Remarks:
Station: 1.00+500	Coordinate< Northing: 1260310 Easting: 481682	Box Culvert with groove
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Drain Inlet	Remarks:
Station: 1.00+500	Coordinate< Northing: 1260310 Easting: 481682	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Bridge	Remarks:
Station: 2.00+000	Coordinate< Northing: 1260316 Easting: 482075	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Drain Inlet	Remarks:
Station: 2.00+000	Coordinate< Northing: 1260316 Easting: 482075	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Bridge	Remarks: (Private)
Station: 2.00+350	Coordinate< Northing: 1260324 Easting: 482476	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Wooden Bridge	Remarks: Foot path bridge (Private)
Station: 2.00+400	Coordinate< Northing: 1260328 Easting: 482530	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Box Culvert	Remarks: Box Culvert with groove
Station: 2.00+430	Coordinate< Northing: 1260329 East ing: 482583	
		

Up Stream View

Down Stream View



Side View

Canal No.: KC-2	Kind of structure(s): Turn Out	Remarks:
Station: 2.00+430	Coordinate< Northing: 1260329 East ing: 482583	
		

Up Stream View

Down Stream View




Side View




Canal No.: KC-2	Kind of structure(s): Pipe Culvert	Remarks:
Station: 2.00+450	Coordinate< Northing: 1260323 East ing: 482612	
		




Up Stream View




Down Stream View




Side View




Canal No.: KC-2	Kind of structure(s): Wooden Bridge	Remarks: (Private)
Station: 2.00+500	Coordinate< Northing: 1260327 Easting: 482688	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Canal section	Remarks:
Station: 2.00+950	Coordinate< Northing: 1260334 Easting: 4883105	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Pipe Culvert	Remarks: Double culverts
Station: 3.00+000	Coordinate< Northing: 1260343 Easting: 483158	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Bridge	Remarks:
Station: 3.00+200	Coordinate< Northing: 1260347 Easting: 483372	Bridge with groove
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Pipe Culvert	Remarks:
Station: 3.00+400	Coordinate< Northing: 1260347 Easting: 483619	Double Pipe Culvert
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Turnout	Remarks:
Station: 3.00+500	Coordinate< Northing: 1260341 Easting: 483693	
		
Up Stream View	Down Stream View	Side View



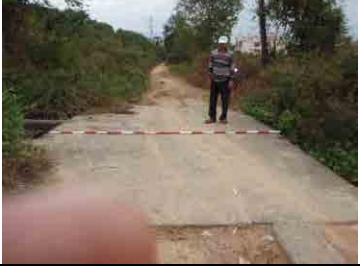





Canal No.: KC-2	Kind of structure(s): Turnout	Remarks:
Station: 3.00+700	Coordinate< Northing: 1260344 Easting: 483910	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Wooden Bridge	Remarks: (Private)
Station: 3.00+800	Coordinate< Northing: 1260345 Easting: 483984	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Canal Section	Remarks:
Station: 4.00+000	Coordinate< Northing: 1260347 Easting: 484211	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-2	Kind of structure(s): Check Structure	Remarks:
Station: 4.00+150	Coordinate< Northing: 1260350 Easting: 484424	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Bridge on village road	Remarks:
Station: 4.00+150	Coordinate< Northing: 1260350 Easting: 484424	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Pipe Culvert (Private)	Remarks: Double culverts
Station: 4.00+400	Coordinate< Northing: 1260354 Easting: 484605	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Wooden Bridge	Remarks: (Private)
Station: 4.00+430	Coordinate< Northing: 1260356 Easting: 484635	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Canal Section	Remarks:
Station: 4.00+500	Coordinate< Northing: 1260350 Easting: 484731	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-2	Kind of structure(s): Pipe Culvert	Remarks: 3 culverts and road connected to School
Station: 4.00+530 (E.P)	Coordinate< Northing: 1260354 Easting: 484772	
		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures

### (Kandal Stung Area)

Canal name: **KC-3-1**

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	4841835	1258313	B.P. Intake gate with 3 gates	Gates are functioned, though one spindle is bended	B	No substantial rehabilitation would be needed
			Bridge on Commune road	In good condition	B	W=5.5m, L=4.2m
400	482077	1258306	Turnout	Brick made	C	L=5.2m, dia=0.6m
500	482250	1258310	Canal Section	No obstruction is found, though some trees grow on canal slope and banks	C	
800	482473	1258309	Check Structure,	No gate is equiped	C	w=1.6m, L=3.5m
900	482590	1258308	Wooden Bridge on commune road	Cross points of two Pol Pot canals, only temporary wooded foot bridge is provided by farmers	D	only one log to pass
1,000	482723	1258310	Canal Section	No obstruction is found, though some trees grow on canal slope and banks	C	
1,500	483183	1258312	Bamboo check Private	For fishing only,	-	
2,000	483675	1258319	Turnout	Broken and clogged	D	dia=0.4m
2,200	483893	1258320	Check Structure,	Wing wall for check made by sand bags are damaged, no function due to too narrow flow area, no gate	D	W=2m, L=3.5m
2,300	483954	1258319	Turnout	Broken and clogged	D	dia=0.4m
2,500	484153	1258320	Canal Section	No obstruction is found, though some trees grow on canal slope and banks	C	
2,900	484449	1258321	Box Culvert with groove,	Across canal 85 (local name), No R&L banks, road is completely eroded	D	w=3m, L=1.5m
3,000	484577	1258339	Canal Section	No obstruction is found, though some trees grow on canal slope and banks	C	
3,200	484815	1258340	Pipe Culvert Private	Road connected to house	B	W=2m, L=7.5m, dia=1m (3 culverts)
3,400	485043	1258323	E.P. Bridge on NR-2	Good condition	A	W=6m, L=8m, (3 spans =1.8m),




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	3	A			
Bridges/ Culvert	4	B	1	2	
Public	3	C			
Concrete	3	D	2	2	
Wooden	0	Total	3	4	
Private	1				
Concrete	1				




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Wooden	0				
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function




Evaluation of Canal and structures




1. Canal sections have been eroded and widened.
2. Some farmers pump up water for their rice farming from the canal fed by Stung Toch
3. Nos. of structures is few and some were broken, and no gate equipped.




Canal No.: KC-3-1	Kind of structure(s): Intake on Stung Touch River	Remarks: 3 gates
Station: 0.00 (B.P)	Coordinate< Northing: 1258313 Easting: 4841835	
		
Up Stream View	Down Stream View	B.P.




Canal No.: KC-3-1	Kind of structure(s): Turnout	Remarks:
Station: 0.00+400	Coordinate< Northing: 1258306 Easting: 482077	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Canal Section	Remarks:
Station: 0.00+500	Coordinate< Northing: 1258310 Easting: 482250	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Regulator	Remarks:
Station: 0.00+800	Coordinate< Northing: 1258309 Easting: 482473	No slab floor and stop log (abandoned)
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Wooden Bridge	Remarks:
Station: 0.00+900	Coordinate< Northing: 1258308 Easting: 482590	On commune road
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Wooden Bridge	Remarks:
Station: 0.00+900	Coordinate< Northing: 1258308 Easting: 482590	This bridge is connected to another canal (Canal 83, (local name)).
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+000	Coordinate< Northing: 1258310 Easting: 482723	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Canal Section	Remarks: Bamboo Barrage Private
Station: 1.00+500	Coordinate< Northing: 1258312 Easting: 483183	
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Turnout	Remarks: Broken
Station: 2.00+000	Coordinate< Northing: 1258319 Easting: 483675	
		
Up Stream View	Down Stream View	Side View









Canal No.: KC-3-1	Kind of structure(s): Check Structure	Remarks:
Station: 2.00+200	Coordinate< Northing: 1258320 Easting: 483893	Check Structure with groove No slab floor (Abandoned)
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-3-1	Kind of structure(s): Turnout	Remarks:
Station: 2.00+300	Coordinate< Northing: 1258319 Easting: 483954	Broken
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+500	Coordinate< Northing: 1258320 Easting: 484153	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Box Culvert	Remarks:
Station: 2.00+900	Coordinate< Northing: 1258321 Easting: 484449	Box Culvert with groove (abandoned)
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Canal Section	Remarks:
Station: 3.00+000	Coordinate< Northing: 1258339 Easting: 484577	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 3.00+200	Coordinate< Northing: 1258340 Easting: 484815	3 culverts (road connected to house)
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-1	Kind of structure(s): Bridge	Remarks: Bridge on NR2
Station: 3.00+400 (E.P)	Coordinate< Northing: 1258323 Easting: 485043	
		
Up Stream View	Down Stream View	Side View

## Inventory Survey of Existing Canals and Structures

### (Kandal Stung Area)

Canal name: **KC-3-2**

Surveyed in January, 2012 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	481773	1258310	Receiving structure	Water intaked on left bank conveyed to this structure on right bank thru the concrete pipe laid on Stung Toch river bed	D	L=50m, dia=0.6m (single) The pipe is passing the village road
500	481417	1258308	Canal section	Canal route was flooded about 0.8-1.2m	D	
800	481069	1258397		E.P. Canal route was flooded about 0.8-1.2m	D	




Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	0	A			
Bridges/ Culvert	0	B			
Public	0	C			
Concrete	0	D			
Wooden	0	Total	0	0	0
Private	0				
Concrete	0				
Wooden	0				
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function

#### Evaluation of Canal and structures

1. All sections were flooded about 0.8-1.2m.

Canal No.: KC-3-2	Kind of structure(s): Receiving structure	Remarks:
Station: 0.00 (B.P)	Coordinate< Northing: 1258310 Easting: 481773	(Water is supplied through underground pipe)
		
Up Stream View	Down Stream View	B.P.

Canal No.: KC-3-2	Kind of structure(s): Canal Section	Remarks:
Station: 0.00+500	Coordinate< Northing: 1258308 Easting: 481417	Canal route was flooded
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-3-2	Kind of structure(s): Canal	Remarks:
Station: 0.00+800 (E.P)	Coordinate< Northing: 1258397 Easting: 481069	Canal route was flooded about 0.8-1.2m
		
Up Stream View	Down Stream View	Side View

**Inventory Survey of Existing Canals and Structures**  
**(Kandal Stung Area)**

Canal name: **KC-4**

Surveyed in January, 2012 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	481618	1258142	B.P. Intake on Stung Toch	No structure is found and canal is clogged by debris and trees/grass	D	
500	481601	1257614	Canal Section	Canal is filled by earth for commune road	D	Across commune road
600	481594	1257535	Pipe Culvert on Commune road	Functioned as culvert	C	W=6m, L=6.5m, dia=1m
1,000	481593	1256931	Canal Section	No obstruction is found, though some grass grow on canal slope and banks	B	
1,500	481598	1256443	Canal Section	No obstruction is found, though some grass grow on canal slope and banks	B	
1,700	481593	1256175	Pipe Culvert, on village road	Broken	D	L=8m, dia=0.6m
2,000	481590	1255814	Canal Section	Upland and covering by trees and many sediment on the canal bed	D	
2,500	481598	1255543	Box culvert with groove under commune road	Sand bags are used for checking up the water level and storing water	C	W=5m, L=1.3m, H=2m
2,700	481601	1255380	Turnout	No outlet wall is provided; just temporary placing for drain and inlet the water	C	L=6m, dia=0.3m (Double)
3,100	481595	1254976	Canal Section	Canal section is checked by earth dike for rain storing water	D	
3,500	481593	1254742	E.P. Box Culvert on commune road (flood kike)	Structurally in good condition, but no gate is provided	C	W=4.9m, L=1.4m, H=2m




Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	1	A			
Bridges/ Culvert	4	B			
Public	4	C	1	3	
Concrete	4	D		1	
Wooden	0	Total	1	4	0
Private	0				
Concrete	0				
Wooden	0				
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function

Evaluation of Canal and structures



1. Canal section is dry from B.P. due to commune road blocked at St. 500m
2. From St. 2+0 to 2+700 is upland part of the canal KC-4.
3. Farmer constructed a embankment to divert water to rice fields.



Canal No.: KC-4	Kind of structure(s): Intake	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1258142 Easting: 481618	Intake from Stung Touch
		
Up Stream View	Down Stream View	B.P.




Canal No.: KC-4	Kind of structure(s): Canal Section	Remarks:
Station: 0.00+500	Coordinate< Northing: 1257614 Easting: 481601	Canal Section and commune road across canal
		
Up Stream View	Down Stream View	Canal section



Canal No.: KC-4	Kind of structure(s): Pipe Culvert	Remarks:
Station: 0.00+600	Coordinate< Northing: 1257535 Easting: 481594	Pipe Culvert under commune road
		
Up Stream View	Down Stream View	Side View







Canal No.: KC-4	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+000	Coordinate< Northing: 1256931 Easting: 481593	
		
Up Stream View		Down Stream View




Canal No.: KC-4	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+500	Coordinate< Northing: 1256443 Easting: 481598	
		
Up Stream View		Down Stream View




Canal No.: KC-4	Kind of structure(s): Pipe Culvert (Broken)	Remarks: Village road across canal
Station: 1.00+700	Coordinate< Northing: 1256175 Easting: 481593	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-4	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+000	Coordinate< Northing: 1255814 Easting: 481590	Routine survey (every 500m) Up land & Covering by trees
		
Up Stream View		Down Stream View

Canal No.: KC-4	Kind of structure(s): Box Culvert with groove	Remarks:
Station: 2.00+500	Coordinate< Northing: 1255543 Easting: 481598	Box culvert on commune road
		
Up Stream View		Down Stream View
		Side View

Canal No.: KC-4	Kind of structure(s): Pipe Culvert	Remarks:
Station: 2.00+700	Coordinate< Northing: 1255380 Easting: 481601	
		
Up Stream View		Down Stream View
		Side View

Canal No.: KC-4	Kind of structure(s): Canal Section	Remarks: Village road across canal in order to divert water to rice field.
Station: 3.00+100	Coordinate< Northing: 1254976 Easting: 481595	
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-4	Kind of structure(s): Box Culvert	Remarks: Box culvert with groove under commune road.
Station: 3.00+500 (E.P.)	Coordinate< Northing: 1254742 Easting: 481593	
		
Up Stream View	Down Stream View	Side View

**Inventory Survey of Existing Canals and Structures**  
**(Kandal Stung Area)**

Canal name: **KC-5**

Surveyed in January, 2012 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	482573	1257519	B.P. Stung Toch	The canal section was filled and used as house access in the village: the canal has not used for long time	D	Houses accesses in the village
300	482570	1257430	Pipe Culvert, Private	Temporary installation of pipe to house access	D	L=3m, dia=0.5m
500	482578	1257310	Box Culvert with groove on village road	Wooden planks are installed and functioned as check	B	W=3.5m, L=2m
800	482578	1257092	Turnout (private)	Temporary installation of pipe to divert water from the canal	C	Pipe: L=3m, dia=0.5m
1,000	482585	1256639	Canal Section	Bath banks of the canal is swamp, and right bank of the canal was lost	D	No canal shape remains, but road section only remained
1,500	482593	1256133	Canal Section	do.	D	do.
2,000	482597	1255597	Canal Section	Some canal section remains and used as pond	C	Making road across canal near canal section.
2,500	482598	1255131	Canal Section	do.	D	do.
3,000	482585	1254769	E.P. Box Culvert with groove, on commune road	The culvert is still functioning, but old	B	W=5.3m, L=2.5m and Drain Inlet with W=2m, L=1m




Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	2	A			
Bridges/ Culvert	3	B	2	2	
Public	2	C			
Concrete	2	D		1	
Wooden	0	Total	2	3	0
Private	1				
Concrete	1				
Wooden					
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function

Evaluation of Canal and structures



1. From St. 1.00 to 1.00+500 is covered by lake/ swamp with grass.
2. Only two box culverts with grooves are functioning.



Canal No.: KC-5	Kind of structure(s): Intake on Stung Touch	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1257519 Easting: 482573	The canal was filled as used as house access in the village
		
Up Stream View	Down Stream View	B.P.




Canal No.: KC-5	Kind of structure(s): Pipe culvert	Remarks:
Station: 0.00+300	Coordinate< Northing: 1257430 Easting: 482570	Private
		
Up Stream View	Down Stream View	Side View




Canal No.: KC-5	Kind of structure(s): Box Culvert	Remarks:
Station: 0.00+500	Coordinate< Northing: 1257310 Easting: 482578	Box Culvert with groove Village road
		
Up Stream View	Down Stream View	Side View

Canal No.: KC-5	Kind of structure(s): Pipe Culvert	Remarks:
Station: 0.00+800	Coordinate< Northing: 1257092 Easting: 482578	Private
		
Up Stream View	Down Stream View	Side View
Canal No.: KC-5	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+000	Coordinate< Northing: 1256639 Easting: 482585	L&R banks is swamp
		
Up Stream View	Down Stream View	
Canal No.: KC-5	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+500	Coordinate< Northing: 1256133 Easting: 482593	L&R banks is swamp
		
Up Stream View	Down Stream View	

Canal No.: KC-5	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+000	Coordinate< Northing: 1255597 Easting: 482597	Making road across canal near canal section
		
Up Stream View		Down Stream View

Canal No.: KC-5	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+500	Coordinate< Northing: 1255131 Easting: 482598	Making road across canal near canal section
		
Up Stream View		Down Stream View

Canal No.: KC-5	Kind of structure(s): Bok Culvert	Remarks:
Station: 3.00+000 (E.P)	Coordinate< Northing: 1254769 Easting: 482585	Box Culvert with groove & Drain Inlet
		
Up Stream View		Down Stream View
		
		Side View

Canal No.: KC-5	Kind of structure(s): Box Culvert	Remarks:
Station: 3.00+000	Coordinate< Northing: 1254769 Easting: 482585	Box Culvert with groove & Drain Inlet
		
Up Stream View	Down Stream View	Side View



**Inventory Survey of Existing Canals and Structures**  
**(Kandal Stung Area)**

Canal name: **KD-1 (EW-59)**

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	481106	1259314	B.P Stung Toch	No structure, use as drainage canal	-	Existing canal in the village
250	481288	1259325	Pipe Culvert Private	Canal was filled and the pipe was installed, and <u>primary school building</u> was constructed	D	L=100m, dia=0.5m
550	481607	1259316	Canal Section	Canal section remains and rather in good condition, water is supplied from KC-2	B	Crossing points with canal 82 (local name), O&M cost was provided by Commune Fund
1,050	482063	1259324	Canal Section	do.	B	do.
1,550	442585	1259330	Bridge, On commune road	Crossing with canal 83 (local name), O&M was made by Commune Fund	B	W=3m, L=5m
1,750	442727	1259337	Canal Section	Canal section become small and covered by bush and growing trees	C	
2,050	482994	1259332	Pipe Culvert Farm access (private)	Across to rice field, Private	C	W=2.7m, L=3m, dia=0.6m (Double),
2,250	483238	1259327	Pipe Culvert, Commune road	Condition is rather in good condition, but not used so frequently	B	W=5.6m, L=2m, dia=1m
2,350	483363	1259333	Wooden Bridge, Private	House access	B	W=4m, L=1.2m
2,750	483659	1259334	Box Culvert, Commune road	Old culvert, but still functioned	B	Across canal 84 (local name), W=4m, L=1.2m
3,250	484127	1259337	Pipe Culvert, on commune road	The culvert was constructed by commune fund recently	B	W=1.5m, L=6.3m, dia=1m
3,550	484428	1259336	Turnout	Broken, hollow brick made structure	D	Near crossing point with canal 85 (local name)
3,750	484641	1259338	Canal Section	Section is obstructed by water plants and bush	D	Canal section with grass & bush
4,250	485154	1259346	E.P. Bridge, on NR-2	Flow section of the bridge is enough for flowing	B	W=12m, L=6m



Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A		0	
Bridges/ Culvert	8	B		6	
Public	5	C		1	
Concrete	5	D		1	
Wooden	0	Total	0	8	1
Private	3				
Concrete	2				
Wooden	1				
Total	0				




A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well




D: Completely damaged, and does not function




Evaluation of Canal and structures




1. Long length of pipe culvert of 100m receiving water from Stung Toch in wet season.
2. Most of the culverts are functioning, excepted one was broken




Canal No.: KD-1	Kind of structure(s): Intake	Remarks: Connected from Stung Toch
Station: 0.00 (B.P)	Coordinate< Northing: 1259314 Easting: 481106	
 		
<p>Up Stream View</p> <p>Down Stream View (B.P.)</p>		




Canal No.: KD-1	Kind of structure(s): Pipe Culvert	Remarks: Pipe culvert under school building
Station: 0.00+250	Coordinate< Northing: 1259325 Easting: 481288	
  		
<p>Up Stream View</p> <p>Down Stream View</p> <p>Side View</p>		




Canal No.: KD-1	Kind of structure(s): Canal Section	Remarks: Across canal 83 (local name)
Station: 0.00+550	Coordinate< Northing: 1259316 Easting: 481607	
  		
<p>Up Stream View</p> <p>Down Stream View</p> <p>Side View</p>		




Canal No.: KD-1	Kind of structure(s): Canal Section	Remarks:
Station: 1.00+050	Coordinate< Northing: 1259324 Easting: 482063	
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Bridge	Remarks: Commune Fund
Station: 1.00+550	Coordinate< Northing: 1259330 Easting: 442585	
		
Up Stream View	Down Stream View	Side View




Canal No.: KD-1	Kind of structure(s): Canal section	Remarks:
Station: 1.00+750	Coordinate< Northing: 1259337 Easting: 442727	
		
Up Stream View	Down Stream View	Side View




Canal No.: KD-1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 2.00+050	Coordinate< Northing: 1259332 Easting: 482994	Across to rice field, Private
		
Up Stream View	Down Stream View	Side View




Canal No.: KD-1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 2.00+250	Coordinate< Northing: 1259327 Easting: 483238	Commune road
		
Up Stream View	Down Stream View	Side View



Canal No.: KD-1	Kind of structure(s): Wooden Bridge	Remarks:
Station: 2.00+350	Coordinate< Northing: 1259333 Easting: 483363	Private
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Box Culvert	Remarks: Commune road
Station: 2.00+750	Coordinate< Northing: 1259334 Easting: 483659	
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Pipe Culvert	Remarks: Commune Fund
Station: 3.00+250	Coordinate< Northing: 1259337 Easting: 484127	
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Off-take	Remarks: Across canal 85 (local name) Broken
Station: 3.00+550	Coordinate< Northing: 1259336 Easting: 484428	
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Canal section	Remarks:
Station: 3.00+750	Coordinate< Northing: 1259338 Easting: 484641	Canal section with grass & bush
		
Up Stream View	Down Stream View	Side View

Canal No.: KD-1	Kind of structure(s): Bridge	Remarks:
Station: 4.00+250 (E.P)	Coordinate< Northing: 1259346 Easting: 485154	Bridge on NR.2
		
Up Stream View	Side View	

## Inventory Survey of Existing Canals and Structures

### (Kandal Stung Area)

Canal name: Connection Canal (NS78)

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	477997	1261020	B.P.	Intake of NS-78 constructed in Pol Pot Regime, no function as intake due to no construction of diversion weir on the Stung Toch	D	
			Bridge with groove, Commune road	Function as road bridge for the commune	C	W=4m, L=4.5m
500	478012	1260313	Box Culvert, Commune road	Function as road bridge for the commune	B	W=5.6m, L=2mm
900	478024	1259880	Culvert Provincial road	The culvert is not functioned due to sediment (pipes are mostly covered by soils)	D	W=7m, L=9.8m, d=1m (3 culverts)
1,500	478054	1259287	Canal Section	Section has been eroded heavily and many sediments on the canal bed	D	
1,800	478041	1258995	Drain Inlet,	Structure is in good and functioned as drain inlet	B	L=9.2m, dia= 1.0 m
2,000	478044	1258787	Canal Section	Section has been eroded heavily and many sediments on the canal bed Section area is very wide	D	
2,500	478047	1258292	Canal Section	Do. Some water remains in the canal bottom	D	
2,800	478041	1257988	Drain Inlet	Structure is in good and functioned as drain inlet	B	L=6 m, dia= 1.0 m
3,000	478059	1257764	Canal Section	Some water remains in the canal bottom due to checking the canal about 800 m downstream	C	
3,500	478028	1257322	Canal Section	Do.	C	
3,800	478043	1257008	Earth bund and Turnout	The canal section was checked by earth bund and constructed turnout with help of Word Vision, 2004	C	L=18m, dia=0.5m
4,000	478043	1256867	Canal Section	Section is covered by grass and bush and no water exists	D	
4,500	478018	1256440	Canal Section	Canal slope has been eroded heavily and sediments on the bed	D	
4,800	478030	1256090	E.P.	Canal slope has been eroded heavily and sediments on the bed	C	Close to Tonle Bati river









Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators		A			
Bridges/ Culvert	3	B		1	
Public	3	C		1	
Concrete	3	D		1	
Wooden	0	Total	0	3	0
Private	0				
Concrete	0				
Wooden	0				
Total	0				




- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function

Evaluation of Canal and structures

1. Canal sections from st.1+500 to 3+800 have become big caused by heavy erosion.
2. Some waters remains in the canal caused by rain

Canal No.:	Connection Canal	Kind of structure(s): Bridge	Remarks: Bridge with groove
Station: 0.00 (B.P)	Coordinate<	Northing: 1261020 Easting: 477997	Commune road
  			
<p>Up Stream View</p> <p>Down Stream View</p> <p>B.P.</p>			

Canal No.:	Connection Canal	Kind of structure(s): Box Culvert	Remarks: Commune road
Station: 0.00+500	Coordinate<	Northing: 1260313 Easting: 478012	
  			
<p>Up Stream View</p> <p>Down Stream View</p> <p>Side View</p>			

Canal No.:	Connection Canal	Kind of structure(s): Bridge (3 culverts)	Remarks: Bridge on provincial road
Station: 0.00+900	Coordinate<	Northing: 1259880 Easting: 478024	
  			
<p>Up Stream View</p> <p>Down Stream View</p> <p>Side View</p>			

Canal No.:	Connection Canal	Kind of structure(s): Canal Section	Remarks: Long width section cause by erosion
Station: 1.00+500	Coordinate<	Northing: 1259287 Easting: 478054	
			
Up Stream View	Down Stream View	Side View	


Canal No.:	Connection Canal	Kind of structure(s): Drain Inlet	Remarks: Structure is good, but no water drain from rice field
Station: 1.00+800	Coordinate<	Northing: 1258995 Easting: 478041	
			
Up Stream View	Down Stream View	Side View	




Canal No.:	Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+000	Coordinate<	Northing: 1258787 Easting: 478044	
			
Up Stream View	Down Stream View	Side View	




Canal No.: Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 2.00+500	Coordinate< Northing: 1258292 Easting: 478047	
		
Up Stream View	Down Stream View	Side View



Canal No.: Connection Canal	Kind of structure(s): Drain Inlet	Remarks:
Station: 2.00+800	Coordinate< Northing: 1257988 Easting: 478041	
		
Up Stream View	Down Stream View	Side View

Canal No.: Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 3.00+000	Coordinate< Northing: 1257764 Easting: 478059	
		
Up Stream View	Down Stream View	Side View

Canal No.: Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 3.00+500	Coordinate< Northing: 1257322 Easting: 478028	
		
Up Stream View	Down Stream View	Side View

Canal No.: Connection Canal	Kind of structure(s): Earth bund and turnout	Remarks: Turnout was constructed by Word Vision in 2004
Station: 3.00+800	Coordinate< Northing: 1257008 Easting: 478043	
		
Up Stream View	Down Stream View	Side View

Canal No.: Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 4.00+000	Coordinate< Northing: 1256867 Easting: 478043	
		
Up Stream View	Down Stream View	Side View

Canal No.:	Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 4.00+500	Coordinate<	Northing: 1256440 Easting: 478018	
  			
<p style="text-align: center;">Up Stream View                      Down Stream View                      Side View</p>			

Canal No.:	Connection Canal	Kind of structure(s): Canal Section	Remarks:
Station: 4.00+800 (E.P)	Coordinate<	Northing: 1256090 Easting: 478030	Near Tonle Bati river
  			
<p style="text-align: center;">Up Stream View                      Down Stream View                      Side View</p>			

**Inventory Survey of Existing Canals and Structures**  
**(Kandal Stung Area)**

**Canal name: Flood Protection Dike**

Surveyed in January, 2012 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	4780409	1254005	B.P. Dike/ Road	Dike/ Road surface is paved by laterite	A	Junction between Provincial road and dike/road
400	480396	1254393	Bridge, Commune road	Bridge is still in good condition, but submerged in 2010 flood	B	W=3.5, L=17m
500	480415	1254553	Dike/ Road Section	Gravel and sand pavement remain and surface is smooth	A	Junction to pagoda
800	480670	1254511	Dike/ Road Section	do.	A	Pagoda (Koh Sokroam)
1,000	480736	1254719	Dike/ Road Section	do.	A	
1,500	481199	1254737	Dike/ Road Section	do.	A	
2,000	481591	1254745	Box Culvert with groove	Occasionally used as drain outlet Need to improve (widening)	B	Outlet of KC-4 W=5m, L=2.5m
2,500	482084	1254756	Dike/ Road Section	Gravel and sand pavement remain and surface is smooth	A	
3,000	482585	1254770	Box Culvert with groove,	Culvert is in good condition	B	Outlet of KC-5 W=5.3m, L=2m, H=1.7 m
			Drain Inlet	Section is clogged by soils and grass	C	W=2m, L=1m
3,500	483144	1254794	Dike/ Road Section	Gravel and sand pavement remain and surface is smooth	A	
4,000	483670	1254821	Dike/ Road Section	do.	A	
4,500	484155	1254857	Dike/ Road Section	do.	A	
5,000	484549	1254846	Bridge with regulator (2 gates)	Bridge is still in good condition	B	Outlet of Stung Toch river W=5.3m, L=2m, H=1.7 m
5,300	484832	1254905	Pipe Culvert	do.	B	W=5.3m, L=4m, dia=0.8m (3 pipes)
5,330	484873	1254908	Pipe Culvert,	do.	B	W=5.3m, L=1.2m, dia=1m
5,500	485108	1254922	Dike/ Road Section	Gravel and sand pavement remain and surface is smooth	A	
6,000	485600	1254958	E.P.	do.	A	NR.2

Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	1	A			
Bridges/ Culvert	6	B		6	
Public	6	C			
Concrete	6	D			
Wooden	0	Total	0	6	0




Private	0				
Concrete	0				
Wooden	0				
Total	0				




- A: Fully functioning
- B: Partly deteriorated but function is maintained
- C: Deteriorated, and does not function well
- D: Completely damaged, and does not function

Evaluation of Canal and structures




1. All dike/ road sections are in good condition with laterite soil pavement from B.P to E.P (NR).
2. Some structures were constructed in Pot Pot regime, but still functioning.









Canal No.: Flood dike	Kind of structure(s): Provincial road	Remarks:
Station: 0.00 (B.P)	Coordinate< Northing: 1254005 Easting: 4780409	Junction between Provincial and flood dike/ road
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Bridge	Remarks:
Station: 0.00+400	Coordinate< Northing: 1254393 Easting: 480396	On the Tonle Bati river
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 0.00+500	Coordinate< Northing: 1254553 Easting: 480415	Junction to road to pagoda
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Pagoda	Remarks:
Station: 0.00+800	Coordinate< Northing: 1254511 Easting: 480670	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 1.00+000	Coordinate< Northing: 1254719 Easting: 480736	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 1.00+500	Coordinate< Northing: 1254737 Easting: 481199	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Box Culvert	Remarks:
Station: 2.00+000	Coordinate< Northing: 1254745 Easting: 481591	Box Culvert with groove On KC-4
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 2.00+500	Coordinate< Northing: 1254756 Easting: 482084	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Box Culvert	Remarks:
Station: 3.00+000	Coordinate< Northing: 1254770 Easting: 482585	Box Culvert with groove & Drain Inlet on KC-5
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Drain Inlet	Remarks:
Station: 3.00+000	Coordinate< Northing: 1254770 Easting: 482585	Box Culvert with groove & Drain Inlet
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 3.00+500	Coordinate< Northing: 1254794 Easting: 483144	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 4.00+000	Coordinate< Northing: 1254821 Easting: 483670	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 4.00+500	Coordinate< Northing: 1254857 Easting: 484155	
		
Up Stream View	Down Stream View	Side View




Canal No.: Flood dike	Kind of structure(s): Regulator	Remarks: Regulator with 2 gates & Check Structure on Stung Toch river
Station: 5.00+000	Coordinate< Northing: 1254846 Easting: 484549	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s): Check Structure	Remarks:
Station: 5.00+000	Coordinate< Northing: 1254846 Easting: 484549	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+300	Coordinate< Northing: 1254905 Easting: 484832	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+330	Coordinate< Northing: 1254908 Easting: 484873	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s): Road Section	Remarks:
Station: 5.00+550	Coordinate< Northing: 1254922 Easting: 485108	
		
Up Stream View	Down Stream View	Side View

Canal No.: Flood dike	Kind of structure(s):	Remarks:
Station: 6.00+000 (E.P)	Coordinate< Northing: 1254958 Easting: 485600	Junction with NR.2
		
Up Stream View	Down Stream View	Side View

**Inventory Survey of Existing Canals and Structures  
(Tonle Bati Area)**

**Canal name: MC-1 (MR-1)**

Surveyed in June to July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Eval uatio n	Remarks
0	0484026	1252808	Intake and Pumping Station, 3 pumps	One diesel engine was renewed in 2011. Gates are old, but still functioned	B	2 nos, of Gate (H=2.7m-3.2m, L=5.25m, W=3m)
200	0484028	1252644	Turning Point	No diversion structure for MC-3 was provided	-	Most flow from intake entered to MC-3
630	0484016	1252412	Bridge (Krang Knong Commune,	Steel girder made is still in good condition	A	L=15m, W=5m, Span=2.9m, Built 25-05-2006)
730	0484023	1252309	Houses (5 nos)	Temporary houses for farming	-	
850	0484022	1252190	Regulator with groove	Presently used as house access by placing plates and logs	D	(4 Span, @1.2m Canal Width= 12m
1,090	0484026	1251977	Canal section	Canal is wide and shallow, canal bed is covered by grasses	C	
1,160	0484028	1251913	Diversion Point	No diversion structure for MC-2 was provided	-	Most of water flow into MC-1 due to higher bed level of MC-2
1,230	0484087	1251876	1000m, Canal Depth=0.7m	Canal section was re-shaped recently but many grasses on the canal bed	B	
1,580	0484361	1251712	Private Wooden Bridge	Motor cycle is passable	D	(Span=2m, L=10.2m, W=2.1m)
1,620	0484390	1251696	Private Pump	Pumped water is used for small scale factory	-	
1,770	0484496	1251631	Canal section	Canal section was re-shaped recently but many grasses on the canal bed	B	
2,170	0484795	1251437	Bridge across National Road N° 2,	The bridge is under repairing (Jan/2012)	A	W(outside)=6.2m, W(inside)=4m, L(outside)=5.9m, L(inside)=3.8m, H=2.3m
2,280	0484862	1251387	Canal section	Canal section was re-shaped recently	B	
2,780	0485172	1251024	Canal section	Canal section has been eroded heavily and many sediments on canal bed	C	
2,960	0485276	1250874	Bridge (on Village road)	3 span bridge is still new and flow area is secured	A	built on 26-03-1999, Span=3m, W=3m, L=12.3m, H=2m)
3,320	0485465	1250596	Canal section	Canal section has been eroded heavily and many sediments on canal bed	C	Canal section is wider than 30 m
3,520	0485572	1250445	Bridge (on Village road)		B	H=1.8m, W=5.5m, L=5m, Triple Pipe Culvert (dia=1m)






3,820	0485742	1250186	Canal section	Canal section has been eroded heavily and many sediments on canal bed	C	Canal section is wider than 30 m
4,230	0485966	1249873	Pipe Culvert	Farm access, but not many traffic	C	W=3.3m, dia=1m, built in April-2005), Canal Depth=1m
4,320	0486018	1249782	Canal section	Canal section has been eroded heavily and many sediments on canal bed	C	Canal section is wider than 30 m
4,850	0486248	1249359	Bridge with gates (Commune & Village, W=3.7m)	Structure is new and functioned as check	B	Two gates (W=1.1m, H=1m each)
5,190	0486253	1249026	Pipe Culvert	Pipe is cloged	C	(dia=0.8m, W=4.6m) built by World Vision of Cambodia in Sep-2003
5,360	0486255	1248853	Canal section	Canal section has been eroded but not so serious as one in upstream sections	C	
5,600	0486251	1248618	Pipe Culvert on village road	Brick made wall has been damaged	C	(dia=0.8m, W=5.6m) built on 02-06-2006, Canal Depth= 0.2m
5,860	0486246	1248358	Canal section	Canal section remains due to no flow has reached to the section	B	
5,930	0486239	1248298	Pipe Culvert	The canal is obstructed by earth mede bund to store water, and small	D	(W=3.2m, dia=0.4m), Diversion Point
6,370	0486240	1247888	EP of Stage-1, Pipe Culvert (Commune road)	Stone masonry made	B	W=5.5m, dia=1m, by World Vision




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	2	A		2	
Bridges/ Culvert	11	B	1	2	
Public	10-	C		5	
Concrete	10 (one is steel)	D	1	2	
Wooden	0	Total	2	11	5
Private	1				
Concrete	0				
Wooden	1				
Total	0				




- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function


#### Evaluation of Canal and structures




1. Sta. 1+200 to 2+300 has been reshaped by MOWRAM, but remaining sections have been eroded and canal sections become wide and shallow.
2. Some structures were rehabilitated by assistance of NGO (World vision)
3. No structures for dividing water to other canals are found




Canal No.: MC1	Kind of structure(s): Pumping Station No. 22-23 , Gate & Bridge	Remarks: Village Road
Station: 0.00(B.P.)	Coordinate< Northing: 1252808 Easting: 0484026	Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks: Turning Point
Station: 0.00+200	Coordinate< Northing: 1252644 Easting: 0484028	Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Pipe Culvert(Private)	Remarks: Double Pipe Culvert
Station: 0.00+300	Coordinate< Northing: 1252631 Easting: 0484103	Commune Road
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Bridge	Remarks:
Station: 0.00+630	Coordinate< Northing: 1252412 Easting: 0484016	Krang Knong Commune Bridge Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Houses(Temporary)	Remarks:
Station: 0.00+730	Coordinate< Northing: 1252309 Easting: 0484023	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC1	Kind of structure(s): Bridge(Wooden)	Remarks:
Station: 0.00+850	Coordinate< Northing: 1252190 Easting: 0484022	House Access Bridge with Concrete Wall
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 1.00+90	Coordinate< Northing: 1251977 Easting: 0484026	Measurement Point
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 1.00+160	Coordinate< Northing: 1251913 Easting: 0484028	Diversion Point of Canal L4 Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 1.00+230	Coordinate< Northing: 1251876 Easting: 0484087	Routine Survey Length: 1000m
		
Up Stream View	Down Stream View	



Canal No.: MC1	Kind of structure(s): Bridge (Private Wooden)	Remarks: Farm Access
Station: 1.00+580	Coordinate< Northing: 1251712 Easting: 0484361	Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks: Private Pump to Farm Use
Station: 1.00+620	Coordinate< Northing: 1251696 Easting: 0484390	Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Canal	Remarks: Routine Survey
Station: 1.00+770	Coordinate< Northing: 1251631 Easting: 0484496	Length: 1500m
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC1	Kind of structure(s): Bridge (Concrete)	Remarks:
Station: 2.00+170	Coordinate< Northing: 1251437 Easting: 0484795	Bridge across National Road N° 2 Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 2.00+280	Coordinate< Northing: 1251387 Easting: 0484862	Routine Survey Length: 2000m
		
Up Stream View	Down Stream View	




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 2.00+780	Coordinate< Northing: 1251024 Easting: 0485172	Routine Survey Length: 2500m
		
Up Stream View	Down Stream View	



Canal No.: MC1	Kind of structure(s): Bridge (Village)	Remarks:
Station: 2.00+960	Coordinate< Northing: 1250874 Easting: 0485276	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 3.00+320	Coordinate< Northing: 1250596 Easting: 0485465	Routine Survey Length: 3000m
		
Up Stream View	Down Stream View	




Canal No.: MC1	Kind of structure(s): Bridge (Village)	Remarks:
Station: 3.00+520	Coordinate< Northing: 1250445 Easting: 0485572	There are Triple Pipe Culvert Village Road
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 3.00+820	Coordinate< Northing: 1250186 Easting: 0485742	Routine Survey Length: 3500m
		
Up Stream View		Down Stream View



Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 4.00+230	Coordinate< Northing: 1249873 Easting: 0485966	Farm Access Routine Survey
		
Up Stream View		Down Stream View
		
Structure/Side View		




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 4.00+320	Coordinate< Northing: 1249782 Easting: 0486018	Routine Survey Length: 4000m
		
Up Stream View		Down Stream View





Canal No.: MC1	Kind of structure(s): Gate Structure	Remarks:
Station: 4.00+850	Coordinate< Northing: 1249359 Easting: 0486248	Village Road Length: 4500m
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+190	Coordinate< Northing: 1249026 Easting: 0486253	Built by World Vision of Cambodia Farm Access
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 5.00+360	Coordinate< Northing: 1248853 Easting: 0486255	Routine Survey Length: 5000m
		
Up Stream View	Down Stream View	




Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+600	Coordinate< Northing: 1248618 Easting: 0486251	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 5.00+860	Coordinate< Northing: 1248358 Easting: 0486246	Private Pump Length: 5500m
		
Up Stream View	Down Stream View	



Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 5.00+930	Coordinate< Northing: 1248298 Easting: 0486239	Diversion Point Private Pump
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 6.00+370	Coordinate< Northing: 1247888 Easting: 0486240	Commune Road by World Vision Length: 6000m
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 6.00+870	Coordinate< Northing: 1247378 Easting: 0486230	Routine Survey Length: 6500m
		
Up Stream View	Down Stream View	

Canal No.: MC1	Kind of structure(s): Pipe Culvert	Remarks:
Station: 7.00+100	Coordinate< Northing: 1247165 Easting: 0486231	Commune Road Diversion Point
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 7.00+380	Coordinate< Northing: 1246890 Easting: 0486232	Routine Survey Length: 7000m
		
Up Stream View		Down Stream View

Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 7.00+880	Coordinate< Northing: 1246376 Easting: 0486231	Routine Survey Length: 7500m
		
Up Stream View		Down Stream View

Canal No.: MC1	Kind of structure(s): Canal	Remarks:
Station: 8.00+380	Coordinate< Northing: 1245938 Easting: 0486221	Routine Survey Length: 8000m
		
Up Stream View		Down Stream View

Canal No.: MC1	Kind of structure(s): Houses	Remarks: Rice fields are the downstream side across the rural road, and the house is on the upstream. This house owners has encroached the public property by filling land into the canal in order to make their own uses such as digging small pond and making their house wall surrounded by the thorny bamboo trees at the back of their house.
Station: 8.00+670(EP)	Coordinate< Northing: 1245729 Easting: 0486217	
		
Up Stream View	Structure/Side View	Pond

**Inventory Survey of Existing Canals and Structures  
(Tonle Bati Area)**

**Canal name: MC-2 (M-1)**

Surveyed in June to July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0484029	125189 7	B.P.	The canal is branched off from MC-1, but no division structure exists	-	Canal bed is higher than one of MC-1, so less water enter to MC-2
510	0484027	125142 4	Canal section, 500 m	The sections shallow and covered by grasses	C	
1,010	0484029	125093 9	Canal section, 1,000 m	Do.	C	
1,360	0484043	125059 4	Houses=2	Two (2) houses on the canal bank,	-	Roof and walls are made by galvanized steel plates
1,510	0484045	125044 9	Turnout Gate	Culvert portion was eroded and damaged	C	W=0.8m, H=0.5m), Width of both side=8m, Canal Width=10m, Canal Depth=0.8m, (1,500m)
1,640	0484022	125030 9	Turning Point to private pond	Water is diverted to private pond without structure (breach of the canal bank)	C	
1,810	0484018	125013 7	Bridge (Commune)	Flow area seems be enough and well maintained	B	W=5.5m, L=4.4m, H=1.7m)
2,010	0484030	124999 7	Bridge across National Road N° 2	Steel truss bridge is in good condition	A	L=13.5m, W=7.6m, Span =3.1m, H=2.2m
2,310	0484047	124972 0	Temporary hut for farming	One nos. made by bamboo and vinyl sheets	-	
2,550	0484037	124948 6	Bridge (Commune road)	Up and downstream of the bridge is widely inundated as a pond Lateral canal branched off from this point	C	W=4.1m, H=0.8m, L=5m, Span=1.82m), Canal Depth=1.2m, (2,500m)
2,900	0484045	124913 3	Houses (7 nos) on the canal bank	Temporary huts and houses of seven (7) nos. in total exist on the canal bank	-	
3,060	0484040	124898 7	Canal section, 3,000 m	Canal section is wide and shallow	C	
3,560	0484039	124851 1	Canal section, 3,500 m	Do.	C	
3,810	0484034	124829 1	Bridge (Commune road) EP of Stage-1	Condition of bridge is still in good condition	C	L(inside)=4.3m, L(outside) =10.7m, W=5.4m, Span=2.1m, H=1m, Canal Depth=1.1m)




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A		1	
Bridges/ Culvert	4	B		1	
Public	4	C		2	
Concrete	4	D			
Wooden	0	Total	0	4	8
Private	0				



Concrete	0				
Wooden	0				
Total	0				



- A: Fully functioning
- B: Partly deteriorated but function is maintained
- C: Deteriorated, and does not function well
- D: Completely damaged, and does not function

Evaluation of Canal and structures




1. Very few structures on the canal, but no regulator on it because of drainage use.
2. Canal sections are eroded and widened due to no maintenance for long time (more than 30 years)
3. Huts and temporary houses of 8 nos. in total exist on the canal bank near crossing points with NR-2




Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 0.00(B.P)	Coordinate< Northing: 1251897 Easting: 0484029	Diversion Point of MC1 with MC2 Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 0.00+510	Coordinate< Northing: 1251424 Easting: 0484027	Routine Survey Length: 500m
		
Up Stream View	Down Stream View	

Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 1.00+10	Coordinate< Northing: 1250939 Easting: 0484029	Routine Survey Length: 1000m
		
Up Stream View	Down Stream View	






Canal No.: MC2	Kind of structure(s): Houses	Remarks:
Station: 1.00+360	Coordinate< Northing: 1250594 Easting: 0484043	Routine Survey There are two houses.
		
Up Stream View	Down Stream View	Structure/Side View


Canal No.: MC2	Kind of structure(s): Gate Structure	Remarks:
Station: 1.00+510	Coordinate< Northing: 1250449 Easting: 0484045	Diversion Point to Secondary Canal Length: 1500m Gate structure is on the left hand side of the Canal.
		
Secondary Canal View	Up Stream View	Down Stream View




Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 1.00+640	Coordinate< Northing: 1250309 Easting: 0484022	Turning Point to Private Pond Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC2	Kind of structure(s): Bridge (Commune)	Remarks:
Station: 1.00+810	Coordinate< Northing: 1250137 Easting: 0484018	Commune Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC2	Kind of structure(s): Bridge	Remarks:
Station: 2.00+10	Coordinate< Northing: 1249997 Easting: 0484030	Bridge across National Road N° 2 Length: 2000m
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC2	Kind of structure(s): House(Temporary)	Remarks:
Station: 2.00+310	Coordinate< Northing: 1249720 Easting: 0484047	Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC2	Kind of structure(s): Bridge (Commune)	Remarks:
Station: 2.00+550	Coordinate< Northing: 1249486 Easting: 0484037	Commune Road Length: 2500m
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC2	Kind of structure(s): Houses	Remarks:
Station: 2.00+900	Coordinate< Northing: 1249133 Easting: 0484045	There are 7 houses. Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 3.00+60	Coordinate< Northing: 1248987 Easting: 0484040	Routine Survey Length: 3000m
		
Up Stream View	Down Stream View	



Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 3.00+560	Coordinate< Northing: 1248511 Easting: 0484039	Routine Survey Length: 3500m
		
Up Stream View		Down Stream View




Canal No.: MC2	Kind of structure(s): Bridge (Commune)	Remarks:
Station: 3.00+810	Coordinate< Northing: 1248291 Easting: 0484034	Commune Road Routine Survey
		
Up Stream View		Down Stream View
		
Structure/Side View		



Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 4.00+60	Coordinate< Northing: 1248041 Easting: 0484028	Routine Survey Length: 4000m
		
Up Stream View		Down Stream View



Up Stream View	Down Stream View
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Canal No.: MC2	Kind of structure(s): Canal	Remarks: Crossing Point of Sub-Canal Routine Survey
Station: 4.00+400	Coordinate< Northing: 1247695 Easting: 0484029	
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC2	Kind of structure(s): Canal	Remarks: Routine Survey Length: 4500m
Station: 4.00+580	Coordinate< Northing: 1247507 Easting: 0484027	
		
Up Stream View	Down Stream View	

Canal No.: MC2	Kind of structure(s): Bridge (Commune)	Remarks: Commune Road Routine Survey
Station: 4.00+930	Coordinate< Northing: 1247171 Easting: 0484034	
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC2	Kind of structure(s): Canal	Remarks: Routine Survey Length: 5000m
Station: 5.00+90	Coordinate< Northing: 1247021 East ing: 0484028	
		
Up Stream View		Down Stream View




Canal No.: MC2	Kind of structure(s): Canal	Remarks: Routine Survey Length: 5500m
Station: 5.00+600	Coordinate< Northing: 1246524 East ing: 0484032	
		
Up Stream View		Down Stream View

Canal No.: MC2	Kind of structure(s): Water Obstruction Structure	Remarks: Routine Survey The Water Obstruction Structure was constructed in Pol Pot Regime and now broken. It is on the right hand side of Canal.
Station: 6.00+40	Coordinate< Northing: 1246149 East ing: 0484036	
		
Structure/Side View		Canal View

Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 6.00+110	Coordinate< Northing: 1246088 Easting: 0484035	Routine Survey Length: 6000m
		
Up Stream View		Down Stream View

Canal No.: MC2	Kind of structure(s): Bridge (Commune)	Remarks:
Station: 6.00+570	Coordinate< Northing: 1245631 Easting: 0484034	Commune Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC2	Kind of structure(s): Canal	Remarks:
Station: 6.00+610	Coordinate< Northing: 1245588 Easting: 0484040	Routine Survey Length: 6500m
		
Up Stream View		Down Stream View

Canal No.: MC2	Kind of structure(s): Bridge	Remarks: Provincial Road (Kandal to Takeo), Krang Ompel Village
Station: 6.00+870(EP)	Coordinate< Northing: 1245343 Easting: 0484049	
		
Up Stream View	Down Stream View	Structure/Side View



**Inventory Survey of Existing Canals and Structures  
(Tonle Bati Area)**

**Canal name: MC-3**

Surveyed in June to July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks	
0	0484103	1252631	Pipe Culvert (Double)	Road surface is damaged but culvert is functional	B	L=10.8m, W=4.5m, dia=1m	
250	0484332	1252629	Private Wooden Bridge (Broken)	Abandoned one canal section is covered by thick trees and grass	D		
360	0484442	1252631	Private Bridge	Piers are only remained (no slab plate), abandoned bridge	D		
510	0484579	1252630	Diversion Point, 500m	To lateral canal by pump	D	Lateral canal is higher than water level of MC3	
990	0485008	1252638	Pipe Culvert (Village Road)	Culvert is covered by thick grass	B	dia=1m, W=4m, built in May-2008)	
1,200	0485218	1252623	Optical Cable Line Point				
1,290	0485294	1252634	Small Private Bridge	Wooden house access	C	W=0.5 m	
1,340	0485339	1252630	Small Private Bridge	do.	C	W=0.5 m	
1,460	0485364	1252650	Turnout point to lateral canal	Turnout has no gate but groove; bridge on the lateral canal	C	Bridge & Groove (W=3.7m, L=2m)	
1,530	0485437	1252649	Canal Section at 1,500 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	C		
1,650	0485536	1252638	Bridge across National Road N° 2	The culvert seems old but still functioned	C	(Span=1.4m, L=5.1m, H=1.5m, W(inside)=6.9m, W(outside)=8m), Canal Depth=2m	
2,050	0485934	1252629	Canal Section at 2,000 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	Dumped materials will return to canal soon	
2,510	0486379	1252630	Private Bridge	Steel made truss bridge to private farm, flow area is good enough	A	(L=15.4m, W=3.84m, Span=1.5m, H=1.3m)	
2,570	0486431	1252627	Canal Section at 2,500 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B		
2,700	0486549	1252636	Check Gate N° 1	The structure was constructed by fund of CPP	B	Two Gates, W=1.2m, H=2.8m), Bridge of Gate (W=4.7m) built on 09-03-2011	
3,020	0486857	1252628	Diversion Point, (3,000m)	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	To Lateral no L3	
3,060	0486881	1252607	Intake Canal L3	Gates are installed but no lifting gears  <EP of Stage-1>	C	Two Gates(H=1.5m, W=1m), Water Depth=0.8m), Width of Bridge=4.2m, Width of Canal=8.3m, Canal	




						Depth=1.2m
3,540	0487328	1252629	Canal Section at 3,500 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	
3,600	0487384	1252638	Gate N° 2	The structure was constructed by fund of CPP; downstream is eroded due to no protection	B	Two Gates, W=1.2m, H=2.8m), Width of Bridge=4.5m
4,040	0487802	1252636	Canal Section at 4,000 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	
4,170	0487915	1252642	Private Pipe Culvert	This structure is obstructing canal flow	D	dia=1m, W=3.6m, Width of Canal=7.5m, Canal Depth=1.8m
4,550	0488264	1252637	Canal Section at 4,500 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	
4,750	0488449	1252641	Gate N° 3	The structure was constructed by fund of CPP; downstream is eroded due to no protection	C	W=1.2m, H=2.8m, Pipe Culvert (W=4.1m, dia=1m) Built on 26-06-2007
5,050	0488750	1252646	Canal Section at 5,000 m	The section was dredged in June 2011 by MOWRAM, but dredged materials are dumped on both side of canal	B	
5,320	0489003	1252639	Pipe Culvert Private	Temporary access and rough construction by farmers	C	(W=3.8m, dia=1m)
5,450	0489130	1252644	Houses (11 nos)	Eleven (11) Nippa huts exist on the canal bank	-	No removal would be required for rehab.
5,700	0489374	1252633	Gate N° 4	The structure was constructed by fund of CPP; downstream is eroded due to no protection	B	W=1.2m, H=2m, Width of Bridge=7m & E.P.

Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	4	A		1	
Bridges/ Culvert	14	B	4	5	
Public	7	C		5	
Concrete	7	D		3	
Wooden	0	Total	4	14	11
Private	7				
Concrete	3				
Wooden	4				
Total	0				


- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function




#### Evaluation of Canal and structures




1. Most of canal section of 4 km out of 5.7 km was dredged in 2011 by MOWRAM, but upstream part from NR-2 did not any work yet
2. Four (4) regulators were constructed by NGO (CPP: Political Party) contribution
3. 11 houses (temporary houses made by nipper) exist at the end of canal, but no need to move under Stage 1




Canal No.: MC3	Kind of structure(s): Pipe Culvert(Double)	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1252631 Easting: 0484103	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC3	Kind of structure(s): Bridge (Private Wooden)	Remarks:
Station: 0.00+250	Coordinate< Northing: 1252629 Easting: 0484332	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC3	Kind of structure(s): Bridge (Private)	Remarks:
Station: 0.00+360	Coordinate< Northing: 1252631 Easting: 0484442	Routine Survey
		
Structure/Side View		




Canal No.: MC3	Kind of structure(s): Canal	Remarks:
Station: 0.00+510	Coordinate< Northing:1252630 Easting:0484579	Diversion Point Length: 500m
		
Up Stream View	Down Stream View	Secondary Canal



Canal No.: MC3	Kind of structure(s): Pipe Culvert (Village)	Remarks:
Station: 0.00+990	Coordinate< Northing: 1252638 Easting: 0485008	Village Road Length: 1000m
		
Up Stream View	Down Stream View	Road along Canal




Canal No.: MC3	Kind of structure(s): Canal (Village Road)	Remarks:
Station: 1.00+200	Coordinate< Northing: 1252623 Easting: 0485218	Optical Cable Line Point (Until Vietnam Border)
		
Up Stream View	Down Stream View	Road along Canal




Canal No.: MC3	Kind of structure(s): Bridge(Small Private)	Remarks:
Station: 1.00+290	Coordinate< Northing: 1252634 Easting: 0485294	Made by wood for House Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Bridge(Small Private)	Remarks:
Station: 1.00+340	Coordinate< Northing: 1252630 Easting: 0485339	Made by wood for House Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Bridge & Groove	Remarks:
Station: 1.00+460	Coordinate< Northing: 1252650 Easting: 0485364	Village Road Bridge is on the left Bank of Canal.
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Canal	Remarks:
Station: 1.00+530	Coordinate< Northing: 1252649 East ing: 0485437	Routine Survey Length: 1500m
		
Up Stream View		Down Stream View




Canal No.: MC3	Kind of structure(s): Bridge	Remarks:
Station: 1.00+650	Coordinate< Northing: 1252638 East ing: 0485536	Bridge across National Road N° 2 Made by Concrete
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC3	Kind of structure(s): Canal	Remarks:
Station: 2.00+50	Coordinate< Northing: 1252629 East ing: 0485934	Routine Survey Length: 2000m
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC3	Kind of structure(s): Bridge (Private)	Remarks:
Station: 2.00+510	Coordinate< Northing: 1252630 Easting: 0486379	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Canal	Remarks:
Station: 2.00+570	Coordinate< Northing: 1252627 Easting: 0486431	Routine Survey Length: 2500m Dredged soils are dumped on the ridge of canal in June 2011 by MOWRAM. Dredging was done for 4Km by MOWRAM.
		
Up Stream View	Down Stream View	

Canal No.: MC3	Kind of structure(s): Check Gate N° 1 & Bridge	Remarks:
Station: 2.00+700	Coordinate< Northing: 1252636 Easting: 0486549	Village Road The Structure was constructed by fund of CPP, but not PDOWRAM / MOWRAM.
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC3	Kind of structure(s): Canal	Remarks: Diversion Point
Station: 3.00+20	Coordinate< Northing: 1252628 Easting: 0486857	Length: 3000m Dredged soils are dumped on canal ridge.
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Intake for Canal L3	Remarks:
Station: 3.00+60	Coordinate< Northing: 1252607 Easting: 0486881	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: MC3	Kind of structure(s): Canal	Remarks:
Station: 3.00+540	Coordinate< Northing: 1252629 Easting: 0487328	Routine Survey Length: 3500m
		
Up Stream View	Down Stream View	



Canal No.: MC3	Kind of structure(s): Check Gate N° 2 & Bridge	Remarks: Village Road The Structure was constructed by fund of CPP, but not PDOWRAM / MOWRAM.
Station: 3.00+600	Coordinate< Northing: 1252638 Easting: 0487384	
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: MC3	Kind of structure(s): Canal	Remarks: Routine Survey Length: 4000m
Station: 4.00+40	Coordinate< Northing: 1252636 Easting: 0487802	
		
Up Stream View	Down Stream View	




Canal No.: MC3	Kind of structure(s): Pipe Culvert(Private)	Remarks: Farm Access Routine Survey The Structure was constructed by fund of CPP, but not PDOWRAM / MOWRAM.
Station: 4.00+170	Coordinate< Northing: 1252642 Easting: 0487915	
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Canal	Remarks: Routine Survey Length: 4500m Dredged soils are dumped on the ridge of canal in June 2011 by MOWRAM. Dredging was done for 4Km by MOWRAM.
Station: 4.00+550	Coordinate< Northing: 1252637 Easting: 0488264	
		
Up Stream View		Down Stream View

Canal No.: MC3	Kind of structure(s): Check Gate N° 3	Remarks: There is a Pipe Culvert Village Road The Structure was constructed by fund of CPP, but not PDOWRAM / MOWRAM.
Station: 4.00+750	Coordinate< Northing: 1252641 Easting: 0488449	
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: MC3	Kind of structure(s): Canal	Remarks: Routine Survey Length: 5000m Dredged soils are dumped on the ridge of canal in June 2011 by MOWRAM. Dredging was done for 4Km by MOWRAM.
Station: 5.00+50	Coordinate< Northing: 1252646 Easting: 0488750	
		
Up Stream View		Down Stream View

Canal No.: MC3	Kind of structure(s): Pipe Culvert (Private)	Remarks:
Station: 5.00+320	Coordinate< Northing: 1252639 Easting: 0489003	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Houses	Remarks:
Station: 5.00+450	Coordinate< Northing: 1252644 Easting: 0489130	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: MC3	Kind of structure(s): Check Gate No 4 & Bridge	Remarks:
Station: 5.00+700	Coordinate< Northing: 1252633 Easting: 0489374	Commune Road Routine Survey The Structure was constructed by fund of CPP, but not PDOWRAM / MOWRAM.
		
Up Stream View	Down Stream View	Structure/Side View

**Inventory Survey of Existing Canals and Structures**  
(Tonle Bati Area)

Canal name: L-3

Surveyed in June to July, 2011 by JICA Survey Team



Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0486883	1252604	B.P, Intake with Gate	Gate frame and lifting gear were lost; gate is not functioned Canal section is well remained as designed	D	(H=1.5m, W=1m), Water Depth=0.8m), Width of Bridge =4.2m, Width of Canal=8.3m, Canal Depth =1.2m
520	0487152	1252173	Private Pipe Culvert	Farm access; function remain	C	(W=4.3m, dia=0.8m)
890	0487347	1251865	Private Pipe Culvert	Do.	C	(W=4m, dia=0.5m)
1,030	0487377	1251733	Canal section at 1,000 m	No erosion, slope is covered by grasses; well maintenance	B	
1,240	0487375	1251524	Private Pipe Culvert	No damage and well maintained	B	(dia=0.5m, W=4.7m, Built on 23-03-2008)
1,550	0487376	1251226	Canal section at 1,500 m	No erosion, slope is covered by grasses; well maintenance	B	
1,780	0487371	1250994	Private Pipe Culvert	No damage and well maintained	B	(dia=0.6m, W=3.8m)
2,050	0487115	1250994	Canal section at 2,000 m	Canal section become wide and shallow	C	




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A			
Bridges/ Culvert	4	B		2	
Public	0	C		2	
Concrete	0	D			
Wooden	0	Total	0	4	0
Private	4				
Concrete	4				
Wooden					
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function



Evaluation of Canal and structures




1. Canal sections are rather well maintained because of water supply to the canal
2. No regulator (check) is provided



Canal No.: L3	Kind of structure(s): Gate Structure	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1252604 Easting: 0486883	Along the Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L3	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+520	Coordinate< Northing: 1252173 Easting: 0487152	Farm Access Length: 500m
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L3	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+890	Coordinate< Northing: 1251865 Easting: 0487347	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L3	Kind of structure(s): Canal	Remarks:
Station: 1.00+30	Coordinate< Northing: 1251733 Easting: 0487377	Routine Survey Length: 1000m
		
Up Stream View		Down Stream View

Canal No.: L3	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+240	Coordinate< Northing: 1251524 Easting: 0487375	Farm Access Routine Survey
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: L3	Kind of structure(s): Canal	Remarks:
Station: 1.00+550	Coordinate< Northing: 1251226 Easting: 0487376	Routine Survey Length: 1500m
		
Up Stream View		Down Stream View

Canal No.: L3	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+780	Coordinate< Northing: 1250994 Easting: 0487371	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L3	Kind of structure(s): Canal	Remarks:
Station: 2.00+50(EP)	Coordinate< Northing: 1250994 Easting: 0487115	Routine Survey Length: 2000m
		
Up Stream View	Down Stream View	

**Inventory Survey of Existing Canals and Structures**  
**(Tonle Bati Area)**

**Canal name: L-4**

Surveyed in June to July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0485215	1250990	B.P, Diversion Point of MC1	No structure at the diversion point Canal has been deteriorated (become shallow and widened)	-	
560	0485737	1250995	Canal section at 500m	Canal section is maintained in Village area	-	
640	0485807	1250992	Regulator with two Gates	Good condition	B	W=1m, H=1m
			Bridge	Good condition	B	(L(inside)=4.7m, L(outside)=5.6m, W=2.8m) & Pipe Culvert (Double, dia=0.8m) & E.P.



Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	1	A			
Bridges/ Culvert	0	B			
Public	0	C			
Concrete	0	D	1		
Wooden	0	Total	1	0	0
Private	0				
Concrete	0				
Wooden	0				
Total	0				



- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function




Evaluation of Canal and structures

1. Canal section of the first 500 m has been deteriorated and many grasses on the canal bed
2. Only one structure combined of regulator and bridge exists on the canal



Canal No.: L4	Kind of structure(s): Canal	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1250990 Easting: 0485215	Diversion Point of MC1
		
Up Stream View		Down Stream View

Canal No.: L4	Kind of structure(s): Canal	Remarks:
Station: 0.00+560	Coordinate< Northing: 1250995 Easting: 0485737	Routine Survey
		
Up Stream View		Down Stream View

Canal No.: L4	Kind of structure(s): Gate Structure	Remarks:
Station: 0.00+640 (EP)	Coordinate< Northing: 1250992 Easting: 0485807	There are Bridge and Pipe Culvert
		
Up Stream View	Down Stream View	Structure/Side View

**Inventory Survey of Existing Canals and Structures**  
**(Tonle Bati Area)**

**Canal name: L-5**

Surveyed in June to July, 2011 by JICA Survey Team



Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0485546	1250442	B.P. Diversion point from MC-1	Canal has been eroded and no sufficient flow has reached	-	
150	0485412	1250442	Private Pipe Culvert	Pipe has mostly clogged by soils Farm access	C	dia=0.5m, L=4.1m
350	0485207	1250442	Private Pipe Culvert	Pipe dia seems to be too small for conveying water Farm access	C	dia=0.4m, L=3.1m
500	0485066	1250442	Canal section at 500 m	The section has been eroded and become flat; many sediments on the bed	-	
710	0484870	1250446	Pipe Culvert on village road	Pipe has mostly clogged by soils	C	dia=0.8m, W=6m
1,000	0484562	1250450	Canal section at 1,000 m	The section has been eroded and become flat; many sediments on the bed	-	
1,110	0484442	1250449	Private Pipe Culvert & E.P.		C	dia=0.8m, W=5.2m




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A			
Bridges/ Culvert	4	B			
Public		C		4	
Concrete	1	D			
Wooden	0	Total	0	4	0
Private	3				
Concrete	3				
Wooden					
Total	0				




- A: Fully functioning  
 B: Partly deteriorated but function is maintained  
 C: Deteriorated, and does not function well  
 D: Completely damaged, and does not function



Evaluation of Canal and structures




1. Canal sections are heavily deteriorated due to erosion and no maintenance work for long period
2. Structures are also not in good condition



Canal No.: L5	Kind of structure(s): Canal	Remarks: Along the Commune Road Routine Survey
Station: 0.00(B.P.)	Coordinate< Northing: 1250442 Easting: 0485546	
		
Up Stream View		Down Stream View




Canal No.: L5	Kind of structure(s): Pipe Culvert(Private)	Remarks: Farm Access Routine Survey
Station: 0.00+150	Coordinate< Northing: 1250442 Easting: 0485412	
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: L5	Kind of structure(s): Pipe Culvert(Private)	Remarks: Farm Access Routine Survey
Station: 0.00+350	Coordinate< Northing: 1250442 Easting: 0485207	
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: L5	Kind of structure(s): Canal	Remarks: Routine Survey
Station: 0.00+500	Coordinate< Northing: 1250442 Easting: 0485066	
		
Up Stream View		Down Stream View

Canal No.: L5	Kind of structure(s): Pipe Culvert(Private)	Remarks: Along Village Road Routine Survey
Station: 0.00+710	Coordinate< Northing: 1250446 Easting: 0484870	
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: L5	Kind of structure(s): Canal	Remarks: Routine Survey
Station: 1.00	Coordinate< Northing: 1250450 Easting: 0484562	
		
Up Stream View		Down Stream View

Canal No.: L5	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+110(EP)	Coordinate< Northing: 1250449 Easting: 0484442	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

**Inventory Survey of Existing Canals and Structures  
(Tonle Bati Area)**

Canal name: L-6

Surveyed in June to July, 2011 by JICA Survey Team




Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0485978	1249877	B.P, Pipe Culvert Private	Inlet of the canal is considerably narrowed by this culvert To be removed	D	dia=0.5m, W=4.6m, Farm access
300	0486265	1249875	Pipe Culvert (Private)	Pipe might be clogged and no protection of embankment is done	D	dia=0.6m, W=4m Farm access
500	0486462	1249873	Pipe Culvert (Private)	Pipe is submerged by soils	D	dia=0.5m, W=4m
510	0486477	1249871	Pipe Culvert (Private)	House access	C	dia=0.4m, W=6m
660	0486627	1249874	Pipe Culvert Village road	Condition of road and protection of embankment is rather good	C	Double, , dia=0.4m & 0.5m, W=5.5m
760	0486731	1249869	Private Pipe Culvert	Farm access	C	dia=0.5m, W=3m
870	0486856	1249868	Pipe Culvert (Private)	Diversion Point	C	dia=0.5m, W=4m,
1,010	0487003	1249866	Canal section at 1,000 m	No shape of canal remained; canal become narrow and shallow considerably	-	
1,070	0487064	1249868	Pipe Culvert (Private)	Temporary farm access	C	dia=0.4m, W=1.9m
1,210	0487208	1249862	Pipe Culvert (Private)	Farm access	C	dia=0.6m, W=4m
1,380	0487366	1249861	Diversion Point	No structure is found	-	
1,450	0487436	1249857	Pipe Culvert (Private)	Farm access	C	dia=0.3m, W=2m
1,510	0487491	1249857	Canal section at 1,500 m	Canal section remained, but less maintenance	-	
1,840	0487807	1249852	Pipe Culvert (Private)	Farm access	C	dia=0.4m, W=1m
1,920	0487879	1249853	Embankment	Canal is blocked by embankment	-	No moral to use the canal
2,010	0487966	1249852	2,000m & E.P.	Canal section is used as pond and rice field	-	




Structure	Nos.	Evaluation	Regulators	Culvert/ bridge	Buildings within ROW
Regulators	0	A			
Bridges/ Culvert	11	B			
Public	1	C		8	
Concrete	1	D		3	
Wooden	0	Total	0	11	0
Private	10				
Concrete	10				
Wooden	0				
Total	0				




- A: Fully functioning
- B: Partly deteriorated but function is maintained
- C: Deteriorated, and does not function well
- D: Completely damaged, and does not function

Evaluation of Canal and structures




1. Canal section has been deteriorated due to no maintenance for long period
2. Canal is privately obstructed by installing pipes for farm access
3. Soil characteristics for embankment is clay and silt

Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1249877 Easting: 0485978	Along the Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+300	Coordinate< Northing: 1249875 Easting: 0486265	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+500	Coordinate< Northing: 1249873 Easting: 0486462	Farm Access Length: 500m
		
Up Stream View	Down Stream View	Structure/Side View








Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+510	Coordinate< Northing: 1249871 East ing: 0486477	House Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L6	Kind of structure(s): Double Pipe Culvert (Village)	Remarks:
Station: 0.00+660	Coordinate< Northing: 1249874 East ing: 0486627	Village Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+760	Coordinate< Northing: 1249869 East ing: 0486731	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+870	Coordinate< Northing: 1249868 Easting: 0486856	There is a Diversion Point Farm Access
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L6	Kind of structure(s): Canal	Remarks:
Station: 1.00+10	Coordinate< Northing: 1249866 Easting: 0487003	Routine Survey Length: 1000m
		
Up Stream View	Down Stream View	




Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+70	Coordinate< Northing: 1249868 Easting: 0487064	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+210	Coordinate< Northing: 1249862 Easting: 0487208	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L6	Kind of structure(s): Canal	Remarks:
Station: 1.00+380	Coordinate< Northing: 1249861 Easting: 0487366	Diversion Point Village Road
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+450	Coordinate< Northing: 1249857 Easting: 0487436	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L6	Kind of structure(s): Canal	Remarks:
Station: 1.00+510	Coordinate< Northing:1249857 Easting: 0487491	Routine Survey Length: 1500m
		
Up Stream View		Down Stream View

Canal No.: L6	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+840	Coordinate< Northing: 1249852 Easting: 0487807	Farm Access Routine Survey
		
Up Stream View		Down Stream View
		
Structure/Side View		

Canal No.: L6	Kind of structure(s): Embankment	Remarks:
Station: 1.00+920	Coordinate< Northing: 1249853 Easting: 0487879	Farm Access Routine Survey
		
Up Stream View		Down Stream View

Canal No.: L6	Kind of structure(s): Canal	Remarks:
Station: 2.00+10(EP)	Coordinate< Northing: 1249852 Easting: 0487966	Routine Survey Length: 2000m
 <p>Up Stream View</p>		 <p>Down Stream View</p>

**Inventory Survey of Existing Canals and Structures**  
(Tonle Bati Area)

Canal name: L-7 & 8

Surveyed in June to July, 2011 by JICA Survey Team

Sta.	E	N	Structure	Condition	Evaluation	Remarks
0	0486846	1247164	Canal N° L8 Pipe Culvert Commune road	Stone masonry wall and pipe are in good condition	B	EP of L8 (Triple pipes, dia=1m, W=4.6m), Bridge (H=2.1m, L(inside)=5.1m, L(outside)=5.7m, W=4.6m)
100	0486753	1247165	Bridge (Village road)	Wall for embankment is deteriorated and canal is covered by thick grasses	C	Pipe Culvert (Private, dia=0.4m, W=5m)
190	0486671	1247165	Pipe Culvert (Private)	House access, pipe dia is too small to flow the irrigation and drain	C	(dia=0.4m, W=4m), Bridge (L=5m, W=4m)
260	0486617	1247164	Pipe Culvert (Private)	Do.	C	dia=0.4m, W=4m
310	0486571	1247168	Pipe Culvert (Private)	Do.	C	dia=0.4m, W=3.5m
500	0486380	1247166	Canal section at 500 m	Canal section remains though some erosion has been occurred	-	
650	0486234	1247164	Diversion Point	No structure is provided to divert the flow	-	
700	0486179	1247167	Pipe Culvert (Private)	House access, pipe dia might be enough flow section	B	Double pipes, dia=1m, W=4.7m
1,000	0485884	1247169	Canal section at BP of L7 and L8, (1,000m from EP of L8)	Canal section remains, and some grass on the canal bed due to small discharge from MC-1	-	BP of L7 & L8
1,170	0485721	1247171	Embankment	Culvert is under construction (pipes are at site)	B	Future Pipe Culvert (dia=0.8m, W=5m)
1,180	0485702	1247172	Embankment	Do.	B	Future Pipe Culvert (dia=0.8m, W=5m)
1,510	0485383	1247170	Canal section at 500 m from BP of L7	Canal section remains, and rather in good condition, though some sediments on the canal bed	-	
1,700	0485201	1247169	Pipe Culvert (Private)	Farm access	C	W=3m, dia=0.5m
2,010	0484899	1247174	Canal section at 1,000 m from BP of L7	No water reached to this point, canal section remains without serious erosion	-	
2,200	0484693	1247172	Canal section at 1,200 m from BP of L7	Canal section is slightly eroded and covered by grass	-	EP of L7




Structure	Nos.	Evaluation	Regulators	Culvert/bridge	Buildings within ROW
Regulators	0	A			
Bridges/ Culvert	7	B		2	
Public	2	C		5	




	Concrete	2	D			
	Wooden	0	Total	0	7	0
Private		5				
	Concrete	5				
	Wooden					
Total		0				




- A: Fully functioning  
B: Partly deteriorated but function is maintained  
C: Deteriorated, and does not function well  
D: Completely damaged, and does not function

Evaluation of Canal and structures




1. Canal sections are rather maintained, but some are deteriorated due to lack of maintenance work
2. Many private culvert with small pipes exist due to no control of the canal




Canal No.: L8	Kind of structure(s): Pipe Culvert(Triple)	Remarks:
Station: 0.00(B.P.)	Coordinate< Northing: 1247164 Easting: 0486846	Commune Road Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L8	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+100	Coordinate< Northing: 1247165 Easting: 0486753	House Access Village Road
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L8	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+190	Coordinate< Northing: 1247165 Easting: 0486671	House Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View








Canal No.: L8	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+260	Coordinate< Northing: 1247164 Easting: 0486617	House Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L8	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 0.00+310	Coordinate< Northing: 1247168 Easting: 0486571	
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L8	Kind of structure(s): Canal	Remarks:
Station: 0.00+500	Coordinate< Northing: 1247166 Easting: 0486380	Routine Survey Length: 500m
		
Up Stream View	Down Stream View	



Canal No.: L8	Kind of structure(s): Canal	Remarks:
Station: 0.00+650	Coordinate< Northing: 1247164 Easting: 0486234	Diversion Point Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View




Canal No.: L8	Kind of structure(s): Pipe Culvert (Double Private)	Remarks:
Station: 0.00+700	Coordinate< Northing: 1247167 Easting: 0486179	Land Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View



Canal No.: L7	Kind of structure(s): Canal	Remarks:
Station: 1.00	Coordinate< Northing: 1247169 Easting: 0485884	EP of Canal L8 and BP of Canal L7 Length: 1000m
		
Up Stream View	Down Stream View	



Canal No.: L7	Kind of structure(s): Embankment	Remarks:
Station: 1.00+170	Coordinate< Northing: 1247171 Easting: 0485721	Future Pipe Culvert Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L7	Kind of structure(s): Embankment	Remarks:
Station: 1.00+180	Coordinate< Northing: 1247172 Easting: 0485702	Future Pipe Culvert Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L7	Kind of structure(s): Canal	Remarks:
Station: 1.00+510	Coordinate< Northing: 1247170 Easting: 0485383	Routine Survey Length: 1500m
		
Up Stream View	Down Stream View	

Canal No.: L7	Kind of structure(s): Pipe Culvert(Private)	Remarks:
Station: 1.00+700	Coordinate< Northing: 1247169 Easting: 0485201	Farm Access Routine Survey
		
Up Stream View	Down Stream View	Structure/Side View

Canal No.: L7	Kind of structure(s): Canal	Remarks:
Station: 2.00+10	Coordinate< Northing: 1247174 Easting: 0484899	Routine Survey Length: 2000m
		
Up Stream View	Down Stream View	




Canal No.: L7	Kind of structure(s): Canal	Remarks:
Station: 2.00+200 (EP)	Coordinate< Northing: 1247172 Easting: 0484693	Routine Survey
		
Up Stream View	Down Stream View	




# ***ANNEX D***




## ***Attachment 6***

*Results of Inventory Survey for Irrigation and Drainage  
Facilities in Main Canal 35 Rehabilitation Sub-project*




**Result of Inventory Survey of Main Canal 35 Irrigation System (1/20)**




Canal No.: MC	Kind of structure: Intake KPOB KROUS Reservoir	Remarks:
Station:	Coordinate< Northing: 1238652 Easting: 443411	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side but no structure.
Station:	Coordinate< Northing: 1238320 Easting: 443790	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Along the Main Canal
Station:	Coordinate< Northing: 1238128 Easting: 443812	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

## Result of Inventory Survey of Main Canal 35 Irrigation System (2/20)




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side has pipe culvert
Station:	Coordinate< Northing: 1237926 Easting: 443838	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side but no structure.
Station:	Coordinate< Northing: 1237949 Easting: 444362	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road	Remarks: Crossing the Main Canal; has pipe culvert.
Station:	Coordinate< Northing: 1237960 Easting: 444851	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (3/20)**




Canal No.: MC	Kind of structure: Road	Remarks: Crossing the Main Canal but no structure.
Station:	Coordinate< Northing: 1237968 Easting: 445233	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Crossing main canal but no structure.
Station:	Coordinate< Northing: 1237973 Easting: 445509	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Main turn right	Remarks:
Station:	Coordinate< Northing: 1237986 Easting: 446006	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



**Result of Inventory Survey of Main Canal 35 Irrigation System (4/20)**




Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1237832 Easting: 446021	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal
Station:	Coordinate< Northing: 1237506 Easting: 446050	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal
Station:	Coordinate< Northing: 1237290 Easting: 4466081	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (5/20)**




Canal No.: MC	Kind of structure: Main Canal	Remarks: It curves to the left side.
Station:	Coordinate< Northing: 1237248 Easting: 446077	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal.
Station:	Coordinate< Northing: 1236773 Easting: 446107	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal.
Station:	Coordinate< Northing: 1326182 Easting: 446157	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (6/20)**




Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal.
Station:	Coordinate< Northing: 1236171 Easting: 446158	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal.
Station:	Coordinate< Northing: 1236015 Easting: 446173	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Garden house	Remarks: Based on the main canal.
Station:	Coordinate< Northing: 1235889 Easting: 446182	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (7/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Crossing main canal, have structure.
Station:	Coordinate< Northing: 1235674 Easting: 446195	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Road	Remarks: Crossing main canal.
Station:	Coordinate< Northing: 1235665 Easting: 446197	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: At the right side
Station:	Coordinate< Northing: 1235357 Easting: 446225	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (8/20)**




Canal No.: MC	Kind of structure: Secondary canal	Remarks: At the right side, has pipe culvert.
Station:	Coordinate< Northing: 1235300 Easting: 446799	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary canal	Remarks: Secondary canal (Right), Drain (Left), has pipe culvert.
Station:	Coordinate< Northing: 1235269 Easting: 447288	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary canal	Remarks: Crossing main canal, has box culvert.
Station:	Coordinate< Northing: 1235177 Easting: 448337	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (9/20)**




Canal No.: MC	Kind of structure: Secondary canal	Remarks: Crossing main canal; has box culvert.
Station:	Coordinate< Northing: 1235177 Easting: 448337	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road	Remarks: Crossing main canal; has pipe culvert.
Station:	Coordinate< Northing: 1235169 Easting: 448523	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235160 Easting: 448636	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



**Result of Inventory Survey of Main Canal 35 Irrigation System (10/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Secondary canal (Right), Drain (Left), has two structures.
Station:	Coordinate< Northing: 1235021 Easting: 449351	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side.
Station:	Coordinate< Northing: 1235223 Easting: 449896	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Secondary canal (Right), Drain (Left), has double pipes.
Station:	Coordinate< Northing: 1235287 Easting: 450355	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (11/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side.
Station:	Coordinate< Northing: 1235418 Easting: 451002	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal but no structure.
Station:	Coordinate< Northing: 1235579 Easting: 451395	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side.
Station:	Coordinate< Northing: 1235684 Easting: 451679	
		
Photo View from Upstream	Photo View from Downstream	Photo Details






**Result of Inventory Survey of Main Canal 35 Irrigation System (12/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side.
Station:	Coordinate< Northing: 1235750 Easting: 451852	
		
Photo View from Upstream	Photo View from Downstream	Photo Details


Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side.
Station:	Coordinate< Northing: 1235820 Easting: 452037	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road DONG DOUNG	Remarks: Under construction
Station:	Coordinate< Northing: 1235979 Easting: 452604	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (13/20)**




Canal No.: MC	Kind of structure: Secondary canal	Remarks: At the right side.
Station:	Coordinate< Northing: 1236056 Easting: 453251	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure:	Remarks: Check Structure
Station:	Coordinate< Northing: 1236049 Easting: 453267	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235998 Easting: 453773	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (14/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235970 Easting: 454236	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235964 Easting: 454302	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side
Station:	Coordinate< Northing: 1235955 Easting: 454516	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (15/20)**

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side
Station:	Coordinate< Northing: 1235959 Easting: 454701	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the left side
Station:	Coordinate< Northing: 1235935 Easting: 454847	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: To the field at the right side
Station:	Coordinate< Northing: 1235866 Easting: 455299	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (16/20)**

Canal No.: MC	Kind of structure: Old structure	Remarks: Has broken
Station:	Coordinate< Northing: 1235848 Easting: 455644	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235834 Easting: 455730	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235803 Easting: 457065	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (17/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235794 Easting: 457999	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235796 Easting: 458018	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235775 Easting: 459628	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (18/20)**




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235755 Easting: 460233	
		
Photo View from Upstream	Photo View from Downstream	Photo Details


Canal No.: MC	Kind of structure:	Remarks: Check structure is under construction.
Station:	Coordinate< Northing: 1235756 Easting: 460277	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235620 Easting: 460948	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (19/20)**




Canal No.: MC	Kind of structure: Road (24)	Remarks: Crossing the main canal
Station:	Coordinate< Northing: 1235530 Easting: 461397	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1235319 Easting: 461934	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: MC	Kind of structure: Secondary Canal	Remarks: At the right side
Station:	Coordinate< Northing: 1234957 Easting: 463677	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



## Result of Inventory Survey of Main Canal 35 Irrigation System (20/20)


Canal No.: MC	Kind of structure: Road	Remarks: Crossing the main canal but has bridge.
Station:	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1234900</span> <span>Easting: 464113</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Photo View from Upstream</p> </div> <div style="text-align: center;">  <p>Photo View from Downstream</p> </div> <div style="text-align: center;">  <p>Photo Details</p> </div> </div>		

Canal No.: MC	Kind of structure: Secondary Canal	Remarks: Crossing the main canal but has double pipes at the right.
Station:	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1234518</span> <span>Easting: 465434</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Photo View from Upstream</p> </div> <div style="text-align: center;">  <p>Photo View from Downstream</p> </div> <div style="text-align: center;">  <p>Photo Details</p> </div> </div>		

Canal No.: MC	Kind of structure: Bridge number 12	Remarks: Based on National road number 3
Station:	Coordinate< <div style="display: flex; flex-direction: column; margin-left: 10px;"> <span>Northing: 1234513</span> <span>Easting: 465648</span> </div>	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Photo View from Upstream</p> </div> <div style="text-align: center;">  <p>Photo View from Downstream</p> </div> <div style="text-align: center;">  <p>Photo Details</p> </div> </div>		

# Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (1/18)




## Secondary Canal No.3




Canal No.: SC-3	Kind of structure: Pipe Culvert	Remarks: B.P. of SC-3 at Main Canal 35
Station:	Coordinate< Northing: 1237748 Easting: 444883	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Wooden Bridge	Remarks: Wooden Bridge for entrance
Station:	Coordinate< Northing: 1237630 Easting: 444901	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Wooden Bridge	Remarks: Wooden bridge for entrance
Station:	Coordinate< Northing: 1237491 Easting: 444920	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (2/18)**

Canal No.: SC-3	Kind of structure: Wooden Bridge	Remarks: Wooden bridge for entrance
Station:	Coordinate< Northing: 1237434 Easting: 444927	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe culvert (turnout) to the right tertiary canal
Station:	Coordinate< Northing: 1237423 Easting: 444927	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Wooden Bridge	Remarks: Wooden bridge for entrance
Station:	Coordinate< Northing: 1237307 Easting: 444948	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (3/18)**




Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe culvert (turnout) to the right tertiary canal (L = 300m)
Station:	Coordinate< Northing: 1237210 Easting: 444955	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe Culvert (turnout) to the right tertiary canal (L = 1000m)
Station:	Coordinate< Northing: 1236881 Easting: 444993	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 1236868 Easting: 444999	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (4/18)**

Canal No.: SC-3	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 1236655 Easting: 445028	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-3	Kind of structure: Box Culvert	Remarks: Box Bridge crossing secondary canal
Station:	Coordinate< Northing: 1236338 Easting: 445071	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe Culvert (turnout) to the right tertiary canal (L = 1000m)
Station:	Coordinate< Northing: 1236234 Easting: 445083	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (5/18)**



Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe Culvert (turnout) to the right tertiary canal
Station:	Coordinate< Northing: 1235812 Easting: 445145	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Turnout	Remarks: Pipe Culvert (turnout) to the right tertiary canal
Station:	Coordinate< Northing: 1235713 Easting: 445163	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Turnout (no structure)	Remarks: Tertiary canal crossing without structure
Station:	Coordinate< Northing: 1235607 Easting: 445179	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

### Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (6/18)

Canal No.: SC-3	Kind of structure: Turnout (no structure)	Remarks: Tertiary canal crossing without structure
Station:	Coordinate< Northing: 1235505 Easting: 445199	
		
Photo View from Upstream	Photo View from Downstream	Photo Details


Canal No.: SC-3	Kind of structure: Canal	Remarks: Canal width becomes narrow.
Station:	Coordinate< Northing: 1235453 Easting: 445201	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-3	Kind of structure: Canal	Remarks: E.P. of SC-3
Station:	Coordinate< Northing: 1235453 Easting: 445201	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

# Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (7/18)

## Secondary Canal No.5


Canal No.: SC-5	Kind of structure: Road	Remarks: B.P. of Secondary Canal No.5
Station:	Coordinate< Northing: 1237765 Easting: 447649	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-5	Kind of structure: Entrance	Remarks: Entrance without structure
Station:	Coordinate< Northing: 1237237 Easting: 447562	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-5	Kind of structure: Entrance	Remarks: Entrance without structure
Station:	Coordinate< Northing: 1237237 Easting: 447525	
		
Photo View from Upstream	Photo View from Downstream	Photo Details






**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (8/18)**




Canal No.: SC-5	Kind of structure: Pipe culvert	Remarks: Entrance with pipe culvert
Station:	Coordinate< Northing: 1236906 Easting: 447523	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-5	Kind of structure: Pipe culvert	Remarks: Entrance with pipe culvert
Station:	Coordinate< Northing: 1236657 Easting: 447497	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-5	Kind of structure: Pipe culvert	Remarks: Road Crossing with pipe culvert
Station:	Coordinate< Northing: 1226638 Easting: 447494	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (9/18)**




Canal No.: SC-5	Kind of structure: Pipe culvert	Remarks: Entrance with pipe culvert
Station:	Coordinate< Northing: 1236627 Easting: 447492	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-5	Kind of structure: Pipe culvert	Remarks: Entrance with pipe culvert
Station:	Coordinate< Northing: 1236608 Easting: 447490	
		
Photo View from Upstream	Photo View from Downstream	Photo Details




Canal No.: SC-5	Kind of structure: Pipe culvert(E.P.)	Remarks: E.P. of Secondary Canal No.5 with double pipe culvert
Station:	Coordinate< Northing: 1236608 Easting: 447490	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

## Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (10/18)

### Secondary Canal No.7




Canal No.: SC-7	Kind of structure: Pipe Culvert	Remarks: B.P. of Secondary Canal No.7 Pipe culvert along canal(D=1m)
Station:	Coordinate< Northing: 1235672 Easting: 446194	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-7	Kind of structure: Pipe Culvert	Remarks: Road crossing with pipe culvert
Station:	Coordinate< Northing: 1234941 Easting: 446274	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-7	Kind of structure: Turnout	Remarks: Pipe culvert (turnout) to the right tertiary canal
Station:	Coordinate< Northing: 1234808 Easting: 446291	
		
Photo View from Upstream	Photo View from Downstream	Photo Details


**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (11/18)**




Canal No.: SC-7	Kind of structure: Garden	Remarks: Private garden on Secondary Canal without structure
Station:	Coordinate< Northing: 1234298 Easting: 446363	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

Canal No.: SC-7	Kind of structure: E.P.	Remarks: E.P. of Secondary Canal No.7 without structure
Station:	Coordinate< Northing: 1233979 Easting: 446393	
		
Photo View from Upstream	Photo View from Downstream	Photo Details

## Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (12/18)



### Secondary Canal No.8

Canal No.: SC-8	Kind of structure: B.P.	Remarks: B.P. of Secondary Canal No.8 without structure
Station:	Coordinate< Northing: 1236105 Easting: 447209	
		
<p>Photo View from Upstream</p>		




Canal No.: SC-8	Kind of structure: Pipe Culvert	Remarks: E.P. of Secondary Canal No.8
Station:	Coordinate< Northing: 1235272 Easting: 447289	
		
<p>Photo View from Upstream</p>	<p>Photo View from Upstream</p>	<p>Photo Details</p>

## Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (13/18)




### Secondary Canal No.9




Canal No.: SC-9	Kind of structure: B.P.(Box Culvert)	Remarks: B.P. of Secondary Canal No.9 with box culvert
Station:	Coordinate< Northing: 1235179 Easting: 448338	
 Photo View from Upstream	 Photo View from Upstream	 Photo Details


Canal No.: SC-9	Kind of structure: Pipe Culvert (Double)	Remarks: Road Crossing with double pipe culverts.
Station:	Coordinate< Northing: 1234865 Easting: 444838	
 Photo View from Upstream	 Photo View from Upstream	 Photo Details

Canal No.: SC-9	Kind of structure: Pipe Culvert	Remarks: Road crossing above pipe culvert
Station:	Coordinate< Northing: 1234537 Easting: 448338	
 Photo View from Upstream	 Photo View from Upstream	 Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (14/18)**

Canal No.: SC-9	Kind of structure: Canal crossing	Remarks: Tertiary canal crossing without structure
Station:	Coordinate< Northing: 1234233 Easting: 448340	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-9	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 12333107 Easting: 448357	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-9	Kind of structure: Turnout (Drain Inlet)	Remarks: Canal crossing with both-side pipe culverts.
Station:	Coordinate< Northing: 1233019 Easting: 448357	
		
Photo View from Upstream	Photo View from Upstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (15/18)**




Canal No.: SC-9	Kind of structure: Turnout (Drain Inlet)	Remarks:
Station:	Coordinate< Northing: 1233019 Easting: 448357	E.P. of Secondary Canal No.9 Double pipe culvert under major road
		
<p style="text-align: center;">Photo View from Upstream</p>	<p style="text-align: center;">Photo View from Upstream</p>	<p style="text-align: center;">Photo Details</p>






## Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (16/18)




### Secondary Canal No.11




Canal No.: SC-11	Kind of structure: B.P. (Double Pipe Culvert)	Remarks: B.P. of Secondary Canal No.11
Station:	Coordinate< Northing: 1235192 Easting: 449349	Double culvert Turnout from Main Canal 35
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-11	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 1234920 Easting: 449350	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-11	Kind of structure: Pipe Culvert (Double)	Remarks: Double pipe culvert under major road
Station:	Coordinate< Northing: 1234747 Easting: 449352	
		
Photo View from Upstream	Photo View from Upstream	Photo Details




**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (17/18)**

Canal No.: SC-11	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 1234607 Easting: 449352	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-11	Kind of structure: Pipe Culvert	Remarks: Pipe culvert for entrance
Station:	Coordinate< Northing: 1233991 Easting: 449361	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

Canal No.: SC-11	Kind of structure: Entrance	Remarks: Entrance without structure
Station:	Coordinate< Northing: 1233957 Easting: 449363	
		
Photo View from Upstream	Photo View from Upstream	Photo Details

**Result of Inventory Survey of Main Canal 35 Irrigation System (Secondary Canals) (18/18)**

Canal No.: SC-11	Kind of structure: Pipe Culvert (Double)	Remarks:
Station:	Coordinate< Northing: 1233730 Easting: 449370	E.P. of Secondary Canal No.11
		
<p style="text-align: center;">Photo View from Upstream</p>	<p style="text-align: center;">Photo View from Upstream</p>	<p style="text-align: center;">Photo Details</p>

# ***ANNEX D***

## ***Attachment 7***

*Results of Inventory Survey for Irrigation and Drainage*

*Facilities in Sras Prambai Water Recession*

*Rehabilitation Sub-project*



<b>Inventory Survey Form</b>	<b>Date 28.01.2012</b>	<b>No.2</b>
------------------------------	------------------------	-------------

Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 510437	Name of structure(s)	
	Y = 1238385	Intake pipe culvert at the north reservoir embankment	
		Diameter culvert 1.2m (1 row)	

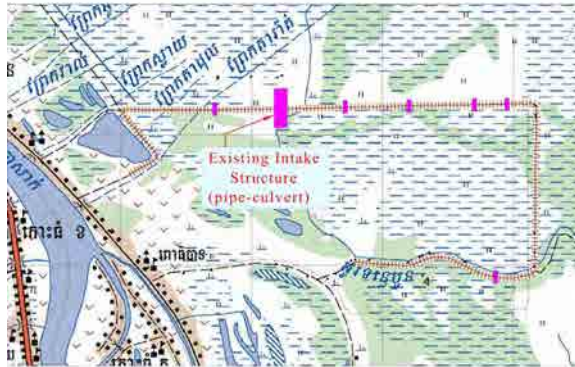


Photo  
View from Upstream



Photo  
View from Downstream

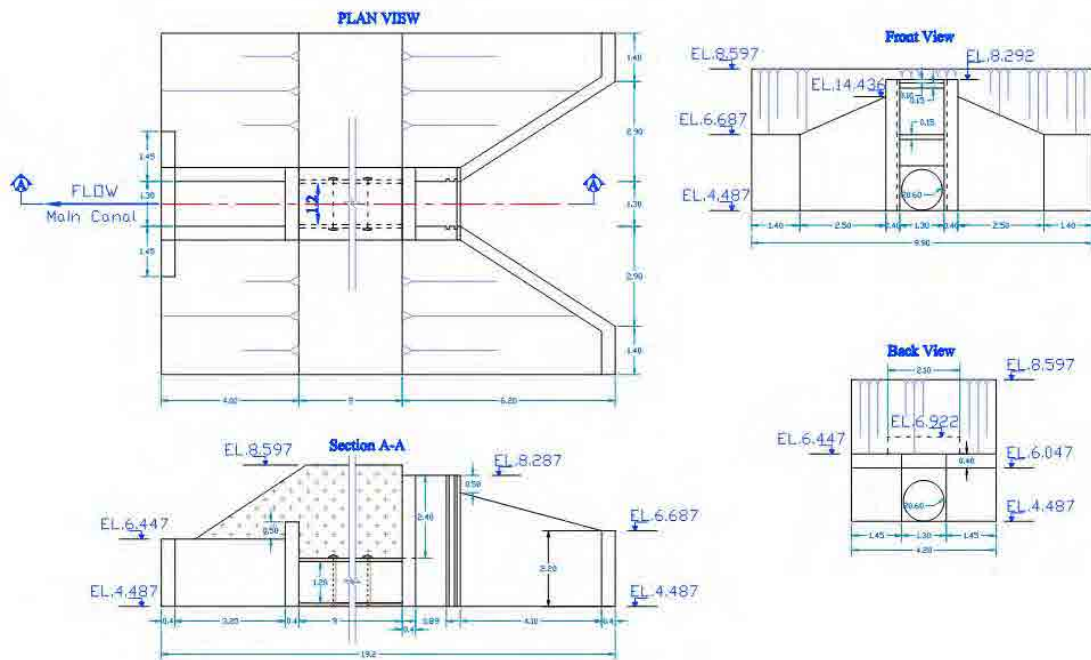


Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:



Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 511426	Name of structure(s)	Intake pipe culvert at the north reservoir embankment
	Y = 1238406	Diameter culvert 1.2m (1 row)	

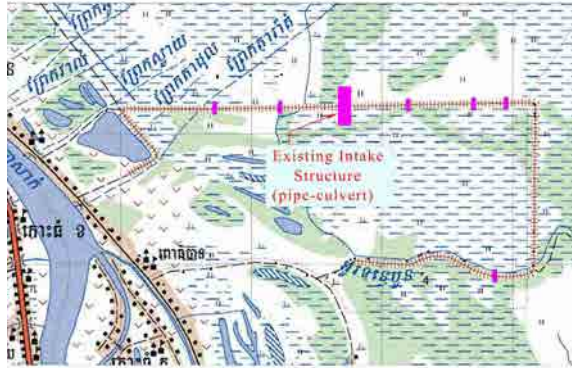


Photo  
View from Upstream



Photo  
View from Downstream

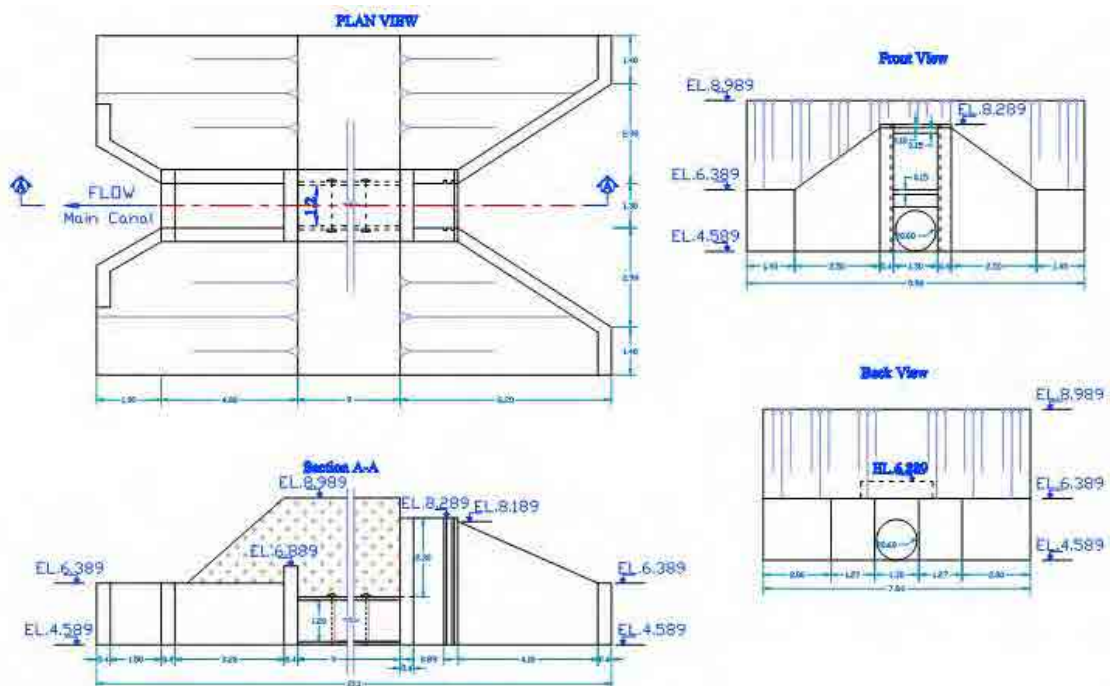


Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:



<b>Inventory Survey Form</b>		<b>Date 28.01.2012</b>	<b>No.4</b>
Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 512409	Name of structure(s)	
	Y = 1238426	Intake pipe culvert at the north reservoir embankment	
		Diameter culvert 1.2m (1 row)	

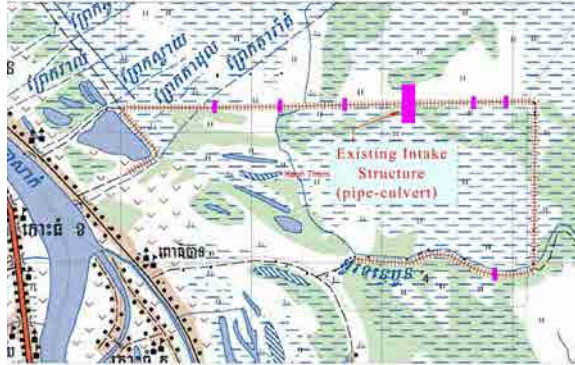


Photo  
View from Upstream



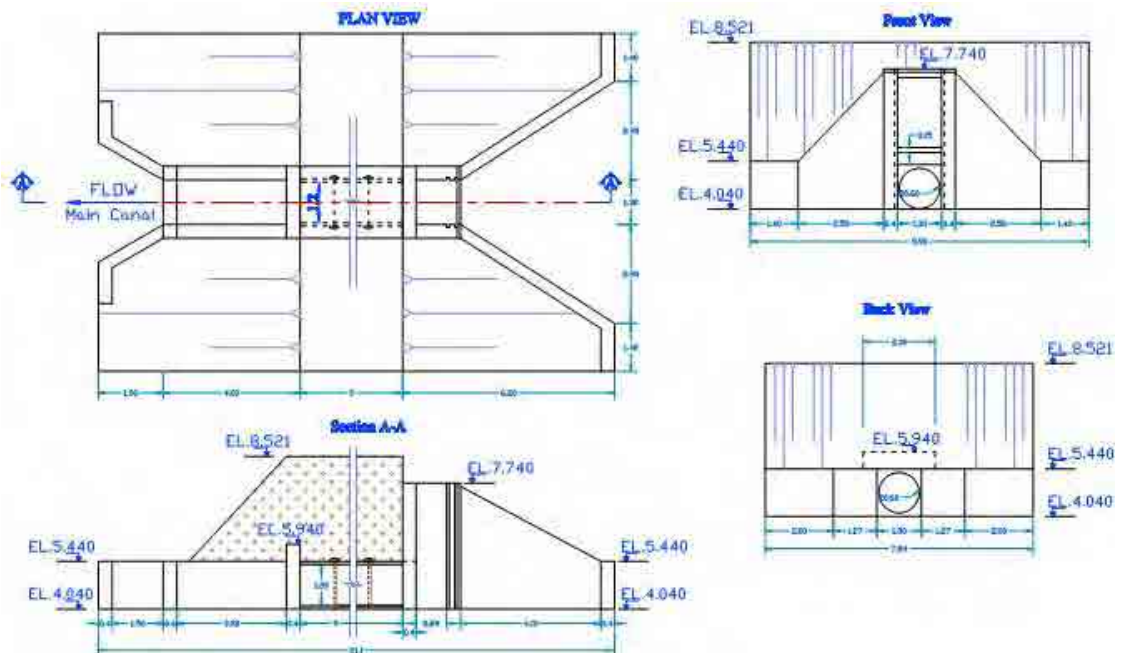
Photo  
View from Downstream

Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:





Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 513404	Name of structure(s)	Intake pipe culvert at the north reservoir embankment
	Y = 1238444	Diameter culvert 0.6m (2 rows)	

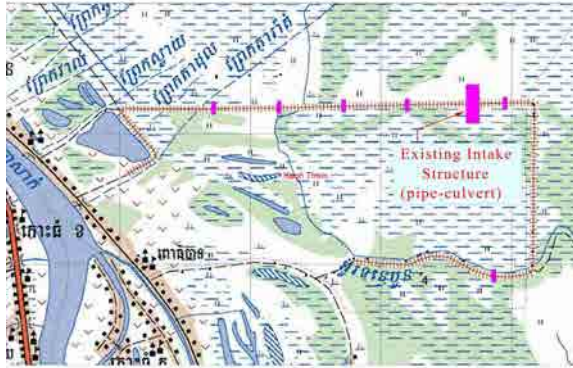


Photo  
View from Upstream



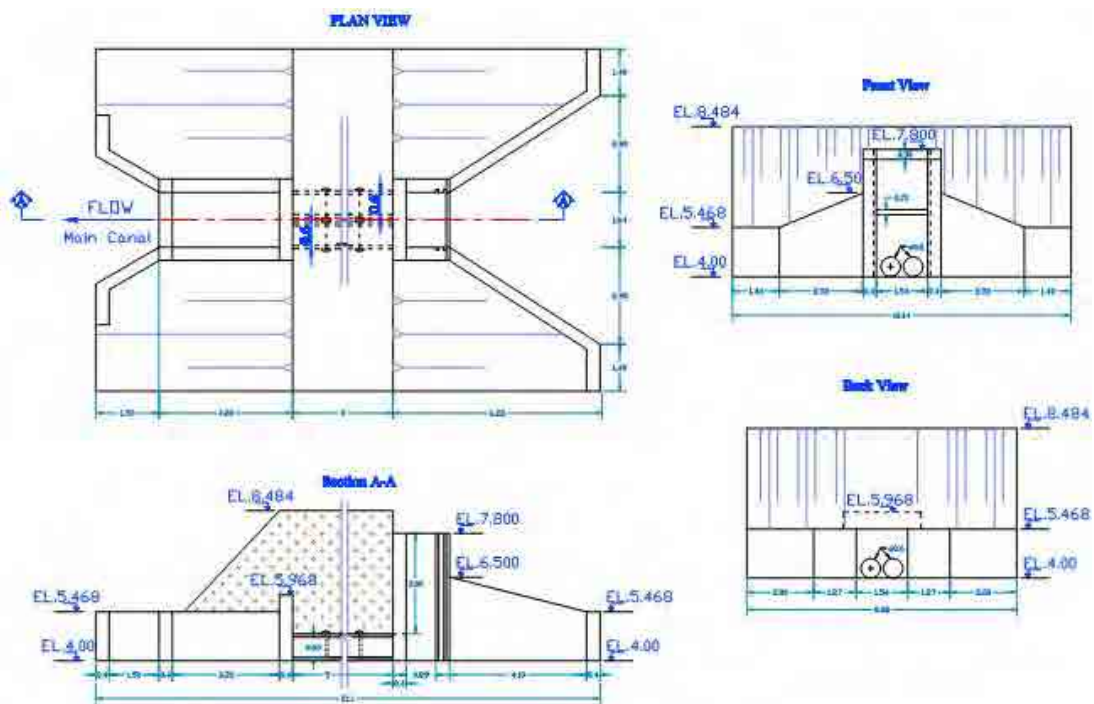
Photo  
View from Downstream

Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:



Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 513906	Name of structure(s)	
	Y = 1238453	Intake pipe culvert at the north reservoir embankment	
		Diameter culvert 0.6m (2 rows)	

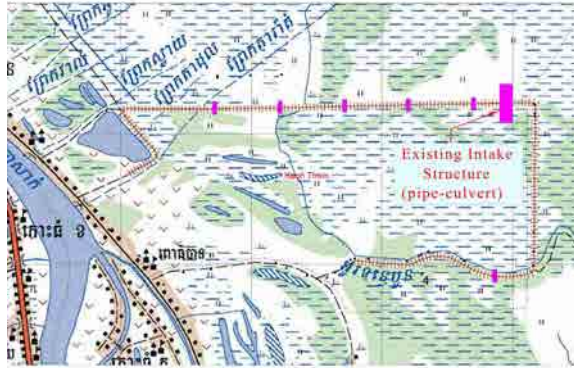


Photo  
View from Upstream



Photo  
View from Downstream

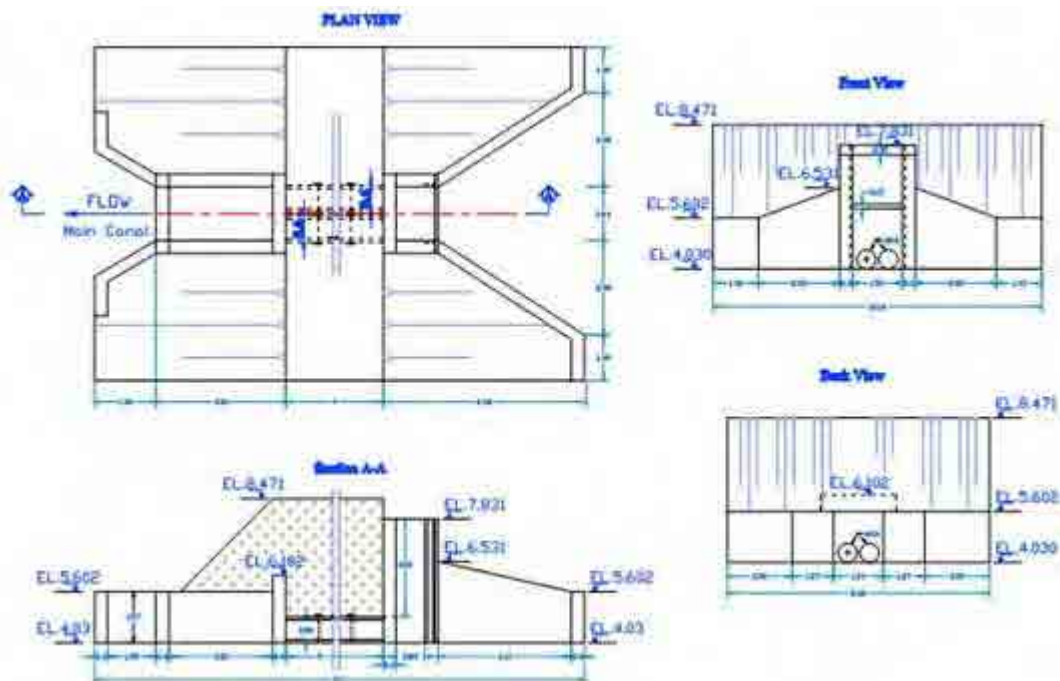


Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:



Station No.		Reservoir Name	Srass Pram Bei
Coordinate:	X = 514329	Name of structure(s)	Intake box culvert at the south reservoir embankment
	Y = 1236959	Box width 1m ( row)	

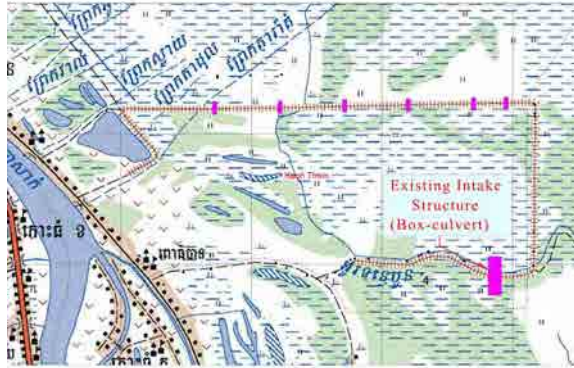


Photo  
View from Upstream



Photo  
View from Downstream

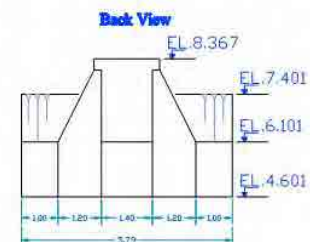
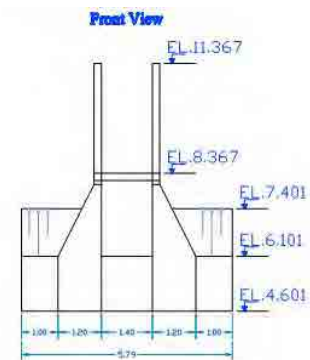
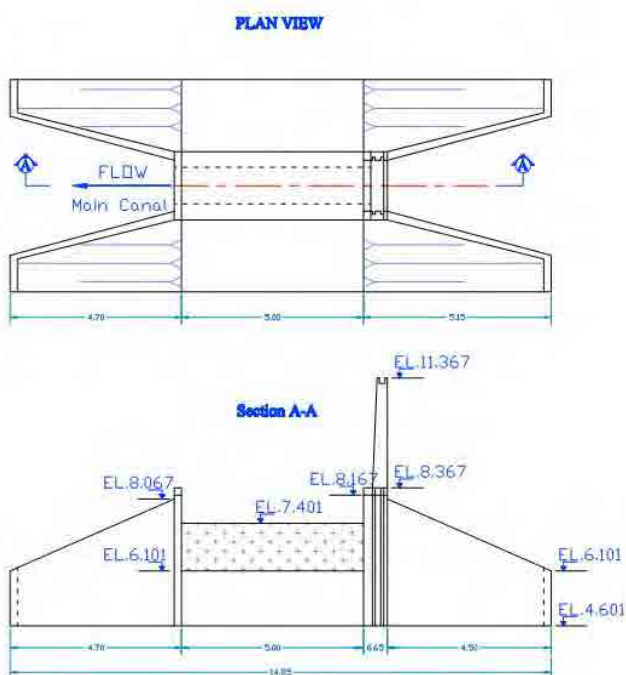


Photo  
Details

Condition / Problem:

The structure is possible used and constructed in Pol Pot time.

Dimensions & Sketches:










## ***ANNEX D***




### ***Attachment 8***

*Results of Inventory Survey for Irrigation and Drainage  
Facilities in Daun Pue Irrigation System  
Rehabilitation Sub-project*



**Result of Inventory Survey of Daun Pue Irrigation System (1/25)**




Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing canal to beurg stang village Dimension Culvert 0.8m (1row)
Station:	Coordinate< Northing: 1330076 Easting: 440804	
 <p align="center">Photo View from Upstream</p>		 <p align="center">Photo View from Downstream</p>




Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the Main Canal Dimension Culvert 0.8m (2row)
Station:	Coordinate< Northing: 1329602 Easting: 437254	
 <p align="center">Photo View from Upstream</p>	 <p align="center">Photo View from Downstream</p>	 <p align="center">Photo Details</p>

Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Bridge crossing the Main canal on road to Trapang Khlong Village.
Station:	Coordinate< Northing: 1330320 Easting: 440919	
 <p align="center">Photo View from Upstream</p>	 <p align="center">Photo View from Downstream</p>	 <p align="center">Photo Details</p>




**Result of Inventory Survey of Daun Pue Irrigation System (2/25)**




Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the canal to Beung Steng Village Dimension: Culvert 0.6m(3row)
Station:	Coordinate< Northing: 1330496 Easting: 441498	
 <p align="center">Photo View from Upstream</p>		 <p align="center">Photo View from Downstream</p>


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert to Wat village Dimension: Culvert 0.5m (2row)
Station:	Coordinate< Northing: 1330626 Easting: 442129	
 <p align="center">Photo View from Upstream</p>	 <p align="center">Photo View from Downstream</p>	 <p align="center">Photo Details</p>

Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the canal to Beung Steng Village Dimension: Culvert 0.8m(1row)
Station:	Coordinate< Northing: 1330521 Easting: 441626	
 <p align="center">Photo View from Upstream</p>	 <p align="center">Photo View from Downstream</p>	 <p align="center">Photo Details</p>

**Result of Inventory Survey of Daun Pue Irrigation System (3/25)**


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert to Wat village Dimension: Culvert 0.5m (2row)
Station:	Coordinate< Northing: 1330639 Easting: 442198	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the canal on the asphalt road. Dimension: Culvert 1m (1row)
Station:	Coordinate< Northing: 1330788 Easting: 442390	
		
Photo View from Upstream	Photo View from Downstream	Photo Details



Canal No.: MC	Kind of structure: Road	Remarks: The road crossing the Main canal to Beung Steng Village but without structure.
Station:	Coordinate< Northing: 1330535 Easting: 441720	
		
Photo View from Upstream		




**Result of Inventory Survey of Daun Pue Irrigation System (4/25)**


Canal No.: MC	Kind of structure: Road	Remarks: This rood crossing the canal to Wat Village.
Station:	Coordinate< Northing: 1330567 Easting: 441853	
		
<p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood bridge crossing the canal to Wat village
Station:	Coordinate< Northing: 1330580 Easting: 441924	
		
<p>Photo View from Upstream</p>		
		
<p>Photo View from Downstream</p>		

Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert on the access road crossing Main Canal. Diameter culvert 0,8m x2 (2 rows)
Station:	Coordinate< Northing: 1330833 Easting: 443228	
		
<p>Photo View from Upstream</p>		
		
<p>Photo View from Downstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (5/25)**


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert on the access road crossing Main Canal. Diameter culvert 0.6m (1 row)
Station:	Coordinate< Northing: 1330852 Easting: 443277	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert on crossing Main Canal. Diameter culvert 0.6m (1 row)
Station:	Coordinate< Northing: 1330854 Easting: 443307	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert on crossing Main Canal. Diameter culvert 0.6m (1 row)
Station:	Coordinate< Northing: 1330858 Easting: 443356	
 <p>Photo View from Upstream</p>		

## Result of Inventory Survey of Daun Pue Irrigation System (6/25)


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert on crossing Main Canal. Diameter culvert 0,6m (1 row)
Station:	Coordinate< Northing: 1330860 Easting: 443375	
		
<p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m x 2 (2 rows)
Station:	Coordinate< Northing: 1330870 Easting: 443446	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,7m (1row)
Station:	Coordinate< Northing: 1330873 Easting: 443461	
		
<p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (7/25)**


Canal No.: MC	Kind of structure: Access road	Remarks: Access road crossing the Main Canal
Station:	Coordinate< Northing: 1330870 Easting: 443446	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Wood bridge	Remarks: Wood bright crossing the main canal
Station:	Coordinate< Northing: 1330879 Easting: 443509	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,5m (1row)
Station:	Coordinate< Northing: 1330878 Easting: 443520	
 <p>Photo View from Upstream</p>		


### Result of Inventory Survey of Daun Pue Irrigation System (8/25)


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m (1row)
Station:	Coordinate< Northing: 1330881 Easting: 443550	
		
<p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe Culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,5m, 0.7 x 2 (2 rows)
Station:	Coordinate< Northing: 1330887 Easting: 443550	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood Bright crossing the Main Canal.
Station:	Coordinate< Northing: 1330889 Easting: 443597	
		
<p>Photo View from Upstream</p>		


## Result of Inventory Survey of Daun Pue Irrigation System (9/25)


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m (1row)
Station:	Coordinate< Northing: 1330891 Easting: 443622	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m
Station:	Coordinate< Northing: 1330895 Easting: 443634	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m
Station:	Coordinate< Northing: 1330898 Easting: 443645	
		
<p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (10/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,5m
Station:	Coordinate< Northing: 1330897 Easting: 443669	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,5m
Station:	Coordinate< Northing: 1330899 Easting: 443671	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Road filling	Remarks: Road filling crossing the Main Canal. Diameter 3m x 6m
Station:	Coordinate< Northing: 13309003 Easting: 443693	
 <p>Photo View from Upstream</p>		

**Result of Inventory Survey of Daun Pue Irrigation System (11/25)**


Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood right crossing the Main Canal. Diameter culvert 0,8m
Station:	Coordinate< Northing: 1330906 Easting: 443716	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,6m
Station:	Coordinate< Northing: 1330912 Easting: 443776	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Box-culvert	Remarks: Box- culvert crossing the Main Canal. Diameter culvert 1.7mx1.0m
Station:	Coordinate< Northing: 1330928 Easting: 443909	
 <p>Photo View from Upstream</p>		




**Result of Inventory Survey of Daun Pue Irrigation System (12/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,6m
Station:	Coordinate< Northing: 1330931 Easting: 443931	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,5m
Station:	Coordinate< Northing: 1330935 Easting: 443957	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,6m
Station:	Coordinate< Northing: 1330943 Easting: 444001	
 <p>Photo View from Upstream</p>		


### Result of Inventory Survey of Daun Pue Irrigation System (13/25)


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,8m x2 (2row)
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1330941</span> <span>Easting: 444030</span> </div>	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,7m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1330947</span> <span>Easting: 444035</span> </div>	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood bright crossing the Main Canal. Diameter 4mx6m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1330948</span> <span>Easting: 444068</span> </div>	
 <p>Photo View from Upstream</p>		

**Result of Inventory Survey of Daun Pue Irrigation System (14/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.7m
Station:	Coordinate< Northing: 1330953 Easting: 444095	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood bright crossing the Main Canal. Diameter 4m x 6m
Station:	Coordinate< Northing: 1330931 Easting: 443931	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0,7m
Station:	Coordinate< Northing: 1330959 Easting: 444124	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (15/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6 m
Station:	Coordinate< Northing: 1330960 Easting: 444139	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood bright put the soil of the crossing the Main Canal. Diameter 6m x 4m
Station:	Coordinate< Northing: 1330966 Easting: 444188	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe Culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< Northing: 1330970 Easting: 444218	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (16/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe Culvert crossing the Main Canal. Diameter Culvert 0.5m
Station:	Coordinate< Northing: 1330966 Easting: 444188	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.8m
Station:	Coordinate< Northing: 1330991 Easting: 444400	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< Northing: 1330997 Easting: 444451	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (17/25)**



Canal No.: MC	Kind of structure: Box- culvert	Remarks: Box- culvert crossing the Main Canal. Diameter box-covert 1.5m x 0.8m
Station:	Coordinate< Northing: 1331003 Easting: 444483	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< Northing: 1331015 Easting: 444600	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< Northing: 1331022 Easting: 444650	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (18/25)**

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< Northing: 1331024 Easting: 444671	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Wood Bridge	Remarks: Wood bright crossing the Main Canal. Diameter 5m x 3m
Station:	Coordinate< Northing: 1331043 Easting: 444808	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Photo View from Upstream</p> </div> <div style="text-align: center;">  <p>Photo Details</p> </div> </div>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.5m
Station:	Coordinate< Northing: 1331043 Easting: 444831	
 <p>Photo View from Upstream</p>		

### Result of Inventory Survey of Daun Pue Irrigation System (19/25)


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.5 m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331047</span> <span>Easting: 444880</span> </div>	
 <p style="text-align: center;">Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Box-culvert	Remarks: Box-culvert crossing the Main Canal. Diameter box-culvert 0.5m x 0.5m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331050</span> <span>Easting: 444892</span> </div>	
 <p style="text-align: center;">Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.6m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331053</span> <span>Easting: 444931</span> </div>	
 <p style="text-align: center;">Photo View from Upstream</p>		




**Result of Inventory Survey of Daun Pue Irrigation System (20/25)**

Canal No.: MC	Kind of structure: Secondary canal-7	Remarks: Secondary canal-7 crossing the Main Canal. Diameter b=2.0 m
Station:	Coordinate< Northing: 1331055 Easting: 444937	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.7m
Station:	Coordinate< Northing: 1331058 Easting: 444954	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Secondary canal-6	Remarks: Secondary Canal-6 crossing the Main Canal. Diameter b=1.5m
Station:	Coordinate< Northing: 1330966 Easting: 444188	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (21/25)**


Canal No.: MC	Kind of structure: Road cow	Remarks: Road cow crossing the Main Canal. Diameter b=4 m
Station:	Coordinate< Northing: 1331161 Easting: 445834	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Secondary canal-5	Remarks: Secondary canal-5 crossing the Main Canal. Diameter
Station:	Coordinate< Northing: 1331178 Easting: 445973	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Secondary Canal-4	Remarks: Secondary canal-4 crossing the Main Canal. Diameter b=3m
Station:	Coordinate< Northing: 1331237 Easting: 446481	
 <p>Photo View from Upstream</p>		


**Result of Inventory Survey of Daun Pue Irrigation System (22/25)**


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.9m x 2 (2row)
Station:	Coordinate< Northing: 1331301 Easting: 446998	
 <p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.8m x 2 (2row)
Station:	Coordinate< Northing: 1331313 Easting: 447106	
 <p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.8 m
Station:	Coordinate< Northing: 1331339 Easting: 447310	
 <p>Photo View from Upstream</p>		


## Result of Inventory Survey of Daun Pue Irrigation System (23/25)


Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.8m x 2 (2row)
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331344</span> <span>Easting: 447377</span> </div>	
		
<p>Photo View from Upstream</p>		


Canal No.: MC	Kind of structure: Secondary canal-3	Remarks: Secondary canal-3 crossing the Main Canal. Diameter b=2.5 m
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331360</span> <span>Easting: 447509</span> </div>	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Pipe culvert	Remarks: Pipe culvert crossing the Main Canal. Diameter culvert 0.8m x 2 (2row)
Station:	Coordinate< <div style="display: flex; flex-direction: column; gap: 5px;"> <span>Northing: 1331388</span> <span>Easting: 447767</span> </div>	
		
<p>Photo View from Upstream</p>		




### Result of Inventory Survey of Daun Pue Irrigation System (24/25)

Canal No.: MC	Kind of structure: Secondary canal-2	Remarks: Secondary canal-2 crossing the Main Canal. Diameter b=2 m
Station:	Coordinate< Northing: 1330494 Easting: 442836	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Secondary canal-1	Remarks: Secondary canal -1crossing the Main Canal. Diameter b=1 m
Station:	Coordinate< Northing: 1329755 Easting: 441228	
		
<p>Photo View from Upstream</p>		

Canal No.: MC	Kind of structure: Secondary canal-1	Remarks: Star point the Main Canal. Diameter b=1 m
Station:	Coordinate< Northing: 1329755 Easting: 441228	
		
<p>Photo View from Upstream</p>		

**Result of Inventory Survey of Daun Pue Irrigation System (25/25)**

Canal No.: MC	Kind of structure: Secondary canal-1	Remarks: By people check crossing Daun Pue Strea
Station:	Coordinate< Northing: 1329755 Easting: 441228	
 <p align="center">View from Upstream</p>	 <p align="center">View from Downstream</p>	 <p align="center">Details</p>

# ***ANNEX D***

## ***Attachment 9***

*Project Profile Sheet of Small Scale Irrigation*

*Rehabilitation Projects in Short List*

<b>Province</b>	Banteay Meanchey	<b>Target Area</b>	1,116 ha
<b>District</b>	Mongkul Borey	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
<p>Current situation and problems in the area under the jurisdiction of the application Canal Mongkolborey Rehabilitation Project is located in Bontey Neang Commune, Mongkolborey District, Banteay Meanchey Province, which is approximately 15km from Banteay Meanchey Province. Canal Mongkolborey completed rehabilitation since 1995 by Department of Water Resources and Meteorology. Currently the situation of this Canal eroded, 03 intakes and need laterite pavement 6 km on the Dams canal. In order to make it sustainability the local people have requested continuously rehabilitation of canal and maintain it for ever.</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Bontey Neang, Ta lom		
Concerned Village(s)	10 Villages		
Nos. of Beneficiary Households	559 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)			
Latest Rehabilitation (year)	2009 Fund Seila Program, ADB		
Water Source	Mongkolborey River		
Reservoir	Trapaeng Thmar Reservoir & Punlei Reservoir		
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	1,116 ha	1,116 ha	
Dry season paddy	0 ha	345 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	1,116 ha	1,461 ha	
Crop Intensity	100 %	131 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	2 ton/ha	3 ton/ha	
Dry season paddy	0 ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	
Rainy season paddy	2,232 ton	3,348 ton	1,116 ton
Dry season paddy	ton	1,208 ton	1,208 ton
Rainfed rainy season paddy	ton	ton	
Total			2,324 ton

<b>Major Project Works</b>			
Description	Quantity	Cost	
Regulator	New		
Rehabilitation of embankment canal	3		
Spillway	9,000 m 60 m		
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work		US\$ 522,565.00	
1.1 Earth work, laetrl =			
(2) Intake Structure Rehabilitation		US\$ 375,000.00	
2.1 Concrete Work =			
Contingency (10%) of Sub-total			
Total		US\$ 897,565.00	
<b>Internal rate of Return 14.29 %</b>			
<b>Project Layout after Rehabilitation</b>			

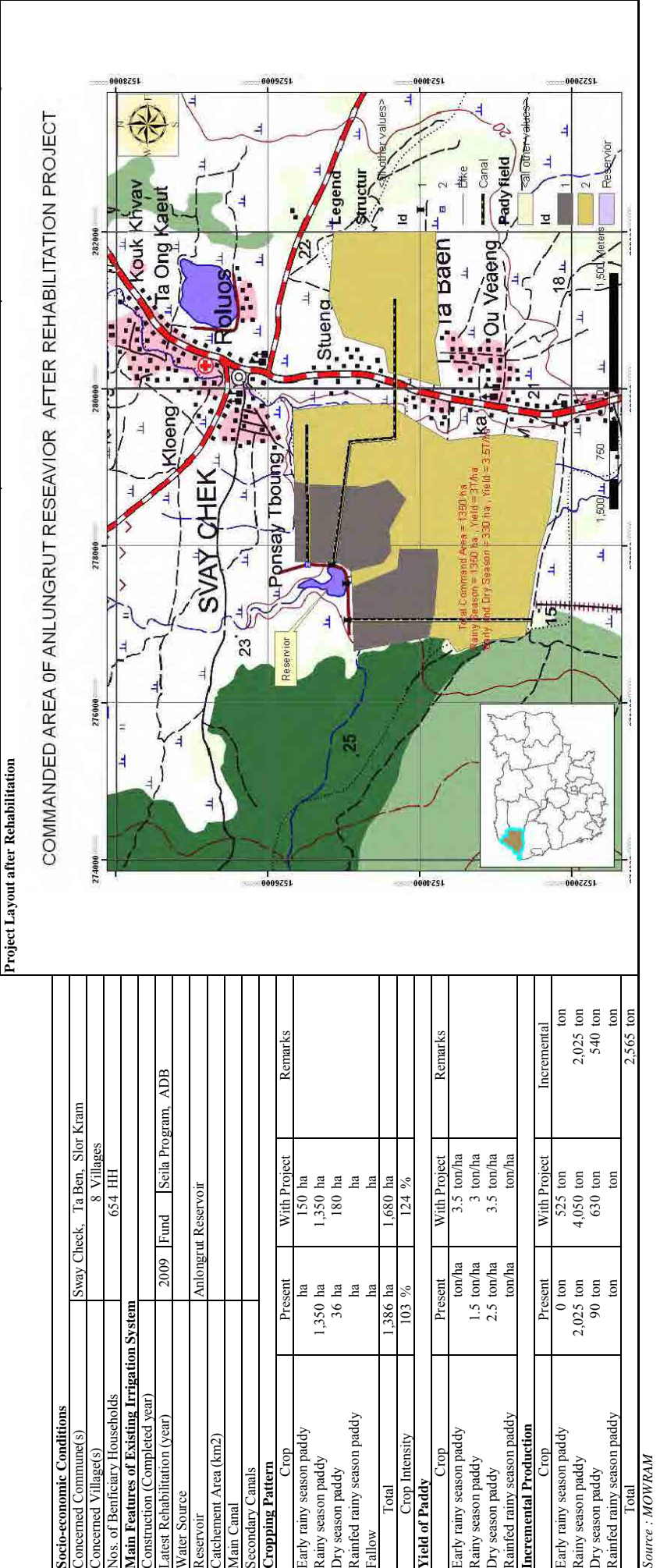
  

Command Area of Mongkul Borey Main Canal After Rehabilitation Project

Source : MOWRAM



<b>Province</b>	Banteay Meanchey	<b>Target Area</b>	1,350 ha
<b>District</b>	Svay chek	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
Anlongrut Reservoir Rehabilitation Project is located in Svay chek commune , Svay chek district , Banteay Meanchey Province , which is approximately 23km from Banteay Meanchey Province . This reservoir has rehabilitation a little since 2003 by the CPP (Cambodian People Party) . Currently the situation of this reservoir eroded all of dikes, 04 intakes ,01 Bride with Spillway ,09Check structure,38 piece culvert and need laetrite pavement on the reservoir dike and all the canal. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So local authority & farmers requested to Banteay Meanchey PDWRAM to find financial support for the rehabilitation work.			
<b>Major Project Works</b>			
Description	Quantity	Cost	
1. Regulator	New 3		
2. Check structure	New 9		
3. Box culvert	New 1		
4. Pipes culvert	New 32		
5. Spillway with Bridge	New 1		
6. Rehabilitation of embankment dike	2,355 m		
7. Rehabilitation of embankment canal No.1	7,650 m		
8. Rehabilitation of embankment canal No.2	2,450 m		
9. Rehabilitation of embankment canal No.3	4,650 m		
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work		US\$1,148,119.86	
1.1 Earth work, laterite =			
(2) Intake Structure Rehabilitation		US\$ 584,000.00	
Contingency (10%) of Sub-total			
<b>Total</b>		<b>US\$ 1,732,119.86</b>	
<b>Internal rate of Return 13.56 %</b>			
<b>Project Layout after Rehabilitation</b>			
Evaluation Conditions			
1. Activities of FWUC	No establishment and no activities of FWUC		
2. Status of FWUC	Preparation of application form for FWUC, and No preparation work for establishment of FWUC		
3. If no FWUC	PDWRAM will establish the FWUC in cooperate with local government and farmers, Local Government (District, Commune and Village) agreed and will cooperate to establish the FWUC, and Villager and farmers agreed and will participate to establish the FWUC		
4. Land Mine	No Land Mine (Already cleaning full area)		
5. Who request and eager to realize this project	Provincial governor, PDWRAM, District governor, Commune chief or council, Village chief, and Villager and farmer		
6. How many % of farmers and villagers agreed and will cooperate this project	100%		
7. If we conduct this project, who will complain or protest to this project?	Land owner of reservoir area		
8. Land for rehabilitation project	Some land for rehabilitation project is inside of private land, but land owner agreed to provide the land for rehabilitation without money		



COMMANDED AREA OF ANLONGRUT RESEAVIOR AFTER REHABILITATION PROJECT

Source : MOWRAM

<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Svay Chek, Ta Ben, Slor Kram		
Concerned Village(s)	8 Villages		
Nos. of Beneficiary Households	654 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)			
Latest Rehabilitation (year)	2009	Fund	Seila Program, ADB
Water Source	Anlongrut Reservoir		
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	150 ha	
Rainy season paddy	1,350 ha	1,350 ha	
Dry season paddy	36 ha	180 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
<b>Total</b>	<b>1,386 ha</b>	<b>1,680 ha</b>	
Crop Intensity	103 %	124 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	3.5 ton/ha	
Rainy season paddy	1.5 ton/ha	3 ton/ha	
Dry season paddy	2.5 ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	0 ton	525 ton	2,025 ton
Rainy season paddy	2,025 ton	4,050 ton	540 ton
Dry season paddy	90 ton	630 ton	2,565 ton
Rainfed rainy season paddy	ton	ton	
<b>Total</b>			<b>2,565 ton</b>



<b>Province</b>	Kampong Chhnang	<b>Target Area</b>	1,046 ha
<b>District</b>	Teuk Phos	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
<p>Canal Steung Sdach Rehabilitation Project is located in Tang Krasang commune, Teuk Phos district, Kampong Chhnang Province, which is approximately 25km from Kampong Chhnang Town. This Canal built in 2005 by WFP for conveying water from Svay Chek Stream to irrigated the command area 1,300ha in Tang Krasang, Cheung Kriev, Teuk Hot and Seb Commune. Currently the situation of this Canal scheme eroded and shallow some places of canal, No Check structure and Outlets. Every year, farmers in this project area face with lack of water for their agriculture and domestic use which bring the low rice yield. So local authority &amp; farmers requested to Kampong Chhnang PDOWRAM to find financial support for the rehabilitation project. In 2009, this project was surveyed and designed by Kampong Chhnang PDOWRAM cooperate with a Local Non Government Organization (SOFDEC).</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Aphivath, Tang Krasang, Cheung Kriev, Teuk Hot, Seb		
Concerned Village(s)	11 Villages		
Nos. of Beneficiary Households	1,393 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2008		
Latest Rehabilitation (year)	2009 Fund (CEDAC) NGO		
Water Source	Svay Chek Stream		
Reservoir			
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	125 ha	1,046 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	921 ha	ha	
Fallow	ha	ha	
Total	1,046 ha	1,046 ha	
Crop Intensity	100 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1.2 ton/ha	2.6 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	0.8 ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	0 ton	ton	
Rainy season paddy	150 ton	2,720 ton	2,570 ton
Dry season paddy	ton	ton	0 ton
Rainfed rainy season paddy	737 ton	ton	-737 ton
Total			1,833 ton

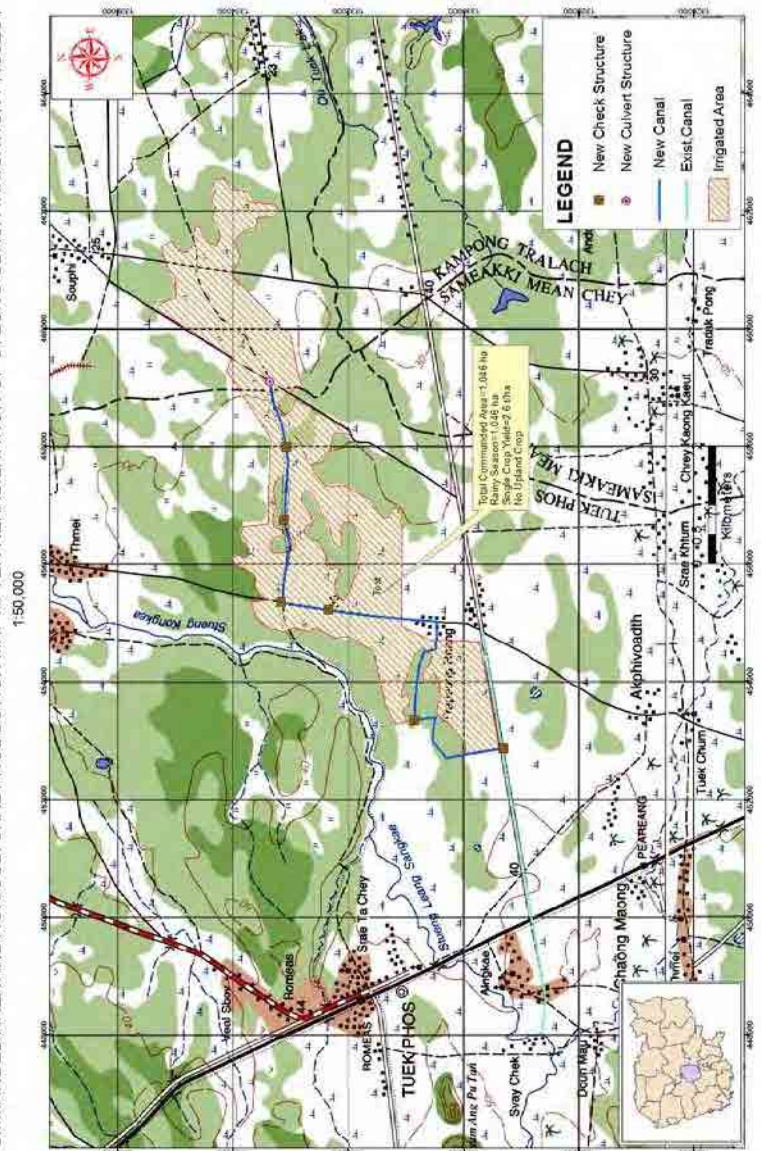
Source : MOWRAM

<b>Major Project Works</b>		Quantity	Cost
Description			
Rehabilitation of Canal		10,200 m	
Construction New of Check Structure		6 Places	
Construction New of Culvert Structure		1 Place	
<b>Direct Construction Cost (US\$)</b>			
(1) Canal Rehabilitation			
1.1 Earth work =		US\$ 587,210.00	
(2) New Check Structures		US\$ 250,932.00	
2.1 Concrete Work =			
(3) New Culvert Structure		US\$ 23,370.00	
3.1 Concrete Work =			
Contingency (10% of Sub-total			US\$ 861,512.00
Total			

**Internal rate of Return** 13.96 %

**Project Layout after Rehabilitation**

COMMAND AREA AND AGRICULTURAL PRODUCTION MAP AFTER REHABILITATION OF STEUNG SDACH IRRIGATION PROJECT



Province	Takeo	Target Area	1,756 ha
District	Kirivong	Basin Priority	1st Priority
<b>History of Project / Background</b>			
<p>Portasu Irrigation Rehabilitation Project is located in Kampeng Commune, Kirivong District, Takeo Province, which is approximately 28 km at the southwest of District Town and about 57 km from Takeo Town. The farmers in the project area have suffered from shortage of water in both seasons, dry and wet season for their agricultural cultivation. The irrigation facilities in this scheme are deteriorated and almost loosed their functions which lead to poor water management and impacted on crop yield. In recent year, an active effort made by commune council and with the farmer participation, some canals have been rehabilitated but this irrigation system is still incomplete and urgently requires the rehabilitation of Access Road, Canal and construction of related structures such as box culvert in order to increase water storage capacity and release water during the need of water.</p>			
<b>Major Project Works</b>			
Description	Quantity	Cost	
1. Rehabilitation of Access Road	1,050 m		
2. Rehabilitation of Box culvert	24 Places		
3. Rehabilitation of Secondary Canal 1	2,985 m		
4. Rehabilitation of Secondary Canal2	2,567 m		
<b>Direct Construction Cost (US\$)</b>			
(1) Earth work		US\$ 30,441.97	
1.1 Access Road work =		US\$ 189,864.35	
1.2 Canal Rehabilitation =			
(2) Concrete Work		US\$ 240,124.80	
2.1 Box Culvert =		US\$ 46,043.11	
Contingency (10%) of Sub-total		US\$ 506,474.23	
Total			
<b>Internal rate of Return 19.3 %</b>			
<b>Project Layout after Rehabilitation</b>			
<p>Command Area of Portasu Irrigation Project After Rehabilitation 1:30,000</p> <p>Total Command Area = 1,756ha 1) Early Rainy Season Rice 760 ha, Yield = 2.8t/ha 2) Rainy Season Rice 1,756 ha, Yield = 2.5t/ha</p> <p>Legend:          - Dike          - Access Road          - Canal Proposal          - Existing Canal          - Existing Spillway          - Existing Box Culvert          - Proposal Box Culvert          - Portasu Reservoir          - Command After Project          - Double Crop          - Single Crop</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Kampaeng		
Concerned Village(s)	7 Villages		
Nos. of Beneficiary Households	815 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2007		
Latest Rehabilitation (year)	2009 Fund Japan Embassy, Bridge Holland Organization		
Water Source	Portasu Reservoir		
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	760 ha	
Rainy season paddy	1,756 ha	1,756 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	1,756 ha	2,516 ha	
Crop Intensity	100 %	143 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	2.8 ton/ha	
Rainy season paddy	2 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	2,128 ton	2,128 ton
Rainy season paddy	3,512 ton	4,390 ton	878 ton
Dry season paddy	ton	ton	ton
Rainfed rainy season paddy	ton	ton	ton
Total			3,006 ton

Source : MOWRAM

Province	Pursat	Target Area	550 ha
District	Bakan	Basin Priority	1st Priority
<b>History of Project / Background</b>			
<p>Kab Kralanh Canal Rehabilitation Project was constructed in 1977 during Pol Pot regime. The main facilities and head works of this canal system were deteriorated due to long lasted civil war and lack of maintenance.</p> <p>This Project has been rehabilitated since 2008 by OKNHA VENN HOUR and in 2009 this canal rehabilitated by the Provincial Department of Water Resources and Meteorology through Ministry of Water Resources and Meteorology but not completed. Currently the situation of this Project need to Construction the Head structure, Check structures, culverts, repair embankment with laterite pavement, rehabilitated main canal and secondary canal. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield -So local authority &amp; farmers requested to Pursat PDWRAM to find financial support for the rehabilitation work.</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Trapeang Chhorm		
Concerned Village(s)	5 Villages		
Nos. of Beneficiary Households	959 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2004		
Latest Rehabilitation (year)	2008 Fund PDWRAM		
Water Source	Steung Cham Bot River		
Reservoir			
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	50 ha	550 ha	
Dry season paddy	ha	50 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	50 ha	600 ha	
Crop Intensity	9 %	109 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1.5 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	
Rainy season paddy	75 ton	1,375 ton	1,300 ton
Dry season paddy	ton	175 ton	175 ton
Rainfed rainy season paddy	ton	ton	
Total			1,475 ton

Major Project Works		Quantity	Cost
Description			
1. Rehabilitation o New	8,000 m		
2. Rehabilitation of Secondary Canal (SC, 4 lln	4,000 m		
3. Construction of New	1 Place		
4. Construction Check structure of Main Canal	5 Places		
5. Construction Head structure of Secondary C	4 Places		
6. Construction Check structure of Secondary C	4 Places		
7. Construction Culverts irrigated to paddy fiel	8 Places		
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work		US\$ 344,990.00	
Earth work =			
(2) Intake Structure Rehabilitation		US\$ 306,000.00	
Concrete Work =			
(3) Others 10%		US\$ 65,099.00	
Contingency (10%) of Sub-total			
Total		US\$ 716,089.00	
<b>Internal rate of Return 14 %</b>			

**Project Layout after Rehabilitation**

Command Areas of Kab Kralanh Irrigation After Project Rehabilitation  
1:45,000

Province	Pursat	Target Area	235 ha	1st Priority
District	Krakor	Basin Priority	1st Priority	
History of Project / Background				
Kanseng Irrigation Rehabilitation Project was constructed in 1977 during Pol Pot regime. The main facilities and head works of this canal system were deteriorated due to long lasted civil war and lack of maintenance.				
This Project has been rehabilitated since 2005 by the commune fund but not completed. Currently the situation of this Project need to rehabilitate the Spillway, Intake Structure , Check structures, Culvert structure, Dam, main canal, secondary canal and drainage. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield .So local authority & farmers requested to Pursat PDOWRAM to find financial support for the rehabilitation work.				
<b>Socio-economic Conditions</b>				
Concerned Commune(s)	Ansa Chombok			
Concerned Village(s)	2 Villages			
Nos. of Beneficiary Households	357 HH			
<b>Main Features of Existing Irrigation System</b>				
Construction (Completed year)	2004			
Latest Rehabilitation (year)	2008 Fund PDOWRAM			
Water Source	Kanseng			
Catchment Area (km2)				
Main Canal				
Secondary Canals				
<b>Cropping Pattern</b>				
Crop	Present	With Project	Remarks	
Early rainy season paddy	ha	ha		
Rainy season paddy	120 ha	235 ha		
Dry season paddy	ha	ha		
Rainfed rainy season paddy	ha	ha		
Fallow	ha	ha		
Total	120 ha	235 ha		
Crop Intensity	51 %	100 %		
<b>Yield of Paddy</b>				
Crop	Present	With Project	Remarks	
Early rainy season paddy	ton/ha	ton/ha		
Rainy season paddy	1 ton/ha	3 ton/ha		
Dry season paddy	ton/ha	ton/ha		
Rainfed rainy season paddy	ton/ha	ton/ha		
<b>Incremental Production</b>				
Crop	Present	With Project	Incremental	
Early rainy season paddy	ton	ton		
Rainy season paddy	120 ton	705 ton		585 ton
Dry season paddy	ton	ton		
Rainfed rainy season paddy	ton	ton		
Total				585 ton
<b>Major Project Works</b>				
Description	Quantity	Cost	Evaluation Conditions	
1. Rehabilitation of Dam on the reservoir	1,120 m		1. Activities of FWUC	FWUC is not work well
2. Rehabilitation of Main Canal (MC, 1 line),	1,470 m		2. Status of FWUC	No preparation work for registration of FWUC and No preparation work for establishment of FWUC
3. Rehabilitation of Secondary Canal (SC, 3 lines)	2,205 m		3. If no FWUC	PDWRAM will establish the FWUC in cooperate with local government and farmers, Local Government (District, Commune and Village) agreed and will cooperate to establish the FWUC, and Villager and farmers agreed and will participate to establish the
4. Rehabilitation of Drainage Canal (DC, 2 lines)	3,065 m		4. Land Mine	No Land Mine (Already cleaning full area)
5. Construction of Spillway	1 Place		5. Who request and eager to realize this project	PDWRAM
6. Construction of Head structures of Main Canal	3 Places		6. How many % of farmers and villagers agreed and will cooperate this project	100%
7. Construction of Check structure of Main Canal	3 Places		7. If we conduct this project, who will complain or protest to this project?	No complain
8. Construction of Head structure of Secondary Canal	7 Places		8. Land for rehabilitation project	All land for rehabilitation project is inside of government land and no trouble with farmers and villagers, and Some land for rehabilitation project is inside of government land, but some farmers cultivated illegal. If these illegal farmers could get some money (compensation), they will agreed to back the land to
9. Construction of Check structure of Secondary Canal	4 Places			
10. Construction of Culvert crossing access road	1 Place			
11. Construction of Siphon crossing on the Drainage Canal	1 Place			
<b>Direct Construction Cost (US\$)</b>				
(1) Embankment work		US\$ 124,279.00		
Earth work =				
(2) Intake Structure Rehabilitation		US\$ 75,195.00		
Concrete Work =				
(3) Others 10%		US\$ 19,947.00		
Contingency (10% of Sub-total				
Total		US\$ 219,421.00		
<b>Internal rate of Return</b>				
<b>Project Layout after Rehabilitation</b>				

Province	Pursat	Target Area	350 ha
District	Krator	Basin Priority	2nd Priority
History of Project / Background			
<p>Tram Canal Rehabilitation Project was constructed in 1989 during State of Cambodia regime. The main facilities and head works of this canal system were deteriorated due to long lasted civil war and lack of maintenance.</p> <p>This Project has been rehabilitated since 1990 by Irrigation Meteorology and Hydraulic office through Provincial Department of Agriculture Forestry and Fishery installed the pumping in head canal until 1991 it was destroyed and removed. In 2008 this canal rehabilitated by the commune fund but not completed. Currently the situation of this Project need to rehabilitate the Head structure, Check structures, repair the embankment with laterite pavement, rehabilitate the main canal and secondary canal. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So local authority &amp; farmers requested to Pursat PDOWRAM to find financial support for the rehabilitation work</p>			
Socio-economic Conditions			
Concerned Commune(s)	Tnuot Chum		
Concerned Village(s)	4 Villages		
Nos. of Beneficiary Households	565 HH		
Main Features of Existing Irrigation System			
Construction (Completed year)	2004		
Latest Rehabilitation (year)	2008 Fund PDOWRAM		
Water Source	Boeung Katout stream		
Reservoir			
Catchment Area (km2)			
Main Canal			
Secondary Canals			
Cropping Pattern			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	50 ha	350 ha	
Dry season paddy	ha	50 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	50 ha	400 ha	
Crop Intensity	14 %	114 %	
Yield of Paddy			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1.5 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
Incremental Production			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	75 ton	875 ton	800 ton
Dry season paddy	ton	175 ton	175 ton
Rainfed rainy season paddy	ton	ton	ton
Total			975 ton
Source : MOWRAM			
Major Project Works			
Description	Quantity	Cost	Evaluation Conditions
Rehabilitation of Main Canal with laterite paved	2,000 m		1. Activities of FWUC
Rehabilitation of Secondary Canal (SC, 6 lines)	4,500 m		2. Status of FWUC
Construction Head structures of Main Canal	1 Place		3. If no FWUC
Construction Check structure of Main Canal	2 Place		
Construction Head structure of Secondary Canal	6 Place		
Direct Construction Cost (US\$)			
(1) Embankment work		US\$ 128,300.00	FWUC is not work well
Earth work =			No preparation work for registration of FWUC and No preparation work for establishment of FWUC
(2) Intake Structure Rehabilitation		US\$ 71,000.00	PDWRAM will establish the FWUC in cooperate with local government and farmers, Local Government (District, Commune and Village) agreed and will cooperate to establish the FWUC, and Villager and farmers agreed and will participate to establish the FWUC.
Concrete Work =		US\$ 19,930.00	No Land Mine (Already cleaning full area)
(3) Others 10% =			PDWRAM
Contingency (10%) of Sub-total		US\$ 219,230.00	5. Who request and eager to realize this project
Total			6. How many % of farmers and villagers agreed and will cooperate this project
			7. If we conduct this project, who will complain or protest to this project?
			8. Land for rehabilitation project
			All land for rehabilitation project is inside of government land and no trouble with farmers and villagers, and some land for rehabilitation project is inside of government land, but some farmers cultivated illegal. If these illegal farmers could get some money (compensation), they will agreed to back the land
<b>Internal rate of Return</b>	<b>21.54 %</b>		
Project Layout after Rehabilitation			

Province	Kandal	Target Area	247 ha
District	Ang Snoul	Basin Priority	1st Priority
History of Project / Background	Torn Or reservoir rehabilitation Project is located in Tra Peng Andong Village of Sam rong Leu Commune, and in Ang Sleng.,Prek Ta Pok,Don Rath Villages of Auv Lok Commune, Ang Snoul District, Kandal Province , which is approximately 25km from capital district and at the earth of Mekong river . This reservoirs completed construction since POL, POT regime. Currently the situation of their reservoirs eroded many places of dikes. Every year, farmers in this project area with shortage of water for their agriculture and domestic use which bring the low rice yield. So local authority & farmers requested to Kandal PDWRAM to find financial support for the rehabilitation work		
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Torn Or, Auv Lok		
Concerned Village(s)	4 Villages		
Nos. of Beneficiary Households	344 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2009 / Fund / Government-Japan budget		
Latest Rehabilitation (year)			
Water Source	Torn Or Reservoir		
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	ha	ha	
Dry season paddy	123 ha	247 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	123 ha	247 ha	
Crop Intensity	50 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	ton/ha	ton/ha	
Dry season paddy	4.2 ton/ha	4.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	ton	ton	ton
Dry season paddy	517 ton	1,112 ton	595 ton
Rainfed rainy season paddy	ton	ton	ton
Total			595 ton
Source : MOWRAM			
<b>Major Project Works</b>		Quantity	Cost
Description			
Rehabilitation of embankment Torn Or dike		1,700 m	
Rehabilitation Leaflet of sluice gate		2 places	
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work			
1.1 Earth work=		US\$ 216,857.00	
(2) Two (2) of Culverts construction		US\$ 5,000.00	
2.1 Concrete Work =			
Contingency (10%) of Sub-total		US\$ 221,857.00	
Total			
<b>Internal rate of Return</b>		14.98 %	
<b>Project Layout after Rehabilitation</b>			
<p>1. Activities of FWUC</p> <p>2. Status of FWUC</p> <p>3. If no FWUC</p> <p>4. Land Mine</p> <p>5. Who request and eager to realize this project</p> <p>6. How many % of farmers and villagers agreed and will cooperate this project</p> <p>7. If we conduct this project, who will complain or protest to this project?</p> <p>8. Land for rehabilitation project</p>			
<p>FWUC is not work well</p> <p>No preparation work for registration of FWUC</p> <p>PDWRAM will establish the FWUC in cooperate with local government and farmers, Local Government (District, Commune, Village.) agreed will cooperate to establish the FWUC, and Villagers and farmers agreed and will participate to establish the FWUC.</p> <p>Not sure</p> <p>Commune Chief or Council</p> <p>80%</p> <p>No Complaint</p> <p>Some of land for rehabilitation project is inside of government land, but the land owners request some money for rehabilitation work</p>			



<b>Province</b>	Kandal	<b>Target Area</b>	3,820 ha
<b>District</b>	Kaoh Thum	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
Mlech Krabaikon reservoir rehabilitation project is located in Chue Khmao Village of Chue Khmao Commune, Kaoh Thum District, Kandal Province, which is approximately 15km from capital district and at the earth of Basac River. This reservoirs completed construction since POL POT regime. Currently the situation of their reservoirs eroded many places of dikes and canals. Every year, farmers in this project area with shortage of water for their agriculture and domestic use which bring the low rice yield. So local authority & farmers requested to Kandal PDWRAM to find financial support for the rehabilitation work.			
<b>Major Project Works</b>			
<b>Description</b>	Rehabilitation of embankment Chue Khmao Rehabilitation Water Gate	<b>Quantity</b>	81,432 m <sup>3</sup> 24 places
<b>Cost</b>			
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work			US\$ 2,850,138.9
(2) Cont. 3. Contingency cost			US\$ 315,000.00
Concrete Work =			
Contingency 17.5% of materials cost =			US\$ 399,861.10
<b>Total</b>			US\$ 3,565,000.00
<b>Internal rate of Return 15.62 %</b>			
<b>Project Layout after Rehabilitation</b>			
<p>4-Commanded Area and Agricultural Map After rehabilitation of Mlech Krabaikon Irrigation Project.</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Chue Khmao, Lousek, Kk.Kong, Prek Crey, Chroy Takeo		
Concerned Village(s)	30 Villages		
Nos. of Beneficiary Households	6,660 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2009	Fund	Government-Japan budget
Latest Rehabilitation (year)	Mlech Krabaikon Reservoir		
Water Source	Mlech Krabaikon Reservoir		
Catchment Area (km <sup>2</sup> )			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	ha	ha	
Dry season paddy	1,790 ha	3,820 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
<b>Total</b>	1,790 ha	3,820 ha	
Crop Intensity	47 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	ton/ha	ton/ha	
Dry season paddy	4 ton/ha	4.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	ton	ton	ton
Dry season paddy	7,160 ton	17,190 ton	10,030 ton
Rainfed rainy season paddy	ton	ton	ton
<b>Total</b>			10,030 ton

Source : MOWRAM

<b>Province</b>	Keap	<b>Target Area</b>	75 ha
<b>District</b>	Damnak Chang Eur	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
<p>Prek Tanen Sea Dam Protection Irrigation System was constructed in 1977 during Pol Pot regime. The main facilities and headworks of this irrigation system were deteriorated due to long lasted civil war and lack of maintenance.</p> <p>This irrigation system not was rehabilitated . Currently, some parts of the embankment were eroded. Structure were not well functioning due to some parts of them damaged and laterite pavement on the embankment is urgently needed. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So, local authority &amp; farmers requested to Kep PDWRAM to find financial support for the rehabilitation work of above mentioned project</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Pong Teuk, Ang Kol		
Concerned Village(s)	2 Villages		
Nos. of Beneficiary Households	202 HH		
<b>Main Features of Existing Irrigation System</b>			
Latest Rehabilitation (year)	2007		
Water Source	2009 Fund Seila Program		
Catchment Area (km2)	Prek Tanen Reservoir		
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	40 ha	
Rainy season paddy	75 ha	75 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	75 ha	115 ha	
Crop Intensity	100 %	153 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	3.3 ton/ha	
Rainy season paddy	1.5 ton/ha	3 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	132 ton	132 ton
Rainy season paddy	113 ton	225 ton	112 ton
Dry season paddy	ton	ton	ton
Rainfed rainy season paddy	ton	ton	ton
Total			244 ton

<b>Major Project Works</b>			
Description	Quantity	Cost	
Constructed of New Regulator Structure	1 Place		
Rehabilitation of embankment	380 m		
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work		US\$ 40,199.45	
1.1 Earth work			
(2) New Regulator		US\$ 52,873.25	
2.1 Concrete Work			
Contingency (10%) of Sub-total		US\$ 9,3072.7	
Total		US\$ 102,379.97	
<b>Internal rate of Return 16.75 %</b>			

<b>Project Layout after Rehabilitation</b>			

Source : MOWRAM

Province	Keo	Target Area	621 ha																																
District	Damnak Chang Eur	Basin Priority	1st Priority																																
History of Project / Background	<p>Rones Irrigation System was constructed in 1973 and finished in 1975 during Pol Pot regime. The main facilities and headworks of this irrigation system were deteriorated due to long lasted civil war and lack of maintenance.</p> <p>This irrigation system was rehabilitated in 2001 by Ministry of Water Resources and Meteorology. Currently, some parts of the embankment were eroded, 2 Structure and 2 culverts were not well functioning due to some parts of them damaged and laterite pavement on the embankment is urgently needed. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So, local authority &amp; farmers requested to Kep PDWRAM to find financial support for the rehabilitation work of above mentioned project.</p>																																		
<p><b>Socio-economic Conditions</b></p> <p>Concerned Commune(s) Pong Teuk, Ang Kol</p> <p>Concerned Village(s) 7 Villages</p> <p>Nos. of Beneficiary Households 639 HH</p>																																			
<p><b>Main Features of Existing Irrigation System</b></p> <p>Construction (Completed year) 2007</p> <p>Latest Rehabilitation (year) 2009 Fund Seila Program</p> <p>Water Source Rones Reservoir</p> <p>Catchment Area (km<sup>2</sup>)</p> <p>Main Canal</p> <p>Secondary Canals</p>																																			
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<p><b>Direct Construction Cost</b></p> <p>(1) Embankment work, Earth work = US\$ 584,123.47</p> <p>(2) New Regulator, Concrete Work = US\$ 55,135.05</p> <p>(3) New Spillway, Concrete Work = US\$ 54,171.50</p> <p>(4) New Culvert 1, Concrete Work = US\$ 15,895.65</p> <p>(5) New Culvert 2, Concrete Work = US\$ 17,308.50</p> <p>Sub-total US\$ 726,634.17</p> <p>Contingency (10%) of Sub-total US\$ 72,663.42</p> <p>Total US\$ 799,297.59</p>			(US\$)																																
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<b>Province</b>	Keo	<b>Target Area</b>	375 ha
<b>District</b>	Damnak Chang Eur	<b>Basin Priority</b>	1st Priority
<b>History of Project / Background</b>			
<p>Veal Vong Irrigation System was constructed in 1977 during Pol Pot regime. The main facilities and headworks of this irrigation system were deteriorated due to long lasted civil war and lack of maintenance.</p> <p>This irrigation system was rehabilitated in 2001 by Ministry of Water Resources and Meteorology. Currently, some parts of the embankment were eroded, 1 Structure and 1 culverts were not well functioning due to some parts of them damaged and laterite pavement on the embankment is urgently needed. Every year, farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So, local authority &amp; farmers requested to Kep PDOWRAM to find financial support for the rehabilitation work of above mentioned project</p>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Pong Teuk, Ang Kol		
Concerned Village(s)	2 Villages		
Nos. of Beneficiary Households	300 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2007		
Latest Rehabilitation (year)	2009 Fund Seila Program		
Water Source	Veal Vong		
Reservoir			
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	80 ha	
Rainy season paddy	100 ha	375 ha	
Dry season paddy	22 ha	40 ha	
Rainfed rainy season paddy	233 ha	ha	
Fallow	ha	ha	
Total	355 ha	495 ha	
Crop Intensity	95 %	132 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	2.5 ton/ha	
Rainy season paddy	2 ton/ha	2.5 ton/ha	
Dry season paddy	2.5 ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	1.5 ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	200 ton	200 ton
Rainy season paddy	200 ton	938 ton	738 ton
Dry season paddy	55 ton	140 ton	85 ton
Rainfed rainy season paddy	350 ton	ton	-350 ton
Total			673 ton
Source : MOWRAM			
<b>Major Project Works</b>			
Description	Quantity	Cost	
Constructed of New Regulator Structure	1 Place		
Constructed of New Culverts	1 Place		
Rehabilitation of embankment	900 m		
<b>Direct Construction Cost (US\$)</b>			
(1) Embankment work		US\$ 86,198.28	
1.1 Earth work =			
(2) New Regulator		US\$ 52,222.30	
2.1 Concrete Work =			
(3) New Culvert		US\$ 15,282.05	
3.1 Concrete Work =			
Contingency (10%) of Sub-total			
Total			
<b>Internal rate of Return 21.03 %</b>			
<b>Project Layout after Rehabilitation</b>			
<p><b>Commanded Area of Veal Vong Irrigation After Rehabilitation project</b></p> <p>Commanded Area Total = 375 ha          1) Rainy Season Rice (375 ha), Yield = 2 T/ha          2) Dry Season Rice (40ha), Yield = 3.5 T/ha          3) Upland Crop (60ha) = 2.5T/ha          4) Early Season Rice (180ha ), Yield = 2.5 T/ha</p>			
<b>Evaluation Conditions</b>			
1. Activities of FWUC	No establishment and no activities of FWUC		
2. Status of FWUC	Approved by Provincial Government (Governor) for establishment of FWUC		
3. If no FWUC	Local Government (District, Commune, Village) agreed will cooperate to establish the		
4. Land Mine	No Land Mine (Already cleaning full area)		
5. Who request and eager to realize this project	Villagers & Farmers		
6. How many % of farmers and villagers agreed and will cooperate this project	100%		
7. If we conduct this project, who will complain or protest to this project?	No complain		
8. Land for rehabilitation project	All land for rehabilitation project is inside of government land and no trouble with farmers and villagers		

Province	Siem Reap	Target Area	1,085 ha
District	Kralanh	Basin Priority	2nd Priority
<b>History of Project / Background</b>			
<p>The canal was repaired by local people in 1987. It has been deteriorated from year to year since there is no fund to rehabilitate; most parts are so shallow that the water cannot be drained to the paddy fields. In shorts, the canal has recently not fully been in function due to shallowness and damages of its parts.</p>			
<b>Major Project Works</b>		Quantity	Cost
Description			
Rehabilitation of Main Canal		3,295 m	
Rehabilitation of Secondary Canals		5,205 m	
Construction of Check Structures		4 units	
Pipe Culverts Installation		6 units	
<b>Direct Construction Cost (US\$)</b>			
(1) Earth work =		US\$ 141,794.50	
(2) Concrete Work =		US\$ 119,580.90	
(3) FWUC Establishment (2%) =		US\$ 5,227.51	
(4) Project Supervision (3%) =		US\$ 7,841.26	
Contingency (10%) of Sub-total		US\$ 26,137.54	
Total		US\$ 300,581.71	
<b>Internal rate of Return</b>		18.11 %	
<b>Project Layout after Rehabilitation</b>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Ta An		
Concerned Village(s)	5 Villages		
Nos. of Beneficiary Households	450 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2003		
Latest Rehabilitation (year)	2009 Fund		
Water Source	Royal Government of Cambodia		
Reservoir	Spean Streng Reservoir		
Catchment Area (km2)			
Main Canal			
<b>Secondary Canals</b>			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	572 ha	1,085 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	513 ha	ha	
Fallow	ha	ha	
Total	1,085 ha	1,085 ha	
Crop Intensity	100 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	0.8 ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	
Rainy season paddy	572 ton	2,713 ton	2,141 ton
Dry season paddy	ton	ton	
Rainfed rainy season paddy	410 ton	ton	-410 ton
Total			1,730 ton

Source : MOWRAM

Province	Stem Reap	Target Area	611 ha
District	Kralanh	Basin Priority	2nd Priority
<b>History of Project / Background</b>			
The canal was built by the local people in 1983. It has been deteriorated from year to year since there is no fund to rehabilitate; most parts are so shallow that the water cannot be drained to the paddy fields. In short, the canal has recently not been in function due to shallowness and damages of its parts			
<b>Major Project Works</b>		Quantity	Cost
Description		2,020 m	
Rehabilitation of Canal		3 units	
Construction of Check Structure		6 units	
Pipe Culverts			
<b>Direct Construction Cost (US\$)</b>			
(1) Earth work =		US\$ 94,320.92	
(2) Concrete Work =		US\$ 97,699.20	
(3) FWUC Establishment (2%) =		US\$ 3,840.40	
(4) Project Supervision (3%) =		US\$ 5,760.60	
Contingency (10%) of Sub-total		US\$ 19,202.01	
Total		US\$ 220,823.14	
<b>Internal rate of Return</b>		14.91 %	
<b>Project Layout after Rehabilitation</b>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Kampong Thkov, Ta An		
Concerned Village(s)	5 Villages		
Nos. of Beneficiary Households	478 HH		
<b>Main Features of Existing Irrigation System</b>			
Latest Rehabilitation (year)	2009	Fund	Royal Government of Cambodia
Water Source	O Ambel MC		
Reservoir			
Catchement Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	611 ha	611 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	611 ha	611 ha	
Crop Intensity	100 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	611 ton	1,528 ton	917 ton
Dry season paddy	ton	ton	ton
Rainfed rainy season paddy	ton	ton	ton
Total			917 ton

Source : MOWRAM

Province	Siem Reap	Target Area	1,300 ha
District	Sothnikum	Basin Priority	2nd Priority
<b>History of Project / Background</b>			
<p>The canal was built during the Pol Pot regime. It has been deteriorated from year to year since there is no fund to rehabilitate; most parts are so shallow that the water cannot be drained to the paddy fields. In shorts, the canal has recently not been in function due to shallowness and damages of its parts</p>			
<b>Major Project Works</b>		Quantity	Cost
Description		4,794 m	
Rehabilitation of Canal		3 units	
Construction of Check Structures (1.2m)		6 units	
Construction of Check Structure(0.5m)		21 units	
Pipe Culverts Installation			
<b>Direct Construction Cost (US\$)</b>			
(1) Earth work		US\$ 85,764.50	
(2) Concrete Work =		US\$ 209,888.55	
(3) FWUC Establishment (2%) =		US\$ 5,913.06	
(4) Project Supervision (3%) =		US\$ 8,869.59	
Contingency (10%) of Sub-total		US\$ 29,565.31	
Total		US\$ 340,001.01	
<b>Internal rate of Return</b>		13.35 %	
<b>Project Layout after Rehabilitation</b>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Dumdek		
Concerned Village(s)	5 Villages		
Nos. of Beneficiary Households	766 HH		
<b>Main Features of Existing Irrigation System</b>			
Construction (Completed year)	2003	Fund	Royal Government of Cambodia
Latest Rehabilitation (year)	2009		
Water Source			
Reservoir			
Catchment Area (km2)			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	814 ha	1,300 ha	
Dry season paddy	ha	ha	
Rainfed rainy season paddy	486 ha	ha	
Fallow	ha	ha	
Total	1,300 ha	1,300 ha	
Crop Intensity	100 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	1.5 ton/ha	2.5 ton/ha	
Dry season paddy	ton/ha	ton/ha	
Rainfed rainy season paddy	1 ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	
Rainy season paddy	1,221 ton	3,250 ton	2,029 ton
Dry season paddy	ton	ton	
Rainfed rainy season paddy	486 ton	ton	-486 ton
Total			1,543 ton

Source : MOWRAM

Province	Kampong Cham	Target Area	894 ha
District	Srey sathor	Basin Priority	1st Priority
<b>History of Project / Background</b>			
<p>Baydei dam Rehabilitation Project is located in Baray commune , Srey santhor district , Kampong Cham Province , which is approximately 43 km from Kampong Cham province . This dam builded 1959 by Tamo and Tangourm and other grandfater.1995 Excellency Lok nheap cooperate world food programme for Earth work on Baydei dam .Baydei dam is the east of Srey santhor district about 15 km from Srey santhor District. Currently the situation of this dam eroded that make the people worry about safety the land of rice production. Every year farmers in this project area face with shortage of water for their agriculture and domestic use which bring the low rice yield. So local authority &amp; farmers requested to Kampong Cham Province Department of Water Resources and Meteorology (PDOWRAM)</p>			
<b>Major Project Works</b>			
Description	Quantity	Cost	
1. Rehabilitation of dam	4,350 m		
2. Construction of secondary dam	4,350 m		
3. Access road	1750 m		
4. Literate	6100 m		
5. Grow the grass on both side	30,450 m <sup>2</sup>		
6. Construction of repaired old water	1 place		
7. Construction of new water gate			
8. Construction 12 new pipe culverts			
<b>Direct Construction Cost (US\$)</b>			
(1) Earth works			
1.1 Embankment work rehabilitation =		US\$ 611,297.66	
1.2 Access Road rehabilitation =		US\$ 112,743.10	
1.3 Secondary Dam rehabilitation =		US\$ 96,549.63	
Sub Total =		US\$ 820,590.39	
(2) Concrete works			
2.1 New water gate =		US\$ 30,824.00	
2.2 Repaired old water gate =		US\$ 10,864.00	
2.4 14 new pipe culverts =		US\$ 130,477.20	
Sub Total =		US\$ 172,165.20	
Contingency (10% of Sub-total			
Total		US\$ 992,755.59	
<b>Internal rate of Return 16.47 %</b>			
<b>Project Layout after Rehabilitation</b>			
<b>Socio-economic Conditions</b>			
Concerned Commune(s)	Srey sathor		
Concerned Village(s)	3 Villages		
Nos. of Beneficiary Households	1,263 HH		
<b>Main Features of Existing Irrigation System</b>			
Latest Rehabilitation (year)	2009	Fund	IMF, Embassy of Japan
Water Source	Baydei Reservoir		
Catchement Area (km <sup>2</sup> )			
Main Canal			
Secondary Canals			
<b>Cropping Pattern</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	ha	ha	
Dry season paddy	220 ha	894 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	220 ha	894 ha	
Crop Intensity	25 %	100 %	
<b>Yield of Paddy</b>			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	ton/ha	ton/ha	
Dry season paddy	1.4 ton/ha	3.2 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
<b>Incremental Production</b>			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	ton	ton	0 ton
Dry season paddy	308 ton	2,861 ton	2,553 ton
Rainfed rainy season paddy	ton	ton	ton
Total			2,553 ton

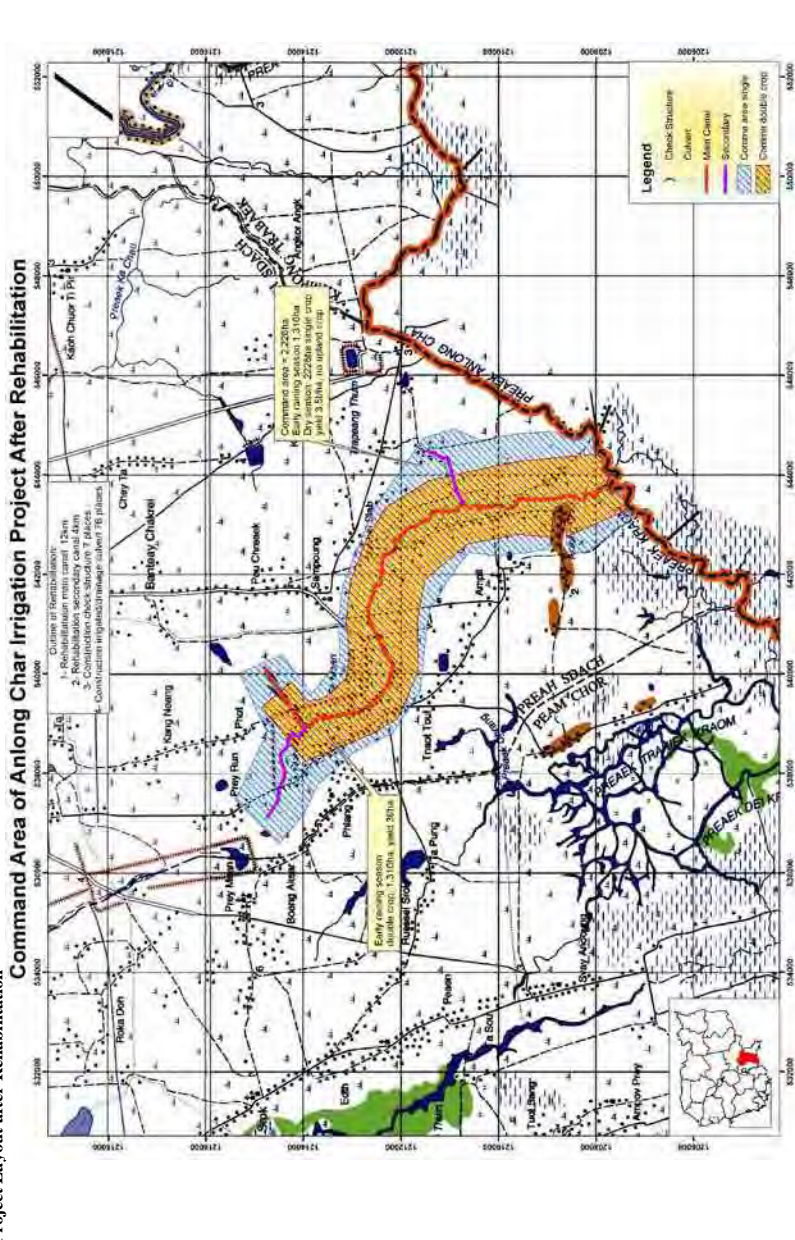
Source : MOWRAM



Province	Prey Veng	Target Area	2,226 ha
District	Prah Sdach	Basin Priority	1st Priority
<b>History of Project / Background</b>			
Anlong Cha Canal is the natural stream which connected from tributary of Mekong river between border of Viet Nam and Cambodia. The stream was excavated in 2003 by generous people. Due to the long last civil war and lack of maintenance, the main canal is shallow not enough structure for conveying to paddy field, which led to poor water management. Currently, Every year farmers in project area face with shortage of water for their agriculture, which lead on low yield. Therefore, farmers and local authorities requested to the PDWRAM Prey Veng province to rehabilitate this scheme.			

<b>Major Project Works</b>		Quantity	Cost
Description			
1. Main canal		12 km	
2. Secondary Canal		4 km	
3. Check Structure		7 places	
4. Drainage/Irrigate structure		76 places	
<b>Direct Construction Cost</b>			(US\$)
(1) Earth Work:			
1.1 Main Canal 12 km			US\$ 1,021,000.00
1.2 Secondary Canal 4 km			US\$ 198,000.00
(2) Concrete Work:			
2.1 Check Structure (7 places)			US\$ 280,000.00
2.2 Drainage/Irrigated culvert (76 places)			US\$ 288,000.00
Contingency (10%) of Sub-total			
Total			US\$ 1,787,000
<b>Internal rate of Return</b>			13.9 %

**Project Layout after Rehabilitation**



<b>Socio-economic Conditions</b>		Concerned Commune(s)		Banteay Chakrey, Prah Sdach	
Concerned Village(s)		10 Villages		2,135 HH	
<b>Main Features of Existing Irrigation System</b>		Construction (Completed year)		2004	
Latest Rehabilitation (year)		2008		Fund / NCDD, MCC/CDA, RGC	
Water Source		Anlong Cha Stream			
Reservoir					
Catchment Area (km2)					
Main Canal					
Secondary Canals					
<b>Cropping Pattern</b>		Present	With Project	Remarks	
Crop	ha	ha	1,310 ha		
Early rainy season paddy	567 ha	ha	567 ha		
Dry season paddy (Rainfed)	1,659 ha	ha	2,226 ha		
Dry season paddy (Irrigated)	ha	ha	ha		
Rainfed rainy season paddy	ha	ha	ha		
Fallow	2,226 ha	ha	3,536 ha		
Total	100 %	%	159 %		
<b>Yield of Paddy</b>		Present	With Project	Remarks	
Crop	ton/ha	ton/ha	3 ton/ha		
Early rainy season paddy	1.8 ton/ha	ton/ha	1.8 ton/ha		
Dry season paddy (Rainfed)	3.5 ton/ha	ton/ha	3.5 ton/ha		
Dry season paddy (Irrigated)	ton/ha	ton/ha	ton/ha		
Rainfed rainy season paddy	ton/ha	ton/ha	ton/ha		
<b>Incremental Production</b>		Present	With Project	Incremental	
Crop	ton	ton	3,930 ton		
Early rainy season paddy	1,021 ton	ton	-1,021 ton		
Rainy season paddy	5,807 ton	ton	7,791 ton		
Dry season paddy	ton	ton	ton		
Rainfed rainy season paddy	ton	ton	964 ton		
Total					

Source : MOWRAM

Province	Svay Rieng	Target Area	650 ha
District	Kampong Ro	Basin Priority	1st Priority
History of Project / Background			
<p>Sopha Irrigation System is located in Banteay Kraing commune, Kampong Ro District, Svay Rieng Province, which is about 35km at the south of Svay Rieng Town. Most of farmers in this area make their money by producing wet and dry season rice and relying on the Sopha Irrigation System. Water source for this Irrigation System is coming from Long Khut canal (Vietnam). This Irrigation System has been established since 1986 by Ministry of Water Resources and Meteorology.</p> <p>At the present, an active effort made by commune chief, village chief and farmers urgently require construction of related structures such as pumping station, crossing culverts, irrigated culverts, outlet plastic tubes, and concrete channel in order to increase water flow capacity and release water during the need of water</p>			
Socio-economic Conditions			
Concerned Commune(s)	Banteay Kraing		
Concerned Village(s)	3 Villages		
Nos. of Beneficiary Households	431 HH		
Main Features of Existing Irrigation System			
Latest Rehabilitation (year)	1986		
Water Source	Fund		
Reservoir	Long Khut Canal (VN)		
Catchement Area (km2)			
Main Canal			
Secondary Canals			
Cropping Pattern			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	120 ha	220 ha	
Dry season paddy	530 ha	650 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	650 ha	870 ha	
Crop Intensity	100 %	134 %	
Yield of Paddy			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	0.8 ton/ha	2 ton/ha	
Dry season paddy	2 ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
Incremental Production			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	96 ton	440 ton	344 ton
Dry season paddy	1,060 ton	2,275 ton	1,215 ton
Rainfed rainy season paddy	ton	ton	ton
Total			1,559 ton
Source : MOWRAM			
Major Project Works			
Description	Quantity	Cost	
1. Construction of pumping station	3 places		
2. Construction of crossing culverts	5 places		
3. Construction of irrigated culverts	24 places		
4. Construction of outlet plastic tube	2,100 m		
5. Construction of concrete channel (Line 1)	480 m		
6. Construction of concrete channel (Line 2)			
Direct Construction Cost (US\$)			
(1) Pumping Station	US\$ 138,720.00		
(2) Crossing Culvert	US\$ 127,023.00		
(3) Irrigated Culvert	US\$ 113,560.00		
(4) Outlet plastic tube	US\$ 11,616.00		
(5) Concrete Channel	US\$ 404,498.00		
(6) Concrete Channel	US\$ 99,366.50		
Contingency (10%) of Sub-total	US\$ 89,478.35		
Total	US\$ 984,261.85		
Internal rate of Return 12.13 %			
Project Layout after Rehabilitation			
No Map Available			
Evaluation Conditions			
1. Activities of FWUC	No establishment and no activities of FWUC for establishment of FWUC		
2. Status of FWUC	Approved by Provincial Government (Governor)		
3. If no FWUC	PDWRAM will establish the FWUC in cooperate with local government and farmers, Local Government (District, Commune and Village) agreed and will cooperate to establish the FWUC, and Villager and farmers agreed and will participate to establish the FWUC.		
4. Land Mine	Not sure		
5. Who request and eager to realize this project	Commune Chief or Council, Village Chief, and Villagers & Farmers		
6. How many % of farmers and villagers agreed and will cooperate this project	100%		
7. If we conduct this project, who will complain or protest to this project?	Upstream fisher man		
8. Land for rehabilitation project	Some land for rehabilitation project is inside of private land, but land owner agreed to provide the land for rehabilitation without money.		

Province	Sway Rieng	Target Area	350 ha
District	Chantrea	Basin Priority	1st Priority
History of Project / Background			
<p>Sway Yea Irrigation System is located in Samrong and Chres commune, Chantrea District, Sway Rieng Province, which is about 40km at the South-East of Sway Rieng Town. Most of farmers in this area make their money by producing wet and dry season rice and relying on the Sway Yea Irrigation System. Water source for this system is coming from Sway Yea Reservoir (water volume is 2 millions meter cube) which is taking water from Dun Toy reservoir (water volume is 17.50 million meter cube). This irrigation system had been established by PRASAC in 1997-1998, and in 2003 Spillway had been constructed by Ministry of Water Resources and Meteorology.</p> <p>At the present, an active effort made by commune chief, village chief and farmers urgently require the rehabilitation of dam and construction of related structures such as three main canals, spillway, water gate, and outlet plastic tubes in order to increase water flow capacity and release water during the need of water.</p>			
Socio-economic Conditions			
Concerned Commune(s)	Samrong, Chres		
Concerned Village(s)	3 Villages		
Nos. of Beneficiary Households	562 HH		
Main Features of Existing Irrigation System			
Construction (Completed year)	2003		
Latest Rehabilitation (year)	Fund		
Water Source	Sway Yea Reservoir		
Reservoir			
Main Canal			
Secondary Canals			
Cropping Pattern			
Crop	Present	With Project	Remarks
Early rainy season paddy	ha	ha	
Rainy season paddy	50 ha	245 ha	
Dry season paddy	300 ha	350 ha	
Rainfed rainy season paddy	ha	ha	
Fallow	ha	ha	
Total	350 ha	595 ha	
Crop Intensity	100 %	170 %	
Yield of Paddy			
Crop	Present	With Project	Remarks
Early rainy season paddy	ton/ha	ton/ha	
Rainy season paddy	0.8 ton/ha	2 ton/ha	
Dry season paddy	1.5 ton/ha	3.5 ton/ha	
Rainfed rainy season paddy	ton/ha	ton/ha	
Incremental Production			
Crop	Present	With Project	Incremental
Early rainy season paddy	ton	ton	ton
Rainy season paddy	40 ton	490 ton	450 ton
Dry season paddy	450 ton	1,225 ton	775 ton
Rainfed rainy season paddy	ton	ton	ton
Total			1,225 ton
Source : MOWRAM			
Major Project Works			
Description	Quantity	Cost	Evaluation Conditions
1. Rehabilitation of spillway	4 places		1. Activities of FWUC
2. Construction of water gate	4 places		2. Status of FWUC
3. Construction of outlet plastic tube	42 places		3. If no FWUC
4. Construction of Sway Yea dam	2,500 m		
5. Construction of main canal No. 1	1,713 m		
6. Construction of secondary canal No. 1	2,000 m		
7. Construction of secondary canal No. 2	2,000 m		
Direct Construction Cost (US\$)			
(1) Concrete Work =	US\$ 218,826.00		No establishment and no activities of FWUC for establishment of FWUC
(2) Earth work =	US\$ 573,175.50		Approved by Provincial Government (Governor) for establishment of FWUC
			PDWRAM will establish the FWUC in cooperate with local government and farmers. Local Government (District, Commune and Village) agreed and will cooperate to establish the FWUC, and Villager and farmers agreed and will participate to establish the FWUC.
Contingency (10%) of Sub-total	US\$ 79,200.50		Not sure
Total	US\$ 871,202.50		PDWRAM, Commune Chief or Council, Village Chief, FWUC, and Villagers & Farmers
			100%
			Upstream fisher man
			Some land for rehabilitation project is inside of private land, but land owner agreed to provide the land for rehabilitation without money.
<b>Internal rate of Return</b>	12.29 %		
Project Layout after Rehabilitation			
No Map Available			