No.

Japan International Cooperation Agency (JICA)

Ministry of Settlement and Regional Infrastructure (MOSRI)
The Republic of Indonesia

THE STUDY
ON
COMPREHENSIVE RECOVERY PROGRAM
OF
IRRIGATION AGRICULTURE

VOLUME-4

ANNEX-II (2/3)

Priority List
of
Irrigation Schemes
for
Rehabilitation
(Central Java Province)

February 2004

Nippon Koei Co., Ltd.

AFA
JR
04-18

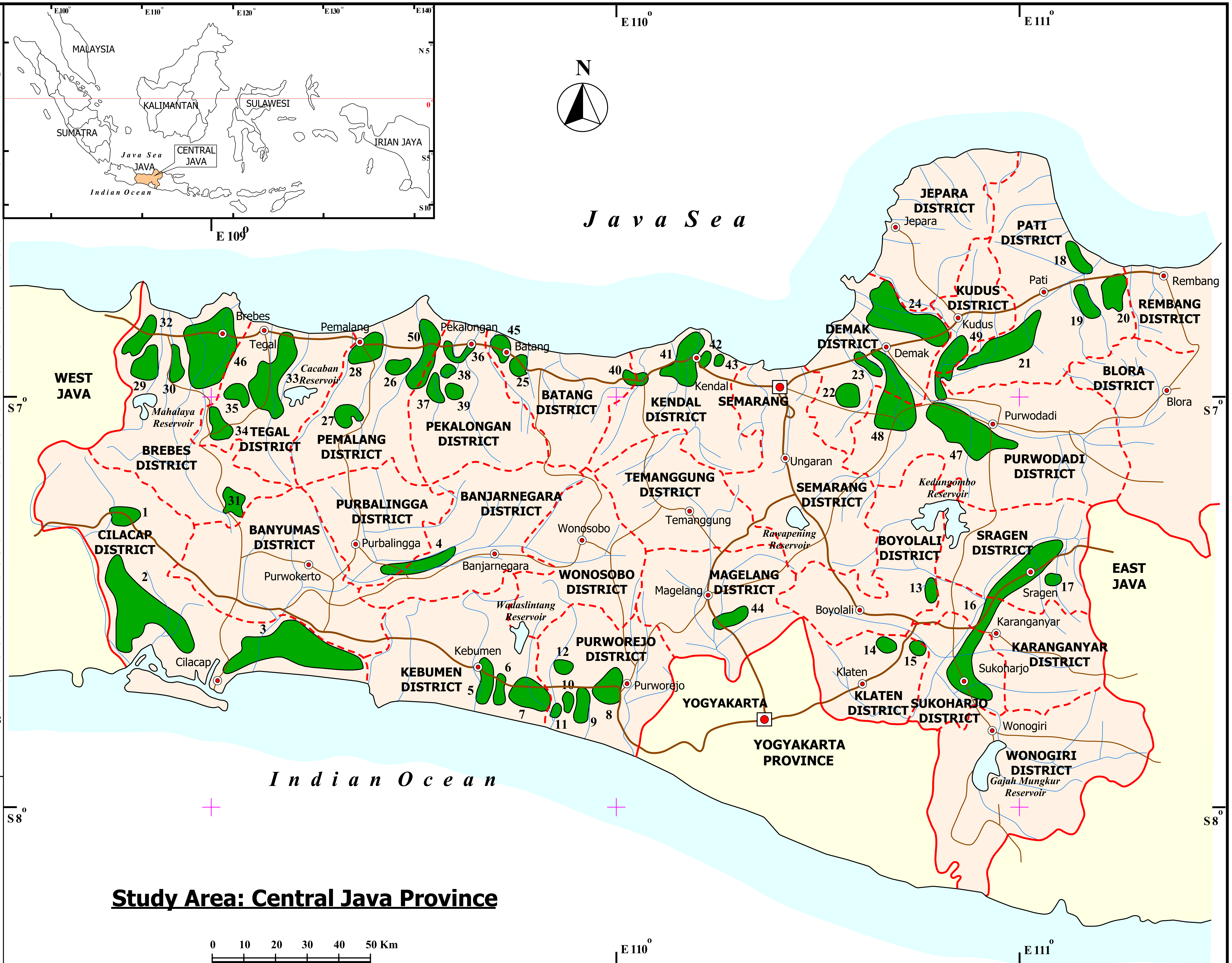
Irrigation Scheme

Name of Scheme	Registered Area (Ha)		Subject Area (Ha)
1. Cijalu	1,377	T	1,377
2. Mangganti	18,895	T	22,644
3. Serayu	15,869	T	20,795
4. Banjarcahyana	4,859	T	5,001
5. Kaligending	2,981	T	2,923
6. Pesucen	1,666	T	1,659
7. Bedegolan	8,430	T	8,401
8. Kedung Putri	4,341	T	4,451
9. Sudagaran	3,665	T	3,665
10. Rebug	1,202	T	1,202
11. Kalimeneng	1,262	T	1,262
12. Kedung GW	1,129	T	1,129
13. Waduk Cengklik	1,579	T	2,120
14. Ploso Wareng	1,100	T	1,100
15. Jaban	1,191	T	1,191
16. Colo Kanan	18,108	T	22,982
17. Bonggo	1,811	T	1,406
18. Pangkalan	1,765	T	654
19. Sentul	1,759	T	1,739
20. Widodaren	3,652	T	2,616
21. Klambu Kanan	10,391	T	6,216
22. Jragung	4,597	T	4,416
23. Guntur	2,020	T	1,543
24. Klambu Kiri	21,419	T	20,738
25. Kedungdowo Kramat	1,250	T	1,250
26. Sungapan Kanan	1,851	T	1,851
27. Mejagong	1,997	T	2,049
28. Sungapan Kiri	5,229	T	5,570
29. Kabuyutan	4,182	T	3,876
30. Babakan	2,181	T	2,528
31. Kemaron Jambe	1,026	T	1,483
32. Jengkelok	6,505	T	6,173
33. Gung	12,999	T	12,641
34. Parakankidang	1,697	T	1,631
35. Kumisik	3,736	T	3,778
36. Pesantren Kletak	4,263	T	3,636
37. Sragi	3,540	T	3,539
38. Sudikampir	1,564	T	1,550
39. Padurekso	2,764	T	2,764
40. Kedung Asem	3,726	T	2,845
41. Bodri	8,538	T	7,710
42. Trompo	1,263	T	1,229
43. Kedung Pengilon	3,134	T	2,686
44. Pasekan	1,078	T	988
45. Kosar	1,617	T	3,243
46. Notog	27,682	T	25,540
47. Sidorejo	14,622	T	5,717
48. Glapan	18,696	T	18,784
49. Klambu Kanan	6,841	T	11,078
50. Kaliwadas	7,520	T	7,722

T : Technical Irrigation

LEGEND

- Capital City of Province
- Capital Town of District
- Provincial Boundary
- District Boundary
- Provincial Road
- District Road
- River
- Irrigation Scheme
- Technical Irrigation



The Study on Comprehensive Recovery Program of Irrigation Agriculture	Location Map of Irrigation Schemes in Central Java Province
Japan International Cooperation Agency	

THE STUDY
ON
COMPREHENSIVE RECOVERY PROGRAM
OF
IRRIGATION AGRICULTURE
IN
THE REPUBLIC OF INDONESIA

Volume-4

ANNEX-II (2/3)
PRIORITY LIST OF THE IRRIGATION SCHEMES FOR REHABILITATION
(Central Java Province)

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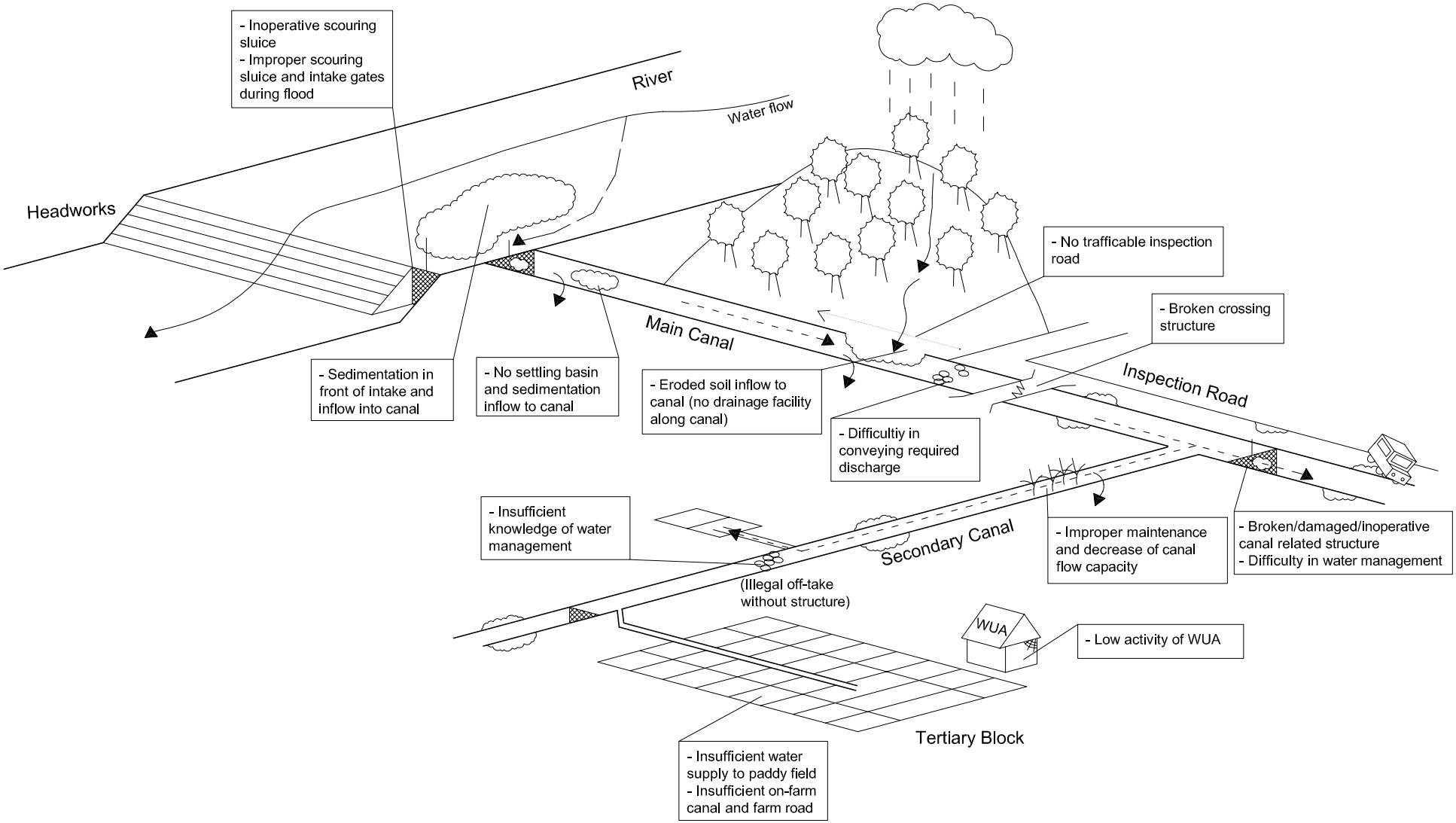
Part III PRESENT CONDITION AND PRE-F/S LEVEL DEVELOPMENT PLAN FOR EACH IRRIGAITON SCHEME

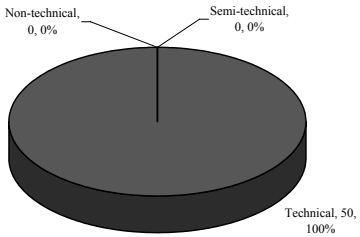
PART-I

Present Condition of the Irrigation Schemes (Provincial Summary)

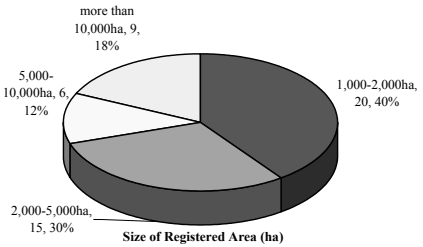


Identified Common Problems on Irrigation System

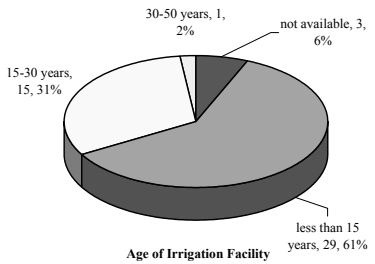
Provincial Summary of Irrigation Schemes
(Central Java Province)



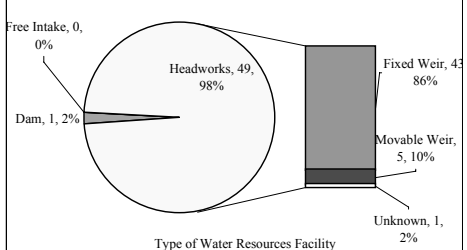
Technical Level



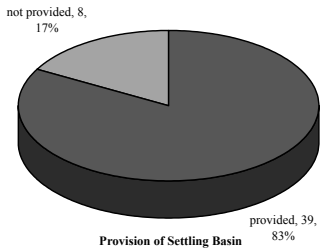
Size of Registered Area (ha)
Total = 284,569 ha
Average = 5,691 ha



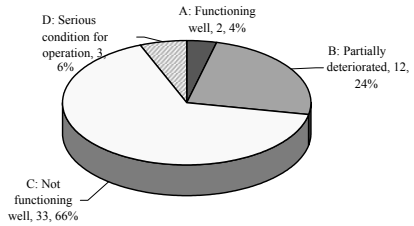
Age of Irrigation Facility
Average = 16 years



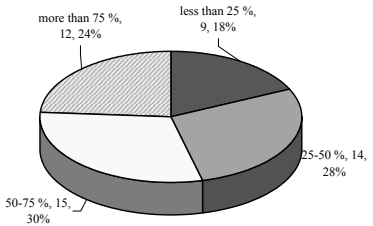
Type of Water Resources Facility



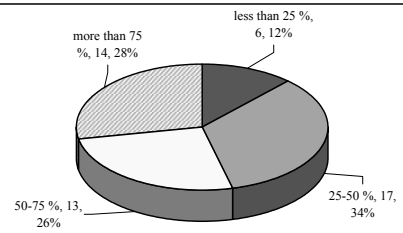
Provision of Settling Basin



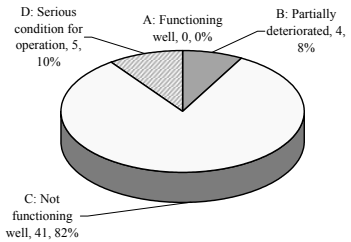
Condition of Water Resources Facility



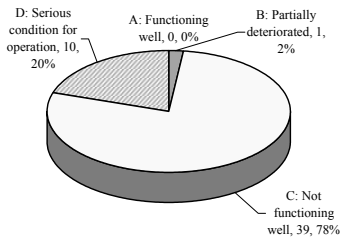
Provision of Lined Canal (% for total canal length)
Average = 56 %



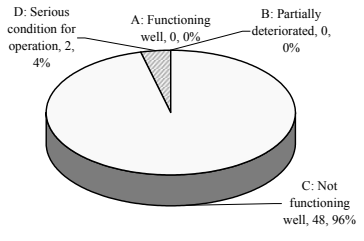
Provision of Inspection Road(% for total canal length)
Average = 59 %



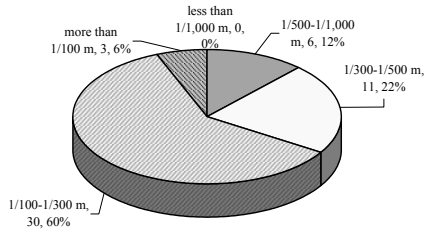
Condition of Main Canal System



Condition of Secondary Canal System



Condition of On-farm System



Provision of Structure (number / canal length)
Average = 1/279 m

Remarks: Explanation of graph shows 1) Classification,
2) Number of schemes, and 3) percentage.

Present Condition of Water Resource Facility
Central Java Province

No.	Irrigation Scheme	District	Technical Level [1)]	Registered Area (ha)	Age of the Facility (years)	Catchment Area (km^2)	Type of Facility	Type of Weir	Length of Weir (m)	Design Intake Discharge (m^3/s)	No. of Scouring Sluice Gate	No. of Intake Gate	Provision of Setting Basin	Provision of Inspection Bridge	Condition
1.	Cijalu	Cilacap	T	1,377	16	70	Headworks	Fixed weir	68	2.7	2	2	not provided	unknown	C
2.	Mangganti	Cilacap	T	18,895	6	2,546	Headworks	Movable weir	76	56.3	-	6	provided	provided	B
3.	Serayu	Cilacap	T	15,869	9	3,719	Headworks	Movable weir	12	32.0	-	4	provided	provided	B
4.	Banjarcahyana	Banjarnegara	T	4,859	17	1,022	Dam	-	-	11.0	-	N/A	-	-	A
5.	Kaligending	Kebumen	T	2,981	4	281	Headworks	Fixed weir	88	3.5	2	N/A	provided	not provided	B
6.	Pesucen	Kebumen	T	1,666	1	81	Headworks	Fixed weir	40	3.0	5	N/A	provided	not provided	A
7.	Bedegolan	Kebumen	T	8,430	5	211	Headworks	Fixed weir	58	13.5	2	4	provided	not provided	B
8.	Kedung Putri	Purworejo	T	4,341	15	364	Headworks	Fixed weir	53	5.5	2	3	provided	not provided	C
9.	Sudagaran	Purworejo	T	3,665	-	500	Headworks	Fixed weir	43	7.0	N/A	N/A	not provided	unknown	C
10.	Rebug	Purworejo	T	1,202	15	88	Headworks	Fixed weir	45	0.0	1	N/A	provided	provided	C
11.	Kalimeneng	Purworejo	T	1,262	19	12	Headworks	Fixed weir	36	2.0	2	2	provided	provided	C
12.	Kedung GW	Purworejo	T	1,129	64	11	Headworks	Fixed weir	68	2.0	2	2	not provided	provided	D
13.	Waduk Cengklik	Boyolali	T	1,579	3	-	Headworks	Fixed weir	40	4.7	3	2	provided	not provided	C
14.	Ploso Wareng	Klaten	T	1,100	11	-	Headworks	Fixed weir	20	1.6	1	2	provided	not provided	C
15.	Jaban	Klaten	T	1,191	11	-	Headworks	Fixed weir	13	2.7	1	1	not provided	not provided	C
16.	Colo Kanan	Sragen	T	18,108	18	2,743	Headworks	Fixed weir	112	31.6	2	5	provided	provided	C
17.	Bonggo	Sragen	T	1,811	18	66	Headworks	Fixed weir	50	1.5	1	2	provided	not provided	D
18.	Pangkalan	Pati	T	1,765	10	23	Headworks	Fixed weir	31	2.5	1	2	not provided	unknown	C
19.	Sentul	Pati	T	1,759	11	-	Headworks	Fixed weir	30	2.0	1	2	provided	unknown	C
20.	Widodaren	Pati	T	3,652	13	-	Headworks	Fixed weir	22	2.0	N/A	2	provided	unknown	B
21.	Klambu Kanan	Pati	T	10,391	13	2,854	Headworks	Fixed weir	33	9.0	N/A	N/A	provided	unknown	C
22.	Jragung	Demak	T	4,597	14	-	Headworks	Fixed weir	33	8.0	1	1	provided	provided	C
23.	Guntur	Demak	T	2,020	24	-	Headworks	Movable weir	30	3.5	-	3	provided	provided	C
24.	Klambu Kiri	Demak	T	21,419	11	2,101	Headworks	Fixed weir	100	21.0	6	4	provided	unknown	B
25.	Kedungdowo Kramat	Batang	T	1,250	27	95	Headworks	Fixed weir	50	2.1	2	1	not provided	provided	C
26.	Sungapan Kanan	Pemalang	T	1,851	3	160	Headworks	Fixed weir	72	4.0	3	4	provided	unknown	B
27.	Mejagong	Pemalang	T	1,997	11	-	Headworks	Fixed weir	50	8.0	2	2	provided	unknown	C
28.	Sungapan Kiri	Pemalang	T	5,229	3	-	Headworks	Fixed weir	72	8.5	3	4	provided	unknown	B
29.	Kabuyutan	Brebes	T	4,182	17	127	Headworks	Fixed weir	67	8.5	2	3	provided	not provided	C
30.	Babakan	Brebes	T	2,181	11	-	Headworks	Fixed weir	68	3.7	2	2	provided	not provided	C
31.	Kemaron Jambe	Brebes	T	1,026	12	145	Headworks	Fixed weir	15	3.1	1	1	provided	not provided	C
32.	Jengkelok	Brebes	T	6,505	13	206	Headworks	Fixed weir	40	8.6	1	2	provided	not provided	C
33.	Gung	Tegal & Kodia Tegal	T	12,999	5	156	Headworks	Fixed weir	65	5.4	2	2	provided	unknown	C
34.	Parakankidang	Tegal & Kodia Tegal	T	1,697	9	45	Headworks	Fixed weir	23	3.6	N/A	N/A	provided	unknown	C
35.	Kumisik	Tegal & Kodia Tegal	T	3,736	5	23	Headworks	Fixed weir	24	5.4	1	3	provided	unknown	C
36.	Pesantren Kletak	Pekalongan & Kodia P.	T	4,263	8	289	Headworks	Fixed weir	123	6.0	3	3	provided	not provided	B
37.	Sragi	Pekalongan & Kodia P.	T	3,540	29	-	Headworks	Movable weir	25	N/A	-	N/A	unknown	provided	C
38.	Sudikampir	Pekalongan & Kodia P.	T	1,564	28	289	Headworks	Fixed weir	37	1.2	1	3	provided	not provided	C
39.	Padurekso	Pekalongan & Kodia P.	T	2,764	88	106	Headworks	Fixed weir	64	6.5	2	3	provided	not provided	C
40.	Kedung Asem	Kendal & Kodia Semarang	T	3,726	13	200	Headworks	Fixed weir	45	4.9	1	1	provided	unknown	C
41.	Bodri	Kendal & Kodia Semarang	T	8,538	-	320	Headworks	Fixed weir	60	11.3	2	2	provided	provided	C
42.	Trompo	Kendal & Kodia Semarang	T	1,263	13	26	Headworks	Movable weir	15	3.5	-	2	not provided	provided	D
43.	Kedung Pengilon	Kendal & Kodia Semarang	T	3,134	-	150	Headworks	Fixed weir	25	4.0	2	2	not provided	unknown	C
44.	Pasekan	Magelang dan Kodia Mag.	T	1,078	3	73	Headworks	Fixed weir	35	1.1	2	2	provided	not provided	C
45.	Kosar	Batang / Pekalongan	T	1,617	28	199	Headworks	Fixed weir	37	6.7	1	3	provided	not provided	C
46.	Notog	Brebes / Tegal	T	27,682	31	-	Headworks	Fixed weir	85	27.0	4	7	provided	not provided	C
47.	Sidorejo	Grobogan / Boyolali	T	14,622	13	63	Headworks	Fixed weir	80	11.0	2	2	provided	provided	B
48.	Glapan	Grobogan / Demak	T	18,696	26	-	Headworks	Fixed weir	100	14.0	1	2	provided	not provided	C
49.	Klambu Kanan	Grobogan / Kudus / Pati	T	6,841	13	-	Headworks	N/A	N/A	N/A	N/A	N/A	unknown	unknown	B
50.	Kaliwadas	Pekalogan / Pemalang	T	7,520	29	765	Headworks	Fixed weir	85	10.0	2	4	provided	provided	B
	Total			**284,569**											
	Average			5,691	16	403			51						
	Itemized Total		T : 50 ST : 0 NT : 0				dam: 1 headworks: 49 free intake: 0	fixed weir: 43 movable weir: 5 gabion weir: 0					provided: 39 not provided: 8	provided: 14 not provided: 19	A : 2 B : 12 C : 33 D : 3

Note: 1): T: Technical, ST: Semi-technical, NT: Non-technical
N/A : no information was available
Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Source: Inventory Survey Works for the Study on Comprehensive Recovery Program of Irrigation Agriculture

Present Condition of Irrigation Canal
Central Java Province

No.	Irrigation Scheme	District	Technical Level [1]	Registered Area (ha)	Age of the Facilities (years)	Main Canal					Secondary Canal					On-farm
						Lined Length (m)	Unlined Length (m)	No. of Related Structures	Length of Inspection Road (m)	Condition	Lined Length (m)	Unlined Length (m)	No. of Related Structures	Length of Inspection Road (m)	Condition	Condition
1.	Cijalu	Cilacap	T	1,377	16	2,000	3,331	94	2,000	C	530	16,142	212	15,000	C	C
2.	Mangganti	Cilacap	T	18,895	6	69,687	0	170	40,000	C	170,000	20,500	205	100,000	C	C
3.	Serayu	Cilacap	T	15,869	9	4,108	91,839	306	50,000	D	4,567	111,285	639	50,000	D	C
4.	Banjarcahyana	Banjarnegara	T	4,859	17	24,540	16,360	316	40,900	C	8,730	5,820	113	9,312	C	C
5.	Kaligending	Kebumen	T	2,981	4	12,000	0	92	12,000	C	6,000	9,000	76	15,000	C	C
6.	Pesucen	Kebumen	T	1,666	1	224	0	4	224	B	9,000	8,000	150	8,500	C	C
7.	Bedegolan	Kebumen	T	8,430	5	3,500	2,730	29	6,230	B	40,500	40,760	294	17,000	C	C
8.	Kedung Putri	Purworejo	T	4,341	15	6,644	2,656	66	9,300	C	3,527	1,328	292	2,500	C	C
9.	Sudagaran	Purworejo	T	3,665	-	1,000	3,100	3	2,000	C	16,000	25,700	87	15,000	C	C
10.	Rebug	Purworejo	T	1,202	15	0	0	0	0	D	6,000	13,000	40	8,000	D	D
11.	Kalimeneng	Purworejo	T	1,262	19	906	180	10	1,086	C	9,941	5,200	139	8,100	C	C
12.	Kedung GW	Purworejo	T	1,129	64	748	435	13	200	C	13,000	2,929	124	10,000	C	C
13.	Waduk Cengklik	Boyolali	T	1,579	3	1,891	2,765	42	4,656	C	11,003	17,246	191	28,249	C	C
14.	Ploso Wareng	Klaten	T	1,100	11	250	0	3	250	C	6,205	4,075	96	10,280	C	C
15.	Jaban	Klaten	T	1,191	11	3,627	400	2	4,027	C	9,275	3,970	142	13,245	C	C
16.	Colo Kanan	Sragen	T	18,108	18	17,816	46,684	428	64,500	D	110,378	9,800	199	120,178	C	C
17.	Bonggo	Sragen	T	1,811	18	600	1,200	5	1,800	C	6,508	9,570	160	16,078	C	C
18.	Pangkalan	Pati	T	1,765	10	700	0	4	700	C	5,650	1,152	58	3,000	C	C
19.	Sentul	Pati	T	1,759	11	1,357	1,408	26	1,889	C	5,456	8,348	59	3,257	C	C
20.	Widodaren	Pati	T	3,652	13	0	5,778	38	5,778	D	5,500	15,640	72	7,000	D	C
21.	Klambu Kanan	Pati	T	10,391	13	37,270	0	37	37,270	C	50,200	5,900	170	31,570	C	C
22.	Jragung	Demak	T	4,597	14	7,325	0	13	2,391	C	17,504	10,300	90	8,482	C	C
23.	Guntur	Demak	T	2,020	24	500	0	11	0	C	3,000	12,303	57	3,000	C	C
24.	Klambu Kiri	Demak	T	21,419	11	34,130	0	155	32,000	C	105,689	0	373	32,000	C	C
25.	Kedungdowo Kramat	Batang	T	1,250	27	700	2,140	25	932	C	1,200	4,330	33	2,000	D	C
26.	Sungapan Kanan	Pemalang	T	1,851	3	2,004	4,676	18	6,680	B	4,828	3,219	19	5,362	C	C
27.	Mejagong	Pemalang	T	1,997	11	218	0	37	218	C	1,663	16,202	46	9,265	D	C
28.	Sungapan Kiri	Pemalang	T	5,229	3	4,396	3,529	28	7,925	C	19,539	15,988	108	18,000	C	C
29.	Kabuyutan	Brebes	T	4,182	17	3,100	340	29	1,614	C	30,707	12,440	139	20,000	C	C
30.	Babakan	Brebes	T	2,181	11	2,547	0	5	1,200	C	7,360	17,140	54	5,000	D	C
31.	Kemaron Jambe	Brebes	T	1,026	12	10,000	0	34	10,000	C	17,600	6,000	86	5,000	C	C
32.	Jengkelok	Brebes	T	6,505	13	3,100	2,100	10	5,200	C	12,800	32,227	171	3,800	D	D
33.	Gung	Tegal & Kodia Tegal	T	12,999	5	13,500	0	27	8,576	C	20,000	17,000	165	37,000	C	C
34.	Parakankidang	Tegal & Kodia Tegal	T	1,697	9	1,200	510	5	1,710	B	4,400	10,290	65	14,690	B	C
35.	Kumisik	Tegal & Kodia Tegal	T	3,736	5	4,500	10,700	51	15,200	C	5,200	12,077	31	17,277	D	C
36.	Pesantren Kletak	Pekalongan & Kodia P.	T	4,263	8	1,300	12,747	34	9,686	C	14,139	24,016	126	20,000	C	C
37.	Sragi	Pekalongan & Kodia P.	T	3,540	29	3,626	2,967	18	1,500	C	5,703	25,303	38	5,000	C	C
38.	Sudikampir	Pekalongan & Kodia P.	T	1,564	28	2,595	7,777	0	3,000	C	4,582	7,774	39	10,200	D	C
39.	Padurekso	Pekalongan & Kodia P.	T	2,764	88	550	3,000	10	3,550	D	4,857	14,571	104	7,500	D	C
40.	Kedung Asem	Kendal & Kodia Semarang	T	3,726	13	2,500	0	10	2,250	C	28,854	0	151	9,325	C	C
41.	Bodri	Kendal & Kodia Semarang	T	8,538	-	3,429	0	46	2,200	C	60,499	0	149	30,000	C	C
42.	Trompo	Kendal & Kodia Semarang	T	1,263	13	1,200	0	3	0	C	10,690	0	42	2,000	C	C
43.	Kedung Pengilon	Kendal & Kodia Semarang	T	3,134	-	655	0	16	655	C	32,620	0	79	7,800	C	C
44.	Pasekan	Magelang dan Kodia Mag.	T	1,078	3	0	0	0	0	C	8,350	1,754	191	0	C	C
45.	Kosar	Batang / Pekalongan	T	1,617	28	1,246	4,854	19	2,660	C	9,895	34,145	164	34,000	C	C
46.	Notog	Brebes / Tegal	T	27,682	31	3,750	13,350	9	31,000	C	159,563	239,345	504	250,000	C	C
47.	Sidorejo	Grobogan / Boyolali	T	14,622	13	13,500	0	133	13,500	C	20,000	17,000	316	37,000	C	C
48.	Glapan	Grobogan / Demak	T	18,696	26	7,100	10,880	52	17,980	C	14,931	36,619	205	16,000	C	C
49.	Klambu Kanan	Grobogan / Kudus / Pati	T	6,841	13	12,619	0	28	12,000	C	45,057	5,533	132	30,000	C	C
50.	Kaliwadas	Pekalogan / Pemalang	T	7,520	29	7,737	9,457	47	914	C	38,976	31,890	128	22,712	C	C
	Total			**284,569**		**337,895**	**267,893**	**2,561**	**479,351**		**1,208,176**	**942,831**	**7,323**	**1,153,682**		
	Average			5,691	16	6,758	5,358	51	9,587		24,164	18,857	146	23,074		
	Itemized Total		T : 50							A : 0					A : 0	A : 0
			ST : 0							B : 4					B : 1	B : 0
			NT : 0							C : 41					C : 39	C : 48
										D : 5					D : 10	D : 2

Note: 1): T: Technical, ST: Semi-technical, NT: Non-technical

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Source: Inventory Survey Works for the Study on Comprehensive Recovery Program of Irrigation Agriculture

Present Ratio of Irrigation Facilities Provision
Central Java Province

No.	Irrigation Scheme	District	Technical Level [1]	Registered Area (ha)	Age of the Facilities (years)	Density of Canal (m/ha)			Lined Canal Provision Ratio			Inspection Road Provision Ratio			Structure Provision Ratio (m/nos)		
						MC	SC	Total	MC	SC	Total	MC	SC	Total	MC	SC	Total
1.	Cijalu	Cilacap	T	1,377	16	3.9	12.1	16.0	38%	3%	11%	38%	90%	77%	57	79	72
2.	Mangganti	Cilacap	T	18,895	6	3.1	8.4	11.5	100%	89%	92%	57%	52%	54%	410	929	694
3.	Serayu	Cilacap	T	15,869	9	4.6	5.6	10.2	4%	4%	4%	52%	43%	47%	314	181	224
4.	Banjarcahyana	Banjarnegara	T	4,859	17	8.2	2.9	11.1	60%	60%	60%	100%	64%	91%	129	129	129
5.	Kaligending	Kebumen	T	2,981	4	4.1	5.1	9.2	100%	40%	67%	100%	100%	100%	130	197	161
6.	Pesucen	Kebumen	T	1,666	1	0.1	10.2	10.4	100%	53%	54%	100%	50%	51%	56	113	112
7.	Bedegolan	Kebumen	T	8,430	5	0.7	9.7	10.4	56%	50%	50%	100%	21%	27%	215	276	271
8.	Kedung Putri	Purworejo	T	4,341	15	2.1	1.1	3.2	71%	73%	72%	100%	51%	83%	141	17	40
9.	Sudagaran	Purworejo	T	3,665	-	1.1	11.4	12.5	24%	38%	37%	49%	36%	37%	1,367	479	509
10.	Rebug	Purworejo	T	1,202	15	0.0	15.8	15.8	No Canal	32%	32%	No Canal	42%	42%	No Canal	475	475
11.	Kalimeneng	Purworejo	T	1,262	19	0.9	12.0	12.9	83%	66%	67%	100%	53%	57%	109	109	109
12.	Kedung GW	Purworejo	T	1,129	64	1.0	14.1	15.2	63%	82%	80%	17%	63%	60%	91	128	125
13.	Waduk Cengklik	Boyolali	T	1,579	3	2.2	13.3	15.5	41%	39%	39%	100%	100%	100%	111	148	141
14.	Ploso Wareng	Klaten	T	1,100	11	0.2	9.3	9.6	100%	60%	61%	100%	100%	100%	83	107	106
15.	Jaban	Klaten	T	1,191	11	3.4	11.1	14.5	90%	70%	75%	100%	100%	100%	2,014	93	120
16.	Colo Kanan	Sragen	T	18,108	18	2.8	5.2	8.0	28%	92%	69%	100%	100%	100%	151	604	295
17.	Bonggo	Sragen	T	1,811	18	1.3	11.4	12.7	33%	40%	40%	100%	100%	100%	360	100	108
18.	Pangkalan	Pati	T	1,765	10	1.1	10.4	11.5	100%	83%	85%	100%	44%	49%	175	117	121
19.	Sentul	Pati	T	1,759	11	1.6	7.9	9.5	49%	40%	41%	68%	24%	31%	106	234	195
20.	Widodaren	Pati	T	3,652	13	2.2	8.1	10.3	0%	26%	20%	100%	33%	47%	152	294	245
21.	Klambu Kanan	Pati	T	10,391	13	6.0	9.0	15.0	100%	89%	94%	100%	56%	74%	1,007	330	451
22.	Jragung	Demak	T	4,597	14	1.7	6.3	8.0	100%	63%	71%	33%	31%	31%	563	309	341
23.	Guntur	Demak	T	2,020	24	0.3	9.9	10.2	100%	20%	22%	0%	20%	19%	45	268	232
24.	Klambu Kiri	Demak	T	21,419	11	1.6	5.1	6.7	100%	100%	100%	94%	30%	46%	220	283	265
25.	Kedungdowo Kramat	Batang	T	1,250	27	2.3	4.4	6.7	25%	22%	23%	33%	36%	35%	114	168	144
26.	Sungapan Kanan	Pemalang	T	1,851	3	3.6	4.3	8.0	30%	60%	46%	100%	67%	82%	371	424	398
27.	Mejagong	Pemalang	T	1,997	11	0.1	8.7	8.8	100%	9%	10%	100%	52%	52%	6	388	218
28.	Sungapan Kiri	Pemalang	T	5,229	3	1.4	6.4	7.8	55%	55%	55%	100%	51%	60%	283	329	320
29.	Kabuyutan	Brebes	T	4,182	17	0.9	11.1	12.0	90%	71%	73%	47%	46%	46%	119	310	277
30.	Babakan	Brebes	T	2,181	11	1.0	9.7	10.7	100%	30%	37%	47%	20%	23%	509	454	458
31.	Kemaron Jambe	Brebes	T	1,026	12	6.7	15.9	22.7	100%	75%	82%	100%	21%	45%	294	274	280
32.	Jengkelok	Brebes	T	6,505	13	0.8	7.3	8.1	60%	28%	32%	100%	8%	18%	520	263	277
33.	Gung	Tegal & Kodia Tegal	T	12,999	5	1.1	2.9	4.0	100%	54%	66%	64%	100%	90%	500	224	263
34.	Parakankidang	Tegal & Kodia Tegal	T	1,697	9	1.0	9.0	10.1	70%	30%	34%	100%	100%	100%	342	226	234
35.	Kumisik	Tegal & Kodia Tegal	T	3,736	5	4.0	4.6	8.6	30%	30%	30%	100%	100%	100%	298	557	396
36.	Pesantren Kletak	Pekalongan & Kodia P.	T	4,263	8	3.9	10.5	14.4	9%	37%	30%	69%	52%	57%	413	303	326
37.	Sragi	Pekalongan & Kodia P.	T	3,540	29	1.9	8.8	10.6	55%	18%	25%	23%	16%	17%	366	816	671
38.	Sudikampir	Pekalongan & Kodia P.	T	1,564	28	6.7	8.0	14.7	25%	37%	32%	29%	83%	58%	No Structure	317	583
39.	Padurekso	Pekalongan & Kodia P.	T	2,764	88	1.3	7.0	8.3	15%	25%	24%	100%	39%	48%	355	187	202
40.	Kedung Asem	Kendal & Kodia Semarang	T	3,726	13	0.9	10.1	11.0	100%	100%	100%	90%	32%	37%	250	191	195
41.	Bodri	Kendal & Kodia Semarang	T	8,538	-	0.4	7.8	8.3	100%	100%	100%	64%	50%	50%	75	406	328
42.	Trompo	Kendal & Kodia Semarang	T	1,263	13	1.0	8.7	9.7	100%	100%	100%	0%	19%	17%	400	255	264
43.	Kedung Pengilon	Kendal & Kodia Semarang	T	3,134	-	0.2	12.1	12.4	100%	100%	100%	100%	24%	25%	41	413	350
44.	Pasekan	Magelang dan Kodia Mag.	T	1,078	3	0.0	10.2	10.2	No Canal	83%	83%	No Canal	0%	0%	No Canal	53	53
45.	Kosar	Batang / Pekalongan	T	1,617	28	1.9	13.6	15.5	20%	22%	22%	44%	77%	73%	321	269	274
46.	Notog	Brebes / Tegal	T	27,682	31	0.7	15.6	16.3	22%	40%	39%	181%	63%	68%	1,900	791	811
47.	Sidorejo	Grobogan / Boyolali	T	14,622	13	2.4	6.5	8.8	100%	54%	66%	100%	100%	100%	102	117	112
48.	Glapan	Grobogan / Demak	T	18,696	26	1.0	2.7	3.7	39%	29%	32%	100%	31%	49%	346	251	271
49.	Klambu Kanan	Grobogan / Kudus / Pati	T	6,841	13	1.1	4.6	5.7	100%	89%	91%	95%	59%	66%	451	383	395
50.	Kaliwadas	Pekalogan / Pemalang	T	7,520	29	2.2	9.2	11.4	45%	55%	53%	5%	32%	27%	366	554	503
	Total			**284,569**													
	Average of the province			5,691	16	2.1	7.6	9.7	56%	56%	56%	79%	54%	59%	237	294	279
	Itemized Total		T : 50														
			ST : 0														
			NT : 0														

Note: 1): T: Technical, ST: Semi-technical, NT: Non-technical
MC: Main Canal, SC: Secondary Canal

Source: Inventory Survey Works for the Study on Comprehensive Recovery Program of Irrigation Agriculture

Summary of Existing Condition and Development Plan

Central Java Province

No.	Irrigation Scheme	District	Existing Condition												Development Plan									
						Water Resources Facility			Canal and Related Facility					Terminal Facility and On Farm		Water Resources Facility		Canal and Related Facility					Terminal Facility and On Farm	
			Technical Level [1]	Registered Area (ha)	Age of Facility as of year 2003 (years)	Facility	Settling Basin	Condition	MC length (km)	SC length (km)	Nos. of Related Structures (nos.)	Condition		Condition	Subject Area (ha)	Grade of Rehabilitation	Settling Basin	Grade of Rehabilitation		MC length (km)	SC length (km)	Nos. of Related Structures (nos.)	On-farm Development (ha)	
												MC	SC					MC	SC				Potential Area	Non-Potential Area
1	Cijalu	Cilacap	T	1,377	16	Headworks	not provided	C	5.331	16.672	306	C	C	C	1,377	RG3	new construction	RG3 & RG4	RG3 & RG4	5.331	21.442	358	1,377	-
2	Mangganti	Cilacap	T	18,895	6	Headworks	provided	B	69.687	190.500	375	C	C	C	22,644	RG2	minor rehabili.	RG3 & RG4	RG3 & RG4	69.687	190.500	433	22,644	-
3	Serayu	Cilacap	T	15,869	9	Headworks	provided	B	95.947	115.852	945	D	D	C	20,795	RG2	minor rehabili.	RG4	RG4	95.947	115.852	1,103	20,795	-
4	Banjarcahyana	Banjarnegara	T	4,859	17	Dam	-	A	40.900	14.550	429	C	C	C	5,001	RG1	not required	RG3 & RG4	RG3 & RG4	40.900	14.550	483	5,001	-
5	Kaligending	Kebumen	T	2,981	4	Headworks	provided	B	12.000	15.000	168	C	C	C	2,923	RG2	large rehabili.	RG3 & RG4	RG3 & RG4	12.000	15.000	192	2,923	-
6	Pesucen	Kebumen	T	1,666	1	Headworks	provided	A	0.224	17.000	154	B	C	C	1,659	RG1	no rehabili.	RG2	RG3 & RG4	0.224	17.000	184	1,659	-
7	Bedegolan	Kebumen	T	8,430	5	Headworks	provided	B	6.230	81.260	323	B	C	C	8,401	RG2	replacement	RG2	RG3 & RG4	6.230	81.260	385	8,401	-
8	Kedung Putri	Purworejo	T	4,341	15	Headworks	provided	C	9.300	4.855	358	C	C	C	4,451	RG3	replacement	RG3 & RG4	RG3 & RG4	9.300	27.804	423	4,451	-
9	Sudagaran	Purworejo	T	3,665	-	Headworks	not provided	C	4.100	41.700	90	C	C	C	3,665	RG3	new construction	RG3 & RG4	RG3 & RG4	4.100	41.700	108	3,665	-
10	Rebug	Purworejo	T	1,202	15	Headworks	provided	C	0.000	19.000	40	D	D	D	1,202	RG3	large rehabili.	RG4	RG4	-	19.000	48	1,202	-
11	Kalimeneng	Purworejo	T	1,262	19	Headworks	provided	C	1.086	15.141	149	C	C	C	1,262	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	1.086	15.141	178	1,262	-
12	Kedung GW	Purworejo	T	1,129	64	Headworks	not provided	D	1.183	15.929	137	C	C	C	1,129	RG4	new construction	RG4	RG4	1.183	15.929	163	1,129	-
13	Waduk Cengklik	Boyolali	T	1,579	3	Headworks	provided	C	4.656	28.249	233	C	C	C	2,120	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	4.656	28.249	275	2,120	-
14	Ploso Wareng	Klaten	T	1,100	11	Headworks	provided	C	0.250	10.280	99	C	C	C	1,100	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	0.250	10.280	119	1,100	-
15	Jaban	Klaten	T	1,191	11	Headworks	not provided	C	4.027	13.245	144	C	C	C	1,191	RG3	new construction	RG3 & RG4	RG3 & RG4	4.027	13.245	217	1,191	-
16	Colo Kanan	Sragen	T	18,108	18	Headworks	provided	C	64.500	120.178	627	D	C	C	22,982	RG3	replacement	RG4	RG3 & RG4	64.500	120.178	710	22,982	-
17	Bonggo	Sragen	T	1,811	18	Headworks	provided	D	1.800	16.078	165	C	C	C	1,406	RG4	replacement	RG3 & RG4	RG3 & RG4	1.800	16.078	198	1,406	-
18	Pangkalan	Pati	T	1,765	10	Headworks	not provided	C	0.700	6.802	62	C	C	C	654	RG3	new construction	RG3 & RG4	RG3 & RG4	0.700	6.802	74	654	-
19	Sentul	Pati	T	1,759	11	Headworks	provided	C	2.765	13.804	85	C	C	C	1,739	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	2.765	13.804	99	1,739	-
20	Widodaren	Pati	T	3,652	13	Headworks	provided	B	5.778	21.140	110	D	D	C	2,616	RG2	minor rehabili.	RG4	RG4	5.778	21.140	128	2,616	-
21	Klambu Kanan	Pati	T	10,391	13	Headworks	provided	C	37.270	56.100	207	C	C	C	6,216	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	37.270	56.100	245	6,216	-
22	Jragung	Demak	T	4,597	14	Headworks	provided	C	7.325	27.804	103	C	C	C	4,416	RG3	replacement	RG3 & RG4	RG3 & RG4	7.325	27.804	122	4,416	-
23	Guntur	Demak	T	2,020	24	Headworks	provided	C	0.500	15.303	68	C	C	C	1,543	RG3	replacement	RG4	RG4	0.500	15.303	81	1,543	-
24	Klambu Kiri	Demak	T	21,419	11	Headworks	provided	B	34.130	105.689	528	C	C	C	20,738	RG2	minor rehabili.	RG3 & RG4	RG3 & RG4	34.130	105.689	618	20,738	-
25	Kedungdowo Kramat	Batang	T	1,250	27	Headworks	not provided	C	2.840	5.530	58	C	D	C	1,250	RG3	new construction	RG4	RG4	2.840	5.530	67	1,250	-
26	Sungapan Kanan	Pemalang	T	1,851	3	Headworks	provided	B	6.680	8.047	37	B	C	C	1,851	RG2	minor rehabili.	RG2	RG3 & RG4	6.680	8.047	43	1,851	-
27	Mejagong	Pemalang	T	1,997	11	Headworks	provided	C	0.218	17.865	83	C	D	C	2,049	RG3	large rehabili.	RG3 & RG4	RG4	0.218	17.865	96	2,049	-
28	Sungapan Kiri	Pemalang	T	5,229	3	Headworks	provided	B	7.925	35.527	136	C	C	C	5,570	RG2	minor rehabili.	RG3 & RG4	RG3 & RG4	7.925	35.527	160	5,570	-
29	Kabuyutan	Brebes	T	4,182	17	Headworks	provided	C	3.440	43.147	168	C	C	C	3,876	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	3.440	43.147	199	3,876	-
30	Babakan	Brebes	T	2,181	11	Headworks	provided	C	2.547	24.500	59	C	D	C	2,528	RG3	large rehabili.	RG3 & RG4	RG4	2.547	24.500	70	2,528	-
31	Kemaron Jambe	Brebes	T	1,026	12	Headworks	provided	C	10.000	23.600	120	C	C	C	1,483	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	10.000	23.600	141	1,483	-
32	Jengkelok	Brebes	T	6,505	13	Headworks	provided	C	5.200	45.027	181	C	D	D	6,173	RG3	large rehabili.	RG3 & RG4	RG4	5.200	45.027	216	6,173	-
33	Gung	Tegal & Kodia Tegal	T	12,999	5	Headworks	provided	C	13.500	37.000	192	C	C	C	12,641	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	13.500	37.000	228	12,641	-
34	Parakankidang	Tegal & Kodia Tegal	T	1,697	9	Headworks	provided	C	1.710	14.690	70	B	B	C	1,631	RG3	large rehabili.	RG2	RG2	1.710	14.690	84	1,631	-
35	Kumisik	Tegal & Kodia Tegal	T	3,736	5	Headworks	provided	C	15.200	17.277	82	C	D	C	3,778	RG3	large rehabili.	RG3 & RG4	RG4	15.200	17.277	93	3,778	-
36	Pesantren Kletak	Pekalongan & Kodia P.	T	4,263	8	Headworks	provided	B	14.047	38.155	160	C	C	C	3,636	RG2	large rehabili.	RG3 & RG4	RG3 & RG4	14.047	38.155	189	3,636	-
37	Sragi	Pekalongan & Kodia P.	T	3,540	29	Headworks	unknown	C	6.593	31.006	56	C	C	C	3,539	RG3	new construction	RG4	RG4	6.593	31.006	65	3,539	-
38	Sudikampir	Pekalongan & Kodia P.	T	1,564	28	Headworks	provided	C	10.372	12.356	39	C	D	C	1,550	RG3	large rehabili.	RG4	RG4	10.372	12.356	84	1,550	-
39	Padurekso	Pekalongan & Kodia P.	T	2,764	88	Headworks	provided	C	3.550	19.428	114	D	D	C	2,764	RG4	replacement	RG4	RG4	3.550	19.428	136	2,764	-
40	Kedung Asem	Kendal & Kodia Semarang	T	3,726	13	Headworks	provided	C	2.500	28.854	161	C	C	C	2,845	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	2.500	28.854	192	2,845	-
41	Bodri	Kendal & Kodia Semarang	T	8,538	-	Headworks	provided	C	3.429	60.499	195	C	C	C	7,710	RG3	replacement	RG3 & RG4	RG3 & RG4	3.429	60.499	229	7,710	-
42	Trompo	Kendal & Kodia Semarang	T	1,263	13	Headworks	not provided	D	1.200	10.690	45	C	C	C	1,229	RG4	new construction	RG3 & RG4	RG3 & RG4	1.200	10.690	54	1,229	-
43	Kedung Pengilon	Kendal & Kodia Semarang	T	3,134	-	Headworks	not provided	C	0.655	32.620	95	C	C	C	2,686	RG3	new construction	RG3 & RG4	RG3 & RG4	0.655	32.620	112	2,686	-
44	Pasekan	Magelang dan Kodia Mag.	T	1,078	3	Headworks	provided	C	0.000	10.104	191	C	C	C	988	RG3	large rehabili.	RG3 & RG4	RG3 & RG4	-	10.104	229	988	-
45	Kosar	Batang / Pekalongan	T	1,617	28	Headworks	provided	C	6.100	44.040	183	C	C	C	3,243	RG3	large rehabili.	RG4	RG4	6.100	44.040	218	3,243	-
46	Notog	Brebes / Tegal	T	27,682	31	Headworks	provided	C	17.100	398.908	513	C	C	C	25,540	RG3	minor rehabili.	RG4	RG4	17.100	398.908	662	25,540	-
47	Sidorejo	Grobogan / Boyolali	T	14,622	13	Headworks	provided	B	13.500	37.000	449	C	C	C	5,717	RG2	not required	RG3 & RG4	RG3 & RG4	13.500	37.000	526	5,717	-
48	Glapan	Grobogan / Demak	T	18,696	26	Headworks	provided	C	17.980	51.550	257	C	C	C	18,784	RG3	large rehabili.	RG4	RG4	17.980	51.550	303	18,784	-
49	Klambu Kanan	Grobogan / Kudus / Pati	T	6,841	13	Headworks	unknown	B	12.619	50.590	160	C	C	C	11,078	RG2	new construction	RG3 & RG4	RG3 & RG4	12.619	50.590	189	11,078	-
50	Kaliwadas	Pekalogan / Pemalang	T	7,520	29	Headworks	provided	B	17.194	70.866	175	C	C	C	7,722	RG2	replacement	RG4	RG4	17.194	70.866	205	7,722	-

Note: 1): T: Technical, ST: Semi-technical, NT: Non-technical

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Grade of rehabilitation: RG1: No rehabilitation, RG2: Minor rehabilitation, RG3: Large scale rehabilitation, RG4: Replacement or new construction

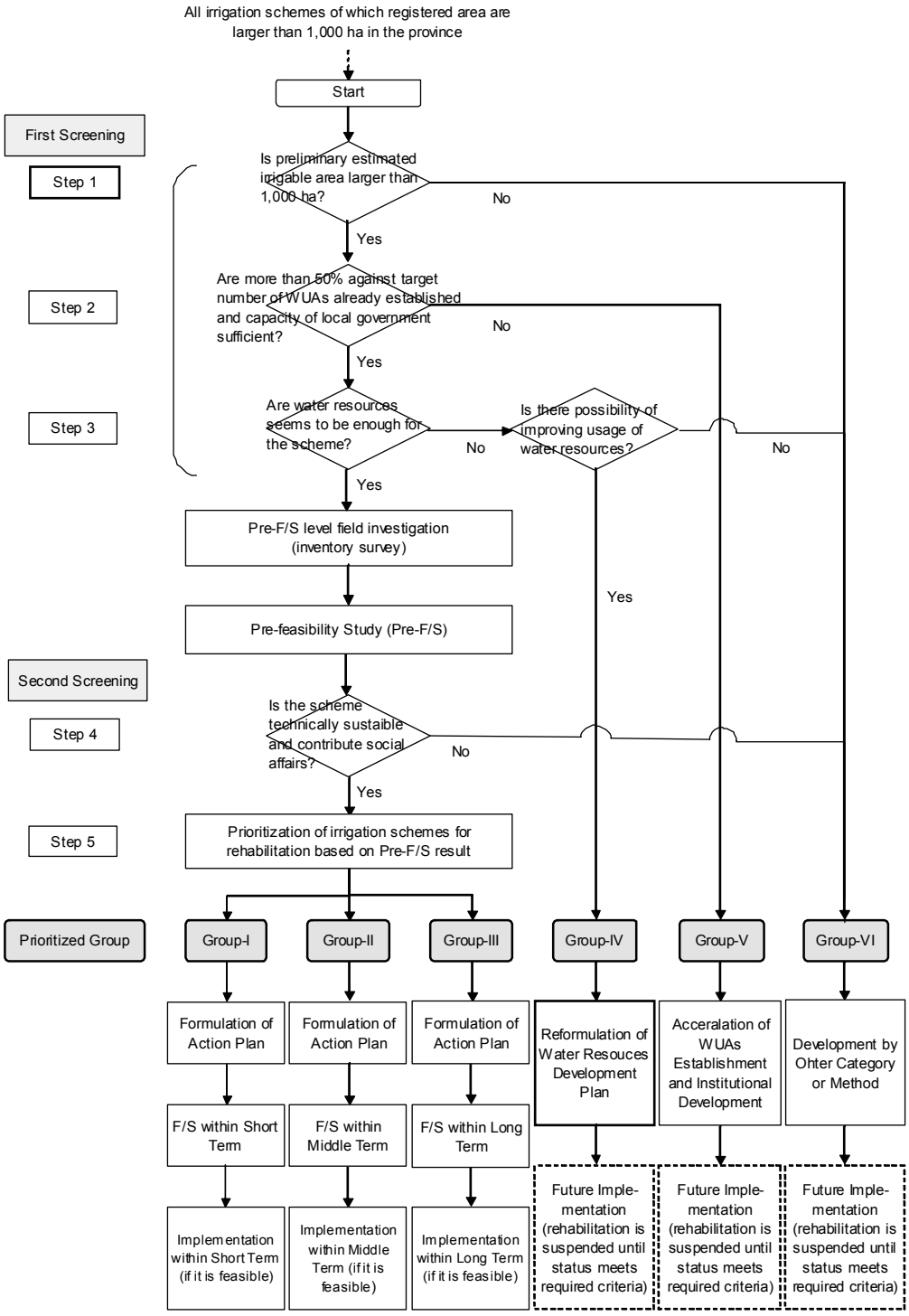
PART-II

Method and Result of Prioritization of Irrigation Schemes for Rehabilitation

METHOD AND PROCESS FLOW OF PRIORITIZATION

General Flow

General flow of prioritization of irrigation schemes for rehabilitation is shown below and detail descriptions of the flow are presented in following sections.



First Screening

Step-1

1.1 Collection of data on existing irrigation schemes with a registered area of more than 1,000 ha.

1.2 If the area of both the registered area and the estimated area were more than 1,000 ha proceeded to Step-2. If an estimated area was less than 1,000 ha, such scheme has been categorized into Group-VI.

Step-2

2.1 Evaluation of capacities of WUA of each irrigation schemes and related district governments.

2.2 If more than 50% against target number of WUAs has been already established as well as the post of head of water resources and irrigation service office has been fulfilled by the third or higher rank officer, proceeded to Step-3 (1). On the other hand, if more than 50% against target number of WUAs has not been established or the said post has been vacant or fulfilled by the fourth rank officer, the scheme has been categorized into Group-V.

Step-3

3.1 Information on water resources and irrigable area of the scheme furnished by the Dinas PSDA/project office has been adopted for the determination of the possibility for water supply for the scheme.

3.2 If the water resources was considered to be sufficient for the scheme according to such information, an inventory survey and pre-F/S have been carried out.

3.3 If the water resources were considered to be insufficient for the scheme according to the information, proceeded to Step-3 (2).

3.4 In case that there was a possibility of reformulation of water resources development plan, the scheme has been categorized into Group-IV. On the other hand, if there was no possibility of reformulation of water resources development plan, the scheme has been categorized into Group-VI.

Second Screening

Step-4

4.1 If there are such problems as low technical sustainability (high construction cost and low economic feasibility) and less contribution to the society, such scheme has been categorized into Group-VI.

Prioritization by Weighted Scoring Method

Step-5

5.1 Evaluation indicators for prioritization consist of issues of: (a) irrigation, (b) agricultural productivity, (c) society, and (d) economic and financial impacts. Weight of indicators are as follows and detail is shown in page 2-4 "Evaluation Indicators for Weighted Scoring".

Evaluation Indicators for Weighted Scoring

	Evaluation Indicator	Weighted Score
1.	**Issue of Irrigation Indicator**	**50**
1.1	Utilization of irrigation potential	(10)
1.2	Urgency of rehabilitation	(25)
1.3	Sustainability	(15)
2.	**Issue of Agriculture Productivity**	**20**
2.1	Current cropping intensity	(10)
2.2	Current unit yield of paddy	(10)
3.	**Issue of Society**	**15**
3.1	Number of beneficiaries	(7.5)
3.2	Provision of social infrastructure	(7.5)
4.	**Issue of Economic and Financial Impact**	**15**
4.1	Feasibility (Pre-F/S level EIRR)	(7.5)
4.2	Agriculture return per hectare	(7.5)

5.2 Based on the comprehensive examination of the above evaluation indicators in pre-F/S, priority of the schemes to be rehabilitated has been determined and listed.

Priority

Based on the priority list thus prepared, recommendation of implementation procedure is made as follows:

Group-I: Recommended as the first priority
Group-II: Recommended as the second priority
Group-III: Recommended as the third priority
Group-IV: Recommended to reformulate water resources development plan
Group-V: Recommended to accelerate WUA establishment and to empower

district government officials concerned

Group-VI: Recommended to formulate development method by other categories

The priority list classified into Groups-I to VI is presented in page 2-5 "Priority List of Irrigation Schemes for Rehabilitation".

Evaluation Indicators for Weighted Scoring

Issue for Evaluation	Full Score	Evaluation Index	Weight	Weighted Score	Situation for High Priority
1 Issue of Irrigation System	**50.0**				
1.1 Rate of Utilization of Irrigation Potential	10.0	(1) Less than 50 %	1.0	10.0	Severe problem on
(= present irrigation paddy area / irrigated		(2) 50 - 69 %	0.8	8.0	irrigation program
paddy area with project x 100)		(3) 70 - 100 %	0.5	5.0	achievement.
1.2 Urgency of Rehabilitation	25.0				Severe problem on
1.2.1 Function of Water Resources Facility	10.0	(1) Serious condition for operation (Evaluation: D)	1.0	10.0	irrigation facilities
		(2) Not functioning well (Evaluation: C)	0.8	8.0	
		(3) Partially deteriorated (Evaluation: B)	0.6	6.0	
		(4) Functioning well (Evaluation: A)	0.4	4.0	
1.2.2 Function of Main Canal System	7.0	(1) Serious condition for operation (Evaluation: D)	1.0	7.0	
		(2) Not functioning well (Evaluation: C)	0.8	5.6	
		(3) Partially deteriorated (Evaluation: B)	0.6	4.2	
		(4) Functioning well (Evaluation: A)	0.4	2.8	
1.2.3 Function of Secondary Canal System	5.0	(1) Serious condition for operation (Evaluation: D)	1.0	5.0	
		(2) Not functioning well (Evaluation: C)	0.8	4.0	
		(3) Partially deteriorated (Evaluation: B)	0.6	3.0	
		(4) Functioning well (Evaluation: A)	0.4	2.0	
1.2.4 Function of On-farm System	3.0	(1) Serious condition for operation (Evaluation: D)	1.0	3.0	
		(2) Not functioning well (Evaluation: C)	0.8	2.4	
		(3) Partially deteriorated (Evaluation: B)	0.6	1.8	
		(4) Functioning well (Evaluation: A)	0.4	1.2	
1.3 Sustainability of Irrigation System	15.0				Severe problem on
1.3.1 Age of the Facility	7.5	(1) More than 50 years	1.0	7.5	sustainability
		(2) 30 - 49 years	0.8	6.0	
		(3) 15 - 29 years	0.6	4.5	
		(4) Less than 15 years	0.4	3.0	
1.3.2 Technical Level	7.5	(1) Non-technical level	1.0	7.5	
		(2) Semi-technical level	0.8	6.0	
		(3) Technical level	0.5	3.8	
2 Issue of Agricultural Productivity	**20.0**				
2.1 Current Cropping Intensity of Paddy	10.0	(1) Less than 100 %	1.0	10.0	Severe problem on
(= annual cropped area of paddy / subject area		(2) 100 - 149 %	0.8	8.0	agriculture
x 100)		(3) 150 - 199 %	0.6	6.0	(low productivity)
		(4) More than 200 %	0.4	4.0	
2.2 Current Unit Yield of Paddy	10.0	(1) Less than 60 % of planned target yield	1.0	10.0	Severe problem on
(= weighted average unit yield of irrigated &		(2) 60 - 79 % of planned target yield	0.8	8.0	agriculture
rainfed paddy in the scheme)		(3) 80 - 100 % of planned target yield	0.5	5.0	(low productivity)
3 Issue of Society	**15.0**				Severe social problem
3.1 Contribution to Regional Economy	7.5	(1) Less than 30 % of with project beneficiaries	1.0	7.5	
(Current Number of Beneficiaries)		(2) 30 - 59 % of with project beneficiaries	0.8	6.0	
		(3) 60 - 89 % of with project beneficiaries	0.6	4.5	
		(4) More than 90 % of with project beneficiaries	0.4	3.0	
3.2 Provision of Social Infrastructure	7.5	(1) Less than 40 % of total canal length of main & secondary canal	1.0	7.5	
(Current ratio of Inspcetion Road Provision)		(2) 40 - 59 % of total canal length of main & secondary canal	0.8	6.0	
		(3) 60 - 79 % of total canal length of main & secondary canal	0.6	4.5	
		(4) 80 - 100 % of total canal length of main & secondary canal	0.4	3.0	
4 Issue of Economic and Financial Impact	**15.0**				High economic and
4.1 Feasibility	7.5	(1) More than 20 %	1.0	7.5	financial impact
(Pre-F/S level EIRR)		(2) 15 - 19 %	0.8	6.0	
		(3) 10 - 14 %	0.6	4.5	
		(4) Less than 10 %	0.4	3.0	
4.2 Rate of Increase of Agricultural Retern per ha	7.5	(1) More than 200 %	1.0	7.5	
(= planned annual gross retern per ha / current		(2) 150 - 199 %	0.8	6.0	
anuual gross retern per ha x 100)		(3) Less than 150 %	0.6	4.5	
TOTAL	**100.0**				

Priority List of Irrigation Schemes for Rehabilitation (Central Java Province)

	Irrigation Scheme	Utilization of Irrigation Potential	Function of Water Resources Facility	Function of Main Canal	Function of Secondary Canal	Function of On-farm	Factor of Deterioration by Year of Construction	Technical Level	Current Cropping Intentsity	Current Unit Yield of Paddy	Contibution to Regional Economy	Provision of social infrastructure	EIRR	Rate of Increase of Gross Agricultural Return	Total Score	Ranking	Classified Group
1	Cijalu	Group VI (High rehabilitation cost)															Group VI
2	Mangganti	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(2)	(4)	(3)	57.3	28	Group III
3	Serayu	(3)	(3)	(1)	(1)	(2)	(4)	(3)	(4)	(3)	(4)	(2)	(4)	(3)	57.7	26	Group II
4	Banjarcahyana	Group VI (High rehabilitation cost)															Group VI
5	Kaligending	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	54.3	36	Group III
6	Pesucen	(3)	(4)	(3)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(2)	(3)	(3)	55.4	33	Group III
7	Bedegolan	(3)	(3)	(3)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	57.4	27	Group III
8	Kedung Putri	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	57.8	24	Group II
9	Sudagaran	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	60.8	12	Group I
10	Rebug	(3)	(2)	(1)	(1)	(1)	(3)	(3)	(3)	(3)	(4)	(2)	(4)	(3)	63.8	4	Group I
11	Kalimeneng	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(4)	(3)	(4)	(2)	(4)	(3)	58.8	20	Group II
12	Kedung GW	Group VI (High rehabilitation cost)															Group VI
13	Waduk Cengklik	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(2)	(3)	(4)	(4)	(4)	(3)	58.3	23	Group II
14	Ploso Wareng	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(4)	(4)	(3)	54.3	36	Group III
15	Jaban	Group VI (High rehabilitation cost)															Group VI
16	Colo Kanan	(3)	(2)	(1)	(2)	(2)	(3)	(3)	(4)	(3)	(4)	(4)	(4)	(3)	57.2	30	Group III
17	Bonggo	(3)	(1)	(2)	(2)	(2)	(3)	(3)	(4)	(3)	(4)	(4)	(4)	(3)	57.8	24	Group II
18	Pangkalan	Group VI (Subject area is less than 1,000 ha)															Group VI
19	Sentul	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	60.8	12	Group I
20	Widodaren	Group V (Acceralation of WUAs establishment)															Group V
21	Klambu Kanan	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(3)	(4)	(3)	55.8	32	Group III
22	Jragung	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(1)	(3)	(4)	(1)	(2)	(3)	67.8	2	Group I
23	Guntur	Group V (Acceralation of WUAs establishment)															Group V
24	Klambu Kiri	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(2)	(4)	(3)	55.3	34	Group III
25	Kedungdowo Kramat	(3)	(2)	(2)	(1)	(2)	(3)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	63.3	5	Group I
26	Sungapan Kanan	(3)	(3)	(3)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(4)	(2)	(3)	55.9	31	Group III
27	Mejagong	Group V (Acceralation of WUAs establishment)															Group V
28	Sungapan Kiri	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(2)	(3)	(3)	58.8	20	Group II
29	Kabuyutan	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(2)	(3)	(4)	(2)	(4)	(3)	62.8	6	Group I
30	Babakan	(3)	(2)	(2)	(1)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	61.8	9	Group I
31	Kemaron Jambe	Group VI (High rehabilitation cost)															Group VI
32	Jengkelok	(3)	(2)	(2)	(1)	(1)	(4)	(3)	(1)	(3)	(4)	(1)	(3)	(3)	67.9	1	Group I
33	Gung	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(2)	(3)	(4)	(4)	(2)	(3)	61.3	11	Group I
34	Parakankidang	(3)	(2)	(3)	(3)	(2)	(4)	(3)	(2)	(3)	(4)	(4)	(2)	(3)	58.9	19	Group II
35	Kumisik	(3)	(2)	(2)	(1)	(2)	(4)	(3)	(2)	(3)	(4)	(4)	(3)	(3)	60.8	12	Group I
36	Pesantren Kletak	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(2)	(4)	(3)	57.3	28	Group III
37	Sragi	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	62.3	8	Group I
38	Sudikampir	(3)	(2)	(2)	(1)	(2)	(3)	(3)	(3)	(3)	(4)	(2)	(4)	(3)	61.8	9	Group I
39	Padurekso	(3)	(2)	(1)	(1)	(2)	(1)	(3)	(3)	(3)	(4)	(2)	(4)	(3)	66.2	3	Group I
40	Kedung Asem	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(1)	(4)	(3)	58.8	20	Group II
41	Bodri	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	60.8	12	Group I
42	Trompo	(3)	(1)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	62.8	6	Group I
43	Kedung Pengilon	(3)	(2)	(2)	(2)	(2)	(4)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	60.8	12	Group I
44	Pasekan	Group VI (Subject area is less than 1,000 ha)															Group VI
45	Kosar	Group V (Acceralation of WUAs establishment)															Group V
46	Notog	Group VI (High rehabilitation cost)															Group VI
47	Sidorejo	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(4)	(4)	(3)	52.3	38	Group III
48	Glapan	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(4)	(3)	(4)	(2)	(3)	(3)	60.3	17	Group II
49	Klambu Kanan	(3)	(3)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(4)	(3)	(3)	(3)	55.3	34	Group III
50	Kaliwadas	(3)	(3)	(2)	(2)	(2)	(3)	(3)	(3)	(3)	(4)	(1)	(4)	(3)	60.3	17	Group II
	Average														59.5		

Itemized Total																
(1)	0	2	4	8	2	1	0	2	0	0	13	0	0	Group I :	16
(2)	0	24	30	29	36	0	0	5	0	0	12	4	0	Group II :	10
(3)	38	11	4	1	0	11	38	20	38	0	2	6	38	Group III :	12
(4)	0	1	0	0	0	26	0	11	0	38	11	28	0	Group IV :	0
														Group V :	4
														Group VI :	8

Source: JICA Study Team for the Study on Comprehensive Recovery Program of Irrigation Agriculture

Group I: First priority group (Ranking 1 - 13)

Group II: Second priority group (Ranking 14 - 26)

Group III: Third priority group (Ranking 27 - 38)

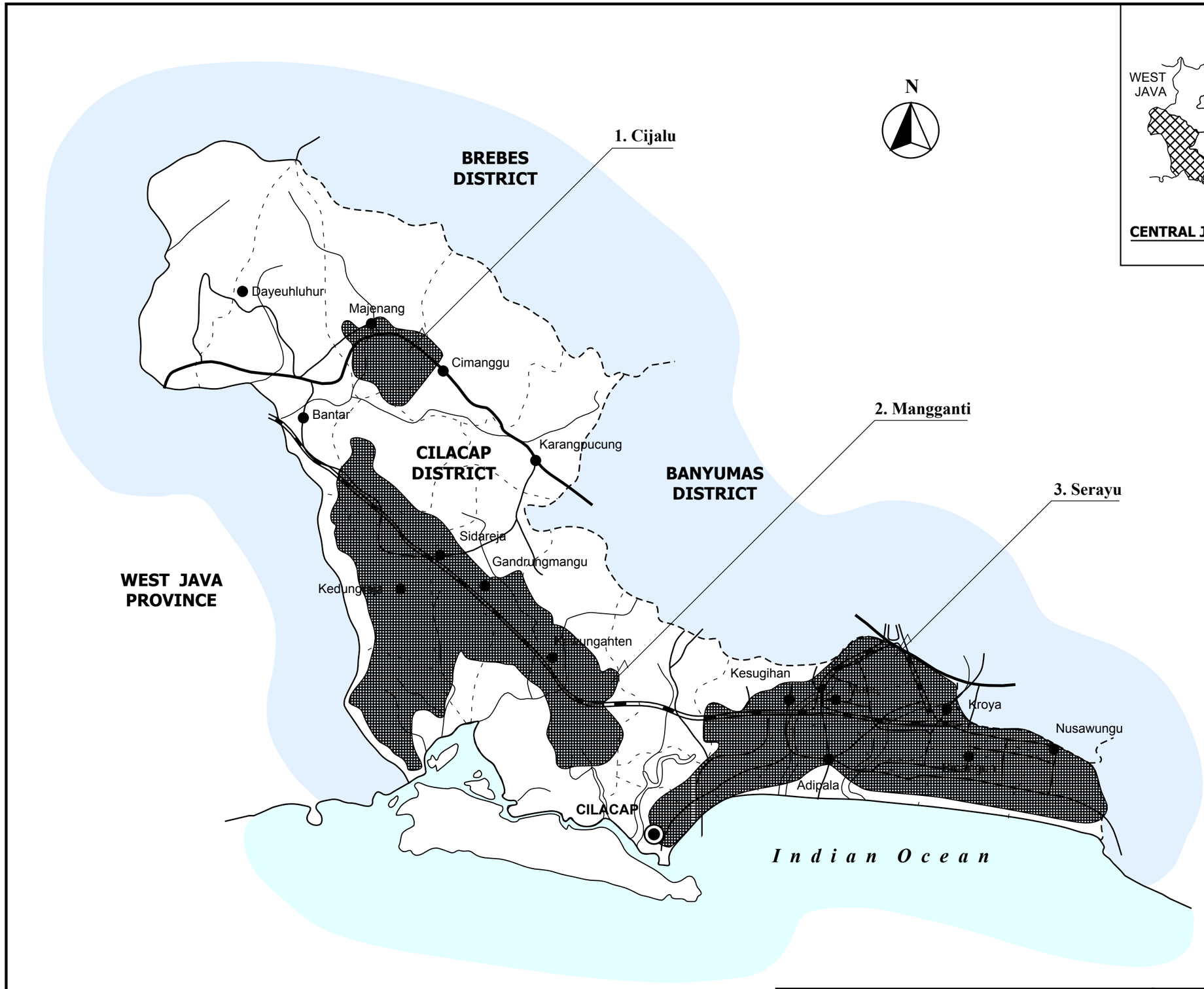
Group IV: Reformulation of water resources development plan

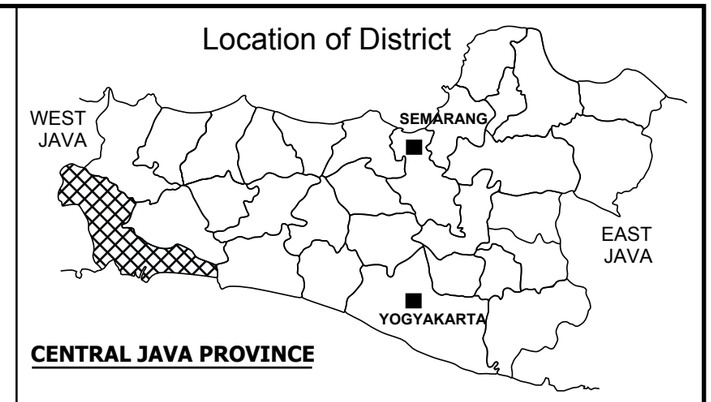
Group V: Acceralation of WUAs establishment

Group VI: Development by other category or method

PART-III

Present Condition and Pre-F/S level Development Plan for Each Irrigation Scheme





LEGEND

- Capital Town of District
- Sub-District Town
- Provincial Boundary
- District Boundary
- Sub-District Boundary
- Railway
- Provincial Road
- District Road
- River
- Irrigation Scheme
- Technical Irrigation

Irrigation Scheme

Name of Scheme	Registered Area (Ha)		Subject Area (Ha)
1. Cijalu	1,337	T	1,377
2. Mangganti	18,895	T	22,644
3. Serayu	15,869	T	20,795

T : Technical Irrigation

0 5 10 Km
SCALE

The Study on Comprehensive Recovery Program of Irrigation Agriculture

Japan International Cooperation Agency

Location Map of Irrigation Schemes in Cilacap District

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33029096	(7)	Number of Farmers	: 5.296
(2)	Name of Irrigation Scheme	: Cijalu	(8)	Water Resource River	: Cijalu
(3)	District (Kabupaten)	: Cilacap	(9)	Catchment Area (km^2)	: 70.25
(4)	Sub-district (Kecamatan)	: Majenang	(10)	Completion / Last Rehabilitation Year	: 1987
(5)	Registered Area (ha)	: 1,377			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	1

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	1,377	1,377	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	1,377	1,377	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	1,281			1,281	93%	5.0	6,405		
Season II (dry I)	1,033			1,033	75%	4.5	4,649		
Season III (dry II)				0					
Total/Annual	2,314	0	0	2,314	168%	4.8	11,054	0	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- Substantially high irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season
- Double cropping of paddy introduced; paddy yield levels moderate to high; palawija not yet introduced

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Water shortage at on-farm level in dry season	- Palawija Marketing:	Low marketing prices
- Agronomic Issues:	Farmers not following recommended practices	- Farmers Organizations:	Most members are not active
- Paddy Marketing	Low marketing prices	- Extension Services:	Implementation of extension programs is limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Double cropping of paddy in the entire scheme; productivity increase of paddy through further intensification; introduction of palawija in dry season II
- Strengthening of extension activities tailored to area specific needs; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	1,377			1,377	100%	5.5	7,574		
Season II (dry I)	1,377			1,377	100%	5.0	6,885		
Season III (dry II)		411		411	30%			575	
Total/Annual	2,754	411	0	3,165	230%	5.3	14,459	575	0
Annual Increment	440	411	0	851	62%	0.5	3,405	575	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	14	b. Established;	11	c. Not yet;	3	Registered		0
Performance	a. Developed;	0	b. Under developing;	11	c. Not yet;	0	Not yet registered		11

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Delay in administrative procedure for WUA establishment.

IV.2 Development Plan

(1) Proposed Countermeasures

- Acceleration of administrative process.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : C (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : C Main Canal System : C Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Fixed weir
c. Length of weir : 68 m
d. Design intake discharge : 2.7 m3/s
e. Scouring sluice gate : 2 nos.
f. Intake gate : 2 nos.
g. Settling basin : not provided
h. Inspection bridge : no info.
i. Condition : C
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	2,000	3,331	5,331	94	2,000	C
Secondary	530	16,142	16,672	212	15,000	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  - Physical operational problem on flood/scouring sluice gate(s) of headworks
  - Insufficient diversion water due to sedimentation in front of intake
  - Physical operational problem on intake gate(s)
- Irrigation Canal and Related Structure
  - Sedimentation or obstruction of water flow
  - Lower function of regulating structure on canal
  - Difficulty on O&M

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  - Improper design, installation and/or maintenance of flood/scouring sluice gate(s); breakdown of hoist, stem, guide frame or leaf
  - Sedimentation in front of intake
  - Improper design, installation and/or maintenance of intake gate(s); breakdown of hoist, stem, guide frame or leaf
- Irrigation Canal and Related Structure
  - No provision of settling basin(sediments), improper management of canal (sediments, water plant)
  - Deterioration of regulating structure on canal, especially gate and metal works
  - No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  - Replacement of control system or damaged equipment of flood/scouring sluice gate(s)
  - Dredging or flushing of sediment, proper gate operation of headworks and intake
  - Replacement of intake gate(s)
- Irrigation Canal and Related Structure
  - Removal of sediment soil and foreign materials from canal, grass cutting
  - Replacement and reconstruction of regulating structure on canal
  - Provision or repair of inspection road with all weather type/pavement

(2) Water Resources Facility

Dam/Headworks body : minor rehabilitation Intake, civil : minor rehabilitation Intake, mechanical : minor rehabilitation
Settling basin : replacement or new

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	0	5,331	0	5,331
	Secondary	0	21,442	0	21,442
Structure (nos)	Main	0	94	9	103
	Secondary	0	212	42	254

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	1,377	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	1,377

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
3,691	37,958	3,796	2,823	1,260	49,527	36.0

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 4.8%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	-	Agricultural Productivity	20.0	-	0.0
	Urgency	25.0	-	Social Problem	15.0	-	
	Sustainability	15.0	-	Economic Impact	15.0	-	

VI.3 Priority Group Group VI: Development by other category (High rehabilitation cost)

VI.4 Priority Ranking in the Province -

Scheme	Cijalu	District	Cilacap		
Technical Level	Technical	Registered Area	1,377 ha	Year of Construction	1987

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☑ B ☐ C ☐ D

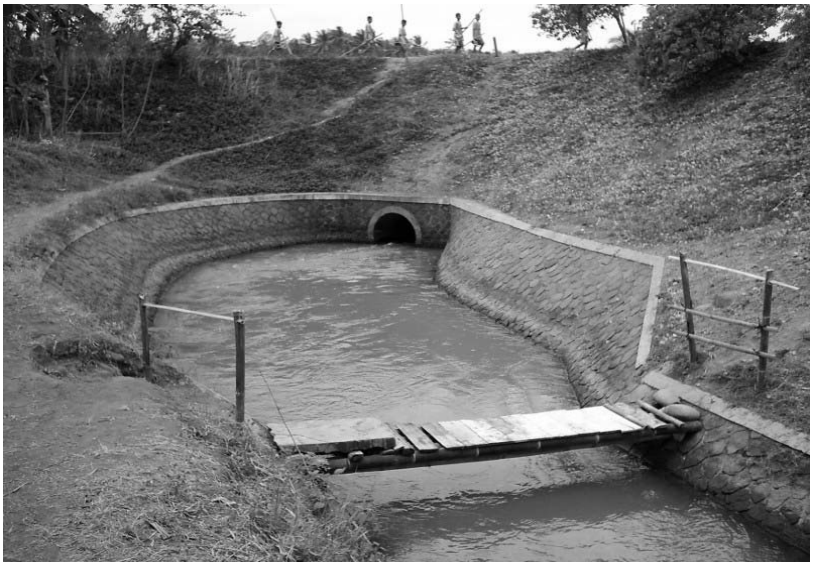
Problems
Minor repairs for weir body and gates are required

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Minor repairs for weir body and gates are required



Category
Irrigation (Headworks)

Structure
Intake

Condition
☐ A ☐ B ☑ C ☐ D

Problems
No settling basin is provided

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Cijalu	District	Cilacap		
Technical Level	Technical	Registered Area	1,377 ha	Year of Construction	1987

Category
Irrigation (Main Canal)

Structure
Division Structure

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Gates are required repair / replace

Category
Irrigation (Main Canal)

Structure
Division Structure

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require minor repair

Category
Irrigation (Secondary Canal)

Structure
Canal and Division Box

Condition
☐ A ☐ B ☐ C ☑ D

Problems

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33029134-40	(7)	Number of Farmers	: 87,092
(2)	Name of Irrigation Scheme	: Mangganti	(8)	Water Resource River	: Citanduy
(3)	District (Kabupaten)	: Cilacap	(9)	Catchment Area (km^2)	: 25.46
(4)	Sub-district (Kecamatan)	: Patimuan	(10)	Completion / Last Rehabilitation Year	: 1997
(5)	Registered Area (ha)	: 18,895			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	2

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	22,644	22,644	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	22,644	22,644	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	22,644			22,644	100%	5.0	113,220		
Season II (dry I)	18,147	4,492		22,639	100%	4.5	81,662	13,476	
Season III (dry II)		5,317		5,317	23%			6,380	
Total/Annual	40,791	9,809	0	50,600	223%	4.8	194,882	19,856	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- High irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season
- Double cropping of paddy practiced almost in the entire irrigated area; paddy yield levels still low; palawija introduced extensively

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Water shortage at on-farm level in dry season	- Palawija Marketing:	Limited market outlet
- Agronomic Issues:	Damage caused by rat	- Farmers Organizations:	Managerial capacity of KTs are limited
- Paddy Marketing	Low marketing prices	- Extension Services:	Capability & experiences of PPLs are limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Expansion of palawija production in dry season II; productivity increase of paddy & palawija through further intensification
- Strengthening of extension activities tailored to area specific needs; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	22,644			22,644	100%	5.5	124,542		
Season II (dry I)	18,115	4,529		22,644	100%	5.0	90,575	22,645	
Season III (dry II)		9,058		9,058	40%			12,681	
Total/Annual	40,759	13,587	0	54,346	240%	5.3	215,117	35,326	0
Annual Increment	(32)	3,778	0	3,746	17%	0.5	20,236	15,470	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	189	b. Established;	152	c. Not yet;	37	Registered		0
Performance	a. Developed;	0	b. Under developing;	152	c. Not yet;	0	Not yet registered		152

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Delay in administrative procedure for WUA establishment.

IV.2 Development Plan

(1) Proposed Countermeasures

- Acceleration of administrative process.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : B (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : B Main Canal System : C Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Movable weir
c. Length of weir : 76 m
d. Design intake discharge : 56.3 m3/s
e. Scouring sluice gate : -
f. Intake gate : 6 nos.
g. Settling basin : provided
h. Inspection bridge : provided
i. Condition : B
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	69,687	0	69,687	170	40,000	C
Secondary	170,000	20,500	190,500	205	100,000	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  - Problem on management for flood/scouring sluice gate(s) operation
  - Problem on management for intake gate(s) operation
- Irrigation Canal and Related Structure
  - Impassable of inspection road along canal
  - Lower function of regulating structure on canal
  - Difficulty on O&M

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  - Improper maintenance of flood or scouring sluice gate(s) of headworks (no greasing and anti-rust painting)
  - Improper management or deterioration of intake gate(s)
- Irrigation Canal and Related Structure
  - Improper routine O&M works due to no or narrow wide of road, slope erosion by rainfall then in flow into canal
  - Deterioration of regulating structure on canal, especially gate and metal works
  - No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  - Replacement of control system or damaged equipment of flood/scouring sluice gate(s) of headworks
  - Replacement of control system or damaged equipment of intake
- Irrigation Canal and Related Structure
  - Provision of inspection road both main and secondary canal with pavement
  - Replacement and reconstruction of regulating structure on canal
  - Provision or repair of inspection road with all weather type/pavement

(2) Water Resources Facility

Dam/Headworks body : minor rehabilitation Intake, civil : minor rehabilitation Intake, mechanical : minor rehabilitation
Settling basin : minor rehabilitation

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	13,937	55,750	0	69,687
	Secondary	34,000	156,500	0	190,500
Structure (nos)	Main	36	134	17	187
	Secondary	43	162	41	246

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	22,644	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	22,644

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
5,835	221,488	22,149	46,420	3,600	299,493	13.2

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 7.5%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	5.0	Agricultural Productivity	20.0	11.0	57.3
	Urgency	25.0	18.0	Social Problem	15.0	9.0	
	Sustainability	15.0	6.8	Economic Impact	15.0	7.5	

VI.3 Priority Group Group III: Third priority group **VI.4 Priority Ranking in the Province** 29

Scheme	Mangganti	District	Cilacap		
Technical Level	Technical	Registered Area	18,895 ha	Year of Construction	1997

Category
Irrigation (Headworks)

Structure
Movable Weir

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

Category
Irrigation (Headworks)

Structure
Movable Weir

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

Category
Irrigation (Headworks)

Structure
Intake

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Mangganti	District	Cilacap		
Technical Level	Technical	Registered Area	18,895 ha	Year of Construction	1997

Category
Irrigation (Headworks)

Structure
Settling Basin

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Inspection road is not provided

Category
Irrigation (Main Canal)

Structure
Lined Canal

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require sediment removal

Category
Irrigation (Secondary Canal)

Structure
Tertiary System

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Insufficient density and scale of farm road

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33029135-38 ~ 30230-	(7)	Number of Farmers	: 77,308
(2)	Name of Irrigation Scheme	: Serayu	(8)	Water Resource River	: Serayu
(3)	District (Kabupaten)	: Cilacap	(9)	Catchment Area (km^2)	: 3.719
(4)	Sub-district (Kecamatan)	: Cilacap Kulon	(10)	Completion / Last Rehabilitation Year	: 1996
(5)	Registered Area (ha)	: 15,869			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	3

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	20,100	20,795	695
b. Rainfed paddy field	695	0	-695
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	20,795	20,795	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton) 1/		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	20,100			20,100	100%	5.0	100,500	2,085	
Season II (dry I)	20,100			20,100	100%	5.0	100,500		
Season III (dry II)	1,582			1,582	8%	4.5	7,119		
Total/Annual	41,782	0	0	41,782	208%	5.0	208,119	2,085	0

1/: Palawija in rainfed field

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- High irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season II; rainfed field (695ha)
- Double cropping of paddy practiced in the entire irrigated area; paddy yield levels high; palawija not introduced yet

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Poor O&M at main & 2ry canals	- Palawija Marketing:	-
- Agronomic Issues:	Farmers not following recommended practices	- Farmers Organizations:	Limited market outlet
- Paddy Marketing	Unstable marketing prices	- Extension Services:	Implementation of extension programs is limited

III.2 Development Plan

(1) Development Approaches

- Expansion of irrigated area & ensuring year round irrigation water supply at on-farm level through rehabilitation & upgrading
- Introduction of palawija production in dry season II; productivity increase of paddy & palawija through further intensification
- Extension activities toward improvement of post-harvest & marketing; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	20,795			20,795	100%	5.5	114,373		
Season II (dry I)	20,795			20,795	100%	5.5	114,373		
Season III (dry II)		8,318		8,318	40%			11,645	
Total/Annual	41,590	8,318	0	49,908	240%	5.5	228,745	11,645	0
Annual Increment	(192)	8,318	0	8,126	32%	0.5	20,626	9,560	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	159	b. Established;	128	c. Not yet;	31	Registered		
Performance	a. Developed;	0	b. Under developing;	128	c. Not yet;	2	Not yet registered		

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Delay in administrative procedure for WUA establishment.

IV.2 Development Plan

(1) Proposed Countermeasures

- Acceleration of administrative process.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : C (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : B Main Canal System : D Secondary Canal System : D On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Movable weir
c. Length of weir : 12 m
d. Design intake discharge : 32.0 m3/s
e. Scouring sluice gate : -
f. Intake gate : 4 nos.
g. Settling basin : provided
h. Inspection bridge : provided
i. Condition : B
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	4,108	91,839	95,947	306	50,000	D
Secondary	4,567	111,285	115,852	639	50,000	D

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  Insufficient diversion water due to sedimentation in front of intake

- Irrigation Canal and Related Structure
  Leakage from canal
  Impassable of inspection road along canal
  Difficulty on water distribution

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  Sedimentation in front of intake

- Irrigation Canal and Related Structure
  Improper regular maintenance of canal, settlement of canal then insufficient freeboard and overtopping
  Improper routine O&M works due to no or narrow wide of road, slope erosion by rainfall then in flow into canal
  No provision of water level gauge/facility

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  Dredging or flushing of sediment, proper gate operation of headworks and intake

- Irrigation Canal and Related Structure
  Repair of leakage from canal, widen canal wide, recompaction of embankment
  Provision of inspection road both main and secondary canal with pavement
  Provision of water level gauge/facility

(2) Water Resources Facility
Dam/Headworks body : no rehabilitation Intake, civil : no rehabilitation Intake, mechanical : minor rehabilitation
Settling basin : minor rehabilitation

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	822	95,125	0	95,947
	Secondary	913	114,939	0	115,852
Structure (nos)	Main	63	243	31	337
	Secondary	142	497	128	767

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	20,100	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	695	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	20,795

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
4,098	472,366	47,237	42,986	3,600	570,286	27.4

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 1.7%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	5.0	Agricultural Productivity	20.0	9.0	57.7
	Urgency	25.0	20.4	Social Problem	15.0	9.0	
	Sustainability	15.0	6.8	Economic Impact	15.0	7.5	

VI.3 Priority Group Group III: Third priority group **VI.4 Priority Ranking in the Province** 27

Scheme	Serayu	District	Cilacap		
Technical Level	Technical	Registered Area	15,869 ha	Year of Construction	1996

Category
Irrigation (Headworks)

Structure
Movable Weir

Condition
☑ A ☐ B ☐ C ☐ D

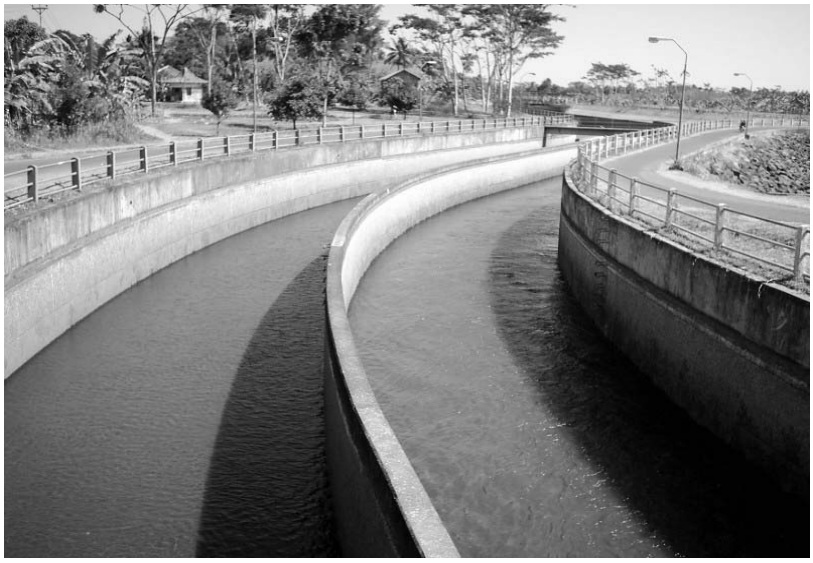
Problems
In good condition

Category
Irrigation (Headworks)

Structure
Intake, Gantry Crane

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition



Category
Irrigation (Headworks)

Structure
Settling Basin

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Serayu	District	Cilacap		
Technical Level	Technical	Registered Area	15,869 ha	Year of Construction	1996

Category
Irrigation (Main Canal)

Structure
Canal

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require canal lining

Category
Irrigation (Main Canal)

Structure
Division structure

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

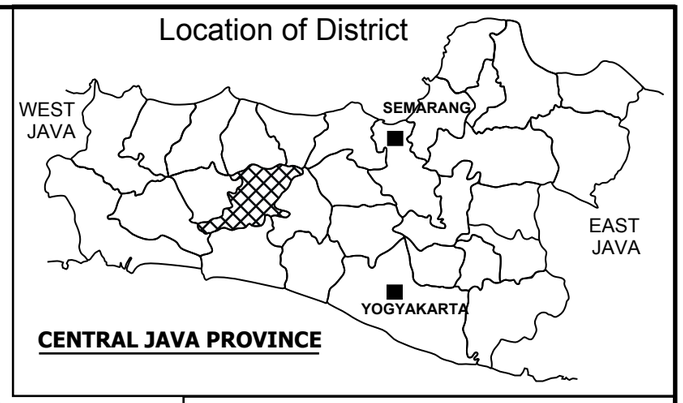
Category
Irrigation (Secondary Canal)

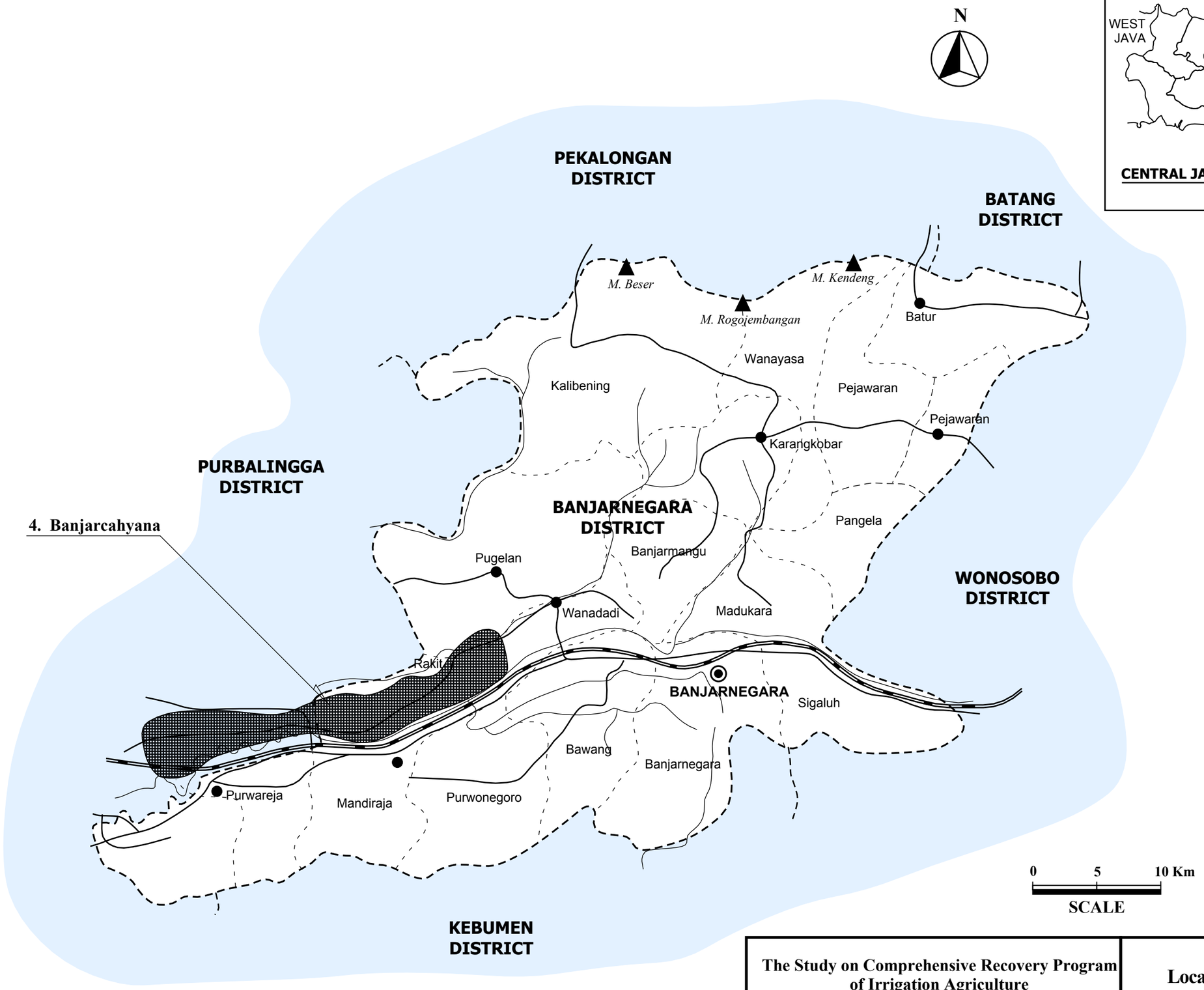
Structure
Canal lining

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require repair of inspection road

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation





LEGEND

- Capital Town of District
- Sub-District Town
- District Boundary
- Sub-District Boundary
- Railway
- District Road
- River
- Irrigation Scheme
- Technical Irrigation

Irrigation Scheme

Name of Scheme	Registered Area (Ha)		Subject Area (Ha)
4. Banjarcahyana	4,859	T	5,001

T : Technical Irrigation

The Study on Comprehensive Recovery Program of Irrigation Agriculture	Location Map of Irrigation Schemes in Banjarnegara District
Japan International Cooperation Agency	

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33027166-69	(7)	Number of Farmers	: 45,464
(2)	Name of Irrigation Scheme	: Banjarcahyana	(8)	Water Resource River	: Serayu
(3)	District (Kabupaten)	: Banjarnegara	(9)	Catchment Area (km^2)	: 10.22
(4)	Sub-district (Kecamatan)	: Rakit	(10)	Completion / Last Rehabilitation Year	: 1986
(5)	Registered Area (ha)	: 4,859			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	3

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	5,001	5,001	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	5,001	5,001	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	5,001			5,001	100%	5.5	27,506		
Season II (dry I)	4,001			4,001	80%	5.5	22,006		
Season III (dry II)				0					
Total/Annual	9,002	0	0	9,002	180%	5.5	49,511	0	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- Substantially high irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season
- Double cropping of paddy practiced almost in the entire irrigated area; paddy yield levels high; palawija not introduced yet

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Water shortage at on-farm level in dry season	- Palawija Marketing:	Low marketing prices
- Agronomic Issues:	Farmers not following recommended practices	- Farmers Organizations:	Most members are not active
- Paddy Marketing	Low marketing prices	- Extension Services:	Implementation of extension programs is limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Double cropping of paddy in the entire scheme; productivity increase of paddy through further intensification; introduction of palawija in dry season II
- Extension activities toward improvement of post-harvest & marketing; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	5,001			5,001	100%	6.0	30,006		
Season II (dry I)	5,001			5,001	100%	6.0	30,006		
Season III (dry II)		1,500		1,500	30%			2,100	
Total/Annual	10,002	1,500	0	11,502	230%	6.0	60,012	2,100	0
Annual Increment	1,000	1,500	0	2,500	50%	0.5	10,501	2,100	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	49	b. Established;	40	c. Not yet;	9	Registered		0
Performance	a. Developed;	0	b. Under developing;	40	c. Not yet;	0	Not yet registered		40

(2) Problems and Constraints

☑ Operation ☐ Maintenance ☐ Management

(3) Causes of Problems and Constraints

- Low level function of irrigation facilities
- Delay in administrative procedure for WUA establishment.

IV.2 Development Plan

(1) Proposed Countermeasures

- Improvement of O&M technology.
- Acceleration of administrative process.

(2) Development Plan

- WUA O&M training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : B (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : A Main Canal System : C Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Dam
b. Type of weir : -
c. Length of dam : -
d. Design intake discharge : 11.0 m3/s
e. Scouring sluice gate : -
f. Intake gate : no info.
g. Settling basin : -
h. Inspection bridge : -
i. Condition : A
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	24,540	16,360	40,900	316	40,900	C
Secondary	8,730	5,820	14,550	113	9,312	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  No major problem (Functioning well)

- Irrigation Canal and Related Structure
  Collapse of canal
  Lower function of regulating structure on canal
  Difficulty on O&M

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  No major problem (Functioning well)

- Irrigation Canal and Related Structure
  Improper maintenance; insufficient nos. of cross drain, berm width, or catch drain; and/or steep slope of canal
  Deterioration of regulating structure on canal, especially gate and metal works
  No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  No major problem (Functioning well)

- Irrigation Canal and Related Structure
  Redesign of canal section; provision of cross drain, proper width of berm, catch drain, and/or proper slope
  Replacement and reconstruction of regulating structure on canal
  Provision or repair of inspection road with all weather type/pavement

(2) Water Resources Facility
Dam/Headworks body : maintained by PLN Intake, civil : maintained by PLN Intake, mechanical : maintained by PLN
Settling basin : maintained by PLN

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	0	40,900	0	40,900
	Secondary	0	14,550	0	14,550
Structure (nos)	Main	0	316	32	348
	Secondary	22	91	23	136

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	5,001	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	5,001

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
0	128,879	12,888	10,252	2,590	154,609	30.9

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 5.2%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	-	Agricultural Productivity	20.0	-	0.0
	Urgency	25.0	-	Social Problem	15.0	-	
	Sustainability	15.0	-	Economic Impact	15.0	-	

VI.3 Priority Group Group VI: Development by other category (High rehabilitation cost)

VI.4 Priority Ranking in the Province -

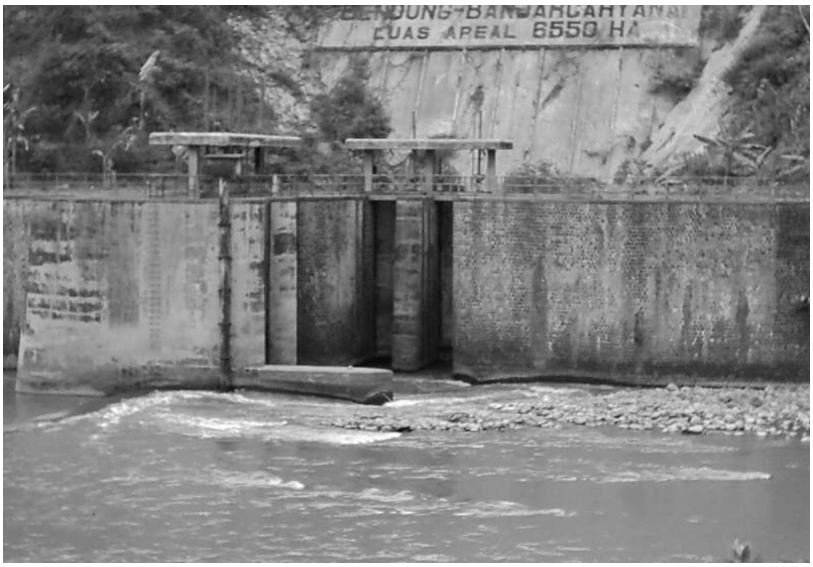
Scheme	Banjarcahyana	District	Banjarnegara		
Technical Level	Technical	Registered Area	4,859 ha	Year of Construction	1986

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Sediment in front of intake



Category
Irrigation (Headworks)

Structure
Scouring Sluice and Intake

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Sediment in front of intake

Category
Irrigation (Headworks)

Structure
Scouring Sluice Gate

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Deterioration and require repair

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Banjarcahyana	District	Banjarnegara		
Technical Level	Technical	Registered Area	4,859 ha	Year of Construction	1986

Category
Irrigation (Headworks)

Structure
Intake

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require minor repair

Category
Irrigation (Main Canal)

Structure
Culvert

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Lost / broken safety facility, found sediment at inside of barrel

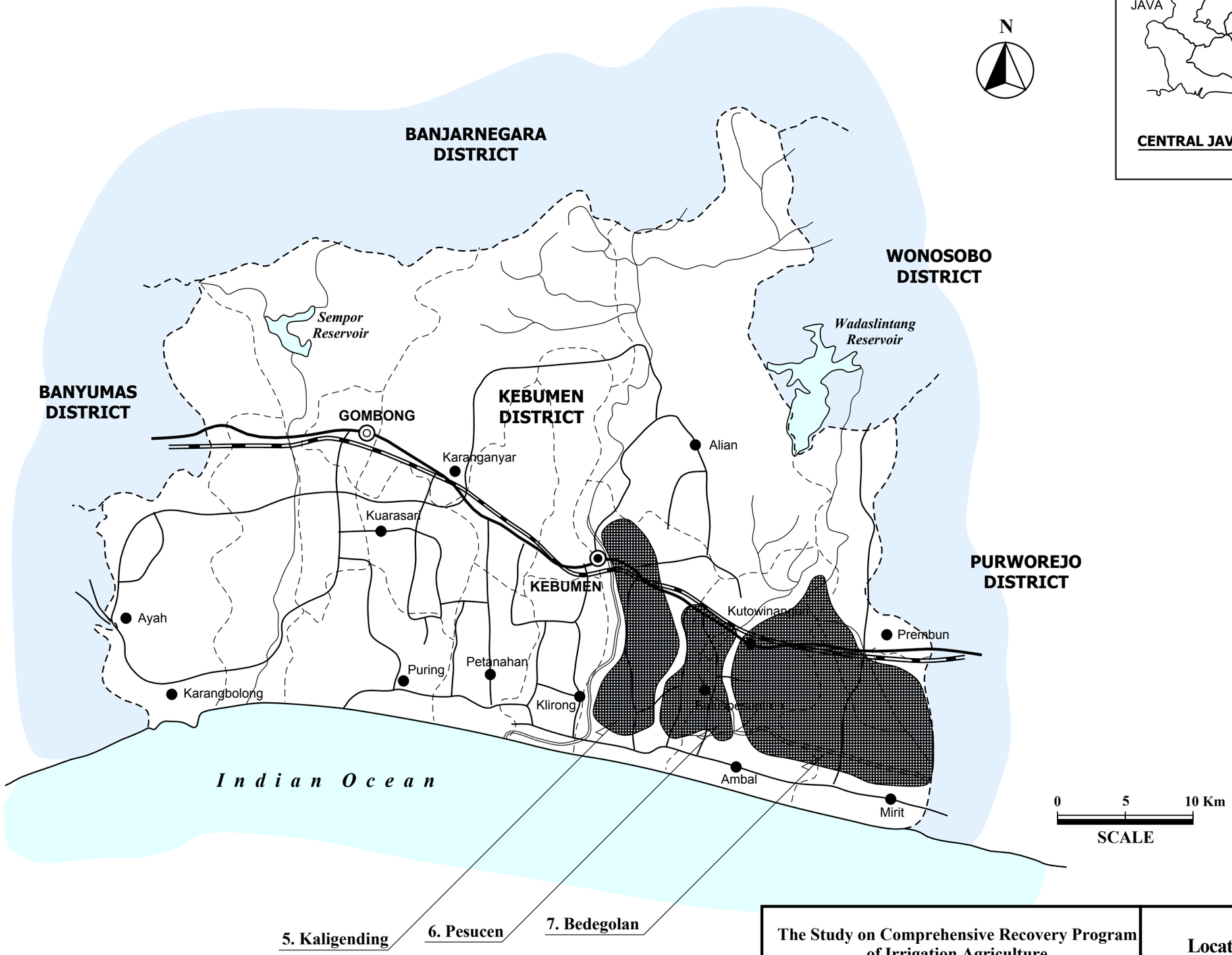
Category

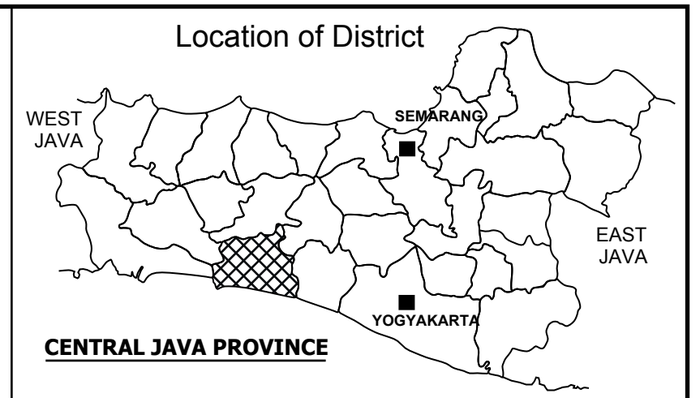
Structure

Condition
☐ A ☐ B ☐ C ☐ D

Problems

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation





LEGEND

- Capital Town of District
- Municipal City
- Sub-District Town
- District Boundary
- Sub-District Boundary
- Railway
- Provincial Road
- District Road
- River
- Irrigation Scheme
- Technical Irrigation

Irrigation Scheme

Name of Scheme	Registered Area (Ha)		Subject Area (Ha)
5. Kaligending	2.981	T	2.923
6. Pesucen	1,666	T	1,659
7. Bedegolan	8,430	T	8,401

T : Technical Irrigation

The Study on Comprehensive Recovery Program of Irrigation Agriculture

Japan International Cooperation Agency

Location Map of Irrigation Schemes in Kebumen District

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33025084-87	(7)	Number of Farmers	: 14,615
(2)	Name of Irrigation Scheme	: Kaligending	(8)	Water Resource River	: Luk Ulo
(3)	District (Kabupaten)	: Kebumen	(9)	Catchment Area (km^2)	: -
(4)	Sub-district (Kecamatan)	: Bulu Pesantren/Karang	(10)	Completion / Last Rehabilitation Year	: 1986/1999
(5)	Registered Area (ha)	: 2,981			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	40

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	2,923	2,923	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	2,923	2,923	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	2,923			2,923	100%	5.0	14,615		
Season II (dry I)	2,842			2,842	97%	4.5	12,789		
Season III (dry II)		657		657	22%			788	
Total/Annual	5,765	657	0	6,422	220%	4.8	27,404	788	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- High irrigation performances achieved; however, water shortage in dry season reported
- Double cropping of paddy practiced almost in the entire irrigated area; paddy yield levels moderate to high; palawija introduced substantially

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Water shortage at on-farm level in dry season	- Palawija Marketing:	Low marketing prices
- Agronomic Issues:	Farmers not following recommended practices	- Farmers Organizations:	Most members are not active
- Paddy Marketing	Low marketing prices	- Extension Services:	Capability & experiences of PPLs are limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Double cropping of paddy in the entire scheme; productivity increase of paddy through further intensification; expansion of palawija in dry season II
- Strengthening of extension activities tailored to area specific needs; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	2,923			2,923	100%	5.5	16,077		
Season II (dry I)	2,923			2,923	100%	5.0	14,615		
Season III (dry II)		1,169		1,169	40%			1,637	
Total/Annual	5,846	1,169	0	7,015	240%	5.3	30,692	1,637	0
Annual Increment	81	512	0	593	20%	0.5	3,288	849	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	26	b. Established;	26	c. Not yet;	0	Registered		0
Performance	a. Developed;	7	b. Under developing;	19	c. Not yet;	0	Not yet registered		26

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Management system not functioned well.

IV.2 Development Plan

(1) Proposed Countermeasures

- Improvement of WUA management capability.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : B (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : B Main Canal System : C Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Fixed weir
c. Length of weir : 88 m
d. Design intake discharge : 3.5 m3/s
e. Scouring sluice gate : 2 nos.
f. Intake gate : no info.
g. Settling basin : provided
h. Inspection bridge : not provided
i. Condition : B
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	12,000	0	12,000	92	12,000	C
Secondary	6,000	9,000	15,000	76	15,000	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  - Problem on management for flood/scouring sluice gate(s) operation
  - Insufficient diversion water due to sedimentation in front of intake
- Irrigation Canal and Related Structure
  - Sedimentation or obstruction of water flow
  - Collapse of canal
  - Lower function of regulating structure on canal
  - Difficulty on O&M
  - Difficulty on water distribution

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  - Improper maintenance of flood or scouring sluice gate(s) of headworks (no greasing and anti-rust painting)
  - Sedimentation in front of intake
- Irrigation Canal and Related Structure
  - No provision of settling basin(sediments), improper management of canal (sediments, water plant)
  - Improper maintenance; insufficient nos. of cross drain, berm width, or catch drain; and/or steep slope of canal
  - Deterioration of regulating structure on canal, especially gate and metal works
  - No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken
  - No provision of water level gauge/facility

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  - Replacement of control system or damaged equipment of flood/scouring sluice gate(s) of headworks
  - Dredging or flushing of sediment, proper gate operation of headworks and intake
- Irrigation Canal and Related Structure
  - Removal of sediment soil and foreign materials from canal, grass cutting
  - Redesign of canal section; provision of cross drain, proper width of berm, catch drain, and/or proper slope
  - Replacement and reconstruction of regulating structure on canal
  - Provision or repair of inspection road with all weather type/pavement
  - Provision of water level gauge/facility

(2) Water Resources Facility

Dam/Headworks body : minor rehabilitation Intake, civil : minor rehabilitation Intake, mechanical : minor rehabilitation
Settling basin : large rehabilitation

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	2,400	9,600	0	12,000
	Secondary	1,200	13,800	0	15,000
Structure (nos)	Main	18	74	9	101
	Secondary	0	76	15	91

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	2,923	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	2,923

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
2,537	28,943	2,894	5,992	1,570	41,936	14.3

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 6.8%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	5.0	Agricultural Productivity	20.0	11.0	54.3
	Urgency	25.0	18.0	Social Problem	15.0	6.0	
	Sustainability	15.0	6.8	Economic Impact	15.0	7.5	

VI.3 Priority Group Group III: Third priority group **VI.4 Priority Ranking in the Province** 37

Central Java Province
5. Kaligending Scheme
(3/4)

Scheme	Kaligending	District	Kebumen		
Technical Level	Technical	Registered Area	2,981 ha	Year of Construction	1986/1999

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Problem of water intake due to miss match of river and river water level

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Problem of water intake due to miss match of river and river water level

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Heightening of crest weir is required

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

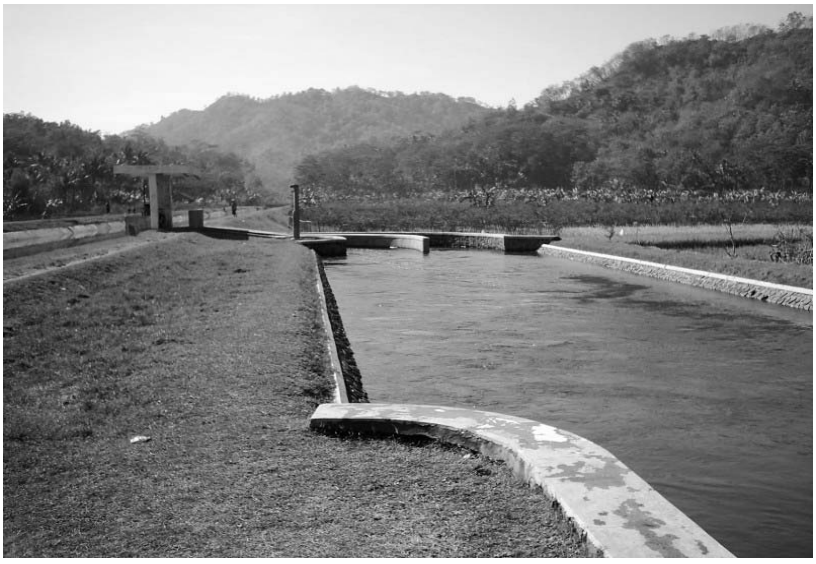
Scheme	Kaligending	District	Kebumen		
Technical Level	Technical	Registered Area	2,981 ha	Year of Construction	1986/1999

Category
Irrigation (Main Canal)

Structure
Canal

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Found sedimentation / debris at inside of canal



Category
Irrigation (Main Canal)

Structure
Division Structure and Canal

Condition
☑ A ☐ B ☐ C ☐ D

Problems
In good condition

Category
Irrigation (Secondary Canal)

Structure
Tertiary Box and Paddy Field

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require minor repair

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33025062-64	(7)	Number of Farmers	: 8,295
(2)	Name of Irrigation Scheme	: Pesucen	(8)	Water Resource River	: Kedung Bener
(3)	District (Kabupaten)	: Kebumen	(9)	Catchment Area (km^2)	: -
(4)	Sub-district (Kecamatan)	: Bulu Pesantren	(10)	Completion / Last Rehabilitation Year	: 1998/ 2002
(5)	Registered Area (ha)	: 1,666			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	18

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	1,659	1,659	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	1,659	1,659	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	1,659			1,659	100%	4.5	7,466		
Season II (dry I)	960	699		1,659	100%	4.5	4,320	2,097	
Season III (dry II)				0	0%				
Total/Annual	2,619	699	0	3,318	200%	4.5	11,786	2,097	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- High irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season
- Double cropping of paddy introduced; paddy yield levels moderate; palawija introduced extensively

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Water shortage at on-farm level in dry season	- Palawija Marketing:	Unstable marketing prices
- Agronomic Issues:	Damage caused by rat	- Farmers Organizations:	Most members are not active
- Paddy Marketing	Low marketing prices	- Extension Services:	Implementation of extension programs is limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Expansion of double cropped area of paddy; productivity increase of paddy through further intensification; introduction of palawija in dry season I & II
- Strengthening of extension activities tailored to area specific needs; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual	Irrigated Paddy Yield (GKG	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total	Intensity	ton/ha)	Paddy	Palawija	Others
Season I (wet)	1,659			1,659	100%	5.0	8,295		
Season II (dry I)	1,327	332		1,659	100%	5.0	6,635	1,660	
Season III (dry II)		498		498	30%			697	
Total/Annual	2,986	830	0	3,816	230%	5.0	14,930	2,357	0
Annual Increment	367	131	0	498	30%	0.5	3,145	260	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	30	b. Established;	30	c. Not yet;	0	Registered		0
Performance	a. Developed;	3	b. Under developing;	27	c. Not yet;	0	Not yet registered		30

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Management system not functioned well.

IV.2 Development Plan

(1) Proposed Countermeasures

- Improvement of WUA management system.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : A (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : A Main Canal System : B Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Fixed weir
c. Length of weir : 40 m
d. Design intake discharge : 3.0 m3/s
e. Scouring sluice gate : 5 nos.
f. Intake gate : no info.
g. Settling basin : provided
h. Inspection bridge : not provided
i. Condition : A
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	224	0	224	4	224	B
Secondary	9,000	8,000	17,000	150	8,500	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  No problem (Functioning well)

- Irrigation Canal and Related Structure
  Leakage from canal
  Collapse of canal
  Lower function of regulating structure on canal
  Physical operation problem on regulating structure on canal
  Difficulty on O&M

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  No problem (Functioning well)

- Irrigation Canal and Related Structure
  Improper regular maintenance of canal, settlement of canal then insufficient freeboard and overtopping
  Improper maintenance; insufficient nos. of cross drain, berm width, or catch drain; and/or steep slope of canal
  Deterioration of regulating structure on canal, especially gate and metal works
  Deterioration, breakdown and/or insufficient maintenance of gate(s) for regulating structure on canal
  No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  No problem (Functioning well)

- Irrigation Canal and Related Structure
  Repair of leakage from canal, widen canal wide, recompaction of embankment
  Redesign of canal section; provision of cross drain, proper width of berm, catch drain, and/or proper slope
  Replacement and reconstruction of regulating structure on canal
  Replacement of gate(s) for regulating structure on canal
  Provision or repair of inspection road with all weather type/pavement

(2) Water Resources Facility
Dam/Headworks body : no rehabilitation Intake, civil : no rehabilitation Intake, mechanical : no rehabilitation
Settling basin : no rehabilitation

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	45	179	0	224
	Secondary	1,800	15,200	0	17,000
Structure (nos)	Main	0	4	0	4
	Secondary	30	120	30	180

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	1,659	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	1,659

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
0	20,387	2,039	3,401	1,260	27,087	16.3

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 14.2%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	5.0	Agricultural Productivity	20.0	11.0	55.4
	Urgency	25.0	14.6	Social Problem	15.0	9.0	
	Sustainability	15.0	6.8	Economic Impact	15.0	9.0	

VI.3 Priority Group Group III: Third priority group **VI.4 Priority Ranking in the Province** 34

Scheme	Pesucen	District	Kebumen		
Technical Level	Technical	Registered Area	1,666 ha	Year of Construction	1998/2002

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require repair of retaining wall

Category
Irrigation (Headworks)

Structure
Intake

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require replacement of gates

Category
Irrigation (Main Canal)

Structure
Division Structure

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require minor repair, both civil and gate works

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Pesucen	District	Kebumen		
Technical Level	Technical	Registered Area	1,666 ha	Year of Construction	1998/2002

Category
Irrigation (Secondary Canal)

Structure
Earth Canal

Condition
☐ A ☐ B ☐ C ☑ D

Problems
Require lining, inspection road

Category
Irrigation (Secondary Canal)

Structure
Off-take Structure

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require minor repair and gate

Category
Irrigation (Paddy Field)

Structure
Tertiary Canal and Paddy Field

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require farm road

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

I. PROJECT FUNDAMENTALS

I.1 General

(1)	Code Number	: 33025016-21	(7)	Number of Farmers	: 42,005
(2)	Name of Irrigation Scheme	: Bedegolan	(8)	Water Resource River	: Bedegolan
(3)	District (Kabupaten)	: Kebumen	(9)	Catchment Area (km^2)	: 211.7
(4)	Sub-district (Kecamatan)	: Mirit	(10)	Completion / Last Rehabilitation Year	: 1998
(5)	Registered Area (ha)	: 8,430			
(6)	Technical Level	: Technical			

I.2 Availability of Reports/Documents & References **(A : Available, B : Available but partially, C : Not available/ No plan)**

a. Design Reports of Existing System(Full set)	b. Irrigation diagram	c. As-built drawings	d. Structure lists & diagram
A	A	A	A
e. Rehabilitation plan & its references	f. Crops and yield data	g. Cropping Calender	h. WUAs data
C	A	A	65

II. SUBJECT AREA FOR REHABILITATION PLAN

II.1 Present and Planned Land Use

Category	Present (ha)	Plan (ha)	Increment (ha)
a. Irrigated paddy field	8,401	8,401	0
b. Rainfed paddy field	0	0	0
c. Upland field	0	0	0
d. Uncultivated land	0	0	0
e. Non-irrigable land	0	0	0
Total	8,401	8,401	0

III. AGRICULTURE

III.1 Present/Before Project Condition

(1) Irrigation Performance and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	8,401			8,401	100%	5.5	46,206		
Season II (dry I)	8,167	95		8,262	98%	5.0	40,835	285	
Season III (dry II)		200		200	2%			240	
Total/Annual	16,568	295	0	16,863	201%	5.3	87,041	525	0

(2) Problems and Constraints

A. Irrigation & Agriculture Performances

- High irrigation performances achieved; however, irrigation water supply at on-farm level limited in dry season; poor drainage problem reported
- Double cropping of paddy practiced almost in the entire irrigated area; paddy yield levels high; palawija introduced production still limited

B. Primary Constraint Identified through the Inventory Survey by the JICA Study

- Irrigation & Drainage:	Poor drainage	- Palawija Marketing:	Low marketing prices
- Agronomic Issues:	Farmers not following recommended practices	- Farmers Organizations:	Most members are not active
- Paddy Marketing	Low marketing prices	- Extension Services:	Extension activities of PPLs are limited

III.2 Development Plan

(1) Development Approaches

- Ensuring year round irrigation water supply at on-farm level through rehabilitation
- Double cropping of paddy in the entire scheme; productivity increase of paddy through further intensification; expansion of palawija in dry season II
- Extension activities toward improvement of post-harvest & marketing; empowerment of farmer groups (KTs) to establish agri-business oriented KTs

(2) Planned Irrigation Performances and Crop Production

Season	Cropped Area in Irrigated Paddy Field (ha)				Annual Intensity	Irrigated Paddy Yield (GKG ton/ha)	Crop Production (ton)		
	Paddy	Palawija	Sugarcane	Total			Paddy	Palawija	Others
Season I (wet)	8,401			8,401	100%	6.0	50,406		
Season II (dry I)	8,401			8,401	100%	5.5	46,206		
Season III (dry II)		2,520		2,520	30%			3,529	
Total/Annual	16,802	2,520	0	19,322	230%	5.8	96,612	3,529	0
Annual Increment	234	2,225	0	2,459	29%	0.5	9,571	3,004	0

IV. WUAs

IV.1 Existing Condition

(1)

Number	a. Target;	74	b. Established;	74	c. Not yet;	0	Registered		0
Performance	a. Developed;	3	b. Under developing;	51	c. Not yet;	20	Not yet registered		74

(2) Problems and Constraints

☐ Operation ☐ Maintenance ☑ Management

(3) Causes of Problems and Constraints

- Management system not functioned well.

IV.2 Development Plan

(1) Proposed Countermeasures

- Improvement of WUA management system.

(2) Development Plan

- WUA management training.

V. IRRIGATION FACILITY

V.1 Existing Condition

(1) Overall Irrigation System : B (A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
Water Resources Facility : B Main Canal System : B Secondary Canal System : C On-farm : C

(2) Water Resources Facilty

a. Type of facility : Headworks
b. Type of weir : Fixed weir
c. Length of weir : 58 m
d. Design intake discharge : 13.5 m3/s
e. Scouring sluice gate : 2 nos.
f. Intake gate : 4 nos.
g. Settling basin : provided
h. Inspection bridge : not provided
i. Condition : B
(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)
(no info.: no information)

(3) Irrigation Canal and Inspection Road

Canal	Lined (m)	Unlined (m)	Total (m)	Structure (nos)	Inspection road (m)	Condition
Main	3,500	2,730	6,230	29	6,230	B
Secondary	40,500	40,760	81,260	294	17,000	C

(A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation)

(4) Major Problems and Constrains

- Water Resources Facility
  - Insufficient diversion water due to sedimentation in front of intake
  - Problem on management for intake gate(s) operation
- Irrigation Canal and Related Structure
  - Leakage from canal
  - Impassable of inspection road along canal
  - Lower function of regulating structure on canal
  - Difficulty on O&M

(5) Causes of Major Problems and Constraints

- Water Resources Facility
  - Sedimentation in front of intake
  - Improper management or deterioration of intake gate(s)
- Irrigation Canal and Related Structure
  - Improper regular maintenance of canal, settlement of canal then insufficient freeboard and overtopping
  - Improper routine O&M works due to no or narrow wide of road, slope erosion by rainfall then in flow into canal
  - Deterioration of regulating structure on canal, especially gate and metal works
  - No provision or damage of inspection road, difficulty on passing of inspection road due to damage, broken

V.2 Development Plan

(1) Proposed Countermeasures for Major Problems

- Water Resources Facility
  - Dredging or flushing of sediment, proper gate operation of headworks and intake
  - Replacement of control system or damaged equipment of intake
- Irrigation Canal and Related Structure
  - Repair of leakage from canal, widen canal wide, recompaction of embankment
  - Provision of inspection road both main and secondary canal with pavement
  - Replacement and reconstruction of regulating structure on canal
  - Provision or repair of inspection road with all weather type/pavement

(2) Water Resources Facility

Dam/Headworks body : minor rehabilitation Intake, civil : minor rehabilitation Intake, mechanical : large rehabilitation
Settling basin : large rehabilitation

(3) Irrigation Canal and Related Structure

Works		No rehabilitaion	Rehabilitation	New construction	Total
Canal (m)	Main	700	5,530	0	6,230
	Secondary	8,100	73,160	0	81,260
Structure (nos)	Main	5	24	3	32
	Secondary	55	239	59	353

(4) On-farm Development (Unit: ha)

a. Potential Irrigated paddy field	8,401	d. Non-potential paddy field	0
b. Potential non-irrigated paddy field	0	e. Non-potenttial non-paddy field	0
c. Potential non-paddy field	0	Total	8,401

(5) Rehabilitation Cost (Direct Cost) (Unit: Million Rp.)

W.R.F	Irrigation	Drainage	On-Farm Develop.	Project Facility	Total	Cost per ha
4,390	94,433	9,443	17,222	2,590	128,078	15.2

(W.R.F: Water Resources Facility, Develop.: Development)

VI. PROJECT EVALUATION

VI.1 EIRR 6.4%

VI.2 Prioritization Scoring

Evaluation Index		Full Score	Score	Evaluation Index	Full Score	Score	Total Score
Irrigation System	Utilization of Irrigation Potential	10.0	5.0	Agricultural Productivity	20.0	11.0	57.4
	Urgency	25.0	16.6	Social Problem	15.0	10.5	
	Sustainability	15.0	6.8	Economic Impact	15.0	7.5	

VI.3 Priority Group Group III: Third priority group **VI.4 Priority Ranking in the Province** 28

Central Java Province
7. Bedegolan Scheme
(3/4)

Scheme	Bedegolan	District	Kebumen		
Technical Level	Technical	Registered Area	8,430 ha	Year of Construction	1998

Category
Irrigation (Headworks)

Structure
Fixed Weir

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require repair for weir and intake

Category
Irrigation (Headworks)

Structure
Intake

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require repair for weir and intake

Category
Irrigation (Main Canal)

Structure
Lined Canal

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require minor repair

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation

Scheme	Bedegolan	District	Kebumen		
Technical Level	Technical	Registered Area	8,430 ha	Year of Construction	1998

Category
Irrigation (Secondary Canal)

Structure
Division Structure

Condition
☐ A ☑ B ☐ C ☐ D

Problems
Require minor repair

Category
Irrigation (Secondary Canal)

Structure
Lined Canal

Condition
☐ A ☐ B ☑ C ☐ D

Problems
Require major repair for lining

Category
Irrigation (Secondary Canal)

Structure
Earth Canal

Condition
☐ A ☐ B ☐ C ☑ D

Problems
Require canal lining

Condition: A: Functioning well, B: Partially deteriorated, C: Not functioning well, D: Serious condition for operation