

# JASA TIRTA II PUBLIC CORPORATION EXPERIENCE IN MANAGING CITARUM RIVER BASIN

**Bangkok – Chiang Mai, Thailand**  
July 26<sup>th</sup> – August 6<sup>th</sup> 2004

**Integrated Water Resources  
Management (IWRM)  
Training Course**



# ORIENTATION MAP WEST JAVA PROVINCE



Western part of the world



Indonesian Archipelago



Java island

West Java Province

# CITARUM RIVER BASIN

JATILUHUR

AUTHORITY'S  
SERVICE AREA



COLOR COMPOSITE  
IMAGE

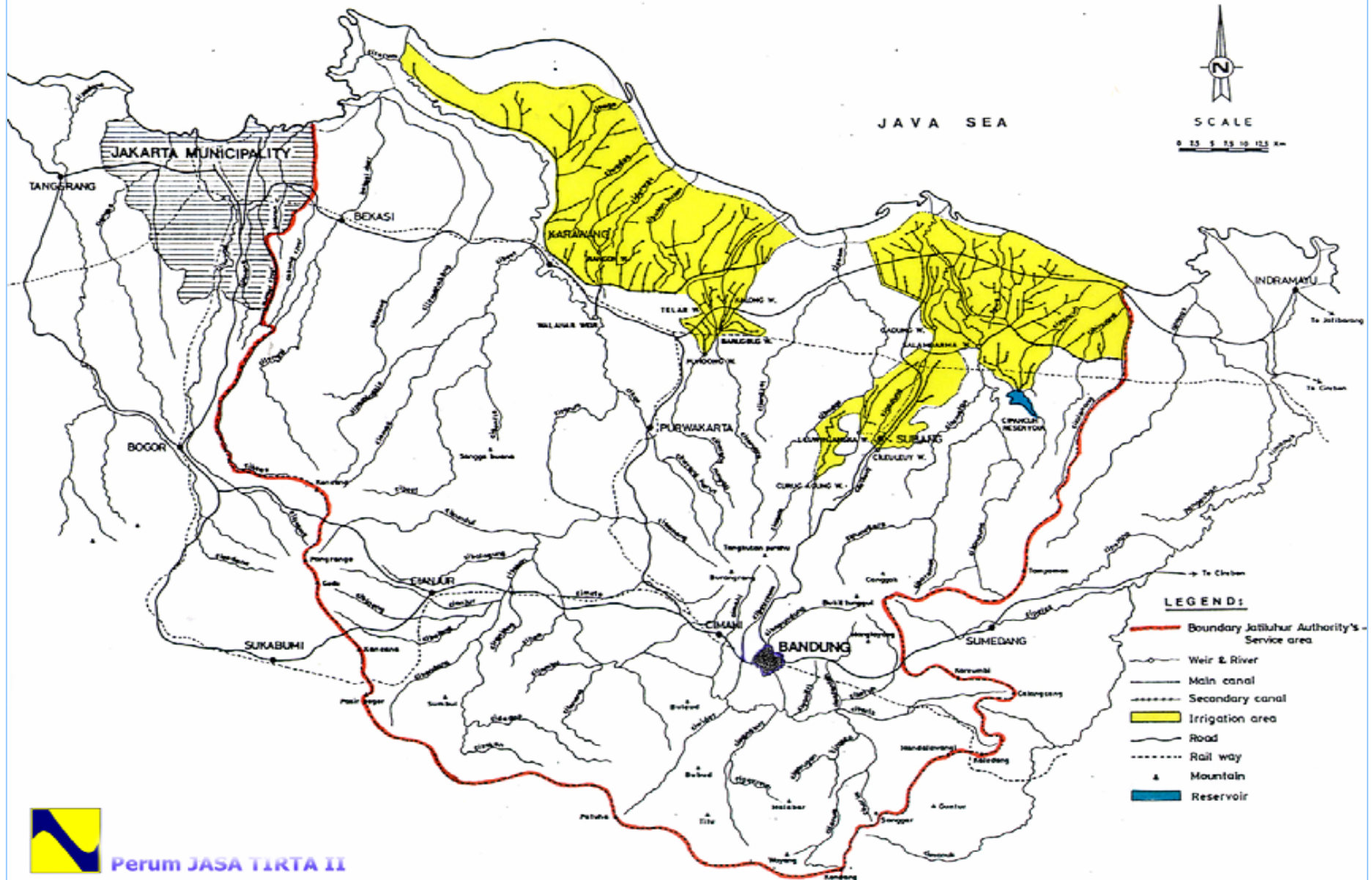
DATA SOURCE:  
LANDSAT TM  
01/01/80 AND 02/01/80  
JULY 1982

BAND 3 1 2

PREPARED BY:  
REMOTE SENSING SYSTEM  
CENTER AND DATA PROCESSING  
AND MAPPING PROGRAM  
MINISTRY OF PUBLIC WORKS



# WATER RESOURCES DEVELOPMENT ( BEFORE JATILUHUR PROJECT )



# HISTORICAL BACKGROUND

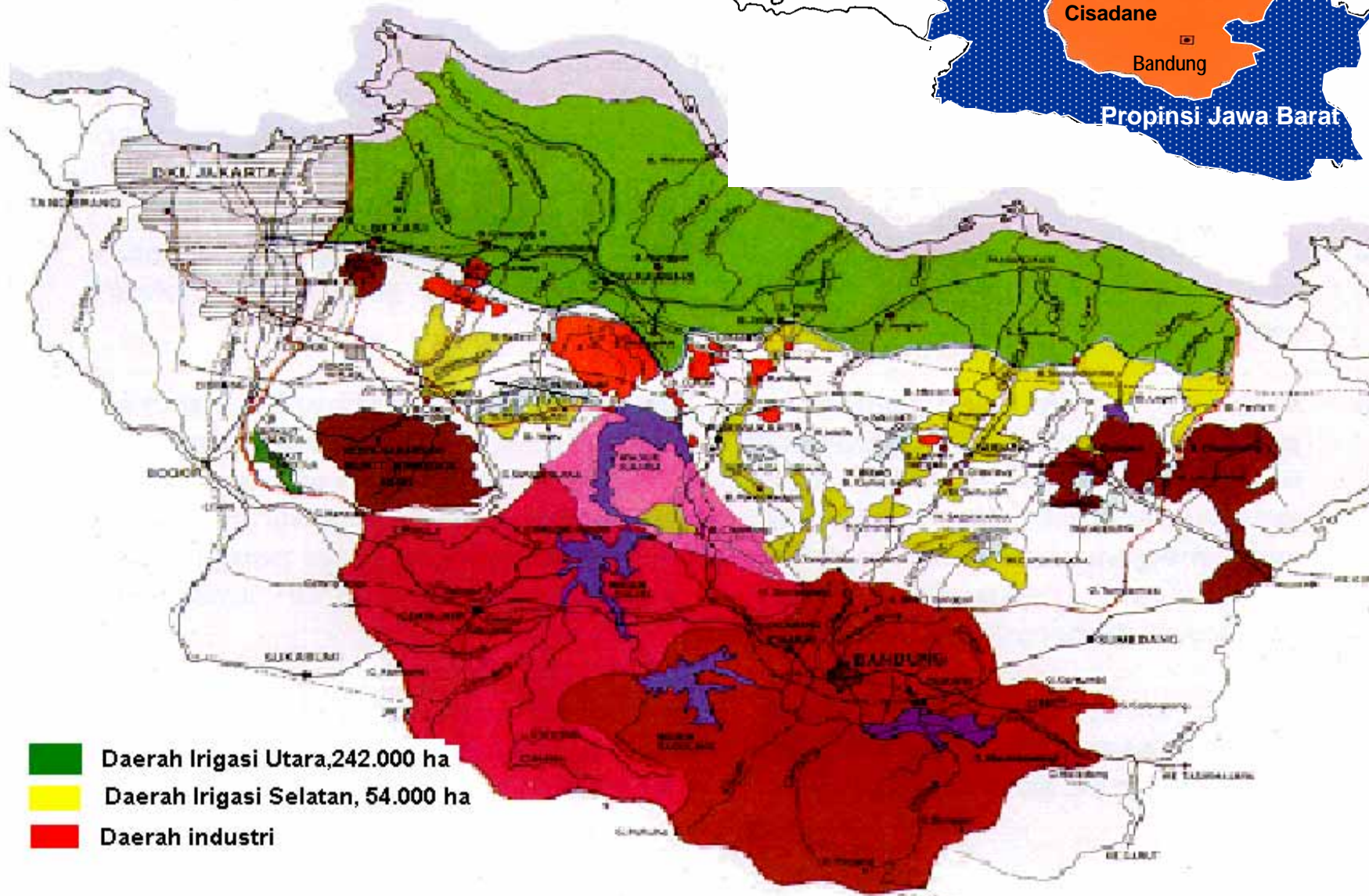


- ❖ Based on the study paper written by *Prof.Dr.Ir. W.J.van Blomestein*, presented in Paris Seminar (1948) with the title “Integrated Water Resources Development in the Western Part of Java Island“ (514,000 ha.of paddy field);
- ❖ Reviewed by *Ir.van Schravendijk* in 1956 in the form of “Integrated Water Resources Development in Citarum River Basin” (240,000 ha of paddy field);

- ❖ Designed and supervision by *Coyne et Bellier Consultant (COB)* of France;
- ❖ Construction by *Compagnie Francaise d’Enterprise (CFE),Paris* of France;
- ❖ Financed by Bilateral Loan from France Government.



# CITARUM RIVER BASIN AREA



# HISTORY OF CITARUM WATERSHED MANAGEMENT

## CONSTRUCTION PERIOD

Jatiluhur Multipurpose Project (1956 - 1967)



## OPERATION AND MAINTENANCE PERIOD

Jatiluhur State Owned Company (1967 -1970)  
Government Regulation (GR) No. 8/1967, 24 Juli 1967

Jatiluhur Authority Public Corporation

- GR 20/1970, 23 Mei 1970
- GR 35/1980, 13 Oktober 1980
- GR 42/1990, 23 Agustus 1990

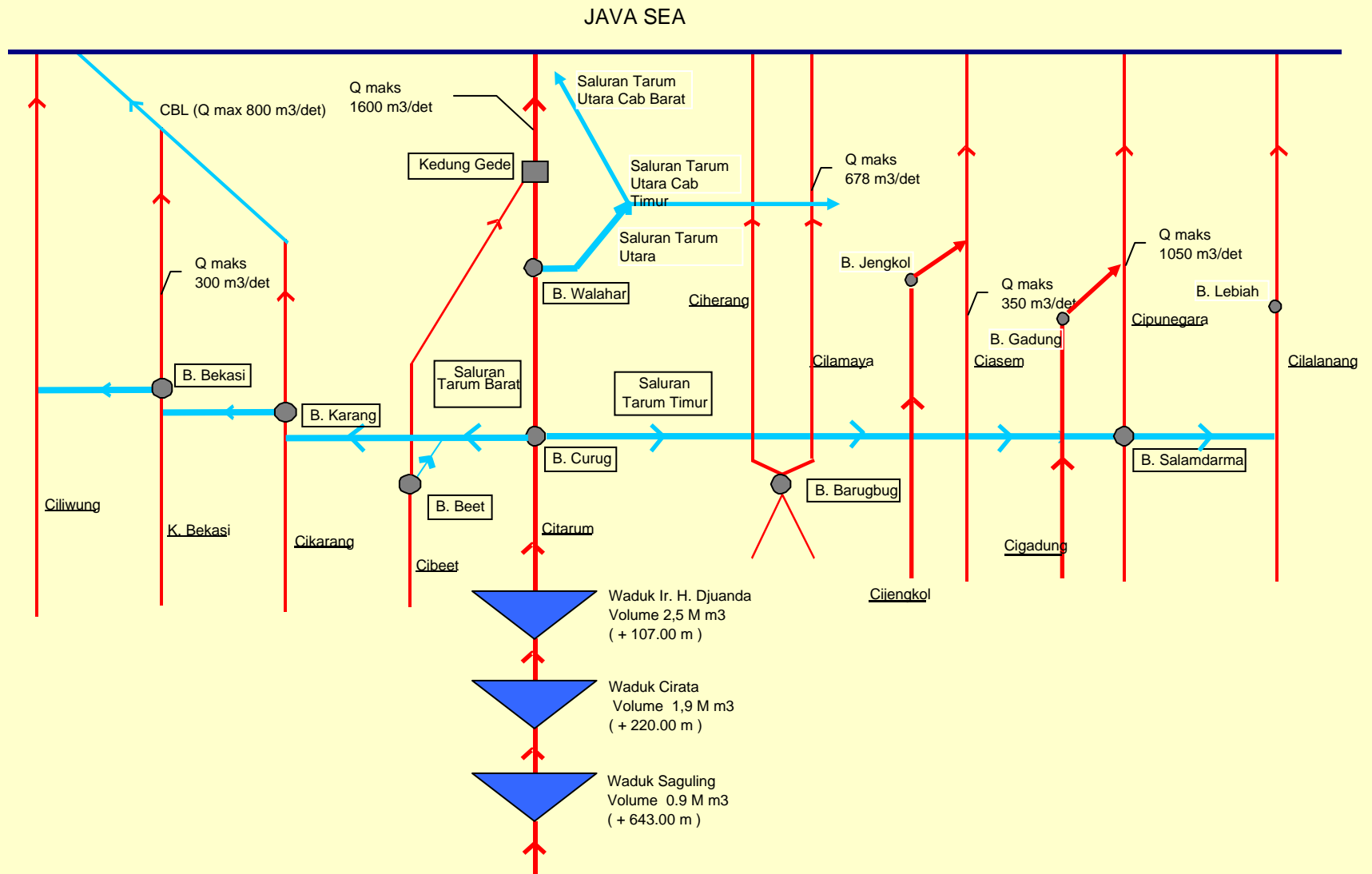
Jasa Tirta II Public Corporation

GR 94/1999, 13 Oktober 1999





# SCHEME OF JATILUHUR WATER RESOURCES SYSTEM



# SAGULING DAM



# CIRATA DAM



# JATILUHUR DAM



# CURUG WEIR

West Tarum Canal

Citarum River to  
Walaha Weir

East Tarum Canal





Perum JASA TIRTA II

# SALAM DARMA WEIR (Cipunegara River)

EAST TARUM CANAL

Cipunegara River



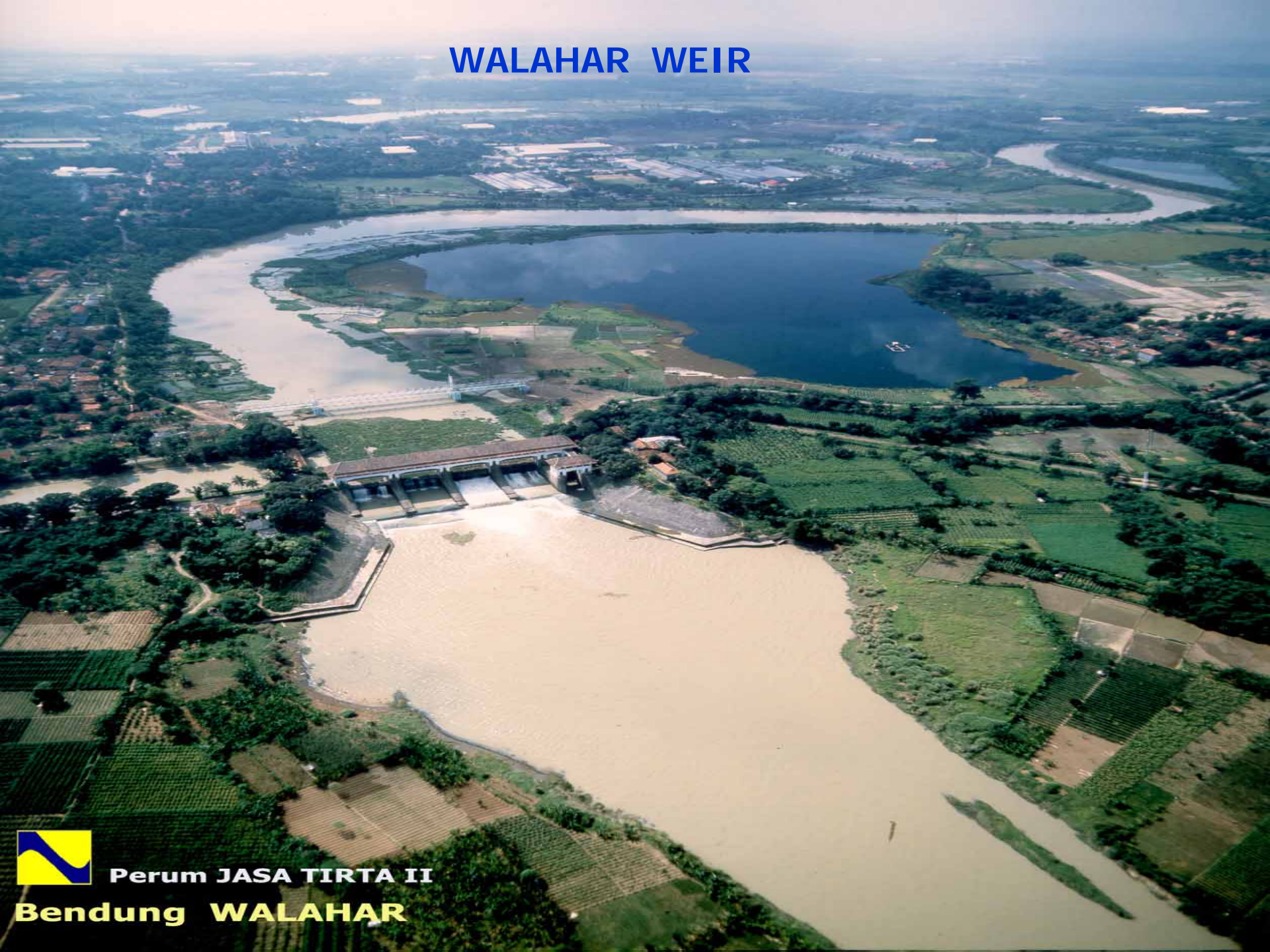
Bugis Main Canal  
(Secondary Irrigation Canal)



# BEKASI WEIR



# WALAHAR WEIR

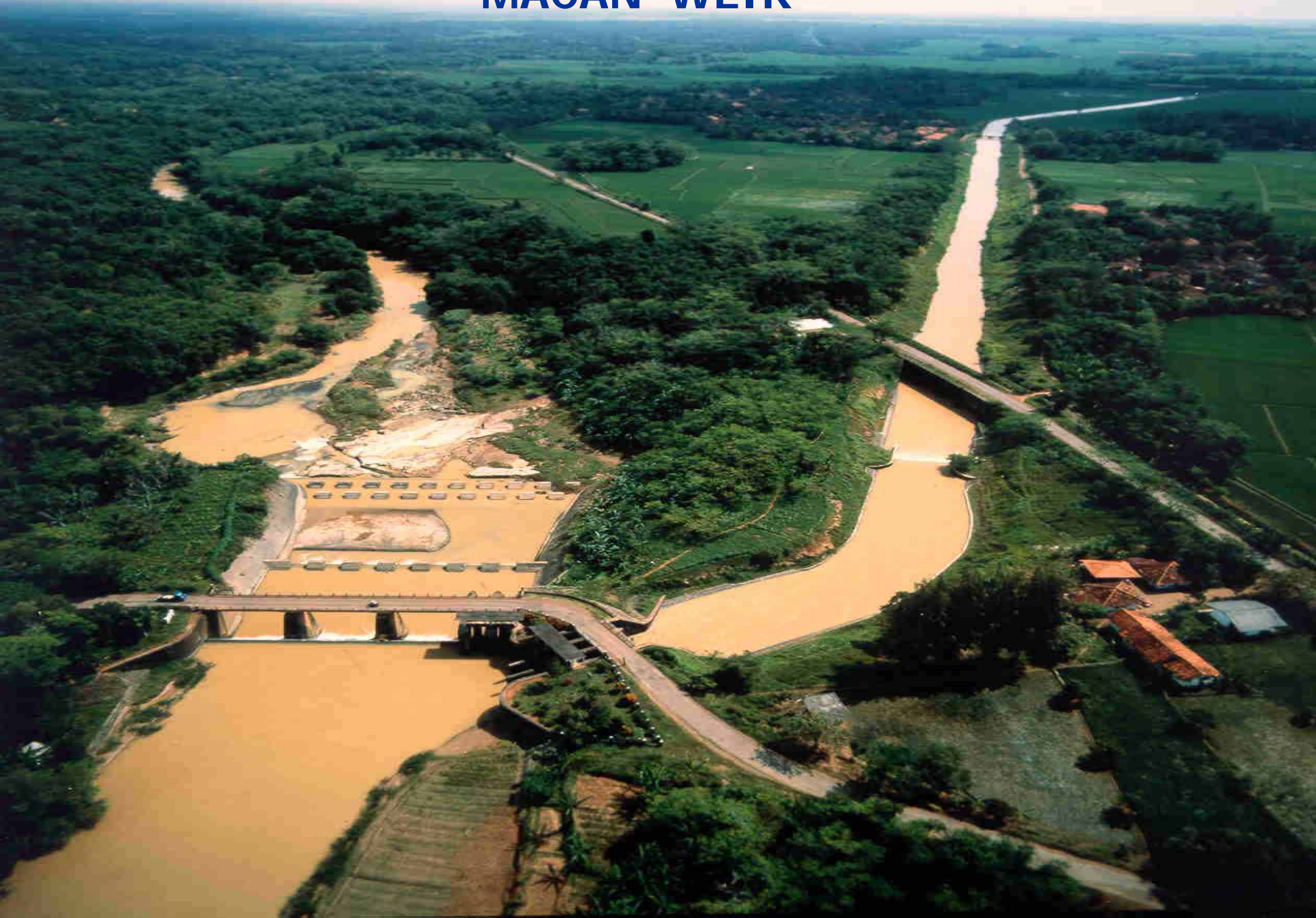


Perum JASA TIRTA II

**Bendung WALAHAR**



# MACAN WEIR



# BARUGBUG WEIR



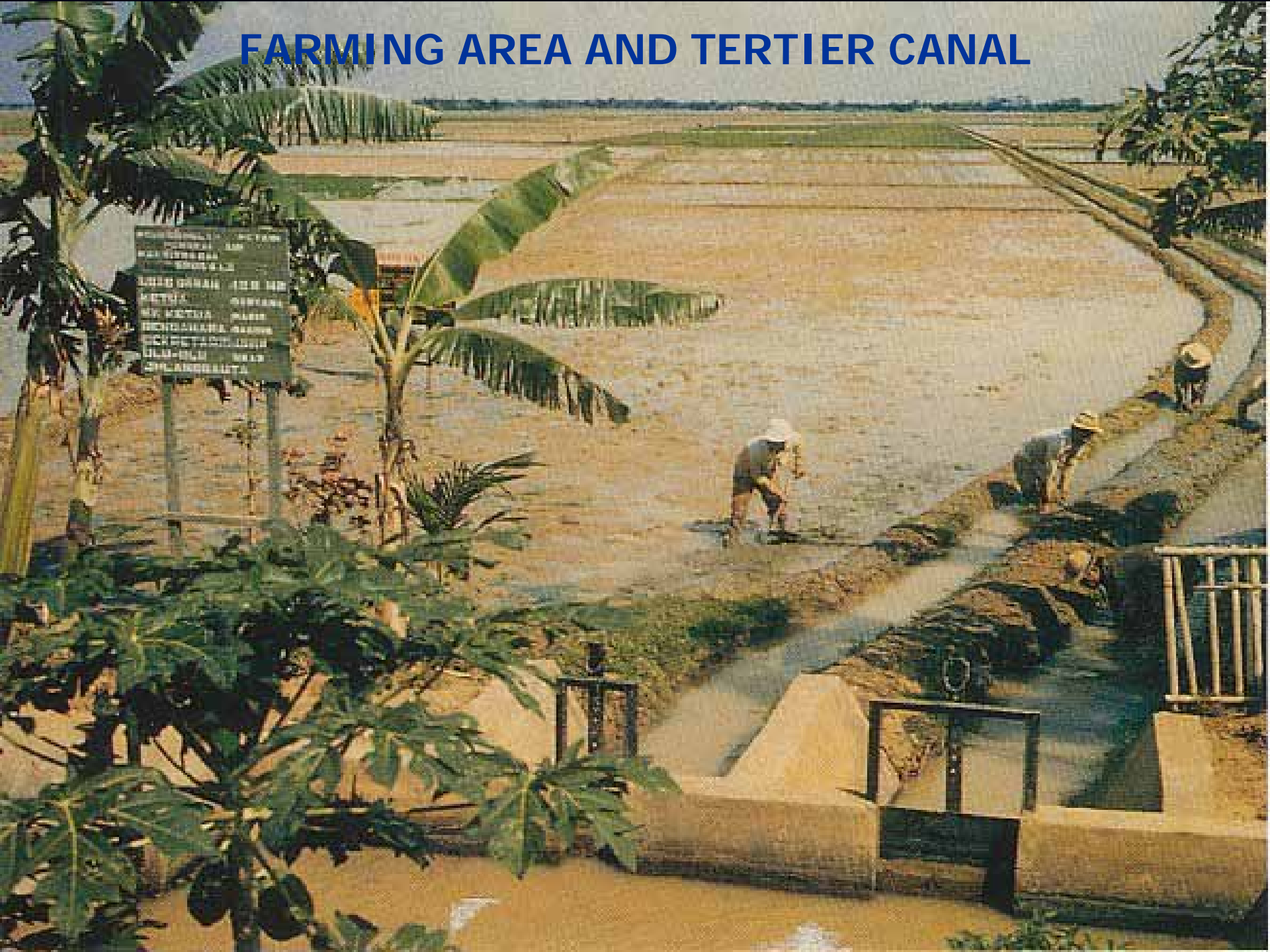
# CIBEET WEIR



# IRRIGATION TERTIER CANAL



# FARMING AREA AND TERTIER CANAL



# WATER RESOURCES INFRASTRUCTURE MANAGED BY PJT II

No	Description	Unit	Quantity
1	Large dam	Nos	1
2	Small dam	Nos	6
3	Weir	Nos	34
4	Primary diversion structure	Nos	100
5	Secondary diversion structure	Nos	895
6	Romijn Gate	Nos	2,894
7	Primary siphon	Nos	10
8	Secondary siphon	Nos	14
9	Primary Drop Structure	Nos	1
10	Secondary Drop Structure	Nos	68
11	Silt trap	Nos	11
12	Primary box culvert	Nos	139
13	Secondary box culvert	Nos	264
14	Electric pump station	Nos/unit	2/10
15	Hydraulics pump	unit	17
16	Raw water pipe line	Km	30
17	Primary canal	Km	236
18	Secondary canal	km	1,430
19	Inspection road	km	1,365
20	Primary drainage canal	km	569
21	Secondary drainage canal	km	2,104

# Water Balance in Citarum River Basin (from 1990 to 2002)

Year	ANNUAL FLOW ( Million m <sup>3</sup> /year)			Utilization (Million m <sup>3</sup> /year)				Water Balance
	Citarum River	Other Rivers	Total	Irrigation	Domestic	Industrial	Total	
1990	5.452,8	3.857,5	9.310,3	5.702,7	204,6	81,3	5.988,6	3.321,7
1991	5.561,3	3.901,5	9.462,8	5.563,6	235,3	108,2	5.907,1	3.555,7
1992	7.463,0	6.407,0	13.870,0	5.619,9	198,5	117,5	5.935,9	7.934,1
1993	8.478,7	6.660,4	<b>15.139,1</b>	5.053,2	249,7	110,6	5.413,5	9.725,6
1994	7.235,3	5.167,4	12.402,7	5.418,7	331,3	126,8	5.876,8	6.525,9
1995	6.544,2	5.841,2	12.385,4	6.113,4	294,3	147,4	6.555,1	5.830,3
1996	6.864,3	6.062,8	12.927,1	6.789,6	331,3	137,9	7.258,8	5.668,3
1997	4.644,2	3.236,2	<b>7.880,4</b>	5.472,1	395,3	155,9	6.023,3	1.857,1
1998	6.661,4	6.442,6	13.104,0	7.151,1	448,1	149,4	7.748,6	5.355,4
1999	5.587,0	4.692,4	10.279,4	5.687,6	422,9	153,8	6.264,3	4.015,1
2000	4.966,6	5.505,9	10.472,5	5.978,3	428,2	164,7	6.571,0	3.901,5
2001	7.122,3	6.461,9	13.584,2	6.317,1	471,2	196,4	6.984,8	6.599,4
2002	5.540,1	5.882,0	11.422,1	5.781,6	522,2	203,6	6.507,4	4.914,7

# Trend of Water Balance in Citarum River Basin (From 1990 to 2025 )

No.	DESCRIPTION	1990		2005		2025	
		m <sup>3</sup> /s	10 <sup>6</sup> m <sup>3</sup>	m <sup>3</sup> /s	10 <sup>6</sup> m <sup>3</sup>	m <sup>3</sup> /s	10 <sup>6</sup> m <sup>3</sup>
1.	SOURCES:						
	Citarum and its Reservoirs	182.33	5,750.00	182.33	5,750.00	182.33	5,750.00
	Other rivers	60.25	1,900.00	61.83	1,950.00	63.42	2,000.00
2.	DEMANDS:						
	Irrigation	177.30	5,591.71	175.00	5,518.80	168.00	5,298.05
	Industry	7.91	249.45	15.00	473.04	25.00	788.40
	Drinking water	9.77	308.11	21.30	671.72	45.00	1,419.12
	Fisheries	1.00	31.54	10.00	315.36	20.00	630.72
	Flushing	2.00	63.07	10.00	315.36	15.00	473.04
	Peak Load	9.51	300.00	3.17	100.00	0.00	0.00
3.	WATER BALANCE:						
	Sources	242.58	7,650.00	244.16	7,700.00	245.75	7,750.00
	Demands	207.49	6,543.88	234.47	7,394.28	273.00	8,609.33
	Water Balance	35.09	1,106.12	9.69	305.72	(27.25)	(859.33)

source: BCEOM, 1990

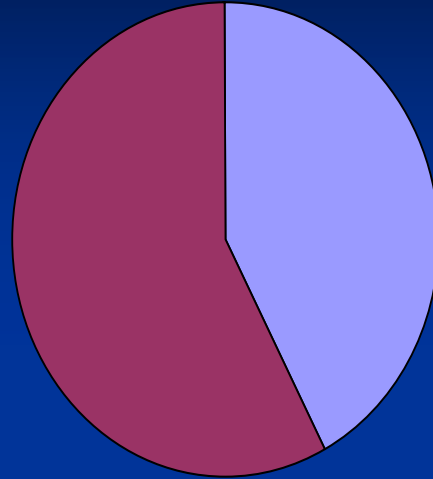


# WATER RESOURCES POTENTIAL IN CITARUM RIVER BASIN

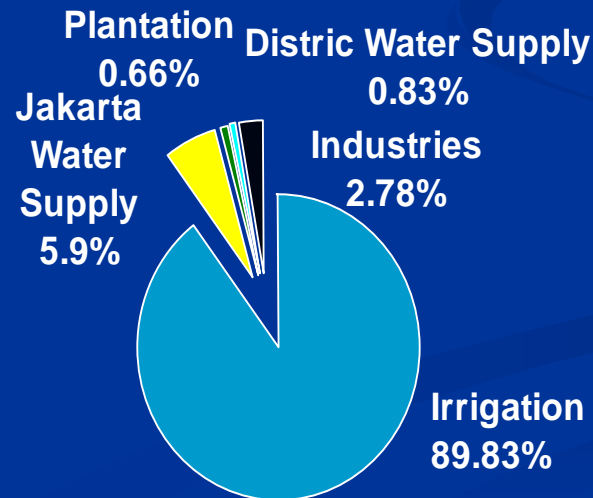
**Total ± 12.95 Billion m<sup>3</sup>/tahun**

Consist of : Citarum River 6 Bm<sup>3</sup>/year and Other rivers 6.95 Bm<sup>3</sup>/year

Regulated 7.65 Bm<sup>3</sup>/year  
equal to 59.07%  
(from Citarum ± 6 Bm<sup>3</sup>/year and  
other rivers ±1.65 Bm<sup>3</sup>/year)



Unregulated  
± 5.3 Bm<sup>3</sup>/year equal to 40.93%  
(wasted to the sea)



# TASKS AND RESPONSIBILITIES OF JASA TIRTA II PUBLIC CORPORATION

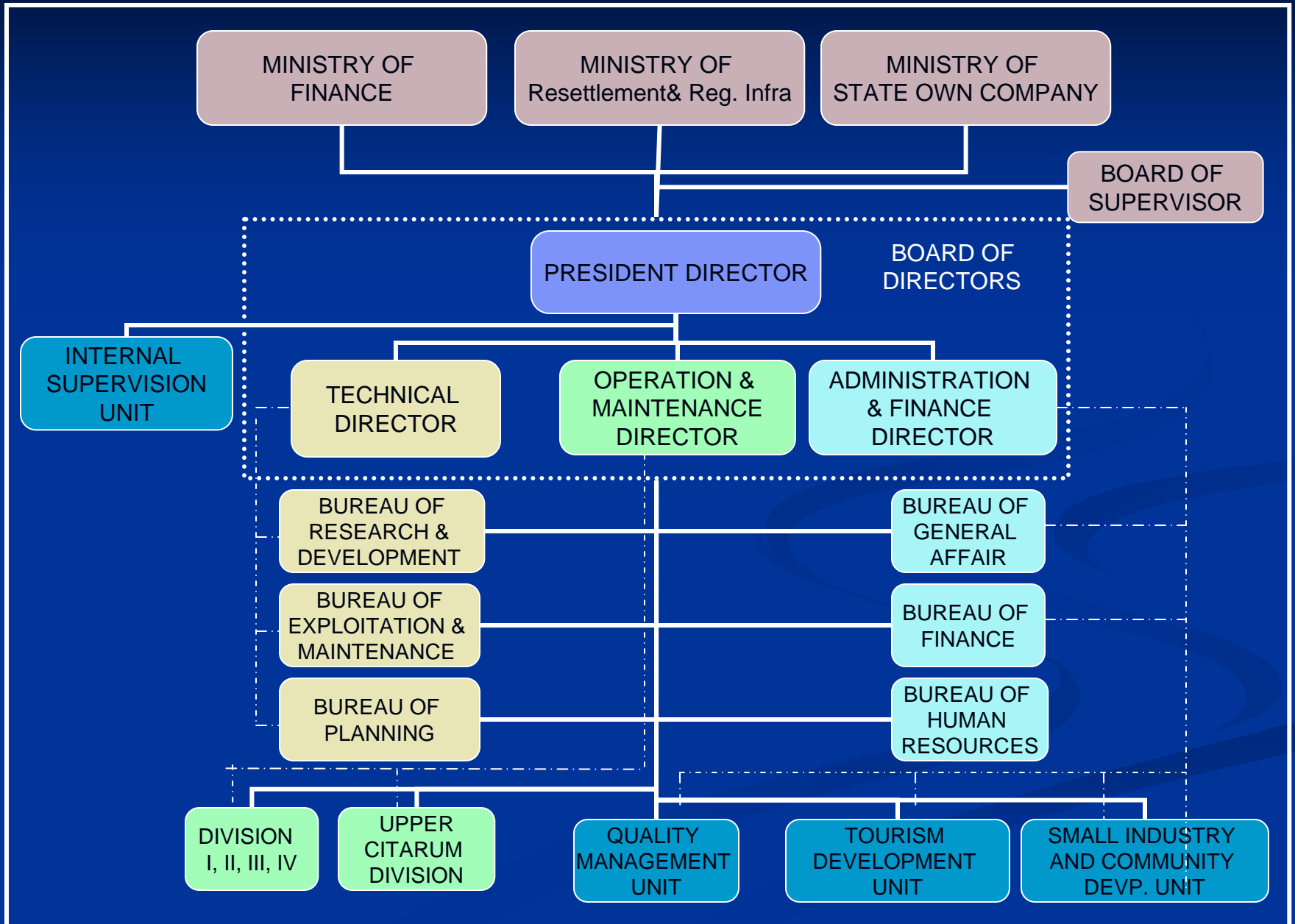
1. Operation and maintenance of water resources infrastructures in the Citarum River Basin and Ir. H. Djuanda hydro-electric power plant.
2. To do business in water resources and hydro-electric power generation.
3. Watershed management includes conservation, development, and utilization of water and water resources in Citarum River Basin.
4. Rehabilitation on water resources infrastructures and hydro-electric power plant as well.

# BENEFIT OF CITARUM WATER RESOURCES DEVELOPMENT

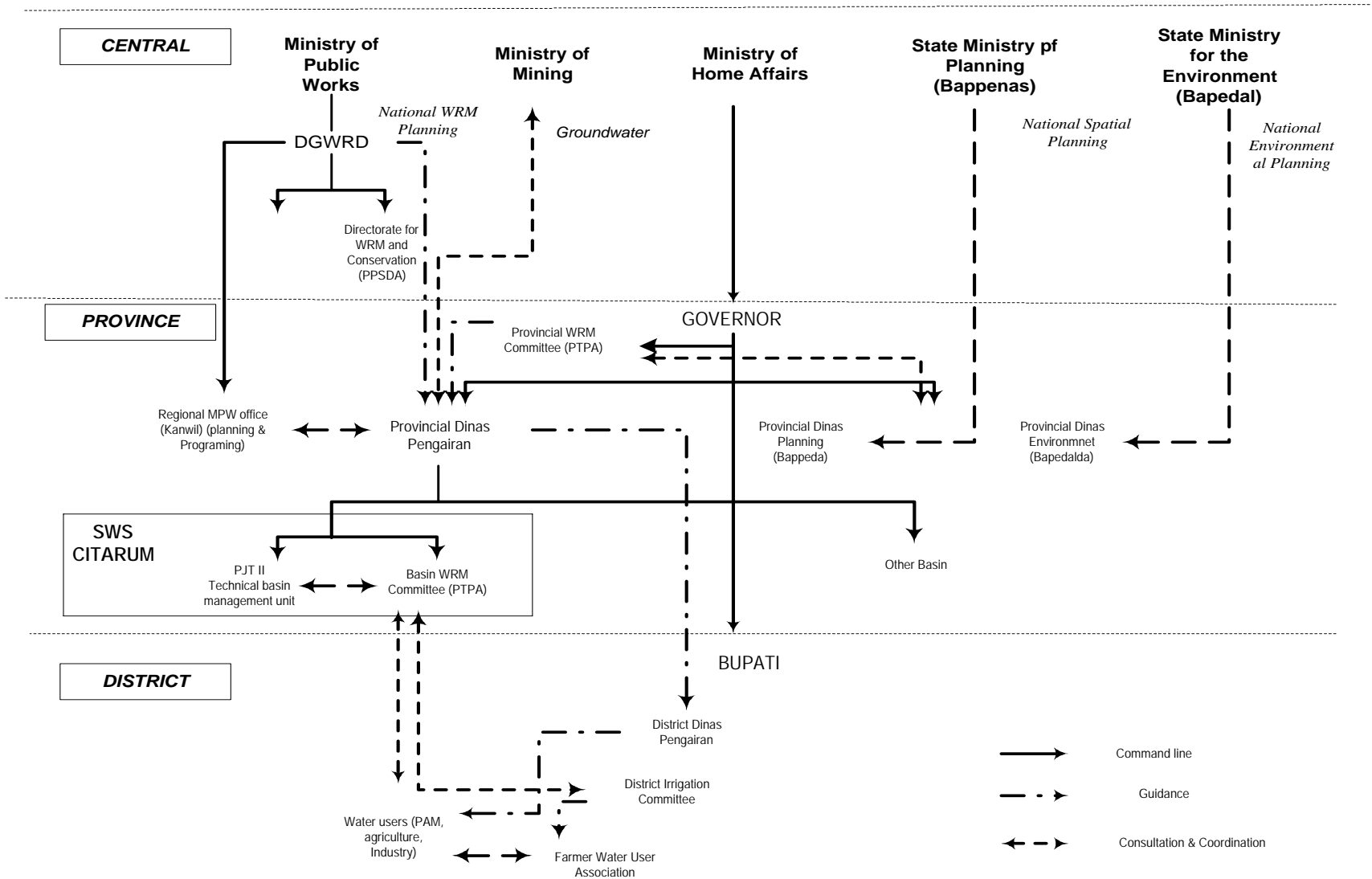
- Flood occurs during rainy season that inundated 20,000 ha of fertile land in the plain could be minimized;
- Technically irrigated of agricultural area of 296,000 ha with two crops annually, produce 3 million of hull equal to Rp 4.50 trillion
- Raw water supply for domestics and municipalities especially for Jakarta, the capital city of Indonesia, 435 million m<sup>3</sup>/year equal to 80% of total requirement; as well as for strategic industries along the north plain area of West Java of about 300 million m<sup>3</sup>/year.
- Hydropower plant with the installed capacity of 150 MW;
- Fresh water as well as brackish water fisheries development in coastal area;
- Beautiful scenery surrounding the reservoir for tourism and water sport



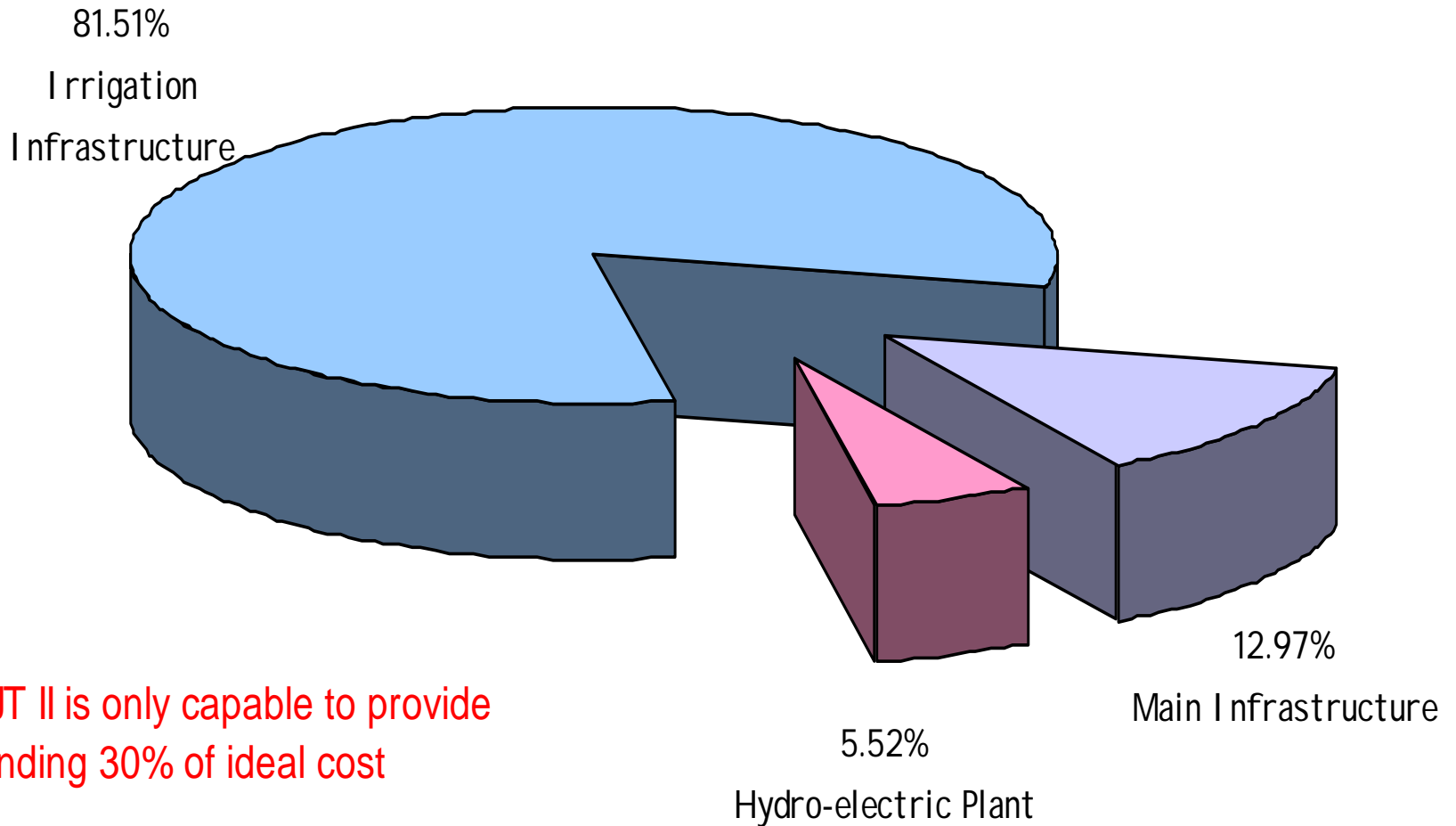
# Organizational Chart Of Jasa Tirta II Public Corporation



# CHART OF RESPONSIBILITY CITARUM RIVER BASIN MANAGEMENT



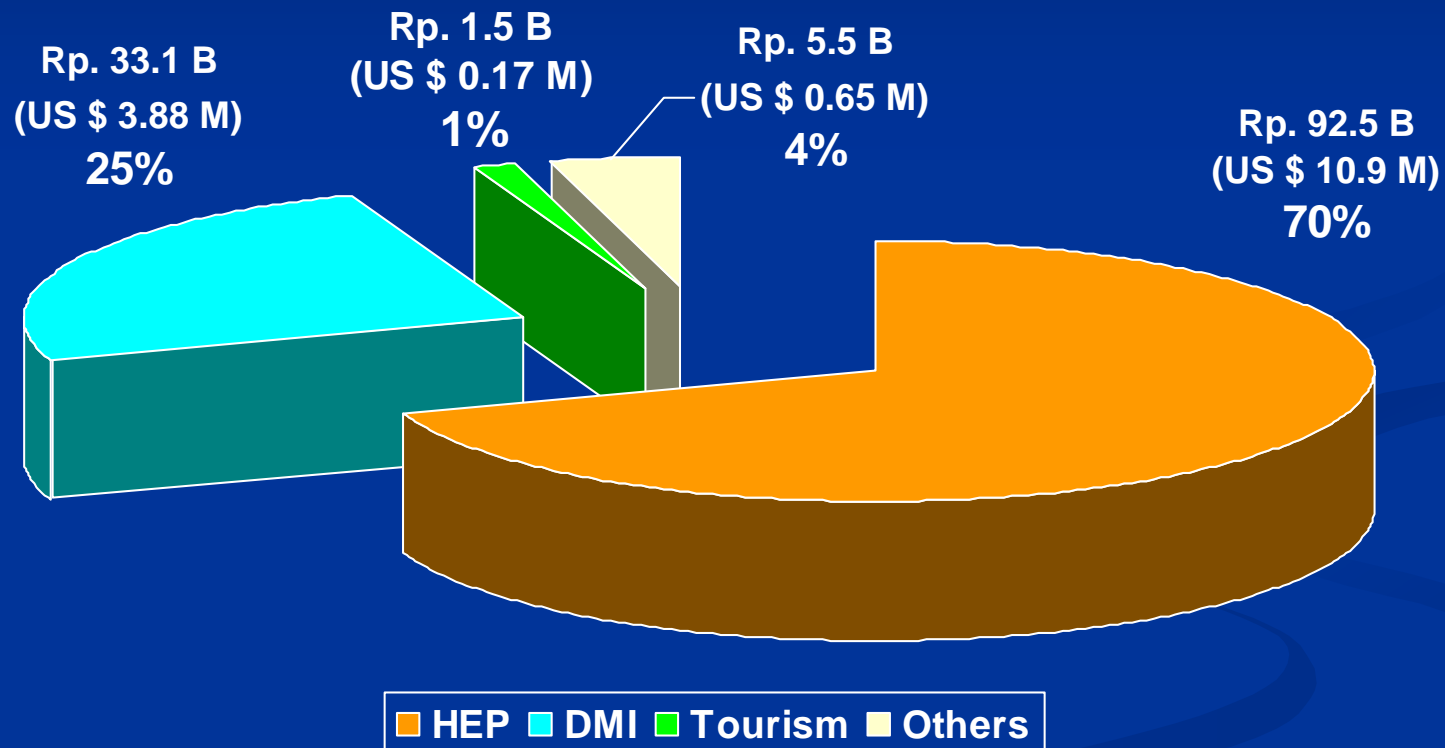
# OPERATION AND MAINTENANCE INFRASTRUCTURES COST (Ideal + US \$ 20.12 million)



PJT II is only capable to provide  
funding 30% of ideal cost

Note: 1 US\$ = Rp. 8,500.00

# REVENUE OF JASA TIRTA II PUBLIC CORPORATION (in 2002)



**Revenue in 2002**  
**Rp. 132.6 Billion**  
equal to USD ±15.6 Million

# PROFIT AND LOSS JASA TIRTA II PUBLIC CORPORATION IN THE YEAR 1992 - 2000

NO	EXPLANATION	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>I</b>	<b>INCOME</b>									
1	ELECTRIC POER	17,200.92	18,579.12	18,633.20	17,798.60	19,317.50	27,569.80	47,486.40	42,999.40	61,897.08
2	RAW WATER	6,398.76	7,584.92	10,394.94	10,053.40	12,219.00	17,483.70	20,488.10	19,190.20	24,311.80
3	TOURISM	636.34	962.80	809.41	687.70	832.90	1,066.40	513.50	729.00	1,268.18
4	OTHER SERVICE	11,060.98	11,134.91	9,901.18	11,584.80	11,991.90	12,352.60	13,083.50	19,567.30	17,388.76
	<b>TOTAL I</b>	<b>35,297.00</b>	<b>38,261.75</b>	<b>39,738.73</b>	<b>40,124.50</b>	<b>44,361.30</b>	<b>58,472.50</b>	<b>81,571.50</b>	<b>82,485.90</b>	<b>104,865.82</b>
<b>II</b>	<b>LOAD</b>									
1	EMPLOYEE	11,333.96	12,016.32	11,638.20	11,597.90	12,149.50	25,908.40	22,336.80	20,093.74	24,738.28
2	UNEMPLOYEE	9,896.38	10,642.50	11,455.59	18,383.70	21,758.80	21,522.40	22,729.00	24,720.60	34,098.68
3	DEPRE.+AMORT.	2,224.84	2,520.00	2,757.70	2,938.00	3,205.50	3,815.00	6,602.20	6,758.28	7,968.62
4	OTHER	5,214.10	6,784.88	6,436.90	3.38	71.43	0.00	15,662.00	21,343.40	17,146.62
	<b>TOTAL II</b>	<b>28,669.28</b>	<b>31,963.70</b>	<b>32,288.39</b>	<b>32,922.98</b>	<b>37,185.23</b>	<b>51,245.80</b>	<b>67,330.00</b>	<b>72,916.02</b>	<b>83,952.20</b>
<b>III</b>	<b>LOSS / PROFIT</b>	<b>6,627.72</b>	<b>6,298.05</b>	<b>7,450.34</b>	<b>7,201.52</b>	<b>7,176.07</b>	<b>7,226.70</b>	<b>14,241.50</b>	<b>9,569.88</b>	<b>20,913.62</b>
<b>IV</b>	<b>TAX</b>	<b>2,610.00</b>	<b>2,466.13</b>	<b>3,075.43</b>	<b>2,074.90</b>	<b>1,842.70</b>	<b>1,851.30</b>	<b>3,575.50</b>	<b>1,315.90</b>	<b>4,019.04</b>
<b>V</b>	<b>NET PROFIT</b>	<b>4,017.72</b>	<b>3,831.92</b>	<b>4,374.91</b>	<b>5,126.62</b>	<b>5,333.37</b>	<b>5,375.40</b>	<b>10,666.00</b>	<b>8,253.98</b>	<b>16,894.58</b>
<b>VI</b>	<b>CORRECTION</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1,570.30</b>	<b>254.70</b>	<b>65.10</b>	<b>74.80</b>	<b>1.10</b>	<b>279.23</b>
<b>VII</b>	<b>END PROFIT</b>	<b>4,017.72</b>	<b>3,831.92</b>	<b>4,374.91</b>	<b>3,556.32</b>	<b>5,078.67</b>	<b>5,310.30</b>	<b>10,591.20</b>	<b>8,252.88</b>	<b>16,615.35</b>



# THANK YOU

*See You Next Time*



JASA TIRTA II PUBLIC CORPORATION  
JATILUHUR  
Purwakarta - West Java

ISO 9001



INDAH KARYA REGISTER  
CERTIFICATION SERVICES  
CERTIFICATE No. : 2701001