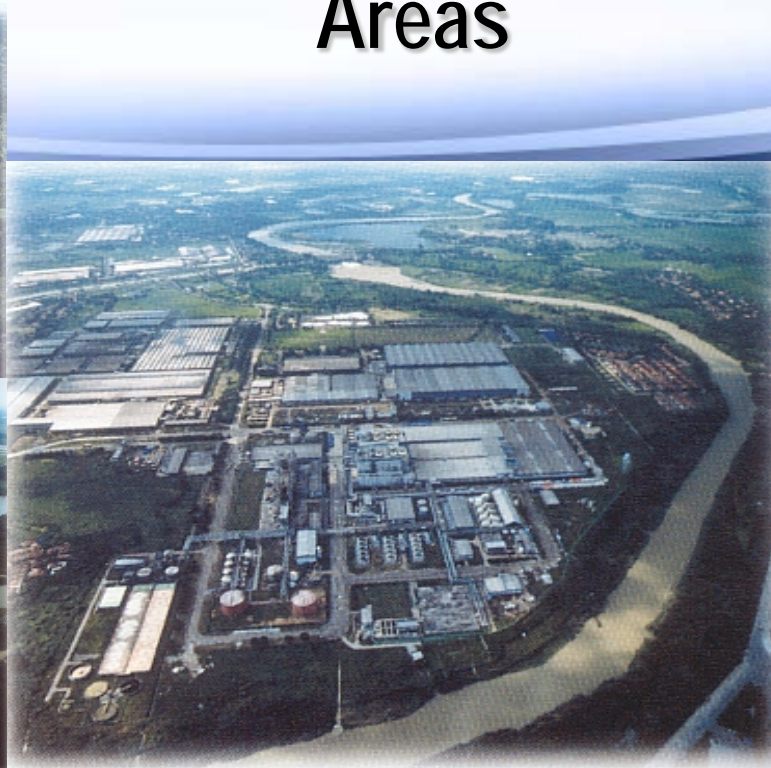


Perum Jasa Tirta II – Jatiluhur  
Jl. Lurah Kawi – 41151 Purwakarta

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# Citarum River Basin Management

## To Support Water Supply Measures for Jakarta and Industrial Areas





# Citarum Water Resources System



- Cascade Reservoirs: Saguling, Cirata and Jatiluhur

- Area: 12,000 km<sup>2</sup>
- Annual rainfall:
  - 2,353 mm/year
  - 80% falls Nov-May
- Citarum River Basin
  - Area: 6,600 km<sup>2</sup>
  - River length: 270 km
- Interconnected basins:
  - Part of Ciliwung-Cisadane
    - Bekasi
    - Cikarang
  - Upper Jatiluhur area
    - Ciherang/Cilamaya
    - Cigadung, Cijengkol, Ciasem
    - Cipunegara
    - Cilalanang

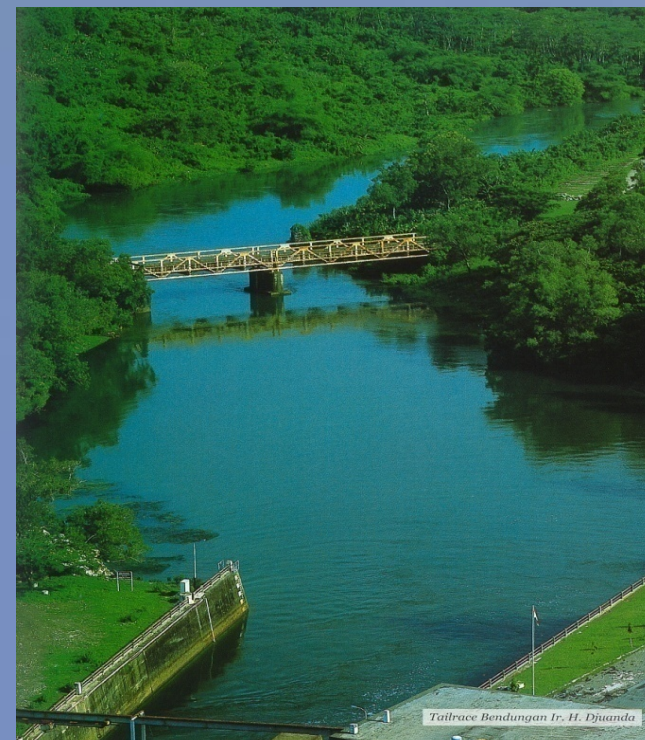


# PJT II - scope of works



1. **EXPLOITATION & MAINTENANCE** of water resources infrastructures and hydro-electric power plants
2. **Utilization** of water resources and hydro-electric power plants

3. **WATERSHED MANAGEMENT**: control, develop, and utilize water resources in Citarum River Basin
4. **REHABILITATION** of water resources infrastructures and hydro-electric power plants as well





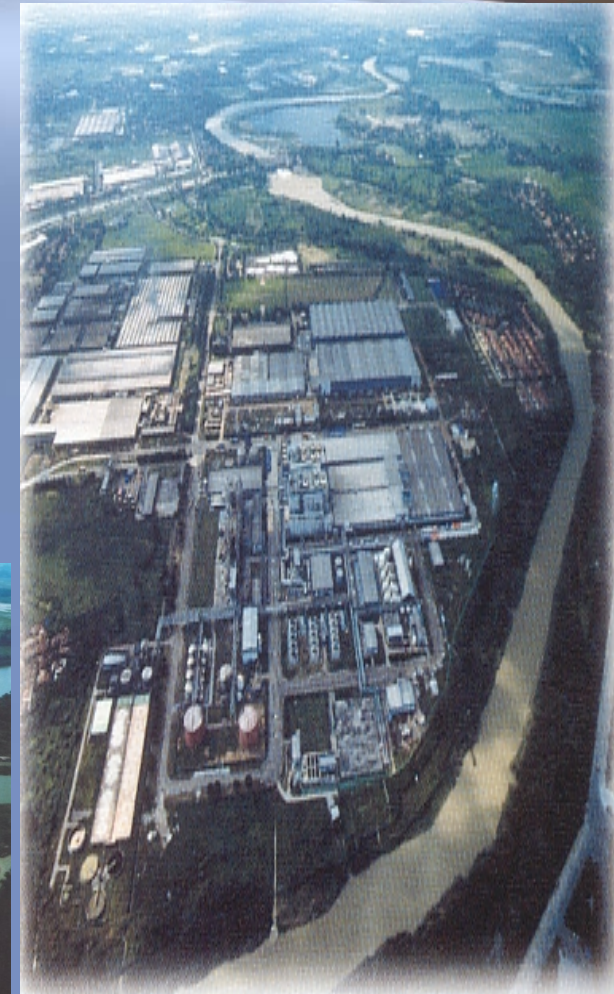


# Citarum river basin status, managed by PJT II



## One of the strategic rivers in Indonesia

- ❑ 80% of raw water supply for Jakarta is relied on CRB,
- ❑ 237,000 ha technically irrigated area within one system,
- ❑ DMI water requirements in 10 Kabupaten/Kota,
- ❑ Hydro-electric power plants (1,800 MW in total),
- ❑ Flood control, etc.





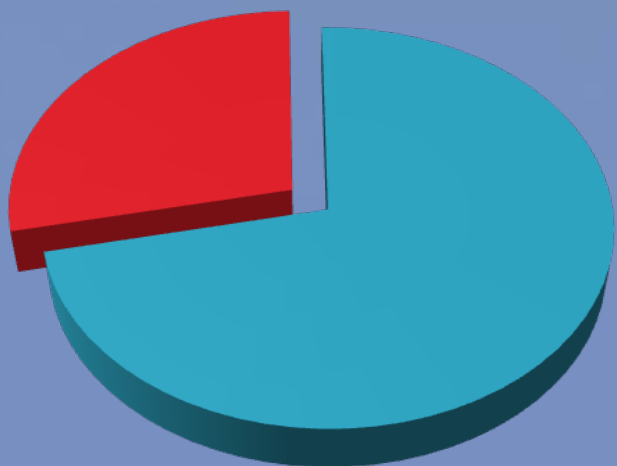
# Water resources potential of CRB

Total ± 12.95 Billion m<sup>3</sup>/year

Citarum : 6.00 Bm<sup>3</sup>/year

Other rivers : 6.95 Bm<sup>3</sup>/year

Unregulated 5.30 x 10<sup>9</sup> m<sup>3</sup>/year  
 Equal to 40.03%

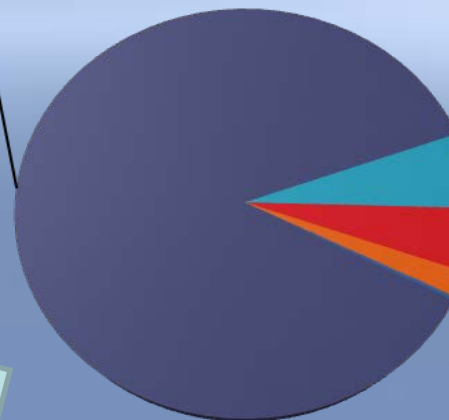


Regulated 7.65 x 10<sup>9</sup> m<sup>3</sup>/year  
 Equal to 59.07%

**From Citarum: 6.00 x 10<sup>9</sup> m<sup>3</sup>/year (all utilized for HEPP)**

From others: 1.65 x 10<sup>9</sup> m<sup>3</sup>/year

Irrigation  
86.7%



Jakarta  
Drinking  
WTP  
6.0%

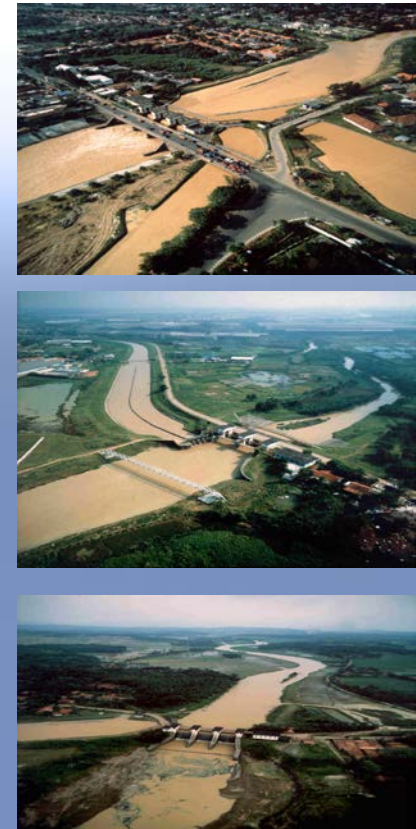
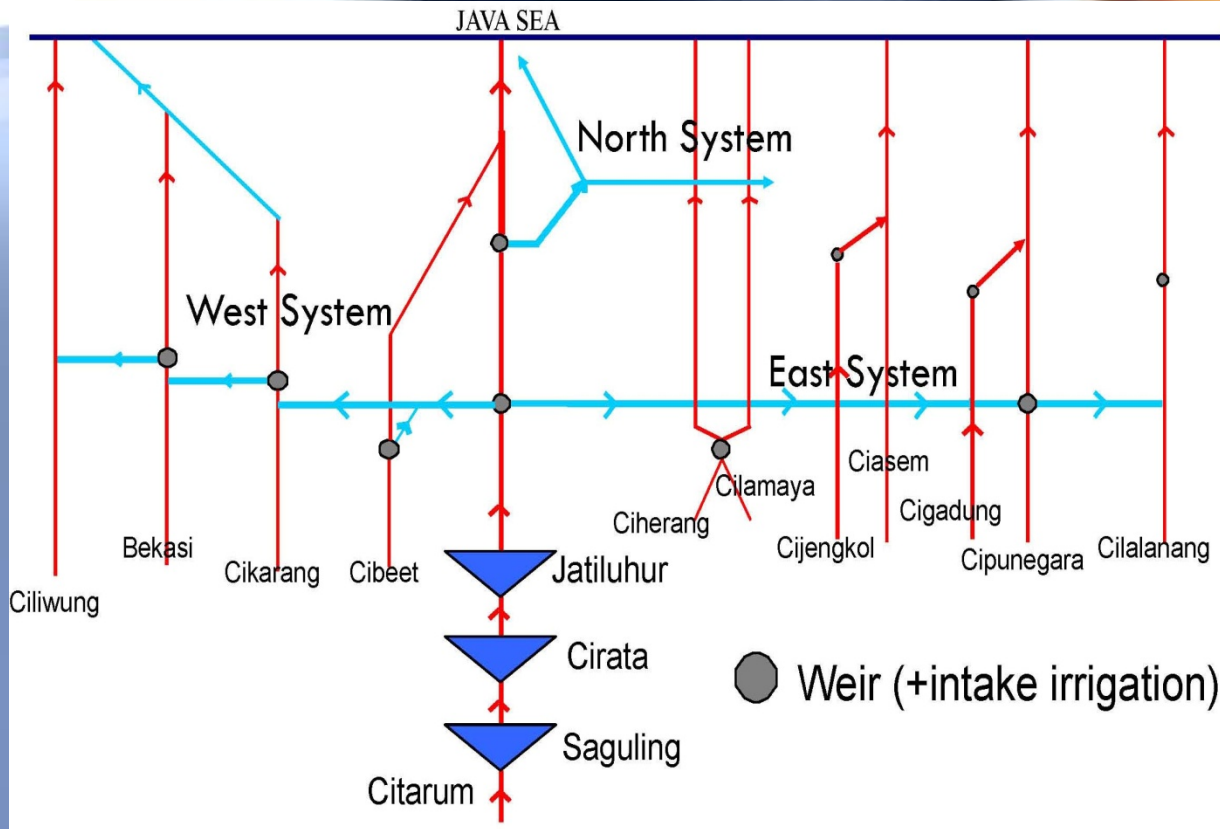
Un-used  
5.0%

Domestic  
and  
Industry  
2.0%

Municipal  
0.3%

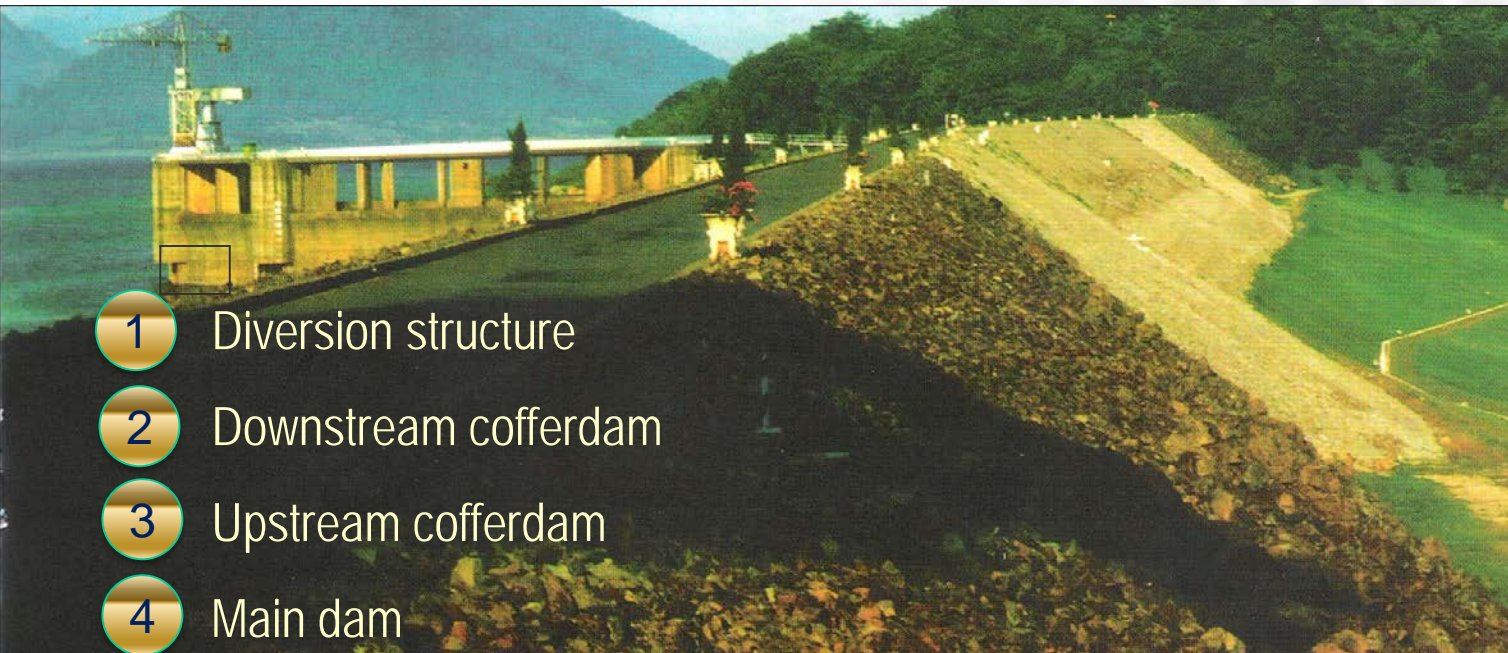


# Infrastructure Development of CRB



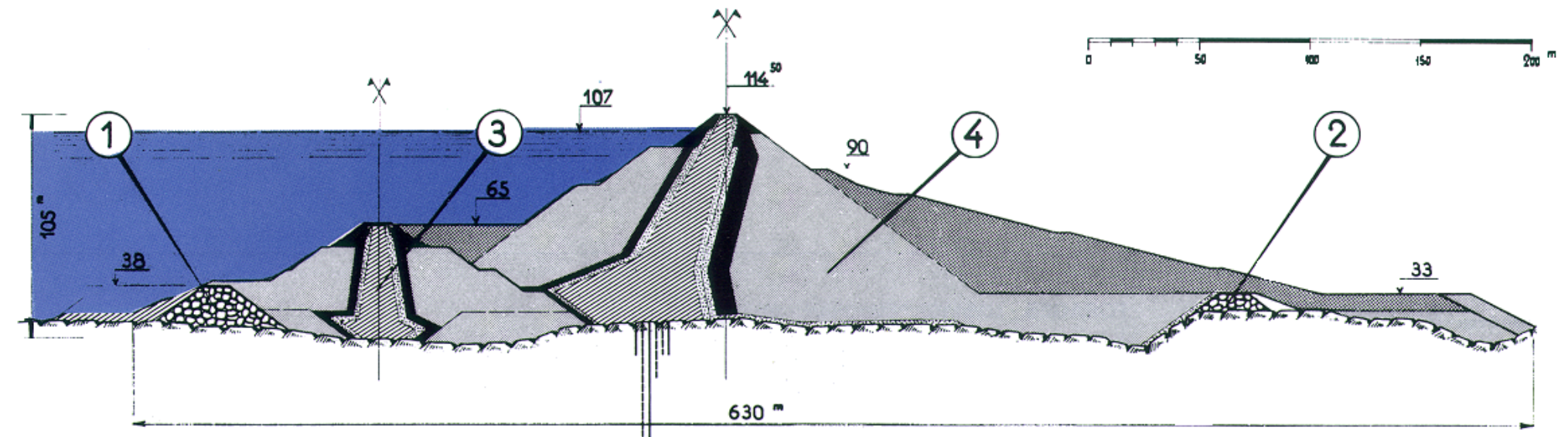


# Ir. H. Djuanda Dam – Jatiluhur, Indonesia



- 1 Diversion structure
- 2 Downstream cofferdam
- 3 Upstream cofferdam
- 4 Main dam

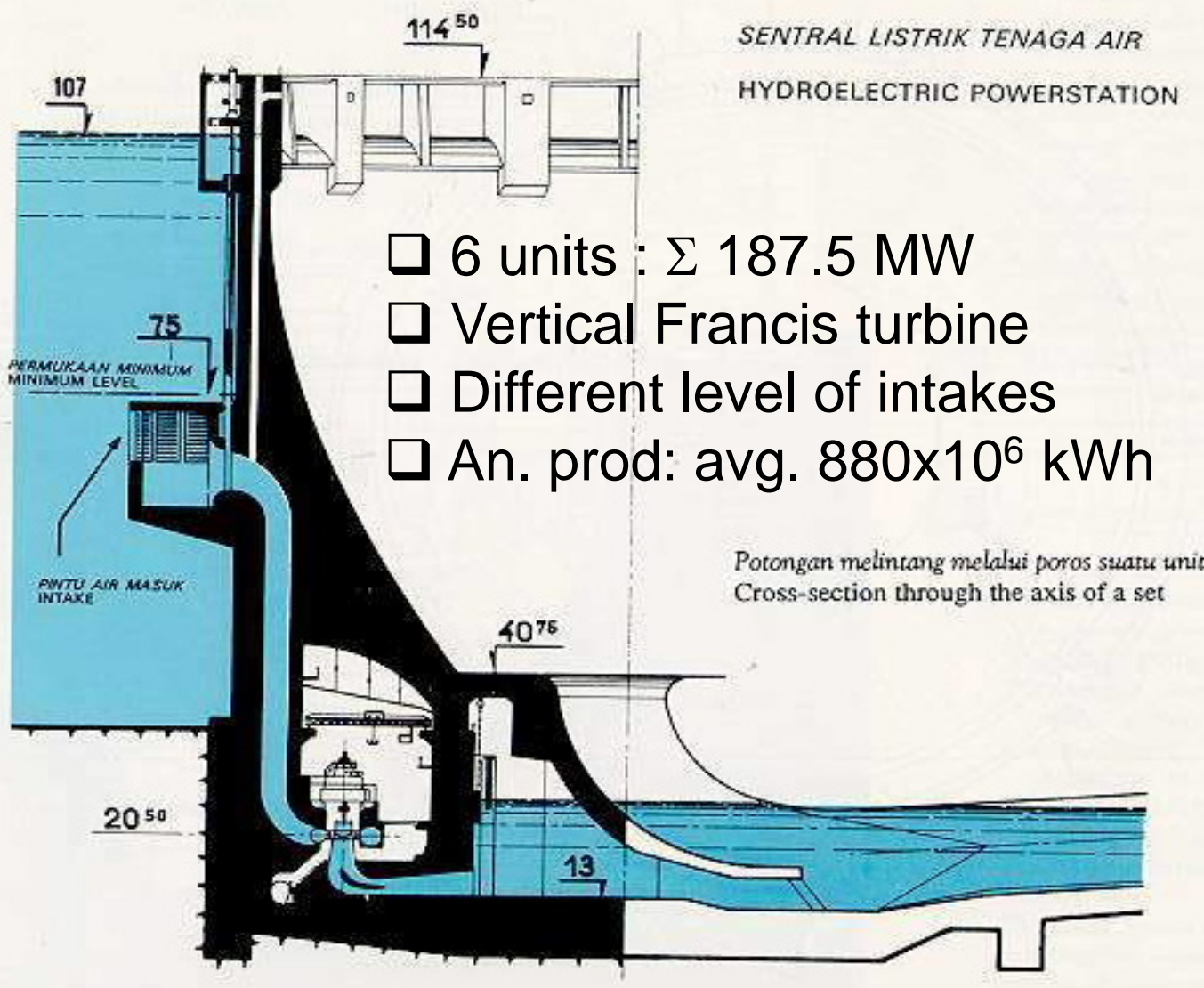
- 105 m height Inclined Core\_Rockfill Dam
- 1,220 m length.
- Embankment volume of  $9.1 \times 10^6$  m<sup>3</sup>.
- An upstream sloping rather thin with highly plastic central clay core, and
- Rockfill shoulders.







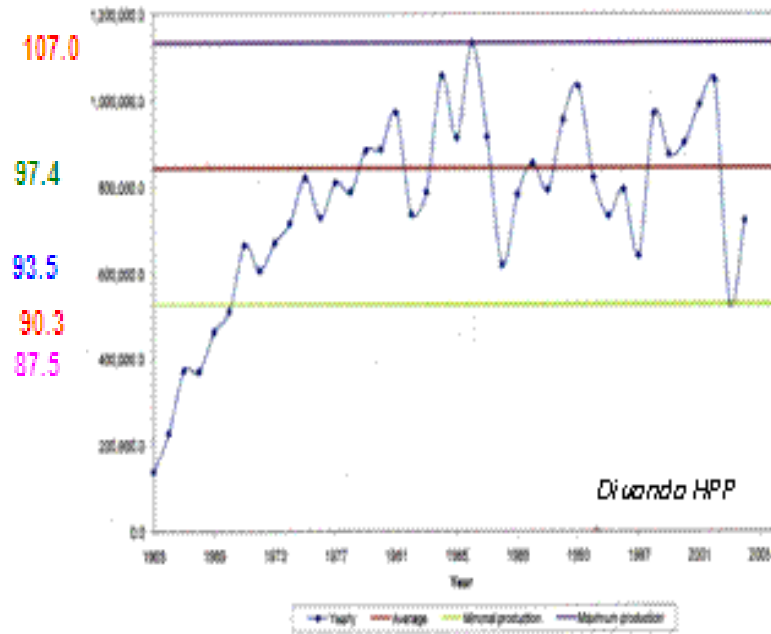
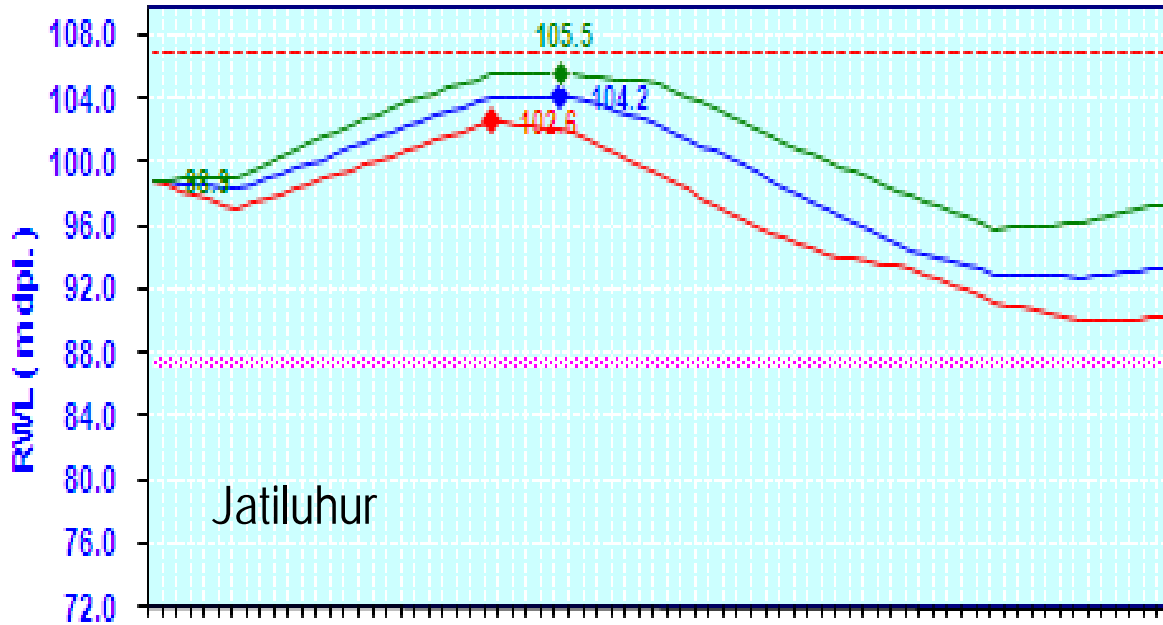
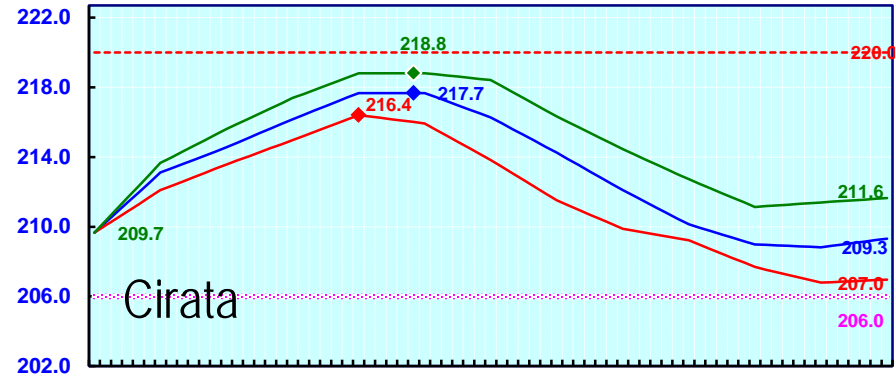
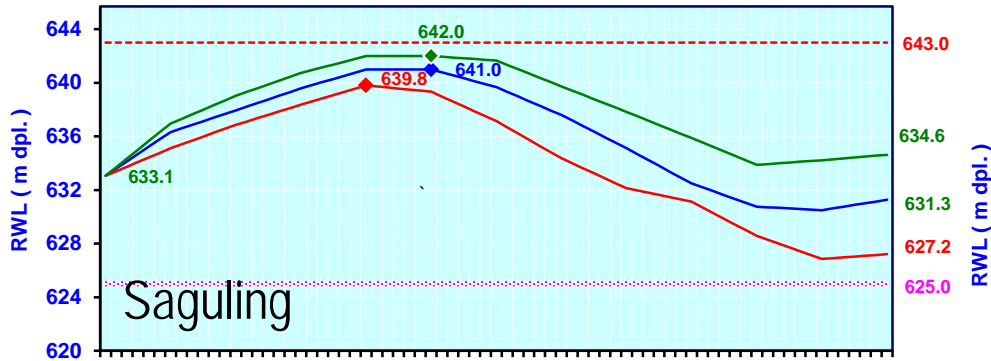
# Circular Hydropower Plant







# Operation Pattern of Citarum Cascade Dams







# Increasing of Jakarta – West Java water demand & fulfillment stages of Jatiluhur

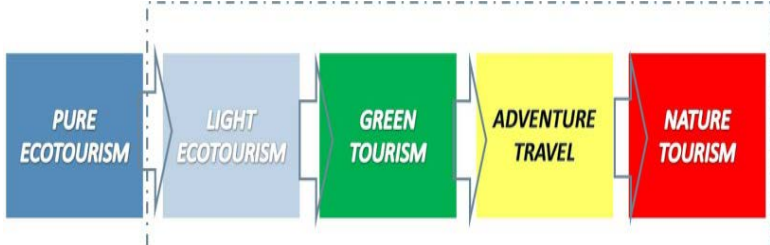
(Source: Draft POLA Pengelolaan SDA 6 Ci)

## Predicted Water Demand (l/sec)







	2015	2020	2025	2030
<b>West Java Province</b>				
Kota Bekasi	1,512	3,364	3,364	3,364
Kabupaten Bekasi	1,095	2,767	2,767	2,767
Kabupaten Karawang	360	1,496	1,606	1,761
<b>DKI Jakarta</b>				
Jakarta	16,941	26,100	27,900	30,100
Total	19,908	33,727	35,637	37,992
Increase on 2010 demand		13,819	15,729	18,084
Staging of Jatiluhur Supply		5,000	10,000	15,000
Remaining Unsatisfied demand		8,819	5,729	3,084

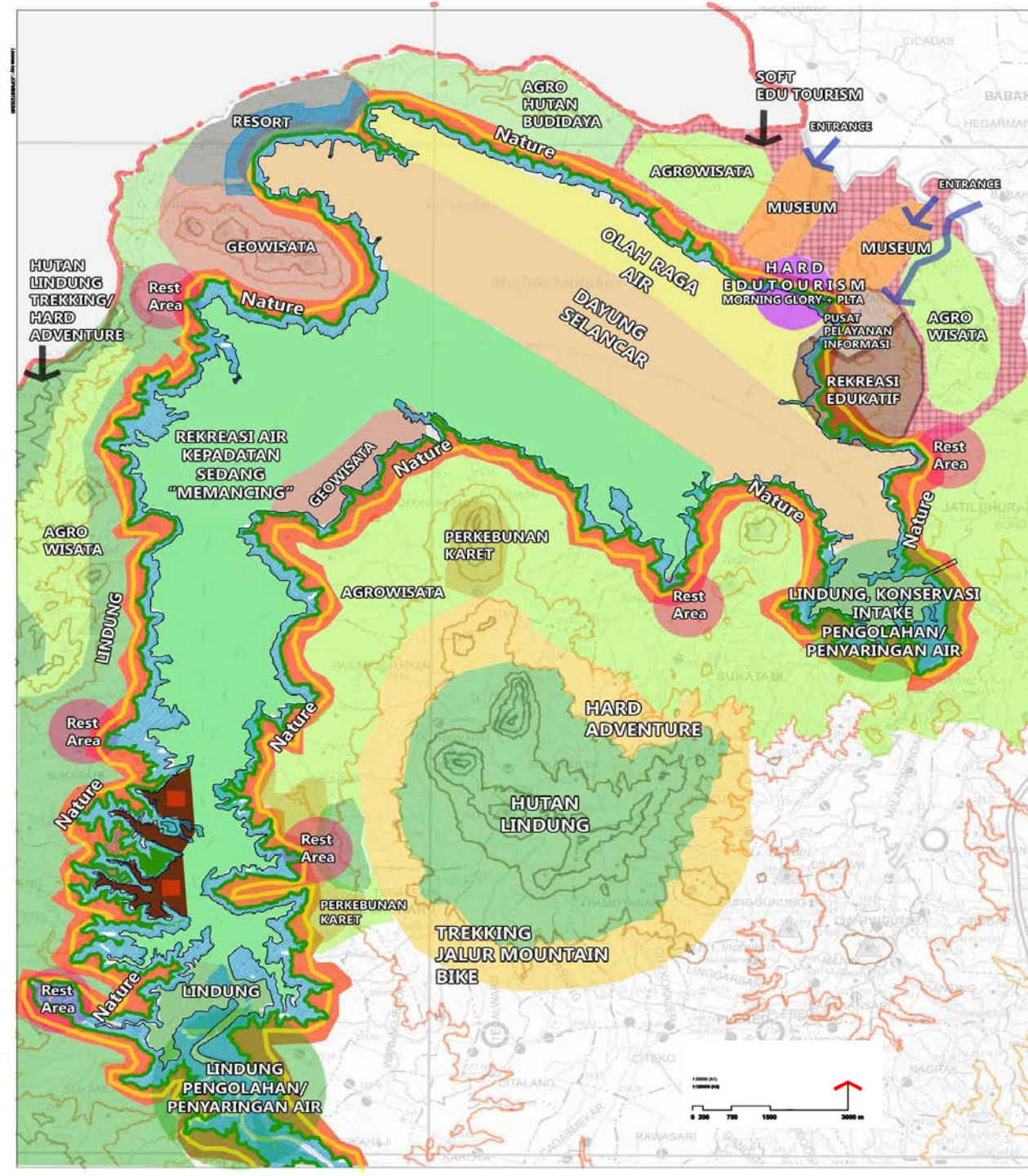


# Reservoir Conservation → Land Use Planning



Keterangan:

-  ZONA PENYANGGA GARIS PANTAI (SEMPADAN/ GREENBELT)
-  ZONA GARIS PANTAI DANAU
-  ZONA AREA PERLINDUNGAN DARATAN PANTAI DANAU
-  ZONA KJA
-  KJA 7,98 ha
-  JALUR HIKING ALAMI (SOFT TOURISM)



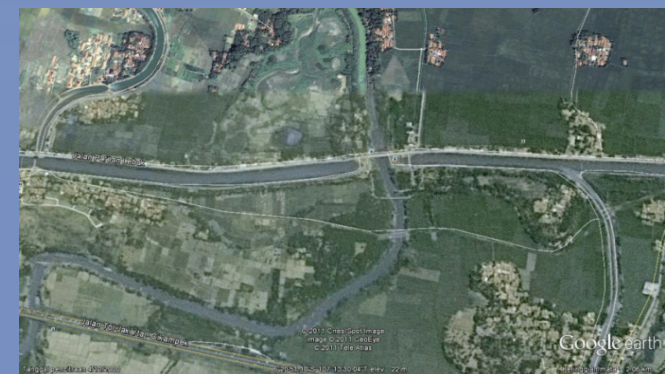




# Strategic work plan of the for drinking water supply

(Ref: JWRMP-1997, ICWRMP-2006, INDII-2010, Draft POLA 6 Ci & RJP PJT II 2010-2014)

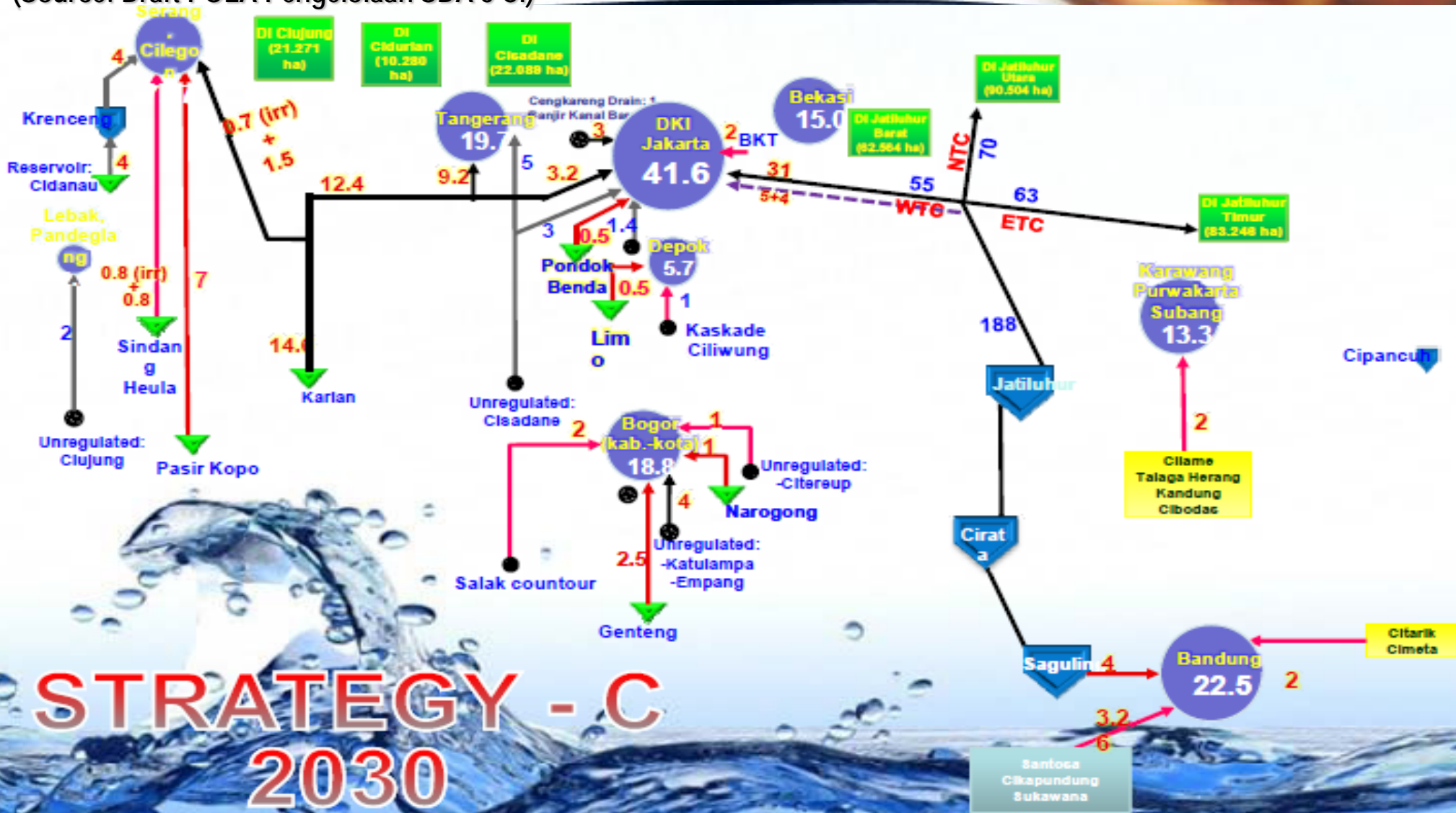
- Development of Bekasi and Cibeeet syphon
- Rehabilitation and dredging of West Tarum Canal
- Bandung *Inter-Basin Transfer*
- Banten-Tangerang *Inter-Basin Transfer*
- Modrenization of Irrigation → efficiency of irrigation water
- improves access society in along West Tarum Canal for clean water and sanitation
- Develop SPAM Jatiluhur 1<sup>st</sup> stage 5000l/sec
- Jatiluhur – Jakarta Pipeline





# Fulfillment water demand strategic until 2030

(Source: Draft POLA Pengelolaan SDA 6 Ci)



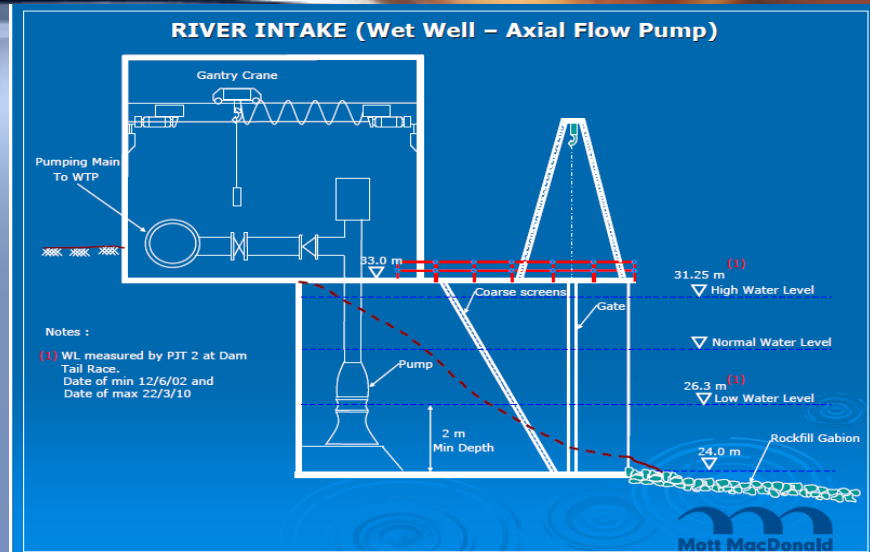
# STRATEGY - C 2030



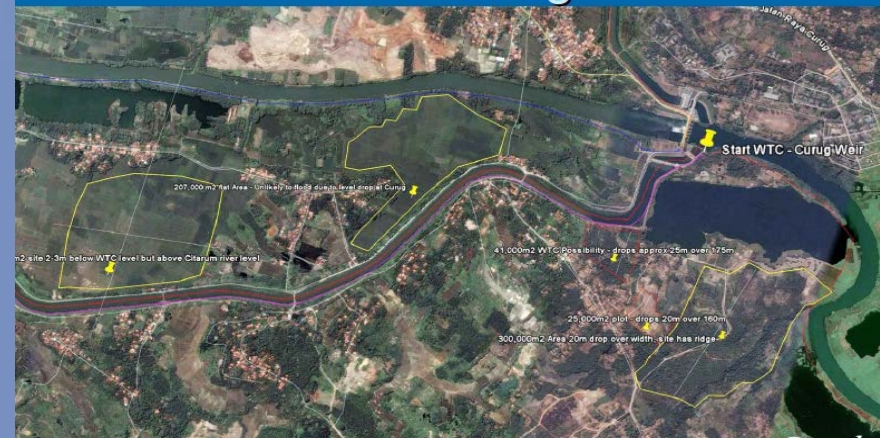


# Jatiluhur – Jakarta Clean water Project summary

- Current water supply of 14,000 l/sec is inadequate for current demand
- Demand predicted to double by 2023 to 30,000 l/sec
- Water security and pollution from West Tarum Canal (WTC) is a concern
- Scheme to provide 15,000 l/sec of treated bulk water over 15 years and 3 stages
- First stage 5000l/sec from Bekasi to Jakarta
- 2 x 5,000 l/sec through 78 km, 1.8m diameter pipe per stage
- Piped supply offers security and quality improvements
- Delivery locations : PDAM Kab. Karawang, PDAM Kab. Bekasi, PDAM Tirta Patriot Kota Bekasi, Aetra (DKI Jaya) and PALYJA (DKI Jaya)



## Water Treatment Plant Site Options near Curug







# Bekasi Water Treatment 5000 l/sec







# Bekasi WTP



## Technical Specifications :

### A. Intake

- Bearer channels ; 2 x 4.450 Liter/detik
- Trash Track (Coarse Screen) ; 2 x 4.450 Liter/detik
- Fine Screen 2 x 4.450 Liter/detik
- Intake Pump 4.450/N x 1,5

### B. Pipes Raw Water transmisi

1 x 4.450 Liter/detik

### C. Water Treatment Plant

- Flash Mix 1 x 4.450 Liter/detik
- Flokulasi 1 x 4.450 Liter/detik
- Sedimentation 1 x 4.450 Liter/detik
- Filter 1 x 4.450 Liter/detik
- Reservoir 1x 3.8000 M<sup>3</sup>

### D. Pump Clean Water Distribution ; 4.450/N x 1,5

### E. Filter Backwash Sistem

- Pompa Backwash 2 Nos
- Blower 2 Nos

### F. Dosing Sistem

- Alum/PAC Dosing 2 Nos
- Alkalinity Dosing 2 Nos





The conveyance of treated water from Bekasi to Jakarta





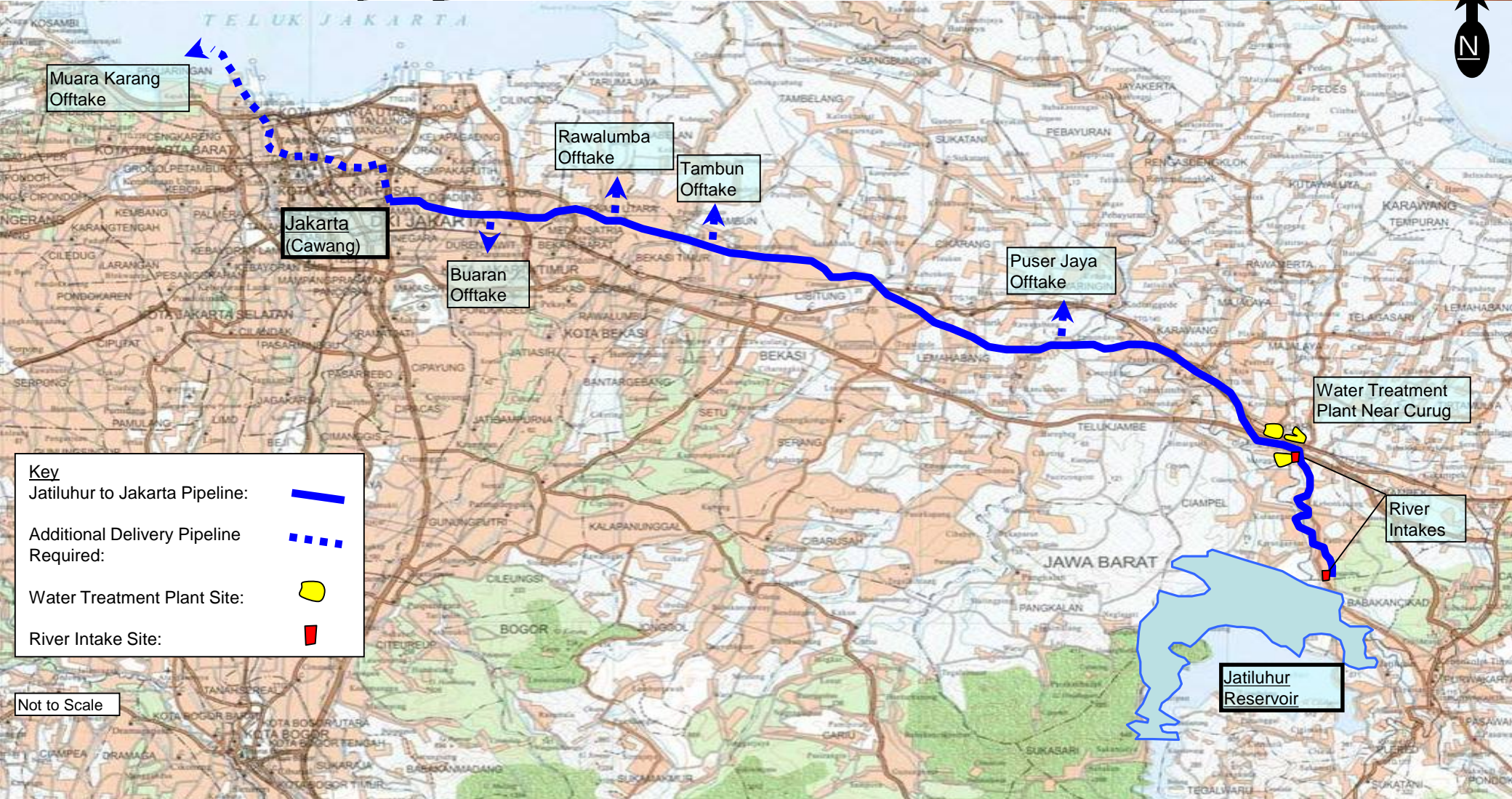
# The conveyance of treated water from Bekasi to Jakarta







# Overview of project



**Key**

- Jatiluhur to Jakarta Pipeline:
- Additional Delivery Pipeline Required:
- Water Treatment Plant Site:
- River Intake Site:

Not to Scale

The conveyance of treated water from Jatiluhur reservoir to Jakarta



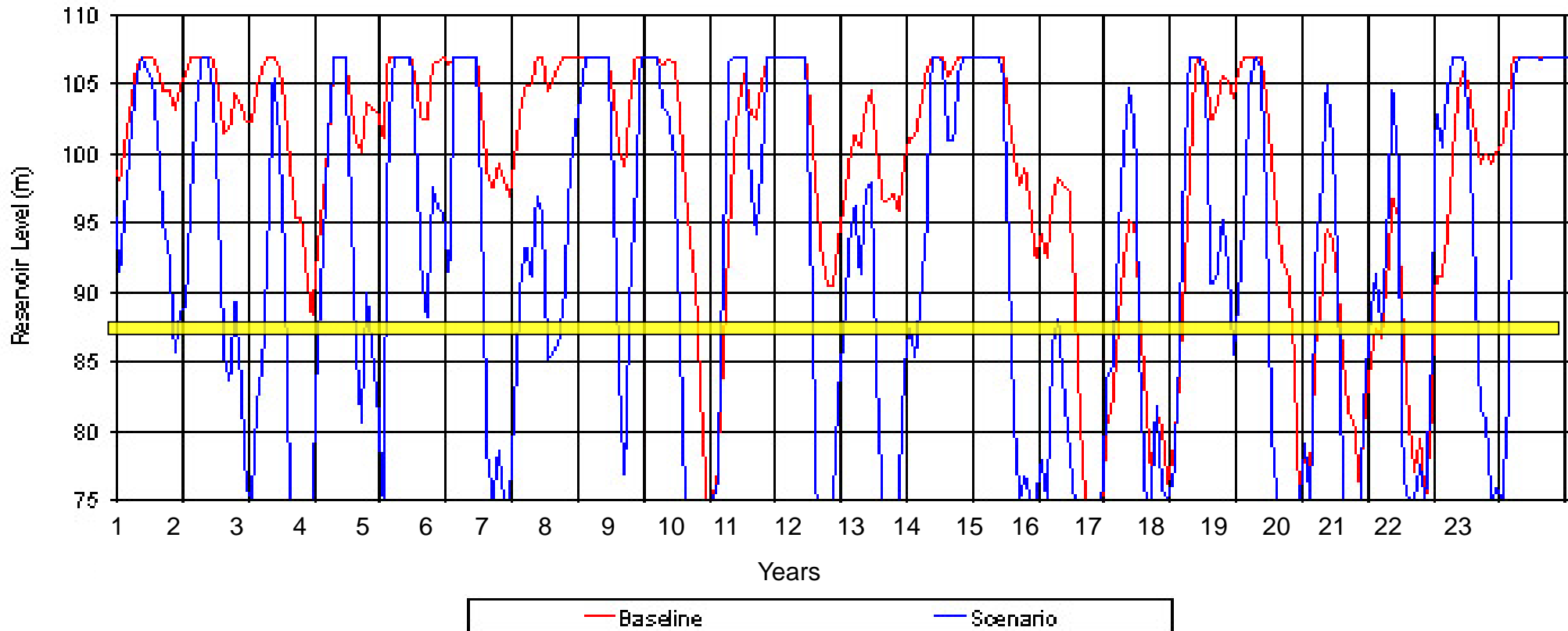


Jakarta existing water storage & required scheme delivery points





## Reservoir levels over 20 year period assuming 2040 conditions



- Planned supplies of 5m<sup>3</sup>/sec to Bandung and 15m<sup>3</sup>/sec to West Java & DKI
- By 2040 supply failures every 2 in 3 years
- Below 87.5m level 40% of months
- Max period below 87.5m level is 10 months

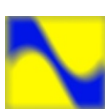


# Indicative project costs



<u>Element</u>	<u>Capex</u>
Transmission system from Jatiluhur to Buaran	US \$ 229m
Transmission system from Buaran to PALYJA at Muara Karang	US \$ 57m
Transmission system from Buaran to Aetra (provisional sum)	US \$ 43m
Raw water intakes (2nr)	US \$ 24m
Water treatment plant (WTP) – process	US \$ 85m
WTP - waste treatment and disposal	US \$ 6m
WTP – general site requirement	US \$ 6m
Minor items	US \$ 1m
<hr/>	
<b><u>SUB TOTAL base construction costs</u></b>	<b>US \$ 451m</b>
Engineering contingencies	US \$ 68m
Construction preliminaries	US \$ 89m
Detailed design fee	US \$ 23m
Construction management contractor fee	US \$ 32m
<hr/>	
<b><u>SUB TOTAL project on costs</u></b>	<b>US \$ 212m</b>
<hr/>	
<b><u>TOTAL project costs</u></b>	<b>US \$ 663m</b>

**EXCLUSIONS: Taxes/fees/permits; investors costs; scheme risk & project contingencies; land acquisition; resettlement compensation; outturn cost factor; Phases 2 and 3.**



## Indicative timetable

- **Pre-feasibility study completion** 31 March 12
- **Pre-feasibility study acceptance** end June 12
- **Release of EOI** end July 12
- **EOI response** end Sept 12
- **EOI short listing** end Oct 12
- **RFT/draft contract release** Feb 13
- **RFT/draft contract response** Oct 13
- **RFT evaluation** Nov 13
- **Contract execution/financial close** Feb 14
- **Construction commencement** Mar 14
- **Construction completion** Dec 15





Perum Jasa Tirta II – Jatiluhur  
Jl. Lurah Kawi – 41151 Purwakarta

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Contact:

[www.jasatirta2.co.id](http://www.jasatirta2.co.id)

Ph.+62 264 201972

Fax. +62 264 201971



**Thank you for listening**