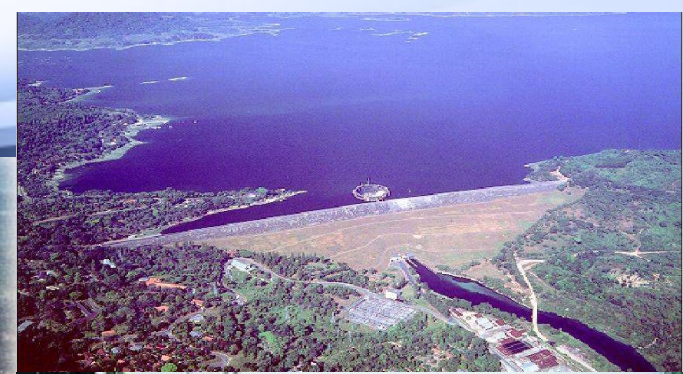
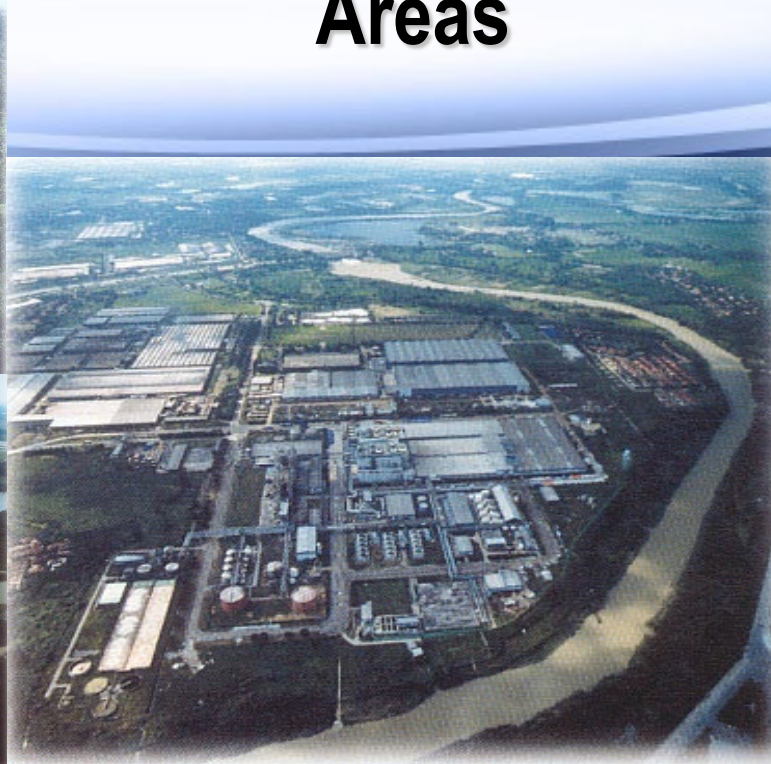


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Citarum River Basin Management

To Support Water Supply Measures for Jakarta and Industrial Areas



Citarum Water Resources System



- Cascade Reservoirs: Saguling, Cirata and Jatiluhur

- Area: 12,000 km²
- Annual rainfall:
 - 2,353 mm/year
 - 80% falls Nov-May
- Citarum River Basin
 - Area: 6,600 km²
 - River length: 270 km
- Interconnected basins:
 - Part of Ciliwung-Cisadane
 - Bekasi
 - Cikarang
 - Upper Jatiluhur area
 - Ciherang/Cilamaya
 - Cigadung, Cijengkol, Ciasem
 - Cipunegara
 - Cilalanang

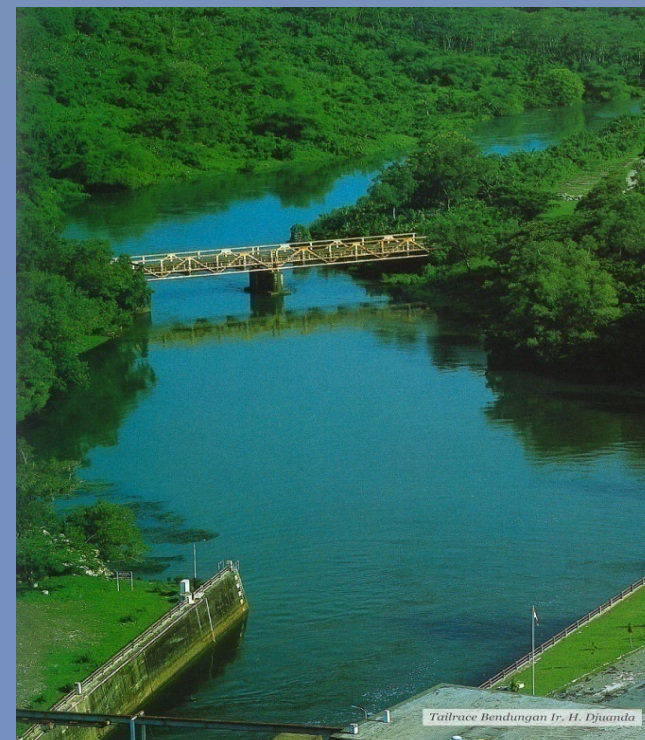


PJT II - scope of works



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.





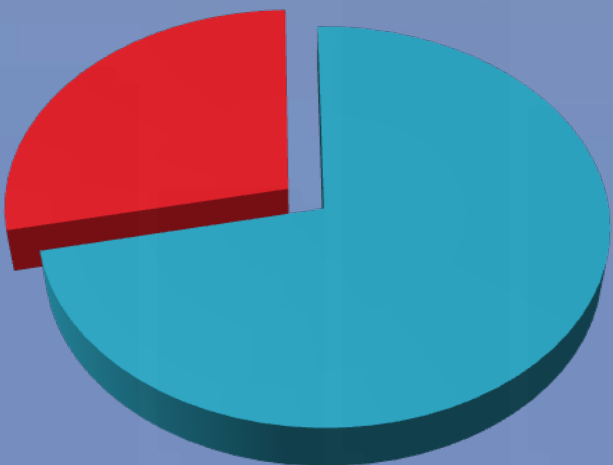
Water resources potential of CRB

Total ± 12.95 Billion m^3 /year

Citarum : 6.00 Bm^3 /year

Other rivers : 6.95 Bm^3 /year

Unregulated $5.30 \times 10^9 m^3$ /year
 Equal to 40.03%

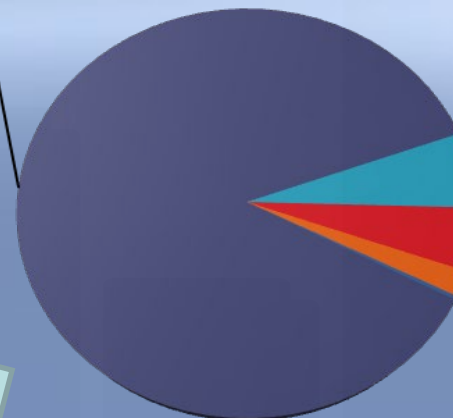


Regulated $7.65 \times 10^9 m^3$ /year
 Equal to 59.07%

From Citarum: $6.00 \times 10^9 m^3$ /year (all utilized for HEPP)

From others: $1.65 \times 10^9 m^3$ /year

Irrigation
86.7%



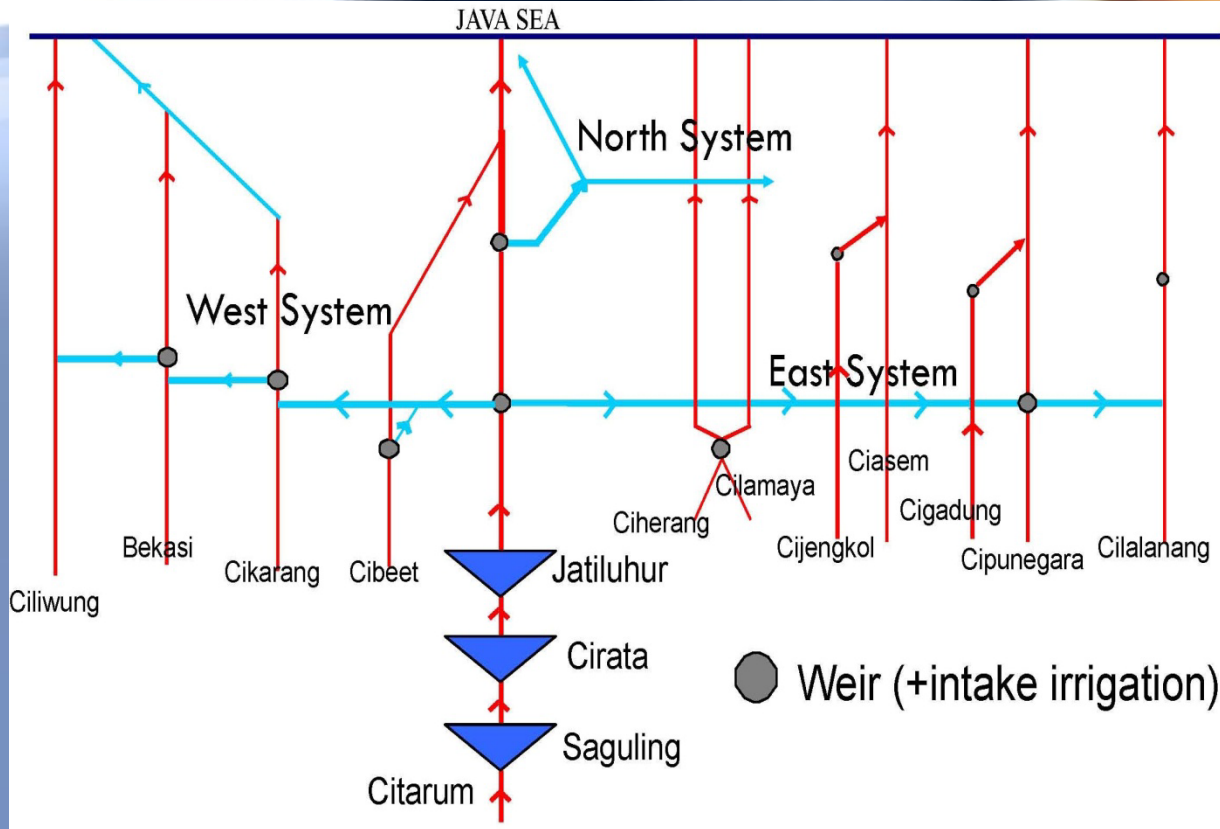
Jakarta
Drinking
WTP
6.0%

Un-used
5.0%

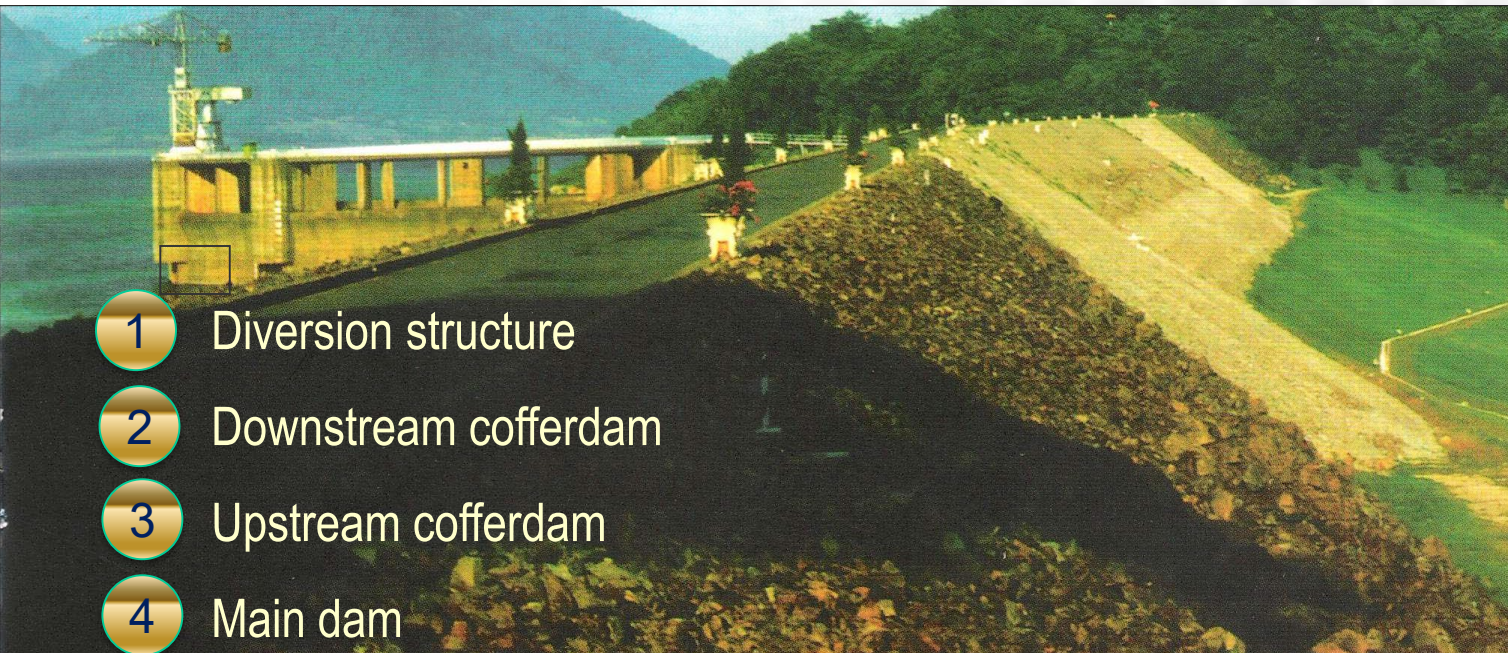
Domestic
and
Industry
2.0%

Municipal
0.3%

Infrastructure Development of CRB

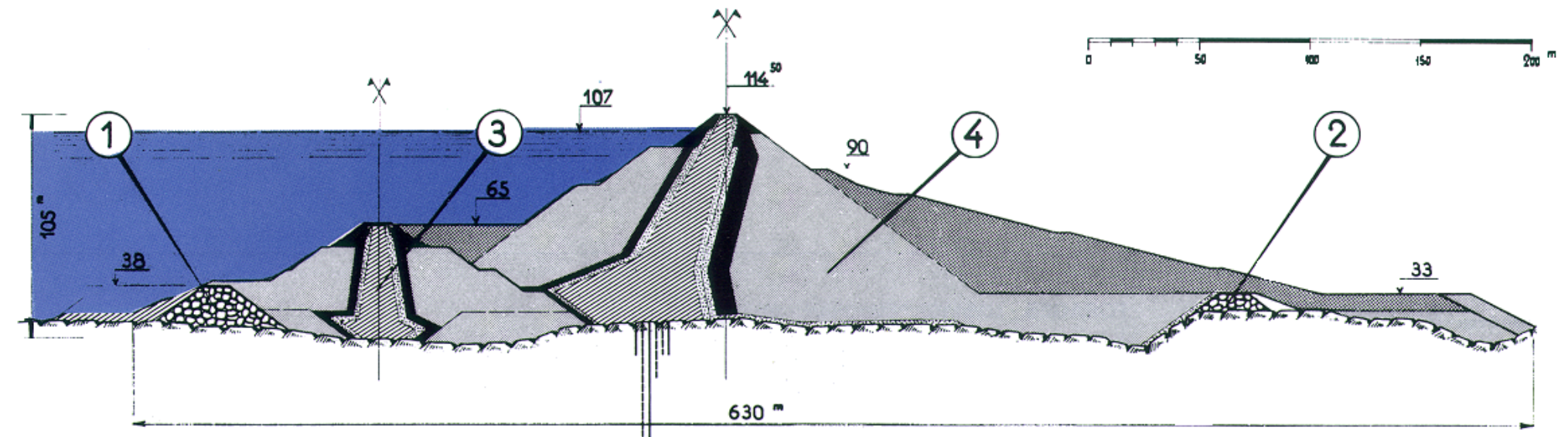


Ir. H. Djuanda Dam – Jatiluhur, Indonesia



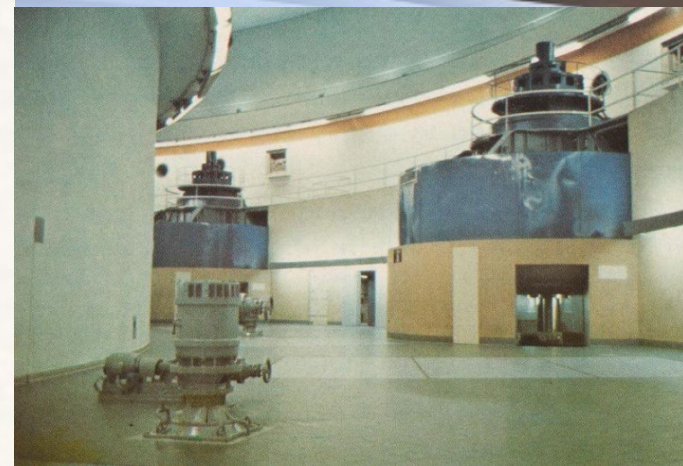
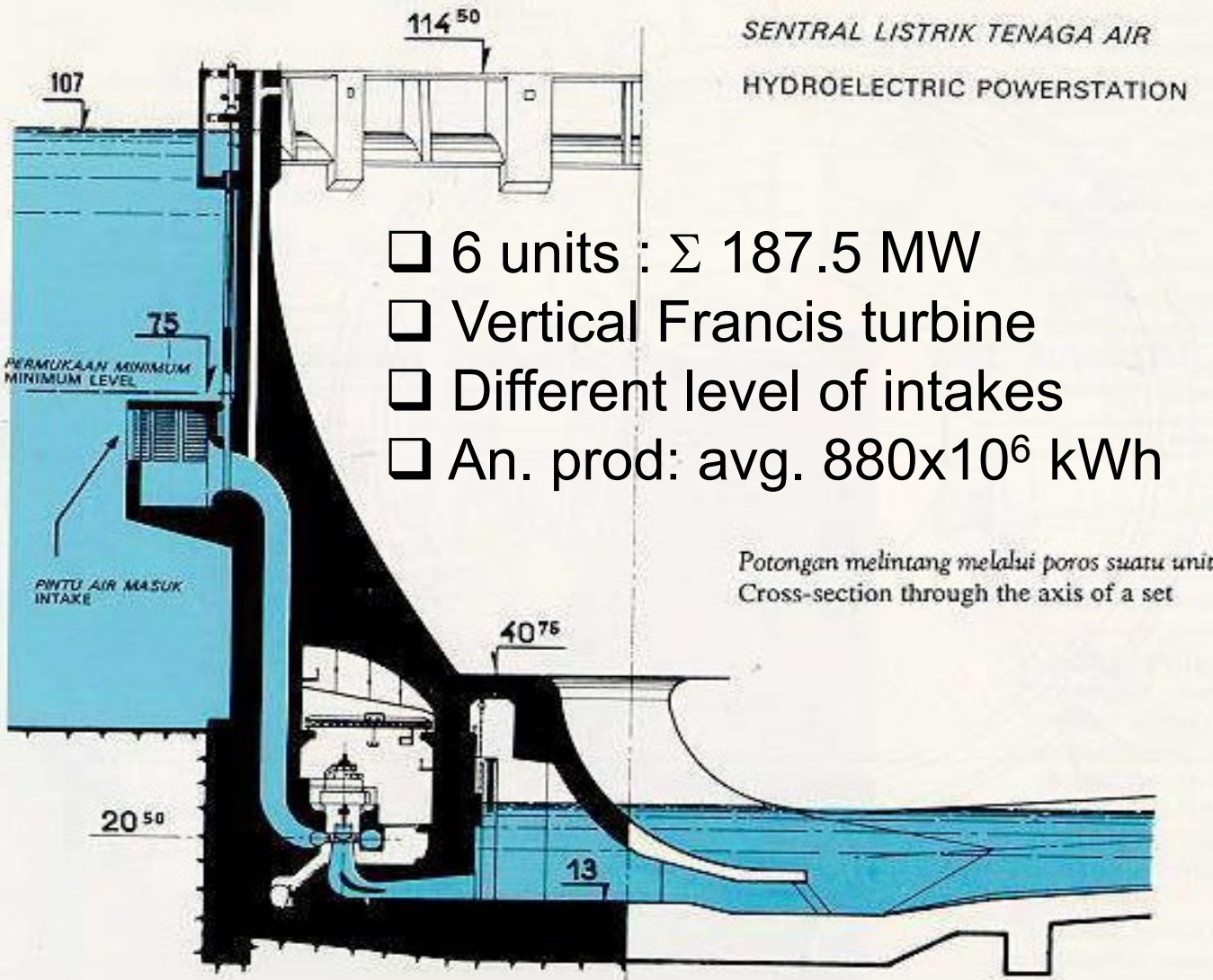
- 1 Diversion structure
- 2 Downstream cofferdam
- 3 Upstream cofferdam
- 4 Main dam

- 105 m height Inclined Core_Rockfill Dam
- 1,220 m length.
- Embankment volume of 9.1×10^6 m³.
- An upstream sloping rather thin with highly plastic central clay core, and
- Rockfill shoulders.



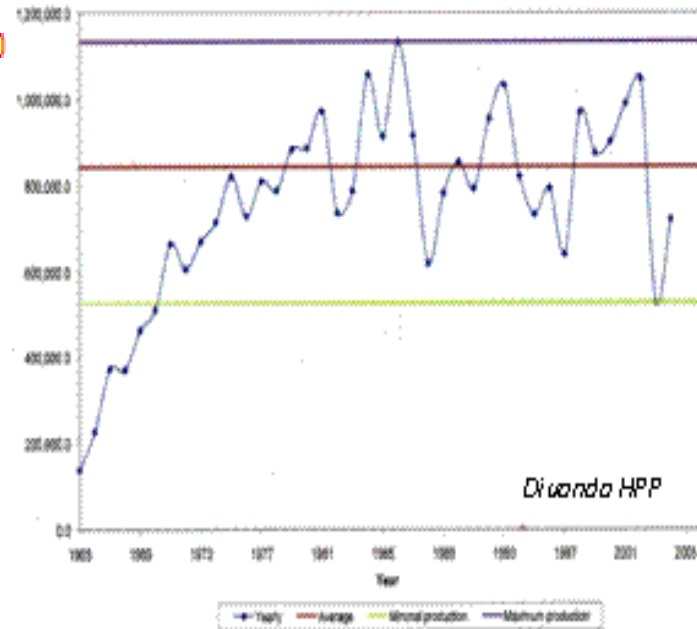
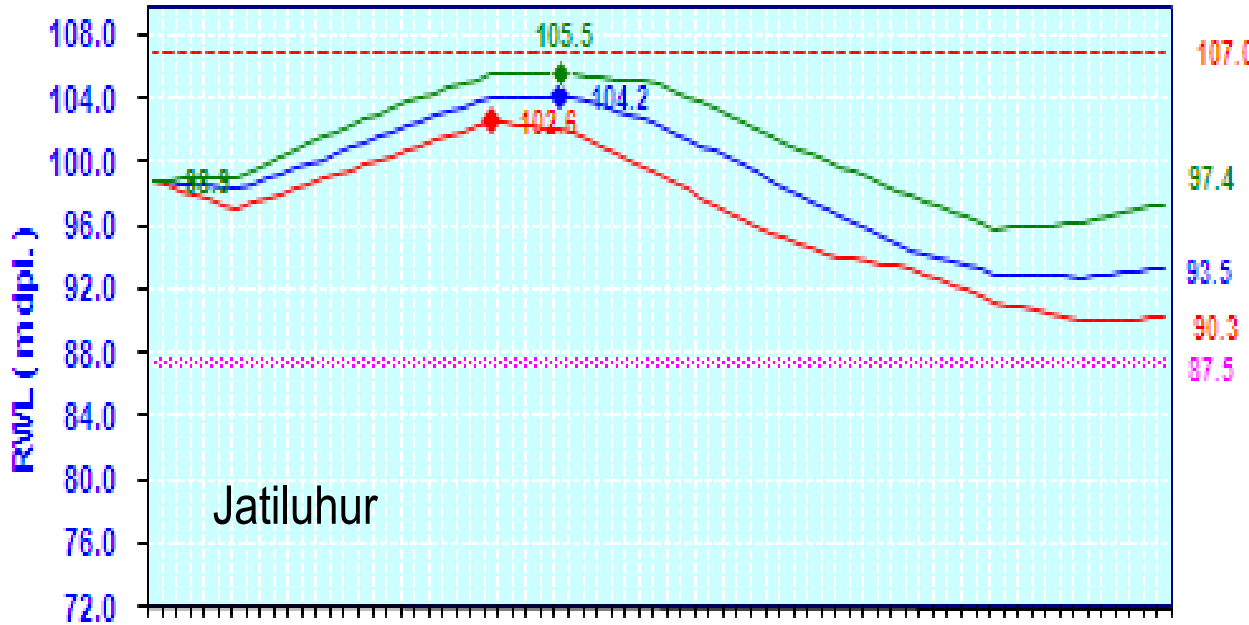
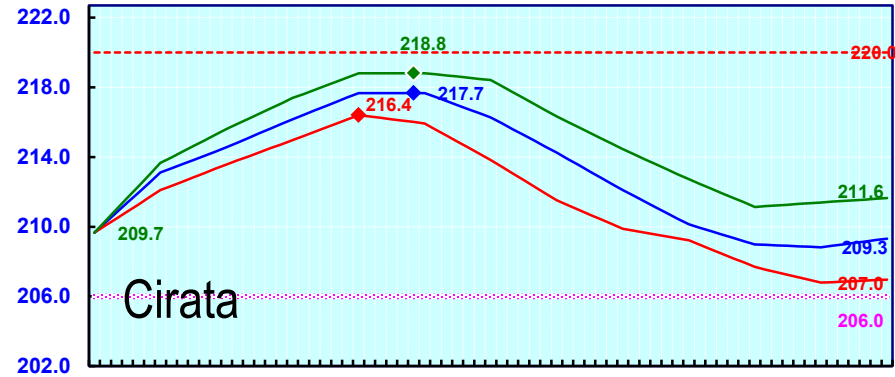
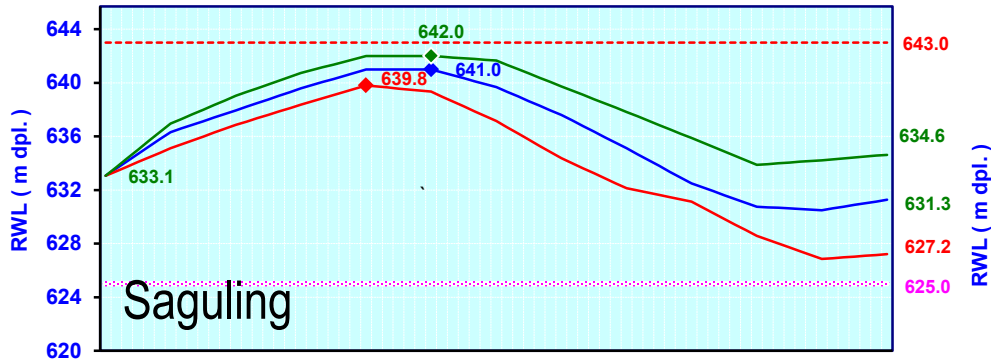


Circular Hydropower Plant





Operation Pattern of Citarum Cascade Dams





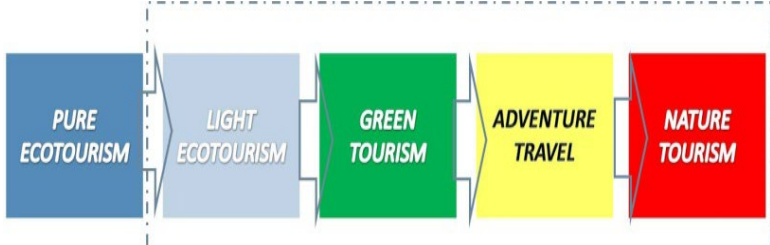
Increasing of Jakarta – West Java water demand & fulfillment stages of Jatiluhur

(Source: Draft POLA Pengelolaan SDA 6 Ci)







Predicted Water Demand (l/sec)

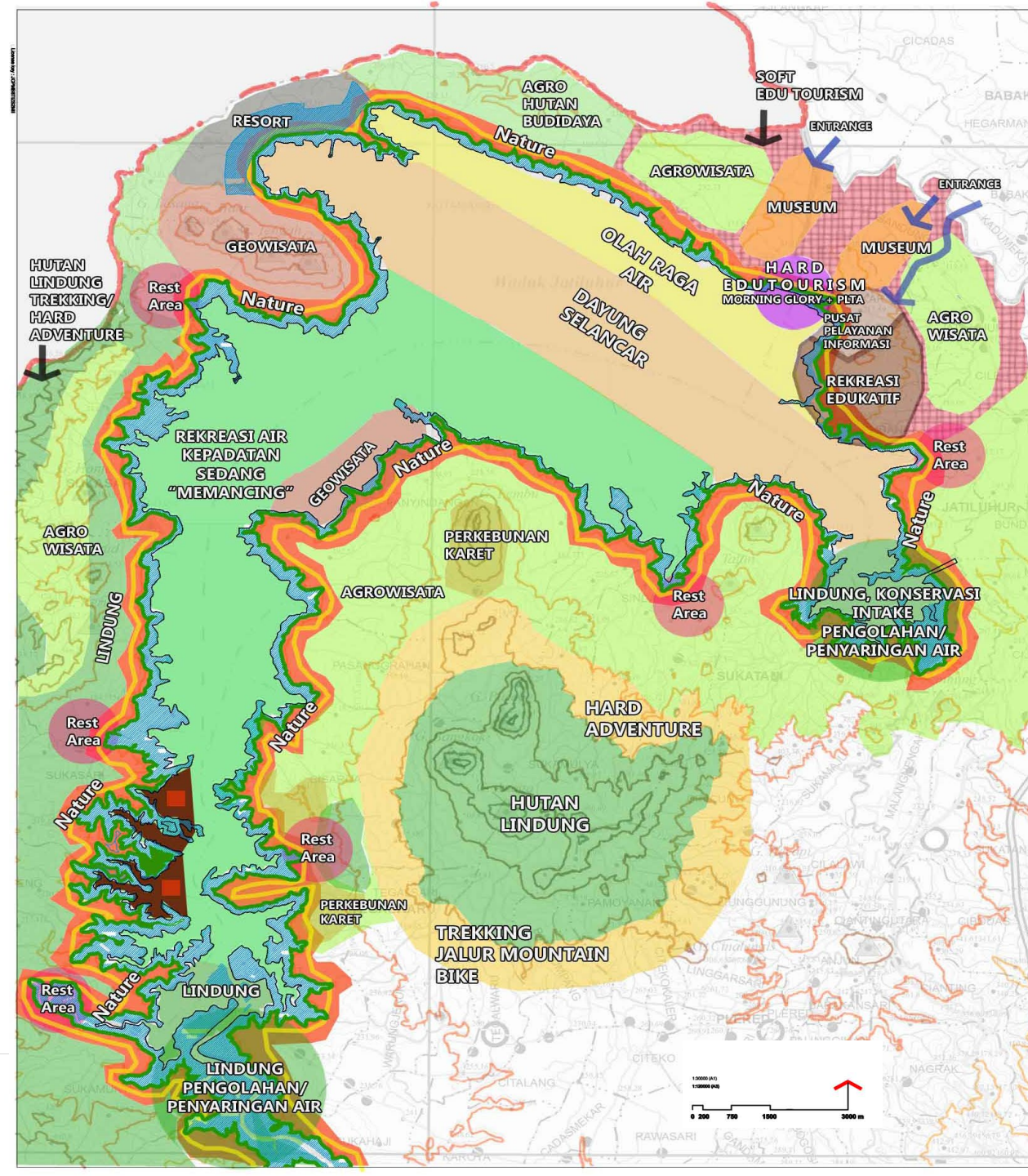
	2015	2020	2025	2030
West Java Province				
Kota Bekasi	1,512	3,364	3,364	3,364
Kabupaten Bekasi	1,095	2,767	2,767	2,767
Kabupaten Karawang	360	1,496	1,606	1,761
DKI Jakarta				
Jakarta	16,941	26,100	27,900	30,100
Total	19,908	33,727	35,637	37,992
Increase on 2010 demand		13,819	15,729	18,084
Staging 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)

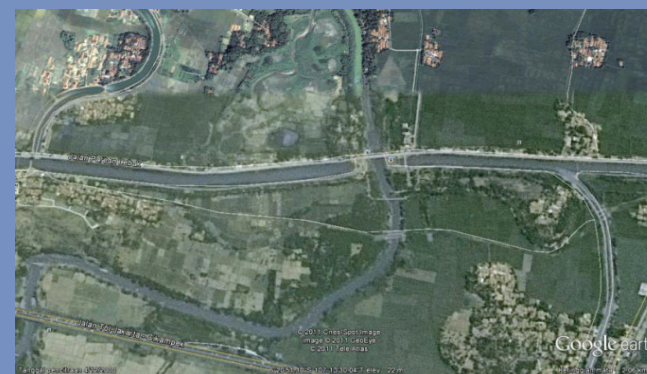




Strategic work plan of the for drinking water supply

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

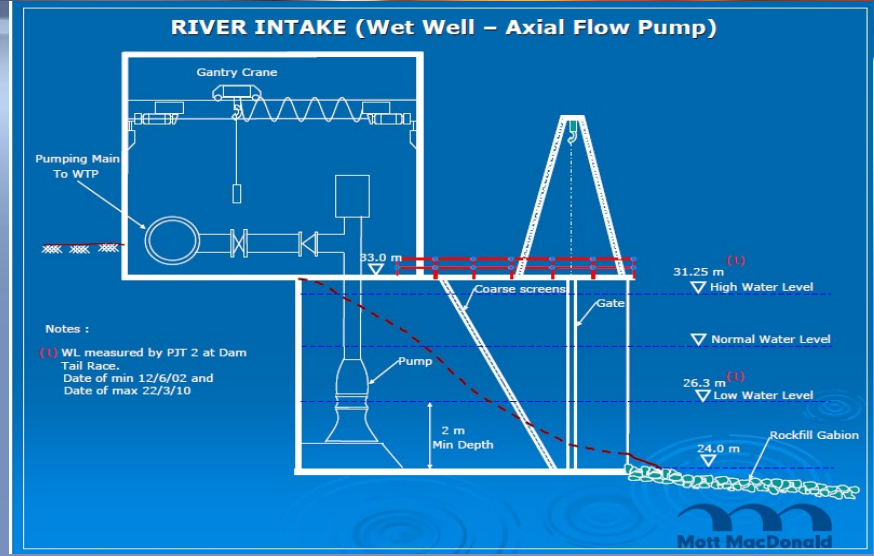
- Development of Bekasi and Cibeeet syphon
- Rehabilitation and dredging of West Tarum Canal
- Bandung *Inter-Basin Transfer*
- Banten-Tangerang *Inter-Basin Transfer*
- Modrenization of Irrigation → efficiency of irrigation water
- improves access society in along West Tarum Canal for clean water and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





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)





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 M³

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



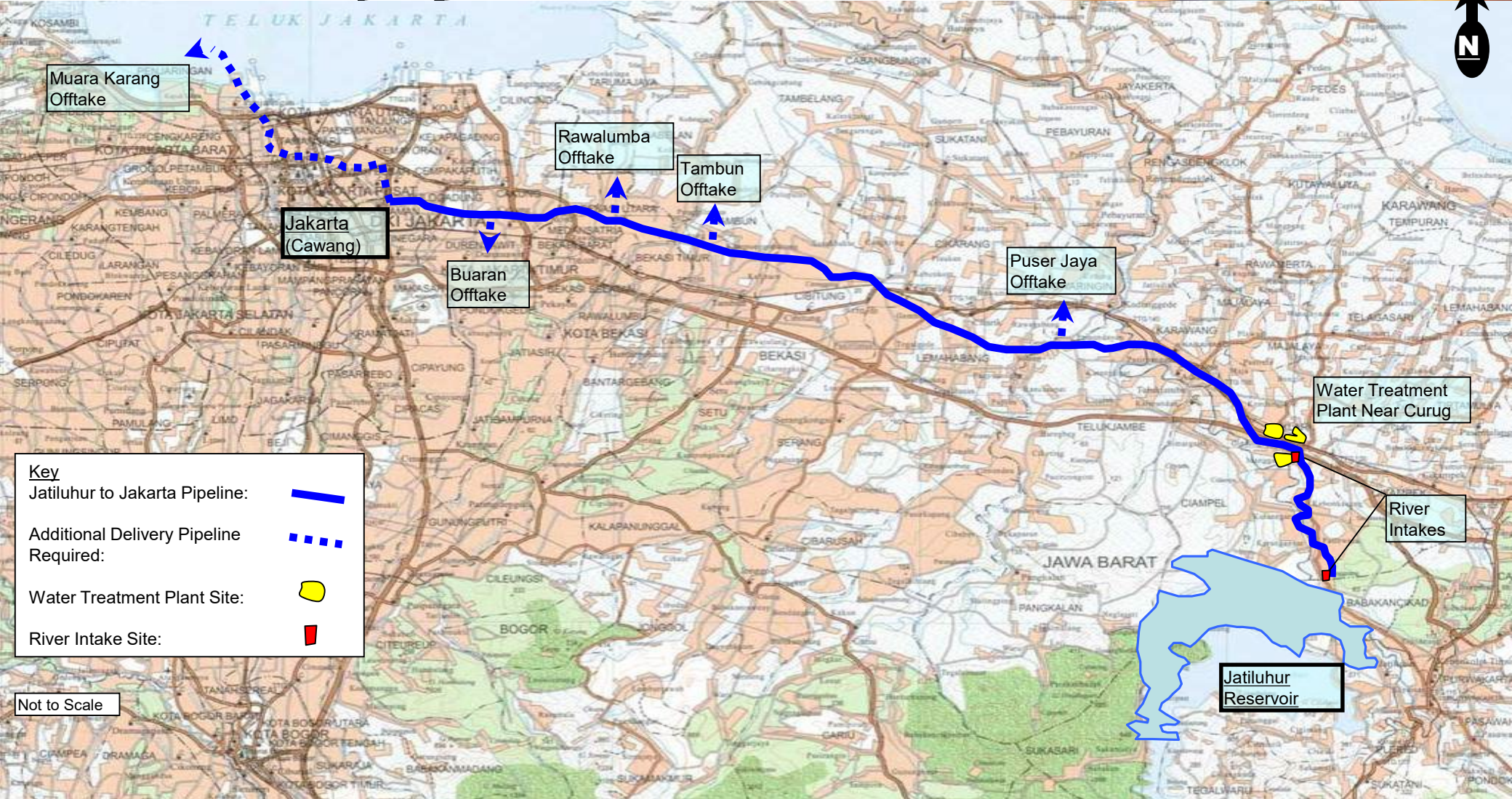


The conveyance of treated water from Bekasi to Jakarta





Overview of project



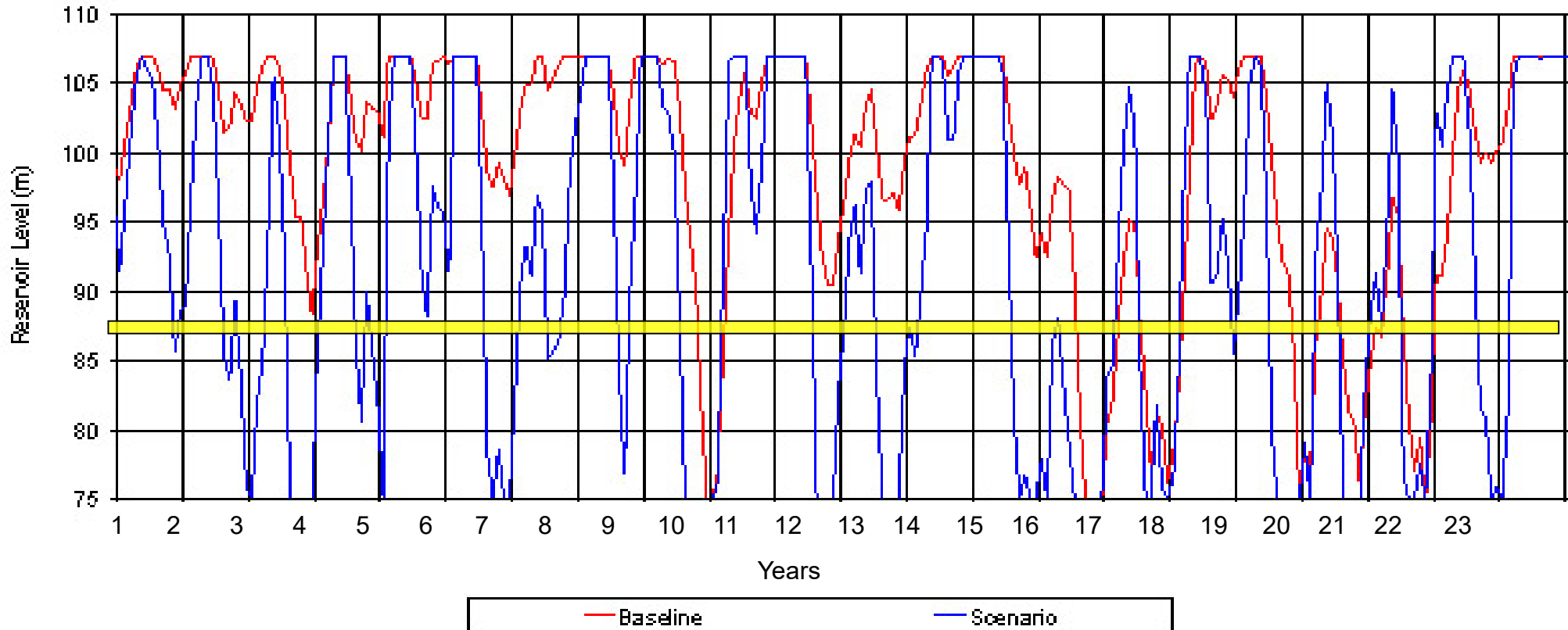
The conveyance of treated water from Jatiluhur reservoir to Jakarta



Jakarta existing water storage & required scheme delivery points



Reservoir levels over 20 year period assuming 2040 conditions



- Planned supplies of 5m³/sec to Bandung and 15m³/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



Element

Capex

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
<u><i>SUB TOTAL base construction costs</i></u>		US \$ <u>451m</u>
Engineering contingencies	US \$	68m
Construction preliminaries	US \$	89m
Detailed design fee	US \$	23m
Construction management contractor fee	US \$	32m
<u><i>SUB TOTAL project on costs</i></u>		US \$ <u>212m</u>
<u>TOTAL project costs</u>	US \$	<u>663m</u>

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



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Thank you for listening