Learning from the Ondoy Flood a Dialogue with Experts

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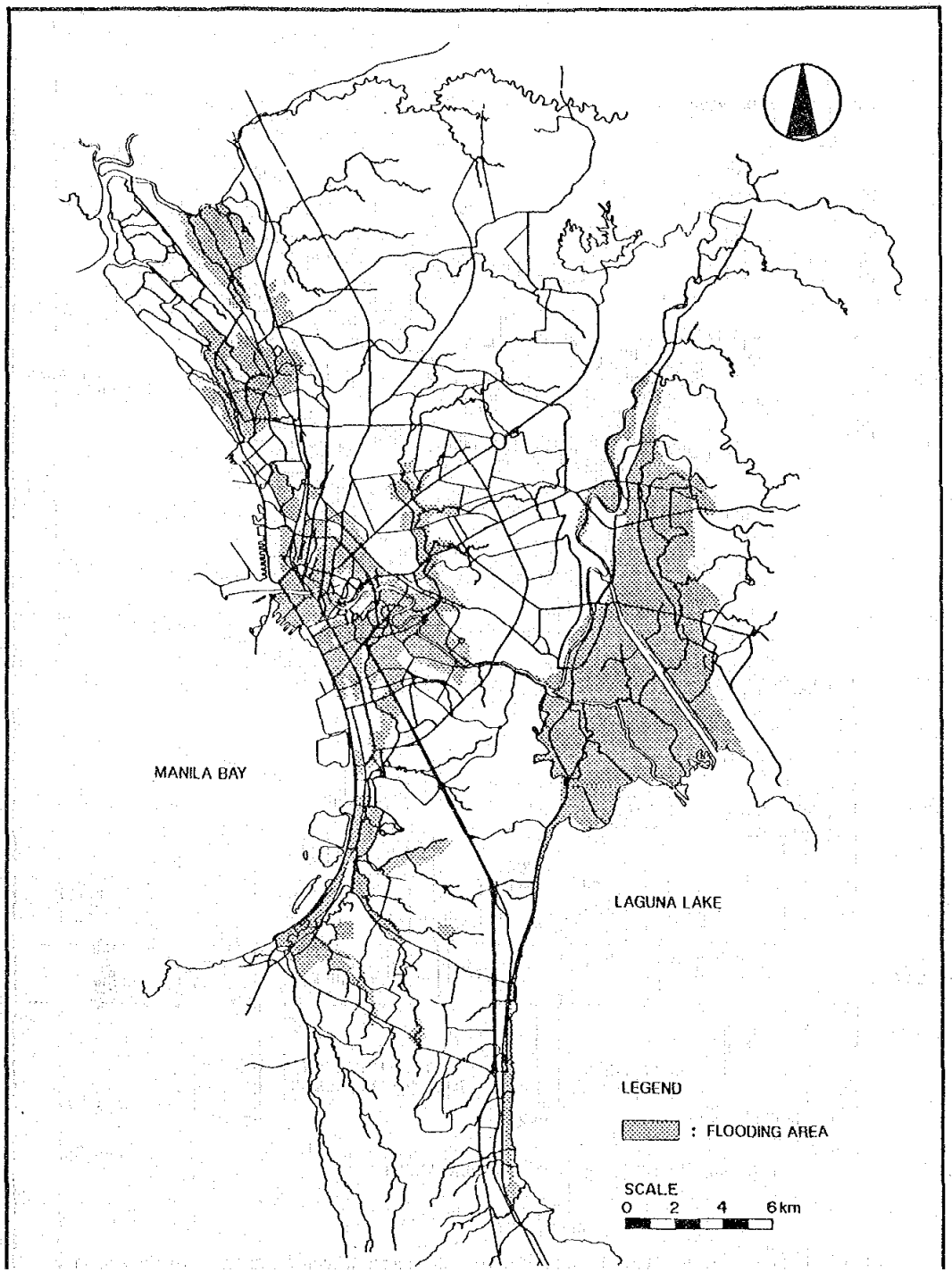
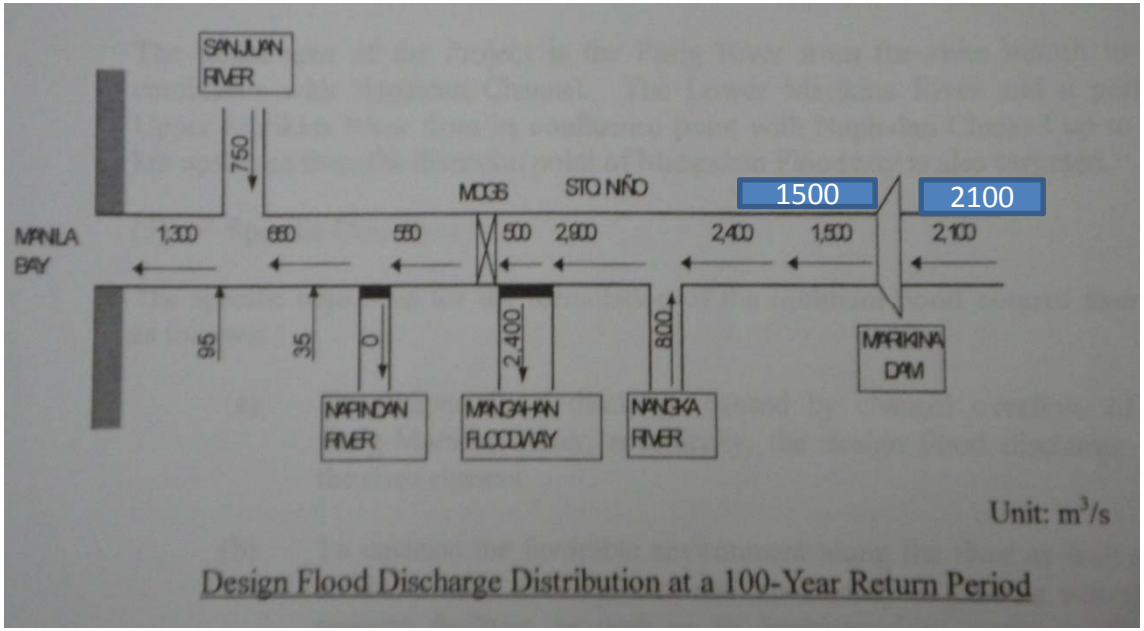
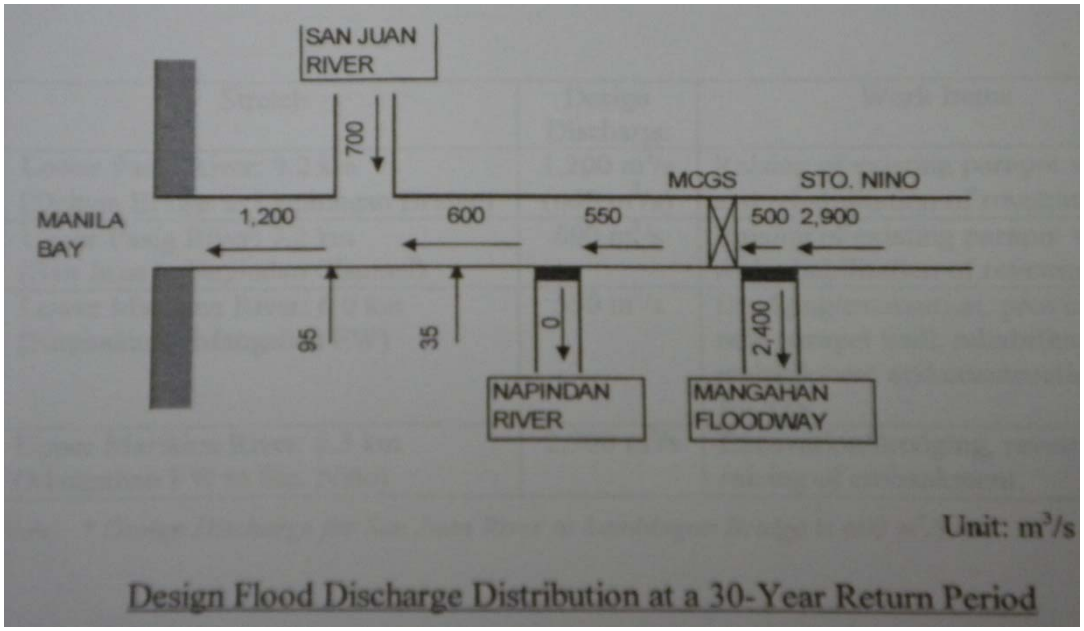


Flooding Area in 1986 (the study on flood Control, and drainage project in Metro Manila)

Name of River or Area	Return Period	Design Discharge m^3/sec	Catchment area Km^2	Specific Discharge: q $(m^3/sec)/ Km^2$
Laoag	1/25	11,200	1,332.1	8.41
Agno	1/10	6,410	5,910	1.08
Pampanga delta flood way	1/20	3,800 – 4,300		
KAMANAVA	1/30: river 1/10: drainage	450	18.5	
Pasig-Marikina	**1/30**	**2,900**	**500 (Sto.Nino)**	**5.8**
Mangahan Flood way	**1/30**	**2,400**		
Iloilo	1/20: rivers (1/50) 1/5: drainage	1,000 (1,400)	412	2.4 (3.4)
Agusan	1/25	8,010	10,621	0.754
Ormoc	1/50	610	25.2	24.21



Design Flood Discharge Distribution at a 100-Year Return Period



Design Flood Discharge Distribution at a 30-Year Return Period

From Implementation Program for PASIG-MARIKINA RIVER CHANNEL IMPROVEMENT PROJECT (PHASE 2) MAY

Drainage Problems in Metro Manila	Countermeasures
Most major drainage pumping stations are old	- Early rehabilitation of drainage pumping eqp't - Prepare a rehabilitation program for each pumping station - Increase budget for O&M
Some drainage facilities and drainage channels are finding it difficult to meet the increased storm water runoff	- Remedial and additional works to improve drainage
Most drainage channels have decreased design drainage capacities due to the heavy channel bottom deposits	- Dredge and de-clog - Improve public participation to O&M activities - Improve solid waste collection system at barangay level - Promote public involvement in solid waste collection system - Reduce informal dumping by innovating inspection system and enhancing public awareness.
Increasing informal settlers in drainage channels decrease the drainage capacity and become obstacles for O&M activities	- Strengthen inspection against informal activities - Relocate informal settlers in drainage channels
Insufficient O&M activities	- Increase O&M budget of MMDA - Formulate O&M plan - Provide O&M equipment - Improve and strengthen O&M organizations - Strengthen public participation for O&M activities

(The study on drainage improvement in the core area of Metropolitan Manila, 2005 JICA)

Issues learned for the future (tentative)

1. In many cases, flood mitigation works is pro-poor project. Flood prone people need to have good location to live. The project for Whom?
2. Set up River Management system including to conserve flood prone area.
3. Complete the work as planned - West Mangahan should be completed and Napindan river projects should start. To check the detail of design (location of electric facility at the pump station, enough height for vehicles)
4. Flood Information System should be based on community (level of water or inundation information is crucial not only pumping stations and water gates but for communities and cars/transportation also)
5. The flood management project should be easy and costless Operation and Maintenance. Annual exercise/confirmation before flood season.
6. Lake side road is the final resort for the people who live vicinity of the lake. It can be expanded with living area. Lake shore levee is more feasible than Paranaque spillway from Laguna to Sea. Desilting and dredging of the lake. Pasig by-pass channel.
7. Collaboration effort among different agencies/sectors is crucial. (National, Regional and Local, road (inc. bridge) and river, water resources and flood management, business and official etc)
8. Hydro/Water resources dams should do prior-outflow when Typhoon come during the flood season like Bill board. (Gov can buy the volume of water during flood season for allocating flood management.)
9. Flood insurance can be effective for wealthy families.