

tabulated in Table 3.19.

Table 3.20 tabulates the flood alert water level stations and water levels corresponding to the four (4) levels of Flood Alerts, namely 1) Alert I, 2) Alert II, 3) Alert III and 4) Alert IV.

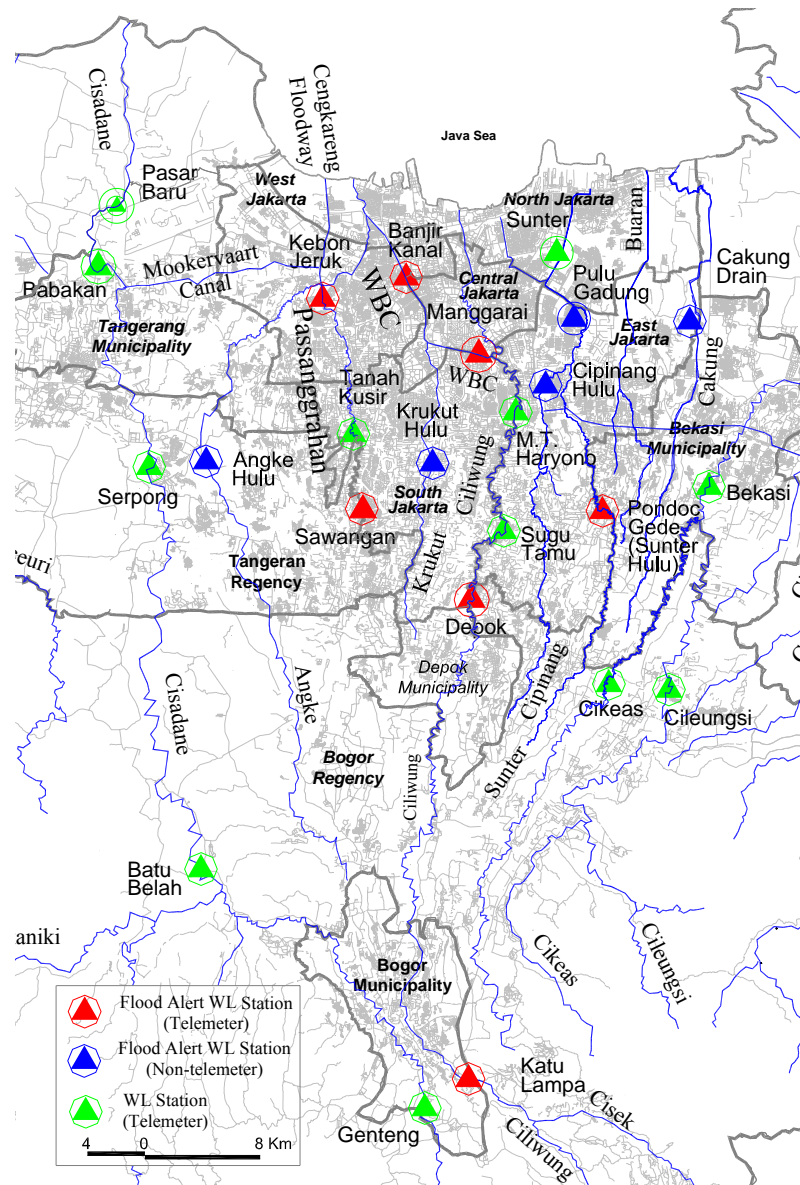


Figure 3.26 Location of Flood Alert Water Level Gauging Stations

(b) Flood Alert Water Level

Water level range corresponding to four (4) Flood Alerts at the respective 12 water level gauging stations is tabulated in Table 3.20.

Regarding the CILCIS, its areas for the flood operation are all of the

JABOTABEK in which the target rivers cover 1) Cisadane River, 2) Pesanggrahan River, 3) Ciliwung River, 4) Sunter River, and 5) Bekasi River. Therefore, the CILCIS monitors also the water level gauges located in the Cisadane and the Bekasi rivers.

Table 3.20 Flood Alert WL Station and Alert Water Level

No.	Name of Station	Name of River/Drain	Alert Water Level			
			Alert I	Alert II	Alert III	Alert IV
I. Western Sub-system						
W1	Sawagan	Pesanggrahan	> 3.5 m	2.5-3.5 m	1.5-3.5 m	1.5 m
W2	Cengkareng (Kebon Juruk)	Cengkareng Drain	> 3.1 m	2.7-3.1 m	1.9-2.7 m	1.9 m
W3	Ciledug	K. Angke	> 3.0 m	2.5-3.0 m	1.5-2.5 m	1.5 m
II. Central Sub-system						
C1	Katulampa	K. Ciliwung	> 3.1 m	2.4-3.1m	1.7-2.4 m	1.7 m
C2	Depok	K. Ciliwung	> 3.5 m	2.7-3.5m	2.0-2.7 m	2.0 m
C3	Manggarai	K. Ciliwung	> 9.5 PP	8.5-9.5 PP	7.5-8.5 PP	7.5 PP
C4	Karet	WBC	> 6.0 PP	5.5-6.0 PP	4.5-5.5 PP	4.5 PP
C5	Kurukut Hulu	K. Kurukut	> 3.0 m	2.5-3.0 m	1.5-2.5 m	1.5 m
III. Eastern Sub-system						
E1	Cipinang Hulu	K. Cipinang	> 2.5 m	2.0-2.5 m	1.5-2.0 m	1.5 m
E2	Sunter Hulu (Pondoc Gede)	K. Sunter	> 2.5 m	2.0-2.5 m	1.4-2.5 m	1.4 m
E3	Pulo Gadung	K. Sunter	> 7.7 PP	7.0-7.7 PP	5.5-7.0 PP	7.0 PP
E4	Cakung	Cakung Drain	> 3.9 m	3.6-3.9 m	2.7-3.6 m	2.7 m

Note: Water level without PP is measured based on local elevation.

(3) Information Routes of Flood Alerts

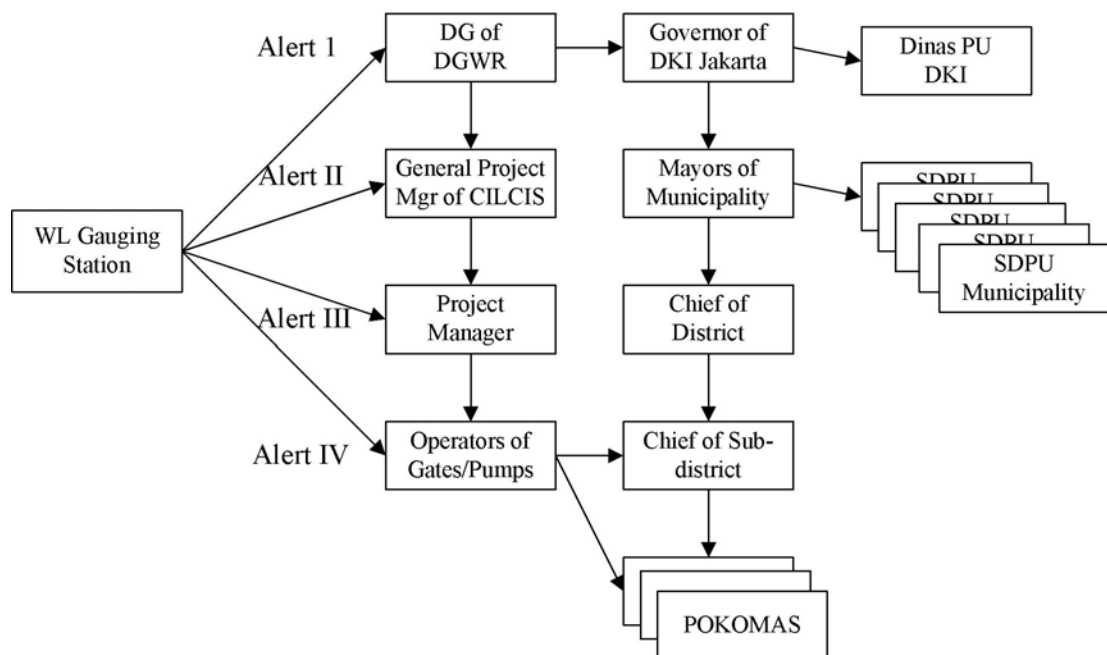


Figure 3.27 Notification Routes of Flood Alerts

When water level at the predetermined water level gauging stations reaches/enters water level range for Flood Alerts mentioned above, Flood Alerts are issued and notified to the related personnel/organizations in charge as shown in Figure 3.27.

The personnel, who are responsible for flood operation of the respective levels of Flood Alerts, are as follows.

- (a) Alert I: Governor of the DKI Jakarta
 - (b) Alert II: General Project Manager of the CILCIS
 - (c) Alert III: Project Manager of the CILCIS
 - (d) Alert IV: Observers of water level monitoring units, gate operators and pump operators
- (4) Activities of CILCIS

Followings are activities mainly done by the CILCIS. These of the PU DKI Jakarta are also similar to the CILCIS.

- (a) Activities during Flood

During flood from Alert IV to Alert I, the following activities are conducted.

- (i) Monitoring Activities

Flood Monitoring Units monitor and observe condition of the flood control structures. Water Level Monitoring Units monitor and observe water level of rivers and also conduct activities at pre-determined location of staff gauges.

- (ii) Flood Alert Information

When water level at a flood alert WL station rises/enters to flood alert levels, the flood alert information is immediately issued/notified to the other water level monitoring units and flood monitoring units for preparation of flood operation.

- (b) Emergency Operation

In addition to the above, followings are explained as the emergency operation in the flood operation manual for the CILCIS.

Alert III

Particularly, monitoring of dike condition is executed to take the following

activities;

- to monitor dikes of river channels by dike monitoring units,
- to inform to the monitoring official of the CILCIS
- to inform and asking flood equipment units to prepare sand backs, if necessary,
- to warn nearby inhabitants, if necessary, and
- to prepare rubber boats for possible emergency evacuation.

Alert II

Actions to be taken are as follows, when pump (s) and gate (s) is out of order.

- to ask for emergency repair in accordance with technical guideline,
- to inform to the monitoring official of the CILCIS,
- to confirm possible aids needed,
- to inform the equipment units and the emergency pump operation units for preparation and
- to prepare rubber boats for possible emergency evacuation.

Alert I

Actions to be taken on this level are as follows.

- to warn nearby inhabitants,
- to inform the equipment units and the emergency pump operation units for preparation, and
- to inform and ask operators of gates/pumps to continue their tasks as ordered.

(5) Pump Operation

The respective manuals of the CILCIS and the DKI Jakarta cover/explain in detail how to operate the respective pumps and gates under their responsibility. Followings are for the Cideng Pumps and Gates (Refer to Figures 3.23 and 3.24) and flood operation manual for the DKI Jakarta stipulates the operation as follows.

There are six (6) pump units installed in the Cideng Pumping Station. The

number of pump units to be operated and corresponding water level are summarized in Table 3.21. The maximum pump units to be operated are five (5) and one (1) pump unit is always for stand-by.

When the water level (WL) is less than + 0.60 m PP, no pump unit is operated, but when the WL reaches + 0.80 m PP, one (1) pump unit is operated. When the water level reaches + 1.60 m PP, five (5) pump units are fully operated. In the case where the water level falls down from +1.60 m PP to + 1.40 m PP, one (1) pump shall be switched off to stop. When the WL goes down to + 1.25 m PP, two (2) pumps shall be switched off.

When pumps are continuously operated for more than eight (8) hours, a stand-by pump unit starts to operate and one pump is stopped to avoid long operation by rotation.

Table 3.21 Standard Pump Operation Procedures

Water Level (Siantar Ditch)	Number of Pump Units Operated	Number of Pump Units Stopped	For Ebb Tide Water Level
$\leq + 0.60$ m PP	0	6	+ 0.80 m PP
+ 0.80 m PP	1	5	+ 0.95 m PP
+ 1.15 m PP	2	4	+ 1.10 m PP
+ 1.30 m PP	3	3	+ 1.25 m PP
+ 1.45 m PP	4	2	+ 1.40 m PP
+ 1.60 m PP	5	1.	

(6) Activities of POKOMAS

Interview survey was conducted during the Study at Bukit Duri Sub-district Office, which is one of the flood prone areas along the Ciliwung River located upstream of the Manggarai Gate.

The Sub-district office has established Emergency Station (POKOMAS), which is responsible for monitoring water level and taking emergency actions. The preparedness available by the POKOMAS is a siren, buoys and rubber boats. The evacuation centers of Bukit Duri are Sub-district office and other places with high ground level such as schools, yards and mosques. The POKOMAS of sub-district coordinates with Indonesian Red Cross (PMI) and Centre Health Services (Puskesmas) for medical assistance and food.

POKOMAS is active when Depok Gate Office warns the high risk water level (Alert IV). Depok Gate Station monitors the water level and distributes warning to the related POKOMASes. Then, the POKOMAS of Bukit Duri informs the warning to the RWs and RTs. The POKOMAS is in coordination with other POKOMASes, using radio, telephone line and mobile telephone.

3.7 SOLID WASTE MANAGEMENT

3.7.1 Organization in Charge of Solid Waste Management

Before the decentralization, the solid waste management was under the responsibility of Cleaning Service Office of Provincial PU (Public Works) including river cleaning. But Cleaning Service Office has been developed and is an independent organization under Governor at present, which is in charge of solid waste management except rivers.. Regarding garbage in rivers, however, this responsibility was returned to the PU. After the decentralization, the responsibility of garbage collection in rivers is given to the PU organization under Governors, such as DPU DKI and Water Resources Management Office of the West Java.

3.7.2 Garbage Collection System in Community

Cleaning Service Office has responsibility to; 1) collect garbage at the transitory location, and 2) transport and dispose to final disposal place at the sanitary landfill of Bekasi. But number of transitory locations is limited and thus the transitory locations are far from the houses. Therefore, households tend to hire attendant persons to bring garbage to the transitory locations at the price of Rp 10,000 to 20,000 per mouth on average or may throw it to nearby rivers, drainage canals and so on.

Volume of garbage thus collected by the cleaning service office totals 8.8 million m³. A study made by the ministry of Environment estimates means of disposal as tabulated below.

Table 3.22 Means of Disposal

No	Means of disposal	Percentage
1	Carried by attendants	70.15 %
2	Heaped	4.76 %
3	Turned into fertilizer	0.76 %
4	Burned	9.85 %
5	Disposed of into river	4.30 %
6	Disposed off variously	1.59 %
7	Others	8.6 %
	Total	100 %

3.7.3 Garbage Collection in Rivers

DPU DKI is collecting garbage in whole reaches of rivers/drainage channels by manual operation from banks as well as at the pumping stations and gate points. The collected garbage volume by DPU DKI totals 176 thousand m³/year. DPU DKI conveys the collected garbage to the sanitary landfill of the Bekasi.