The flooding city of JAKARTA

May 2013

Pemerintah Provinsi DKI Jakarta
Badan Penanggulangan Bencana Daerah
What happen with JAKARTA?
Flood problem in Jakarta has occurred since the colonial era in the 17th century, which was then still called Batavia.


Master plan of the city flood prevention and its implementation started in 1854 until now, were pioneered by van Breen
The main cause of the flooding problems
58% area of the city is under mean sea level (2010)

In 2010, Jakarta has reached 58% are under mean sea level, which means it is prone to flooding from upstream and high tides.
Jakarta is the estuary of the 13 rivers

The total area of Jakarta is 651 km\(^2\), which is traversed by 13 rivers that pass in 2 provinces and that rivers have an catchment area of 850 km\(^2\)

Legend:
.... : boundary of Jakarta area
Changes in land use (for residential and industrial)

The rapid rate of population growth in Jakarta and buffer zones must be balanced with the rate of residential growth. Of the vast amount of land up will certainly affect the rate of surface runoff

DKI Jakarta
- Density **126** person/ha (1990) and **147** persons/ha (2010)

Jabodetabek
- Population **17.0** mil. persons (1990) and **27.9** mil. Persons (2010)
- Density **25.5** person/ha (1990) and **41.6** persons/ha (2010)
Expansion of built-up areas in Jakarta and its surrounding areas. Red colour indicates built-up areas.
Decreased the flow capacity of the river due to sediment and settlements

In some rivers there has been narrowed and sedimentation so that the capacity is reduced.

For example, some sections of Ciliwung river have only width less than 30 m, which should have a minimum width of 50 m in order to drain the discharge of 500 m³/s (as illustrated below).
Ciliwung River Conditions in Photo
Land subsidence

During 36 years, land subsidence in north Jakarta area has reached 4 m (1974 to 2010)

JMG-DELTARES-CCOP Expert Meeting on Land Subsidence in Coastal Megacities, 9 Nov 2012
Jakarta flood prevention concept

Retention Reservoir in Surrounding Jakarta Area
Flood warning system

As a means for flood early warning system, based on the results of water level readings at:

- **Ciliwung**: Katulampa, Depok, Sluice Gate at Manggarai
- **Krukut**: at Jl. Brigif
- **Pesanggraha**: at Koneng Weir
- **Sunter**: at Sluice Gate Pulogadung
Thanks you so much for your attention