

Sustainable Flood Protection Plan for Kajang Town

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ABSTRACT

Malaysia does not have many natural disaster but flood has been the main problem as it affects every states in Malaysia. This is mainly due to the high volume of rainfall Malaysia receives every year. The rainfall comes during the North East Monsoon and South West Monsoon but there are occasional thunderstorm between the monsoons period as well. There are two types of flood in Malaysia, flood caused by medium intensity long duration and flood caused by high intensity short duration, which is also known as flash flood. Flash flood often happens in urban areas such as Kajang. The reasons of flooding in Kajang are high rainfall, low bridges and lack of flood mitigation work. There are many types of flood mitigation works in Malaysia, such as barrage, dam, river channelization and improvement works, diversion channel, pumps and ring bund. This research will determine the most suitable sustainable flood protection plan for Kajang town.

Frequency analysis and site visit done to study more about the flood situation in Kajang. It was found out that the stage obtained from rating curve for a 100 year ARI flood is higher than the depth of the Langat river in Kajang. Besides that, there are 4 bridges that cannot be found on any record which may be built very long time ago or built illegally.

A list of options were evaluated such as dam, canalisation, storage pond, etc. It was concluded that floodwall should be installed to mitigate the flood problem in Kajang town. This is because floodwall is very cost-effective and it causes the least impact to the society and environment. However, floodwall imposes a threat of flooding to the downstream area. It was found out that the river cross section at the downstream area is wider and deeper than upstream. Furthermore, the river section at downstream area has larger floodplain. Despite this, a further study on the threat of floodwall to the downstream area should be done.