

Assessment of the options for flood attenuation in Anhangabaú catchment (São Paulo, Brazil)

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ABSTRACT

Flooding events have been reported since 1920s in the *Anhangabaú* urban catchment located in the commercial central area of São Paulo (Brazil). This catchment has approximately 95% of the area occupied by buildings and roads (one of the roads services more than 200,000 vehicles per day). This paper presents the results of the assessment options for flood attenuation in *Anhangabaú* catchment. The objective of this study was fulfilled by (i) modelling the current urban drainage hydraulic conditions, (ii) analysing the effects of building underground stormwater reservoirs, and (iii) analysing the consequence of considering SUDS options to reduce flood extent and magnitude. The modelling was carried out for all conditions/options using the EPA SWMM software. This study showed that the existing system's capacity is insufficient to cope even with short return period storms. The stormwater reservoirs considered in this study as a flood attenuation option have performed satisfactorily. The options based on implementation of SUDS (e.g. infiltration trenches) can also reduce the flood peaks for 2 year return period storms; however, they seemed not adequate to this catchment because the catchment is fully developed and densely populated, with high percentage of impervious areas, and, consequently, with limited free available areas to build such structures.

KEYWORDS

Flood alleviation options, Modelling, SUDS, Urban flooding