

# Hydraulics Computations for the Lower Mekong River Basin to Study Flood Drainage for the Plain of Reeds in Vietnam

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**Abstract:** Plain of Reeds is an important economic region of the Lower Mekong River Delta, it is considered as the main area in the project on flood planning for the Lower Mekong Delta. Flood and inundation is the major difficulty for socio-economic development of the region. In recent years, high flood occurs more frequently and with high insensitive, occurring earlier with deep and long lasting inundation. Together with flood control structures, infrastructure, embankment for resettlement development have made flood in the region more complicated and damage due to flood also increase.

In this study, data of flood investigation in recent years are analyzed to study flood characteristics and the delta's response to high flood.

SIS model developed by Wallingford was applied for flood computations for the Lower Mekong River Delta and the Plain of Reeds in Viet Nam to study flood drainage improvement for the Plain of Reeds. The computational scheme for the Mekong Delta includes more than 8.000 nodes and about 500 flood cells.

Hydrological data of flood season in 2000 and 2001 are used for model calibration and verification, respectively. Water level data at 25 hydrological stations are used for comparison between computed results and measured data. Moreover, water level data from flood investigation campaign in 2000 and 2001 are also used for comparison. Results of inundation including depth and extent are compared with satellite image and flood map derived from flood investigation data.

The model was then applied to study flood drainage improvement for the Plain of Reeds when a flood control structures is installed on the Vam Co Tay River.

From the study, the following conclusion can be drawn: (1) In recent years, flood flow to the Plain of Reeds has a tendency of increasing, flood flow distribution in the canal system changes, and there is a trend of decreasing the difference in water level in the Mekong River main channel and in the Plain of Reeds; (2) Flood drainage to Vam Co River plays an important role in flood drainage for the Lower Mekong Delta in general and the Plain of Reeds in particular. However, construction of a tidal gate on Vam Co River does not seem to have significant improvement of inundation in the Plain of Reeds. (3) Combination of controlling water overflow across the border, enlargement and dredging of drainage Canals and Vam Co River, together with enlargement of drainage gate to Mekong River at Phong My - My Thuan is found more suitable.

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