# HYDRAULIC AND MORPHOLOGICAL CHARACTERISTICS OF THE LOWER MEKONG RIVER

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The sediment-related issues in the Mekong River have intensified. The objective in this study is to improve the understanding of the hydraulic and morphological characteristics in the whole stretch of lower Mekong River starting from Chiang Saen (Golden Triangle) down to river mouth.

Components of hydraulic and morphological characteristics to be considered in this study are hydraulic quantities at flood (velocity and tractive force at flood) and average scale of river channel (river width, water depth and slope). In this study, a concept "segment division" proposed by Yamamoto (1994) is used. Segment division is to divide a river channel into sections having similar characteristics and the riverbed slope is same. Main factors for prescribing the hydraulic and morphological characteristics are the average annual maximum discharge, representative diameter of riverbed material and riverbed slope.

Fig.1 shows the longitudinal variations of average bed elevation from river mouth to Kratie. Fig.2 shows the longitudinal variations of width of low water channel. These figures indicate that the Mekong River is divided into segment 3 and segment 2-2 at downstream of Tan Chau (222 km from river mouth). In segment 3 from river mouth to downstream of Tan Chau, the riverbed is horizontal and average width of low water channel is 1,239 m. In segment 2-2 from Tan Chau to Kratie, the riverbed slope is 1/25700 and average width is 1,645 m. Fig.3 shows the longitudinal variations of representative diameter of riverbed material from Tan Chau to Kompong Cham. The diameter decreases from Kompong Cham to Tan Chau. The riverbed at Kompong Cham is composed of coarse sand and one at Tan Chau is composed of fine sand.

Fig.4 shows the relationship between non-dimensional tractive force and representative diameter of riverbed material. In the range of diameter 0.17 ~ 0.76 mm, non-dimensional tractive force is almost constant ($\tau_{*R}$=0.87 on average) regardless of diameter. Also this figure shows a tendency that the non-dimensional tractive force in the Mekong River is less than that of alluvial rivers in Japan. The difference can be explained by influence of climate. Anyway, non-dimensional tractive force at flood depends only on representative diameter of riverbed material, that is, $\tau_{*R}=f(d_R)$.

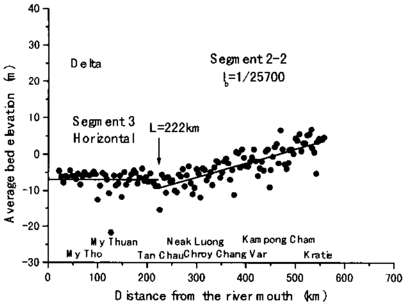


Fig. 1 Longitudinal variations of average bed elevation.

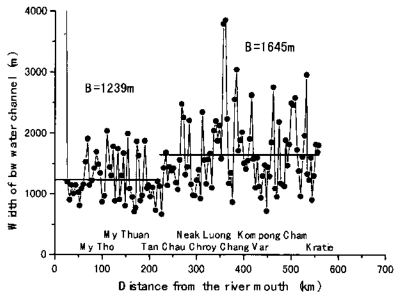


Fig. 2 Longitudinal variations of width of low water channel.

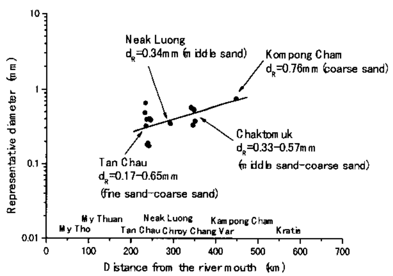


Fig. 3 Longitudinal variations of representative diameter of riverbed material.

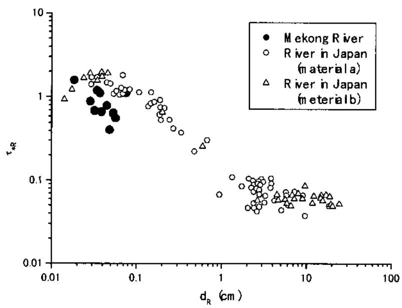


Fig. 4 Relationship between non-dimensional tractive force and representative diameter of riverbed material.

## REFERENCES

Yamamoto, K. (1994). *Alluvial Fluviology*, Sankaido, pp.2-10 (in Japanese).