## Form 2

## **Dissertation Abstract**

frequency, duration of flood and the interactions among the ecological units of the riparian ecosystem play a key role in its stability and conservation. In addition, erosion and deposition process is important in shaping the riparian ecosystem. As it is distinct from the adjacent terrestrial ecosystem, the riparian zone makes home for a variety of fauna and flora with unique features. While studies report the degradation of riparian ecosystem with the intervention of anthropogenic activities in other parts of the world, many of the Japanese rivers have been severely invaded by thick vegetation cover compared to five decades before. Studies have thrived to understand the reason behind this to implement the possible management strategies. However, the reason is not yet clear. In comparison to the 1950s, the aerial photos show a prominent river channel incision, indicating the lack of gravelly sediment in river channels. The river gravel mining was the major source of construction material in the 1960s, though it is prohibited nowadays. Therefore, in the present study, we hypothesized that the shortage of gravelly sediment may play a major role in excessive vegetation encroachment in Japanese Rivers. We employed several strategies to test the hypothesis such as aerial photo survey, field data and numerical modeling the vegetation colonization delay. Hourly flood level data were obtained from MLIT, Japan for the period of the analysis. Contiguous aerial photos obtained before and after the floods in five selected rivers, namely; Arakaw River, Sagami River, Kuzuryu River, Karasu River (Gravelly rivers), Hii River and Kizu River (Fine sediment rivers) were analyzed to identify the erosion and depositions. Then the time that i takes to appear the herbs and trees were estimated as the colonization delay. The reported field investigated data were used to support the observed results conduced at Arakaw River, Kumagaya Sandbar and Karasu River after depositions and erosions, whereas the delay was 1-2 years at the eroded	Report no.	(Course-based)	No.	1042	Name	HENEGAMA LIYANAGE KELUM SANJAYA	
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