

京都大学教育研究振興財団助成事業 成 果 報 告 書

平成2017 年 8 月 22 日

公益財団法人京都大学教育研究振興財団

会 長 辻 井 昭 雄 様

所属部局・研究科

工学研究科

職 名・学 年

博士後期課程2年

氏 名

Shampa

印

助成の種類	平成 29 年度 ・ 国際研究集会発表助成	
研究集会名	37th IAHR WORLD CONGRESS 第37回国際水圏環境工学会世界大会	
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発表題目	SWITCHING OF BIFURCATION TO SINGLE CHANNEL: CASE OF A SAND BED BRAIDED RIVER	
開催場所	マレーシア	
渡航期間	平成 29 年 8 月 13 日 ～ 平成 29 年 8 月 18 日	
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当財団の助成について	(今回の助成に対する感想、今後の助成に望むこと等お書き下さい。助成事業の参考にさせていただきます。)	

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成果の概要/Shampa

Program: 37th IAHR World Congress

Venue: Putra World Trade Centre, Kuala Lumpur, Malaysia

Date: Aug 13 – Aug 18, 2017

Title of Presentation: SWITCHING OF BIFURCATION TO SINGLE CHANNEL:
CASE OF A SAND BED BRAIDED
RIVER

Report: 37th IAHR World Congress Visit

This year, the 37th IAHR World Congress was focus on the management of Water on a Sustainable way and the water specialists all over the world shared their experiences for a better future. Nevertheless, focus was also be given on the central roles of river and sediment management, flood management, environmental hydraulics and industrial flows, coastal, estuarine and lakes management, urban water management, water resources management, and hydro informatics / computational methods as well as experimental methods. The organiser has published the peer-reviewed paper in the proceedings of this congress.

The 37th World Congress of IAHR (International Association for Hydro-Environment Engineering and Research) was held in Kuala Lumpur, Malaysia, from August 14th to 18th, 2017. This congress has received 1300 abstracts and 906 full papers. Upon review process of the full papers 838 full papers were accepted without corrections and finally 772 papers were presented in the congress.

My oral presentation included my PhD research topics related to switching of bifurcation in braided river under the theme river and sediment management. The date of my presentation is 17 August 2017 at 14:30 P.M. I presented about the Bifurcation plays a major role in shaping the braided river. Previous studies showed the process of bifurcation but most of them are based on nodal point concept rather than the network formation process of the braided river. Based of field observation, lab experiment and numerical simulation it was explained that either the planform of the bifurcation or the hydraulic property of upstream channel plays the major role in case of closing one channel. Hence, through our study, the switching of bifurcation phenomena was be investigate using natural river bathymetry in a small branch of Brahmaputra- Jamuna river. From satellite imagery, it is obvious that this 17 km Long Branch shows such switching process from 2011 to 2013.

The causes of the initiation of bifurcation switch, the effect of the upstream channel hydraulic property on bifurcation and influence of angle of the bifurcating channels to the switch was basically investigated in this study through 2D morphodynamic numerical approach using Delft 3D software. As a boundary condition the hypothetical Discharge and Water level has been used. Several cases were considered. One was the same hydraulic condition of the river reach as of the year 2011. The others were certain percentage of increasing and decreasing of river discharge.

The results from our study indicates that bifurcation switching phenomenon is largely depends on upstream control e.g. incoming discharge. Nevertheless, this phenomenon is highly related with the upstream channel geometry and hydraulic condition. The dimension of downstream mid channel bar, which is the cause of bifurcation, may influence the discharge asymmetry greatly but may possess an indirect impact over the switching process.

I think, such a vast conference enhanced my capability to think loudly by hearing the research experiences from the different parts of the world. In addition I got the opportunity to develop the networking with the researchers from other institutions and countries.



Figure 1: The snapshot of the inauguration program