

Thanks for the completion of YRiS project

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YRiS (Yellow River Studies) is an abbreviated title including two projects; the first was funded during FY2002-FY2006 by MEXT as one part of a big project called as the Research Revolution 2002. RIHN (Research Institute for Humanity and Nature) group was in charge of building a new hydrological model with collaborative relationship with Mekong River's group. We, RIHN team aimed at integrating human activities into a new hydrological model of the Yellow River which is located at rather semi-arid region.

Second was funded by RIHN itself during FY2003-FY2007 as RIHN had given us a permission on starting because of getting an evaluation which it was one of important projects to have to be promoted by the evaluation committee composed of outsiders including foreign famous scientists.

Its objectives were why severe dry-up of the Yellow River occurred in 1997 and which kinds of influences on the surrounding environment reached or not. As we have considered that an example of the Yellow River has some common issues deeply concerned with human activities in arid and semi-arid regions, a separation method between natural and human factors on hydrological modeling was new and principal key points. Furthermore, we paid attention that the Yellow River's discharge flowed down with high-concentration of sediment in which the mean concentration was the highest in the world.

Fortunately, we have succeeded to build an improved hydrological model and we could find the reason why severe dry-up started at 1970s by using a new model. It was due to decrease of river discharge from Loess Plateau area occupying almost 40% of the Yellow River basin caused by the increase of evapotranspiration. Basically, it has occurred by the success of reforestation. In the same time, sediment discharge has decreased from Loess Plateau, but lower reach of the Yellow River was still keeping risen river bed height compared to outside of river banks. It means lower reach of the Yellow River continues to be dangerous from flood disaster.

In Bohai Sea, biological circumstances have immediately changed to Phosphorus from Nitrogen regarding limiting factor due to the shortage of river water supply, and ocean current exchange between Bohai Sea and the Yellow Sea seems to be decreased. It might induce to change circumstances of oceanic organism near future.

Now we are afraid of water pollution of the Yellow River although we didn't touch it because our main task was quantitative understanding relevant to water issue of the Yellow River. We wish that our results are serviceable for the improvement of water quality in the Yellow River as our result has high reliability on including reason of the changes of river discharge quantitatively.