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"Simulating the Past: Reconstructing Historical Land Use and Modeling Hydrological Trends in a Watershed Area in Java"

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Nibbering, Jan Willem, and Jan de Graaf. “Simulating the Past: Reconstructing Historical Land Use and Modeling Hydrological Trends in a Watershed Area in Java.” *Environment and History* 4, no. 3 (Oct., 1998): 251–278. doi:10.3197/096734098779555600 . Historical data on land use can be used as input into watershed models to simulate past hydrological conditions and erosion. A better understanding of past conditions is useful to position the present situation on a dynamic scale and to assess future trends and options therefrom. Conversely, knowledge acquired from bio-physical studies of the present can be used to get a better grasp of certain phenomena in the past. This has been done with a watershed model which was developed for the upper Konto watershed area in Java. After a general introduction on conditions in the upper Konto watershed area and the purpose and design of the watershed model, this article describes the origin, nature and quality of the historical land use data, and how they were interpreted, complemented, balanced and eventually incorporated into the model. The results of the simulation of historical watershed conditions are presented and their plausibility is discussed in the light of historical evidence. A comparison of the modeling results for past conditions and for present conditions shows that the hydrological effects one may wish to achieve with land use changes in the future specified in different development scenarios are unlikely to be of the same order of magnitude as the changes that have occurred over the last 150 years. All rights reserved. © 1998 The White Horse Press

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