

Researcher predicts increased flooding in the Netherlands

January 15 2015, by Janneke Van Den Elshout



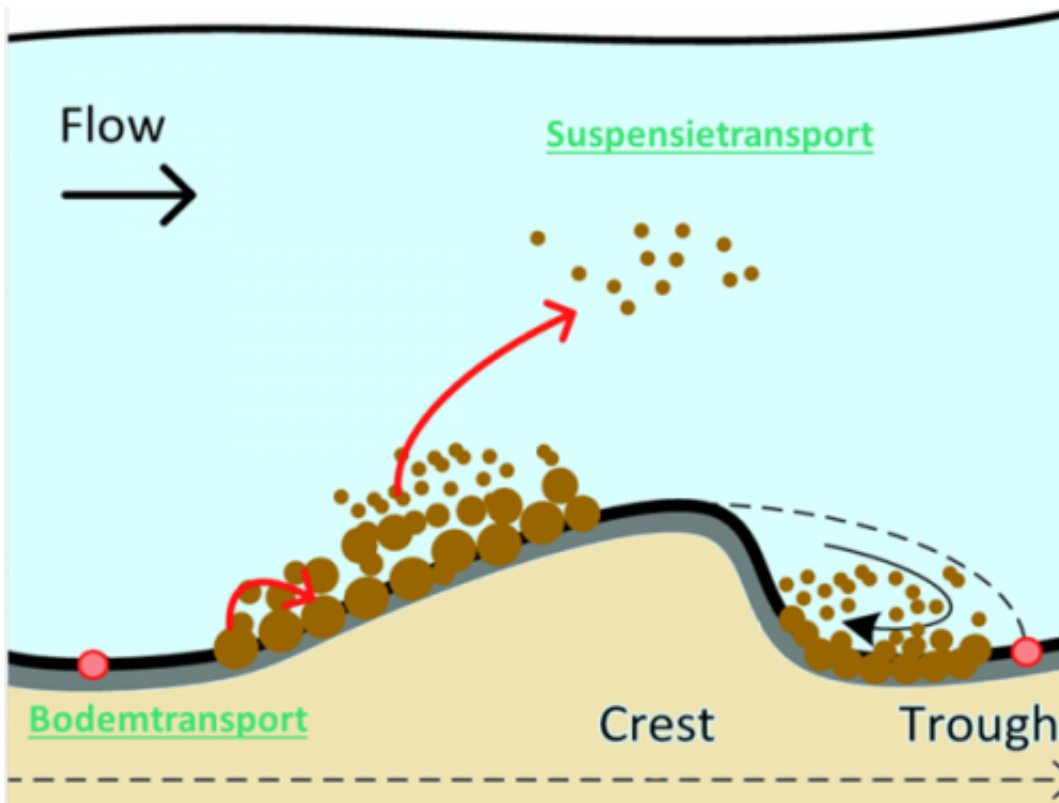
In the future, due to climate change and corresponding extremely high water levels, rivers in the Netherlands will be more likely to break their banks. This was the conclusion reached by the Dutch researcher Suleyman Naqshband (who was born in Kabul, Afghanistan) of the University of Twente. River dunes in the major rivers of the Netherlands tend to persist and not flatten out , thereby increasing the risk of

flooding.

On sandy riverbeds, interactions between flow and sand transport cause river dunes to form. River dunes are the most commonly observed riverbed features in Dutch rivers. These river dunes can reach large sizes, growing to as much as one third of the total water depth. This restricts the flow of water, causing [water levels](#) in the area of river dunes to be much higher than in sections of the river in which they are absent. River dunes are also dynamic, growing rapidly in just a few days then flattening out or even disappearing completely at extremely high flow rates.

The aim of Dr Naqshband's PhD research was to understand the processes involved, in order to determine whether the dunes in Dutch rivers can flatten out. In safety terms (preventing [flood waters](#) from overtopping dikes), this is a very pertinent question.

"The transport of suspended sand (suspension transport), in particular, is critical to the flattening out of river dunes. Based on this insight, for the extremely high water levels that will be a standard feature of the Netherlands' major rivers in future (as a result of [climate change](#)), it is expected that river dunes will not flatten out, potentially aggravating the flood risk even further."



Provided by University of Twente

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