Do we know the origin of the moisture in the atmosphere? From how far has it been carried before it precipitates? Worldwide, 40% of the precipitation is of terrestrial origin. But this amount is not equally spread over the earth's surface. Recent work by Van der Ent et al. (2010, 2011) shows that China, for instance, relies for about 80% on precipitation stemming from terrestrial evaporation, the Sahel mostly depends on moisture evaporated in East Africa and countries such as Bolivia, Paraguay and most of Argentina rely on moisture that evaporated over the Amazon basin. Besides watersheds, there are precipitationsheds which may contain large terrestrial surfaces. The Yellow river depends for 71% on recycled moisture, the Limpopo for 40%, and the Niger for 62%. This implies that land use is far more important than often assumed, and that large scale land use change may have substantial ‘downstream’ effects.

This paper presents an overview of recent findings on the origin of atmospheric moisture and shows which regions of the world feed river discharge. It provides new insights into the working of the hydrological cycle and the possible impacts that human interventions through land use may have on global water resources. Since the data required for this analysis are freely available in global data sets, this research is equally relevant for gauged as well as ungauged catchments of the world.