



Teaching the right hydrology with minimum resources in Ethiopia

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This presentation will highlight our experience in teaching 19 Master's students from diverse backgrounds hydrology and watershed management in Ethiopia. Although the program was based at Bahir Dar University on the shores of Lake Tana in Ethiopia, the students received an US degree. The goal was to train professionals who can help to institute more effective and sustainable watershed management practices in Ethiopia.

Teaching hydrology was a challenge. From the literature and personal observation, it was obvious that the traditional techniques of predicting runoff based on infiltration excess runoff and SCS curve number method were not satisfactory. Saturation excess runoff was more likely. However there was no research to prove that it actually was the case. In class we taught both runoff principles but stressed the saturation excess runoff. It was impossible to convince the students that the techniques that came from the western world be incorrect. For their Masters thesis, eight students did field research on runoff and erosion processes in watershed (some of which has a long record of discharge and sediment data). The students recorded water table heights, measured infiltration rates and determined where most erosion took place in the landscape. Based on this data they modeled the previously observed discharge successful using a saturation excess type model. From these studies we could establish that saturation in the landscape had a great effect on both runoff and sediment losses. As result of the field work, students had changed their mind about the appropriateness of using for example the SCS curve number method in Ethiopian highlands

Perhaps the lesson to be learned is that we do not need a lot of funds to teach students the right hydrology. However, there is no substitute for going out in the field and experiencing what the right hydrology is by studying the processes in the landscape itself. By simply teaching in class, students will and cannot accept that the hydrologic processes that were taught for a century might be incorrect.