characteristics of hillside hazards, (2) To investigate the gender difference in the perception of their environmental system regarding hillside hazards, and (3) To uncover the association between gender and individual hazard prevention behaviors. To formulate a strategy in environmental management based on the knowledge of such gender difference.

**Key words:** mountain village, hillside hazard, hazard perception, gender difference, disaster prevention behaviors

**Simple model of channel formation with consideration of groundwater**

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To understand developmental processes of drainage basins, both two kinds of approach, global and local views are important. In the global view, the development of drainage basin can be recognized as a channel network pattern. On the other hand in the local view, slope processes such mass movement is a key factor. The global pattern should be the integral of local processes. Although surface (running) water is undoubtedly one of major factors of channelization, groundwater also plays the important roll especially in arid or semiarid regions and a particular area such as valley head, because groundwater can change the stability of slopes through physical and chemical actions. In spite of importance of groundwater, it is difficult to know how groundwater affects on resultant channel pattern, due to some technical problems to visualize groundwater actions. As a starting point to this theme, using a simple model difference between the developmental process of channelization purely by groundwater without precipitation and the case with enough rainfall is discussed. The understanding of effects of groundwater on a drainage system will provide useful information for the control of the water resources, in future.

**Key words:** groundwater, channelization, drainage system

**Man-made dike and their impact for flood for Mekong Delta**

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The Mekong River delta plays an important role in the Vietnamese economy and it has been severely impacted during this century by a series of unusually large floods. In the dry season the delta is also impacted by salinity intrusion and tides. These effects have caused severe human hardship. To mitigate these impacts, a large number of engineering structures have been built in the delta in recent years and are still being built, mainly to control floods and saltwater intrusion. These control measures are still being upgraded. A GIS-linked hydro-model shows that the flood levels in the delta depend on the combined impacts of high water, storm surges, sea level rise and siltation of Mekong Estuary resulting from the construction of dams. The model suggests that engineering structures slow down the flood propagation at beginning of rainy season, cause the inundation to last longer and the water to be deeper, decrease the overflow, and increase the flow velocities in the river and canals. Also predicts that a sea level rise induced by global warming will enhance flooding in Mekong delta and flooding may worsen in recent period as a result of estuarine siltation. At the scale of the delta, a compromise is needed between allowing flooding for agriculture and preventing flooding to alleviate human suffering.