

Mitigation of the environmental disruption due to a disaster

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The mitigation for a disaster is one of the big themes of applied geology. However, there are few articles at a point of view of the environmental disruption due to a disaster. The environmental disruption by a disaster occurs in all over the world. For a disaster, there are human disaster and natural disaster. For the environmental disruption, there are social environmental destruction and destruction of natural environments. The destruction of social environment and natural environments by war, the fire of a chemical factory and kannanagashi etc are the human disaster. There is a big problem to be related to not only destruction of a city and casualties of a person but also the deforestation by the scatter of a defoliant or the pollution of the ground with a depleted uranium shell by war, such as a field of applied geology.

However, here, the author performed case studies such as deforestation and soil erosion in mountainous district and the flooding of the earth and sand on plains in downstream area by the kannanagashi, which is one of the human disasters as relating to a geological feature. The granite soil of enormous quantity was mined by the method of the kannanagashi along Hino river in Sanin district after the Edo era, and the flow out earth and sand formed big Yumigahama sandbar. In addition, earth and sand outflow by the kannanagashi continued in the downstream area of Hii river in the same way from the ancient times, and you can see big snake with eight heads legends comparing the river. The banking of an overhanging river and planting in a mountainous district have been performed as the mitigation technique against to kannanagashi. This is an example of the mitigation of the environmental disruption by a disaster of a person.

The destruction of social environment and natural environments by a volcanic eruption, an earthquake and a typhoon by natural disaster is important as well as the building and the human life damage well attracting attention. For example, the deforestation with a volcanic eruption of Miyake-jima in 2000 and deterioration of forest vegetation and an outflow of the earth and sand by much collapse in the Great Kanto Earthquake and Hanshin Awaji great earthquake and Niigata Chuetsu earthquake. Here, I describe the deforestation Miyake-jima eruption as natural disaster, and natural environments deterioration by earth and sand outflow and natural dam of Yamakoshi district by Niigata Chuetsu Earthquake. By Chuetsu Earthquake, many slope collapses occur, and natural environments of the hill area for the residents is deteriorated. In the collapse slope, there was the case unless can stabilize a slope only with vegetation like mudstone occurring root system layer collapse, but the surface collapses occur in many place by abandoned planting, growth of a root of a tree becomes bad. Maintenance of natural environments tends to deal after a disaster occurred, but it is important to make the slope that is healthy before collapse outbreak through well keeping of a root of the tree, as like a preventive medicine. The cohesive strength adding up method by Inagaki is available to stability of the slope ground concerning to the root system of plants.

The deforestation of the Miyake-jima hillside is remarkable because not only an ash fall but also volcanic gas continued spouting out by Miyake-jima eruption of 2000 in the long term. There is not a method of reduction in present, until volcanic gas will stop. The debris control due to the recovery of vegetation by original tree planting, reducing the environmental disruption at the river and the shore, is important for the inhabitants, who lives in the island.