



## **Human as a geomorphologic agent that increasing risk aspect**

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The growth of human population resulted that the human expansion for land utilization to be more intensive. Almost all places in the earth surface become inhabitants, even over the unsuitable area for living. There has been common problem in developing country, e.g. in Java Island, Indonesia.

Currently, hilly or mountainous area is one of the targets of human intervention for extending their land necessity. It is reasonable due to land in those areas are very prospective, but in other side it requires more engineering practice for using. One problem in those areas is landslide. The influence of human to the landslide event covers such following points: slope excavation, reservoir and drainage development, loading of upper valley side, and removal of vegetation. All of those activities will contribute to the landslide process in such areas, thus the risk aspect will be increase if there are uncontrolled human activities in that area.

Otherwise, coastal areas also become more prospective for human to be intervention. The alteration of natural landscapes become fish/shrimp-ponds, settlements or industrial areas, development of the tourism areas, and the land reclamation will raise the risk aspect in those areas. If the hazard events such as storms, tidal-floods, or tsunami occur, they will be very dangerous areas if the development does not consider the probability of natural hazard previously mentioned.

In those cases, human can be viewed as geomorphologic agent in relation to the geomorphologic context. Geomorphologic assessment should think about the anthropogenic factor to prevent the negative effects of human activities. It will be useful to assess the risk aspect in certain areas.

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