



A proposal for mitigation of floods in main colombian rivers

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Floods are naturally produced by rainfall and are a worldwide threat, which cannot be controlled. The effects of the floods are not proportional to the magnitude of the events in different parts of the world. It is due to the local risk management and the reduction of the vulnerability.

This research looks for the reduction of the effects of the heavy rainfall in the Magdalena River. Two main effects are detected: intensity of the rainfall and residence time of the flow in the river. Several factors were detected to increase the vulnerability of the Magdalena Valley. Those are the increase of sediment load caused by deforestation, mining and the lack of sustainable urban drainage systems.

Unfortunately, the majority of the Colombian actions have been aimed to the construction of public works for “controlling” the effects of the floods and reducing the territory vulnerability without any technical reason but private interests. All the investments are done with no planning or management. In a continue review of all the dikes and walls to avoid river floods, we appreciate that the failure of this elements increased the territory vulnerability, generating false expectation of security.

We propose some non-structural solutions in combination of structural ones for reducing costs of investments and emergency attention. The main conclusion of this work is based on the fact that natural hazards are unavoidable but they can be mitigated reducing the residence time of the water on the channels with the reactivation of old natural channels and constructing cutoff channels in the meandering valley.