



## **Impact of flooding on hazardous plants – Analysis and methodological proposal**

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France is exposed to various types of natural phenomena such as floods, earthquake, storms, landslides, forest fires, avalanches, to which can be added volcanic eruption and cyclones in overseas departments and territories... Because the natural events can have important human and economic consequences, prevention of natural hazards is a major concern in France.

Recent events (floods in the South of France or in Europe, earthquakes in Morocco or Japan, cyclone in the United States...) show that, when a natural hazard occurs, hazardous industrial plants are always at risk. Such facilities can potentially cause severe damage to the population and the environment. There is a need to consider these so-called "natech" disasters, and to establish mitigation strategies.

To this end, INERIS, in support with the French Ministry for Ecology, conducted several studies for better integrating flood risk as a parameter of industrial activity (regulation risk analysis, post-event investigations, expert judgement...). An example of application is to take into account flood risks in the safety report and the emergency plan of dangerous industrial facilities. The suggested methodology is based on a risk analysis of technical systems and devices prone to flooding in an industrial facility, and potential sources of major accidents. Flood risk must be considered as an external source of aggression and as a threat to the operability of safety barriers. The aim is to identify the possible scenarios of accidents and to highlight measurements of prevention, protection and intervention (already existing or to be considered).

This communication will introduce the following features: regulatory framework (land-use planning and industrial activity); lessons learned from past floods affecting hazardous industrial facilities; technical prescriptions to conduct safety-related activities in hazardous plants, including management of emergencies.