

An Approach to Disaster Management using Games and Agent Based Models

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Disaster response requires co-ordination and collaboration among multiple agencies, actors, resources and systems. Such situations requires actors from different domains to understand each others operations for a effective collaborative response. The ability to study various crisis situations allows one to plan the response, identify resources and understand the capabilities required. We discuss a platform capable of simulating and studying various aspects of interactions and system behavior with the help of agent based models and games.

This platform allows to study scenarios, co-ordination and interaction among actors and thus is key to understand the system and to build simulations. These results help understand the parameters involved and their respective behaviors while building agent based simulations. These studies can be carried out using anthropological/psychological methods to discover current behaviors and practices. Such data can also be collected through the use of games.

We developed and played a game to understand communication protocol at the Administrative Training Institute, Mysore, India. Here, we are trying to discover the patterns of communication during an emergency situation. Participants played the roles as defined in the current administrative structure. They were from the administrative staff and the army, with experience in handling such situations. During the debriefing session it was highlighted that the game resembled their everyday operations. The game also conveyed the reliance on informal communication systems, thus rendering them inadequate and prone to breakdown.

The strategies and patterns of communication observed can be converted into agent-behaviors in our platform to build a fairly accurate model of inter-agency communication system.