
ABSTRACT

Agricultural disaster impact analyses used for planning emergency operations are mainly based on empirical *in situ* analysis, and largely dependent on access to the affected area and on experts' experience. Not only are disaster impacts difficult to model but emergency situations often prevent sufficient collection of detailed georeferenced information, which would allow the calibration of impact models. Moreover, the urgency of relief operations hampers the development of necessary tools.

The Rapid Agricultural Disaster Assessment Routine (RADAR) is based on the idea that a disaster is the "product" of extreme factors and a vulnerable agricultural system. The current state of agricultural systems can be routinely collected in an information system. For extreme factors of geophysical origin, detailed quantitative and georeferenced data about their characteristics are known almost immediately after the event. Some pre- and post-impact data are also rapidly available through remote sensing. If impact models were readily available at the time of a disaster, this set of knowledge could be used to model impacts and to generate preliminary assessments very rapidly.

Part A (chapters 1-4) of the RADAR report proposes to move from empirical assessments towards model approaches. Once an event strikes a region, the user of the procedure should rapidly collect all available georeferenced and quantitative data on the event and the region. Subsequently, a Disaster Information Management System (DIMS) that integrates physical models, knowledge-bases, databases and GIS can be used to assess the short- and long-term agricultural impact of the event.

The procedure combines model analysis, based on physical simulation of the disaster, and empirical analysis, using people's records of the environmental disruption after the event. Both analyses may be used alone or concurrently and they can be updated in real time to improve the assessment. The output of the analyses is the geographical distribution of the intensity of the event, which is then used to compute the integrated impact (the loss) to agriculture produced by the disaster.

RADAR is a very powerful support tool for decision-making during a disaster impact assessment. Full implementation of the assessment procedure in a DIMS allows a rapid and accurate assessment of the impact of disastrous events on agriculture. Impact forecasting and updating using on-ground and satellite remote sensing data inputs are also resorted to. In the medium to long term

accumulated information and in-depth analyses should provide a significant contribution towards disaster preparedness and minimization of potential risks through early warning strategies and preparation of development plans that incorporate resilience to such disasters.

In Part B (chapters 5-8) the general approach of RADAR is illustrated by an example of the impact evaluation of Hurricane Mitch on the Honduran agricultural production system. The distributions of percentage loss and agricultural value per unit area are aggregated to calculate damage value for each region and each sector (forest, crop land, fruit trees, and pasture). The total impact is estimated to be about US\$ 750 million with 8 percent error margin. Combining information derived from historical disasters with current remote sensing data input could improve anticipation of tropical cyclone system impact, and support actions to be taken both during and immediately following an event.

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ACRONYMS

CINDI	Centre for Integrated Natural Disaster Information
CRED	Center for Research on the Epidemiology of Disasters
DB	Database (as part of DIMS)
DIMS	Disaster Information Management System
DSS	Decision-support system
EM-DAT	OFDA/CRED International Emergency Disasters Database
ESS	FAO Statistics Division
EOC	Emergency Operations Centre
GIEWS	Global Information and Early Warning System
GIS	Geographical Information System
KB	Knowledge-Base (as part of DIMS)
MB	Model-Base (as part of DIMS)
NOAA	National Oceanic and Atmospheric Administration (USA)
OFDA	The Office of U.S. Foreign Disaster Assistance
R&D	Research and Development
RADAR	Rapid Agricultural Disaster Assessment Routine
USGS	US Geological Survey
WFP	World Food Programme