Measuring the Impact And Recovery Pattern of Flood Using Dynamic Input Output Inoperability Model (DIIM): Pakistan a Case in Point

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Author: Muhammad Abdullah Khalid
Co-Authors: Yousaf ALI

MEASURING THE IMPACT AND RECOVERY PATTERN OF FLOOD USING DYNAMIC INPUT OUTPUT INOPERABILITY MODEL (DIIM): PAKISTAN A CASE IN POINT

Muhammad Abdullah Khalid* and Dr. Yousaf Ali Ph.D**
*MS in Engineering Management Department of Management sciences and Humanities.
Ghulam Ishaq khan Institute of Engineering Science & technology Pakistan
** Assistant Professor, Department of Management sciences and Humanities.
Ghulam Ishaq khan Institute of Engineering Science & technology Pakistan

Abstract
A disaster such as a flood can produce a sudden effect on interdependent infrastructure and economic sectors. Subsequently, it can reduce production-as-usual and cause significant economic losses. Therefore, forecasting the degradation of disrupted sectors and interval to recover from the dysfunctional state is essential to lessen the aftermath of the disaster. The resilience put forward by the critical sector or their ability to recover from the disruption can also reduce the consequence of the disaster. In this paper, resilience and recovery time are quantified through the application of Dynamic Inoperability Input-Output model (DIIM). DIIM is an application in I-O analysis which allows evaluating the resilience parameter and pattern of the inoperability level of interdependent sectors which propagates with respect to the time. In this paper, a case study is performed on the flood that hit Pakistan in 2011-12. The purpose of this study is to perform a case study in a developing country scenario to estimate the inoperability and economic loss caused by the particular disaster. Furthermore, to analyze the recovery pattern of affected sectors. To perform the analysis, Input-Output (I-O) table is constructed for Pakistan's economic system. The I-O table is constructed by utilizing different governmental and private resources. Findings of the research show that most of the critical sectors in terms of inoperability and economic loss are associated with agricultural and service sectors respectively. Furthermore, the article also develops a time varying output recovery to account sector recovery pattern after the disaster. The outcome will be essential for the policy makers and disaster management authorities to assess the resilience of each economic sector and plan accordingly in future to mitigate the consequence.