PERFORMANCE OF NATIONAL DISASTER MANAGEMENT ORGANIZATIONS: AN EVALUATION MODEL

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The literature on the performance of national public and non-profit organizations is sparse. The literature does address many aspects concerning the way in which public and non-profit organizations perform in disasters, but in most cases, the information is merely descriptive in nature. There are existing frameworks for performance evaluation in the literature, which are based on various attributes; however, there is no comprehensive statistical evaluation framework. What the literature lacks are strategic performance parameters and models that will track, measure, and evaluate performance to provide tangible ways to improve performance in disaster preparedness, mitigation and recovery.

It is important to evaluate the performance of national public and non-profit organizations in managing natural disasters. Our focus in such performance evaluation is a statistical model to evaluate such performance, with a suitable performance variable and relating this variable to some associated independent variables such as funding, manpower, training and coordination, as suggested by the literature.

There are six important frameworks used in performance evaluations: 1) there is a general evaluation framework with emphasis on one or two inputs, such as management and leadership qualities. The input perspective seems to dominate the literature. 2) A framework to identify and measure only one aspect of performance, such as the number of people served. 3) A framework to evaluate performance with regard to some benchmarks established by the organization, or by an outside peer group or supervising entity. 4) Employee satisfaction with the organization treated as a yardstick or a measure of performance. 5) The United Nations framework for disaster management evaluation, which uses a large number of variables and indicators as measures of performance. 6) There is a performance evaluation framework using "effectiveness" and "efficiency" as performance criteria.

We constructed a statistical model to evaluate performance. The model posits performance (P) as the dependent variable with four independent variables, funding (F), manpower (M), training (T), and coordination (C) and with two control variables political conditions (POLY) and gross domestic product (GDP).

Based upon a review of the literature, we selected four performance indicators: 1) response time; 2) duration of operations after the disaster; 3) the number of clientele served during this duration period and, 4) some measure of administrative cost per person served. The variables were measured in a Likert Scale: Excellent = 4, Good = 3, Fair = 2, Poor = 1.

The model presented here has several advantages. First, the model is general and is applicable to all country and organizational situations. Second, the model allows for inter-country and inter-organizational comparisons. Third, with necessary data, the model can be statistically estimated rigorously, not

currently done in evaluating disaster management performance. Fourth, P, the performance indicator, (the dependent variable) can take several forms, as suggested. Finally, the model can be utilized for collecting the necessary data from surveys of affected populations, the agencies involved, and/or experts.

We estimated the statistical model outlined to evaluate the performance of two national public organizations and one national public non-profit organization. The organizations selected were Federal Emergency Management Agency (FEMA), Environmental Protection Agency (EPA), and the American Red Cross. We randomly selected five major disasters for this study. Data were collected from thirty Disaster Management Experts in the Likert Scale cited earlier.

The regression results showed that when response time was considered as the performance indicator, coordination appeared to be the most important and statistically significant independent variable affecting performance of the EPA and the Red Cross, but not FEMA. In the case of duration of operation, coordination was again significant for EPA and the Red Cross, but not FEMA. But when the number of people served was considered as the performance indicator, coordination was found to be statistically significant for all the three agencies. With unit cost of service, the statistically significant factors were funding for all the three agencies, manpower for EPA, and coordination for Red Cross.

In conclusion, we believe that the comprehensive evaluation framework we have suggested and used is the most effective approach in evaluating the performance of national disaster management organizations. We are reviewing the model for application to a large data set.