Title of Project： The Worst Disaster Damage Scenarios Resulting National Crisis and Reduction

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Research Area : Social Safety Science, Natural Disaster Science
Keyword : Damage Estimation, Analysis, Disaster Management

【Purpose and Background of the Research】

Lessons learned from the 2011 Great East Japan earthquake disaster revealed that the disaster management and mitigation measures conceived from the perspective of "protecting society" is insufficient to address the "national crisis" due to the Tokai, Tonankai and Nankai earthquake or Tokyo Metropolitan earthquake whose damage must surpass the damage of this time.

This study discovers the weakness against disasters in modern society using the "reversal thinking" which investigates how disasters can attack human society and increase damage effectively. This process profiles the "worst scenarios of disaster" which can extend damage to the level of national crisis. Classifying these worst scenarios, we suggest policies to the problems that are common to many scenarios, and we present action plans to the independent problems.

【Research Methods】

First, we conduct workshops to identify damage magnification factors and evaluate their importance in the category of human damage, property damage, and damage of social function, unifying the awareness of research organization.

Second, researchers in 1)mortality, 2)tsunami inundation, 3)liquefaction, 4)capital function, 5)evacuation, 6)assistance required, 7)lifeline, 8)high buildings, 9)information network, 10)government system, 11)economy system analyze the condition of damage magnification occurrence from hazard, vulnerability and measure aspects.

Then, sorting final consequences and separating them according to the commonality, we propose new policies and concrete action plans to prevent the occurrence of worst scenarios.

【Expected Research Achievements and Scientific Significance】

This research will give the new paradigm in disaster management science, and new way of policy making and action planning to reduce the undesirable consequences of catastrophic earthquake and tsunami, deriving the new knowledge on disaster process and damage magnification scenarios.
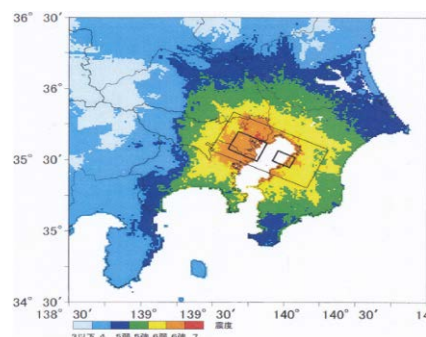

Figure 1　Estimated JMA seismic intensity due to Tokyo Metropolitan Earthquake

Photo 1　Great fire magnified 1923 Kanto Earthquake disaster. What will lead to extreme damage in the next?

【Publications Relevant to the Project】

Kawata, Y., Downfall of Tokyo Due to Devastating Compound Disaster, Journal of Disaster Research, Vol.6, No.2, pp.176-184, 2011.
Kawata, Y., View point of Disaster Prevention (Preparedness), TSUNAMI ~ To Survive from Tsunami, World Scientific, pp.177-187, 2008.

【Term of Project】 FY2012-2016

【Budget Allocation】 126,500 Thousand Yen

【Homepage Address and Other Contact Information】

http:// www.kansai-u.ac.jp/Fc_ss/