

日本－イスラエル 国際共同研究「レジリエントな社会のためのICT」 平成 29 年度 年次報告書	
研究課題名（和文）	大規模災害に対する都市レジリエンスの向上：災害管理と社会経済分析のためのダイナミック統合モデルの開発
研究課題名（英文）	Increasing Urban Resilience to Large Scale Disasters: The Development of a Dynamic Integrated Model for Disaster Management and Socio-Economic Analysis (DIM2SEA)
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研究期間	平成 27 年 12 月 1 日～平成 31 年 3 月 31 日

1. 日本側の研究実施体制

氏名	所属機関・部局・役職	役割
Erick Mas	Tohoku University / IRIDeS / Associate Professor	Project management and development of short-term model for human loss estimation and long-term model of socio-economic impact.
Shunichi Koshimura	Tohoku University / IRIDeS / Professor	Monitor of the project progress and provide support on data gathering, short-term model development and visualization stage
Rubel Das	Tohoku University / IRIDeS / Assistant Professor	Development of disaster support logistic models as a bridge between short-term and long-term simulations
Luis Moya	Tohoku University / IRIDeS / Researcher	Support throughout all activities in the project and development of earthquake hazard impact models.

2. 日本側研究チームの研究目標及び計画概要

During this fiscal year (2017FY) we aim to combine the earthquake damage model with a road blockage estimation model as the input scenario of evacuation simulation and disaster support logistic analysis. At the same time, the data disaggregation algorithm is tested to obtain a fine representation of population in the target area. Socio-economic profiling is conducted in collaboration with the Israeli group. On this fiscal year we expect to finish the development of short-term models and disaster support logistic model. In addition, long-term models and data disaggregation algorithms are developed during this and the next fiscal year. Multi-dimensional database and visualization work packages begin at this fiscal year with test prototypes of simulation and web visualization exercises.

3. 日本側研究チームの実施概要

During this fiscal year (2017FY) we have achieved results more than those that were planned within the short-term modeling by developing several methodologies and studies of building damage estimation, debris scattering assessment and road network disruption. We accomplished our year objective to combine the earthquake damage model with a road blockage estimation model as the input scenario of evacuation simulation and disaster support logistic analysis. At the same time, we developed the data disaggregation algorithm to obtain a fine representation of population in the target area. Long-term modeling activities remain for the next fiscal year. On this fiscal year we developed another disaster support logistic model related to optimization of warehouse allocation. This model is an additional to last year's relief strategy assessment model and serves as a link between short term and long-term models. Multi-dimensional database was obtained for building damage scenarios and visualization was tested in the ArcGIS Online environment.