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 28 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)
日本側研究代表者氏名	エリック・マス
所属・役職	東北大学・災害科学国際研究所・助教
研究期間	平成　27 年 12 月 01 日～平成 31 年 03 月 31 日

１．日本側の研究実施体制

ワークパッケージ①	Literature Review and Data Collection. (Stage 1)	
氏名	所属機関・部局・役職	役割
Erick MAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Compiles the information and gathers related existed work on topics of interest to the project.
Shunichi KOSHIMURA	Tohoku University / International Research Institute of Disaster Science / Professor	Delivers information on damage assessment models and tsunami impact assessment.
Rubel DAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Delivers information on urban resilience and disaster relief support. Also, state of the art in agent based modeling.

ワークパッケージ②	Socio Economic Profiling: Spatial Database Construction	
氏名	所属機関・部局・役職	役割
Rubel DAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Compiles the socioeconomic data of population in target areas and the downscaling algorithms.
Erick MAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Gathers the information and creates a spatial database repository.
Shunichi KOSHIMURA	Tohoku University / International Research Institute of Disaster Science / Professor	Contributes on spatial database construction.

ワークパッケージ③	Estimating Short-term resilience: Damage assessment. (Stage 2)	
氏名	所属機関・部局・役職	役割
Erick MAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Develops human loss estimation tools
Shunichi KOSHIMURA	Tohoku University / International Research Institute of Disaster Science / Professor	Supports on the development of hazard mapping, human loss and damage assessment models
Rubel DAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Develops post disaster relief support optimization models
Luis MOYA	Tohoku University / International Research Institute of Disaster Science / Researcher	Develops earthquake hazard and damage estimation models

ワークパッケージ④	Estimating Long-term resilience to change: ABM for land use and urban morphology. (Stage 2)	
氏名	所属機関・部局・役職	役割
Erick MAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Monitors and support group activities related to this work package
Shunichi KOSHIMURA	Tohoku University / International Research Institute of Disaster Science / Professor	Provides necessary support on spatial aggregated data from the target areas
Rubel DAS	Tohoku University / International Research Institute of Disaster Science / Assistant Professor	Agent based modeling and result analysis
Luis MOYA	Tohoku University / International Research Institute of Disaster Science / Researcher	Supports on the methodology transfer from Israel long-term models

２．日本側研究チームの研究目標及び計画概要

The objective for the first half of the year is to develop earthquake and tsunami hazard mapping and human loss estimation tools to assess the impact of disasters in the target areas. Then, on the second half of the year, building damage estimation tools and post-disaster relief support models are developed. On the other hand, socio profiling of population for urban simulations of short and long-term models are developed. We expect by the end of the year to deliver a spatial database repository and socioeconomic profiling of population in the targeted areas.

３．日本側研究チームの実施概要

The previous fiscal year (2016FY) the project was focused on four work packages with the following progress at each end: (1) literature review and data collection; we have produced a comprehensive background through seven working papers on a variety of topics related to the project. Furthermore, data collection was carried on by compiling the spatial information and aggregated data in the target area. (2) Socio economic profiling and methodologies were discussed with the Israeli group in several meetings. An improved approach for data disaggregation is being research at both ends of the project. A preliminary algorithm for census tract allocation in building data was developed, further improvement to incorporate other socioeconomic parameters is in progress. (3) Within this fiscal year, our main focus was the estimation of short-term resilience through hazard mapping and damage assessment methodologies and models. In particular, earthquake hazard mapping and damage estimation approach was developed using fragility curves. Case studies of seismic fragility curves were evaluated for the 2016 Kumamoto EQ case and for tsunami fragility curves, the 2011 Japan tsunami was used as the reference data. (4) Disaster relief modeling is developed incorporating transport disruption for effective network strategy decision. The relief model will become the link between short-term and long-term models. In addition, we accomplished our first milestone of constructing a spatial database for the DIM2SEA project. Moreover, a web page was jointly set up to outreach the progress of the project. (http://dim2sea.huji.ac.il)