

# 2011 Great East Japan Earthquake and Tsunami: Challenges and Opportunities to Improve Disaster Management, Recovery and Reconstruction

## (Symposium on Humanitarian Logistics and Emergency Management)

**Representative:** Eiichi Taniguchi

**Date:** February 1, 2012

**Place:** Jin-Yu Hall, Katsura Campus, Kyoto University, Japan

**Co-organized by** Japan Science and Technology Agency (JST), Kyoto University Global COE Program  
"Global Center for Education and Research on Human Security Engineering for Asian Megacities"

**Participants:** Prof. Eiichi Taniguchi (Kyoto University), Mr. Sanjaya Bhatia (International Recovery Platform/UNISDR), Dr. Frederico Ferreira (Kyoto University), Prof. Hugo Yoshizaki (University of São Paulo), Prof. Ali Gul Qureshi (Kyoto University), Prof. Yuki Nakamura (Kyoto University), Dr. Rojee Pradhananga (Kyoto University), Mr. Andie Pramudita (Kyoto University), Mr. Rubel Das (Tokyo Institute of Technology), Mr. Tsunenori Ando (Tokyo Institute of Technology)

**Number of Participants:** 20

### Purpose

The complex environment left by the huge humanitarian crises of the 2011 Great East Japan Earthquake and Tsunami in Tohoku region, Japan has put forward several questions to academics and practitioners of disaster planning, emergency preparedness and business continuity. The purpose of the symposium is to bring an opportunity for multidisciplinary researchers to discuss and exchange ideas on:

- Risk management strategies in the context of natural hazards;
- Emergency management response and recovery;
- Reconstruction after natural disasters;
- Debris management after disasters; and
- Modeling techniques applied for disaster mitigation.

The overall objective is to allow the proposal of innovative academic and practical approaches to reduce the post-disaster effect.

### Achievement and Results

The objective of the workshop was successfully accomplished through active participation of academics and practitioners from multidisciplinary fields. The common objective was to lessen effects of future disasters through efficient planning.

The concepts of disaster management, recovery planning and preparedness were discussed. Several past disasters including The 2011 Great East Japan Earthquake and Tsunami in Tohoku region Japan were presented. Issues and lessons left behind were outlined. The current practice of post-disaster recovery and research ideas for making the future disaster recovery process more efficient were discussed. Most importantly the workshop provided an opportunity of group discussion for practitioners and people from academia of different fields to understand the disaster management recovery and reconstruction process more precisely. Participants of the workshop commended importance of such events and were looking forward for organization of such events in future as well.

Opening address by Prof. Eiichi Taniguchi



Discussion among participants during the Symposium



# 2011 東日本大震災と津波－災害マネジメント，復旧，復興を改善するための チャレンジと機会－（ヒューマニタリアンロジスティクスと非常時に関する シンポジウム）

代表者： 谷口 栄一

開催日時： 2012 年 2 月 1 日

開催場所： 京都大学桂キャンパス

主催： 科学技術振興機構（Japan Science and Technology Agency），京都大学グローバル COE プログラム「アジア・メガシティの人間安全保障工学拠点」

参加者： 谷口栄一（教授，京都大学），Sanjaya Bhatia（事務局長，国際復興支援プラットフォーム），Frederico Ferreira（特定研究員，京都大学），Hugo Yoshizaki（准教授，サンパウロ大学），Ali Gul Qureshi（講師，京都大学），中村有克（助教，京都大学），Rojee Pradhananga（特定研究員，京都大学），Andie Pramudita（学生，京都大学），Rubel Das（学生，東京工業大学），安藤恒徳（学生，東京工業大学）

参加人数： 20 名

## 目的・概要

2011 年に日本の東北地方を襲った東日本大震災は甚大な被害を及ぼし、混乱を引き起こした。東日本大震災により引き起こされた混乱した状況は、研究者、実務家双方にとって、防災計画、緊急時への備え、事業継続性など多くの問題を突き付けた。本シンポジウムでは、多分野にわたる研究者による意見交換の機会をもたらすことを目的としている。

- ・ リスクマネジメント戦略
- ・ 緊急時の対応と復旧
- ・ 復興
- ・ 廃棄物マネジメント
- ・ 災害緩和に向けたモデル研究

被災後の減災に向けて、学術的な面、実践的な面から議論し、有用な提案を目指している。



Sanjaya Bhatia 氏による発表の様子

## シンポジウムの様子・得られた成果

様々な参加者の積極的な協力により、ワークショップは成功のうちに終了した。将来の災害による被害軽減を目指し、効果的な計画が重要であることを確認した。

災害マネジメント，復旧計画，災害への備えなどの方向性について，議論した。東日本大震災を含めた過去の災害について発表がなされた。災害後に残された問題や教訓を概説した。災害からの復旧の現在の取り組みや将来の災害復旧のための研究構想を議論した。本ワークショップの最大の成果は，災害マネジメントとして復旧と復興の過程をより詳細に理解するため，様々な分野の実務家と学識者が集い，議論する機会をもうけたことである。ワークショップの参加者は本ワークショップの意義を改めて確認し，また同様のワークショップが開催されることに期待を込めていた。



Hugo Yoshizaki 准教授による発表の様子

# 2011 Great East Japan Earthquake and Tsunami: Challenges and Opportunities to Improve Disaster Management, Recovery and Reconstruction (Symposium on Humanitarian Logistics and Emergency Management): An Overview

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**Key Words:** *Disaster management, Humanitarian Logistics*

## Introduction

The symposium “2011 Great East Japan Earthquake and Tsunami: Challenges and Opportunities to Improve Disaster Management, Recovery and Reconstruction (Symposium on Humanitarian Logistics and Emergency Management)” concluded successfully with contributions from participants mainly the academic researchers and practitioners in the field of disaster management, recovery and reconstruction. The symposium started with an opening address of Prof. Eiichi Taniguchi. Prof. Taniguchi is directly involved in several research studies relating to humanitarian logistics and expressed several experiences relating to “The 2011 Great East Japan Earthquake and Tsunami” during the address. The address was followed four presentations divided under two sessions. There were two invited speakers. An enthusiastic crowd filled the speakers with questions after each of the four presentations.

## Presentations

**Presentation 1:** “Recovery and Reconstruction: Options and cases from global best practices” by Mr. Sanjaya Bhatia (International Recovery Platform / UNISDR)

Mr. Bhatia is the secretariat of International Recovery Platform, UNISDR. He commenced the presentation with basic concepts of disaster management, mitigation and preparedness. Afterwards, he shared his experiences to several past crucial disasters and the recovery process applied by International Recovery Platform. The main highlights of the presentation were lessons learnt from past disaster experiences. A strong emphasis was given to resilient recovery. In addition, several economic and legal and public policy issues that affect the recovery process were discussed.

**Presentation 2:** “Tohoku disasters and implications on emergency management and post-disaster humanitarian logistics” by Dr. Frederico Pedroso (Kyoto University)

In addition to earthquake and tsunami, Fukushima nuclear crises was another major disruptive event during the Tohoku disaster. During the presentation Dr. Frederico talked on several difficulties arose after the triple disaster in tohoku region. With the challenges experienced due to uncoordinated decision-making and lack of leadership, the presentation outlined need of central leadership and coordination by the National Government as one of the important lesson to be realized. Importance of large scale planning, need to invest on alternative ways to share information, and more efficient planning of the complex post-disaster logistics tasks were also points of discussion.

**Presentation 3:** “Modeling of debris collection operation after disaster” by Andie Pramudita (Kyoto University)

Starting with discussion on the huge amount, 26.73 million tons of debris collected after the “2011 Great East Japan Earthquake and Tsunami”, the presentation firstly demonstrated debris collection as one of the major post-tsunami issue. A research idea to model and solve the debris collection problem was presented. The idea was to formulate the problem as a Capacitated Vehicle Routing Problem (CVRP) making the problem more easily solvable. A virtual test instance was generated and is solved using Tabu Search Algorithm. Numerical tests were performed with operation of single and multiple vehicles and also with location of intermediate depot.



Presenters of the symposium on humanitarian logistics and emergency management

**Presentation 4:** "Challenges for Humanitarian Logistics in Brazil and Sao Paulo" by Prof. Hugo Yoshizaki (University of São Paulo)

The presentation started with an overview of disasters in Latin America. Showing the geography, meteorology and historical records of past disasters, the presentation mentioned drought, flood and landslides are the major disasters in Brazil. Several past disaster cases and their effects were discussed. Finally, progress of a newly initiated academic Humanitarian Logistics Project was demonstrated. Literature review conducted on a vast numbers of researches in humanitarian logistics was shown.

#### **Conclusion**

The symposium was successfully accomplished disseminating several key ideas behind disaster management recovery and reconstruction. It served as a platform for practitioners and members of academia to exchange knowledge, ideas and experiences in the field. Finally, Prof. Taniguchi concluded the symposium commending on importance of organization of such events in future as well.