

The 2<sup>nd</sup> Symposium on JASTIP Disaster Prevention International Cooperation Research  
(JASTIP-WP4 Symposium)

# Pre-disaster Recovery Planning in ASEAN

March 23, 2017

**Kensuke OTSUYAMA**, Norio, MAKI

Disaster Prevention Research Institute, Kyoto University  
Doctoral Student



***Kyoto University***

*Disaster Mitigation Planning for Built Environment Laboratory*  
Graduate School of Engineering / Disaster Prevention Research Institute (DPRI)



# Contents

- Background
  - Pre-disaster recovery planning (PDRP) in Japan
- Research Objective and Methodology
- Progress of the research
- The Way Forward



# Background: Trend of Natural Disaster in Asia

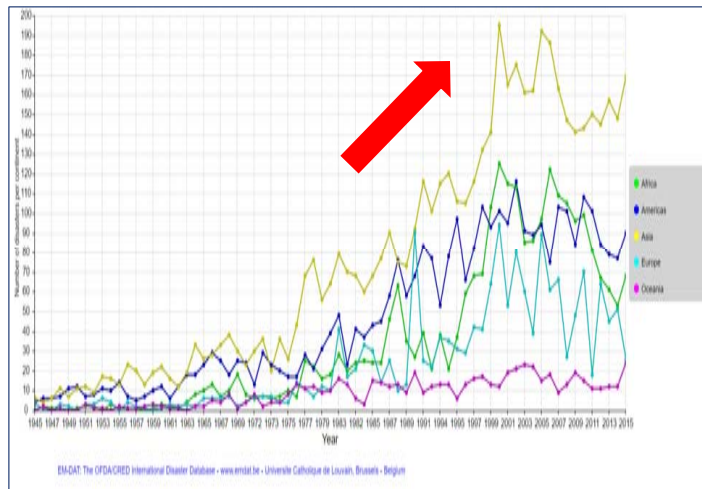


Figure.1

Occurrence of natural disasters in 1945—2015

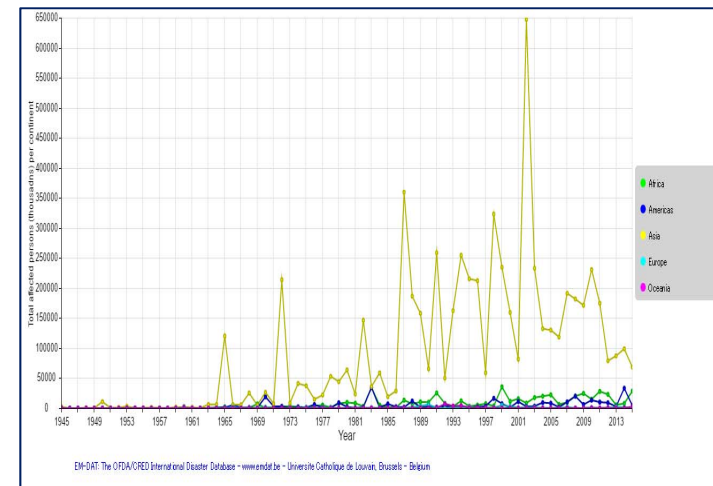


Figure.2

Number of Victims from natural disasters in 1945—2015

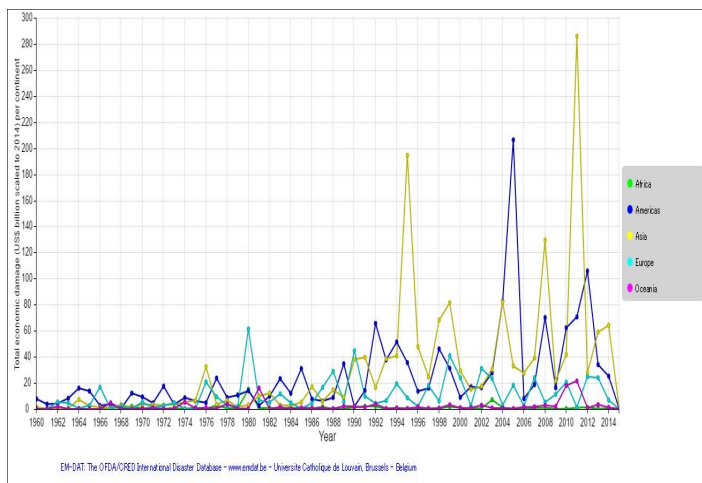


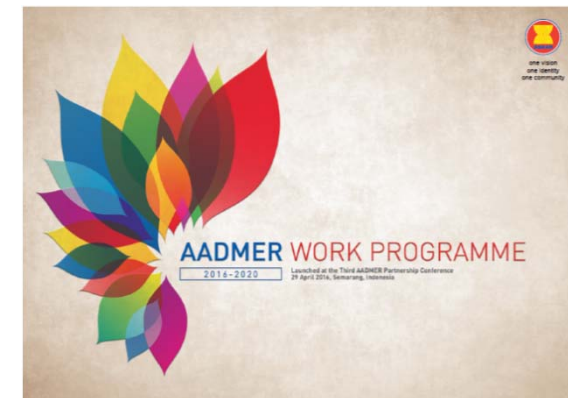
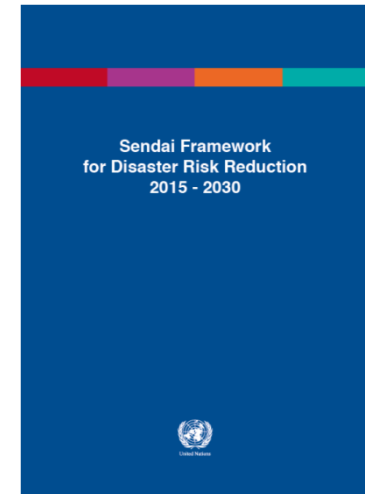
Figure.3 Damage Cost (US\$) 1945—2015

- Incremental trend particularly in Asia
- Damage and loss are increasing

Source: Created from EM-DAT <http://www.emdat.be/database>

# Recovery: Global Agenda & needs in ASEAN

- Sendai Framework for Action (UNISDR, 2015)
- Recovery is one of prioritized agenda in the framework
- AADMER Work Programme 2016-2020 in a component of pre-disaster recovery
- Outputs 1.5 National and local pre-disaster recovery arrangements (AADMER, 2016)



# ***What is pre-disaster recovery planning (PDRP) ?***

## **Pre-disaster Recovery Planning (PDRP)**

“is any planned attempt to strengthen disaster recovery plans, initiatives, and outcomes- before a disaster occurs.” (IRP, 2011)

### **Challenges of recovery planning;**

- **Time-limitation**
- **Complex issues** such as land use, housing, infrastructure, economics, etc..



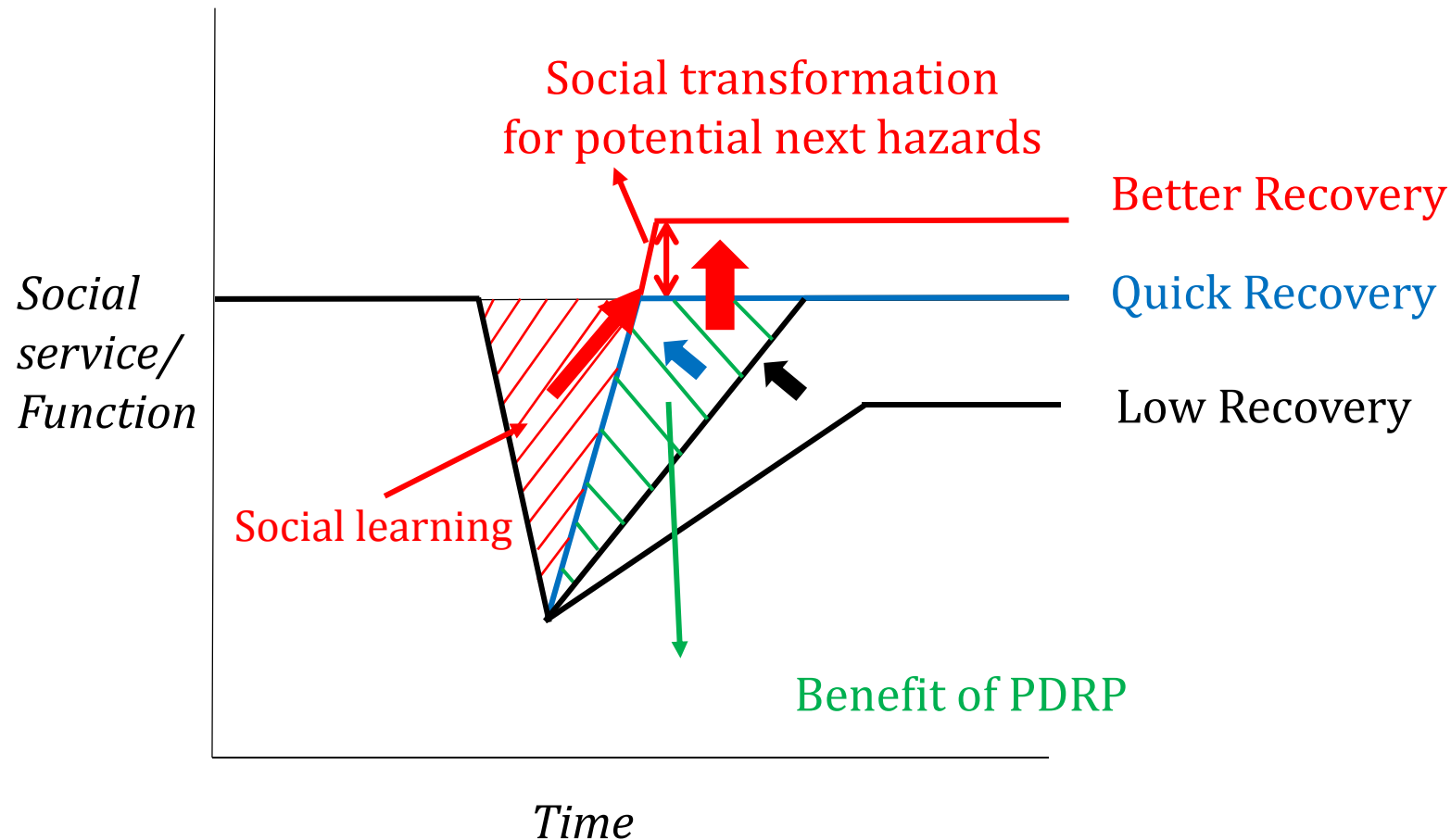
# *Why pre-disaster recovery planning (PDRP) ?*

## **Opportunity of PDRP;**

- **No need to rush** to prepare plans in peace-time
- **Prioritize the activities** for mitigation by PDRP
- **potential to minimize the vulnerability** in high risk area



# Schematic Concept of PDRP



# The History of PDRP in Japan

Table.1 History of PDRP in Japan

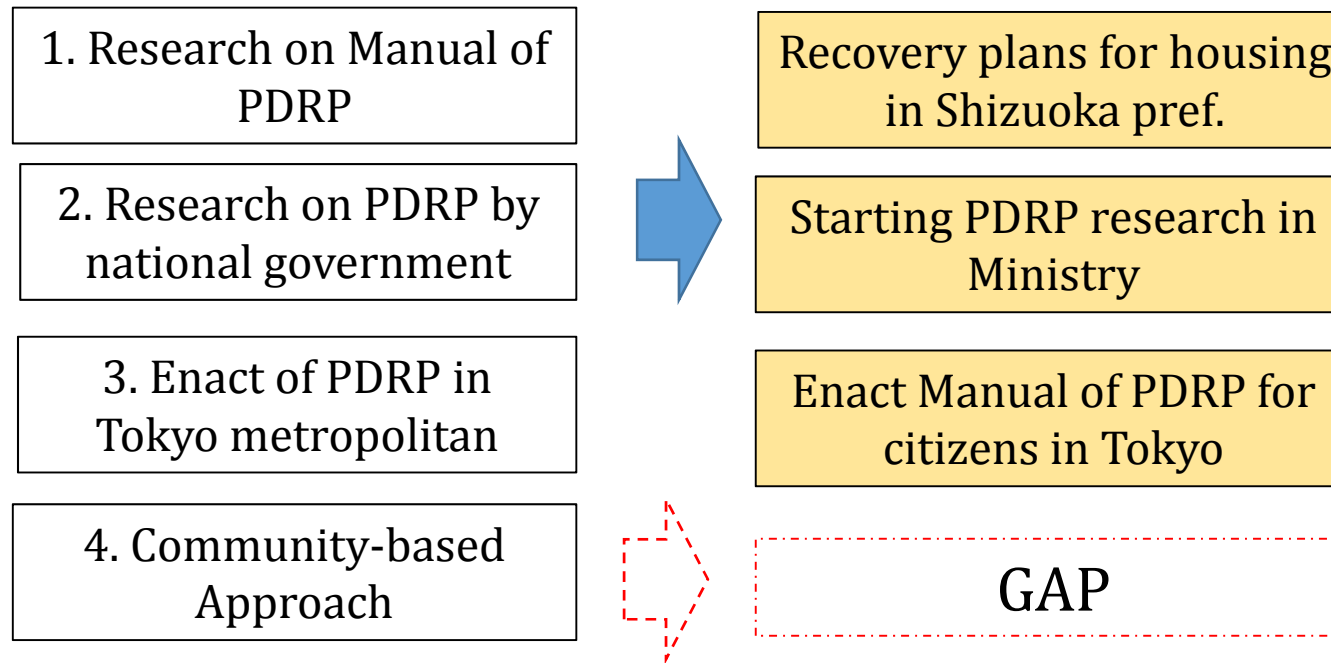
年	国内災害	学術研究	防災行政
1970s			
1986			<ul style="list-style-type: none"> <li>「震災市街地復旧指針策定調査」において事前復興が論じられる</li> </ul>
1995	阪神大震災発生	<ul style="list-style-type: none"> <li>阪神大震災復興過程の中で室崎教授らが事前復興の重要性を指摘</li> </ul>	
1996, 1997		<ul style="list-style-type: none"> <li>日本建築学会 特別委員会による事前復興計画に関する連続シンポジウム実施</li> </ul>	<ul style="list-style-type: none"> <li>「平成8年度復興施策検討調査報告書」発表</li> <li>「東京都都市復興マニュアル」策定</li> </ul>
1998	① After Hanshin Awaji Earthquake		<ul style="list-style-type: none"> <li>「大阪府震災復興都市づくりガイドライン」発表</li> <li>「東海地震等からの事前復興計画策定調査報告書」(国土省防災局)</li> <li>「東京都生活復興マニュアル」策定</li> </ul>
1999		<ul style="list-style-type: none"> <li>論文「都市の地震災害に対する事前復興計画の考察」発表(中林)</li> </ul>	<ul style="list-style-type: none"> <li>「南関東地域直下の地震に対する復興準備計画」の策定に関する調査報告書</li> <li>「ふじの国住宅復興プラン」策定(静岡県)</li> </ul>
2004, 2005	新潟県中越地震発生	<ul style="list-style-type: none"> <li>饗庭、他「震災復興まちづくり模擬訓練手法の開発」</li> <li>市古、他「地域共同型事前復興準備の可能性」</li> </ul>	<ul style="list-style-type: none"> <li>「復興準備計画策定の推進に関する調査報告書」(内閣府)</li> </ul>
2007	② After Chuetsu Earthquake		<ul style="list-style-type: none"> <li>「復興準備計画策定の推進に関する報告書」(内閣府)</li> </ul>
2009		<ul style="list-style-type: none"> <li>市古、他「事前復興対策としての東京都市復興図上訓練の考察」</li> </ul>	<ul style="list-style-type: none"> <li>「地方公共団体における災害復興対策の推進に関する調査報告書」(内閣府)</li> </ul>
2010			<ul style="list-style-type: none"> <li>「地方公共団体における災害復興事前対策の推進に関する調査報告書」(内閣府)</li> </ul>
2011, 2012	東日本大震災発生	<ul style="list-style-type: none"> <li>加藤、他「復興状況イメージトレーニング手法の構築」</li> </ul>	<ul style="list-style-type: none"> <li>「栃木県都市復興ガイドライン」策定</li> </ul>
2014	③ After Tohoku Earthquake and Tsunami		<ul style="list-style-type: none"> <li>「国土強靱化基本計画」が閣議決定され、8つの「事前に備えるべき目標」を掲げる</li> </ul>
2015, 2016	熊本地震	<ul style="list-style-type: none"> <li>市古「事前復興まちづくりの現在」</li> </ul>	<ul style="list-style-type: none"> <li>静岡県「事前復興行動計画」策定</li> <li>「埼玉県震災都市復興の手引き」策定</li> <li>「三重県復興指針」策定</li> </ul>





# ①After Hanshin Awaji Earthquake (1995- )

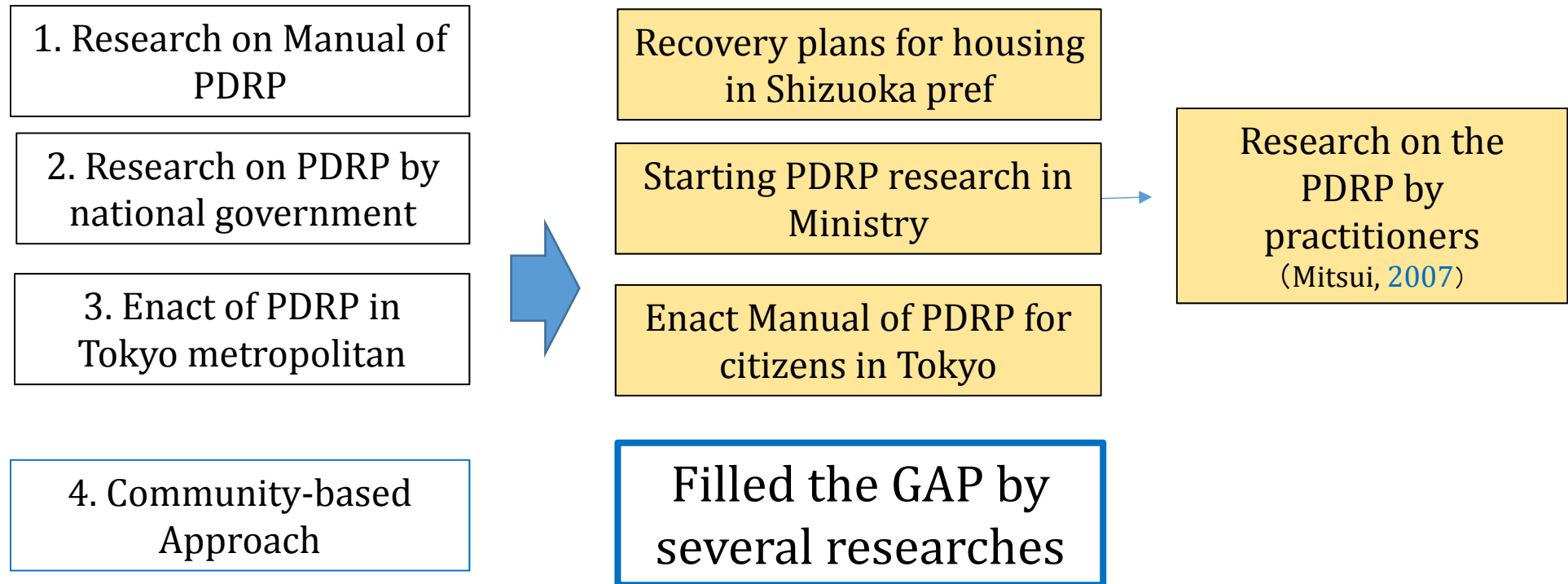
- The consecutive symposiums for PDRP were held in 1997
- 4 issues are proposed



Reference: 日本建築学会・兵庫県南部地震委員会:第1回事前都市復興計画のビジョン 兵庫県南部地震特別研究委員会 特定研究課題6 1997年  
東京都:東京都生活復興マニュアル 東京都 1998年  
静岡県:ふじの国住宅復興プラン 静岡県 1999年



## ②After Chuetsu Earthquake (2004- )



“Community Training Method” (Aiba, et.al, 2004),

“Neighborhood community-training Program” (Ichiko, et al. 2005)

Reference: 梶庭伸・他: 震災復興まちづくり模擬訓練手法の開発 日本建築学会技術報告集 第20号, pp.377-382 2004年  
市古太郎・他: 震災復興まちづくり模擬訓練による地域共同型事前復興準備の可能性: 新小岩地区における実践と参加者調査から  
Journal of Social Safety Science (7), pp.385-394 2005年  
内閣府: 地方公共団体における災害復興事前対策の推進に関する調査報告書 内閣府 2009年  
三井康壽: 防災行政と都市づくり-事前復興計画の構想 信山社 2007年



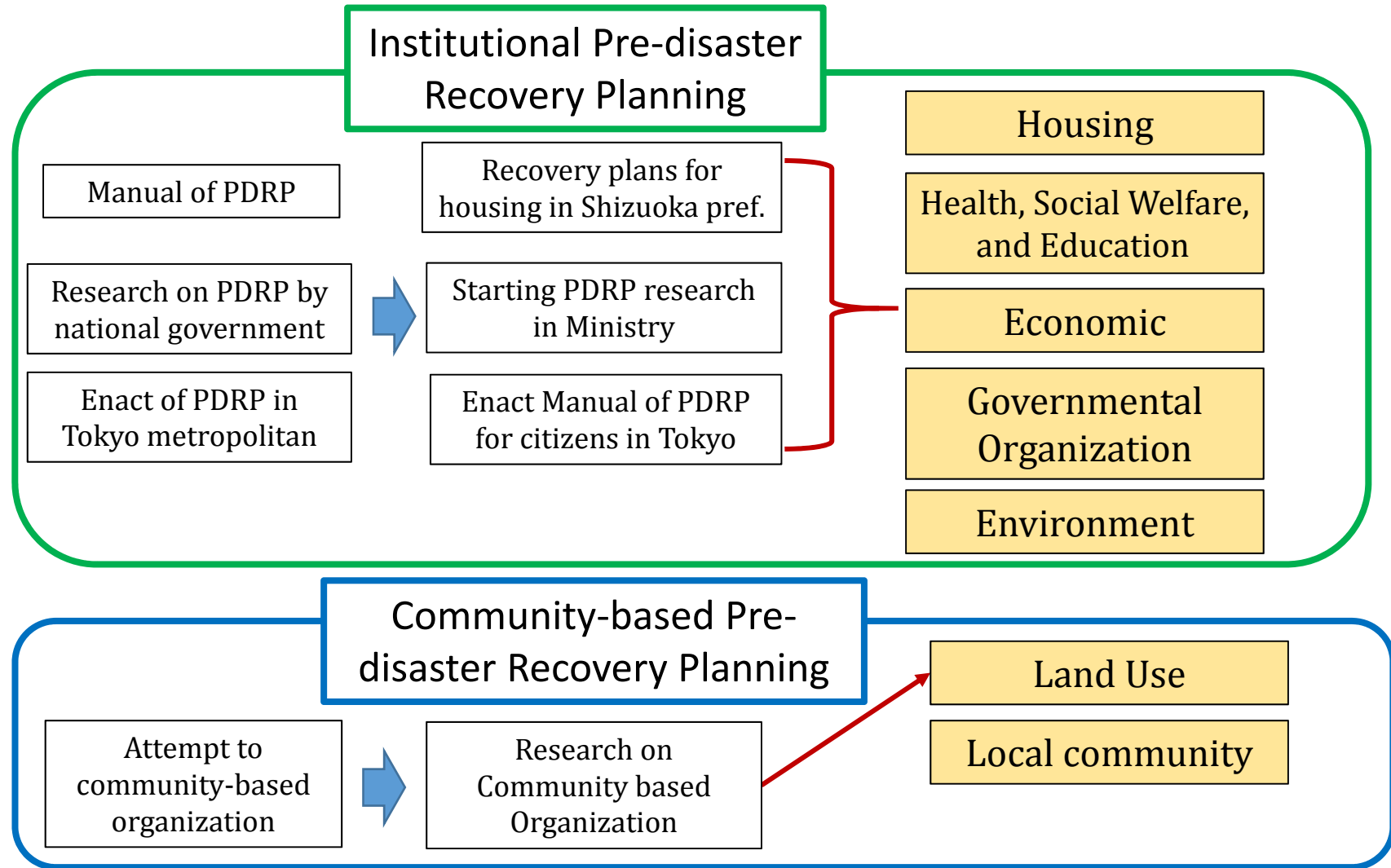
**Kyoto University**

Disaster Mitigation Planning for Built Environment Laboratory  
Graduate School of Engineering / Disaster Prevention Research Institute (DPRI)



### ③After Tohoku Earthquake and Tsunami (2011-)

## Two kind of PDRP



# Seven Components on PDRP in Japan

1. Housing
2. Land Use
3. Governmental Organization
4. Health, Social Welfare, and Education
5. Economic Revival
6. Local Community
7. Environment

- PDRP has two type (Government & Community-based)
- PDRP components are selected through the several experience of mega-natural disasters

**Same components in ASEAN?**

**Need to identify lessons learnt from previous disasters and policy transition**



# Objective and Hypothesis

## Objective

1. To identify social leaning in affected areas from the previous disasters through the Resettlement Projects
2. To analyze social transformation through the examination of policy transition

## Hypothesis

If the lessons learnt from previous disasters (social learning) are incorporated into institutionalized changes (social transformation), better recovery is achieved.



# Methodology

- ① List up the records of the mega-natural disasters in ASEAN countries  
(more than 100 casualty since 1990)
- ② Categorize based on the risks and hazards
- ③ Identify Case study country where affected frequent mega-natural disasters

Table.2 Structure of DRR Legislation

Law	Plans
<b>Disaster Risk Reduction Act</b>	Emergency Response
	Basic DRR Plan
	Recovery Plan
	Pre-disaster Recovery Plan
	Coordination with Development Plan



# DRR Legislative Structure in ASEAN

Country (World Risk Report 2014 Rank)	Natural Disaster History <small>(More than 100 casualty since 2000)</small>	Natural Disaster after Legislative Setting	DRR Legislative Structure					
			DRR basic Act	Emergency Response	Basic DRR Plan	Recovery Plan	Pre-disaster Recovery Plan	Coordination with Development Plan
Philippines (2)	Pinatubo, 1991	Typhoon, 2013	Republic Act 10211(Disaster Risk Reduction & Management Act)(2009)	National Disaster Response Plan (2014)	The National Disaster Risk Reduction & Management Plan 2011 to 2028(2012)	Yolanda Comprehensive Rehabilitation and Recovery Plan (2014)	N/A	Indicated in Philippines Development Plan 2011-2016
Cambodia (9)	Flood, 2011	N/A	Law on Disaster Management (2015)	N/A	National Action Plan and Strategy on Disaster Risk Reduction 2014-2018 (2014)	N/A (There is an Assessment)	N/A	Indicated in National Strategic Development Plan 2014-2018 pp140
Brunei (12)	N/A	N/A	Disaster Management Order (2006)	National Standard Operating Procedures (2016)	Strategic National Action Plan for Disaster Risk Reduction 2012-2025 (2012)	N/A	N/A	One of Security Strategy in Tenth National Development Plan (2012- 2017)
Vietnam (18)	Typhoon, 2008	N/A	Law on Natural Disaster prevention and Control (2013)	N/A	National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020	N/A	N/A	Indicated in Viet Nam Development Strategy for 2011-2020
Indonesia (34)	Tsunami, 2004	Earthquake 2016	Disaster Management Law (2012)	N/A	National Disaster Management Plan 2010- 2014, 2015-2019	N/A	N/A	Indicated in National Development Plan (RPJMN2005- 2025)
Myanmar (43)	Typhoon, 2008	Flood, 2015	Natural Disaster Management Law (2013)	Emergency Response Preparedness Plan (2014)	Myanmar Action Plan on Disaster Risk Reduction (2012)	National Recovery Framework & Plan Flood & Landslide 2015 (2016)	N/A	Not related in National Sustainable Development Strategy for Myanmar (2009)
Thailand (90)	Tsunami, 2004 Flood, 2011	N/A	Disaster Prevention and Mitigation Act (2007)	N/A	National Disaster Prevention and Mitigation plan 2010-2014	N/A	N/A	One of Sector Goal in Development Plan
Malaysia (88)	N/A	N/A	Policy and Mechanism in the Management of National Disaster and Relief in Malaysia (1997)	N/A	N/A (Only National slope master plan 2009-2023 )	N/A	N/A	One of Target in Eleventh Malaysia Plan 2016-2020
Lao (100)	N/A	N/A	N/A (there is a Committee)	N/A	Strategic Plan on Disaster Risk Management in Lao PDR 2020, 2010, and action plan (2003- 2005)	N/A	N/A	One of output in Five year National Socio-Economic Development Plan VIII 2016-2020
Singapore (160)	N/A	N/A	N/A (Civil Defense Act)	N/A	N/A	N/A	N/A	Not Indicated in Sustainable Singapore Blueprint 2015

# Categorized Types in ASEAN

Level of Risk	Past Disaster	Country (World Risk Report 2014 Rank)	Natural Disaster History (More than 100 casualty since 2000)	Natural Disaster after Legislative Setting	DRR Legislative Structure					
					DRR basic Act	Emergency Response	Basic DRR Plan	Recovery Plan	Pre-disaster Recovery Plan	Coordination with Development Plan
High Risk	Typhoon Recovery	Philippines (2)	Eruption, 1991	Typhoon, 2013	Republic Act 10211(Disaster Risk Reduction & Management Act)(2009)	National Disaster Response Plan (2014)	The National Disaster Risk Reduction & Management Plan 2011 to 2028(2012)	Yolanda Comprehensive Rehabilitation and Recovery Plan (2014)	N/A	Indicated in Philippine Development Plan 2011-2016
	Flood Recovery	Myanmar (43)	Typhoon, 2008	Flood, 2015	Natural Disaster Management Law (2013)	Emergency Response Preparedness Plan (2014)	Myanmar Action Plan on Disaster Risk Reduction (2012)	National Recovery Framework & Plan Flood & Landslide 2015 (2016)	N/A	Not related in National Sustainable Development Strategy for Myanmar (2009)
	Earthquake Recovery	Indonesia (34)	Tsunami, 2004	Earthquake 2016	Disaster Management Law (2012)	N/A	National Disaster Management Plan 2010-2014, 2015-2019	N/A	N/A	Indicated in National Development Plan (RP)MN2005-2025)
	Non Experience Mega-disaster since Legislative Setting	Cambodia (9)	Flood, 2011	N/A	Law on Disaster Management (2015)	N/A	National Action Plan and Strategy on Disaster Risk Reduction 2014-2018 (2014)	N/A (There is an Assessment)	N/A	Indicated in National Strategic Development Plan 2014-2018 pp140
		Thailand (90)	Tsunami, 2004 Flood, 2011	N/A	Disaster Prevention and Mitigation Act (2007)	N/A	National Disaster Prevention and Mitigation plan 2010-2014	N/A	N/A	One of Sector Goal in Development Plan
		Vietnam (18)	Typhoon, 2008	N/A	Law on Natural Disaster prevention and Control (2013)	N/A	National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020	N/A	N/A	Indicated in Viet Nam Development Strategy for 2011-2020
	-	Brunei (12)	N/A	N/A	Disaster Management Order (2006)	National Standard Operating Procedures (2016)	Strategic National Action Plan for Disaster Risk Reduction 2012-2025 (2012)	N/A	N/A	One of Security Strategy in Tenth National Development Plan (2012-2017)
Low Risk	-	Malaysia (88)	N/A	N/A	Policy and Mechanism in the Management of National Disaster and Relief in Malaysia (1997)	N/A	N/A (Only National slope master plan 2009-2023 )	N/A	N/A	One of Target in Eleventh Malaysia Plan 2016-2020
	-	Lao (100)	N/A	N/A	N/A (there is a Committee)	N/A	Strategic Plan on Disaster Risk Management in Lao PDR 2020, 2010, and action plan (2003-2005)	N/A	N/A	One of output in Five year National Socio-Economic Development Plan VIII 2016-2020
	-	Singapore (160)	N/A	N/A	N/A(Civil Defense Act)	N/A	N/A	N/A	N/A	Not Indicated in Sustainable Singapore Blueprint 2015



# Selected case Studies



Rebuild bamboo house in Hinthada

Cyclone Nargis, 2008,  
Hinthada,

Ayeyarwarddy, Myanmar  
Flood, 2015

Tsunami Aceh,  
Indonesia, 2004

Earthquake, 2016



Pinatubo Eruption, 1991

Tacloban & Samar,  
Philippines  
Typhoon, 2013



Self-built Repaired house in Samar

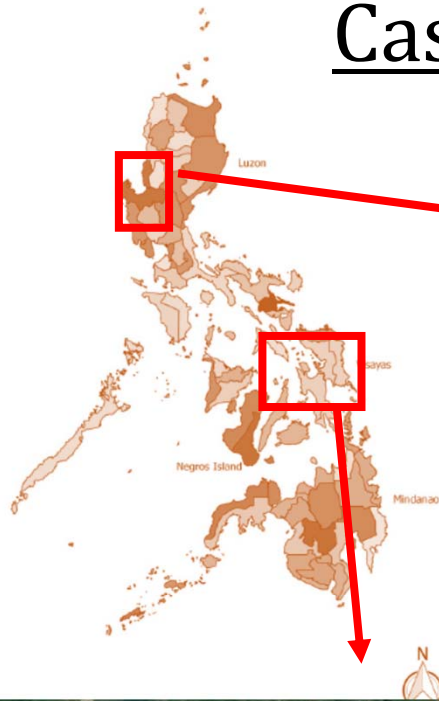


**Kyoto University**

Disaster Mitigation Planning for Built Environment Laboratory  
Graduate School of Engineering / Disaster Prevention Research Institute (DPRI)

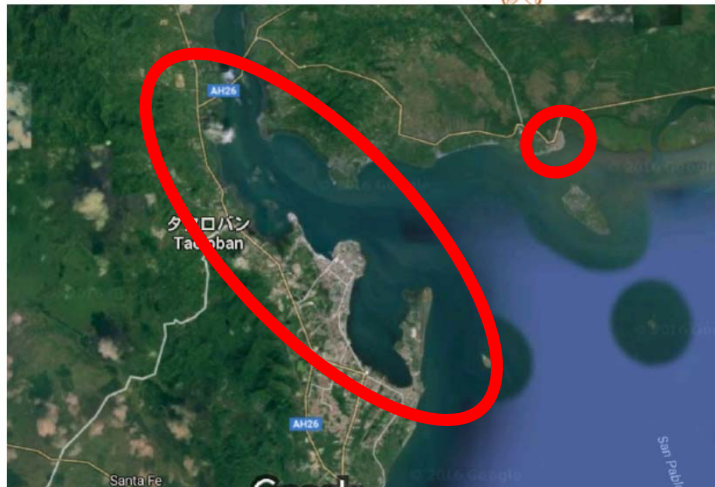


# Case Studies in the Philippines



Pinatubo eruption 1991 affected area  
Resettlement site in Porac, and Talac

Typhoon Yolanda affected area  
Resettlement site in Basey city, Samar  
island  
Tacloban, Leyte island



Reference: Yolanda Comprehensive Rehabilitation & Recovery Plan  
Philippine Statistic Authority <https://psa.gov.ph/content/population-region-viii-eastern-visayas-based-2015-census-population>



# Framework of Case Study in the Philippines

Pinatubo Eruption 1991		Up-lander (Aeta Tribe)	Low-Lander
	Government	Kalangitan	EPZA
	Non-Government	Katutubo Village	Philippine American Friendship Village (Toyoshima, 1995)
Typhoon Yolanda 2013		Urban: Tacloban	Rural: Basey
	Government	NHA	NHA: Tingib Pointe
	Non-Government	UN-Habitat	Barangay Bacubac

## Methodology

- Household survey: 8 households × 4 communities
- Donors Interview



# Key Findings I:

## Difference of settlement ratio by donors

- After 20 years from Pinatubo resettlement, residents in non-government site are higher than government one'
- Former residents **sold the house and back to mountain**
- **Education** is the major reason to be remained the site (Accessibility)
- The site of "*Community Mortgage Program*" observed high remaining ratio of settlement because of obtaining of the **land title** after the complete repayment

Not only housing, but also Land Title is the key for long-term recovery

