

ANNEX I: Detail of Phase in Japan

Outputs	Subjects/Agendas				Methodology
	Category	Seismology group (S group)	Earthquake Engineering group (E group)	Tsunami Disaster Mitigation group (T group)	
(1) To acquire basic concepts and theories (general)	Orientation	- Overview of Earthquake, Tsunami and Disasters	- Guidance - Introduction to Earthquake Engineering - Computer	- Overview of Earthquake, Tsunami and Disasters - Tsunami and Earthquake	Lecture
	Basic Subjects Related with Earthquake and Disasters	Information Technology Related with Earthquakes and Disasters	Structural Analysis	Information Technology related with Earthquakes and Disasters	Lecture, Practice and Seminar
		- Computer	- Structural Analysis I,II &III)	- Computer	
		- Theory of Seismic Waves	- Finite Element Method I & II	- Theory of Seismic Waves	
		- Surface Waves	- Dynamic Aseismic Design	- Surface Waves	
		- Scattering and Attenuation	- Limit Analysis		
		Earthquake Phenomenology	- Soil Mechanics	Earthquake Phenomenology	
		- Local Earthquake Analysis	- Tsunami Load and Structural Design of Tsunami Shelter	- Local Earthquake Analysis	
		- Teleseismic Phases and Magnitudes	Structural Dynamics	- Teleseismic Phases and Magnitudes	
		- Observation of Seismological Observatory	- Structural Dynamics I & II	- Observation of Seismological Observatory	
		- Earthquake Early Warning	- Structural Response Analysis	- Earthquake Early Warning	
		- Seismicity and Statistics	- Soil Test and Survey II	- Seismicity and Statistics	
		- Crust and Upper Mantle Structure	- Effect of Surface Geology on Seismic Motion	- Crust and Upper Mantle Structure	
		- Crustal Deformation	- Dynamic Soil Structure Interaction	- Crustal Deformation	
		Seminar of Basic Seismology	Seminar of Structure Analysis	Seminar of Basic Seismology	
	Advanced Subjects Related with Earthquake and Disasters	Earthquake Circumstance	Seismic Design	Earthquake Circumstance	Lecture, Practice and Seminar
		- Earthquake Generation and Prediction I & II	- RC Structures I,II,III &IV	- Earthquake Generation and Prediction I&II	
		- Mathematics for Seismology	- Steel Structures	- Mathematics for Seismology	
		- Focal Mechanism	- Masonry Structures I & II	- Focal Mechanism	
		- Moment Tensor Analysis	- Structural Testing I, II & III	- Moment Tensor Analysis	
		- Earthquake and Plate Tectonics	- PC Structures	- Earthquake and Plate Tectonics	
		- Earthquake Source Process	- Foundation Engineering I, II & III	- Earthquake Source Process	

		Characteristics of Earthquake Disasters - Data Processing - Study Tour of Earthquake Monitoring - Real Time Determination of Source Parameter - Determination of Broadband Moment Magnitude - Effect of Surface Geology on Seismic Motion I & II - Seismic Tomography - Numerical Simulation of Seismic Wave Propagation Seminar of Applied Seismology Special Topics - Tsunami and Earthquake - Earthquake Geology - Observation Visits	- Bridge Engineering I & II - Port & Harbor Structures and Tsunami Engineering - Dam Structures - Underground Structures - Urban Earthquake Disaster Mitigation System Seismic Evaluation and Retrofitting - Seismic Design Codes I & II - Earthquake Resistant Limit State Design I&II - Seismic Evaluation and Rehabilitation: buildings - Seismic Design and Retrofit of Bridges - Seismic Isolation - Design Earthquake Ground Motion and Seismic Force - Structural Reliability - Structural Response Control Seminar of Seismic Design, Seismic Evaluation and Retrofitting	Theory of Tsunami - Tsunami Simulation - Data Processing - Practice for Theory of Tsunami - Tsunami Magnitude and Catalogue - Mathematics for Tsunami - Hydrodynamics for Tsunami - Tsunami Generation and Propagation - Tsunami Source - Geology for Tsunami Special Topics - Study Tour of Earthquake Monitoring - Tsunami Hazard Assessment - Tsunami Hazard Map - Tsunami Disaster Prevention Administration - Lessons from the Great East Japan Earthquake of March 11, 2011 - Tsunami Disaster Mitigation Policy and Risk Management in Japan - Introduction of Tsunami Disaster Mitigation - Tsunami Hazard Assessment	
(2) To acquire basic concepts and theories (detail)	Earthquake/ Tsunami Hazard and Risk Assessment	Earthquake Hazard Assessment - Soil Test and Survey - Strong Earthquake Motion Observation - Soil Dynamics - Strong Ground Motion Study I (Probabilistic Seismic Hazard Analysis) - Strong Ground Motion Study II (Strong Motion Seismology) Earthquake Risk Assessment		Tsunami Hazard Assessment - Tsunami Hazard Map - Tsunami Disaster Prevention Administration - Lessons from the Great East Japan Earthquake of March 11, 2011 - Tsunami Disaster Mitigation Policy and Risk Management in Japan - Introduction of Tsunami Disaster Mitigation - Tsunami Hazard Assessment	Lecture, Practice and Seminar

		- Practice for Earthquake Risk Assessment	- Tsunami Damage Survey				
		- Microtremor Observation I & II	- Theory of Tsunami Propagation and Inundation Simulation				
		- Simulation of Seismic Ground Motion	- Scenario Earthquakes				
		- Geophysical Prospecting	- Numerical Simulation of Tsunami Inundation and Its Application				
		- Seismic Micro-zonation	- Tsunami Evacuation Planning Simulation				
		Seminar of Earthquake Disaster –Recovery Management	Tsunami Countermeasures				
			- Tsunami Protection Facility				
			- Tsunami Damage and Reconstruction I&II				
			- Tsunami Observation				
			- Tsunami Early Warning System and Dissemination				
- Practice for Tsunami Countermeasures							
- Tsunami Force and Tsunami Resistant Structure							
- Tsunami Deposit Survey							
			- Tsunami Load and Structural Design of Tsunami Shelter				
			(3) To understand new countermeasures	Disaster – Recovery Management Policy	Disaster Management Policies A: from Regional and Infrastructure Aspect		Lecture, Practice, Seminar and Presentation
					- Social System against Disasters		
					- Education on Basic Knowledge for Disasters		
					- Policy for Infrastructure		
					- Policy Making Process for Disaster		
					Disaster Management Policies B: from Urban and Community Aspect		
					- International activities for disaster mitigation		
					- Community based disaster risk management		
					- Practical risk assessment		
Disaster-Recovery Management and Development Assistance							
- Japanese ODA Policy and Development Assistance Related with Disaster-Recovery Management							
- Seminar of Earthquake Disaster – Recovery Management Policy							
- Observation Visit for Dissemination Earthquake Disaster - Recovery Management							
- Earthquake Observation	- Shaking Table Testing	- Earthquake Observation					
	- System Identification in Vibration Analysis						

	Case Studies	Practice for Earthquake Disaster – Recovery Management Policy I, II & III		Practice of Earthquake Disaster-Recovery Management Policy I&II
		- Colloquium	- Colloquium -Study Trips	- Colloquium
		- Study Trips	- Study Trips	Practice for Tsunami Disaster Mitigation Policy
				- Observation of Seismological Observatory
				- Real Time Determination of Source Parameter
				- Determination of Broadband Moment Magnitude
				- Study Trips
	- Practice for Seminar of Earthquake Disaster – Recovery Management			

(4) To complete a Master thesis	Individual Study	Menu for the topics of Individual Study			Practice, Seminar and Presentation
		- Determination of Earthquake Source Parameters	- Seismic Performance Design Method	- Tsunami Simulation	
		- Study on Seismotectonics Based on Earthquake Parameter Determination	- Seismic Evaluation and Retrofitting Techniques	- Tsunami Source	
		- Moment Tensor Analyses	- Seismic Isolation and Response Control Techniques	- Tsunami Hazard Assessment (Tsunami Propagation and Inundation Simulation)	
		- Analysis of Earthquake Source Process	- Nonlinear Earthquake Response Analysis and Damage Evaluation	- Tsunami Database for Tsunami Early Warning System	
		- Crustal Structure Analyses Using Receiver Function	- System Identification and Health Monitoring	- Rapid Determination of Earthquake Parameters for Tsunami Early Warning System	
		- Study on Earthquake Generation Process	- Effect of Soil Structure Interaction	- Real Time Usage of Tsunami Data for Tsunami Early Warning System	
		- Analysis of Strong Motion Generation Using Empirical Green’s Function Technique	- Urban Planning for Earthquake Disaster Mitigation and Recovery	- Others	
		- Site Effect Studies using Strong Ground Motion Records	- Post-earthquake Damage Inspection Method		
		- Geophysical Prospecting for Sedimentary Strata Using Microtremors and Surface Waves	- Others		
		- Others			