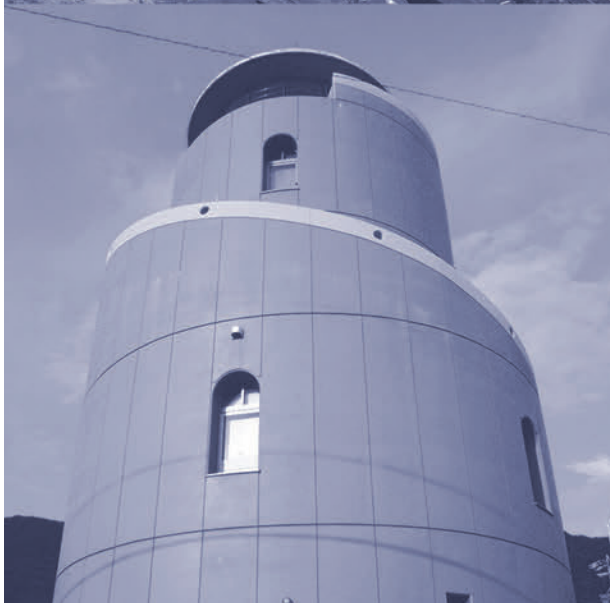


# Report on “UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course”

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United Nations  
Educational, Scientific and  
Cultural Organization

Public Works Research Institute  
International Centre for Water Hazard and Risk Management  
under the auspices of UNESCO (ICHARM)

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# Report on ”UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course”

by

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## Synopsis:

ICHARM has conducted the “UN/ISDR Tsunami Disaster Prevention Training Course” as one of the UN/ISDR projects from 2nd June to 11th July with the support of the Japan International Cooperation Agency (JICA) to make good use of Japanese experience of tsunami countermeasures for developing countries. There were 11 course participants from four countries, including India, Indonesia, the Maldives and Sri Lanka. They were section-chief-level government administrators and responsible for promoting tsunami disaster mitigation in their home countries. During the 1st, 2nd and 4th weeks, the participants mainly had lectures and exercises on tsunamis, coastal vegetation, and other tsunami related issues. In the 3rd and 5th weeks, to learn tsunami countermeasures and the actual condition of local disaster mitigation in Japan, the participants visited two tsunami-prone areas, the Sanriku coast area and Kii peninsula, and interviewed local municipal personnel and residents. The participants were not only amazed to see gigantic structures, such as tsunami breakwaters and sea walls, but also overwhelmed by local people’s high awareness toward disaster mitigation. In the last week, they made presentations on their action plans, and the training ended successfully. This is the report of the course activities and its achievement.

Key Words: Training, Tsunami, Disaster prevention, UN/ISDR

Report on

”UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course”

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  - Lecture material 4 Improvement of local resilience to tsunami by Mr. Oshima
  - Lecture material 5 Lecture and discussion on Coastal vegetation (1) by Prof. Matsutomi
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  - Field trip material 5 Activities on Education for tsunami disaster mitigation in Ryori Elementary School
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  - Field trip material 9 Introduction of Tsunami Disaster Countermeasures in Kii Peninsula Area
  - Field trip material 10 Tsunami Countermeasures of Mie Prefecture
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  - Participants’ material 5 Final Report
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## Chapter 1. Background

The Indian Ocean Tsunami on 26th December 2004 caused about 230,000 casualties and enormous property damage to Indian Ocean countries. This huge loss is basically due to the lack of proper awareness and preparedness for tsunami disasters from national to local levels.

UN/ISDR is currently implementing a two-year project of the “Building Resilience to Tsunamis in the Indian Ocean” funded by the European Union to promote tsunami countermeasures in Indian Ocean countries. In those countries, it is needed to develop human resources who can manage tsunami countermeasures, such as structural measures, early warning systems and local disaster mitigation plans, etc.

Japan has a long experience with tsunami disasters, such as the 1896 Meiji Sanriku Tsunami with a casualty of 22,000, and has been making major efforts to enhance tsunami disaster prevention.

Under the circumstances, ICHARM has conducted the “UN/ISDR Tsunami Disaster Prevention Training Course” as one of the UN/ISDR projects from 2nd June to 11th July with the support of the Japan International Cooperation Agency (JICA) to make good use of Japanese experience of tsunami countermeasures for developing countries. There were 11 course participants from four countries, including India, Indonesia, the Maldives and Sri Lanka. They were section-chief-level government administrators and responsible for promoting tsunami disaster mitigation in their home countries.

This is the report of the course activities and its achievement.



Photo 1-1 Participants and ICHARM staff in front of the ICHARM building  
after completing the training course

## Chapter2: Preparation for the course

### 2. 1 Agreement between ICHARM and UN/ISDR

ICHARM submitted a “Project Proposal” to UN/ISDR for the “Building Resilience to Tsunamis in the Indian Ocean” project to conduct the training course. The proposal was adopted after evaluation. After the agreement between PWRI and UN/ISDR was concluded, ICHARM started preparation for the training course, and the course was successfully launched in June and ended in July 2008.

- Reference1 Agreement between UN/ISDR and PWRI (with Japanese translation)
- Reference2 Project Proposal (with Japanese translation)

### 2. 2 Deciding curriculum, lecturers and field trip destinations

Most of fiscal year 2007 was spent preparing for the course, framing curriculum, selecting and appointing lecturers, and arranging field trips.

Consulting with Prof. Fumihiko Imamura of the Disaster Control Research Center, Tohoku University, the curriculum was developed and lecturers were selected.

The contents of curriculum include not only lectures but also exercises about coastal vegetation, which would be useful for participants after going back to their country. The curriculum is shown in Table2-2-1.

To enhance the effectiveness of the course, field trips to two of the most tsunami-prone regions, the Sanriku coast area and Kii Peninsula, were scheduled to learn tsunami countermeasures in Japan. Each field trip was planned for one week, including meetings with prefectural and local municipal personnel in charge of disaster management. Main tsunami countermeasures in those areas are shown in Table 2-2-2.

- Reference3 Course Schedule
- Reference4 List of Lecturer

Table 2-2-1 Curriculum

| Lectures                                             | Lecturers (Affiliation)                                |
|------------------------------------------------------|--------------------------------------------------------|
| Orientation                                          | Shigenobu Tanaka (ICHARM)                              |
| Practice on “Project Cycle Management”               | Shiro Tomioka (ICNet)                                  |
| Basic viewpoints of disasters                        | Kuniyoshi Takeuchi (ICHARM)                            |
| Outline of tsunami, problem on numerical calculation | Nobuo Shuto (Nihon University)                         |
| History of tsunami forecast system in Japan          | Nobuo Shuto (Nihon University)                         |
| Tsunami disasters around the world and lessons       | Yoshinobu Tsuji (University of Tokyo)                  |
| Types of tsunami-induced disasters                   | Yoshinobu Tsuji (University of Tokyo)                  |
| Overview of tsunami countermeasures in Japan         | Fumihiko Ohshima (Fire and Disaster Management Agency) |
| Local disaster management plan (including tsunami)   | Shigenobu Tanaka (ICHARM)                              |
| Improvement of local resilience to tsunami           | Yutaka Sato (Cabinet Office, Government of Japan)      |
| Tsunami warning system in Japan                      | Japan Meteorological Agency                            |
| Activities for awareness raising including education | Shigenobu Tanaka (ICHARM)                              |
| Structural measures                                  | Fuminori Kato (NILIM)                                  |
| Lecture and discussion on coastal vegetation         | Hideo Matsutomi (Akita University)                     |
|                                                      | Norio Tanaka (Saitama University)                      |
| Tsunami hazard mapping                               | Dinar Istiyanto (ICHARM)                               |
| Relief activities after disasters                    | Yoshihito Imai (International Recovery Platform)       |
| Practice on coastal vegetation                       | Hideo Matsutomi (Akita University)                     |
|                                                      | Norio Tanaka (Saitama University)                      |
|                                                      | Shigenobu Tanaka (ICHARM)                              |
| Tsunami propagation mapping exercise                 | Dinar Istiyanto (ICHARM)                               |
| Google Earth database                                | Koji Fujima (National Defense Academy of Japan)        |
| Utilization of Alos data                             | Takashi Moriyama (JAXA)                                |
| Town Watching                                        | ICHARM                                                 |
| Country Report                                       |                                                        |
| Action plan presentation                             |                                                        |
| Field Trip (Sanriku coast area , Kii Peninsula)      |                                                        |

Table 2-2-2 Main tsunami countermeasures  
in municipalities of Sanriku coast area and Kii Peninsula

| Category                | Countermeasure                                  | Location (additional information)                                                                                                                |
|-------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Structural measures     | Tsunami embankment                              | Noda Village in Iwate, etc.                                                                                                                      |
|                         | Baymouth breakwater                             | Kuji City, Ohfunato City, Kamaishi City                                                                                                          |
|                         | Sea wall                                        | Taro in Miyako City,<br>Hiro in Hirokawa Town (Goryo Embankment)                                                                                 |
|                         | Tsunami Watergate                               | Fudai Village in Iwate (Fudai Watergate), Iwaizumi Town (Omoto River Watergate) etc.                                                             |
|                         | Evacuation route                                | Taro in Miyako City, etc.                                                                                                                        |
|                         | Evacuation facility                             | Nishiki in Mie (“Nishiki Tower”),<br>Kushimoto Town (Tsunami evacuation tower)                                                                   |
|                         | Tsunami control forest                          | Taro in Miyako City, Takatamatsubara in Rikuzentakata City, Hiro in Hirokawa Town (Goryo Embankment)                                             |
|                         | Mangrove forest                                 | Okinawa                                                                                                                                          |
| Non-structural measures | Tsunami forecasting /warning system             | Japan Meteorological Agency                                                                                                                      |
|                         | Disaster management radio communications system | Many places in Japan                                                                                                                             |
|                         | Tsunami hazard map                              | Many places in Japan, including Owase City (Dynamic Tsunami Hazard Map)                                                                          |
|                         | Building reinforcement                          |                                                                                                                                                  |
|                         | Land use planning                               |                                                                                                                                                  |
|                         | Group relocation                                | Funakoshi in Yamada Town (Before Meiji period)<br>Touni in Kamaishi City, Osabe in Rikuzentakata City etc.                                       |
|                         | Financial aid for block-fence removal           | Kushimoto Town in Wakayama                                                                                                                       |
| Administrative Systems  | Local disaster prevention plan                  | Mie Prefecture (Local Disaster Prevention Plan in March 2003)<br>Kushimoto City (Kushimoto Tsunami Disaster Prevention Basic Plan in March 2006) |
|                         | Community organization                          | Nabama in Kamaishi City, Ohminato in Ise City, Ohmisaki in Kushimoto City etc.                                                                   |
|                         | NPO activity                                    | Mie Prefecture (Volunteer Information Center)                                                                                                    |

|                               |                                                     |                                                                                                                                                                                                                        |
|-------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Disaster Prevention Education | Disaster prevention education / dissemination       | Hirokawa Town (Tsunami Festival, “Inamura-no-hi”, Tsunami Educational Center)<br>Taro in Miyako City (“Picture story show” by Yoshi Tabata (Born in 1925))<br>Kesennuma City in Miyagi (Disaster Prevention Education) |
|                               | Monument                                            | Many locations in Sanriku coast area (After Showa Sanriku Tsunami)<br>Aneyoshi in Miyako City (“Great Tsunami monument ”)<br>Yuasa Town (Monument since Edo period)                                                    |
|                               | Tsunami experience                                  | Karakuwa Town in Miyagi (Karakuwa Peninsular Visitor Center and Tsunami Experience)<br>Hirokawa Town (Tsunami Educational Center)                                                                                      |
|                               | Evacuation drill                                    | Many places in Japan                                                                                                                                                                                                   |
|                               | Sign of past tsunamis                               | Ryori in Ohfunato City (“Tsunami height of 38.2m” on an electric pole)<br>Taro in Miyako City (Tsunami height sign board) etc.                                                                                         |
|                               | Human resources development for disaster prevention | Mie Prefecture (Disaster Prevention Volunteer Coordinator),<br>Wakayama Prefecture (“Kino-kuni Disaster Prevention School”)                                                                                            |
|                               | Municipal slogan                                    | Taro in Miyako City (“The Town of Tsunami Disaster Prevention” (2003))                                                                                                                                                 |

### 2. 3 Selecting participants

In March 2008, “General Information,” which describes the qualification for applicants, was distributed to target countries by email, but the number of applications returned was not as many as expected. The application deadline was extended and re-announced thorough different personnel / organizations. As a result, a total of 11 participants –two from India, four from Indonesia, two from the Maldives and three from Sri Lanka— are selected.

- Reference 5 General Information on “Comprehensive Tsunami Disaster Prevention Training Course”
- Reference 6 Participant List

### 2. 4 Press release

Before the course started, press releases were distributed to news agencies in Tsukuba.

- Reference7 Press Release

## Chapter3: Contents

The activities of this training course from 2<sup>nd</sup> June to 11<sup>th</sup> July 2008 are reported as follows;

### 3. 1 First and second weeks

On 3<sup>rd</sup> June, an orientation meeting, an opening ceremony (Photo3-1-1,2,3,4) and party (Photo3-1-5) were held at ICHARM, and the course participants met ICHARM staff and trainees of other training courses. But two participants, Mr. Juriono and Dr. Teuku Alvisyahrin, could not attend them because of the delay of VISA issue.

Mr. Kaneko, director of the Training and Partnership Program Division of the Japan International Cooperation Agency (JICA), was invited to the opening ceremony to represent the main supporting organizations of this course. The ceremony was attended by many others, for example, Dr. Takeuchi, director of ICHARM, Dr. Jayawardena, research and training advisor, and Mr. Terakawa, deputy director of ICHARM, Mr. Setoshita and Ms. Saito of the Planning and Management Division of the Public Works Research Institute. Mr. Tanaka, team leader of the International Technical Exchange Team of ICHARM hosted the ceremony.

During the 1<sup>st</sup> and 2<sup>nd</sup> weeks, the participants mainly listened to lectures and worked on exercises on tsunamis, coastal vegetation, and other tsunami-related issues. The lecturers included Prof. Shuto (Nihon University), Associate Prof. Tsuji (Tokyo University), Dr. Kato (National Institute of Land and Infrastructure Management; NILIM), Team Leader Tanaka (ICHARM), Mr. Ohshima (Fire and Disaster Management Agency; FDMA) and a governmental officer from Cabinet Office, Government of Japan (Photo3-1-6,7,8,9).

In one class, they worked on “Project Cycle Management” exercises to learn how to think systematically about actual tsunami-related situations and issues and logically make “action plans”.

They also had an exercise on coastal vegetation instructed by Prof. Matsutomi (Akita University), Prof. Tanaka (Saitama University) and Team Leader Tanaka (ICHARM), as well as an exercise on tsunami hazard mapping by Dr. Dinar (ICHARM) (Photo3-1-10,11,12).

The participants received a lecture on “Tsunami warning system in Japan” at the Japan Meteorological Agency and visited its forecasting room. During the visit, an earthquake occurred in Nagano Prefecture, and they had a rare opportunity to witness an actual example of earthquake information dissemination (Photo3-1-13).

They also visited an experimental facility called “Giant Geo-Wave and Tsunami Experiment Flume” at the Port and Airport Research Institute (PARI) in Yokosuka. The facility generated 3.5-meter-high waves, which easily destroyed a 10-cm-thick concrete wall. The experiment reminded the participants of how destructive tsunami energy could be (Photo3-1-14,15).

Lecture materials below are compiled in the attached DVD-ROM.

- Reference8 Agenda of Opening Ceremony
- Lecture material 1 Outline of Tsunami, Problem on Numerical Calculation, History of Tsunami Forecast System in Japan by Prof. Shuto
- Lecture material 2 Tsunami disasters around the world and Lessons, Types of tsunami-induced disasters by Ass. Prof. Tsuji
- Lecture material 3 Tsunami Disaster Management based on “Local Disaster Management Plan” by Mr. Tanaka
- Lecture material 4 Improvement of local resilience to tsunami by Mr. Oshima
- Lecture material 5 Lecture and discussion on Coastal vegetation (1) by Prof. Matsutomi
- Lecture material 6 Lecture and discussion on Coastal vegetation (2) by Prof. Tanaka
- Lecture material 7 Tsunami hazard mapping by Dr. Dinar
- Lecture material 8 Tsunami Warning System in Japan by Japan Meteorological Agency
- Lecture material 9 Activities for awareness raising including education by Mr. Tanaka
- Lecture material 10 Tsunami propagation mapping exercise by Dr. Dinar



Photo 3-1-1 Participants of the opening ceremony  
(Mr. Juriono and Dr. Teuku Alvisyahrin couldn't attend)



Photo3-1-2 Opening ceremony



Photo3-1-3 Mr. LALLOO PRASAD SONKAR (India) makes greeting address as the representative of the participants.



Photo 3-1-4 with the students of “Disaster management policy program”



Photo3-1-5 Opening party at ICHARM entrance hall



Photo3-1-6 Lecture by Prof. Shuto



Photo3-1-7 Lecture by Associate Prof. Tsuji



Photo3-1-8 Lecture by Mr. Ohshima (FDMA)



Photo3-1-9 Lecture by Mr. Tanaka (ICHARM)



Photo3-1-10 Lecture by Prof. Matsutomi



Photo3-1-11 Lecture by Prof. Tanaka



Photo3-1-12 Exercise on coastal vegetation



Photo3-1-13 Japan Meteorological Agency



Photo3-1-14 Meeting with Group Leader Hiraishi  
at PARI



Photo3-1-15 “Giant Geo-Wave and Tsunami  
Experiment Flume” at PARI

### 3. 2 Third week (Field trip in Sanriku coast area)

During the 3<sup>rd</sup> week, the participants visited the Sanriku coast area, one of the tsunami-prone areas in Japan, to conduct on-sight surveys and interviews to local residents and municipal personnel in charge of disaster mitigation. The visit sites are shown as follows;



Figure3-2-1 Map of field trip sites

In Fudai Village, disaster management personnel explained the outline of the local tsunami water gate (Photo3-2-1) and kindly demonstrated the closing of the gate (Photo3-2-2). After visiting a tsunami embankment (Photo3-2-3) and evacuation route (Photo3-2-4) for workers in the fishing port in Noda Village, they visited Tanohata Village to see “Tsunami Stone” and a temporal evacuation site (Photo3-2-6). The stone was said to have been washed ashore by the Meiji-Sanriku Great Tsunami (Photo3-2-5). They were not only amazed to see gigantic tsunami structural countermeasures such as a tsunami water gate at the mouth of the Omoto River (Photo3-2-7), embankment and sea walls in Taro District (Photo3-2-8), tsunami breakwaters in Kamaishi (Photo3-2-9) and Ofunato, but also realized the importance of passing on tsunami experiences to the next generation by tsunami marks (Photo3-2-10) and building tsunami monuments (Photo3-2-11,12).

During the on-sight survey, the participants exchanged opinions with the residents and municipal personnel about disaster mitigation activities to raise public awareness. Miyako City personnel said, “Despite the fact that there is no volunteer disaster prevention organization in Taro, the awareness level is very high. The awareness level is not always correlated to the number of volunteer disaster management organizations.” (Photo3-2-13)

A community leader of Nebama, Kamaishi City, explained how hard they were working to raise awareness of residents who had no experience of tsunami disasters (Photo3-2-14). And in Touni District, Kamaishi City, an old lady told her experience of the Showa Sanriku Tsunami, after which residents had to relocate to higher ground (Photo3-2-15).

In Ohfunato City, the participants visited the highest tsunami point marked by the Meiji-Sanriku Great Tsunami (Photo3-2-16) and also Ryori Elementary School. The principal and the former principal of the school explained about disaster prevention education at school. The participants were particularly impressed with a play entitled “Violent Sea,” written by the former principal (Photo3-2-17). The play is so educational that not only students but also parents can learn about tsunamis through the involvement in its production. Deputy Director of the Disaster Prevention Division of Ohfunato City Hall explained about their disaster management radio communications system and maps designed for sea workers and tsunami sign boards (Photo3-2-18).

After visiting Takatamatsubara, a pine-tree forest also working as tsunami control forest (Photo 3-2-19), the participants listened to personnel of Kesennuma City Hall, who emphasized the importance of disaster prevention education (Photo3-2-20). In the Kesennuma/Motoyoshi Disaster Prevention Center, fire fighting personnel talked about the importance of educating people about disaster preparedness (Photo3-2-21).

The field trip to Fudai Village was reported in a local newspaper, “Iwate Nippo,” and the field trip to Ryori in Ohfunato City was broadcasted on NHK (Japan Broadcasting Corporation) Iwate.

Tsunami countermeasures are described in detail in the attached field trip material 1 “Introduction of Tsunami Disaster Countermeasures in Sanriku Coast Area”.

All field trip materials below are compiled in the attached DVD-ROM.

- Reference 9 Schedule of the On-sight Survey on Sanriku Coast Area
- Reference 10 Article on the On-sight Survey in Fudai Village
  
- Field trip material 1 Introduction of Tsunami Disaster Countermeasures in Sanriku Coast Area
- Field trip material 2 Tsunami Countermeasures of Iwate Prefecture
- Field trip material 3 Tsunami Hazard Map in Fudai Village
- Field trip material 4 Restoration of a fishing village and efforts to make Miyako city tsunami-resistant
- Field trip material 5 Activities on Education for tsunami disaster mitigation in Ryori Elementary School
- Field trip material 6 Outline of Earthquake and Tsunami Disaster Countermeasures in Ofunato City
- Field trip material 7 Tsunami Hazard Map in Rikuzentakata City
- Field trip material 8 Tsunami Countermeasures in Kesennuma City



Photo3-2-1 Tsunami Watergate in Fudai village



Photo3-2-2 Demonstration of the gate closing



Photo3-2-3 Tsunami embankment  
being built in Noda village

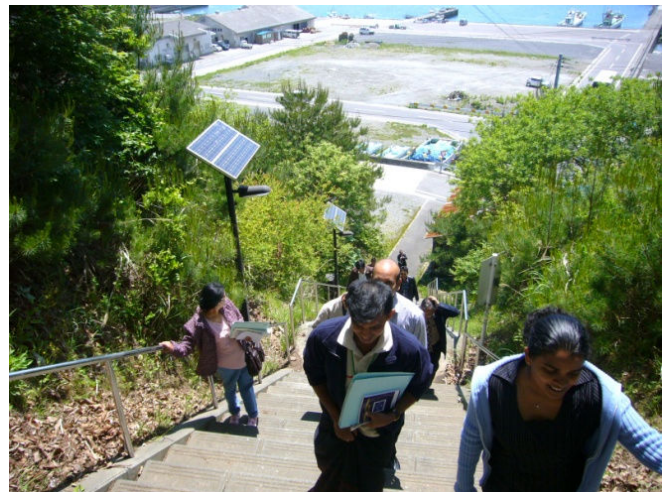


Photo3-2-4 Evacuation route near Noda fishing port



Photo3-2-5 "Tsunami Stone" in Tanohata Village



Photo3-2-6 Evacuation site near Shimanokoshi St.



Photo3-2-7 Water gate at the mouth of the Omoto River



Photo3-2-8 On the Taro sea wall



Photo3-2-9 Tsunami breakwaters in Kamaishi



Photo3-2-10 In front of tsunami marks in Taro



Photo3-2-11 Tsunami monument at Jodogahama-beach in Miyako



Photo3-2-12 Three Tsunami monuments standing next to one another (Touni in Kamaishi)



Photo3-2-13 Mr. Yamazaki, Officer of Risk Management Section of Miyako city



Photo3-2-14 Opinion exchange with a community leader of Nebama, Kamaishi City (at Horaikan)



Photo3-2-15 Listening to a resident in Touni District, Kamaishi City



Photo3-2-16 Highest Tsunami point in the main land of Japan (Ryori, Sanriku town)



Photo3-2-17 Principal Suzuki of Ryori Elementary School



Photo3-2-18 Deputy Director of Disaster Prevention Division of Ohfunato City Hall



Photo3-2-19 Takatamatsubara



Photo3-2-20 Mr. Sato, Director of Risk Management  
Division of Kesennuma City



Photo3-2-21 Mr. Yoshida, Fire fighting assistant  
commander of Kesennuma/Motoyoshi Disaster  
Prevention Center

### 3. 3 Fourth week

During the 4<sup>th</sup> week, the participants paid a courtesy visit to Dr. Sakamoto, chief executive of PWRI (Photo3-3-1). They also had lectures by Mr. Imai (Asian Disaster Reduction Center) about restoration assistance as well as Ms. Matsuoka (UN/ISDR) and exercise for database practices with Google Earth by Prof. Fujima (National Defense Academy of Japan) (Photo3-3-2,3). The participants visited the Japan Aerospace Exploration Agency (JAXA) and attended a lecture on the utilization of ALOS data by Dr. Moriyama (Photo3-3-4).

The participants also had a chance to enjoy a taste of the Japanese culture. ICHARM office staff gave a demonstration of Japanese tea ceremony (Photo3-3-5).



Photo3-3-1 Courtesy visit to Dr. Sakamoto,  
Chief executive of PWRI



Photo3-3-2 Google Earth practice with Prof. Fujima



Photo3-3-3 Lecture by Mr. Imai



Photo3-3-4 JAXA



Photo3-3-5 Japanese tea ceremony

### 3. 4 Fifth week (Field trip in Kii Peninsula)

During the 5<sup>th</sup> week, the participants visited Kii Peninsula, another tsunami-prone area in Japan. In the Sanriku area, the first tsunami wave is predicted to come in several tens of minutes in case of anticipated earthquake, but in Kii Peninsula, within 10 minutes. With that prediction in mind, they conducted on-sight surveys and interviews with local residents and disaster management personnel to investigate their awareness levels and disaster prevention activities. The visit sites are shown as follows;



Figure3-4-1 Map of field trip sites

In Mie Prefecture, they also listened to a lecture on how the prefecture prepares for the anticipated earthquake and tsunamis (Photo3-4-1). In Ise City, to learn the importance of raising public awareness at the community level, the participants had a chance to listen to a community leader of Ominato District speaking about the history of the district's voluntary activities, including the production of their original disaster prevention maps (Photo 3-4-2). At Futami-Okitama Shrine, they attended another lecture on an evacuation drill which was specifically implemented for tourists in September 2008 (Photo3-4-3).

They then visited a temporary emergency shelter called "Nishiki Tower" in Nishiki District, Taiki Town. In the exhibition room of the five-story tower, an old wall clock with a trace of the 1944 Tonankai Tsunami is exhibited. The bottom half of the clock shows a different color from its top half, giving visitors an idea of how high a tsunami wave had reached at that time (Photo3-4-4,5).

In Owase city, the participants conducted a "Town Watching" exercise. They walked around the city in three groups, investigating possible problems in emergency evacuation, checking the actual conditions of disaster prevention facilities, etc (Photo 3-4-6,7,8). After discussing the findings from the exercise, they produced and presented their original maps based on the discussion results in front of Owase city personnel (Photo 3-4-9). The participants contributed to the improvement of the city's disaster mitigation plan through this "Town Watching" exercise. And during Town Watching, Mr. Yamanishi, who experienced the Tonankai Earthquake Tsunami in 1944 and now is a community leader, gave a lecture on the improvement of public awareness toward disaster prevention in his community (Photo 3-4-10).

After Owase, the participants moved to Kushimoto Town for a lecture and on-site survey on a tsunami evacuation tower (Photo3-4-11) and an evacuation route made by a voluntary disaster management group in Omisaki District (Photo-3-4-12). A Maldivian participant said that this kind of tower would be helpful in the Maldives because there was no mountain to evacuate to there.

A lecture on tsunami countermeasures for tourists was given in Shirahama Town. Three million tourists visit the famous "Shirara-hama" beach every year, so it is important to make an evacuation plan specifically designed for tourists. During discussion with disaster management personnel in Shirahama, one of the participants pointed out possible disadvantage of informing of countermeasures against tsunami as tourists may want to avoid this risky area but other gave an opinion that well-prepared countermeasures will make tourists think the area is rather safe (Photo3-4-13).

The final destination of the field trip was Hirogawa Town. The town is famous as the home of Goryo Hamaguchi. "Inamura-no-Hi," a story in which the main character, Gohei, saved people from tsunamis, was modeled after Goryo. The participants visited the town to see "Goryo Embankment" (Photo3-4-14) and attended a lecture by the director of "Inamira-no-hi Museum" on how Goryo led the response and rehabilitation efforts after the tsunami. They also had a chance to watch the 6<sup>th</sup> grade students of Hiro Elementary School read aloud the "Inamura-no-hi" story (Photo3-4-15) and the 5<sup>th</sup> grade students attend a class on disasters and disaster preparedness (Photo3-4-16). The

participants were very interested in disaster prevention education in the elementary school.

Articles about the lecture and Town Watching in Owase City appeared in several newspapers such as “Mainichi Shinbun”, “Ise Shinbun”, “Chunichi Shinbun” and “Nankai-nichinichi Shinbun” and NHK Mie also broadcasted the activities in local news.

Tsunami countermeasures are described in detail in the attached field trip material 9 “Introduction of Tsunami Disaster Countermeasures in Kii Peninsula Area”.

All field trip materials below are compiled in the attached DVD-ROM.

- Reference 11 Schedule of the On-sight Survey on Kii Peninsula Area
- Reference 12 Article on the On-sight Survey in Owase City
  
- Field trip material 9 Introduction of Tsunami Disaster Countermeasures in Kii Peninsula Area
- Field trip material 10 Tsunami Countermeasures of Mie Prefecture
- Field trip material 11 Disaster Prevention Map in Ominato District
- Field trip material 12 Nishiki Tower in Taiki Town
- Field trip material 13 Tsunami Countermeasures of Owase City (in Japanese)
- Field trip material 14 Town Watching in Owase City
- Field trip material 15 Earthquake and Tsunami Countermeasures of Kushimoto Town
- Field trip material 16 Activities on Education for disaster mitigation in Hiro Elementary School (in Japanese)
- Field trip material 17 “Inamura-Moyu” (Biography of Mr. Goryo Hamaguchi)



Photo3-4-1 Lecture by Officer of Mie Prefecture



Photo3-4-2 An Ominato community leader explains their original disaster prevention map.



Photo3-4-3 Participants listen to an explanation of a evacuation plan at Futami-Okitama Shrine.



Photo3-4-4 Nishiki Tower



Photo3-4-5 The old wall clock shows a trace of a tsunami which reached its bottom half



Photo3-4-6 Town Watching in Owase City



Photo3-4-7 Town Watching in Owase City



Photo3-4-8 Group discussion



Photo3-4-9 Presentation



Photo3-4-10 Lecture by Mr. Yamanishi, Community Leader

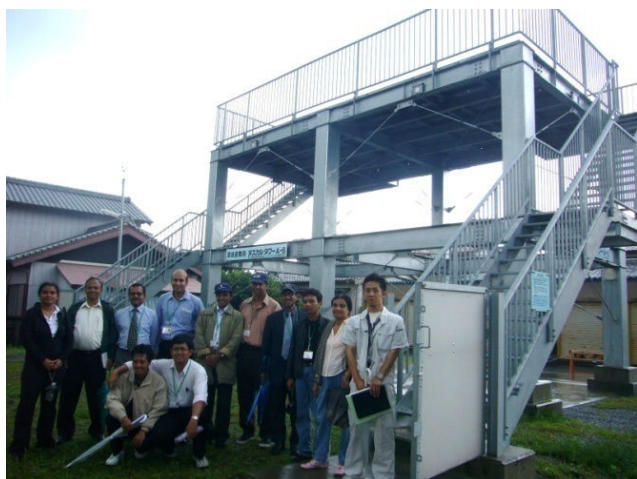


Photo3-4-11 Temporary evacuation tower  
in Kushimoto Town



Photo3-4-12 Evacuation route  
in Omisaki District, Kushimoto Town



Photo3-4-13 Shirarahama beach in Shirahama



Photo3-4-14 on “Goryo Embankment”



Photo3-4-15 6<sup>th</sup> grade students of Hiro  
Elementary School read aloud “Inamura-no-hi”



Photo3-4-16 Class on disaster preparedness for  
5<sup>th</sup> grade students of Hiro Elementary School

### 3. 5 Sixth week

During the last week of the training course, the participants worked and made presentations on their action plans considering the differences between Japan and their countries (Action plans are shown next chapter).

At the night before the last day, a closing party was held with other participants of ICHARM at JICA Tskuba. Each country group sang songs of their own country, and everybody had a very good time (Photo3-5-1).

In the closing ceremony, Dr. Ono, program officer of UN/ISDR, gave a closing remark, and Dr. Takeuchi, director of ICHARM, presented the course certificates to each participant (Photo3-5-2). Then, three “ICHARM AWARDS” were given to Dr. Teuku from Indonesia for achieving the best result (“Achievement Award”), Mr. Sonkar from India for cooperating well with other people (“Cooperation Award”) and Mr. Didi from the Maldives for contributing to smooth operation of the course (“Contribution Award”).

At last, the representatives of the participants’ countries expressed their determinations, and the course ended successfully.

- Reference 13 Agenda of Closing Ceremony
- Reference 14 Template of Certificate



Photo3-5-1 A closing party at JICA Tsukuba



Photo3-5-2 ICHARM Director Takeuchi hands out a course certificate to a participant



Photo3-5-3 Participants and ICHARM staff smile for a picture in front of the ICHARM main entrance

## Chapter 4: Report by participants

### 4. 1 Questionnaire before starting the course

On 3<sup>rd</sup> June, the first day of the course, questionnaires were distributed to the participants during the course orientation to see each participant's understanding level. The questionnaires were collected within that week.

The following shows questions in the questionnaire:

#### **Contents of the 1<sup>st</sup> Questionnaire**

1. Why do we use "Comprehensive" for the name of training course?
2. Though a big earthquake will not occur so frequently at a place, why do we tackle tsunami countermeasure just after the big earthquake?
3. Why are there plural participants from a country?
4. What do you want to achieve in this training course?

Please consider about "Disaster Prevention" from the beginning.

1. What is important in "Disaster Prevention" so that everything goes well? In other words, what is the necessary factor in "Disaster Prevention"?
2. Who is responsible for "Disaster Prevention"?

The results of the questionnaire are discussed in Chapter 5.

The answers from the participants are compiled in the attached DVD-ROM as Participants' material 1.

### 4. 2 Country report presentation

At the beginning of the course, on 6<sup>th</sup> June, in order to share current situations and problems of tsunami disaster prevention in the participants' countries, each of them gave a 30-minute presentation titled "Overviews and Problems about Tsunami Disaster Prevention in Our Country".

The "Project Cycle Management" practice was scheduled in the same week of the presentations so that the participants can learn to analyze problems in their countries logically to make presentation materials.

Each country's presentation materials are compiled in the attached DVD-ROM as Participants' material 2.

### 4. 3 Interim report

After the field trip to Sanriku coast area in 3<sup>rd</sup> week, the participants were required to submit an interim report to see what they had learned since joining the course.

### **Contents of Interim Report**

1. General impression on tsunami countermeasures in Japan  
(based on lectures, hands-on practice, on-sight survey, Include the feasibility of the countermeasures in your country.) 【About 1page】
2. Outline of your action plan for promoting tsunami countermeasures in your country after this training course【About 1page】
3. Your comment to improve this course (schedule, curriculum, lecturer etc. )【0.5~1page】

Each participant delivered a 10-minute presentation on his/her interim report on 24<sup>th</sup> June.

The contents of the reports are discussed in Chapter 5.

The interim reports submitted are compiled in the attached DVD-ROM as Participants' material 3.

#### **4. 4 Action plan**

During the last week of the course, on 9<sup>th</sup> July, the participants presented "Country's Action Plan on Tsunami Countermeasures" for 60 minutes each, which they are thinking of proposing in their country after completed the course.

The contents of the action plans are shown in the next page.

The contents of the action plans are discussed in Chapter 5.

The action plans are compiled in the attached DVD-ROM as Participants' material 4

## Contents of “Country’s Action Plan on Tsunami Countermeasures”

1. **Review of tsunami countermeasures in your country** (including figures, tables and photos)
  - 1.1 Major improvement on tsunami countermeasures after 2004 Indian Ocean Tsunami 【0.5～1page】

(for example:

“There was no awareness of tsunami before the Indian Ocean Tsunami, however...”,

”They thought that the government should improve social welfare rather than disaster mitigation, however...”, etc.

Further, please describe cooperation system in emergency like self-help, mutual-support and public assistance in Japan
  - 1.2 Review of the latest tsunami countermeasures in your country on each item below. If there were any big change after the Indian Ocean Tsunami, please describe.
    - a) Legal institutions, Basic plan for disaster mitigation【1～1.5page】
    - b) Organizations, Systems including emergency response 【1～1.5 page】
    - c) Structural measures【1～1.5 page】
    - d) Non-structural measures【1～1.5 page】
    - e) Restoration【1～1.5 page】
    - f) Education and succession of disaster experience 【1～1.5 page】
2. **Impression of tsunami countermeasures in Japan** (including figures, tables and photos)
  - 2.1 What are the valuable point and the weak point in tsunami countermeasures in Japan? 【1page】
  - 2.2 What is the most impressive/interesting activities for tsunami disaster in Japan?【0.5-1page】
  - 2.3 What is the difference between activities for tsunami disaster in Japan and those in your country? 【0.5-1 page】
3. **Proposal activities for tsunami disaster mitigation in your country based on knowledge from this training course** (including figures, tables and photos)
  - 3.1 Problems of tsunami countermeasures in your country【1～1.5 page】
  - 3.2 Your proposal activities for tsunami disaster mitigation in your country (including the tree diagram made in PCM practice)【1～1.5 page】

(including activities by each participant)
  - 3.3 Time schedule of your proposal activities 【1～1.5 page】

#### 4. 5 Final report

The participants worked on final reports to complete the course. Based on each country's action plan, they had to clarify their roles and schedule in terms of tsunami countermeasure implementation.

The final reports needed to contain the following:

#### **Contents of "Final Report"**

"Action Plan" - to improve/promote tsunami countermeasures in your country –

- 1.1 Please show which parts of the country's action report you are going to carry out and your concrete ideas for tsunami disaster mitigation.

(Please use the tree diagram made in PCM practice) 【1-1.5page】

- 1.2 Please draw your schedule of your action plan after returning to your country.

- By 30th October 2008
- Within one or two year(s) 【1-1.5page】

The final reports submitted by the participants are compiled in the attached DVD-ROM as Participants' material 5.

#### 4. 6 Questionnaire after completing the course

On the last day of the course, 10<sup>th</sup> July, Course Evaluation was conducted to get feedbacks (opinions and requests) regarding the course from the participants. Questionnaires are also given to them to assess their achievement through the course.

The contents of the questionnaire are as follows:

#### **Contents of the 2<sup>nd</sup> Questionnaire**

1. Please answer following questions.

- 1-1. Though a big earthquake will not occur so frequently at a place, why do we tackle Tsunami countermeasure just after the big earthquake?
- 1-2. What did you learned from two on-sight surveys (Sanriku Coast Area and Kii Peninsula)? What do you think the difference between the two areas regarding Tsunami countermeasures?
- 1-3. What is the necessary factor in "Tsunami Disaster Prevention"?

- 1-4. What have you achieved in this training course?
2. Your comments/suggestions about Japanese activities for tsunami disaster mitigation including emergency response at an occurrence of disasters
3. Your comment to improve this course (Schedule, Curriculum, Lecturer etc.

The contents of the questionnaire are discussed in Chapter 5.

The answers of the questionnaire are compiled in the attached DVD-ROM as Participants' material

6.

## Chapter 5: Evaluation on project achievement and further necessary activities

Generally speaking, it is hard to judge whether the purposes of this training have been achieved immediately after completion of the course. However, efforts were made to provide immediate evaluation based on several documents prepared for this purpose. Those documents include several reports and participant responses to the questionnaires that were distributed during the course. Those questionnaires and reports were compiled and provided in the previous chapters.

Three different kinds of evaluation were arranged during the course. The first one was to evaluate the participants' understanding on the course objectives and their perceptions about disaster prevention before and after the training course. The second was evaluation on the participants' action plan for the implementation of comprehensive tsunami disaster countermeasures after returning to their home countries. The last one was to evaluate perceptibility of indicators realization in each expected result.

It is hoped that the present evaluation makes positive input for the betterment of similar project in the future and for giving direction in monitoring activities of program implementation in the target countries.

### 5. 1 Participants' understanding before and after training course.

Participants' understanding on the course objectives and knowledge about disaster prevention before and after the training course were evaluated by using two questionnaires distributed to the course participants at the beginning and end of the course. This section discusses the participants' understanding level, quoting typical answers given by the participants on each question. The complete answers on each question are provided in the previous chapters.

#### 5. 1. 1 Participants' understanding on the course objectives.

Two questions were given to confirm the participants' understanding about the scope of the course as well as its objectives and purposes. Those questions and their typical answers for each question are quoted below. (*Note: Q = question; A = answer*).

**Q:** *Why do we use "Comprehensive" for the name of training course?*

**A:**

- Because it covers the overall aspects of tsunami disaster management such as structural measure, early warning systems, disaster management plans, by way of a series of lecture, exercises, site visits and etc. (Mr. Ujjwal Kumar/India)
- Because it covers the entire aspects of tsunami disaster management which include tsunami early warning system, structural measures, management plans, tsunami simulation, etc. (Dr. Teuku Alvisyahrin/Indonesia)
- The word "comprehensive" means more complete and concrete and also focused training. The course

objectives and course curriculum covers key aspects of tsunami prevention and includes theory as well as practical exposure to tested tsunami countermeasures (Mrs. Rilweena Asiath/Maldives)

- Because this training course included the necessary all factors connected with tsunami disaster (e.g. disasters mitigation, pre planning, emergency operation, standard operation procedure) (Mrs. Jayasundara/Sri Lanka)

*Q: Why are there plural participants from a country?*

A:

- Because, to tackle hazard like tsunami, different people work at different areas, therefore it is difficult for a single person to have enough knowledge about all the activities of Tsunami relief, prevention and rehabilitation (Mr. Laloo Prasad Sonkar/India)
- Because they represent different institutions at the national and local levels who will play an important role in improving the efficiency of tsunami disaster management upon their return to their home country. (Dr. Teuku Alvisyahrin /Indonesia)
- I believe the rationale behind inviting plural participants from each country is to build in country coping capacity as well as to be able to provide & share & learn from different aspects of disaster management. Also this enables the formulation of a more feasible & realistic action plans (Mrs. Rilweena Asiath /Maldives)
- Because these participants, working in different organizations, are in a position to adopt what they learned and experienced in a better way as a group (Mr. Jayawardana/Sri Lanka)

Based on their responses, it can be concluded that in general the course participants have good understanding about the scope of the course as well as its objectives and purposes. Whether they understand the purposes of the course is very important for them to be effectively involved in the subsequent training activities.

In order to get an idea about their personal intentions of participating in the course, the following question was given to the participants:

*Q: What do you want to achieve in this training course?*

Regarding this question, the course participants gave diverse responses as seen in the following examples:

A:

- Understand kind activity to aspect of disaster prevention based on multi aspect of scientific study, it will also enable me to formulate activity which acceptable and applicable by community and also make me more concern to be involve in the area of community preparedness in the future (Mr. Juriono/Indonesia).
- We can make action plan to aplicate and to integrate tsunami program in my countries (Mr. Weka Mahardi/Indonesia)
- I want improve my knowledge in the field of disaster management and serve the people more effectively. Japan is the most experienced country in this field and I hope to achieve this goal. (Mr. Murthala Didi/Maldives)
- Gain and sharing of knowledge and experience from other countries specially in Japan (Mr. Palitha Bandara/Sri Lanka)

The participants' intentions can be summarized as:

- ◆ **To gain and share knowledge and experiences with other countries**

- ◆ To learn Japanese technology and get lessons from their experiences in developing tsunami disaster prevention systems
- ◆ To use knowledge for better disaster management practices in their home country.

5. 1. 2 Participants' perceptions about disaster prevention; before the training course.

In regard with their understanding about basic factors in tsunami disaster prevention, three questions were asked to the participants at the beginning of the course. The questions and their several characteristic responses are quoted as follows.

Q: *What is important in "Disaster Prevention" so that everything goes well? In other words, what is the necessary factor in "Disaster Prevention"?*

A:

- 1) Awareness and education of hazard, 2) Better governance, 3) Early warning system to be set up, 4) Protective measures such as soft measure like plantation of mangroves, Bio-shields and hard measures like sea wall, groynes, 5) Study for forecast of hazard are also important. (Mr. Laloo Prasad Sonkar/India)
- Main factor in disaster prevention is knowledge for community to understand about disaster, how to save themselves, etc. Next are all tools or Infrastructure that will support to decrease casualty if disaster happen. (Mr. Juriono/Indonesia)
- For developing country (Indonesia), Prevention efforts that can be done realistically are: Arising awareness of community to disaster ; Making a green protection (Mangrove, Palm tree, etc) (Mr. Wisyanto/Indonesia)
- Awareness and good governance is an important factor of disaster prevention. Softmeasures however must be matched by counteractive structural measures as well as good governance. Strong institutional structure and legal framework as well as a political will to be committed to disaster prevention play a critical role. However, prior to disaster early warning and awareness are the most important facts. (Ms. Rilweena Asiath/Maldives)
- Increase of coping capacity, vulnerability reduction, and exposure reduction (Mr. Palitha Bandara/Sri Lanka)

Q: *Who is responsible for "Disaster Prevention"?*

A:

- "Government" is mainly responsible for disaster prevention. However, the role and attitude of people likely in the disasters prone area is also equally important. Once the disaster prevention measures are in place, it is the people who have to be really vigilant in case of occurrence of disaster. (Mr. Ujjwal Kumar/India)
- Government have main responsibility for all activity for disaster prevention, they have duty to protect their people live in save, but, others component in community should help and support government to participate in disaster prevention (Mr. Juriono/Indonesia)
- Every member of the community, from country leaders, policy makers down to a single individual in the community. Disaster prevention needs an integrated effort with stakeholders clearly understanding their respective roles. (Dr. Teuku/Indonesia)
- All components of Nation, that is government and community that lives in the disaster prone area. (Mr. Wisyanto/Indonesia)
- Disaster prevention is not responsibility of one person or one institution. On individual level, people should try to educate themselves and prepare themselves for possible disasters. At the state level governments are responsible to make the provide safer homes, make better provision of relief efforts and in a more coordinated way. Government's responsibility is more in disaster prevention as they often have access to the resources and manpower. (Mrs. Rilweena Asiath/Maldives)
- Everyone collectively including government and people (Mr. Murthala Didi/Maldives)

- All of us, specially people has to be alert to the disasters. Also governs has to take proper action for prevent disasters. (Mrs. Jayasundara/Sri Lanka)
- Specially the government of the country is responsible for Disaster Prevention. As citizens people in the country also have a responsibility to participate actively in Disaster Prevention. (Mr. Jayawardhana/Sri Lanka)

Based on the answers to the two questions, it is clear that the participants' understanding on the important factors of disaster prevention were considerably diverse. However, there were two commonly emphasized factors: awareness and availability of defense or protection structures. For the question on "who is responsible for disaster prevention?" all the participants mentioned the governments as the core in disaster management as well as active participation of the community. These understandings are of great help to achieve the objective of the course.

The third question and their all answers are quoted as follows.

*Q: Though a big earthquake will not occur so frequently at a place, why do we tackle Tsunami countermeasure just after the big earthquake?*

*A:*

- Big earthquake causes loss of human lives, loss of property, impact the economy of the country, therefore tsunami countermeasures are taken to avoid the occurrence of such situation / event. (Mr. Laloo Prasad Sonkar/India)
- Before the Indian Ocean Tsunami, 2007 (2004?), the terminology "Tsunami" was not heard or understood frequently. It was the disaster of 2007 (2004?) that woke up people and the government alike to tackle this deadly natural hazard. (Mr. Ujjwal Kumar/India)
- Before this, we don't know what is earthquake or tsunami is, and we don't have any experiences how to countermeasures earthquake or tsunami, after this training we have knowledge what should we do or prepare to decrease damages caused by earthquake or tsunami (Mr. Juriono/Indonesia)
- Because a big earthquake has a high potential for tsunami to occur and be destructive (Dr. Teuku Alvisyahrin/Indonesia)
- Interval period of a big tsunami in a same place occurs in a long time (pass >1 generation). So for generation that is not suffered the disaster, they don't care with it. But it would not happen nowadays, because all information can be access easily. So every generation will be reminded by disasters that occur in other place (country). (Mr. Wisyanto/Indonesia)
- Cause of usually the big earthquake (mainly source on the bottom of sea) can generate a huge tsunami. Countermeasure is necessary to decrease victim (Mr. Weka Mahardi/ Indonesia)
- Due to the remoteness / and distant between large and destructive tsunamis government often tend to give more priority to other urgent matters as tsunami countermeasures can be costly & time consuming. In countries which are more prone to disasters and disasters occur more frequently, disaster preparedness as well as tsunami countermeasures are given more priority.(Mrs. Rilweena Asiath/Maldives)
- This is to reduce damage to lives and property when disaster is happened in the future. Also losses are felt more just after the tsunami when previous efforts are exposed and destroyed. (Mr. Murthala Didi/Maldives)
- There is a possibility to occur a tsunami after a big earthquake. (Mrs. Jayasundara/Sri Lanka)
- Possibility is high to occur a tsunami after a big earthquake, therefore tsunami countermeasures are necessary. (Mr. Jayawardhana/Sri Lanka)
- There is a possibility to occur a tsunami just after a big earthquake (Mr. Palitha Bandara/ Sri Lanka)

The above question of "Though a big earthquake will not occur so frequently at a place, why do we tackle tsunami countermeasure just after the big earthquake?" contains two crucial points. The

first is the importance of taking countermeasures even if the tsunami disaster recurrence is low (long-term preparedness). The second is the importance of conducting disaster identification immediately after an event. Accurate identification of the disaster situation, especially the causes of damages and calamities enables appropriate formulation of disaster mitigation in the future. This identification and information collection must be conducted as soon as possible before the field facts disappear and the memories of the witnesses fade away along with the passing of time. Complete and accurate information on the previous disaster situation are very valuable to educate communities and improve their understanding about the importance of taking countermeasures to reduce disaster risk at present and in the future. This understanding will also increase the individual as well as community awareness levels.

Unfortunately, the participants' answers show that they did not fully understand the intention of the question. Only about 30% of the participants mention the importance of taking long-term countermeasures for tsunami disaster: no one mention anything about the importance of conducting disaster identification immediately after an event.

#### 5. 1. 3 Participants' perceptions about disaster prevention; after training course.

The second questionnaires were distributed at the end of the course to evaluate if there are any changes on the participants' perception regarding disaster prevention or if they were benefited in any way from this training course. The related questions are listed as follows:

- Though a big earthquake will not occur so frequently at a place, why do we tackle Tsunami countermeasure just after the big earthquake?
- What did you learned from two on-site surveys (Sanriku Coast Area and Kii Peninsula)? What do you think the difference between the two areas regarding Tsunami countermeasures?
- What is the necessary factor in "Tsunami Disaster Prevention"?
- What have you achieved in this training course?

The first question was asked in the first questionnaire, too. For this question of "*Though a big earthquake will not occur so frequently at a place, why do we tackle Tsunami countermeasure just after the big earthquake?*", about 80% of the participants clearly indicated the importance of long-term preparedness and awareness. They know that there is no time for negligence and that it is important to develop countermeasures continuously and consistently without taking a risk. However, still no participant mentioned the importance of conducting disaster identification immediately after an event. Due consideration should be paid to this fact to find better ways to communicate the true intentions of activities.

The complete responses of the participants to this question are listed below:

- Normally the big earthquakes are followed by tsunami. Due to its nature, tsunami is more destructive than other kind of disasters. In order to save the damage of lives and properties, the countermeasures have to be taken even if the big earthquake is not occurred but There is always possibility of tsunami's occurrence (Mr.

Laloo Prasad Sonkar/ India)

- Tsunami, due to its shear force and intensity, has the potential to wipe out the life and property not only in and around the generation area but also the areas far off. We have glaring examples of some of the transoceanic tsunamis such as the Chilean tsunami and the Indian Ocean tsunami. In order to save the mankind from the devastating nature of the tsunami, countermeasures have to be taken even if the big earthquake followed by tsunami will occur only after a long time. Otherwise, the areas prone to tsunamis will be ruined again and again and they will have to rise from the ashes which will take a lot of effort and money. So, it is better to take countermeasures and make the area safe so as to avoid taking rebuilding process again and again (Mr. Ujjwal Kumar/India)
- It is very important to always remind people that earthquake will occur any time, and no one technology can predict about that. After tsunami Indian Ocean occur Banda Aceh 2004, we learned that we have long history about tsunami in Indonesia, but we didn't disseminate this information each others, if we don't disseminate information for one generation to when tsunami come they don't know understand what happen and what to do, this may caused we will loss one generation (Mr. Juriono/Indonesia)
- Actually, tsunami countermeasures should be tackled prior to the occurrence of a big earthquake. However, after the big earthquake, there is a great possibility for a forceful tsunami to occur, and the window of time available for evacuation is very small, in most cases, less than 5 minutes. (Dr. Teuku Alvisyahrin/Indonesia)
- Usually, disaster which strikes with small scale, it will be considered as a common natural phenomenon and all this thing is considered as a risk of human life. But when a big (tsunami) disaster strikes, usually peoples start to realize and would begin to do some prevention efforts. When we meet some choices of problem, usually we make a priority scaling. In the developing countries, a disaster with long recurrence period will be neglected. (Mr. Wisyanto/Indonesia)
- Tsunami can be generated by the big earthquake and will attack shore coast several minutes after. To decrease a victim, it is important to develop mechanism of tsunami prevention and countermeasure that includes early warning system, tsunami hazard map and inundation map, evacuation route and evacuation place, and structural construction on coast. The other things, nonetheless are how to increase awareness of society for tsunami attack because society will evacuated immediately just after the earthquake (Mr. Weka Mahardi/Indonesia)
- Due to the longer recurrence period of tsunamis and major earthquakes, national priorities to tsunami countermeasures are often overridden by other urgent development activities. However these priorities are refocused on countermeasures and mitigation, especially in developed countries after life is lost, and development infrastructures collapse following major earthquakes. The close relationship between tsunami and earthquakes reminds nations and it's people that natural hazards cannot be avoided although risk can be mitigated by reducing the exposure to risk and vulnerability as well as enhancing the coping capacities. Rehabilitation and recovery processes are costly and time consuming, and is crucial to reduce the vulnerability and exposure to risks. If rehabilitation efforts do not include mitigation against all possible hazards, especially destructive ones such as tsunami's and earthquakes, infrastructure development cannot be sustained. As such tsunami countermeasures measures should be part of all development activities, and in the case of Japan, learning from experiences, their entire disaster management system has been evolving and developing based on past experiences of destructive earthquakes and tsunamis (Mrs. Rilweena Asiath/Maldives)
- Even a small earthquake can create a tsunami and in realizing the danger of the tsunami people take countermeasures to avoid loss of life and damage to properties. Tsunami travels at very high speed and people may not be able to escape from tsunami waves if they are not on high grounds (Mr. Murthala Didi/Maldives)
- Tsunami can occur after a big earth quake. But a tsunami can occur after a small earth quake also sometimes. Those are called tsunami earth quakes. As there is a high possibility of occurring a tsunami after a big earth quake, counter measures must be implemented without taking a risk (Mr. Jayawardhana/Sri Lanka)
- Tsunami can occur after an earthquake. Even the earthquake is not larger, still a Tsunami can occur. Those earthquakes are tsunami earthquake. There for we apply countermeasures just after the big earthquake (Mrs. Jayasundara/Sri Lanka)
- There is a tendency to occur tsunami if the big earthquake happens in Sea (Mr. Palitha Bandara/Sri Lanka)

Regarding the questions of “*What did you learned from two on-site surveys (Sanriku Coast Area and Kii Peninsula)?*” and “*What do you think the difference between the two areas regarding Tsunami countermeasures?*”, all the participants include in their answer that they learned about

the importance of taking both structural and non-structural measures. The Sanriku as well as Kii Peninsula Coasts are good examples using both measures in tsunami countermeasures.

Below are answers representing the participants' responses on the question:

- I witnessed a very resilient community ably supported by the structural, non-structural measures and an extremely efficient local government in both Sanriku coastal area and Kii peninsula. However, while Sanriku area has witnessed three devastating tsunamis in the past with run up height as high as 38 m in Ryori village, Kii peninsula is known more for its very less tsunami arrival time (5 minutes to 10 minutes) rather than height. Due to this reason, while we witnessed fairly high embankments, sea walls and breakwaters in Sanriku area, in case of Kii Peninsula, these structures were missing to some extent. Even the existing structures did not have much height. However, one thing which was common in both the areas was the efficient local administration and the resilient community. (Mr. Ujjwal Kumar/India)
- I learned how the Japanese government both at the central and local levels manages tsunami disaster in terms of both structural and non-structural measures. Disaster management is an important part of the local government operation and they invest a great amount of time and resources to protect the life and property of the Japanese people. Sanriku Coast has more established tsunami structures compared those of the Kii Peninsula. Also, efforts in tsunami education are more obvious in Kii area (Dr. Teuku Alvisyahrin/Indonesia)
- The lectures, discussion with prefectural, local and community level disaster management officials and the on-site surveys along both coastal areas in Sanriku and Kii Peninsula provided invaluable exposure of the tsunami countermeasures in Japan. While both areas have taken immense measures in tsunami countermeasures, the level of awareness and the presence of community participation is felt more strongly in the Kii Peninsula, where as community's reliance on the structural measures and reluctance of younger generation's participate in drills were expressed in the Sanriku Coast. Tsunami education at the school systems were strong in both regions (in schools visited) although through different approaches. In the Sanriku area tsunami education in school is out of the formal curriculum and in the Kii peninsula was within the school curriculum. This, together with the tsunami mitigation history of the two areas might be the reason for the different levels of awareness and education in these two areas. Structural coastal mitigation measures were more prominent in the Sanriku Coast than in Kii Peninsula (Mrs. Rilweena Asiath/Maldives)
- People always concern to earthquakes. Town, Cities and Prefectures and Government are alert for the prevent disasters. We have seen self help, mutual support and participatory approaches. Well planned. All the activities are progressing from generation to generation. Mitigation activities and training programmes, GIS Planning (structural measures and non structural meas.) perfect. Awareness in Kii Peninsula is very advanced than the Sanriku Coast (Mrs. Jayasundara/Sri Lanka)

The question of “*What is the necessary factor in tsunami disaster prevention?*” was also asked in the first questionnaire. By comparing the participant responses on this question at the beginning and the end of the course, it is clear that at the end of the course, the participants became capable of describing tsunami disaster prevention from a more holistic viewpoint. See Table 5-1 for the list of participant responses on this question given at the beginning and the end of the course.

At the end of the course, the participants in general emphasized two points as the most significant for Japan to reach the present successful level of disaster risk reduction. One is the implementation of the concept of “self help, mutual support and public assistance” in disaster management in all areas that they have visited during the course. The other one is the integration of mitigation measures into development efforts at all administrative levels, and thus disaster mitigation and prevention have become part of the daily life of communities.

Table 5-1  
The list of participants responses on the question of  
“*What is the necessary factor in tsunami disaster prevention?*”  
given at the beginning and the end of the course

| Response given at the beginning of the Course                                                                                                                                                                                                                                                                                         | Response given at the end of the Course                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Awareness and education of hazard, 2) Better governance, 3) Early warning system to be set up, 4) Protective measures such as soft measure like plantation of mangroves, Bio-shields and hard measures like sea wall, groynes, 5) Study for forecast of hazard are also important. (Mr. Laloo Prasad Sonkar/India)                 | Careful selection of structural as well as non-structural measures combined with awareness among the communities can be an ideal factor for tsunami disaster prevention. While the structural measures such as sea walls, embankments, breakwaters etc. and non-structural measures such as coastal vegetation can dissipate the tsunami force, awareness programmes such as preparation of hazard maps, disaster education in schools and mock drills can help in quick evacuation and in saving the precious lives of the people. (Mr. Laloo Prasad Sonkar/India) |
| Proper planning is the most important factor in “Disaster Prevention”, followed by effective implementation. If planning is perfect, execution becomes easy. However, after planning and execution, it all depends on the personnel who are maintaining the system and the people who are the beneficiaries. (Mr. Ujjwal Kumar/India) | Integration of mitigation measures into development efforts of the Government at all levels and making the mitigation and prevention a part of normal day-to-day life of the communities are the most important factors in tsunami disaster prevention. Due to this, the Governments at all the levels will undertake all the necessary measures to safeguard the tsunami prone areas and the communities, at the same time, will also learn to make the disaster prevention activity a part of their daily life. (Mr. Ujjwal Kumar/India)                          |
| Main factor in disaster prevention is knowledge for community to understand about disaster, how to save themselves, etc. Next are all tools or Infrastructure that will support to decrease casualty if disaster happen. (Mr. Juriono/Indonesia)                                                                                      | Basic concepts for general disaster prevention are Self-help, mutual support, and public assistance. It is importance for people to understand that limited help would be available in time of emergency, people should save them self if tsunami come (Tsunami Tendenco), go to save place such high ground or high building, after tsunami people survive then help each other because it will take time until support arrives to the site. (Mr. Juriono/Indonesia)                                                                                               |
| A good disaster management plan or strategy (Dr. Teuku Alvisyahrin/Indonesia)                                                                                                                                                                                                                                                         | Awareness and preparedness (Dr. Teuku Alvisyahrin/Indonesia)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| For developing country (Indonesia), Prevention efforts that can be done realistically are: Arising awareness of community to disaster; Making a green protection (Mangrove, Palm tree, etc) (Mr. Wisyanto/ Indonesia)                                                                                                                 | Involvement of community in making and implementing any kind of tsunami disaster prevention efforts. Because the recurrence time of tsunami disaster is very long, the most important thing is don't ever forget tsunami disaster. For this thing, we need some reminder tools, such as handing on disaster information to next generation, tsunami monument, tsunami drill, etc. (Mr. Wisyanto/Indonesia)                                                                                                                                                          |
| With disaster prevention we can manage disaster risk for decrease a victim. The necessary factors are basic vulnerability/management and manage disaster risk to anticipation hazard. And to control social vulnerability we must manage exposure and coping capacity. (Mr. Weka Mahardi/Indonesia)                                   | There have 3 things about necessary factor, that is basic vulnerability, exposure, and coping capacity. Basic vulnerability connected with society weakness to natural hazard like poverty, discipline, governance system etc. Exposure connected with number of people, volume of properties and livelihood. Coping capacity connected with structural measure, nonstructural measure, and institutional (Mr. Weka Mahardi/ Indonesia)                                                                                                                             |
| Awareness and good governance is an important factor of disaster prevention. Softmeasures however must be matched by counteractive structural measures as well as good governance. Strong institutional structure and legal framework as well as a political will to be                                                               | The effectiveness of structural measures depends heavily on the size of tsunami waves and arrival times, which are difficult to estimate prior to the earthquake, as such efficient and effective measures to warn and evacuate to higher places is the only way to save lives. As such education and awareness of the community to tsunami danger, and there is no one way solution                                                                                                                                                                                |

|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| committed to disaster prevention play a critical role. However, prior to disaster early warning and awareness are the most important facts. (Mrs. Rilweena Asiath/Maldives)                                                                                                                   | to educate people (Mrs. Rilweena Asiath/Maldives)                                                                                                                                                                           |
| Educating people, increasing coping capacity and reducing exposure to risk is most important in disaster prevention. (Mr. Murthala Didi/Maldives)                                                                                                                                             | It is to raise awareness of people to evacuate to high grounds to save lives. It is possible to minimize the damages to lives and properties if we can take tsunami countermeasures in advance (Mr. Murthala Didi/Maldives) |
| Identifying vulnerability, coping capacity, exposure reduction (Mrs. Jayasundara/Sri Lanka)                                                                                                                                                                                                   | Planning and response, Early warning, Training, Emergency operation and Mitigation activities. Awareness and quick response (Jayasundara/Sri Lanka)                                                                         |
| Following are the main factors necessary in disaster prevention: 1) Exposure reduction, 2) Increasing coping capacity, 3) Vulnerability reduction. If we manage the above three factors suitably disasters due to natural hazards can be prevented considerably. ( Mr. Jayawardana/Sri Lanka) | To my thinking awareness is the most important factor in tsunami disaster prevention (Mr. Jayawardhana/Sri Lanka)                                                                                                           |
| Increase of coping capacity, vulnerability reduction, and exposure reduction (Mr. Palitha Bandara/Sri Lanka)                                                                                                                                                                                  | Awareness and quick response (Mr. Palitha Bandara/Sri Lanka)                                                                                                                                                                |

Responding to the questions of “*What have you achieved in this training course?*” some answers were very encouraging and showed some evidence that they had learned the fundamental concept of disaster management in Japan. The following are some typical answer quoted from their responses.

- Most important was the awareness among the people about the disasters which is something we can implement in our country through campaigning. (Mr. Lalloo Prasad Sonkar, India)
- I was also able to witness a strong will both on the part of the Government and the community to make themselves resilient to disasters by way of putting combined efforts. (Mr. Ujjwal Kumar, India)
- I learned the philosophy behind the great efforts in disaster management in Japan. I think, the strength in disaster countermeasures in Japan lies on the collaborative efforts shared by both the formal and informal disaster management organizations/groups with a particular note on the active participation of community members in the process. (Mr. Teuku Alvisyahrin, Indonesia)
- We can adopt basic concepts for general disaster prevention of self-help, mutual support, and public assistance to increase community awareness and to remind people of what they should do if a disaster occurs.(Mr. Juriono, Indonesia)
- The programme has provided us with an invaluable learning experience on a personal level too. The dedication and aspirations of individuals and volunteer groups at all levels, and the discipline of the Japanese people and their resilience to withstand and revive back after disasters has touched me and given me hope that together we too will be resilient to future hazards and is able to reduce the impact of tsunamis and other natural hazards. (Mrs. Rilweena Asiath, Maldives)
- Most of the things that Japan has implemented as tsunami counter measures cannot be implemented in Sri Lanka, as it is a developing country. But there are many things which can be implemented. For example making aware the people, growing coastal forest, etc., (Mr. Sooriya Arachchige Ranjan Jayawardana, Sri Lanka)

Also, by comparing the response of the participants on the questions of “What do you want to achieve in this training course?” (1st Questionnaire) with their response on the questions of “What have you achieved in this training course?” (2nd Questionnaire), it is clear that the participants have enhanced their knowledge and understanding on comprehensive tsunami disaster prevention as they had expected to before the training. See Table 5-2 for this comparison.

Table 5-2

Comparison of the participants' response on the questions of "*What do you want to achieve in this training course?*" (at the beginning of the course) with their response on the questions of "*What have you achieved in this training course?*" (at the end of the course)

| Response on the questions of<br>" <i>What do you want to achieve in this training course?</i> "<br>(at the beginning of the course)                                                                                                                                                                                     | Response on the questions of<br>" <i>What have you achieved in this training course?</i> "<br>(at the end of the course)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) comprehensive management menu, 2) To find out the solution of the weak area of implementation, 3) Methods of prevention (Mr. Lalloo Prasad Sonkar/India)                                                                                                                                                             | The training course has enabled us to see some very impressive measures both structural (sea walls breakwaters, embankments, tsunami gates etc) and the non-structural measures (coastal vegetation, awareness programmes) prevailing in Japan. The simulation system to predict the inundation area as well as the likely casualties with or without the countermeasures was also very impressive. Most important of them was the awareness among the people about the disasters which is something which we can implement in our country through campaigning. Disaster education in schools at elementary level is another area which can be prioritized for implementation. (Mr. Lalloo Prasad Sonkar/India)Mr.                                       |
| In the first two days of the course, I have achieved more than what I had expected. The lectures combined with field _visits would make me more focused in my approach towards disaster mitigation projects (Mr. Ujjwal Kumar/India)                                                                                    | The training course has given me an opportunity to learn the best practices available in a country like Japan which has such a vast experience in dealing with disasters that over a period of time, it has been able to develop an extremely effective medium to deal with them. I was also to able to witness a strong will both on the part of the Government and the community to make themselves resilient to disasters by way of putting combined effort. The training also exposed me to basic as well as advance concepts of tsunami disasters besides giving me an opportunity to see how to make the countermeasures effective (in the field trips) and everlasting (by making the community aware of the disasters). (Mr. Ujjwal Kumar/India) |
| Understand kind activity to aspect of disaster prevention based on multi aspect of scientific study, it will also enable me to formulate activity which acceptable and applicable by community and also make me more concern to be involve in the area of community preparedness in the future (Mr. Juriono/Indonesia). | We learned so many things from Japan experiences how to minimize casualty from disaster based on structural measure and non-structural measure. How Japan develop tsunami countermeasure from all aspect and all level community. We got many information based on scientific reason and also practical side. Those things help us to generated activity in our country. And we can adopt basic concept for general disaster prevention are Self-help, mutual support, and public assistance to increase community awareness and realize what they should do if disaster occur. (Mr. Juriono/Indonesia)                                                                                                                                                  |
| Sound knowledge with hands-on experience in tsunami disaster management with basic principles of disaster management that can be adapted to multi-hazard scenarios (Dr. Teuku Alvisyahrin/Indonesia)                                                                                                                    | More than the technical aspect of the tsunami countermeasures, I learned the philosophy behind the great efforts in the disaster management in Japan, particularly in terms of tsunami. I think, the strength in the disaster countermeasures in Japan lies on the collaborative efforts shared by both the formal and informal disaster management organizations / groups with a particular note on the active participation of community members in the process (Dr. Teuku Alvisyahrin/Indonesia)                                                                                                                                                                                                                                                      |
| To have more knowledge / experiences about tsunami disaster risk analysis; Knowing better how to make a hazard map; Knowing a comprehensive disaster risk management (Mr. Wisyanto/Indonesia)                                                                                                                           | We have known much more about and the function of Watergate, embankment, seawall, tsunami monument, vegetation protection, intensity scale, J-Alert, communication technique, museum related to disaster and many kinds of non structural countermeasures, such as formal and also non formal disaster education, community participation to disaster prevention efforts, respecting to leader's merits and others thing. Besides thus experiences, we also have known about theory of tsunami, cooperation systems (self_help etc.) in Japan, how to determine / select project using PCM, how to calculate the                                                                                                                                         |

|                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                      | effectiveness of vegetation protection (Mr. Wisyanto/Indonesia)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| We can make action plan to apply and to integrate tsunami program in my countries (Mr. Weka Mahardi/Indonesia)                                                                                                                                                                                                                                                                                       | I get knowledge about Japan has develop tsunami prevention in Sanriku Coasts and Kii Peninsula. Japanese culture face tsunami, it was included tsunami history in Japan. I know how to make tsunami hazard map and evacuation map. (Mr. Weka Mahardi/ Indonesia)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| After this training program, I expect my knowledge of tsunami in particular and disaster in general to be more. Further through sharing experiences with participants and borrowing knowledge from sector specialists, I expect the training to broaden our understanding & ability to develop and contribute to tsunami countermeasures / prevention in our country (Mrs. Rilweena Asiath/Maldives) | <p>During the course of the past 6 weeks, our understanding of tsunami generation, its danger and tsunami countermeasures have been greatly enhanced. We have seen that the national priority from the top to disaster management, established legal systems and frameworks, research and development efforts, structural and non structural measures all play very critical roles in tsunami prevention. Further we have been able to share our experiences with other participants and experts in the fields and have very clearly understood the need to move from disaster response to disaster mitigation efforts to reduce damage from future calamities.</p> <p>In addition to our knowledge on tsunami countermeasures the structure of the programme has provided us with an invaluable learning experience on a personal level too. The dedication and aspirations of individuals and volunteer groups at all levels, and the discipline of the Japanese people and their resilience to withstand and revive back after disasters has touched me and given me hope that together we too will be resilient to future hazards and is able to reduce the impact of tsunamis and other natural hazards (Mrs. Rilweena Asiath/ Maldives)</p> |
| I want improve my knowledge in the field of disaster management and serve the people more effectively. Japan is the most experienced country in this field and I hope to achieve this goal. (Mr. Murthala Didi/Maldives)                                                                                                                                                                             | I have learned the type of measures Japan has taken to reduce damages that can be caused by tsunami waves. I have also learned about the early warning systems, evacuation buildings, evacuation places, costal protection measures, education and awareness programmes that are carried out by the authorities and volunteers. I have also experienced the town watching to identify safe evacuation routes (Mr. Murthala Didi /Maldives)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Sharing experience and knowledge from Japan and other countries. (Mrs. Jayasundara/Sri Lanka)                                                                                                                                                                                                                                                                                                        | Gained Knowledge, Atitude and Skills experiences on tsunami counter measures. Successfully completed the the course on project management cycle (participatory approach). (Mrs. Jayasundara/Sri Lanka)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| To learn the new technology connected with tsunami disaster prevention and also to share the experience I had, with other participants. And also to learn history and the general introductions about Japan (Mr. Jayawardhana/Sri Lanka)                                                                                                                                                             | Most of the things that Japan had implemented as tsunami counter measures cannot be implemented in Sri Lanka, as it is a developing country. But there are many things which can be implemented. For example making aware the people, growing coastal forest, etc (Mr. Jayawardhana/Sri Lanka)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Gain and sharing of knowledge and experience from other countries specially in Japan (Mr. Palitha Bandara/ Sri Lanka)                                                                                                                                                                                                                                                                                | Gained Knowledge and experiences on tsunami counter measures (Mr. Palitha Bandara/Sri Lanka)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

#### 5. 1. 4 Participants' comments about Japanese tsunami disaster mitigation as well as opinions on the course contents

The second questionnaire also asked for comments on the participant's comments about Japanese tsunami disaster mitigation and on the course contents. The comments requested are:

- Your comments/suggestions about Japanese activities for tsunami disaster mitigation including emergency response at an occurrence of disasters
- Your comment to improve this course (Schedule, Curriculum, Lecturer etc.)

All the participants admire the Japanese advanced and comprehensive measures for tsunami disaster risk reduction. Some comments and suggestions are listed below to show the participants' comments and suggestions about activities for tsunami disaster mitigation in Japan.

- The Japanese activities relating to tsunami mitigation are simply outstanding and comparable to the best in the business. More than that, the Japanese way of keeping disasters alive in the minds of the people is even more remarkable. From the presentations as well as the site visits, I have noted that Japan has reached a stage where not only the Government but the people also have shown extremely vigilant character at the time of occurrence of disasters. I was able to see a very good example of emergency response by the JMA after the occurrence of an earthquake. Even in Owase city, the officials were quick to respond even when some presentation was going on, when some kind of warning was issued due to heavy rains. The legal/institutional, structural and non-structural measures are quite impressive. Due to various types of awareness measures taken by the Government, the community has reached such a level that they believe more on their abilities rather than remaining dependent on the Government. This kind of situation is ideal for any country. (Ujjwal/India)
- Basically, Japan has a very well developed tsunami disaster mitigation plan. There are only a few minor things perhaps that could be improved such as, the standardization of tsunami information / escape route signboards, construction of sufficient embankments in some coastal areas, improvement of electric power line network on streets, and retrofitting of older building to meet current building codes particularly those buildings that can be designated as escape buildings. (Teuku/Indonesia)
- The level of education and eventual response of residents to warning message is not even across the country. Strong structural measures may lead to false sense of 100% security from a tsunami. Nevertheless the efforts of city and town disaster officials, volunteer groups and community leaders are very remarkable and should be sustained. The early warning system in Japan is very comprehensive, and the quality of existing tsunami evacuation information can be enhanced by using common signboards with clear directions and information, coastal areas often attract local and international tourism. Further the capacity of businesses (hotels, restaurants and other popular spots) to guide and assist tourists to safe evacuation sites should be considered. Efforts to provide sufficient safe shelters for all the residents can be scaled up with appropriate facilities for water and sanitation (Asiath/Maldives)
- Vast experience in dealing with disasters. Putting in place a very effective warning system. But the evacuation sights and sign board must be improved (Jayasundara/Sri Lanka)
- Emergency response system is excellent. But the evacuation sights and sign board must be improved (Palitha/Sri Lanka)

In regard with the course contents, the participants' suggestions can be summarized as follows:

- Repetition of the same lecture contents should be avoided.
- Lectures involving advanced knowledge on tsunami should be given more time.
- The participants should be given more time for preparation for reports, action plans etc.
- More time allocation for discussion during the lecture is necessary.
- Additional lectures are necessary for earthquake mechanism, coastal forest habitation, tsunami disaster risk analysis, response, relief efforts and recovery management, and design and stability of the structure countermeasure.

- Additional practice sessions on developing a tsunami hazard map are necessary rather than sophisticated simulations.
- It was hard to understand lectures through interpreters.
- Classes should be shortened from 90 to 45 minutes.
- More time should be allocated for discussions with local administrators and residents.
- More lectures on structural measures should be added to the course.

## 5. 2 Evaluation on lectures and exercises

The participants evaluated each lecture and exercise based on 1-5 grades.

The total average of the evaluation results showed that the course contents met their expectations and needs as each lecture and exercise was given more than four points. In particular, the highest point given to the coastal vegetation lecture and exercise showed their strong interest and motivation to learn feasible tsunami countermeasures for their countries. The “Project Cycle Management” exercise was also highly rated, revealing that the participants understood the effectiveness of the systematical method for analyzing problems and presenting solutions.

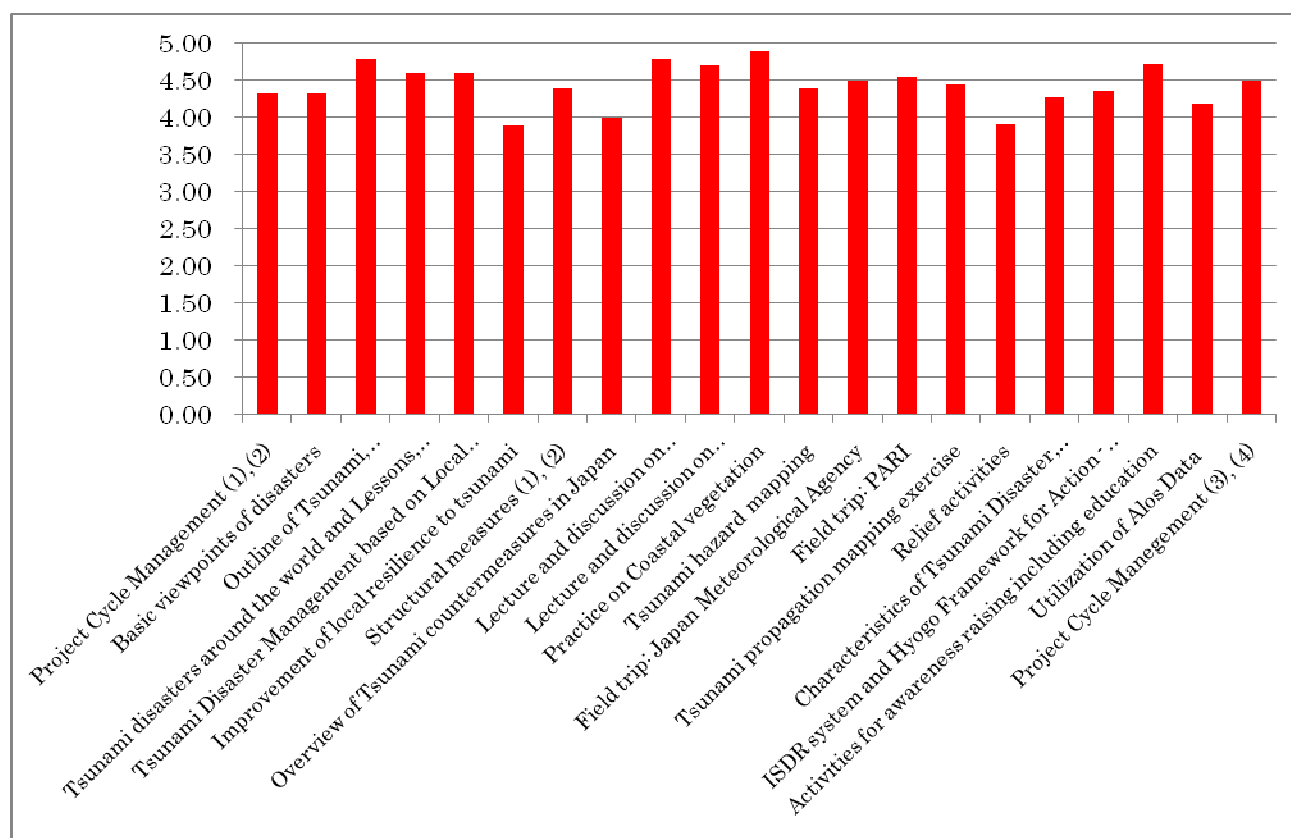


Figure 5-1 Total average of the evaluation on lectures & exercises

## 5. 3 Participants' action plans

The true success of this training course depends on the implementation of comprehensive tsunami disaster prevention principles in the target countries. In order to know the participants' ideas on how they will proceed in disseminating the principles of comprehensive tsunami disaster prevention, they were assigned to formulate a three-year activity plan started after returning to their home countries. This is actually equivalent to an individual action plan, which is suggested to be in line with the main activities in their institutions. Each action plan was discussed and supervised in the Project Management Cycle class throughout the course.

Participants from the same country were expected to communicate with each other and coordinate their activities to maximize synergy. At the same time ICHARM has concern to get informed on the implementation of that Action Plans to monitor the long term effects given by this training course to the target countries.

In this training course, the participants were asked not to think about direct application of Japanese tsunami countermeasures to their countries, but to recognize the difference between Japanese tsunami countermeasures and those in their countries and consider what should be done in their countries. As a result, they made various action plans for their home countries.

The Indian participants emphasized three points as follows;

- (i) Disaster mitigation and preparedness are as important as response, relief and rehabilitation
- (ii) Awareness among the citizens, particularly those in the vulnerable section of society, is most important and should be promoted on a priority basis
- (iii) Effective participation of residents in the planning and implementation of disaster-related activities should be ensured.

For these purposes, they said that the government should be asked to:

- Strengthen awareness programs and information dissemination systems
- Review the existing legal framework for disaster management and to amend the act for tsunami countermeasures in line with the 'Disaster Countermeasure Basic Act' prevailing in Japan, if needed
- Review the existing structural and non-structural measures and to take up suitable location-wise measures, based on research.

The Indonesian participants claimed that tsunami-related problems in Indonesia are rooted in the lack of coordination among disaster-related organizations, the lack of coastal structural countermeasures including vegetation, and the lack of operational training of tsunami warning systems.

To solve those problems they pointed out that the following activities should be done;

- Trainings and Workshops should be held for residents and teachers

- Community education groups should be established.
- Comprehensive tsunami drills should be conducted.
- Disaster education curriculum for school should be developed.
- Local hazard maps should be developed.

The Maldives is a low-lying land country and troubled with coastal erosion, lack of coastal vegetation, industrial dependency on fishery and tourism, and limited transportation. Therefore, the Maldivian participants claimed that the government should be asked to:

- Promote and mobilize funds for policy development to build safe evacuation centres, and identify strong buildings suitable for evacuation in coordination with the Ministry of Construction and Infrastructure Development.
- Encourage resort owners to put in place tsunami countermeasures such as coastal forestation, construction of multipurpose evacuation buildings and take measures to protect their lifelines and communication systems around tourist resorts by coordinating with the relevant agencies
- Propose an early warning system in every house and install early warning towers to alert people working along the coast.

The topographical conditions in the coastal areas of Sri Lanka are completely different from those of Japan. For example, the entire coastal areas are flat with very few bays and openings, and the mouths of bays are much wider. The population is spread unevenly along the entire coastal belt. However, high capital investments will be a problem for this country. Further, there is a proposal to establish tsunami breakwaters at Galle Harbor with the assistance of the Japanese government.

The Sri Lankan participants proposed activities as follows:

- Awareness programs should be conducted in highly vulnerable districts with the consent of the DMC officials.
- Multi-language sign boards should be established based on the necessity. The existing sign boards have to be modified with luminous colors or solar panel boards. Several tsunami monuments should be established in vulnerable areas to convey the message to future generation.
- Awareness programs, for the vulnerable communities of the selected districts, should be conducted to motivate community residents, to establish coastal forests along the coast, and also to establish tree crops in their home gardens and to improve the existing coconut plantations.
- Awareness programs, for the school children of the vulnerable areas, should be conducted through different modes. The aim is to motivate the students to establish and maintain coastal forests along the coastal belt, introduce tree species in their home gardens, and serve as volunteer for their areas.

#### 5. 4 Evaluation on the perceptibility of expected results

The expected results of the project are shown in Table 5-3 related to the project objectives, indicators, and activities. Blank cells in the table means no activities related to this course. This table is part of the project framework in the project document.

As it is shown in Table 5-3, the expected results of the projects include strengthened national institutional capacity in disaster risk reduction, increased public awareness and knowledge on tsunami risk and disaster risk reduction towards an enhanced culture of safety, strengthened disaster risk reduction (preparedness, mitigation, and response) capacities of local communities, and research and analysis on the risk and impact of tsunamis and other related natural hazards advanced.

This brief evaluation is based on the participants' reports (country report, interim report, action plan), their responses to the distributed questionnaires, and observation of the course execution

Table 5-3  
Project objectives, expected results, indicators, and activities related to  
Comprehensive Tsunami Disaster Prevention Training Course

| <b>Objective 1: Strengthened national institutional capacity in disaster risk reduction</b>          |                                                                                                                                   |                                                                                                                      |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Expected Results</b>                                                                              | <b>Indicators</b>                                                                                                                 | <b>Activities</b>                                                                                                    |
| 1.1. The capacities of national platforms and institutions for disaster risk reduction strengthened. | 1.1.1 Institutional capacity assessments and targeted capacity building undertaken in at least <b>3</b> countries                 | Capacity training on the comprehensive tsunami disaster countermeasure and project cycle management                  |
|                                                                                                      | 1.1.2 Technical support for national policy development on disaster risk reduction provided to <b>2</b> countries at least        | Capacity training(lectures) on the disaster management system and comprehensive tsunami disaster prevention in Japan |
|                                                                                                      | 1.1.3 Technical support for the planning and development of national tsunami early warning centers provided in <b>2</b> countries |                                                                                                                      |
| 1.2. Integrated disaster risk reduction in environmental coastal zone management implemented.        | 1.2.1 Integration of disaster risk reduction in coastal zone management implemented in at least <b>3</b> countries                | Lectures, exercise and discussion on tsunami disaster risk reduction using coastal forest                            |
| 1.3. Coordination, information exchange and learning among targeted countries facilitated            | 1.3.1 Number of forums for enhancing regional cooperation, information sharing and knowledge exchange provided                    | Country report and action plan discussion among target countries' participants                                       |

|                                                                                                                                                |                                                                                                                                  |                                                                                                                                                                                                                                      |
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| and enhanced.                                                                                                                                  | 1.3.2 Mechanisms for exchange of experiences among the targeted countries strengthened                                           | Country report and action plan discussion among target countries' participants                                                                                                                                                       |
| <b>Objective 2: Increased public awareness and knowledge on tsunami risk and disaster risk reduction towards an enhanced culture of safety</b> |                                                                                                                                  |                                                                                                                                                                                                                                      |
| <b>Expected Results</b>                                                                                                                        | <b>Indicators</b>                                                                                                                | <b>Activities</b>                                                                                                                                                                                                                    |
| 2.1 Public awareness on tsunami and disaster risk increased.                                                                                   | 2.1.1 Awareness-raising media campaigns through the media and public events                                                      | Technical visit to tsunami frequently hit area including participation to a tsunami disaster management drill                                                                                                                        |
|                                                                                                                                                | 2.1.2 Public information material tailored to local cultures and languages                                                       | Technical visit to tsunami frequently hit area including lectures by local government and interviews<br>Distribution of sample of publication materials related to tsunami disaster preparedness and countermeasures during training |
| 2.2 The role of education in early warning and disaster reduction advocated and strengthened.                                                  | 2.2.1 Integration of natural hazards components and disaster risk reduction into school curricula in at least 3 countries        | visiting a primary school which has carried out an education program on tsunami disaster mitigation                                                                                                                                  |
|                                                                                                                                                | 2.2.2 Number of school teachers at primary schools trained on disaster risk reduction                                            |                                                                                                                                                                                                                                      |
| <b>Objective 3: Strengthened disaster risk reduction (preparedness, mitigation, and response) capacities of local communities</b>              |                                                                                                                                  |                                                                                                                                                                                                                                      |
| <b>Expected Results</b>                                                                                                                        | <b>Indicators</b>                                                                                                                | <b>Activities</b>                                                                                                                                                                                                                    |
| 3.1 Capacities and mechanisms for disaster risk reduction at the community level strengthened.                                                 | 3.1.1 Assessments of community preparedness measures in coastal zones undertaken                                                 |                                                                                                                                                                                                                                      |
|                                                                                                                                                | 3.1.2 Number and quality of community tools and methods for effective disaster risk reduction further developed and strengthened |                                                                                                                                                                                                                                      |
|                                                                                                                                                | 3.1.3 Number of local volunteers (existing community capacity) mobilized                                                         |                                                                                                                                                                                                                                      |

|                                                                                                                                 |                                                                                                                  |                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                 | and trained in disaster risk reduction to support community actions                                              |                                                                                                                                 |
| 3.2 Community resilience strengthened through integrated disaster risk reduction.                                               | 3.2.1 Effective chain of communication between the community and local authorities established and strengthened. | Technical visit to tsunami frequently hit area including lectures by local government and interviews to residents and officials |
|                                                                                                                                 | 3.2.2 Disaster risk reduction integrated into a number of post-tsunami recovery projects at the community level. | Technical visit to tsunami frequently hit area including lectures by local government                                           |
| <b>Objective 4: Research and analysis on the risk and impact of tsunamis and other related natural hazard advanced</b>          |                                                                                                                  |                                                                                                                                 |
| <b>Expected Results</b>                                                                                                         | <b>Indicators</b>                                                                                                | <b>Activities</b>                                                                                                               |
| 4.1 Field research and comparative studies on the risks and socio-economic impacts of disasters carried out in high risk areas. | 4.1.1 Number of field research studies on tsunami risk assessment                                                |                                                                                                                                 |
|                                                                                                                                 | 4.1.2 Number of analysis of tsunami historical records as well as identification of future tsunami prone areas   |                                                                                                                                 |
|                                                                                                                                 | 4.1.3 Number of cost-benefit analysis of disaster risk reduction                                                 |                                                                                                                                 |

#### 5. 4. 1 Strengthened national institutional capacity in disaster risk reduction.

- Currently, all the target countries, except the Maldives, have developed their national act on disaster management, which regulates the complete cycle of disaster management (preparedness, mitigation, response, and recovery and rehabilitation). This situation will help implement comprehensive tsunami disaster prevention more easily.
- Comprehensive lectures, which cover management and engineering aspects and also include technical visits, have enhanced participant's knowledge and understanding on the comprehensive tsunami disaster prevention.

- Lectures on engineering aspect of coastal forest in mitigating tsunami disasters and its actual implementation in the system of tsunami disaster countermeasures in Japan have given orientation on the importance and possibility of integrating disaster risk reduction planning into environment and coastal zone management planning.
- Communication and information exchange among the participants were active during the course. This is a significant starting point of international networking for dissemination of comprehensive tsunami disaster prevention in the future.

#### 5. 4. 2 Increased public awareness and knowledge on tsunami risk and disaster risk reduction towards an enhanced culture of safety

- During the technical visits to Sanriku Coast and Kii Peninsula Coast areas in Japan, the course participants saw many defense structures and evacuation facilities constructed along tsunami-prone areas. In some cases, part of the budget for those structures' construction came from the citizens. This high self-participation of communities in the disaster countermeasures has given deep impression to the participants.
- The course participants heard directly from residents about their involvement in the voluntary disaster management groups' activities and their participation in maintaining disaster prevention facilities. They also visited elementary schools to learn how the schools educate students about nature and disasters to increase their disaster awareness since the early stage of their age. These all gave high impression to the participant and encouraging its adoption to their own countries.

#### 5. 4. 3 Strengthened disaster risk reduction (preparedness, mitigation, and response) capacities of local communities

- Technical visits to tsunami-prone areas in Japan, including attending lectures given by local governments and interviews to the residents, have enabled the participants to witness the existence of a strong will on both the government and the community sides, which makes Japan resilient to disasters by way of putting combined efforts.
- According to the responses of the course participants to the questionnaire, they concluded that the strength in disaster countermeasures in Japan lies on the collaborative efforts shared by both formal and informal disaster management organizations with a particular note on the active participation of community members in the process.

#### 5. 4. 4 Research and analysis on the risk and impact of tsunamis and other related natural hazards advanced

- Although the present training course has no direct research activities, lectures on the basic knowledge of tsunami generation and propagation, the role of coastal forest in mitigating tsunami disaster, and the protection structures against tsunami disaster have open the vision of the participants on the importance of enhancing research activities related to tsunami disaster prevention. Especially for the participants come from research institutions, they are greatly encouraged by the lectures. This is a good result for the advancement of research activities in the targeted countries as one of important point in the development of a comprehensive disaster risk reduction chain.

#### 5. 5 Further necessary activities

The presented results are based on careful evaluation conducted immediately after the course work within the limited time of the training course.

To evaluate what is truly beneficial to the participants, further data should be collected from continuous monitoring of implementation activities by the participants after returning to their home countries.

ICHARM will keep communicating with the participants and monitor the progress of each country's implementation process based on the action plans developed and submitted at the end of the course by each participant.

In order to facilitate communication between ICHARM and the participants, a special window in ICHARM's website will be provided for discussion and consultation related to comprehensive tsunami disaster prevention.

## Chapter 6: Conclusion

In the field trips to the Sanriku coastal area and Kii Peninsula, the participants were not only amazed to see gigantic structures, such as tsunami breakwaters and sea walls, but also overwhelmed by local people's high awareness toward disaster mitigation.

There is a Chinese proverb, saying, "In peace, prepare for war." It is very important for residents to raise awareness and prepare for disasters even in normal times.

In particular, tsunamis may cause so devastating damage in a wide range of areas at the same time that it is almost impossible even for trained disaster-management organizations to deal with everything. So in Japan "self-help" and "mutual-support" are the basic shared concepts for disaster mitigation. It is difficult to apply these concepts directly to other countries due to the differences of topological, climate, social, historical and other conditions, but if these Japanese concepts are remembered by the participants and became a hint for disaster management in their countries, this training course can be considered successful.

Despite the fact that this was the first attempt for ICHARM to conduct tsunami-related training, the course was managed smoothly and produced satisfactory results. Last but not least, we at ICHARM sincerely appreciate every lecturer, officer, resident and the Japan International Cooperation Agency for helping ICHARM to conduct this fruitful training course.



Photo 6-1 With students of the Disaster Management Program at the closing party

# Annex

## Reference 1

Agreement between UN/ISDR and PWRI  
(with Japanese translation)

**AGREEMENT**  
**between**  
**United Nations the International Strategy for Disaster Reduction secretariat (UN/ISDR)**  
**and**  
**Public Works Research Institute (PWRI)**

**Whereas** the United Nations secretariat of the International Strategy for Disaster Reduction (hereinafter referred to as "UN/ISDR") and Public Works Research Institute (PWRI) (hereinafter referred to as "the Agency") are committed to the objectives of the International Strategy for Disaster Reduction and implementation of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters and share the vision to substantially reduce disaster losses, in lives and in the social, economic and environmental assets of communities and countries.

**Whereas** UN/ISDR has been entrusted by its donors with certain resources, available under the Trust Fund for Disaster Reduction, that can be allocated for disaster reduction and risk management activities; is accountable to its donors for the proper management of these funds; and can, in accordance with the UN Financial Regulations and Rules and the UN policies as stipulated by the General Assembly and the Secretary-General, make available such resources for disaster reduction and risk management activities;

**Whereas** the Agency is apolitical and not profit-making, has demonstrated the capacity required to implement the activities involved in this Agreement, and has agreed that they shall be undertaken without discrimination, direct or indirect, because of race, ethnicity, religion or creed, status of nationality or political belief, gender, handicapped status, or any other circumstances;

**Now, therefore,** on the basis of mutual trust and in a spirit of friendly cooperation, the Agency and UN/ISDR have entered into the present Agreement (hereinafter referred to as "the Agreement").

**Article I. Duration of Present Agreement**

1. The terms of the present Agreement shall commence upon signature by both parties and expire on 31 December, 2007 unless earlier terminated in accordance with article XIII hereto, or extended in accordance with article XVII hereto.

**Article II. General Responsibilities of the Parties**

1. The Agency shall, with due diligence and efficiency, implement the set of activities included in phase 1 of the action described in Annex I hereto (hereinafter referred to as "the Project") and ensure that the funds and any supplies, equipment and other materials provided by UN/ISDR are only used for this purpose.
2. The Parties agree to carry out their respective responsibilities in accordance with the provisions of the present Agreement.
3. The Parties shall keep each other informed of all activities pertaining to the Project and shall consult regularly on the status of its implementation. The Agency shall facilitate visits by UN/ISDR or any other person duly authorized in writing by UN/ISDR to the Project

site(s) to review the progress and achievement of the Project during its period of implementation and thereafter.

### **Article III. Copyrights, Patents and Other Proprietary Rights**

1. Unless otherwise agreed upon in writing, UN/ISDR shall be entitled to all intellectual property and other proprietary rights, including but not limited to patents, copyrights, and trademarks, with regard to maps, drawings, photographs, plans, reports, documents, products and all other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of the present Agreement.
2. All decisions regarding publication with regard to products or documents and other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of the present Agreement shall be made by UN/ISDR in accordance with its sectoral policy on information management for disaster reduction and risk management. In the event that UN/ISDR authorizes the Agency to publish articles or results of studies based on the activities financed by the Fund, the Agency shall furnish UN/ISDR with a copy of the proposed publication for the UN's approval, in each case, before publication. The Agency shall secure a copyright of such publication in the name of the UN.
3. The Agency may not communicate at any time to any other person, Government or authority external to the UN, any information known to it by reason of its association with UN/ISDR which has not been made public except with the authorization of UN/ISDR. In any event, such information shall not be used for individual advantage or profit.
4. The Agency may only use the name and emblem of UN/ISDR in direct connection with the Project and subject to prior written consent of the UN.

### **Article IV. Personnel Requirement**

1. The Agency shall be fully responsible for all services performed by its Personnel. The Agency shall ensure that all relevant labour laws are observed and shall provide and thereafter maintain all appropriate medical and life insurance for its Personnel in connection with the Agreement.
2. The Agency shall ensure that its Personnel meet the highest standards of qualification and technical and professional competence necessary for the achievement of the Project Objectives.
3. The Agency's Personnel shall not be considered in any respect as being the employees or agents of UN/ISDR. UN/ISDR does not accept any liability for claims arising out of the activities performed under the present Agreement, or any claims for death, bodily injury, disability, damage to property or other hazards that may be suffered by the Agency's Personnel as a result of their work pertaining to the Project.

### **Article V. Supplies, Equipment, Materials and Procurement**

1. All non-expendable equipment furnished or financed by UN/ISDR shall remain the property of UN/ISDR and shall be returned by the Agency to UN/ISDR within thirty (30)

days of the completion of the Project or the expiration or termination of the present Agreement, whichever is first to occur, unless otherwise agreed upon between the Parties. Non-expendable equipment is defined as an item, which has a purchase price of US\$1,500 or more, or the equivalent in local currency at the United Nations official rate of exchange on the date of purchase, and with an anticipated serviceable life of at least five years.

2. The Agency shall be responsible for the proper custody, maintenance and care of all non-expendable equipment during Project implementation and prior to its return to UN/ISDR. During implementation of the Project, the Agency shall, for the protection of such non-expendable equipment, obtain insurance pursuant to Article VI below in such amounts as may be agreed upon between the Parties and incorporated in the Project Budget.

3. UN/ISDR may place on the supplies, equipment and other materials it furnishes or finances such markings as will be necessary to identify them as being provided by UN/ISDR.

4. In cases of damage, theft or other losses of supplies, equipment and other materials furnished or financed by UN/ISDR, the Agency shall provide UN/ISDR with a comprehensive report, including police report, where appropriate, and any other evidence giving full details of the events leading to the loss of the supplies, equipment and other materials. After becoming aware of damage, theft or other losses of supplies, equipment and other materials, the Agency shall use its best efforts to seek recovery under the applicable insurance.

5. The Agency shall ensure that its procedures for awarding contracts and for the purchase or hire of goods, equipment, other commodities and services under the present Agreement safeguard the principles of highest quality, economy and efficiency, and that the placing of orders shall be based on an assessment of competitive quotations, bids, or proposals, unless otherwise agreed to by UN/ISDR.

6. UN/ISDR shall make every effort to assist the Agency clearing all supplies, equipment and other materials through customs at places of entry into the country(ies) where the Project is to take place.

7. The Agency shall maintain complete and accurate records of supplies, equipment and other materials purchased with the funds made available by UN/ISDR and shall take periodic physical inventories. The Agency shall provide UN/ISDR annually with the inventory of such supplies, equipment and other materials, and at such time and in such form as UN/ISDR may request.

#### **Article VI. Insurance and Liabilities to Third Parties**

1. The Agency shall provide and thereafter maintain insurance against all risks in respect of its property and any equipment used for the implementation of the Project under the Agreement.

2. The Agency shall provide and thereafter maintain all appropriate workmen's compensation insurance, or its equivalent, with respect to its Personnel to cover claims for personal injury or death in connection with the Agreement.

3. The Agency shall also provide and thereafter maintain liability insurance in an adequate amount to cover third party claims for death or bodily injury, or loss of or damage to property, arising from or in connection with the provision of services under the Agreement or the operation of any vehicles, boats, airplanes or other equipment owned or leased by the Agency or its Personnel performing work or services in connection with the Agreement. The Agency shall provide and thereafter maintain all other types of insurance and in such amounts as may be agreed upon between the Parties and incorporated in the Project Budget.

4. Except for the workmen's compensation insurance, the insurance policies under this Article shall:

- a. Name UN/ISDR as additional insured;
- b. Include a waiver of subrogation of the Agency's rights to the insurance carrier against UN/ISDR;
- c. Provide that UN/ISDR shall receive thirty (30) days written notice from the insurers prior to any cancellation or change of coverage.

5. The Agency shall, prior to the start of the Agreement, provide UN/ISDR with satisfactory evidence of the insurance required under this Article.

6. All insurance required under this Article shall be obtained through insurers reasonably satisfactory to UN/ISDR. All policies shall be primary without right of contribution from any other insurance which may be carried by UN/ISDR.

#### **Article VII. Financial and Operational Arrangements**

1. The Project Budget for the proposed activities submitted by the Agency requests resources (hereinafter referred to as "the Fund") up to the maximum amount of US\$100,000 for the duration of the Agreement.

2. Funding to support this project will be released to the Agency in instalments as follows: a first instalment of US\$75,000 will be released following the signing of the Agreement. Any subsequent instalments will be released when substantive and financial reports and other agreed upon documentation, as referenced in Articles IX and X, below, have been submitted to and accepted by UN/ISDR as showing satisfactory management and use of the Fund. Such additional funding is not guaranteed under the terms of this agreement.

3. All instalments to be released under the present Agreement shall be made to the following bank and account:

|                       |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------|
| <b>Bank name</b>      | <b>The Bank of Tokyo-Mitsubishi UFJ, Ltd.</b>                                         |
| <b>Bank address</b>   | <b>ASHIWA CHUOU BRANCH 1-2-5 KASHIWA, KASHIWA-CITY<br/>CHIBA-PREF 277-0005, JAPAN</b> |
| <b>Account number</b> | <b>275-1851795</b>                                                                    |
| <b>Account title</b>  | <b>INCORPORATED ADMINISTRATIVE AGENCY PUBLIC<br/>WORKS RESEARCH INSTITUTE</b>         |

4. Interest will be apportioned annually to the undisbursed balance of funds which have been received in accordance with paragraph 2 above. The Agency shall keep at the UN's disposal any interest accrued on the undisbursed balance of funds received according to paragraph 2 above. Its use will be subject to UN/ISDR approval.

5. The Agency shall be authorized to make variations not exceeding ten (10) per cent on any one line item of the Project Budget, provided that the total Project Budget allocated by UN/ISDR is not exceeded. Any variations exceeding ten (10) per cent on any one line item that may be necessary for the proper and successful implementation of the Project shall be subject to prior consultations with and approval in writing by UN/ISDR. UN/ISDR shall not be liable for any expenditure incurred in excess of its contribution as specified in this Agreement.

6. Any portion of the Fund that is unspent, as well as any unused interest accrued on the undisbursed balance of funds received according to paragraph 2 above, shall be returned to UN/ISDR within thirty (30) days of the expiration or termination of the present Agreement or the completion of the Project, whichever is first to occur.

7. In the event that the Agency receives additional funding for the same purpose in the country(ies) where the Project takes place from any source other than UN/ISDR, the Agency shall immediately advise UN/ISDR of the following: source of funding; amount of funding; activities covered by the additional funding or intended application of the additional funds; and period that the additional funding is intended to cover (i.e. start and end dates of the funding if applicable).

#### **Article VIII. Maintenance of Records**

1. The Agency shall collect and keep readily accessible information and documentation on the progress implementation of the Project and the use made of the Fund. To this end, the Agency shall maintain separate accounts recording all receipts and expenditure under this Project relating to the Fund and ensure that any obligations entered into and all disbursements made are satisfactorily documented. For each payment a voucher shall be established showing the Project symbol, the name of the payee, the amount, purpose and date of disbursement. Bills, invoices, receipts and such other documentation pertinent to the transaction will be attached to the voucher in support thereof. These vouchers and the supporting documentation will be systematically filed in dossiers specifically established to house project financial documentation.

2. Upon expiration or termination of the Agreement, the Agency shall maintain the records for a period of at least five (5) years, unless otherwise agreed upon between the Parties.

#### **Article IX. Substantive Report**

1. The Agency shall submit to UN/ISDR an interim substantive report on 30 September 2007, detailing achievements, constraints and impact with regard to the utilization of the Fund for the Project. When the Fund provided by UN/ISDR is mixed with funds from other sources, the interim substantive report shall describe how and to what extent the Fund was used in the context of the overall contributions to the Project. The format of the reporting shall follow the outline of the report template provided by UN/ISDR.

2. The Agency shall submit to UN/ISDR a final substantive report detailing achievements, constraints, and impact with regard to the utilization of the Fund for the Project within one month of the completion of the Project or the expiration or termination of the present Agreement, whichever is first to occur. As with the interim substantive reports, the

final substantive report shall describe how and to what extent the Fund was used in the context of the overall contributions to the Project. The format of the reporting shall follow the outline of the report template provided by UN/ISDR.

### **Article X. Financial Report**

1. The Agency shall submit an interim financial report on 30 September 2007. Financial information shall be provided in the following categories:  
(a) Amount received; (b) Personnel costs; (c) Travel; (d) Contractual services; (e) Operational expenses; (f) Acquisitions; (g) Fellowships, Grants and other; and (h) Total expenditure. It shall list the amounts received and expended utilizing the standard form "Financial Statement on Income and Expenditures from Funds Allocated from the Trust Fund for Disaster Reduction", attached hereto as Annex A.
2. The Agency shall submit an end-of-year financial statement reflecting expenditures between 1 January and 31 December of the reporting year until such time as the completion of the Project or the expiration or termination of the Agreement, whichever is to occur later. The end-of-year financial statement shall be submitted within 30 days after the end of each calendar year and shall be certified by a qualified auditor. It shall list the amounts received and expended utilizing the standard form "Financial Statement on Income and Expenditures from Funds Allocated from the Trust Fund for Disaster Reduction", attached hereto as Annex A.
3. Within six (6) months of the completion of the Project or the expiration or termination of the present Agreement, whichever is first to occur, the Agency shall submit to UN/ISDR a "Final Financial Utilization Report on Income and Expenditures from Funds Allocated from the Trust Fund for Disaster Reduction". This Final Financial Statement shall be certified by a qualified auditor.

### **Article XI. Audit Requirements**

1. The Project shall be audited at least once during its lifetime, but may be audited annually, in consultation between the Parties. The audit shall be carried out by the auditors of a qualified audit firm, which shall produce an audit report. The Agency shall be responsible for payment of any amount, as incorporated in the Project Budget, representing any fees, expenses or financial costs in connection with such audit.
2. Notwithstanding the above, UN/ISDR shall have the right, at its own expense, to audit or review such Project-related books and records as it may require, and have access to the books and record of the Agency, as necessary.

### **Article XII. Responsibility for Claims**

1. The Agency shall indemnify, hold and save harmless, and defend, at its own expense, UN/ISDR, its officials, agents, servants and employees from and against all suits, claims, demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of the Agency, or the Agency's Personnel, in the performance of the Agreement. This provision shall extend, *inter alia*, to claims and liability in the nature of workmen's compensation, products liability and liability arising out of the use of patented inventions or devices, copyrighted material or other intellectual property by the Agency or its

Personnel. The obligations under this paragraph do not lapse upon expiration or termination of the Agreement.

2. The Agency shall be responsible for and deal with all claims brought against it by its Personnel.

### **Article XIII. Suspension and Early Termination**

1. The Parties hereto recognize that the successful completion and accomplishment of the Project Objectives are of paramount importance, and that UN/ISDR may find it necessary to terminate the Project, or to modify the arrangements for execution of the Project, should circumstances arise which jeopardize successful completion or the accomplishment of the Project Objectives. The provisions of the present Article shall apply to any such situation.

2. UN/ISDR shall consult with the Agency if any circumstance arises that, in the judgment of UN/ISDR, interferes or threatens to interfere with the successful completion of the Project or the accomplishment of the Project Objectives. The Agency shall promptly inform UN/ISDR in writing of any such circumstance that might come to the Agency's attention. The Parties shall cooperate towards the rectification or elimination of the circumstance in question and shall exert all reasonable efforts to that end, including prompt corrective steps by the Agency, where such circumstances are attributable to it or within its responsibility or control. If applicable, the Parties shall also cooperate in assessing the consequences of possible termination of the Project on the target beneficiaries of the Project.

3. UN/ISDR may at any time after occurrence of the circumstance in question and appropriate consultations suspend execution of the Project by written notice to the Agency, without prejudice to the initiation or continuation of any of the measures envisaged in paragraph 2, above, of the present Article. UN/ISDR may indicate to the Agency the conditions under which it is prepared to authorize a resumption of execution of the Project.

4. If the cause of suspension is not rectified or eliminated within fourteen (14) days after UN/ISDR has given notice of suspension to the Agency, UN/ISDR may, by written notice at any time thereafter during the continuation of such cause: (a) terminate the Agreement; or (b) terminate the Project and entrust its execution to another organization. The effective date of termination under the provisions of the present paragraph shall be specified by written notice from UN/ISDR. In the event of transfer of the Agency's responsibilities for execution of a Project to another organization, the Agency shall cooperate with UN/ISDR and the other organization in the orderly transfer of such responsibilities.

5. Upon receipt of a notice of termination by UN/ISDR under the present Article, the Agency shall take immediate steps to terminate activities under the present Agreement, in a prompt and orderly manner, so as to minimize losses and further expenditures. The Agency shall undertake no forward commitments and shall return to UN/ISDR, within thirty (30) days, any portion of the Fund that is unspent, supplies, equipment and other materials provided by UN/ISDR, unless UN/ISDR has agreed otherwise in writing.

6. In the event of any termination under the present Article, UN/ISDR shall reimburse the Agency only for the costs incurred to execute the Project in conformity with the express terms of the present Agreement. Reimbursements to the Agency under this provision, when added to amounts previously remitted to it by UN/ISDR in respect of the Project, shall not exceed the total UN/ISDR allocation for the Project.

#### **Article XIV. Arbitration**

1. The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of the Agreement or the breach, termination or invalidity thereof. Where the Parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the UNCITRAL Conciliation Rules then obtaining, or according to such other procedure as may be agreed between the Parties.
2. Any dispute, controversy or claim between the Parties arising out of the Agreement or the breach, termination or invalidity thereof, unless settled amicably under paragraph 1 of this Article within sixty (60) days after receipt by one Party of the other Party's request for such amicable settlement, shall be referred by either Party to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The arbitral tribunal shall have no authority to award punitive damages. In addition, unless otherwise expressly provided in the Agreement, the arbitral tribunal shall have no authority to award interest in excess of [five (5%)] percent, and any such interest shall be simple interest only. The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy, claim or dispute.
3. No claim or dispute arising out of the Agreement shall be made against UN/ISDR by the Agency unless and to the extent such claim or dispute shall have been asserted in writing, in accordance with Article XVIII below, not later than the earlier of two (2) years from the expiration or termination of the Agreement or the occurrence of loss, damage or injury giving rise to such claim or dispute.

#### **Article XV. Privileges and Immunities**

Nothing in or related to the present Agreement shall be deemed a waiver, express or implied, of any of the privileges and immunities of the UN, including its subsidiary organs.

#### **Article XVI. Tax Exemption**

1. Section 7 of the Convention on the Privileges and Immunities of the United Nations provides, *inter alia*, that the UN, including its subsidiary organs, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs duties and charges of a similar nature in respect of articles imported or exported for its official use. In the event any governmental authority refuses to recognize the UN exemption from such taxes, duties or charges, the Agency shall immediately consult with UN/ISDR to determine a mutually acceptable procedure.
2. Accordingly, the Agency shall be responsible for any amount representing such taxes, duties or charges, unless the Agency has consulted with UN/ISDR before the payment thereof and UN/ISDR has, in each instance, specifically authorized the Agency to pay such taxes, duties or charges under protest. In that event, the Agency shall provide UN/ISDR with written evidence that payment of such taxes, duties or charges has been made and appropriately authorized.

### Article XVII. Amendments

The present Agreement or its Annex(es) may be modified or amended only by written agreement between the Parties.

### Article XVIII. Correspondence

Unless otherwise specified in the Agreement, all notices and other communications required or contemplated under the present Agreement shall be given in writing and addressed and delivered to the Party for whom intended at the address shown below or such other address as the intended recipient may from time-to-time designate by written notice, given in accordance with the terms of this Article.

If to UN/ISDR:

Mr. Patrick Kratt

UN/ISDR Asia and the Pacific

c/o UNESCAP – UN Conference Centre Building, Press Suite, Ground floor,  
Rajdamnern Nok Avenue, Bangkok 10200, Thailand

Fax: +66 22 88 1050

Cc: Ms. Stéphanie Boubault

UN/ISDR

International Environment House II, Chemin de Balexert 7-9, CH-1219 Geneva,  
Switzerland

boubault@un.org

Fax: +41 22 917 8982

If to the Agency

1-6, Minamihara, Tsukuba-shi, Ibaraki-ken 305-8516, Japan

Fax +81-(0) 29-879-6709

**IN WITNESS WHEREOF** the undersigned, being duly authorized thereto, have on behalf of the Parties hereto signed the present Agreement at the place and on the day below written.

For the Agency



Signature:

Name: Tadahiko SAKAMOTO

Title: Chief Executive of PWRI

Place: 1-6, Minamihara, Tsukuba-shi,  
Ibaraki-ken 305-8516, Japan

Date: 26th July 2007

For UN/ISDR



Signature:

Name: Salvano Briceño

Title: Director, UN/ISDR

Place: Geneva, Switzerland

Date: 11 July 2007

Annex A – “Financial Statement on Income and Expenditures from Funds Allocated from the Trust Fund for Disaster Reduction”

Annex B – Project Document

**Annex A**

“Financial Statement on Income and Expenditures from Funds Received from the  
Trust Fund for Disaster Reduction - for the period \_\_\_\_ to \_\_\_\_

(United States Dollars)

**1. INCOME**

Balance available 1 January 200\_

Add: Remittances from United Nations

Interest income

Miscellaneous income (specify) \_\_\_\_\_

Total income \_\_\_\_\_

**2. EXPENDITURE**

Staff and other personnel costs

Travel on official business

Contractual services

Operating expenses

Acquisitions

Fellowships, grants, other \_\_\_\_\_

Total expenditure a/ \_\_\_\_\_

Balance available 31 December 200\_ \_\_\_\_\_

\_\_\_\_\_  
a/ See attached supporting schedule giving breakdown of expenditure by project and by object of expenditure.

This is to certify that the above statement of income and expenditure is correct and that the expenditure was incurred in connexion with the approved projects for which allocations have been received.

\_\_\_\_\_

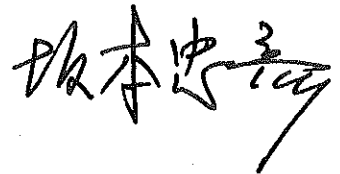
**WAIVER OF SUBROGATION OF PWRI RIGHTS TO THE INSURANCE CARRIER  
AGAINST UN/ISDR**

PWRI agrees to purchase insurance for any of the materials, equipment, human resources or services procured through the Grant provided by the UN/ISDR and shall indemnify and hold UN/ISDR harmless for any claims arising in connection with any materials, equipment, human resources or services procured under this Grant.

Date:

26th July 2007

Signature

A handwritten signature in black ink, appearing to be '坂本忠彦' (Sakamoto Tadayuki), written in a cursive style.

## Annex B

### Comprehensive Tsunami Disaster Prevention Training Course

#### A. Overview

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##### 1. Basic data

- |                                     |                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1.1 Submitting organisation:        | International Centre for Water Hazard and Risk Management (ICHARM), Public Works Research Institute (PWRI), Japan |
| 1.2 Contact person in organisation: | Shigenobu Tanaka, Team Leader, International Technical Exchange Team                                              |
| 1.3 Project title:                  | Comprehensive Tsunami Disaster Prevention Training Course                                                         |
| 1.4 Geographical focus:             | India, Indonesia, Maldives, Sri Lanka                                                                             |

##### 2. Proposed timeframe

- |                 |                                |
|-----------------|--------------------------------|
| 2.1 Start date: | 1 <sup>st</sup> May 2007       |
| 2.2 End date:   | 31 <sup>st</sup> December 2008 |

##### 3. Financial data (US\$)

- |                                               |            |
|-----------------------------------------------|------------|
| 3.1 Total resources required for this project | \$ 250,000 |
| 3.2 UN/ISDR contribution requested            | \$ 200,000 |

#### 4. Short summary of the Project:

This project aims at developing qualified human resources to work for comprehensive tsunami disaster mitigation in developing countries. To achieve such goal, the project offers the "Comprehensive Tsunami Disaster Prevention (CTDP)" training course for trainees to learn the fundamentals as well as the most advanced knowledge and technology on CTDP in Japan. The CTDP covers the overall aspects of tsunami disaster management such as structural measures, tsunami early warning systems, local tsunami disaster management plans and disaster management systems. The proposed hands-on training course comprises lectures and exercises and provides on-sight inspections opportunities to learn tsunami prevention measures in Japan so that they will be able to better promote and utilize CTDP based on natural and socio-economic needs in their own countries.

In order to cover the full range of CTDP's subject matters, two different six-week-long training packages will be carried out within the mentioned timeframe. One will focus on structural measures and local disaster management plans whereas the other on disaster management systems, tsunami early warning systems as well as dissemination systems, and disaster education. The trainees are expected to share the know-how acquired through the course among those involved after returning to their homelands.

As a precondition, each target country will be required to form a national level committee unless otherwise existed that can look after tsunami disaster management within their countries. The committee is responsible to coordinate concerned ministries and authorities for implementation. In recommendation from the national committee, selected ministries and/or departments will select and recommend trainees to this CTDP course.

## **B. Context and Justification**

---

### **1. National / or Regional Context**

The Indian Ocean Tsunami in December 2004 caused about 230,000 casualties and enormous property damage. This giant loss is basically due to the lack of proper preparation for tsunami disasters from national government level to local level. The numbers of deaths in India, Indonesia, Maldives and Sri Lanka were 18045, 167736, 108 and 35322 whereas the total numbers of houses destroyed were 235377, 141000, 8074 and 65275 respectively. The total estimated damage reached \$2.56 billion on the south-eastern coast of India, \$4.5 billion in Indonesia, \$250 million in Maldives and \$1.5 billion in Sri Lanka (data source: <http://www.tsunamispecialenvoy.org/country/humantoll.asp>). After the tragedy, UNESCO plays a leading role to make up a plan to implement the Indian Ocean Tsunami warning system.

In India, the Ministry of Home Affairs is the nodal ministry for disaster management. Disaster management is not conventionally a subject for five-year plans at the national level, though disasters occur regularly. In Indonesia, the disaster management organization is BAKORANAS chaired by Vice President. The House of Representatives has initiative to formulate the Disaster Management Act after the Indian Ocean Tsunami. In Maldives, the government has started the preparation for a risk management system to reduce the human and economic impact of potential disasters. In Sri Lanka, the National Disaster Management Bill was passed in 2005 and the National Disaster Management Authority was established under the Chairmanship of the Prime Minister.

### **2. Problem Analysis**

The enormous damage of the Indian Ocean Tsunami was mainly caused by the lack of proper knowledge and preparation for tsunami disasters. Though past tsunami records and local legends of tsunamis clearly indicate the severity of damages due to tsunamis, governmental officials and local people do not have adequate knowledge and concerns. Each country has a disaster management plan and established a related organization to look after the problems; however, such a plan generally does not include tsunami disasters. People living along the coast near the epicentre of the earthquake have little knowledge of moving to higher elevations when they feel a shock of an earthquake. Tsunami warning was not issued in countries those far away from the epicentre, such as Sri Lanka and India. Structural measures are rarely in place except on some parts of the Maldives coast.

From a long experience of tsunami disasters, Japan has significantly established tsunami disaster prevention measures. In Japan, local people who live in tsunami-affected areas understand that tsunami comes after earthquakes and related legends have been taught in schools. People affected by the Meiji Sanriku Tsunami in 1896 were relocated to higher places. Structural measures such as coastal dikes, tsunami breakwaters as well as the pine tree belts on the coasts have been implemented and maintained. Tsunami warning systems were also established after the damage caused by the Chile Earthquake-induced Tsunami in 1960. Under the national plan, local tsunami prevention plans and tsunami hazard maps are recently introduced and effectively implemented in prefectures along the coast.

The comparison of the mitigation measures for the Indian Ocean Tsunami with the Japanese measures reveals the lack of responsible organizations, mitigation plans, warning systems, awareness level, structural measures and additional non-structural measures such as land use plans. In addition to these, basic information required to analyse tsunami disasters and mitigation measures is insufficient.

### **3. Added value of the Project**

The course is to improve the efficiency of tsunami disaster management by national and regional officials, aiming to reduce the loss of life and property in tsunami-prone coastal areas.

End user focused workshops that organized by trainees in four countries would be useful to transfer the knowledge of tsunami prevention measures and to stimulate and strengthen the capacity of related agencies for disaster preparedness. Proposed national and local action plans to be made during the training will contribute to formulate realistic disaster reduction plans, which promote resilience for tsunami disasters.

Reports of the training will be uploaded on the web page of ICHARM and will provide information on tsunami disaster prevention, which would be beneficial especially to other south-east Asian countries such as Thailand, Pakistan and the Philippines for establishing tsunami prevention measures.

### **C. Description of the project**

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*[Note that objectives, results and activities need to be coherent with the UN/ISDR logical framework for the overall initiative provided as an attachment to this document.]*

#### **1. Overall Objective**

The overall objective is to develop human resources who work for comprehensive tsunami disaster mitigation including structural measures, tsunami early warning systems, local disaster management plans in developing countries. The trainees will learn the fundamentals as well as the most advanced knowledge and technology on comprehensive tsunami disaster prevention practices in Japan. After returning their home countries, they are also expected to share the information and know-how acquired through the course among those who are in charge of taking actions.

#### **2. Expected Results**

The trainees will be capable of promoting and utilizing comprehensive tsunami prevention measures based on natural and socio-economic needs in their own countries. To increase the manpower and to improve the performance of the trainees' organizations on tsunami disaster prevention, the trainees will organize knowledge conveyance workshops in their organizations and will share the information with other counterparts after they return to their countries. In the meantime, respective governments are required to individually set up a committee as coordinating organization for promoting comprehensive tsunami disaster prevention and the establishment and implementation of comprehensive tsunami disaster prevention plans. The framework of establishing the plan would be prepared in two years.

#### **3. Activities**

This training course provides lectures, trainings, and on-sight inspections to learn tsunami prevention measures in Japan. The trainees will be required to;

- (1) Identify their problems by comparing the current situations in their own countries to that in Japan, after having knowledge on the history of tsunami disaster prevention and current systems in Japan
- (2) Learn and understand planning/designing techniques of structural measures that widely used in Japan
- (3) Learn and understand how to make and use tsunami hazard maps
- (4) Learn and understand tsunami early warning systems and ways of disseminating the systems
- (5) Learn and understand disaster management systems in Japan
- (6) Learn and understand local disaster management plans for tsunami in Japan
- (7) Make action plans to solve issues and problems for tsunami disaster management in their own countries by using the knowledge they learnt in the training course

ICHAM intends to provide this training course to those who hold a position of the section chief level or equivalent in organizations that are mainly responsible for promoting comprehensive tsunami disaster prevention in the next 3 to 5 years. This training course is not for those who are in charge of issuing tsunami early warning systems. The trainees have to be working in organizations that are responsible for preventing disasters and minimizing tsunami damage by using tsunami early warning systems.

The CTDP course will offer two different six-week-long training packages within the two year time period. The curriculum will cover following topics:

- Orientation
- Country report
- Generation and transformation of tsunamis

- Disaster caused by tsunamis
- Disaster management system
- Comprehensive tsunami management plan
- Tsunami warning system
- Tsunami hazard map
  
- Structural measures
- Land use regulation
- Education and training
- Lesson learned from Indian Ocean Tsunami
- Japanese experiences including field trip to the sites
- Concluding report (Action Plan)

After the CTDP course, the participants should hold workshops with related officials of their organization and/or the committee in their countries. Further, they should make a report and send it to ICHARM. ICHARM will finalize a concluding report and submit it to ISDR.

#### **4. Stakeholders and Beneficiaries** *(two to three paragraphs)*

The organizations which dispatch the trainees can improve their abilities to respond tsunami disasters and devise tsunami prevention plans at the national and local levels. By holding workshops, other related officials of the organizations can also have chance to improve their abilities to work better towards tsunami disaster mitigation.

On the other hand, people who live in the coastal areas that prone to tsunamis will be benefited by the implementation of tsunami prevention plans.

#### **5. Sustainability and Disaster Risk Reduction**

Tsunami disasters cause serious damage to regional economic activities. Such disaster gives great stress especially to the poor. National and local action plans contribute to decreasing the loss of properties and to promoting sustainable development.

Since tsunami occurs infrequently, for example once in 100 years, it is difficult but necessary to come up with ways to keep public awareness towards tsunami disaster mitigation. Action plans should cover public awareness as one of the sustainable measures. In the Sanriku District of Japan, continuous efforts have been made to keep local people's awareness on tsunami disasters to avoid repetition of painful experiences. The know-how to be learned in the course will contribute to devising systems for reducing tsunami disasters.

#### **6. Partnerships**

Close collaboration with related organizations will be made for effective implementation of the training course, which includes the following;

The National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure and Transport was divided from PWRI six years ago specifically to focus on infrastructure management related research, which includes tsunami disaster management. The existing research results from the institute's efforts can contribute to the training course as well as its staff researchers.

The International Institute of Seismology and Earthquake Engineering of the Building Research Institute in Japan also has an international training course for seismology and earthquake engineering professionals and technical experts from earthquake-prone developing countries. Their contribution is also expected.

### **D. Implementation**

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#### **1. Implementation Arrangements**

The project implementation will be carried out in two periods; implementation phase 1 and phase 2. During implementation phase 1 ICHARM plans to implement a set of the activities presented above,

which will form a sound basis for the continuation and finalisation of the project during phase 2. The following activities will be implemented as part of phase 1:

- ✓ Making a textbook for trainees
  - Making the framework of the textbook
  - Review of existing textbooks on Tsunami
- Making English textbook for explanation of earthquake and Tsunami countermeasures in prefectural government and municipal government
- ✓ Meeting with related organizations
  - Meeting with the lecturers
  - Meeting with organizations in charge of field trips
- ✓ Preparing teaching materials for follow-up activities
  - Making teaching materials for the workshops
  - Making teaching materials for public awareness
- ✓ Review on the latest knowledge of Tsunami disaster mitigation especially after Indian Ocean Tsunami
  - Review on non-structural countermeasures such as forestation of mangrove tree, which will be reflected in the textbook

Detailed work plan and budget breakdowns for the implementation of the activities included in phase 1 are enclosed in annex 1 and 2.

ICHARM recognizes the four key components to effectively carry out this kind of training course,

1. Experience in organizing and executing training courses, workshops, etc.
2. Information on research and survey in relevant fields
3. Network consisting of researchers and practitioners in Japan and overseas
4. Consultation capability to propose ideas, solutions, etc. to government offices

PWRI, hosting organization of ICHARM, is in position to fulfil all those components. Especially, it has developed a huge human network inside and outside Japan so that it can easily get access to excellent expertise, such as Dr. Nobuo Shuto, a world eminent tsunami expert and a former PWRI researcher. The institute has rich experience not only in tsunami protection but also in coastal area protection from erosion and storm surges.

One of the ICHARM's goals is to offer training courses for developing countries. To achieve the goal, ICHARM is privileged to utilize all of those PWRI's strengths. In addition, International Technical Exchange Team of ICHARM, with its internationally recruited staff, has a plenty of experience in executing and supervising this kind of projects. Considering all required components, ICHARM is confident in its implementation capacity. The monitoring and evaluation of the training course will be carried out by ICHARM.

## 2. Inputs

The main lecturers will be invited from governmental organizations, such as the Central Disaster Management Council for the subjects related to the disaster management plan, the Japan Meteorological Agency for tsunami warning systems, the Ministry of Land, Infrastructure and Transport for structural measures, and from universities such as Tohoku University for tsunami research. In addition, experts from ICHARM will be mobilized for tsunami hazard mapping.

The main reference documents for the training course will be the manual of regional tsunami disaster prevention plans, the rescue plan of Iwate Prefecture for tsunami, the manual for the estimation of tsunami hazard, and the damage report of the Tokachi-oki Earthquake.

On-site inspections of tsunami affected areas such as the Sanriku District will be conducted for better understanding on how CTDP has been developed from experiences of the past failures and successes.

### 3. Budget

| Item                             | Budget (USD)   |
|----------------------------------|----------------|
| Personnel (staff or consultants) | 89,000         |
| Travel                           | 7,000          |
| Workshops, meetings etc.         | 21,200         |
| Procurement                      | 5,000          |
| Contractual services             | 49,800         |
| Operating expenses               | 28,000         |
| <b>Total</b>                     | <b>200,000</b> |

### 4. Annexes

Annex 1: Work plan – Phase 1

Annex 2: Budget – Phase 1

**Annex 1: Work plan – Phase 1**

The following work plan details the planned activities that will be undertaken during implementation phase 1 within the project “Comprehensive Tsunami Disaster Prevention Training Course”.

| Activity                                                                                            | Order of implementation |   |   |   |   |    |    |    |
|-----------------------------------------------------------------------------------------------------|-------------------------|---|---|---|---|----|----|----|
|                                                                                                     | 5                       | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Making a textbook for trainees                                                                      |                         |   |   |   |   |    |    |    |
| Meeting with related organizations                                                                  |                         |   |   |   |   |    |    |    |
| Making teaching materials for follow-up activities                                                  |                         |   |   |   |   |    |    |    |
| Review of the latest knowledge of Tsunami disaster mitigation especially after Indian Ocean Tsunami |                         |   |   |   |   |    |    |    |

**Annex 2: Budget – Phase 1**

The following budget breakdown details the expected expenditures for activities undertaken during implementation phase 1 within the project “Comprehensive Tsunami Disaster Prevention Training Course”.

| <b>Item</b>                            | <b>Budget (USD)</b> |
|----------------------------------------|---------------------|
| Personnel costs (staff or consultants) | 26,000              |
| Travel                                 | 9,500               |
| Contractual services                   | 45,500              |
| Documentations                         | 0                   |
| Operational expenses                   | 14,000              |
| Acquisitions                           | 5,000               |
| Fellowships, Grants and other          | 0                   |
| <b>Total</b>                           | <b>100,000</b>      |

## Reference 2

Project Proposal (with Japanese translation)

## Comprehensive Tsunami Disaster Prevention Training Course

### 総合津波防災研修コース

#### A. Overview 概要

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##### 1. Basic data 基本的事項

- |                                     |                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1.1 Submitting organisation:        | International Centre for Water Hazard and Risk Management (ICHARM), Public Works Research Institute (PWRI), Japan |
| 応募機関                                | 土木研究所 ICHARM                                                                                                      |
| 1.2 Contact person in organisation: | Shigenobu Tanaka, Team Leader, International Technical Exchange Team                                              |
| 担当者                                 | 国際普及チーム 田中茂信 上席研究員                                                                                                |
| 1.3 Project title:                  | Comprehensive Tsunami Disaster Prevention Training Course                                                         |
| プロジェクトタイトル                          | 総合津波防災研修コース                                                                                                       |
| 1.4 Geographical focus:             | India, Indonesia, Maldives, Sri Lanka                                                                             |
| 地理的対象                               | インド、インドネシア、モルジブ、スリランカ                                                                                             |

##### 2. Proposed timeframe 予定期間

- |                 |                                |                  |
|-----------------|--------------------------------|------------------|
| 2.1 Start date: | 1 <sup>st</sup> May 2007       | 2007 年 5 月 1 日   |
| 2.2 End date:   | 31 <sup>st</sup> December 2008 | 2008 年 12 月 31 日 |

##### 3. Financial data (US\$) 予算

- |                                               |            |
|-----------------------------------------------|------------|
| 3.1 Total resources required for this project | \$ 250,000 |
| プロジェクトに要求される合計額                               |            |
| 3.2 UN/ISDR contribution requested            | \$ 200,000 |
| UN/ISDR に求めている金額                              |            |

##### 4. Short summary of the Project: プロジェクトの概要

This project aims at developing qualified human resources to work for comprehensive tsunami disaster mitigation in developing countries. To achieve such goal, the project offers the “Comprehensive Tsunami Disaster Prevention (CTDP)” training course for trainees to learn the fundamentals as well as the most advanced knowledge and technology on CTDP in Japan. The CTDP covers the overall aspects of tsunami disaster management such as structural measures, tsunami early warning systems, local tsunami disaster management plans and disaster management systems. The proposed hands-on training course comprises lectures and exercises and provides on-sight inspections opportunities to learn tsunami prevention measures in Japan so that they will be able to better promote

and utilize CTDP based on natural and socio-economic needs in their own countries.

このプロジェクトは、発展途上国における総合津波防災に従事する人材の能力向上を目的としている。そのため、研修生には基本的知識とともに、日本における CTDP の最も進んだ知識と技術を学ぶことを提供するための、“総合津波防災(CTDT)”研修コースを行う。CTDP は、構造物対策や津波警報システム、地域津波防災計画や防災システムなどの津波防災の全ての面をカバーする。この実践的な研修コースは、講義と演習から構成され、日本における津波防御対策を学ぶための現地見学の機会を提供する。そして、彼らは、自国における自然科学的や社会経済的な必要に基づいた CTDP を促進したり利用できたりする能力を身につける。

In order to cover the full range of CTDP's subject matters, two different six-week-long training packages will be carried out within the mentioned timeframe. One will focus on structural measures and local disaster management plans whereas the other on disaster management systems, tsunami early warning systems as well as dissemination systems, and disaster education. The trainees are expected to share the know-how acquired through the course among those involved after returning to their homelands.

CTDPの全体範囲をカバーするため、2つの異なった6週間研修コースを上記の期間内に行う予定である。一方のコースは、構造物対策と地域防災計画を対象とし、もう一方のコースは防災システムや津波早期警報システムやシステムの普及、災害教育を対象としている。研修生には、このコースで得られたノウハウを、帰国後に関係者間で共有することが期待される。

As a precondition, each target country will be required to form a national level committee unless otherwise existed that can look after tsunami disaster management within their countries. The committee is responsible to coordinate concerned ministries and authorities for implementation. In recommendation from the national committee, selected ministries and/or departments will select and recommend trainees to this CTDP course.

前提条件として、初期のターゲット国は国レベルの委員会を組織することが求められる。委員会は、履行に関して関係省庁や当局間を調整する責任を負う。委員会からの推薦において、選ばれた省庁はこの研修コースのための研修生を選出し、推薦する。

## **B. Context and Justification**

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### **1. National / or Regional Context**

The Indian Ocean Tsunami in December 2004 caused about 230,000 casualties and enormous property damage. This giant loss is basically due to the lack of proper preparation for tsunami disasters from national government level to local level. The numbers of deaths in India, Indonesia, Maldives and Sri Lanka were 18045, 167736, 108 and 35322 whereas the total numbers of houses destroyed were 235377, 141000, 8074 and 65275 respectively. The total estimated damage reached \$2.56 billion on the south-eastern coast of India, \$4.5 billion in Indonesia, \$250 million in Maldives and \$1.5 billion in Sri Lanka

(data source: <http://www.tsunamispecialenvoy.org/country/humantoll.asp>). After the tragedy, UNESCO plays a leading role to make up a plan to implement the Indian Ocean Tsunami warning system.

2004年12月のインド洋津波は、約23万人の犠牲者を引き起こし、莫大な財産の損失を与えた。この巨大な損失は、基本的に、国レベルから地域レベルに至るまでの津波災害に対する適切な準備の欠如によるものである。インド、インドネシア、モルジブ、スリランカにおける死者数はそれぞれ、18045人、167736人、108人、35322人であり、破壊された家の合計はそれぞれ235377戸、141000戸、8074戸、65275戸である。評価損失は、インドの南東海岸地域で25.6億ドル、インドネシアで45億ドル、モルジブで2.5億ドル、スリランカで15億ドルである。（出典：<http://www.tsunamispecialenvoy.org/country/humantoll.asp>）

その悲劇の後、UNESCOは、インド洋津波警報システムの履行計画の作成に主導的な役割を果たしている。

In India, the Ministry of Home Affairs is the nodal ministry for disaster management. Disaster management is not conventionally a subject for five-year plans at the national level, though disasters occur regularly. In Indonesia, the disaster management organization is BAKORANAS chaired by Vice President. The House of Representatives has initiative to formulate the Disaster Management Act after the Indian Ocean Tsunami. In Maldives, the government has started the preparation for a risk management system to reduce the human and economic impact of potential disasters. In Sri Lanka, the National Disaster Management Bill was passed in 2005 and the National Disaster Management Authority was established under the Chairmanship of the Prime Minister.

インドでは、災害対策は内務省が中心である。災害は定期的に起こるにもかかわらず、災害対策は、国家レベルでの5年計画が定型的に行われていない。インドネシアでは、防災機関は副大統領が指揮を執るBAKORANASである。国会は、インド洋津波の後、防災法を制定する動機を有する。モルジブでは、潜在的な災害による人的あるいは経済的影響を減少させるために、リスクマネジメントシステムの準備を政府がスタートさせた。スリランカでは、国家防災法が2005年に通過し、国家防災局が首相の指揮の下に設立された。

## 2. Problem Analysis

The enormous damage of the Indian Ocean Tsunami was mainly caused by the lack of proper knowledge and preparation for tsunami disasters. Though past tsunami records and local legends of tsunamis clearly indicate the severity of damages due to tsunamis, governmental officials and local people do not have adequate knowledge and concerns. Each country has a disaster management plan and established a related organization to look after the problems; however, such a plan generally does not include tsunami disasters. People living along the coast near the epicentre of the earthquake have little knowledge of moving to higher elevations when they feel a shock of an earthquake. Tsunami warning was not issued in countries those far away from the epicentre, such as Sri Lanka and India. Structural measures are rarely in place except on some parts of the Maldives coast.

インド洋津波の甚大な被害は、主に、津波災害に対する適切な知識と準備の欠如から引き起こされた。過去の津波記録と地域の津波の痕跡は、津波による重大な損害を明確に示していたにもかかわらず、政府役人と地域住民は十分な知識と関心を持っていない。各国は防災計画を有し、その問題に注意を払う関連機関を設立したものの、そのような計画は一般的に津波災害を含んでいない。地震の震央近くの海岸沿いの人々は、地震の揺れを感じた際に高いところへ避難する知識がない。津波警報は、震央から遠く離れた国、スリランカやインドでは発令されなかった。構造物対策はモルジブ海岸の数部分を除いてほとんど存在しなかった。

From a long experience of tsunami disasters, Japan has significantly established tsunami disaster prevention measures. In Japan, local people who live in tsunami-affected areas understand that tsunami comes after earthquakes and related legends have been taught in schools. People affected by the Meiji Sanriku Tsunami in 1896 were relocated to higher places. Structural measures such as coastal dikes, tsunami breakwaters as well as the pine tree belts on the coasts have been implemented and maintained. Tsunami warning systems were also established after the damage caused by the Chile Earthquake-induced Tsunami in 1960. Under the national plan, local tsunami prevention plans and tsunami hazard maps are recently introduced and effectively implemented in prefectures along the coast.

津波災害の長い経験から、日本は十分に津波防災対策を行ってきた。日本では、津波影響地域に住む地域住民は、津波は地震の後に来ることを理解し、関連する伝説は学校でも教えられてきた。1896年の明治三陸津波で被害を受けた人々は高いところに住まいを移した。防波堤や防潮堤のような構造物対策と同様、椰子の木を帯状に海岸沿いに植えたりすることが行われ、そして維持されてきた。津波警報システムも1960年のチリ地震による被害の後設置された。国家計画のもとで、地域津波防災計画と津波ハザードマップは近年紹介され、海岸沿いの県において効果的に履行されてきた。

The comparison of the mitigation measures for the Indian Ocean Tsunami with the Japanese measures reveals the lack of responsible organizations, mitigation plans, warning systems, awareness level, structural measures and additional non-structural measures such as land use plans. In addition to these, basic information required to analyse tsunami disasters and mitigation measures is insufficient.

インド洋津波に対する被害軽減方策と日本の対策との比較は、責任を持つ機関、軽減計画、警報システム、意識レベル、構造物対策と、土地利用計画などの追加的な非構造物対策の欠如を明らかにする。それらに加え、津波災害と軽減対策を分析するために要求される基礎的な情報は不十分である。

### **3. Added value of the Project**

The course is to improve the efficiency of tsunami disaster management by national and regional officials, aiming to reduce the loss of life and property in tsunami-prone coastal areas.

このコースは、津波を受けやすい地域における生命や財産の損失を軽減することを目的に、国や地方の公務員による津波防災の効率性を向上させる。

End user focused workshops that organized by trainees in four countries would be useful to transfer the knowledge of tsunami prevention measures and to stimulate and strengthen the capacity of related agencies for disaster preparedness. Proposed national and local action plans to be made during the training will contribute to formulate realistic disaster reduction plans, which promote resilience for tsunami disasters.

4つの国において研修生により開催され、エンドユーザーに注目されているワークショップは、津波防災対策の知識の移転や災害準備に対する関連機関の能力を刺激し強化することに有益である。研修コース中に作成される、国あるいは地域のアクションプランは、現実的な防災計画を構築することに貢献し、さらにそれは津波災害に対する回復力を促進する。

Reports of the training will be uploaded on the web page of ICHARM and will provide information on tsunami disaster prevention, which would be beneficial especially to other south-east Asian countries such as Thailand, Pakistan and the Philippines for establishing tsunami prevention measures.

研修の報告は ICHARM のホームページに掲載され、津波防災に関する情報を提供する。それは、津波防災対策を立案するために、特に他の南東アジア国（タイやパキスタン、フィリピンなど）に有益である。

## **C. Description of the project プロジェクトについて**

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### **1. Overall Objective 全体目的**

The overall objective is to develop human resources who work for comprehensive tsunami disaster mitigation including structural measures, tsunami early warning systems, local disaster management plans in developing countries. The trainees will learn the fundamentals as well as the most advanced knowledge and technology on comprehensive tsunami disaster prevention practices in Japan. After returning their home countries, they are also expected to share the information and know-how acquired through the course among those who are in charge of taking actions.

プロジェクト全体の目的は、発展途上国における構造物対策や津波早期警報システム、地域防災計画を含めた、総合的な津波対策のために働ける人材の育成である。研修生は、基礎的事項だけでなく、日本における総合津波対策の実務上の進んだ知識や技術を学習する。また、彼らの帰国後は、このコースを通じて学んだ情報や知識を担当者間で共有することを期待される。

### **2. Expected Results 期待される成果**

The trainees will be capable of promoting and utilizing comprehensive tsunami prevention measures based on natural and socio-economic needs in their own countries. To increase the manpower and to improve the performance of the trainees' organizations on tsunami disaster prevention, the trainees will organize knowledge conveyance workshops in their organizations and will share the information with other counterparts after they return to their countries. In the meantime, respective governments are required to individually set up a committee as coordinating organization for promoting comprehensive tsunami disaster prevention and the establishment and implementation of comprehensive tsunami disaster prevention plans. The framework of establishing the plan would be prepared in two years.

研修生は、彼らの国における自然科学的や社会経済的な必要に基づいた総合的な津波防災対策を促進したり利用できたりする能力を身につける。人材を増やし、研修生が所属する津波防災に関する機関の能力を向上させるために、研修生は帰国後に所属機関におけるワークショップの開催や他の担当者との情報の共有が出来るようになる。一方で、それぞれの政府は津波防災対策を促進させるための調整機関としての委員会を設立することや、総合津波防災計画の作成及びその履行が要求される。計画策定の枠組みは2年間のうちに準備される。

### 3. Activities

This training course provides lectures, trainings, and on-sight inspections to learn tsunami prevention measures in Japan. The trainees will be required to;

この研修コースでは、日本における津波防災対策を学ぶために、講義や演習や現地見学を行う。研修生は以下のことが要求される。

- (1) Identify their problems by comparing the current situations in their own countries to that in Japan, after having knowledge on the history of tsunami disaster prevention and current systems in Japan

日本における津波防災の歴史や現状に関する知識を習得し、自国における現状を日本と比較することで自国の問題点を明確にすること。

- (2) Learn and understand planning/designing techniques of structural measures that widely used in Japan

日本で広く使われている構造物対策の立案・計画技術を学習し、理解すること。

- (3) Learn and understand how to make and use tsunami hazard maps

津波ハザードマップの作成及び使用方法を学習し、理解すること。

- (4) Learn and understand tsunami early warning systems and ways of disseminating the systems

津波早期警報システムとそのシステムの普及方法について学習し、理解すること。

- (5) Learn and understand disaster management systems in Japan

日本の防災システムを学習し、理解すること。

- (6) Learn and understand local disaster management plans for tsunami in Japan

日本の津波に対する地域防災計画を学習し、理解すること。

- (7) Make action plans to solve issues and problems for tsunami disaster management in their own countries by using the knowledge they learnt in the training course

研修コースで学んだ知識を利用し、自国における津波防災のための問題を解決できるアクションプランを作成すること。

ICHAM intends to provide this training course to those who hold a position of the section chief level or equivalent in organizations that are mainly responsible for promoting comprehensive tsunami disaster prevention in the next 3 to 5 years. This training course is not for those who are in charge of issuing tsunami early warning systems. The trainees have to be working in organizations that are responsible for preventing disasters and minimizing tsunami damage by using tsunami early warning systems.

ICHARM は、次の 3-5 年で総合的津波防災を推進する責任を主に負う機関のチーフやそれに相当する職の人間を対象に、この研修コースを実施する。この研修コースは津波早期警報を発出する担当者に対するものではない。研修生は、早期警報システムにより災害を防いだり、津波の被害を最小限にする責務を負った機関に従事する者でなければならない。

The CTDP course will offer two different six-week-long training packages within the two year time period. The curriculum will cover following topics:

津波防災コースは、2 年間の期間中に、2 つの 6 週間研修を実施する。カリキュラムは以下の通り。

- Orientation オリエンテーション
- Country report カントリーレポート
- Generation and transformation of tsunamis 津波の発生と伝播
- Disaster caused by tsunamis 津波で引き起こされる災害
- Disaster management system 防災システム
- Comprehensive tsunami management plan 総合津波防災計画
- Tsunami warning system 津波警報システム
- Tsunami hazard map 津波ハザードマップ
- Structural measures 構造物対策
- Land use regulation 土地利用規制
- Education and training 教育と研修
- Lesson learned from Indian Ocean Tsunami インド洋津波からの教訓
- Japanese experiences including field trip to the sites 日本の経験（現地見学含む）
- Concluding report (Action Plan) コンクルーディングレポート（アクションプラン）

After the CTDP course, the participants should hold workshops with related officials of their organization and/or the committee in their countries. Further, they should make a report and send it to ICHARM. ICHARM will finalize a concluding report and submit it to ISDR.

この津波防災コースの終了後、研修生は所属機関と委員会の関係する職員とともにワークショップをしなければならない。その後、レポートを作成し ICHARM に提出する。ICHARM はそれらを統合し、コンクルーディングレポートとして ISDR に提出する。

#### **4. Stakeholders and Beneficiaries 関係者と得られる利益**

The organizations which dispatch the trainees can improve their abilities to respond tsunami disasters and devise tsunami prevention plans at the national and local levels. By holding workshops, other related officials of the organizations can also have chance to improve their abilities to work better towards tsunami disaster mitigation.

On the other hand, people who live in the coastal areas that prone to tsunamis will be benefited by the implementation of tsunami prevention plans.

研修生を派遣する機関は、津波災害に対応する能力と、国及び地域レベルで津波防災計画を改定する能力を向上することが出来る。ワークショップを開催することでその機関の他の職員も津波防災に対する業務遂行能力を向上する機会が得られる。

他方、津波を受けやすい海岸地域に住む人々は津波防災計画の履行により利益を得られる。

#### **5. Sustainability and Disaster Risk Reduction 持続可能性と災害リスク軽減**

Tsunami disasters cause serious damage to regional economic activities. Such disaster gives great stress especially to the poor. National and local action plans contribute to decreasing the loss of properties and to promoting sustainable development.

津波災害は地域経済活動に重大な損害を及ぼす。そのような災害は特に貧しい者に多大なストレスを与える。国及び地域のアクションプランは財産の損失の軽減と持続可能な開発を促進することに貢献する。

Since tsunami occurs infrequently, for example once in 100 years, it is difficult but necessary to come up with ways to keep public awareness towards tsunami disaster mitigation. Action plans should cover public awareness as one of the sustainable measures. In the Sanriku District of Japan, continuous efforts have been made to keep local people's awareness on tsunami disasters to avoid repetition of painful experiences. The know-how to be learned in the course will contribute to devising systems for reducing tsunami disasters.

津波が起こるのは、100年に1度などで、そんなに多く起こらない。そのため、公共の意識を津波防災に向け続ける方法を考え出すことは、難しいが必要である。アクションプランには、公共の意識を持続可能な方法の一つとして含まれるべきである。三陸地方では、痛々しい経験の繰り返しを避けるため、人々の意識を津波防災に向け続けるための継続的な努力が行われている。このコースで得られたノウハウは、津波災害を軽減するシステムを考案することに貢献する。

## **6. Partnerships 協力関係**

Close collaboration with related organizations will be made for effective implementation of the training course, which includes the following;

The National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure and Transport was divided from PWRI five years ago specifically to focus on infrastructure management related research, which includes tsunami disaster management. The existing research results from the institute's efforts can contribute to the training course as well as its staff researchers.

The International Institute of Seismology and Earthquake Engineering of the Building Research Institute in Japan also has an international training course for seismology and earthquake engineering professionals and technical experts from earthquake-prone developing countries. Their contribution is also expected.

関係機関との緊密な共同により、研修コースの効果的な履行がなされる。共同には以下のものを含む。

国土交通省国土技術政策総合研究所は、津波防災を含んだ研究に関連したインフラマネジメントに焦点を置いた研究所である。その既存研究はスタッフの研究員と同様、研修コースに貢献できる。

建築研究所の国際地震防災センターは、地震が多発する発展途上国からの地震専門家や技術者に対する国際研修コースを同じく有している。それらの機関からの貢献も期待できる。

## **D. Implementation 履行**

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### **1. Implementation Arrangements 履行合意**

The project implementation will be carried out in two periods; implementation phase 1 and phase 2. During implementation phase 1 ICHARM plans to implement a set of the activities presented above, which will form a sound basis for the continuation and finalisation of the project during phase 2. The following activities will be implemented as part of phase 1:

プロジェクトは2つの期間において履行される。フェイズ1とフェイズ2である。フェイズ1の期間では、ICHARMが上記に記した行動を履行する計画をたて、それにより、フェイズ2におけるプロジェクトの継続と終了のための健全な基礎が形成される。以下の活動はフェイズ1において履行される。

- ✓ Making a textbook for trainees テキストの作成
  - Making the framework of the textbook テキストの構成の作成
  - Review of existing textbooks on Tsunami 津波に関する既存テキストのレビュー

- Making English textbook for explanation of earthquake and Tsunami countermeasures in prefectural government and municipal government  
地方自治体で行われている地震や津波対策の解説のための英文テキストの作成
- ✓ Meeting with related organizations 関連機関との打合せ
  - Meeting with the lecturers 講師との打合せ
  - Meeting with organizations in charge of field trips 現地見学担当機関との打合せ
- ✓ Preparing teaching materials for follow-up activities  
フォローアップ活動のための研修教材の作成
  - Making teaching materials for the workshops ワークショップのための研修教材
  - Making teaching materials for public awareness 住民の意識啓発のための研修教材
- ✓ Review on the latest knowledge of Tsunami disaster mitigation especially after Indian Ocean Tsunami  
特にインド洋津波以降の津波防災に関する最新の知識のレビュー
  - Review on non-structural countermeasures such as forestation of mangrove tree, which will be reflected in the textbook  
マングローブの植林などの非構造物対策に関するレビュー

Detailed work plan and budget breakdowns for the implementation of the activities included in phase 1 are enclosed in annex 1 and 2.

フェイズ 1 に含まれる活動の履行に対する詳細なワークプランと予算計画は別紙 1 と 2 である。

ICHARM recognizes the four key components to effectively carry out this kind of training course,

1. Experience in organizing and executing training courses, workshops, etc.
2. Information on research and survey in relevant fields
3. Network consisting of researchers and practitioners in Japan and overseas
4. Consultation capability to propose ideas, solutions, etc. to government offices

ICHARM は、この研修を効果的に進めるために、4 つの基本となる要素を認識している。

1. 研修コースやワークショップを組織し実行するための経験
2. 関連分野における研究や調査の情報
3. 国内外における研究者や実務者の人的ネットワーク
4. 政府機関にアイデアや解決法を提案できるコンサルタント能力

PWRI, hosting organization of ICHARM, is in position to fulfil all those components. Especially, it has developed a huge human network inside and outside Japan so that it can easily get access to excellent expertise, such as Dr. Nobuo Shuto, a world eminent tsunami expert and a former PWRI researcher. The institute has rich experience not only in tsunami protection but also in coastal area protection from erosion and storm surges.

土木研究所は ICHARM の組織を支え、それらのコンポーネントを実行する位置にある。特に国内外に巨大な人的ネットワークを構築しているため、前土木研究所研究員であり世界的な津波専門家でもある Dr. Nobuo Shuto といった優秀な専門家に容易に接触できる。土木研究所は津波防災分野だけではなく、浸食被害から高潮被害までを含む海岸防御分野にも豊富な経験を有する。

One of the ICHARM's goals is to offer training courses for developing countries. To achieve the goal, ICHARM is privileged to utilize all of those PWRI's strengths. In addition, International Technical Exchange Team of ICHARM, with its internationally recruited staff, has a plenty of experience in executing and supervising this kind of projects. Considering all required components, ICHARM is confident in its implementation capacity. The monitoring and evaluation of the training course will be carried out by ICHARM.

ICHARM の目的の一つは、発展途上国に研修コースを提供することである。その目標のために、ICHARM はそれら全ての土木研究所の強みを利用できる特権を与えられている。それに加えて、ICHARM の国際普及チームは国際的に職員を募集し、この種のプロジェクトを実行し監督する豊富な経験を有している。これらの要素を考慮し、ICHARM はその履行能力に自信がある。研修コースの評価とモニタリングは ICHARM により行われる。

## 2. Inputs

The main lecturers will be invited from governmental organizations, such as the Central Disaster Management Council for the subjects related to the disaster management plan, the Japan Meteorological Agency for tsunami warning systems, the Ministry of Land, Infrastructure and Transport for structural measures, and from universities such as Tohoku University for tsunami research. In addition, experts from ICHARM will be mobilized for tsunami hazard mapping.

The main reference documents for the training course will be the manual of regional tsunami disaster prevention plans, the rescue plan of Iwate Prefecture for tsunami, the manual for the estimation of tsunami hazard, and the damage report of the Tokachi-oki Earthquake.

On-site inspections of tsunami affected areas such as the Sanriku District will be conducted for better understanding on how CTDP has been developed from experiences of the past failures and successes.

主な講師は、防災計画に関しては中央防災会議等の政府機関から、津波警報システムに関しては気象庁から、構造物対策に関しては国土交通省から、津波に関する研究に関しては東北大学などの大学から招待する予定である。それに加えて、ICHARM の専門家も津波ハザードマップに関して動員する。

研修コースに対する主な参考文献は、地域津波防災計画に関するマニュアルや岩手県津波避難計画、津波外力の評価マニュアルや十勝沖地震の被害報告などである。

三陸地方など津波被害を受けた地域の現地見学は、CTDP が過去の失敗と成功の経験からいかに発展しているかを、より理解するために行われる。

### 3. Budget 予算

| Item 項目                                    | Budget (USD) 予算 (ドル) |
|--------------------------------------------|----------------------|
| Personnel (staff or consultants) 人件費       | 89,000               |
| Travel 旅費                                  | 7,000                |
| Workshops, meetings etc. ワークショップ、<br>打合せなど | 21,200               |
| Procurement 購入費                            | 5,000                |
| Contractual services 委託費                   | 49,800               |
| Operating expenses 諸経費                     | 28,000               |
| <b>Total 合計</b>                            | 200,000              |

### 4. Annexes 附属

Annex 1: Work plan – Phase 1

附属 1：ワークプラン（フェイズ 1）

Annex 2: Budget – Phase 1

附属 2：予算（フェイズ 1）

**Annex 1: Work plan – Phase 1** 附属 1：ワークプラン（フェイズ 1）

The following work plan details the planned activities that will be undertaken during implementation phase 1 within the project “Comprehensive Tsunami Disaster Prevention Training Course”.

以下のワークプランは、「総合津波防災研修」のフェイズ 1 で履行される活動の詳細である。

| Activity 活動                                                                                                                                       | Order of implementation 履行時期 |   |   |   |   |    |    |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---|---|---|---|----|----|----|
|                                                                                                                                                   | 5                            | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Making a textbook for trainees<br>テキストの作成                                                                                                         |                              |   |   |   |   |    |    |    |
| Meeting with related organizations<br>関連機関との打合せ                                                                                                   |                              |   |   |   |   |    |    |    |
| Making teaching materials for<br>follow-up activities<br>フォローアップ活動のための研修<br>教材の作成                                                                 |                              |   |   |   |   |    |    |    |
| Review of the latest knowledge of<br>Tsunami disaster mitigation<br>especially after Indian Ocean<br>Tsunami<br>特にインド洋津波以降の津波防災<br>に関する最新の知識のレビュー |                              |   |   |   |   |    |    |    |

**Annex 2: Budget – Phase 1** 附属 2 : 予算 (フェイズ 1)

The following budget breakdown details the expected expenditures for activities undertaken during implementation phase 1 within the project “Comprehensive Tsunami Disaster Prevention Training Course”.

以下の予算計画は、「総合津波防災研修」のフェイズ 1 で履行される支出の詳細である。

| Item 項目                                    | Budget (USD) 予算 (ドル) |
|--------------------------------------------|----------------------|
| Personnel costs (staff or consultants) 人件費 | 26,000               |
| Travel 旅費                                  | 5,200                |
| Contractual services 委託費                   | 49,800               |
| Operational expenses 諸経費                   | 14,000               |
| Acquisitions 購入費                           | 5,000                |
| <b>Total 合計</b>                            | <b>100,000</b>       |

Reference 3

Course Schedule

# Comprehensive Tsunami Disaster Prevention Training

## Course Schedule

※Class Period AM 1 9:00-10:30, AM 2 10:45-12:15, PM 1 13:15-14:45, PM 2 15:00-16:30

|        |            | Sunday                        | Monday                                                                | Tuesday                                                 | Wednesday                                                                                 | Thursday                                                                                           | Friday                                                                                                                                            | Saturday                                            |                                     |
|--------|------------|-------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------|
|        |            | 1-Jun                         | 2                                                                     | 3                                                       | 4                                                                                         | 5                                                                                                  | 6                                                                                                                                                 | 7                                                   |                                     |
| Week 1 | AM 1       |                               | (Arriving at Japan)                                                   | 9:10-10:10 Orientation at ICHARM Auditorium             | Basic viewpoints of disasters                                                             | Outline of Tsunami                                                                                 | <b>Presentation of Country Reports</b><br>9:10- 9:50 India<br>9:50-10:30 Indonesia<br>10:45-11:25 Maldives<br>11:25-12:05 Sri lanka               |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       | 10:20-10:55 Opening Ceremony at Special Conference Room | Dr. Takeuchi                                                                              | Prof. Syuto                                                                                        |                                                                                                                                                   |                                                     |                                     |
|        | AM 2       |                               |                                                                       | 11:00-12:00 Opening Party at ICHARM Hall                | Project Cycle Manegement (2)                                                              | Problem on Numerical Calculation                                                                   |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       | Dr. Tomioka                                             | Dr. Tomioka                                                                               | Prof. Syuto                                                                                        |                                                                                                                                                   |                                                     |                                     |
|        | PM 1       |                               |                                                                       |                                                         |                                                                                           | History of Tsunami Forecast System in Japan                                                        | Tsunami disasters around the world and Lessons                                                                                                    |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         |                                                                                           | Prof. Syuto                                                                                        | Ass. Prof. Tsuji                                                                                                                                  |                                                     |                                     |
|        | PM 2       |                               |                                                                       |                                                         | (making presentation material based on concept of PCM)                                    | Types of tsunami-induced disasters                                                                 |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         |                                                                                           | Ass. Prof. Tsuji                                                                                   |                                                                                                                                                   |                                                     |                                     |
|        |            | 8                             | 9                                                                     | 10                                                      | 11                                                                                        | 12                                                                                                 | 13                                                                                                                                                | 14                                                  |                                     |
| Week 2 | AM 1       |                               | Tsunami Disaster Management based on “Local Disaster Management Plan” | Structural measures (1)                                 | Lecture and discussion on Coastal vegetation (1)                                          | 9:00-11:00 Presentation & Discussion                                                               | 10:00-11:30 Field trip: Japan Meteorological Agency                                                                                               |                                                     |                                     |
|        | (Lecturer) |                               | Mr. Tanaka                                                            | Dr. Kato                                                | Prof. Matsutomi                                                                           | Prof. Tanaka, Prof. Matsutomi                                                                      |                                                                                                                                                   |                                                     |                                     |
|        | AM 2       |                               | Improvement of local resilience to tsunami                            | Structural measures (2)                                 | Lecture and discussion on Coastal vegetation (2)                                          | 11:15-12:15 Evaluation                                                                             |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               | Mr. Ohshima                                                           | Dr. Kato                                                | Prof. Tanaka                                                                              | Prof. Tanaka, Prof. Matsutomi                                                                      | 14:30-16:30 Field trip: Tsunami model experiment (National Institute for Land and Infrastructure Management, Port and Airport Research Institute) |                                                     |                                     |
|        | PM 1       |                               | Discussion on tsunami countermeasures in each country                 | Overview of Tsunami countermeasures in Japan            | Practice on Coastal vegetation                                                            | Tsunami hazard mapping                                                                             |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       | Mr. Sato                                                | Prof. Matsutomi, Prof Tanaka, Mr. Tanaka, Dr. Dinar, Dr. Kato                             | Dr. Dinar                                                                                          |                                                                                                                                                   |                                                     |                                     |
|        | PM 2       | (Reserved)                    | Orientation on on-sight survey in "Sanriku Coastal Area"              |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        |            | 15                            | 16                                                                    | 17                                                      | 18                                                                                        | 19                                                                                                 | 20                                                                                                                                                | 21                                                  |                                     |
| Week 3 | AM 1       |                               | 7:56 Tsukuba                                                          | 8:30 Departure                                          | 8:00 Departure                                                                            | 8:30 Departure                                                                                     | 8:00 Departure                                                                                                                                    |                                                     |                                     |
|        | (Lecturer) |                               | -> 11:22 Morioka                                                      | 9:00-9:30 Fudai Tsunami Gate                            | 9:00-10:30 Tsunami countermeasures in Miyako City                                         | 10:00-10:20 Onsite Survey in Tohni                                                                 | 9:30-9:50 Osabe District<br>10:40-11:20 Karakuwa Visitor Center                                                                                   |                                                     |                                     |
|        | AM 2       |                               |                                                                       | 10:10-10:50 Tsunami embankment in Noda                  | Taro Branch Office                                                                        | 11:10-12:00 Onsite Survey in Ryori Town                                                            |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       | 12:50-13:50 Tanohata Village                            | 10:45- 12:00 On-site survey in Taro Town                                                  | 13:00-14:30 Education and activity on Tsunami Disaster                                             | 13:00-14:00 Tsunami Countermeasure in Kesennuma City                                                                                              |                                                     |                                     |
|        | PM 1       |                               | 13:00-14:00 Tsunami Disaster prevention                               | 14:20-14:40 Omotogawa Tsunami gate                      | 13:00-13:30 Discussion on Tsunami Countermeasuer in Taro Town                             | Ryori Elementary School                                                                            | 14:20-15:20 Kesennuma/Motoyoshi Disaster Prevention Center                                                                                        |                                                     |                                     |
|        | (Lecturer) |                               | Iwate prefectural office                                              |                                                         | 14:30-14:50 On-sight survey in Yamanouchi, Kamaishi Tsunami                               | 15:30-17:00 Tsunami countermeasures in Ofunato City                                                |                                                                                                                                                   |                                                     |                                     |
|        |            |                               | PM 2                                                                  |                                                         | 16:30-17:20 Jodogahama Beach<br>17:35-18:00 Kuwagasaki District                           | 19:00-20:00 Voluntary activities in Nehama                                                         | Ofunato City                                                                                                                                      |                                                     | 17:26 Ichinoseki<br>→ 20:45 Tsukuba |
|        | (Lecturer) | stay at Kuji                  | stay at Miyako                                                        | stay at Nehama                                          | stay at Ofunato                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        |            | 22                            | 23                                                                    | 24                                                      | 25                                                                                        | 26                                                                                                 | 27                                                                                                                                                | 28                                                  |                                     |
| Week 4 | AM 1       |                               | Writing Report                                                        | Tsunami propagation mapping exercise                    | 9:10-9:50 Courtesy Visit to Chief Executive of PWRI                                       |                                                                                                    | Project Cycle Manegement (3)                                                                                                                      |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       | Dr. Dinar                                               |                                                                                           | 9:45-10:30 Characteristics of Tsunami Disaster Database                                            | Dr. Tomioka                                                                                                                                       |                                                     |                                     |
|        | AM 2       |                               |                                                                       |                                                         | Relief activities                                                                         | 10:45-12:15 Google Earth Database                                                                  |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         | Mr. Imai (ADRC)                                                                           | Prof. Fujima                                                                                       |                                                                                                                                                   |                                                     |                                     |
|        | PM 1       |                               |                                                                       | 13:15-16:05 Presentation & Discussion                   | Discusion on Tsunami Hazard Map                                                           | 13:15-14:00 ISDR system and Hyogo Framework for Action - global efforts on disaster risk reduction | 13:00-14:00 Utilization of Alos Data                                                                                                              |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         | 14:45-15:30 Experience of Japanese Tea Ceremony                                           | Activities for awareness raising including education                                               | 14:00-16:20 Facility Tour in JAXA                                                                                                                 |                                                     |                                     |
|        | PM 2       |                               |                                                                       |                                                         |                                                                                           | Mr. Tanaka                                                                                         |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        |            | 29                            | 30                                                                    | 1-Jul                                                   | 2                                                                                         | 3                                                                                                  | 4                                                                                                                                                 | 5                                                   |                                     |
| Week 5 | AM 1       |                               | 7:56 Tsukuba                                                          | 8:30-9:30 Tsunami countermeasures in Taiki Town         | 8:45-9:45 Presentation                                                                    | 9:00-10:00 Tsunami countermesures in Kushimoto                                                     | 9:00-11:00 Inamuranohi Museum                                                                                                                     | Disaster Reduction and Human Renovation Institution |                                     |
|        | (Lecturer) |                               | -><br>10:51 Nagoya                                                    | Nishiki Tower                                           |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | AM 2       |                               |                                                                       | 11:00-12:00 Tsunami countermeasures in Owase City       |                                                                                           | 10:30-12:30 On-sight Survey in Kushimoto Town                                                      | 11:00-12:00 On-sight Survey in Hirokawa                                                                                                           |                                                     |                                     |
|        | (Lecturer) |                               | 13:00-14:00 Tsunami Disaster prevention                               | Owase City                                              | 11:00-13:30 Matsumoto Pass of Kumano Kodo                                                 |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | PM 1       |                               | Mie Prefecture                                                        | 13:00- Town Watching                                    |                                                                                           |                                                                                                    | 13:30- 15:30 Disaster Prevention Education in Hiro Elementary school                                                                              |                                                     |                                     |
|        | (Lecturer) |                               | 15:30-17:00 Tsunami countermesures in Ise City                        | 14:00- Interview to community member                    | "Shichiri-Mihama", "Kumano-Nachi Shrine", Museum on Whale                                 | 15:30-16:30 Tsunami countermesures in Shirahama                                                    |                                                                                                                                                   |                                                     |                                     |
|        | PM 2       | Ohminato Disriect in Ise City | 15:00- Town Watching                                                  |                                                         | 16:30-17:30 On-sight Survey in Shirahama Town                                             |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) | Ise Shrine                    | stay at Ise                                                           | stay at Owase                                           | stay at Kushimoto                                                                         | stay at Gobo                                                                                       | stay at Kobe                                                                                                                                      |                                                     |                                     |
|        |            |                               |                                                                       |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        |            | 6                             | 7                                                                     | 8                                                       | 9                                                                                         | 10                                                                                                 | 11                                                                                                                                                | 12                                                  |                                     |
| Week 6 | AM 1       |                               | Project Cycle Manegement (4)                                          | (Preparation for presentation)                          | Action Plan Presentations                                                                 | 9:30-10:30 Evaluation Meeting                                                                      | (Leaving for home)                                                                                                                                |                                                     |                                     |
|        | (Lecturer) |                               | Dr. Tomioka                                                           |                                                         | 9:30-10:30 Sri Lanka                                                                      | 11:00-11:45 Closing Ceremony                                                                       |                                                                                                                                                   |                                                     |                                     |
|        | AM 2       |                               |                                                                       |                                                         | 10:40-11:40 Maldives                                                                      |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         | 12:45-13:45 Indonesia                                                                     |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | PM 1       |                               |                                                                       |                                                         | 13:50-14:50 India                                                                         |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        |            |                               | (Lecturer)                                                            |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | PM 2       |                               | Discusion on Tsunami Hazard Map                                       |                                                         | 18:00- Farewell Party at 2nd Lectre Room on the 3rd Floor of TBIC Administrative Building |                                                                                                    |                                                                                                                                                   |                                                     |                                     |
|        | (Lecturer) |                               |                                                                       |                                                         |                                                                                           |                                                                                                    |                                                                                                                                                   |                                                     |                                     |

Reference 4

List of Lecturer

# 総合津波防災研修 講師一覧表 List of Lecturers

| 講義名<br>Lecture                                                                        | 日時<br>Date            | 時間<br>Time                  | 講師名<br>Lecturer             | 所属<br>Affiliation                                                                                                                   | 役職<br>Position                        |
|---------------------------------------------------------------------------------------|-----------------------|-----------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Project Cycle Manegement (1)                                                          | 6月3日(火)<br>3rd June   | 10:45-16:30                 | 富岡 丈朗<br>Shiro TOMIOKA      | IC Net Limited                                                                                                                      | シニアコンサルタント<br>Senior Consultant       |
| 災害原論<br>Basic viewpoints of disasters                                                 | 6月4日(水)<br>4th June   | 9:00-10:30                  | 竹内 邦良<br>Kuniyoshi TAKEUCHI | (独)土木研究所 ICHARM<br>International Centre for<br>Water Hazard and Risk<br>Management, Public Works<br>Research Institute              | センター長<br>Director                     |
| Project Cycle Manegement (2)                                                          | 6月4日(水)<br>4th June   | 10:45-16:30                 | 富岡 丈朗<br>Shiro TOMIOKA      | IC Net Limited                                                                                                                      | シニアコンサルタント<br>Senior Consultant       |
| Project Cycle Manegement (3)                                                          | 7月7日(月)<br>7th July   | 9:00-16:30                  |                             |                                                                                                                                     |                                       |
| 津波の実態<br>Outline of Tsunami                                                           | 6月5日(木)<br>5th June   | 9:00-11:00                  | 首藤 伸夫<br>Nobuo SHUTO        | 日本大学 大学院<br>総合科学研究科<br>Advanced Research<br>Institute for the Sciences<br>and Humanities, Nihon<br>University                       | 教授<br>Professor                       |
| 津波数値計算での問題点<br>Problem on Numerical<br>Calculation                                    | 6月5日(木)<br>5th June   | 11:15-12:15,<br>13:15-13:55 |                             |                                                                                                                                     |                                       |
| 日本の津波予報体制の歴史と現状<br>History of Tsunami Forecast<br>System in Japan                     | 6月5日(木)<br>5th June   | 14:10-15:00                 |                             |                                                                                                                                     |                                       |
| 世界における津波災害と教訓<br>Tsunami disasters around the<br>world and Lessons                    | 6月6日(金)<br>6th June   | 13:15-14:45                 | 都司 嘉宣<br>Yoshinobu TSUJI    | 東京大学 地震研究所<br>Earthquake Research<br>Institute, The University of<br>Tokyo                                                          | 准教授<br>Associate Professor            |
| 津波で引き起こされる災害<br>Types of tsunami-induced<br>disasters                                 | 6月6日(金)<br>6th June   | 15:00-16:30                 |                             |                                                                                                                                     |                                       |
| 地域防災計画<br>Tsunami Disaster Management<br>based on “Local Disaster<br>Management Plan” | 6月9日(月)<br>9th June   | 9:00-10:30                  | 田中 茂信<br>Shigenobu TANAKA   | (独)土木研究所 ICHARM<br>International Centre for<br>Water Hazard and Risk<br>Management, Public Works<br>Research Institute              | 上席研究員<br>Team Leader                  |
| 津波に対する地域防災力の向上<br>Improvement of local resilience<br>to tsunami                       | 6月9日(月)<br>9th June   | 10:45-12:15                 | 大嶋 文彦<br>Fumihiko OSHIMA    | 総務省 消防庁 国民保護・防<br>災課<br>Fire and Disaster<br>Management Agency                                                                      | 課長補佐<br>Assistant Section<br>Manager  |
| 構造物対策(1)<br>Structural measures (1)                                                   | 6月10日(火)<br>10th June | 9:00-10:30                  | 加藤 史訓<br>Fuminori KATO      | 国土技術政策総合研究所 河<br>川研究部 海岸研究室<br>Coast Division, River<br>Department, National<br>Institute for Land and<br>Infrastructure Management | 主任研究官<br>Senior Researcher            |
| 構造物対策(2)<br>Structural measures (2)                                                   | 6月10日(火)<br>10th June | 10:45-12:15                 |                             |                                                                                                                                     |                                       |
| 日本における津波対策概要<br>Overview of Tsunami<br>countermeasures in Japan                       | 6月10日(火)<br>10th June | 13:15-14:45                 | 佐藤 豊<br>Yutaka SATO         | 内閣府<br>Cabinet Office                                                                                                               | 参事官補佐<br>Assistant Section<br>Manager |

|                                                                                                                                        |                                              |                          |                                     |                                                                                                                         |                                       |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 海岸植生に関する講義(1)、演習<br>Lecture and discussion on<br>Coastal vegetation (1)                                                                | 6月11日(水)<br>11th June<br>12日(木)<br>12th June | 9:00-16:30<br>9:00-12:15 | 田中 規夫<br>Norio TANAKA               | 埼玉大学大学院理工学研究科<br>Department of Civil &<br>Emvironmental<br>Engineering, Saitama<br>University                           | 教授<br>Professor                       |
| 海岸植生に関する講義(2)、演習<br>Lecture and discussion on<br>Coastal vegetation (2)                                                                | 6月11日(水)<br>11th June<br>12日(木)<br>12th June | 9:00-16:30<br>9:00-12:15 | 松富 英夫<br>Hideo<br>MATSUTOMI         | 秋田大学 工学資源学部 土<br>木環境工学科<br>Department of Civil and<br>Environmental<br>Engineering, Akita<br>University                 | 教授<br>Professor                       |
| 津波ハザードマップ<br>Tsunami hazard mapping                                                                                                    | 6月12日(木)<br>12th June                        | 13:15-16:30              | ディナル イスティア<br>ント<br>Dinar Istiyanto | (独)土木研究所 ICHARM<br>International Centre for<br>Water Hazard and Risk<br>Management, Public Works<br>Research Institute  | 専門研究員<br>Research Specialist          |
| 施設見学(気象庁)<br>Field trip:<br>Japan Meteorological Agency                                                                                | 6月13日(金)<br>13th June                        | 10:00-11:30              | 五十嵐 洋輔<br>Yosuke IGARASHI           | 気象庁 総務部 企画課 国際室<br>Japan Meteorological<br>Agency                                                                       |                                       |
| 施設見学(港湾空港研究所)<br>Field trip: (National Institute<br>for Land and Infrastructure<br>Management, Port and Airport<br>Research Institute) | 6月13日(金)<br>13th June                        | 14:30-16:30              | 平石 哲也<br>Tetsuya HIRAISHI           | (独)港湾空港技術研究所<br>National Institute for Land<br>and Infrastructure<br>Management, Port and<br>Airport Research Institute | 海洋・水工部長(兼<br>海洋研究領域長)<br>Group Leader |
| 津波伝播図作成<br>Tsunami propagation mapping<br>exercise                                                                                     | 6月24日(火)<br>24th June                        | 10:45-14:45              | ディナル イスティア<br>ント<br>Dinar Istiyanto | (独)土木研究所 ICHARM<br>International Centre for<br>Water Hazard and Risk<br>Management, Public Works<br>Research Institute  | 専門研究員<br>Research Specialist          |
| 復興支援<br>Relief activities                                                                                                              | 6月25日(水)<br>25th June                        | 10:45-12:15              | 今井 良広<br>Yoshihiro IMAI             | 国際復興支援プラットフォーム<br>(IRP)事務局<br>International Recovery<br>Platform Secretariat                                            | 復興専門官<br>Senior Expert                |
| 津波被害の特徴<br>Characteristics of Tsunami<br>Disaster                                                                                      | 6月26日(木)<br>26th June                        | 9:45-10:30               | 藤間 功司<br>Kouji FUJIMA               | 防衛大学校システム工学群建<br>設環境工学科<br>Department of Civil and<br>Emvironmental Engineering,<br>National Defense Academy            | 教授<br>Professor                       |
| 津波被害調査の留意点<br>グーグルアースデータベース演習<br>Google Earth Database                                                                                 | 6月26日(木)<br>26th June                        | 10:45-12:15              |                                     |                                                                                                                         |                                       |
| ISDRの活動について<br>ISDR system and Hyogo<br>Framework for Action                                                                           | 6月26日(木)<br>26th June                        | 13:15-14:00              | 松岡 有希<br>Yuki MATSUOKA              | UN/ISDR Hyogo Office,<br>ISDR                                                                                           | Programme Officer                     |
| 教育を含む意識啓発活動<br>Activities for awareness raising<br>including education                                                                 | 6月26日(木)<br>26th June                        | 15:00-16:30              | 田中 茂信<br>Shigenobu<br>TANAKA        | (独)土木研究所 ICHARM<br>International Centre for<br>Water Hazard and Risk<br>Management, Public Works<br>Research Institute  | 上席研究員<br>Team Leader                  |
| Alosデータの活用<br>Utilization of Alos Data                                                                                                 | 6月27日(金)<br>27th June                        | 13:00-14:00              | 森山 隆<br>Takashi<br>MORIYAMA         | 宇宙航空研究開発機構<br>(JAXA)<br>Japan Aerospace<br>Exploration Agency                                                           | フェロー<br>Fellow                        |
| JAXA施設見学<br>Facility Tour in JAXA                                                                                                      | 6月27日(金)<br>27th June                        | 14:00-16:20              |                                     |                                                                                                                         |                                       |

## Reference 5

General Information on “Comprehensive  
Tsunami Disaster Prevention Training  
Course”

INFORMATION ON GROUP TRAINING COURSE

**BUILDING RESILIENCE TO TSUNAMIS  
IN THE INDIAN OCEANS**

**“COMPREHENSIVE TSUNAMI DISASTER  
PREVENTION TRAINING COURSE”**

by UN/ISDR and PWRI/ICHARM

**2<sup>nd</sup> June, 2008 – 11<sup>th</sup> July, 2008**



**UNITED NATIONS  
INTERNATIONAL STRATEGY FOR DISASTER REDUCTION**



**INTERNATIONAL CENTRE FOR WATER HAZARD AND RISK MANAGEMENT (ICWHR)  
UNDER THE AUSPICES OF UNESCO,  
PUBLIC WORKS RESEARCH INSTITUTE, JAPAN**

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# I. Course Background and Overall Goal

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The Indian Ocean Tsunami in December 2004 caused about 230,000 casualties and enormous property damage. The numbers of deaths in India, Indonesia, Maldives and Sri Lanka were 18045, 167736, 108 and 35322 whereas the total numbers of houses destroyed were 235377, 141000, 8074 and 65275 respectively. The total estimated damage reached \$2.56 billion on the south-eastern coast of India, \$4.5 billion in Indonesia, \$250 million in Maldives and \$1.5 billion in Sri Lanka (data source: <http://www.tsunamispecialenvoy.org/country/humantoll.asp>). After the tragedy, UNESCO plays a leading role to make up a plan to implement the Indian Ocean Tsunami warning system.

This giant loss is basically due to the lack of proper preparation for tsunami disasters from national government level to local level. Each country has a disaster management plan and established a related organization to look after the problems; however, such a plan generally does not include tsunami disasters. People living along the coast near the epicentre of the earthquake have little knowledge of moving to higher elevations when they feel a shock of an earthquake. Tsunami warning was not issued in countries those far away from the epicentre, such as Sri Lanka and India. Structural measures are rarely in place except for some parts of the Maldives coast.

From a long experience of tsunami disasters, Japan has significantly established tsunami disaster prevention measures. In Japan, local people who live in tsunami-affected areas understand that tsunami comes after earthquakes and related legends have been taught in schools. People affected by the Meiji Sanriku Tsunami in 1896 were relocated to higher places. Structural measures such as coastal dikes, tsunami breakwaters as well as the pine tree belts on the coasts have been implemented and maintained. Tsunami warning systems were also established after the damage caused by the Chile Earthquake-induced Tsunami in 1960. Under the national plan, local tsunami prevention plans and tsunami hazard maps are recently introduced and effectively implemented in prefectures along the coast.

The comparison of the mitigation measures in affected countries by the Indian Ocean Tsunami with the Japanese measures reveals the lack of responsible organizations, mitigation plans, warning systems, awareness level, structural measures and additional non-structural measures such as land use plans. In addition to these, basic information required to analyse tsunami disasters and mitigation measures is still insufficient.

The overall objective is to develop human resources who work for comprehensive tsunami disaster mitigation including structural measures, tsunami early warning systems, local disaster management plans in developing countries. The trainees will learn the fundamentals as well as the most advanced knowledge and technology on comprehensive tsunami disaster prevention practices in Japan. After returning their home countries, they are also expected to share the information and know-how acquired through the course among those who are in charge of taking actions.

### About UN/ISDR ( <http://www.unisdr.org/> )

The UN/ISDR is the focal point in the UN System to promote links and synergies between, and the coordination of, disaster reduction activities in the socio-economic, humanitarian and development fields, as well as to support policy integration. It was established in December 1999 by the United Nations General Assembly's resolution 54/219. ISDR aims at building disaster resilient communities by promoting increased awareness of the importance of disaster reduction as an integral component of sustainable development, with the goal of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental disasters.

### About PWRI/ICHARM (<http://www.icharm.pwri.go.jp/>)

ICHARM was established in March 2006 based on the agreement between the Japanese Government and UNESCO hosted by the Public Works Research Institute of Japan (PWRI). ICHARM mission is to be the Centre of Excellence to provide and assist implementation of the best practicable strategies to localities and nations for water-related disasters. PWRI is the renowned practice oriented research institute serving for more than 80 years since its establishment. It was governmental up to 2001 and now an Incorporated Administrative Agency.

#### **Remarks:**

*This training course covers the overall aspects of tsunami disaster management such as structural measures, tsunami early warning systems, local tsunami disaster management plans and disaster management systems.*

*In order to cover the full range of training course's subject matters, a six-week-long training package will be carried out.*

*The proposed hands-on training course comprises lectures, exercises and on-site inspections to learn tsunami disaster mitigation measures in Japan so that they will be able to promote and utilize comprehensive tsunami disaster mitigation based on natural and socio-economic needs in their own countries.*

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## II. Course Description

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### 1. Course Title:

Comprehensive Tsunami Disaster Prevention Training Course (hereafter will be called as CTDP Course)

## 2. Course Objective/Outcome:

The course is to improve the efficiency of tsunami disaster management by national and regional officials, aiming to reduce the loss of life and property in tsunami-prone coastal areas.

Proposed national and local action plans by participants during the course will contribute to formulate realistic disaster reduction plans, which promote resilience for tsunami disasters.

End user focused workshops that will be organized by trainees in four countries would be useful to transfer the knowledge of tsunami disaster mitigation measures and to stimulate and strengthen the capacity of related agencies for disaster preparedness.

Reports of the training will be uploaded on the web page of ICHARM and will provide information on tsunami disaster mitigation, which would be beneficial especially to other tsunami affected countries for establishing comprehensive tsunami disaster mitigation measures.

This training course **is not** for those who are in charge of issuing tsunami early warning systems.

## 3. Course Outputs:

**The participants will become:**

- (1) Capable of identify their problems by comparing the current situations in their own countries to that in Japan.
- (2) Capable of making and using tsunami hazard maps.
- (3) Understanding tsunami early warning systems and ways of disseminating the systems.
- (4) Capable of developing disaster management systems and its local management plans.
- (5) Capable of promoting and utilizing comprehensive disaster mitigation measures based on natural and socio-economic needs in their own countries.

After the training course, participants are expected to:

- (1) Share the information with other counterparts or stakeholders in their home country.
- (2) Organize end user focused workshops at their home country
- (3) Make a report of the workshop result and achievement
- (4) Implementing the knowledge and techniques of tsunami risk assessment and risk reduction, including promotion of tsunami hazard map.
- (5) Actively promoting the set up of a coordination committee for promoting comprehensive tsunami disaster mitigation and the establishment and implementation of comprehensive tsunami disaster mitigation plans.

## 4. Duration:

2<sup>nd</sup> June, 2008 – 11<sup>th</sup> July, 2008

## 5. Total Number of Participants and Candidate Countries:

(1) Number of Participants;

India: 3

Indonesia: 3

Maldives: 2

Sri Lanka: 3

**At least an expert of structural measures and an expert of non-structural measures should be selected for each country.**

## 6. Eligible/Target Organization:

Governmental organizations those are responsible for leading tsunami countermeasures in respective countries.

## 7. Language to be used in this Course:

English

## 8. Course Program:

### 1) Preparatory Phase

After receiving the “Notice of Acceptance”, each participant has to make an “Inception Report”. The instruction of making “Inception Report” will be delivered to the participant along with “Notice of Acceptance”.

### 2) Program in Japan

This training course provides lectures, trainings, and on-site inspections to learn tsunami mitigation measures in Japan.

The curriculum will cover following topics:

- Orientation
- Country report
- Generation and transformation of tsunamis
- Disaster caused by tsunamis
- Disaster management system
- Comprehensive tsunami management plan
- Structural measures
- Tsunami warning system
- Tsunami hazard map
- Land use regulation
- Education and training

- Japanese experiences including field trip to the sites
- Project Cycle Management
- Concluding report (Action Plan)

### 3) Developing Phase

After the CTDTP course, the participants should hold workshops with related officials of their organization and/or the committee in their countries. Further, they should make a report and send it to ICHARM. ICHARM will finalize a concluding report and submit it to ISDR.

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## III. Conditions and Procedure for Application

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### 1. Responsibility of the Participating Countries/Organizations:

- (1) It is strongly requested for the governments of the participating countries and organizations to nominate applicants who fulfill the qualifications for this training course and who have high motivation and strong commitments to address the current problems in their countries or organizations.
- (2) After successfully completing the training course at ICHARM, the organizations are expected to encourage their participants to share what they have learned in the course with the people and organizations concerned.

### 2. Qualifications of Applicants:

- (1) individual who holds a position of section chief or higher, or its equivalent, in organizations that are responsible for promoting comprehensive tsunami disaster mitigation in the next three to five years.
- (2) be nominated by their governments
- (3) have a good command of English<sup>\*)</sup>
- (4) be able to write reports in English<sup>\*)</sup>
- (5) be in good health to undergo the course of training
- (6) not be military personnel
- (7) be university graduates
- (8) have working knowledge of civil engineering or disaster countermeasures.

<sup>\*)</sup> **English proficiency is utmost important to take active participation in the course.**

### 3. Required Documents:

**Note: Application without any of these 4 following items will be out of the selections.**

**(1) Nomination Form** (See ANNEX I)

**(2) Application Report** (See ANNEX II)

Each applicant must prepare an "Application Report" on the present situation of his/her organizations and problems related to his/her own job. It must be typewritten in English, no more than 4 pages (12-point font, double-spaced, A4 size paper) and in the required format (see ANNEX II). It must be submitted together with the Nomination Form (ANNEX I). The Application Report will be used only for screening purpose and as training materials, only if applicant is selected.

**(3) Official Transcripts or Official Copy of Transcripts of university**

**(4) Official Copy of Diploma or Degree Certificate**

#### **4. Procedure for Application and Selection:**

**(1) Submission of the Documents for Selection:**

Governments desiring to nominate applicants for this training course must submit the required documents to the PWRI/ICHARM office by **April 23, 2008**.

PWRI/ICHARM Address:

**International Centre for Water Hazard and Risk Management (ICHARM)  
under the auspices of UNESCO**

1-6 Minamihara, Tsukuba, Ibaraki-ken, 305-8516 Japan

TEL: +81-29-879-6809, FAX: +81-29-879-6709

E-mail: [icharm@pwri.go.jp](mailto:icharm@pwri.go.jp), URL: <http://www.icharm.pwri.go.jp>

**(2) Selection:**

- 1) PWRI/ICHARM office will accept the documents for selection, carry out the pre-screening, and send the documents to UN/ISDR.
- 2) PWRI/ICHARM will carry out the screening jointly with UN/ISDR by **April 28, 2008** and decide the passed applicants out of those who fulfill the set qualifications described above in III.2.

**\*\* In case the number of applicants is more than the capacity of this course, some applicants may not be accepted due to the limited number of seats even though they fulfill the requirements.**

### **(3) Notice of Acceptance:**

PWRI/ICHARM office will inform each applying government of acceptance or non-acceptance of its nominees' application **no later than April 30, 2008.**

## **5. Rules for Attendance:**

Participants are required to observe the following rules for attending the training course:

- (1) Not to bring any of their family members.
- (2) Return to their home countries at the end of the training course according to the international travel schedule designated by ICHARM.
- (3) Refrain from being engaged in political activities or any form of employment for profit or gain while residing in Japan.
- (4) Properly follow the rules and regulations of their places of accommodation and not to change accommodations that initially designated by ICHARM.
- (5) Obey the rules while attending the lectures or sessions at the training course.

**Note: Participants disobeying these rules will be subject to disciplinary sanction.**

## **6. Certificate**

Participants who have successfully completed the training course will be awarded a certificate by PWRI/ICHARM.

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# **IV. Administrative Arrangements**

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## **1. Travel to Japan:**

- (1) Air Ticket:

A round-trip air ticket between an international airport designated by ICHARM and Japan will be borne by ICHARM.

- (2) Travel Insurance:

Travel insurance is **not** insured by ICHARM.

## **2. Accommodation:**

ICHARM will arrange the following accommodation for the participants while in Japan:

### **Tsukuba International Center (JICA TSUKUBA)**

Address: 3-6 Koyadai, Tsukuba, Ibaraki, 305-0035, Japan

TEL: +81-29-838-1117, FAX: +81-29-838-1790 (81: country code for Japan, 29: area code)

\*If no room is available at JICA TSUKUBA, ICHARM will arrange alternative accommodations for the attendees.

## **3. Living Expenses:**

Following expenses will be provided for the attendees by ICHARM:

- (1) Allowances for accommodation and living expenses
- (2) Expenses for study tours; basically paid in the form of train ticket(s) or chartered bus.
- (3) Expenses for program implementation including materials

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# **ANNEX:**

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|                 |                                           |
|-----------------|-------------------------------------------|
| <b>ANNEX I</b>  | <b>Nomination Form</b>                    |
| <b>ANNEX II</b> | <b>Instruction for Application Report</b> |

### ***CORRESPONDENCE***

For enquires and further information, please contact ICHARM/PWRI.  
Address any other correspondence to:

**International Centre for Water Hazard and Risk  
Management (ICHARM) under the auspices of UNESCO**

Address: 1-6 Minamihara, Tsukuba, Ibaraki-ken, 305-8516 Japan

TEL: +81-29-879-6809, FAX: +81-29-879-6709

E-mail: [icharm@pwri.go.jp](mailto:icharm@pwri.go.jp), URL: <http://www.icharm.pwri.go.jp>

**ANNEX I**

**Nomination Form  
for  
“COMPREHENSIVE TSUNAMI DISASTER PREVENTION  
TRAINING COURSE”**

Please fill in and submit this nomination form to [icharm@pwri.go.jp](mailto:icharm@pwri.go.jp) with the Application Report (ANNEX II)

Recent Photo of  
the Candidate

**PART A** To be completed by the nominee.

|                                                                         |                          |      |      |              |
|-------------------------------------------------------------------------|--------------------------|------|------|--------------|
| <b>1 FULL NAME</b> (as in Passport, underline Family Name)              |                          |      |      |              |
| <b>2 ADDRESS FOR CORRESPONDENCE</b>                                     | <b>4 DATE OF BIRTH</b>   |      |      | <b>5 AGE</b> |
|                                                                         | Month                    | Date | Year |              |
|                                                                         |                          |      |      |              |
| <b>3 NAME AND ADDRESS OF PERSON TO BE NOTIFIED IN CASE OF EMERGENCY</b> | <b>6 SEX</b>             |      |      |              |
|                                                                         | <b>7 MARITAL STATUS:</b> |      |      |              |
|                                                                         | <b>8 NATIONALITY:</b>    |      |      |              |
|                                                                         | <b>9 RELIGION:</b>       |      |      |              |

**10 EDUCATIONAL RECORD**

| Institution | City/Country | Years Attended |    | Qualification Obtained | Subject |
|-------------|--------------|----------------|----|------------------------|---------|
|             |              | From           | To |                        |         |
|             |              |                |    |                        |         |

**11 TRAINING OR STUDY IN FOREIGN COUNTRIES** (in relation to professional interests)

| Institution | City/Country | Period |    | Certificate/<br>Degree Awarded | Field of Study |
|-------------|--------------|--------|----|--------------------------------|----------------|
|             |              | From   | To |                                |                |
|             |              |        |    |                                |                |

## ANNEX I

## 12 EMPLOYMENT RECORD

### 1) Present Place of Employment

|            |                                                                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:      | Title of Present Job:                                                                                                                                                                                |
|            | Date of Taking Up Post:                                                                                                                                                                              |
|            | Address<br><br>Type of Organization<br><input type="checkbox"/> Governmental/Public<br><input type="checkbox"/> Private<br><input type="checkbox"/> International<br><input type="checkbox"/> Others |
| Telephone: |                                                                                                                                                                                                      |
| Telex/Fax: |                                                                                                                                                                                                      |

## 2) Previous Job

|                                                 |                                          |
|-------------------------------------------------|------------------------------------------|
| <p><b>Name and Address of Organization:</b></p> | <p>Description of Your Previous Job:</p> |
| <p>Previous Title/Post and Dates (from/to):</p> |                                          |

**3) Describe briefly the work of your organization and the service it provides.**

|  |
|--|
|  |
|--|

**4) Describe your own job.**



**ANNEX I**

**13 LANGUAGE PROFICIENCY**

|                   |                                    |                               |                               |                               |
|-------------------|------------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 1. English        |                                    |                               |                               |                               |
| Listening         | <input type="checkbox"/> excellent | <input type="checkbox"/> good | <input type="checkbox"/> fair | <input type="checkbox"/> poor |
| Speaking          | <input type="checkbox"/> excellent | <input type="checkbox"/> good | <input type="checkbox"/> fair | <input type="checkbox"/> poor |
| Writing/Reading   | <input type="checkbox"/> excellent | <input type="checkbox"/> good | <input type="checkbox"/> fair | <input type="checkbox"/> poor |
| 2. Mother Tongue  |                                    |                               |                               |                               |
| 3. Other Language |                                    |                               |                               |                               |
|                   | <input type="checkbox"/> excellent | <input type="checkbox"/> good | <input type="checkbox"/> fair | <input type="checkbox"/> poor |

**14. NOMINEE’S DECLARATION** To be signed by the nominee.

|             |  |                  |  |
|-------------|--|------------------|--|
| Date: _____ |  | Signature: _____ |  |
|-------------|--|------------------|--|

**ANNEX I**

**PART B** To be completed by nominee’s Director or Head of Department.

**OBSERVATION OF NOMINATING ORGANIZATION**

**1 Describe what work the nominee will be expected to do on his return.**

.....

.....

.....

**2. Explain how the proposed training will be of benefit to the work of your organization.**

.....

**ART C.** To be completed and signed by a responsible government official.

**OFFICIAL NOMINATION**

I certify that:

I have examined the documents in the form and I am satisfied that they are authentic and relate to the nominee.

I accordingly nominate this person.

Date:

Signature:

.....

Position:

Name:

Organization:

## ANNEX I

### MEDICAL HISTORY AND EXAMINATION

| MEDICAL HISTORY TO BE COMPLETED BY NOMINEE                                                               |                      |                                          |                              |
|----------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------|------------------------------|
| <b>1 NAME OF NOMINEE</b> (last name, first name, middle name)                                            |                      |                                          |                              |
| <b>2 DATE OF BIRTH</b><br>(mo/day/yr)                                                                    | <b>3 NATIONALITY</b> | <b>4 SEX</b><br>____ Male<br>____ Female | <b>5 ADDRESS FOR CONTACT</b> |
| <b>6 NAME OF TRAINING COURSE /SEMINAR</b><br>“COMPREHENSIVE TSUNAMI DISASTER PREVENTION TRAINING COURSE” |                      |                                          |                              |
| <b>7 LENGTH OF TRAINING COURSE/SEMINAR</b> (weeks, months)<br>6 weeks                                    |                      |                                          |                              |

#### 8. IMPORTANT NOTICE

Before you completed the Medical History Questionnaires, you are here by notified that:

A medical condition resulting from an undisclosed pre-existing condition may not be financially compensated for by JICA and may result in termination of your training program.

I understand and accept the terms of this notice. \_\_\_\_\_ Yes \_\_\_\_\_ No

## ANNEX I

### 9. NOMINEE WILL CHECK “YES” OR “NO” AND EXPLAIN

|    | YES | NO |                                                                                                                      | EXPLANATION |
|----|-----|----|----------------------------------------------------------------------------------------------------------------------|-------------|
| a. |     |    | Have you had any significant or serious illness or injury? (if hospitalized, give place and dates.)                  |             |
| b. |     |    | Have you had any operations or advice by a physician to have an operation? (Give place and dates.)                   |             |
| c. |     |    | Do you currently use any drugs for treatment of a medical condition? (Give name and dose)                            |             |
| d. |     |    | Have you ever been a patient in a mental hospital or sanitarium or treated by a psychiatrist? (Give place and dates) |             |

### 10 NOMINEE WILL INDICATE “YES” OR “NO” TO EACH ITEM

#### DO YOU NOW HAVE OR HAVE YOU EVER HAD THE CONDITONS LISTED BELOW?

(Check each item, if yes, enclose the relevant condition with a circle.)

|    | YES | NO | CONDITION                                                                    |
|----|-----|----|------------------------------------------------------------------------------|
| a. |     |    | Asthma, emphysema, or other lung conditions                                  |
| b. |     |    | Tuberculosis or live with anyone who has tuberculosis                        |
| c. |     |    | High blood pressures, heart disease                                          |
| d. |     |    | Stomach, liver (hepatitis), gall bladder disease                             |
| e. |     |    | Kidney or bladder disease, stone or blood in urine                           |
| f. |     |    | Diabetes(sugar in the urine)                                                 |
| g. |     |    | Depression, excess worry, attempted suicide, or other psychological symptoms |
| h. |     |    | Acquired Immune Deficiency Syndrome (AIDS)                                   |
| i. |     |    | Tumor, abnormal growth, cyst, or cancer                                      |
| j. |     |    | Bleeding disorder, blood disease(sickle cell anemia)                         |

**I CERTIFY THAT I HAVE READ THE ABOVE INSTRUCTION AND ANSWERED ALL QUESTIONS TRULY AND COMPLETELY TO THE BEST OF MY KNOWLEDGE.**

|                            |         |                         |
|----------------------------|---------|-------------------------|
| 11 PRINTED NAME OF NOMINEE | 12 DATE | 13 SIGNATURE OF NOMINEE |
|                            |         |                         |

## ANNEX II

### Instruction for Application Report for the training course on “Comprehensive Tsunami Disaster Prevention”

**Note:**

- (1) This Report must be submitted with the Nomination Form.
- (2) This report must be prepared by the applicant himself/herself.
- (3) Applicants without this report will be out of the selection.

**Remark:**

- (1) If there are any applicants who want electronic copy of this form of Application Report, please contact PWRI/ICHARM ([icharm@pwri.go.jp](mailto:icharm@pwri.go.jp)).
- (2) If available, please send us directly this Application Report to PWRI/ICHARM ([icharm@pwri.go.jp](mailto:icharm@pwri.go.jp)) by E-mail.

---

**1. Please fill your following information.**

- (1) Name:
- (2) Organization:
- (3) Present Post:
- (4) Country:
- (5) E-mail:

**2. Please fill the following subjects about your organization and department.**

What are the Missions/Objectives/Roles of your organization? And what are the activities of your organization to achieve those goals?

*\* Please add the item according to the situation of your organization.*

- (1) Mission, Objective, Role:

Activities:

- (2) Mission, Objective, Role:

Activities:

**3. Please show your Organization Chart and indicate your position.**

Please attach your organization chart.

## ANNEX II

### 4. Please explain your job experience related to tsunami.

*\* Please add the item according to your situation.*

(1) Period:

- 1) Organization;
- 2) Position;
- 3) Outline of duties;

(2) Period:

- 1) Organization;
- 2) Position;
- 3) Outline of duties;

### 5. Do you have any issues which you have to solve or any difficulties on your work?

☐ Yes      ☐ No

If “yes”, please describe the issues, difficulties and reasons (technical and organizational/institutional) in detail.

*\* Please add the item according to your situation.*

#### 5.1 Technical Aspects

(1) Issues, Difficulties:

Reason:

(2) Issues, Difficulties:

Reason

#### 5.2 Organizational/Institutional Aspects

(1) Issues, Difficulties:

Reason:

(2) Issues, Difficulties:

Reason:

## ANNEX II

### ***6. In the fields of tsunami disaster mitigation, what topics are you interested in?***

Please describe the topics and the reason why you are interested in those topics

*\* Please add the item according to your situation.*

(1) Topics, Subjects:

Reason:

(2) Topics, Subjects:

Reason:

### ***7. Please explain your expectation from this training course.***

### ***8. Please explain your future plans to apply expected results of the training program in order to tackle tsunami disaster mitigation projects after returning to your country.***

### ***9. If you have any request, please write down.***

Reference 6

Participant List

**List of Participants for Comprehensive Tsunami Disaster Prevention Training Course**  
**総合津波防災研修コース研修員リスト**

国連国際防災戦略 (UN/ISDR)  
 独立行政法人土木研究所 水災害・リスクマネジメント国際センター (PWRI/ICHARM)

2nd June – 11th July, 2008 (6月2日(月)～7月11日(金))

| No | Photo(写真)                                                                           | Country(国名)           | Name(名前)                                                                                           | Present post(現職)                                                                                                                                         |
|----|-------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  |    | India<br>(インド)        | Mr. 36歳<br>Ujjwal<br>Kumar<br>(ウウル クマール)                                                           | Section Officer<br>Government of India<br>Ministry of Finance,<br>Department of Economic Affairs<br>(インド政府財務省経済局職員)                                      |
| 2  |    | India<br>(インド)        | Mr. 57歳<br>LALLOO<br>PRASAD<br>SONKAR<br>(ラルー プラサド ソンカー)                                           | Adviser(Tsunami Rehabilitation Programme)<br>Government of India<br>Planning commission<br>(インド政府計画立案委員会 津波復旧計画顧問)                                       |
| 3  |    | Indonesia<br>(インドネシア) | Mr. 30歳<br>Juriono<br>(ジュリオノ)                                                                      | Coordinator on Drill and SOP's Division<br>Indonesian Institute of Science(LIPI)<br>(インドネシア科学研究所 訓練・実践調整官)                                               |
| 4  |   | Indonesia<br>(インドネシア) | Mr. 46歳<br>Teuku<br>Alvisyahrin<br>(テウク アルフィシャフリン)                                                 | Lecturer<br>Faculty of Agriculture<br>Syiah Kuala University<br>(シークアール大学農業科講師)                                                                          |
| 5  |  | Indonesia<br>(インドネシア) | Mr. 28歳<br>Weka Mahardi<br>(ウエカ マハディ)                                                              | Staff of Sub Directorate<br>Rehabilitation and Utilization Coasts and Ocean<br>Ministry of Marine Affairs and Fisheries(MMAF)<br>(海事・水産省海岸復興局職員)         |
| 6  |  | Indonesia<br>(インドネシア) | Mr. 43歳<br>WISYANTO<br>(ウィスヤント)                                                                    | Researcher on Technology for Natural disaster Mitigation<br>Agency for The Assessment and Application of<br>Technology(BPPT)<br>(技術評価・活用庁 研究員【自然災害軽減技術】) |
| 7  |  | Maldives<br>(モルディブ)   | Mr. 47歳<br>Murthala Mohamed Didi<br>(モルタラ モハメド ディディ)                                               | Director<br>National Disaster Management Centre(NDMC)<br>(国家災害管理センター長)                                                                                   |
| 8  |  | Maldives<br>(モルディブ)   | Mrs. 29歳<br>Rilweena Asiath<br>(リルウィーナ アシアス)                                                       | National Project Manager<br>United Nations Development Programme<br>(UNDP), Moldives<br>(モルディブ国連開発計画主査)                                                  |
| 9  |  | Sri Lanka<br>(スリランカ)  | Mrs. 51歳<br>JAYASUNDARA<br>Mudiyanse<br>Sriyani Jayasundara<br>(ジャヤスンダラ モティヤンセラーキ<br>スリヤーニ)        | Assistant Director(Preparedness and Planning)<br>Disaster Management Centre<br>(災害管理センター 次長【計画・準備】)                                                      |
| 10 |  | Sri Lanka<br>(スリランカ)  | Mr. 38歳<br>Senadhipathi Mudiyanse<br>Saman Palitha Bandara<br>(セナディパティ モティヤンセラーキ<br>サマン パーリテ バンダラ) | Assistant Director<br>(training and public awareness)<br>Disaster Management Center<br>(災害管理センター 次長【研修・防災意識】)                                            |
| 11 |  | Sri Lanka<br>(スリランカ)  | Mr. 54歳<br>Sooriya Arachchige<br>Ranjan Jayawardana<br>(ソーリヤ アーラチゲ<br>ランジャン ジャヤワルダナ)               | Chief Irrigation Engineer<br>Irrigation Department<br>(灌漑局主任灌漑技師)                                                                                        |

Reference 7

Press Release



## UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course

**ICHARM announces with great pleasure the launch of “UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course” from 3<sup>rd</sup> June to 10<sup>th</sup> July, which is supported by JICA and in collaboration with UN/ISDR.**



A church in Ghizo Island damaged by Solomon Tsunami in 2007

The Indian Ocean Tsunami on 26th December 2004 caused about 230,000 casualties and enormous property damage along the Indian Ocean. This giant loss is basically due to the lack of proper awareness and preparedness for tsunami disasters from national government level to local level.

Japan has a long experience with tsunami disasters. The 1896 Meiji-sanriku Tsunami caused about 22,000 casualties, for example. Because of that, Japan has been making major efforts to enhance tsunami disaster prevention.

To make good use of such experiences toward tsunami disaster countermeasures in developing countries, ICHARM launches the “UN/ISDR Tsunami Disaster Prevention Training Course” for section chief-level personnel who are responsible for promoting tsunami disaster mitigation.

The course lecturers includes prominent university professors, experienced technical experts, and disaster



A tsunami embankment in Taro district, Miyako City (height: 10m)

management personnel at the national to local levels, including Professor Shuto of Nihon University, who is the world-class expert in the field of tsunami study.

The overall objective is to develop human resources who work for comprehensive tsunami disaster mitigation including structural measures, tsunami early warning systems, local disaster management plans in developing countries. After returning their home countries, they are also expected to share the information and know-how acquired through the course among fellow personnel in tsunami disaster mitigation.

Contact: International Centre for Water Hazard and Risk Management (ICHARM)

Team Leader: Mr. Shigenobu Tanaka [s\\_tanaka@pwri.go.jp](mailto:s_tanaka@pwri.go.jp)  
tel +81-29-879-6809 Fax +81-29-879-6709



Statue of “Goryo Hamaguchi” in Hirokawa Town Office

# Outline of the “UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course”

## 1. Background

Funded by the European Commission, UN/ISDR is now conducting many 2-year projects of “Building Resilience to Tsunamis in the Indian Ocean” in order to promote tsunami countermeasures in developing countries.

As one of the projects, ICHARM will conduct the “UN/ISDR Comprehensive Tsunami Disaster Prevention Training Course”. The total amount for the project is \$200,000.

## 2. Organizers

Implementing organization:

International Centre for Water Hazard and Risk Management (ICHARM)

Supporting organization:

Japan International Cooperation Agency (JICA)

## 3. Period

3<sup>rd</sup> June – 10<sup>th</sup> July 2008 (6 weeks)

## 4. Participant

Total: 11 members

Mr. Ujjwal Kumar

Section Officer, Government of India Ministry of Finance, Department of Economic Affairs

Mr. LALLOO PRASAD SONKAR

Adviser (Tsunami Rehabilitation Programme), Government of India Planning commission

Mr. Juriono

Coordinator on Drill and SOP's Division Indonesian Institute of Science (LIPI)

Mr. Teuku Alvisyahrin

Lecturer, Faculty of Agriculture Syiah Kuala University, Indonesia

Mr. Weka Mahardi

Staff of Sub Directorate Rehabilitation and Utilization Coasts and Ocean Ministry of Marine Affairs and Fisheries, Indonesia

Mr. WISYANTO

Researcher on Technology for Natural disaster Mitigation Agency for The Assessment and Application of Technology, Indonesia

Mr. Murthala Mohamed Didi

Director, National Disaster Management Centre, Maldives

Mrs. Rilweena Asiath

National Project Manager United Nations Development Programme (UNDP), Maldives

Mr. JAYASUNDARA Mudiyansele Sriyani Jayasundara

Assistant Director (Preparedness and Planning), Disaster Management Centre, Sri Lanka

Mr. Senadhipathi Mudiyansele Saman Palitha Bandara

Assistant Director (training and public awareness) Disaster Management Center, Sri Lanka

Mr. Sooriya Arachchige Ranjan Jayawardana

Chief Irrigation Engineer Irrigation Department, Sri Lanka

## 5. Curriculum

1<sup>st</sup> and 2<sup>nd</sup> week: Lectures and practices on tsunami and its countermeasures, etc.

3<sup>rd</sup> week: On-sight Survey along Sanriku Coast

4<sup>th</sup> week: Interim report, practices on Tsunami propagation mapping, Google Earth, etc.

5<sup>th</sup> week: On-sight Survey along Ki-i Coast

6<sup>th</sup> week: Making and presentation of Action plan

## Reference 8

### Agenda of Opening Ceremony



United Nations  
International Strategy for Disaster Reduction



European  
Commission

## **Opening Ceremony of “Comprehensive Tsunami Disaster Prevention Training Course”**

Date: 3<sup>rd</sup> June, 2008 (Tue) 10:20~10:55

Venue: Conference Room 2 on the 1<sup>st</sup> floor of ICHARM building

Participant:

Trainees 11members  
ICHARM (International Centre for Water Hazard and Risk Management)  
Dr. Takeuchi, Director  
Dr. Jayawardena, Research and Training Advisor  
Mr. Terakawa, Deputy Director  
Mr. Tanaka, Team Leader  
PWRI (Public Works Research Institute)  
Mr. Setoshita  
Head, Planning and Research Administration Department  
Ms. Saito  
Officer, Planning and Research Administration Department  
JICA Tsukuba (Japan International Cooperation Agency)  
Mr. Kaneko  
Director, Training & Partnership Program Division

Programme:

- 1) Opening Remarks
- 2) Introduction of the guests and officials
- 3) Addresses  
Address by ICHARM  
Address by JICA Tsukuba
- 4) Self-Introduction by each participant
- 5) Greeting Address by a participant representative
- 6) Closing Remarks
- 7) Group Photo

**11:00~12:00 Opening Party at Entrance Hall of ICHARM**

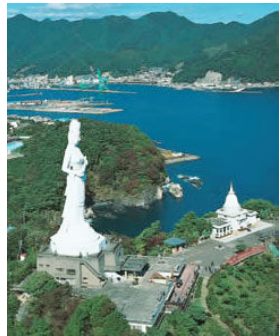
## Reference 9

Schedule of the On-sight Survey on Sanriku  
coast area

# Schedule of the on-sight survey on Sanriku coast area

ICHARM

| Day           | Time               | Place                                                             |                                                                                                                                                                                                                                                                                                                                                                |
|---------------|--------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16th<br>(Mon) | 7:00<br>↓          | Departure from JICA Tsukuba<br>(by taxi)                          |  <p>Ryu-sen-do Limestone Cave</p> <p><a href="http://www.town.iwaizumi.iwate.jp/~ryusendo/">http://www.town.iwaizumi.iwate.jp/~ryusendo/</a></p> <p><a href="http://www.vill.fudai.iwate.jp/kurosaki/index.html">http://www.vill.fudai.iwate.jp/kurosaki/index.html</a></p> |
|               | 7:25<br>(transfer) | Arrival to Tsukuba Sta.                                           |                                                                                                                                                                                                                                                                                                                                                                |
|               | 7:42<br>↓          | Tsukuba Sta. つくば駅<br>(by Tsukuba Express)                         |                                                                                                                                                                                                                                                                                                                                                                |
|               | 8:12<br>(transfer) | Minami-Nagareyama Sta. 南流山駅                                       |                                                                                                                                                                                                                                                                                                                                                                |
|               | 8:18<br>↓          | Minami-Nagareyama Sta. 南流山駅<br>(by JR Musashino Line)             |                                                                                                                                                                                                                                                                                                                                                                |
|               | 8:46<br>(transfer) | Minami-Urawa Sta. 南浦和駅                                            |                                                                                                                                                                                                                                                                                                                                                                |
|               | 8:55<br>↓          | Minami-Urawa Sta. 南浦和駅<br>(by JR Keihin Tohoku Line)              |                                                                                                                                                                                                                                                                                                                                                                |
|               | 9:06<br>(transfer) | Omiya Sta. 大宮駅                                                    |                                                                                                                                                                                                                                                                                                                                                                |
|               | 9:22<br>↓          | Omiya Sta. 大宮駅<br>(by JR Shinkansen "Hayate 9")                   |                                                                                                                                                                                                                                                                                                                                                                |
|               | 11:22              | Morioka Sta. 盛岡駅                                                  |                                                                                                                                                                                                                                                                                                                                                                |
|               | 11:30-12:25        | Lunch around Morioka Sta. 盛岡駅付近で昼食                                |                                                                                                                                                                                                                                                                                                                                                                |
|               | 12:30<br>↓         | Departure of Morioka Sta.<br>(by bus)                             |                                                                                                                                                                                                                                                                                                                                                                |
|               | 15:30-17:00<br>↓   | Ryu-sen-do Limestone Cave 龍泉洞                                     |                                                                                                                                                                                                                                                                                                                                                                |
|               | 18:00              | Arrival to "Kurosaki-soh" 国民宿舎くろさき荘到着                             |                                                                                                                                                                                                                                                                                                                                                                |
| 17th<br>(Tue) | 8:30<br>↓          | Departure of "Kurosaki-soh"<br>(by bus)                           |  <p>Jo-do-ga-hama Beach</p>                                                                                                                                                                                                                                               |
|               | 8:45<br>↓          | Fudai village hall<br>(by bus)                                    |                                                                                                                                                                                                                                                                                                                                                                |
|               | 9:00-9:30<br>↓     | <b>Fudai tsunami gate 普代水門</b><br>(by bus)                        |                                                                                                                                                                                                                                                                                                                                                                |
|               | 10:10-10:50<br>↓   | <b>Noda Village 野田村</b><br>(by bus)                               |                                                                                                                                                                                                                                                                                                                                                                |
|               | 11:30-12:30<br>↓   | Lunch at Kitayamazaki Cliff 北山崎で昼食<br>(by bus)                    |                                                                                                                                                                                                                                                                                                                                                                |
|               | 12:50-13:50<br>↓   | <b>Simanokoshi and Raga, Tanohata Village 田野畑村</b><br>(by bus)    |                                                                                                                                                                                                                                                                                                                                                                |
|               | 14:20-14:40<br>↓   | <b>Omoto River Tsunami Gate 小本川水門</b><br>(by bus)                 |                                                                                                                                                                                                                                                                                                                                                                |
|               | 15:00-15:20<br>↓   | <b>Settai River Tsunami Gate 摂待水門</b><br>(by bus, Break) 途中道の駅で休憩 |                                                                                                                                                                                                                                                                                                                                                                |
|               | 16:30-17:20<br>↓   | Jo-do-ga-hama Beach 浄土ヶ浜<br>(by bus)                              |                                                                                                                                                                                                                                                                                                                                                                |
|               | 17:35-18:00<br>↓   | <b>Kuwagasaki District 宮古市鉏ヶ崎地区</b><br>(by bus)                   |                                                                                                                                                                                                                                                                                                                                                                |
|               | 18:20              | Arrival to "Miyako Station Koyo" 宮古ステーション古窯                       |                                                                                                                                                                                                                                                                                                                                                                |

|               |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18th<br>(Wed) | 8:15<br>↓<br><b>9:00-10:30</b><br>↓<br><b>10:45-12:00</b><br>↓<br><b>13:00-13:30</b><br>↓<br><b>14:30-14:50</b><br>↓<br><b>16:00-16:30</b><br>↓<br>17:20<br>↓<br><b>19:00-20:00</b>                                                                                                                                                                        | Departure of Miyako Station Koyo<br>(by bus)<br><b>Lecture on tsunami countermeasures in Taro</b><br>(by bus)<br><b>On-sight survey in Taro 田老現地視察</b><br>(by bus)<br><b>Discussion</b><br>(by bus)<br><b>On-sight survey in Yamanouchi 山之内現地視察</b><br>↓<br><b>View of Kamaishi breakwater from Daikannon</b><br>(by bus) 釜石大観音から防波堤遠望<br>Arrival to "Houraikan" 宝来館到着<br><br><b>Lecture on tsunami countermeasures in Nehama District at Houraikan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <br>Daikannon<br><a href="http://www.kamaishi-daikannon.com/">http://www.kamaishi-daikannon.com/</a> |
| 19th<br>(Thu) | 8:30<br>↓<br><b>10:00-10:20</b><br>↓<br><b>11:10-12:10</b><br>↓<br><b>13:00-14:30</b><br>↓<br><b>15:30-17:30</b><br>↓<br>17:50                                                                                                                                                                                                                             | Departure of Houraikan<br>(by bus)<br><b>On-sight survey in Touni 唐丹現地視察</b><br>(by bus)<br><b>On-sight survey in Ryori 綾里現地視察</b><br>(by bus)<br><b>Lecture on tsunami disaster education 綾里小学校 in Ryori Elementary School</b><br>↓<br><b>Lecture on tsunami countermeasures in Ohfunato City</b><br><b>On-sight survey in Ohunato 大船渡現地視察</b><br>↓<br>Arrival to "Ofunato Plaza Hotel" 大船渡プラザホテル到着                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                         |
| 20th<br>(Fri) | 8:00<br>↓<br><b>8:15-8:25</b><br>↓<br><b>9:00-9:20</b><br>↓<br><b>9:30-9:50</b><br>↓<br><b>10:40-11:20</b><br>↓<br>12:00-12:50<br>↓<br><b>13:00-14:00</b><br>↓<br><b>14:20-15:20</b><br>↓<br>17:00<br><br>17:26<br>↓<br>19:22<br>(transfer)<br>19:32<br>↓<br>19:44<br>(transfer)<br>19:52<br>↓<br>20:16<br>(transfer)<br>20:21<br>↓<br>20:45<br>↓<br>21:00 | Departure of Ofunato Plaza Hotel<br>(by bus)<br><b>View of Ofunato breakwater from I.C.</b><br>(by bus) 大船渡基石海岸IC付近から防波堤を遠望<br><b>Tsunami Forest in Rikuzen-Takata 陸前高田防潮林</b><br>(by bus)<br><b>On-sight survey in Osabe 陸前高田市長部地区</b><br>(by bus)<br><b>Karakuwa Peninsular Visitor Center</b><br>(by bus) 唐桑ビジターセンター<br>Lunch at Fishery market 海鮮市場 海の市<br>↓<br><b>Lecture on tsunami countermeasures in Kesennuma City</b><br>(by bus) 気仙沼市役所<br><b>Experience of disaster education at "Disaster Prevention Center"</b><br>(by bus)<br>Ichinoseki Sta. 一ノ関駅<br><br>Ichinoseki Sta. 一ノ関駅<br>(by JR Shinkansen "Hayate 9")<br>Omiya Sta. 大宮駅<br><br>Omiya Sta. 大宮駅<br>(by JR Keihintohoku Line)<br>Minami-Urawa Sta. 南浦和駅<br><br>Minami-Urawa Sta. 南浦和駅<br>(by Tsukuba Express)<br>Minami-Nagareyama Sta. 南流山駅<br><br>Minami-Nagareyama Sta. 南流山駅<br>(by Tsukuba Express)<br>Tsukuba Sta. つくば駅<br>(by taxi)<br>JICA Tsukuba |                                                                                                                                                                                         |

## Reference 10

Article on the On-sight Survey in Fudai  
Village

# 津波への対策熱心に

被災国 スマトラ 三陸沿岸訪れ研修



普代水門で、被災国（右）の研修生説明に聞き入る被災国の研修生

約二十万人が犠牲となった二〇〇四年のスマトラ島沖地震・津波で被災した四方国の政府関係者らが十七日、津波防災研修のため本県沿岸を訪れた。体験した各市町村から防災対策を学んでいる。訪れたのはインドネシア、インド、スリランカ、モルディブの防災担当者、研究者ら十一人。独立行政法人土木研究所水災害・リスクマネジメント国際セ

ンターが日本の先進的な知識、技術を習得してもらうため招いた。普代村では、普代水門を遠隔操作で閉鎖する様子を見学し、野田村では御台場公園にある石段の避難路を実際に上り、住民への意識付けの重要性を学んだ。十五万人が死亡、行方不明となったインドネシア・バンダアチェ市で津波を体験したウク・アルビシャリン大学講師（左）は「堤防の能力は高い。防潮林はわが国でも使えそうだ」と話していた。一行は二十日までの四日間、宮古市田老、釜石市唐丹などを巡

り、今月末からは紀伊半島を視察して三陸地方と対比する。研修の最後にはアクションプランを作成して母国の津波対策に役立てる。

## All Ears to Tsunami Countermeasure

### On-sight survey to Sanriku coast area

On 17th, officials from 4 countries, in which Indian Ocean Earthquake and Tsunami 2004 devastated and caused about 230,000 casualties, visited the coastal area in Iwate Prefecture as a part of "Comprehensive Tsunami Disaster Prevention Training Course". They learned disaster prevention countermeasures from municipalities which had experienced big tsunamis in Meiji (1896) and Showa (1933).

The visitors were 11 officials who are engaged in disaster prevention and research from Indonesia, India, Maldives and Sri Lanka, whom International Centre for Water Hazard and Risk Management (ICHARM), in Public Works Research Institute (PWRI), invited to make them acquire advanced Japanese knowledge and technology.

In Fudai village they saw how Fudai tsunami gate is closed by remote operation, and in Noda village they walked up the evacuation route in Odaiba Park and realized the importance of raising resident's awareness toward disasters.

One of the participants, Mr. Teuk Alvishahrin, from Indonesia, had experienced tsunami in Banda Aceh, Indonesia, which caused 150,000 people to be killed and missing. He said that Japanese levees are powerful and tsunami forest also can be applied to his country.

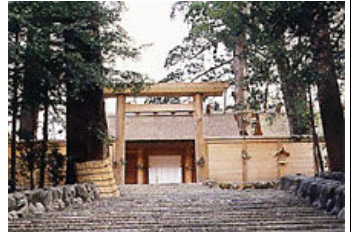
The group will visit Taro in Miyako city and Touni in Kamaishi city in 4 days until 20th, and also leave for Kii Peninsula from the end of this month to compare with Sanriku area. At the last of this training course, they will make action plan to adopt what they have acquired through the program to tsunami countermeasures in their countries.

(18<sup>th</sup> July, 2008 Iwate Nippo Newspaper)

## Reference 11

### Schedule of the On-sight Survey on Kii Peninsula Area

# Schedule of the on-sight survey on Kii Peninsula Area

| Day           | Time        | Place                                                                                                                                      |
|---------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 30th<br>(Mon) | 7:10<br>↓   | Departure from JICA Tsukuba<br>(by taxi)                                                                                                   |
|               | 7:30        | Arrival to Tsukuba Sta.                                                                                                                    |
|               | 7:56        | Tsukuba Sta. つくば駅                                                                                                                          |
|               | ↓           | (by Tsukuba Express)                                                                                                                       |
|               | 8:41        | Akihabara Sta. 秋葉原駅                                                                                                                        |
|               | (transfer)  |                                                                                                                                            |
|               | 8:51        | Akihabara Sta. 秋葉原駅                                                                                                                        |
|               | ↓           | (by JR Yamanote Line)                                                                                                                      |
|               | 8:55        | Tokyo Sta. 東京駅                                                                                                                             |
|               | (transfer)  |                                                                                                                                            |
|               | 9:20        | Tokyo Sta. 東京駅                                                                                                                             |
|               | ↓           | (by Shinkansen "NOZOMI 115")                                                                                                               |
|               | 11:02       | Nagoya Sta. 名古屋駅                                                                                                                           |
|               | 11:15       | Departure from Nagoya by bus 名古屋駅出発                                                                                                        |
|               | 11:30       | Meikou-Chuo IC 名港中央IC                                                                                                                      |
|               | ↓           |                                                                                                                                            |
|               | 11:45       | Lunch at Gozaisyo SA 御在所SAにて昼食                                                                                                             |
|               | ↓           |                                                                                                                                            |
|               | 13:00-14:00 | Lecture at Mie Prefecture Hall 三重県庁                                                                                                        |
|               | ↓           |                                                                                                                                            |
|               | 15:30-17:00 | Lecture at Ominato Branch Office, Ise City 伊勢市大湊地区                                                                                         |
|               | ↓           |                                                                                                                                            |
|               | 17:30-18:20 | Jingu Shrine 伊勢神宮内宮<br><a href="http://www.isejingu.or.jp/shosai/english/index.htm">http://www.isejingu.or.jp/shosai/english/index.htm</a> |
|               | ↓           |                                                                                                                                            |
|               | 19:00       | Arrival to "Hotel Resort in Futami" ホテルリゾートイン二見                                                                                            |
|               |             |                                                         |
|               |             | "Jingu Shrine"                                                                                                                             |
| 1st<br>(Tue)  | 7:00<br>↓   | Departure                                                                                                                                  |
|               | 8:30-9:30   | Lecture at Nishiki, Taiki Town 大紀町錦地区                                                                                                      |
|               | ↓           |                                                                                                                                            |
|               | 11:00-12:00 | Lecture at Owase City Hall 尾鷲市役所                                                                                                           |
|               | ↓           | Lunch at Owase City Hall 尾鷲市役所付近で昼食                                                                                                        |
|               | 13:00-14:00 | Town Watching in Owase 尾鷲市内にてタウンウォッチング                                                                                                     |
|               | ↓           |                                                                                                                                            |
|               | 14:00-15:00 | Interview to community member 自治会の方からのお話し                                                                                                  |
|               | ↓           |                                                                                                                                            |
|               | 15:00-17:00 | Town Watching in Owase 尾鷲市内にてタウンウォッチング                                                                                                     |
|               | ↓           |                                                                                                                                            |
|               | 17:30       | Arrival to "New Port Hotel" ニューポートホテル                                                                                                      |
|               | 19:00-21:00 | Discussion and Preparation ホテルにて議論と準備                                                                                                      |
|               |             |                                                       |
|               |             | "Nishiki Tower"                                                                                                                            |
| 2nd<br>(Wed)  | 8:30<br>↓   | Departure                                                                                                                                  |
|               | 8:45-9:45   | Presentation of Town Watching タウンウォッチング発表                                                                                                  |
|               | ↓           |                                                                                                                                            |
|               | 11:00-13:00 | Matsumoto Pass of Kumano Kodo 熊野古道松本峠<br>Lunch at Oni-ga-Jo 鬼が城にて昼食                                                                        |
|               | ↓           |                                                                                                                                            |
|               | 13:15-13:30 | "Shichiri-Mihama" 七里御浜                                                                                                                     |
|               | ↓           |                                                                                                                                            |
|               | 14:15-15:00 | "Kumano-Nachi Shrine" 熊野那智大社                                                                                                               |
|               | ↓           |                                                                                                                                            |
|               | 16:15-16:45 | "Hashikui-Iwa" 橋杭岩                                                                                                                         |
|               | ↓           |                                                                                                                                            |
|               | 17:00       | Arrival to "Urashima Harbor Inn" 浦島ハーバーイン                                                                                                  |
|               |             |                                                       |
|               |             | "Nachi-no-Taki" fall                                                                                                                       |

|              |             |                                                                                                                                                                                                                                         |
|--------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3rd<br>(Thu) | 8:30        | Departure                                                                                                                                                                                                                               |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 9:00-10:00  | Lecture at Kushimoto Town 串本町古座分庁舎                                                                                                                                                                                                      |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 10:30-12:30 | On-sight survey in Kushimoto 串本町内現地視察<br>Interview to Deputy Community Leader of Ohmisaki<br>大水崎地区副会長にインタビュー                                                                                                                            |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 12:30-13:30 | Lunch in Kushimoto 串本町内で昼食                                                                                                                                                                                                              |
| 4th<br>(Fri) | ↓           |                                                                                                                                                                                                                                         |
|              | 15:30-16:30 | Lecture at Shirahama Town Hall 白浜町役場                                                                                                                                                                                                    |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 16:30-17:30 | On-sight survey in Shirahama 白浜町内現地視察                                                                                                                                                                                                   |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 19:00       | Arrival to "Forest in Gobo" フォレストイン御坊                                                                                                                                                                                                   |
|              |             |                                                                                                                                                                                                                                         |
| 5th<br>(Sat) | 7:30        | Departure                                                                                                                                                                                                                               |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 9:00-11:00  | Lecture on "Inamura-no-hi" and Goryo Hamaguchi,<br>Study in the Musium 稲むらの火の館<br><a href="http://www.town.hirogawa.wakayama.jp/inamuranohi/english/index.html">http://www.town.hirogawa.wakayama.jp/inamuranohi/english/index.html</a> |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 11:00-11:45 | On-sight survey in Hirokawa 広川町現地視察                                                                                                                                                                                                     |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 11:45-12:30 | Interview to chief priest of Hiro-Hachimangu 広八幡宮宮司にインタビュー                                                                                                                                                                              |
| 5th<br>(Sat) | ↓           |                                                                                                                                                                                                                                         |
|              | 12:30-13:30 | Lunch in Hirokawa 広川町内で昼食                                                                                                                                                                                                               |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 13:30-15:00 | Visit to Hiro Elementary School 広小学校と交流(町民会館にて)                                                                                                                                                                                         |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 18:30       | Arrival to "Toyoko-in Sannomiya" 東横イン三宮                                                                                                                                                                                                 |
|              |             |                                                                                                                                                                                                                                         |
| 5th<br>(Sat) | 9:00        | Departure                                                                                                                                                                                                                               |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 9:30-10:30  | Visit to Disaster Reduction and Human Renovation Institution<br>人と防災未来センター <a href="http://www.dri.ne.jp/english/index.html">http://www.dri.ne.jp/english/index.html</a>                                                                |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 12:00-17:30 | Visit to Kyoto 京都市内現地視察                                                                                                                                                                                                                 |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 17:45       | Kyoto Sta. 京都駅                                                                                                                                                                                                                          |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 18:02       | Kyoto Sta. 京都駅<br>(by JR Shinkansen "NOZOMI 114")                                                                                                                                                                                       |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 20:23       | Tokyo Sta. 東京駅                                                                                                                                                                                                                          |
|              | (transfer)  |                                                                                                                                                                                                                                         |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 21:00       | Tokyo Sta. 東京駅<br>(by JR Keihintohoku Line)<br>Akihabara Sta. 秋葉原駅                                                                                                                                                                      |
| 5th<br>(Sat) | (transfer)  |                                                                                                                                                                                                                                         |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 21:00       | Akihabara Sta. 秋葉原駅<br>(by Tsukuba Express)                                                                                                                                                                                             |
|              | ↓           |                                                                                                                                                                                                                                         |
|              | 21:45       | Tsukuba Sta. つくば駅<br>(by taxi)                                                                                                                                                                                                          |
| 5th<br>(Sat) | ↓           |                                                                                                                                                                                                                                         |
|              | 22:00       | JICA Tsukuba                                                                                                                                                                                                                            |



Kinkakuji Temple

## Reference 12

Article on the On-sight Survey in Owase City

2008年(平成20年)7月2日 水曜日

# 尾鷲で津波防災研修

## インド洋4カ国11人



津波被害の現地視察で市街地を望むインド洋4カ国の研修生(1日、尾鷲市天文科学館の屋上で)

2004年12月のスマトラ沖地震のインド洋大津波で、被害を受けたインド洋4カ国政府の防災

担当官ら11人が1日、日本での「総合津波防災研修」で尾鷲市を訪れ、津波防災対策や住民意識の

聞き取りなどに取り組んだ。

研修は独立行政法人「土木研究所」(茨城県つくば市)の水害・リスクマネジメント国際センター(アイチャーム)の主催。国連国際防災戦略(ISDR)から全額資金援助を受けて実施している。

メンバーはインド、インドネシア、モルジブ、スリランカから11人とアイチャーム職員や通訳ら3人が同行。

今年6月2日から7月11日までの6週間、津波対策先進地の日本で研修。うち6月30日から7月4日まで紀伊半島の市町村を訪問、その中で尾鷲

市を訪れ、2日まで研修に取り組む。

一行は市防災センターで市の地震・津波防災の取り組みについて市職員から説明を受けた。アイチャームの田中茂信上席

研究員は「地震の情報を待っている間に合わない。地震が起きたらすぐ逃げるのが重要。住民の意識を高めるため、訓練を繰り返し繰り返し行うことが必要になる」と話していた。

午後から中村山に登り、市天文科学館から市街地を眺望。3班に分かれ、市が作成したハザードマップを見ながら尾鷲港まで歩き、尾鷲漁協会議室で川原町自主防災会の山西敏徳会長から昭和19年に発生した東南海地震津波の体験や津波避難対策の話聞いた。

このあとも港町から市防災センターまでタウン

での研修を終える。次の視察先の和歌山県串本町へ向かう。

ウォッチングに取り組

み、宿泊のニューボートホテルでグループ別にこの日の成果を討論し

た。

2日午前中に市防災センターで研修成果のグループ発表があり、尾鷲市

Nankai Shimbun  
Wednesday, July 2, 2008

**Tsunami Disaster Prevention Training at Owase**  
Eleven people from 4 Indian Ocean countries joined the program

A group of eleven disaster management officials from four Indian Ocean countries which suffered devastating damage from the 2004 Off Sumatra Earthquake Tsunami are visiting the Owase City on July 1st to learn tsunami countermeasures and interview local residents for their disaster mitigation awareness as part of the Comprehensive Tsunami Disaster Prevention Training Course.

The training course is organized by the International Centre for Water Hazard and Risk Management (ICHARM) of the Public Works Research Institute (located in Tsukuba City, Ibaraki) and provided full financial support by the United Nations International Strategy for Disaster Reduction.

The group consists of a total of thirteen people, including eleven course participants from India, Indonesia, the Maldives and Sri Lanka, two ICHARM

staff members and an interpreter.

The participants will stay in Japan for six weeks from June 2 to July 11 to learn the country's advanced tsunami mitigation countermeasures. They will spend a week from June 30 to July 4 visiting several places in Kii Peninsula, including two-day training in Owase.

In Owase, the participants first visited the city's disaster management center and listened to a city official's presentation about Owase's earthquake and tsunami countermeasures. "It will be too late to escape if you wait for earthquake information to come from somewhere. It is extremely important to start leaving potentially hazardous areas the second you feel an earthquake. To raise public awareness towards disaster mitigation, you just have to repeat evacuation exercises over and over," Shigenobu Tanaka, team leader of ICHARM, emphasized adding to the presentation.

In the afternoon, the group went to the Owase Astronomical Observatory located on the Nakayama hill to take a full view of the downtown Owase. After that, they walked to the Owase port in

three teams using tsunami hazard maps the city has produced. At the Owase Fishery Association Office, Toshinori Yamanishi, head of the Kawaramachi voluntary disaster management group, spoke to them about his experience of the 1944 Tonankai Earthquake Tsunami as well as his group's tsunami countermeasures.

Walking back from the port to the disaster management center, they worked on the "Town Watching" exercise and discussed their findings from the day's training at the hotel.

On the morning of July 2, each team will present discussion results at the disaster management center to conclude the training in Owase. The group will be heading for the next training site, Kushimoto Town in Wakayama Prefecture.

[Photo]

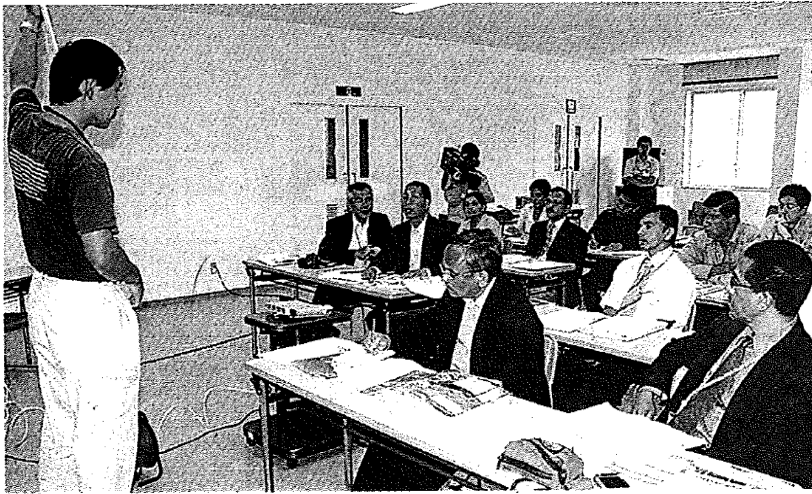
The trainees from four Indian Ocean countries take a full view of the downtown Owase as part of the on-site training on tsunami countermeasures (July 1; Owase Astronomical Observatory)

2008年7月2日(水)

地震津波

# 住民に情報伝達大事

スマトラ沖  
地震被災国 尾鷲市の対策学ぶ



市職員らから防災について説明を受ける研修生＝尾鷲市防災センターで

二〇〇四年のスマトラ、モルディブ、スリランカの十一人。地震を受けた国の政府関係者が一日、尾鷲市役所を訪れ、市の地震津波対策の現状を学んだ。インド、インドネシ

で六月上旬に来日。研修生として各地の自治体を回っている。一行は市防災センターで、市の防災の概要を学んだ。担当職員は「防災では住民への情報伝達が最も大事」と訴え、防災行政無線や緊急地震速報などを説明。この後、川原町自主防災会の山西敏徳会長が一九四四（昭和十九）年の東南海地震津波の被害状況を講義した。同市での研修は二日間で、市の担当者らと災害危険箇所をまとめたタウンマップを

（鈴木龍司）

Chunichi Shimbun  
Wednesday, July 2, 2008

## Communicating Information, Most Important

Officials from Indian Ocean countries are visiting Owase to learn tsunami countermeasures

A group of government officials from countries which suffered devastating damage from the 2004 Off Sumatra Earthquake Tsunami are visiting the Owase City Hall on July 1<sup>st</sup> to 2<sup>nd</sup> to learn Owase's earthquake-tsunami countermeasures.

The officials are eleven people in total from India, Indonesia, the Maldives and Sri Lanka. They are currently participating in a training course organized by the Public Works Research Institute (Tsukuba City, Ibaraki) to learn disaster countermeasures in Japan, one of the most advanced countries in earthquake and tsunami studies. They came to Japan in the early June and are visiting several municipalities throughout the country to see and learn about how they prepare for the next possible disasters.

In Owase, the group first went to the Owase Disaster Management Center and attended a lecture outlining the city's disaster management. A city official emphasized the importance of information communication to residents in terms of disaster management and explained about the city's disaster management radio communications systems and emergency earthquake news bulletins. Also, Toshinori Yamanishi, head of the Kawara-machi voluntary disaster management group, spoke to them about the damage caused by the 1944 Tonankai Earthquake Tsunami.

They are scheduled to make a town map with the Owase City officials to show its residents potentially dangerous spots in case of disaster. They will stay in the city until tomorrow.

[Photo]

An Owase city official explains to the trainees about the city's tsunami countermeasures. (the Owase disaster management center)

平成20年(2008年)7月2日 水曜日 (12)

# 4カ国の防災対策官 が「錦タワー」を視察

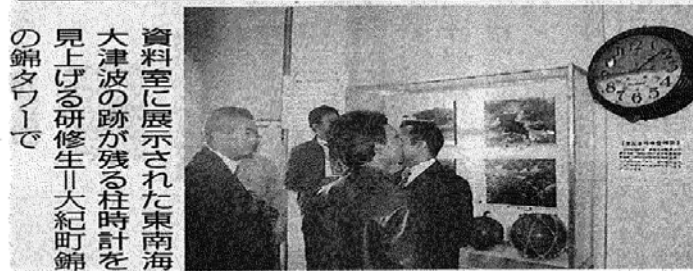
大紀町

【度会郡】独立行政法人・土木研究所(旧建設省土木研究所)は一日、インド洋大津波で被災したインド、インドネシア、モルディブ、スリランカ四カ国の防災対策行政官十一人の研修の一環で、大紀町錦地区を訪れた。各国の行政官らは、錦地区住民の防災意識の高さに興味を引かれていた。

一行は、大紀町錦支所で津波対策の説明を受けた後、住民の津波避難用に建設された「錦タワー」を視察。研修生はいずれも、各国の防災センター長など上級行政官で、土木研究所・田中茂信上席研究員らの説明に熱心に耳を傾けた。

田中さんは「住民の防災意識を高めている市町村の取り組みに、一番興味があるようだ」と話していた。

土木研究所は、各国の研修生を六週間の予定で日本に招き、うち一週間は、大紀町、尾鷲市など紀伊半島各地を訪れる予定という。



資料室に展示された東南海大津波の跡が残る柱時計を見上げる研修生。大紀町錦の錦タワーで。

Ise Shimbun  
Wednesday, July 2, 2008

## Four-Nation Disaster Management Officials Visit Nishiki Tower

A group of eleven disaster management officials from India, Indonesia, the Maldives and Sri Lanka visited the Nishiki district of Taiki Town on July 1 as part of the Comprehensive Tsunami Disaster Prevention Training Course organized by the Public Works Research Institute (PWRI, located in Tsukuba, Ibaraki). The officials participating in this training course are all senior administrators back in their home countries. They were especially impressed with Nishiki residents' strong awareness towards disaster mitigation.

In the Nishiki district, the group visited the Nishiki Tower, constructed as a temporary evacuation shelter for residents, after receiving a lecture outlining Nishiki's tsunami countermeasures at the

Nishiki branch office of Taiki Town. They earnestly listened to explanations by Shigenobu Tanaka, team leader of the International Centre for Water Hazard and Risk Management (ICHARM) of PWRI, and other staff.

Tanaka said, "They are particularly interested in how municipalities like Taiki Town promote public awareness toward disaster mitigation."

In this training course, PWRI invited those disaster management officials to Japan for six weeks. They will spend a week visiting several places in Kii Peninsula, such as Taiki Town and Owase City.

[Photo]

A trainee looks at the clock exhibited at the museum which shows a trace marked by a major tsunami in the past. (Nishiki Tower at Nishiki District, Taiki Town)

04年インド洋大津波で被害

## 4カ国政府関係者ら 尾鷲で総合防災研修

04年のインド洋大津波で被害を受けた4カ国の政府関係者らが1日から尾鷲市で津波対策研修に取り組んでいる。2日まで、11日までに約1カ月半にわたって日本の各地で行われ

る「総合津波防災研修」の一環。

研修は独立行政法人土木研究所の水災害・リスクマネージメント国際センター(茨城県つくば市)が国連に提案して実現した。尾鷲市での研修にはインド、インドネシア、モルジブ、スリランカから政府関係者ら11人が参加した。

参加者は市防災センターで過去の災害写真や大津波シミュレーションの映像などを見た後、津波対策の現状を学習した後、防災マップを手にタウンウォッチングをし、避難路や避難場所を確認した。港では防潮扉などを見て回り「海岸通りにいくつ防潮扉があるのか」「誰が閉めるのか」など市の関係者に質問していた。

インドから参加の外務省職員、ウジュワル・クマルさん(36)は「防災マップ、津波のシミュレーションなどが充実しており、防災に対する市民意識の高いことが印象に残った」と話していた。

【七見憲二】



尾鷲市の地形について把握する津波防災研修生ら  
—尾鷲市防災センターで

Mainichi Shimbun  
July 2, 2008

### Four-Nation Government Officials Visit Owase for Tsunami Countermeasures

A group of government officials from four countries which suffered devastating damage from the 2004 Off Sumatra Earthquake Tsunami are visiting the Owase City on July 1<sup>st</sup> to 2<sup>nd</sup> as part of the one-and-half-month Comprehensive Tsunami Disaster Prevention Training Course from June 3 to July 11.

The training course was proposed to the United Nations and implemented by the International Centre for Water Hazard and Risk Management (ICHARM) of the Public Works Research Institute (located in Tsukuba, Ibaraki). A total of eleven people from India, Indonesia, the Maldives and Sri Lanka are participating.

In Owase, the participants visited the city's disaster management center and had an

opportunity to look at photographs of past disasters and simulations of possible major tsunamis. They also conducted a "Town Watching" exercise, walking around parts of the city to check evacuation routes and sites with a disaster prevention map in their hands. In the harbor area, they checked tsunami protection gates and other structures, asking city officials many questions concerning the number of such gates along the coastal street and who manages the gates in case of tsunami.

Ujjwal Kumar, a foreign ministry official from India, commented after looking at Owase's tsunami countermeasures, "The city is well prepared with disaster prevention maps, tsunami simulations and other tools. I was really impressed with residents' strong awareness towards disaster mitigation."

[Photo]

The trainees look at the topography of Owase City. (Owase disaster management center)

## Reference 13

### Agenda of Closing Ceremony



United Nations  
International Strategy for Disaster Reduction



European Union



## **Closing Ceremony of “Comprehensive Tsunami Disaster Prevention Training Course”**

Date: 10<sup>th</sup> July, 2008 (Thu) 11:00-11:45

Venue: Special Conference Room on the 2<sup>nd</sup> floor of PWRI main building

Participant:

Trainees 11members

### **ICHARM**

(International Centre for Water Hazard and Risk Management u/a UNESCO)

Dr. Kuniyoshi Takeuchi, Director

Dr. Jayawardena Amithirigala, Research and Training Advisor

Mr. Akira Terakawa, Deputy Director

Mr. Shigenobu Tanaka, Team Leader

### **PWRI (Public Works Research Institute)**

Dr. Tadahiko Sakamoto, Chief Executive

Mr. Shinsuke Setoshita,

Head of Planning and Research Administration Department

### **UN/ISDR**

Dr. Yuichi Ono, Programme Officer

### **JICA Tsukuba (Japan International Cooperation Agency)**

Mr. Kenji Kaneko, Director of Training & Partnership Program Division

Programme:

1. Opening Remarks
2. Introduction of the guests and officials
3. Congratulatory Address
  - Address by PWRI
  - Address by UN/ISDR
  - Address by JICA
4. Conferment of Certificate
5. Conferment of Awards
6. Address by the representatives of each country
7. Closing Remarks

Reference 14

Template of Certificate



United Nations  
International Strategy for Disaster Reduction



## *Certificate*

*This is to certify that*

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*has successfully completed*

***“Comprehensive Tsunami Disaster Prevention Training Course”***

*held at Tsukuba, Japan from 2<sup>nd</sup> June 2008 to 11<sup>th</sup> July 2008,*

*organized by*

***International Centre for Water Hazard and Risk management u/a  
UNESCO (ICHARM), Public Works Research Institute (PWRI),***

*under the project*

***“Building Resilience to Tsunamis in the Indian Ocean”  
being implemented UN/ISDR,***

*with the funds from  
European Union*

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Dr. Kuniyoshi TAKEUCHI,  
Director of ICHARM, JAPAN

Date: 10<sup>th</sup> July 2008