



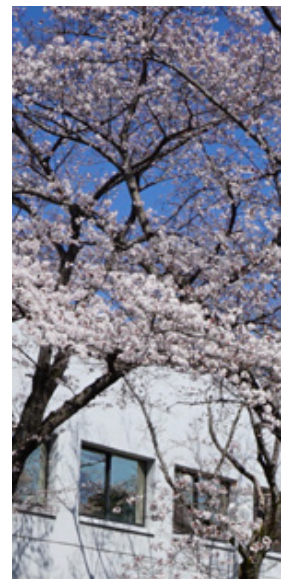
Building Research Institute, JAPAN

国立研究開発法人 建築研究所

<http://www.kenken.go.jp/>

# IISEE

## International Institute of Seismology and Earthquake Engineering



Building a sustainable future,  
Building an earthquake resilient world,  
through International Training Programs



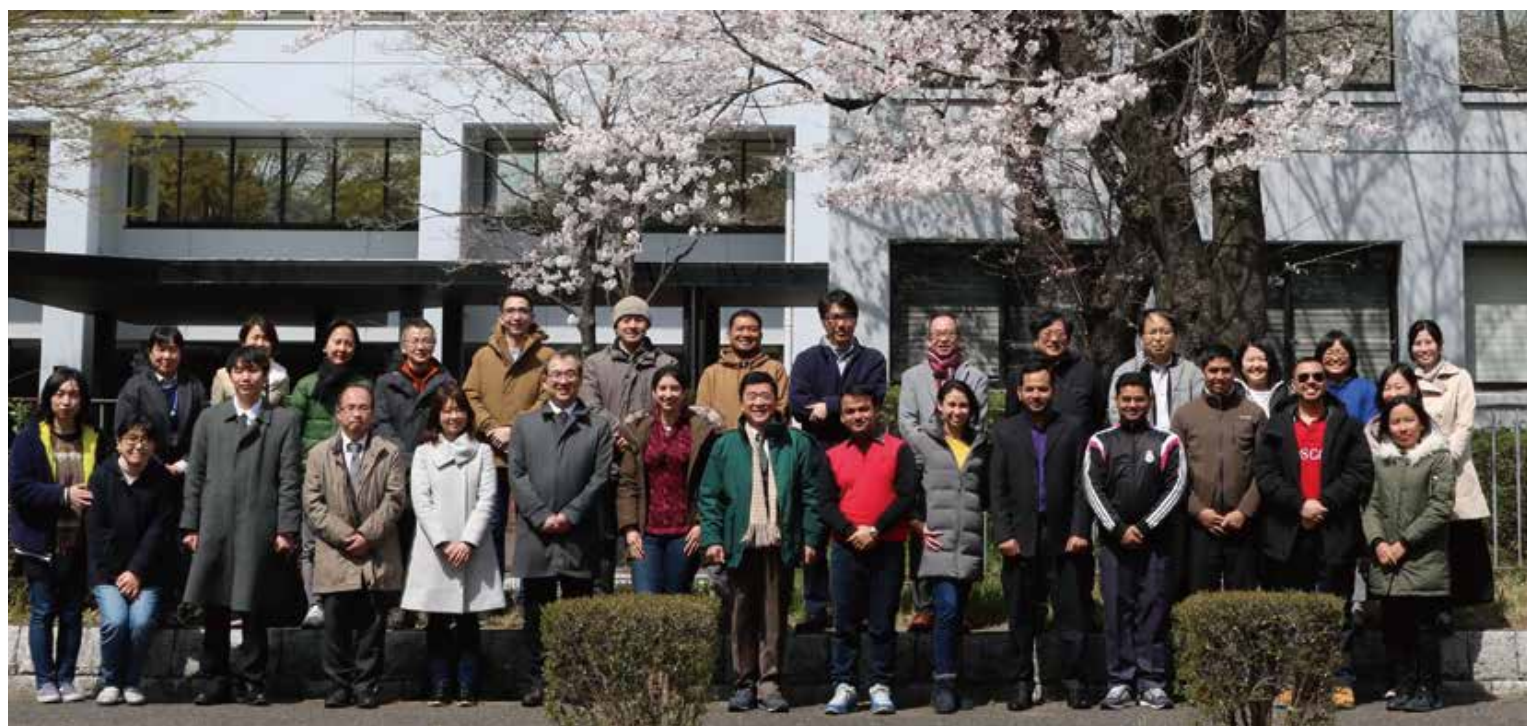
# FOREWORD

The International Institute of Seismology and Earthquake Engineering (**IISEE**) in the Building Research Institute has conducted various training on seismology, earthquake engineering, and tsunami disaster prevention in collaboration with the Japan International Cooperation Agency (JICA) for more than **60 years**.

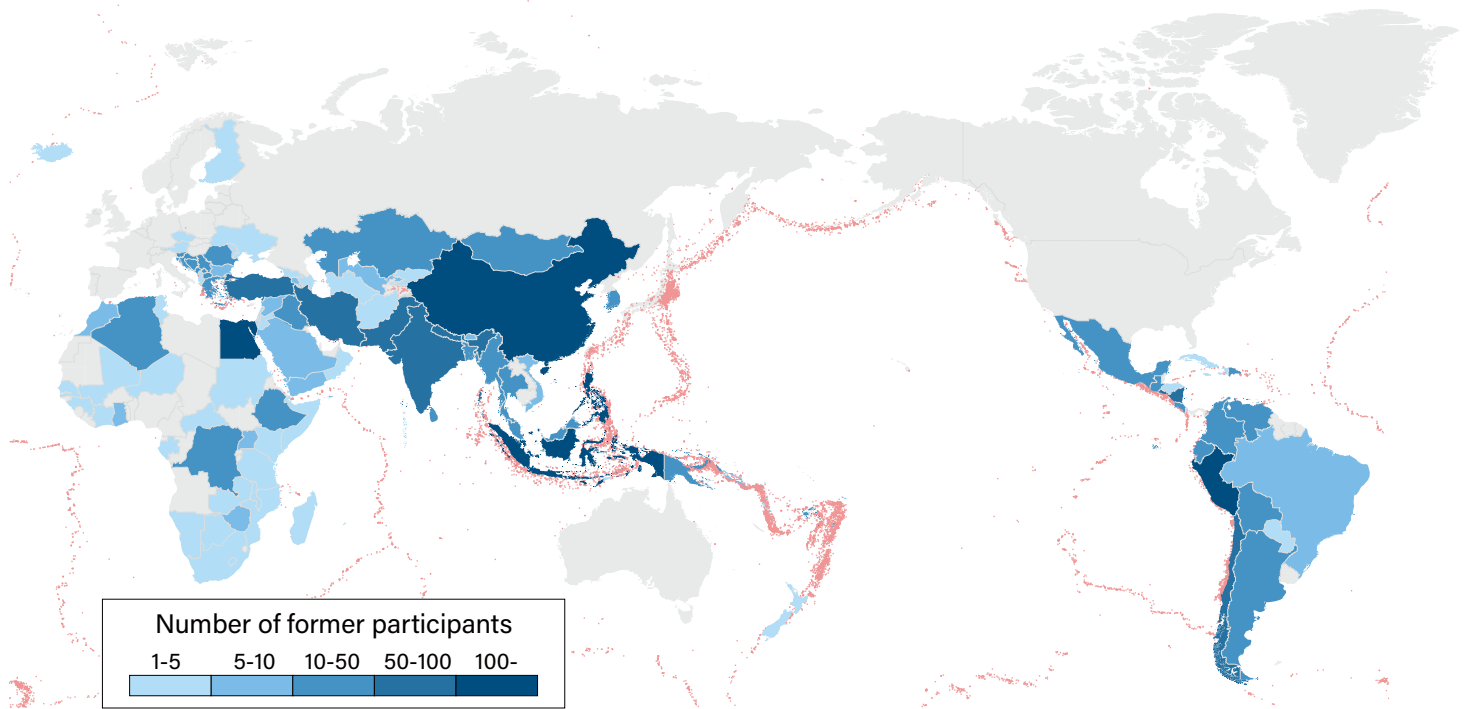
We have trained **1,968 participants** from **105 countries and regions** as of March 2022. During this time, we have received a lot of support and cooperation from universities, national research institutes, private design and construction companies, and other governmental and private organizations that agree with the training programs' purpose and vision. We are confident that we have provided extremely high-quality training to young researchers worldwide thanks to their support and cooperation. Many of the ex-participants who graduated from our training course play a leading role in earthquake and tsunami disaster mitigation in their home countries.

The IISEE will continuously conduct international earthquake engineering training to contribute to earthquake and tsunami disaster mitigation globally as much as possible. We will make the utmost efforts to provide more consummate training content while incorporating an international perspective by collaborating with overseas research institutes and utilizing human networks with former participants.

**Dr. Bunichiro Shibazaki**  
*Director of IISEE*



# IISEE Achievements in Numbers



Red dots: Epicenters of > M5 earthquakes from 2010 to 2020 (source: U.S. Geological Survey)

**1968**  
Participants

**105**  
Countries

**317**  
Institutions  
since 2000

**315**  
Master's degrees  
since 2005

## History of IISEE Training Course

- 1960** The 1st international training in seismology and earthquake engineering was conducted at the University of Tokyo
- 1961** The 2nd international training was held at Waseda University
- 1962** IISEE was established in the Building Research Institute (BRI), Ministry of Construction. IISEE took over the training course from Waseda University (from September 1962)
- 1963** UNESCO participated in the joint training project (1963-1972)
- 1972** IISEE was operated under the Japanese Governments Technical Cooperation Program
- 1973** BRI/IISEE moved to Tsukuba from Tokyo
- 1995** Global Seismological Observation Course was launched
- 2005** One-year training program was certified as a master program of the National Graduate Institute for Policy Studies (GRIPS)
- 2006** Tsunami Disaster Mitigation Course was launched
- 2009** China Seismic Building Course (2009-2012) was launched
- 2015** Latin American Earthquake Engineering Course was launched



2019-2020 Regular course

# Organization

The IISEE is the institute for research and training established in the Building Research Institute. We have seismologists, research engineers, as well as administration staff members to manage the training courses. Some guest researches are supporting us to implement the training.



## IISEE Training Course

IISEE training courses are classified in regular (one-year) course and short-term course.

Training Course	Field	Participants	Period	Commercement
<b>Regular</b>	Seismology	5	1 year (Oct.-Sep.)	1960
	Earthquake Engineering	10		
	Tsunami Disaster Mitigation	5		
<b>Short-Term</b>	Latin American Earthquake Engineering	20	2 months	2014
	Global Seismological Obaservation	10	2 months	1995
<b>Individual</b>	Seismology/ Earthquake Engineering/ Tsunami	several	Upon request	1968

# Regular Course

IISEE offers three one-year courses; seismology, earthquake engineering, and tsunami disaster mitigation.

## Seismology Course



Course leaflet

Seismology course provides advanced knowledge and technology concerning earthquakes and seismic hazards. Participants belong to the organizations responsible for seismic observation and earthquake disaster mitigation in their countries. Lectures such as **seismic hazard, risk evaluation** and **earthquake disaster mitigation policy-making** are designed to be useful for the participants after returning to their countries. Practical training, study trips, and participation in international conferences are also included in the program.



### Curriculum

Earthquake observation	Crustal deformation
Theory of seismic waves	Plate tectonics
Local earthquake analysis	Seismic tomography
Focal mechanism/moment tensor	Strong ground motion
Earthquake source	Microtremor observation
Earthquake early warning	Seismic microzonation



## Earthquake Engineering Course



Course leaflet

Earthquake Engineering course is designed to contribute to the reduction of structural damages by earthquakes and human suffering caused by those damages in developing countries. Participants are mainly researchers, engineers from governments and universities. The curriculum consists of basic studies (**structural analysis, structural dynamics, earthquake resistant structures for reinforced concrete construction, steel structures**) and the latest studies (**seismic isolation, response control technique, seismic performance design**). These are systematically provided through lectures, practices and study trips.

### Curriculum

Nonlinear earthquake response analysis and damage evaluation
Seismic isolation and response control techniques
Seismic performance design method
Seismic evaluation and retrofitting techniques of existing structures
Post-earthquake damage inspection method
System identification and health monitoring
Effects of surface geology and soil structure interaction
Geotechnical engineering and foundation structures
Strategies for earthquake disaster mitigation and recovery



# Tsunami Disaster Mitigation Course



Course leaflet

Tsunami Disaster Mitigation Course was established after the tsunami disaster generated by the earthquake off Sumatran in 2004. Lectures provide advanced education and technology for dealing with earthquakes and tsunamis. The participants will apply and disseminate their acquired knowledge and techniques for tsunami disaster mitigation and introduce tsunami hazard evaluation and early warning systems in their countries as specialists.



## Curriculum

- Seismology for tsunami (same with Seismology course)
- Tsunami generation and propagation
- Tsunami simulation, inundation modeling
- Tsunami evacuation planning and simulation
- Tsunami observation
- Tsunami early warning system

## Individual Study

In the last half of the one-year course, participants work on their own research projects. IISEE researchers or experts at other institutions will support the projects as supervisors/advisors. The participants are finally required to submit the research report and make presentations, and broaden and deepen the discussion with IISEE researchers and course participants.

In case the participant belongs to the National Graduate Institute for Policy Studies (GRIPS), the report will be examined as a master thesis.



### Examples



abstracts



presentations



# Short-term Course

IISEE also offers two-month courses focusing on specific themes.

## Global Seismological Observation Course

Global Seismological Observation Course is conducted as part of the Japan's contributions to the world's nuclear disarmament in cooperation with the Japan Meteorological Agency and JICA. The participants are expected to play an important role in the CTBT and IMS. The lectures are seismological observation technologies for monitoring nuclear tests and earthquakes, and data analytical techniques to discriminate nuclear tests from natural earthquakes.



## Latin American Earthquake Engineering Course

Latin American Earthquake Engineering Course is conducted for engineers and government administrators in Latin American Countries. The participants learn earthquake-resistant designs and construction, seismic diagnosis and seismic reinforcements throughout the course. The official language of all classes is Spanish. The last two weeks of the training is conducted in the Central American University and other facilities in El Salvador.



## Study Trips

Participants in both regular and short-term courses will visit research facilities, relevant administrative organizations, as well as damaged areas by recent earthquakes/tsunamis to learn disaster prevention measures, disaster recovery policies, and natural physical phenomena.



# Activity Examples of Former Participants

The former participants of the IISEE training are making efforts to mitigate earthquake and tsunami disasters at government agencies, national research institutes, universities, etc. Here are examples of their activities in three countries in the last decade.

## Mongolia

Six scientists from **the Research Center for Astronomy and Geophysics, Mongolian Academy of Sciences** have participated in the IISEE regular course since 2010. One of the former participants obtained his Ph. D. degree in France and other three participants are currently enrolled in doctoral programs.

## Bangladesh

Twelve engineers from **the Public Works Department** and two researchers from **the House and Building Research Institute** participated mainly in conjunction with the SATREPS project by the JST-JICA. Seismic diagnosis and retrofit of vulnerable buildings have become an urgent and severe issue. The former participants are now trying to solve the problems and contribute to the international activities. One of them came to Japan again and developed his original seismic diagnosis method at Tohoku University and obtained his Ph.D.

## Nicaragua

A technical cooperation project "Project for Strengthening of Capacity of the Central American Tsunami Advisory Center" had been conducted from October 2016 to October 2019, and **the Central American Tsunami Advisory Centre (CATAC)** was established in Nicaragua. Six main staff members at **the Nicaraguan Institute of Territorial Studies (INETER)** participated the IISEE regular course and they made contributions to the CATAC establishment.

## TECHNICAL COOPERATION

IISEE is following up former participants and conducting collaborative researches throughout international technical cooperation programs (ex. SATREPS).



Kathmandu, Nepal

## IISEE REUNION

When a major international conference is held, IISEE has a reunion to meet IISEE alumni and exchange information and deepen friendship.



16WCEE@Santiago, Chile



IAG-IASPEI 2017@Kobe, Japan

## IISEE ONLINE SEMINAR

IISEE holds online seminars (irregular basis) for IISEE alumni to discuss research topics.



# Master's Program

Owing to the partnership with **the National Graduate Institute for Policy Studies (GRIPS)**, one-year training course participants are conferred the degrees of **"Master of Disaster Management"** certified by GRIPS and BRI/IISEE\*. With the master's degree, they will devote their career to earthquake disaster mitigation in their respective countries.

\*Applicants must satisfy all requirements for entrance before admission application.



## IPRED

**International Platform for Reducing Earthquake Disasters (IPRED)** was established by UNESCO in 2007. IPRED aims to promote collaboration in research, training and education in the fields of seismology and earthquake engineering. IISEE plays as the Centre of Excellence supported by UNESCO and Ministry of Land, Infrastructure, Transport and Tourism, Japan.

The main goals are;

- (1) exchange information and propose plans for reducing earthquake disasters, especially on buildings and housing.
- (2) address policy-relevant issues related to the reduction of earthquake disaster risks and implementation of the Hyogo Framework for Action, including the formulation of recommendations on priorities of the International Strategy for Disaster Reduction (ISDR).
- (3) establish a system to dispatch experts to earthquake stricken countries in order to carry out post-earthquake field investigations and draw lessons for future risk reduction, by utilizing the worldwide connection of the former IISEE participants.



IPRED11 in Bucharest, Rumania (June 2019)

## IISEE-net and Facebook

IISEE issues **monthly newsletters**, which can be accessed from the IISEE website ([iisee.kenken.go.jp](http://iisee.kenken.go.jp)). IISEE is also posting more information related to the training courses and recent research activities on **Facebook** ([fb.com/IISEE.Japan](https://fb.com/IISEE.Japan)).

We are looking forward to your comments, likes, and shares!



Newsletter



Facebook

# Main Target Persons

The ISEE training courses are conducted by BRI and JICA as part of Japan's ODA program. The target persons are employees in government agencies, research institutes, or universities with public interest in seismology, earthquake engineering, or mitigation of tsunami disasters.

For details, please see the JICA website:

<https://www.jica.go.jp/english/faq/faq.html#02>

# Voices from Former Participants

Here are some voices from recent ISEE course participants.

*I learned a lot from this course about seismic phenomenon and determination procedure, which is very helpful and fruitful for our organization, as well as our entire country. I also came to know about Japanese people and culture which gave me more enjoyable moments. Japanese authority gave us chance to visit many historical and beautiful places in Japan during my study.*



**Md. Mominur Rahman**

Bangladesh Meteorological  
Department, Bangladesh  
(2018-2019 Seismology course)

*The opportunity to study at ISEE has brought a new height to my professional life. The latest technology and excellent teaching style have played a great role in acquiring theoretical and practical knowledge. It has deepened my positive thinking towards disaster management policy. Of course, I will make an invaluable contribution to this field in the future.*



**Praveen Pratap Adhikari**

Department of Urban Development and  
Building Construction, Nepal  
(2018-2019 Earthquake Engineering  
Course)

*I spent precious and unforgettable time in Japan because we had invaluable lectures by outstanding professors from ISEE as well as universities in Japan. It has improved our knowledge of how to mitigate disasters caused by earthquakes. I hope the ISEE program offers invaluable knowledge and experiences to developing countries forever.*



**Ngun Za lang**

Ministry of Transport and  
Communications, Myanmar  
(2018-2019 Seismology course)

*The opportunity of participating in the training course for me was wonderful and I learned many things. Also I had a chance to know how Japan has implemented advanced techniques and strategies in this field. All of this knowledge is very important for people like me who work in the process of tsunami detection and risk assessment.*



**Laura Gonzalez**

General Maritime Directorate, Colombia  
(2018-2019 Tsunami course)

# Let's join IISEE course!



## Practical

You can gain practical skills and advanced knowledge useful for daily work and research. IISEE researchers will support your study throughout the course.



## Cross-cutting

IISEE has experts in a wide range of earthquake and tsunami sciences, and earthquake engineering fields. You can expand your knowledge by exchanging and discussing ideas.



## Master's Degree\*

IISEE supports your career advancement with a master's degree program.

\* Regular (one-year) course only

\* Applicants must satisfy all requirements before enrollment.



## Global Network

IISEE alumni consisting of more than 1,900 people from 105 countries will expand your social network and make your future life productive.

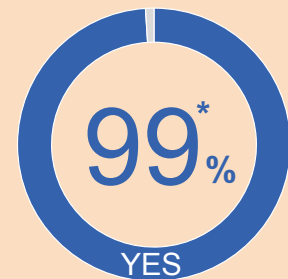
# Study hard, Enjoy life!



You will have lots of chances to contact with Japanese culture, nature, and people during your stay. Don't forget to enjoy your life in Japan!



## Q. Was IISEE course beneficial?



## Q. How was the course useful?

for daily work	68 %
for promotion	18 %
for PhD application	11 %
others	3 %

\* Based on the questionnaire conducted for 126 former participants participated between 2000 and 2017.



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