

WITH RECOMMENDATION OF THE
PHILIPPINE INSTITUTE OF CIVIL ENGINEERS, INC.

- and -

THROUGH THE ASSISTANCE OF THE
JAPAN SOCIETY OF CIVIL ENGINERS

STUDY TOUR GRANT 2026 REPORT

Submitted by:

Engr. HARIS B. UKAT, MSCE
PHILIPPINE DELEGATE, STG 2026
LDRRMO V
LGU Sultan Sa Barongis, Maguindanao Del Sur, BARMM
PHILIPPINE INSTITUTE OF CIVIL ENGINEERS, INC.
PICE Cotabato City-Maguindanao Chapter

August 30 – September 4, 2026

Hokkaido, Japan



Supported by the
International Scientific Exchange Fund (ISEF)

Table of Contents

JSCE Study Tour Grant 2026 Report

About JSCE 3
About the Study Tour Grant (STG) 3
Applying for the STG 3
Participants of the STG 4
STG Itinerary 6
Executive Summary 7
Program Profile 7
Objectives 8
Official Program Summary 8
Program Narrative 8
Arrival and First Impressions of Sapporo 8
Orientation and Technical Visit to CERI 9
Technical Tour and Observations in Otaru 12
JSCE Annual Meeting and Disaster Prevention Facilities 13
Workshop Symposium and Research Presentation 16
Return Travel 19
Key Technical and Professional Outcomes 20
Application to Research and Public Service 20
Ala River Basin Research 20
Disaster Risk Reduction in Sultan Sa Barongis 20
Infrastructure Management 21
Knowledge Sharing through PICE 21
Conclusion 21
Acknowledgment 22

About JSCE

Established in 1914, the Japan Society of Civil Engineers (JSCE) advances civil engineering through research, professional exchange, technical standards, education, and public engagement. Its work connects engineers, researchers, students, institutions, and international partners in support of safe, sustainable, and resilient infrastructure. Through its Annual Meeting, technical committees, publications, international programs, and professional networks, JSCE promotes the responsible application of civil engineering knowledge for society.

About the Study Tour Grant (STG)

The JSCE Study Tour Grant is supported by the International Scientific Exchange Fund and has been implemented since 1992. It is designed for young civil engineers and civil engineering students nominated by societies that have an Agreement of Cooperation with JSCE. During the approximately one-week program, participants visit project sites and research institutes, meet Japanese engineers and academics, exchange ideas with fellow international delegates, attend JSCE activities, and share their research. Participants are also expected to report the knowledge and experience gained to JSCE and to their nominating organizations.

Applying for the STG

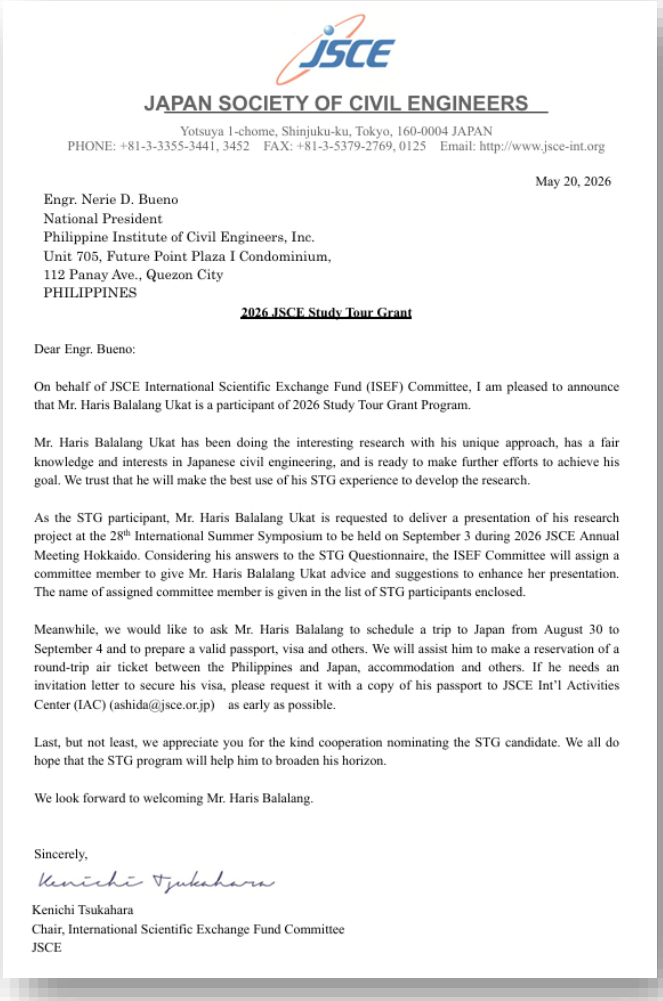
Applications for the JSCE Study Tour Grant (STG) are generally coordinated through a professional society with an Agreement of Cooperation with JSCE. Philippine applicants should monitor the official call and instructions issued by the Philippine Institute of Civil Engineers (PICE) and submit the required nomination and supporting documents within the announced period. These may include an application form, curriculum vitae, research information or abstract, and an endorsement from the nominating organization. Applicants should clearly explain how their research and professional experience relate to the program and how they intend to apply the knowledge gained upon returning home. As eligibility criteria, documentary requirements, and deadlines may change, prospective applicants should always consult the current JSCE STG notice and PICE advisory.

In my case, I was endorsed to the PICE National Office by the PICE Cotabato City–Maguindanao Chapter, under the leadership of our Chapter President, Engr. Esmael D. Ganduan. PICE National subsequently submitted its nominations to JSCE, which conducted the final selection of the Philippine representative.

Following this process, I was honored to receive, through PICE, a letter from JSCE signed by Kenichi Tsukahara, Chair of the International Scientific Exchange Fund Committee, confirming my selection to represent the Philippines in the 2026 Study Tour Grant. I also received an official communication signed by Engr. Nerie D. Bueno, National President of the Philippine Institute of Civil Engineers, Inc. This opportunity was made possible through the

support and endorsement of my local chapter, the nomination of PICE National, and the trust extended to me by JSCE.

Official references: JSCE About page — https://www.jsce-int.org/about | JSCE Study Tour Grant page — https://www.jsce-int.org/event/study



JAPAN SOCIETY OF CIVIL ENGINEERS

Yotsuya 1-chome, Shinjuku-ku, Tokyo, 160-0004 JAPAN
PHONE: +81-3-3355-3441, 3452 FAX: +81-3-5379-2769, 0125 Email: http://www.jsce-int.org

May 20, 2026

Engr. Nerie D. Bueno
National President
Philippine Institute of Civil Engineers, Inc.
Unit 705, Future Point Plaza I Condominium,
112 Panay Ave., Quezon City
PHILIPPINES

2026 JSCE Study Tour Grant

Dear Engr. Bueno:

On behalf of JSCE International Scientific Exchange Fund (ISEF) Committee, I am pleased to announce that Mr. Haris Balalang Ukat is a participant of 2026 Study Tour Grant Program.

Mr. Haris Balalang Ukat has been doing the interesting research with his unique approach, has a fair knowledge and interests in Japanese civil engineering, and is ready to make further efforts to achieve his goal. We trust that he will make the best use of his STG experience to develop the research.

As the STG participant, Mr. Haris Balalang Ukat is requested to deliver a presentation of his research project at the 28th International Summer Symposium to be held on September 3 during 2026 JSCE Annual Meeting Hokkaido. Considering his answers to the STG Questionnaire, the ISEF Committee will assign a committee member to give Mr. Haris Balalang Ukat advice and suggestions to enhance her presentation. The name of assigned committee member is given in the list of STG participants enclosed.

Meanwhile, we would like to ask Mr. Haris Balalang to schedule a trip to Japan from August 30 to September 4 and to prepare a valid passport, visa and others. We will assist him to make a reservation of a round-trip air ticket between the Philippines and Japan, accommodation and others. If he needs an invitation letter to secure his visa, please request it with a copy of his passport to JSCE Int'l Activities Center (IAC) (ashida@jsce.or.jp) as early as possible.

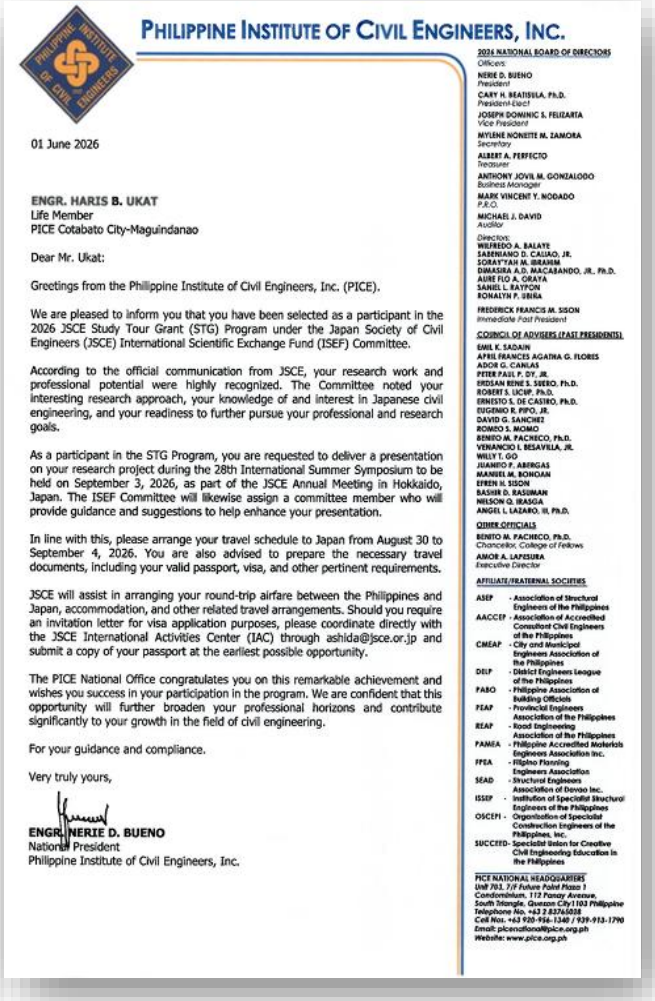
Last, but not least, we appreciate you for the kind cooperation nominating the STG candidate. We all do hope that the STG program will help him to broaden his horizon.

We look forward to welcoming Mr. Haris Balalang.

Sincerely,

Kenichi Tsukahara
Chair, International Scientific Exchange Fund Committee
JSCE

Notification Letter from JSCE - Chair, International Scientific Exchange Fund Committee



PHILIPPINE INSTITUTE OF CIVIL ENGINEERS, INC.

01 June 2026

ENGR. HARIS B. UKAT
Life Member
PICE Cotabato City-Maguindanao

Dear Mr. Ukat:

Greetings from the Philippine Institute of Civil Engineers, Inc. (PICE).

We are pleased to inform you that you have been selected as a participant in the 2026 JSCE Study Tour Grant (STG) Program under the Japan Society of Civil Engineers (JSCE) International Scientific Exchange Fund (ISEF) Committee.

According to the official communication from JSCE, your research work and professional potential were highly recognized. The Committee noted your interesting research approach, your knowledge of and interest in Japanese civil engineering, and your readiness to further pursue your professional and research goals.

As a participant in the STG Program, you are requested to deliver a presentation on your research project during the 28th International Summer Symposium to be held on September 3, 2026, as part of the JSCE Annual Meeting in Hokkaido, Japan. The ISEF Committee will likewise assign a committee member who will provide guidance and suggestions to help enhance your presentation.

In line with this, please arrange your travel schedule to Japan from August 30 to September 4, 2026. You are also advised to prepare the necessary travel documents, including your valid passport, visa, and other pertinent requirements.

JSCE will assist in arranging your round-trip airfare between the Philippines and Japan, accommodation, and other related travel arrangements. Should you require an invitation letter for visa application purposes, please coordinate directly with the JSCE International Activities Center (IAC) through ashida@jsce.or.jp and submit a copy of your passport at the earliest possible opportunity.

The PICE National Office congratulates you on this remarkable achievement and wishes you success in your participation in the program. We are confident that this opportunity will further broaden your professional horizons and contribute significantly to your growth in the field of civil engineering.

For your guidance and compliance.

Very truly yours,

ENGR. NERIE D. BUENO
National President
Philippine Institute of Civil Engineers, Inc.

2026 NATIONAL BOARD OF DIRECTORS
Officers
NERIE D. BUENO — President
CARY H. BEATISSILA, Ph.D. — President-Elect
JOSEPH DOMINIC S. FELIZARTA — Vice President
MYLENE NONETTE M. ZAMORA — Secretary
ALBERT A. PERFECTO — Treasurer
ANTHONY JOVIL M. GONZALOGO — Business Manager
MARK VINCENT Y. NODADO — P.R.O.
MICHAEL J. DAVID — Auditor
Directors:
WILFREDO A. BALAYE
SABENIANO D. CALIAO, JR.
SORAYYAH M. IBRAHIM
DIMASIRA A.D. MACABANDO, JR., Ph.D.
AURE FLO A. GRAYA
SAHIEL L. RAYPON
RONALYN P. UBIÑA
FREDERICK FRANCIS M. SISON — Immediate Past President

COUNCIL OF ADVISERS (PAST PRESIDENTS)
EMIL K. SADAIN
APRIL FRANCES AGATHA G. FLORES
ADOR G. CANLAS
PETER PAUL P. DY, JR.
ERDSAN RENE S. SUERO, Ph.D.
ROBERT S. LICHP, Ph.D.
ERNESTO S. DE CASTRO, Ph.D.
EUGENIO R. PIPO, JR.
DAVID G. SANCHEZ
ROMEO S. MOMO
BENITO M. PACHECO, Ph.D.
VENANCIO I. BESAVILLA, JR.
WILLY T. GO
JUANITO P. ABERGAS
MANUEL M. BONOAN
EFREN H. SISON
BASHIR D. BASUMAN
NELSON Q. IRASGA
ANGEL L. LAZARO, III, Ph.D.

OTHER OFFICIALS
BENITO M. PACHECO, Ph.D. — Chancellor, College of Fellows
AMOR A. LAPESURA — Executive Director

AFFILIATE/FRATERNAL SOCIETIES
ASEP - Association of Structural Engineers of the Philippines
AACCEP - Association of Accredited Consultant Civil Engineers of the Philippines
CMEAP - City and Municipal Engineers Association of the Philippines
DELP - District Engineers League of the Philippines
PABO - Philippine Association of Building Officials
PEAP - Provincial Engineers Association of the Philippines
REAP - Road Engineering Association of the Philippines
PAMEA - Philippine Accredited Materials Engineers Association Inc.
PPEA - Filipino Planning Engineers Association
SEAD - Structural Engineers Association of Davao Inc.
ISSEP - Institution of Specialist Structural Engineers of the Philippines
OSCEPI - Organization of Specialist Construction Engineers of the Philippines, Inc.
SUCCEED - Specialist Union for Creative Civil Engineering Education in the Philippines

PICE NATIONAL HEADQUARTERS
Unit 703, 7/F Future Point Plaza 1 Condominium, 112 Panay Avenue, South Triangle, Quezon City 1103 Philippine
Telephone No. +63 2 8376 6028
Cell Nos. +63 920-956-1340 / 939-913-1790
Email: picenational@pice.org.ph
Website: www.pice.org.ph

Official Letter from PICE National

Participants of the STG

The 2026 delegation brought together five participants from Bangladesh, Türkiye, Mongolia, the Philippines, and Myanmar. The research topics reflected the program's multidisciplinary scope, including bridge rehabilitation, seismic strengthening, structural behavior, river-basin management, and building retrofitting.

Country	Participant	Research Presentation
Bangladesh	**Engr. Md. Imran Hossain**	Rehabilitation of Deterioration Bridge Deck Slabs Using Lightweight Concrete and Glass Fiber-Reinforced Polymer Bars
Türkiye	**Ms. Selin Bazancir**	Parametric Analysis of Seismic Performance of RC Structures Strengthened with Fiber-Reinforced Polymers
Mongolia	**Ms. Khulan Baasansuren**	Investigation of Crack Formation in RC Basement Walls Due to Differential Foundation Settlement
Philippines	**Engr. Haris Balalang Ukat**	Impacts of Climate and Land Use/Land Cover Changes on Streamflow and Sediment Yield under Mitigation and Non-Mitigation Scenarios in Ala River Basin, Southern Philippines using SWAT+ Model
Myanmar	**Mr. Lin Htin**	Infill RC Wall Retrofitting for Irregular Reinforced Concrete Buildings Using Multi-objective Mathematical Optimization

The official JSCE 2026 STG page identifies the five delegates and their respective nominating societies.

STG Itinerary

The official itinerary covered arrival and orientation, three technical tours, the JSCE Annual Meeting, the Global Civil Engineer Workshop, the 28th International Summer Symposium, professional receptions, and return travel. The schedule below summarizes the activities undertaken by the Philippine delegate.

Date	Official Activities
30 August 2026 Sunday	Arrival at New Chitose Airport at 19:35; transfer to the hotel in Sapporo and initial welcome.
31 August 2026 Monday	STG orientation and lunch; Technical Tour 1 at the Civil Engineering Research Institute for Cold Region (CERI), including facility visits, demonstrations, question-and-answer session, and group photograph.
1 September 2026 Tuesday	Travel from Sapporo to Otaru; Otaru City Center visit; Technical Tour 2 at the Otaru Port Museum and Otaru Port breakwater; Otaru Bay Cruise; return to Sapporo.
2 September 2026 Wednesday	Participation in JSCE Annual Meeting activities; visit to Moerenuma Park; Technical Tour 3 at the River Disaster Prevention Museum and an Ishikari River flood-control facility; JSCE Welcome Reception at Sapporo Garden Palace.
3 September 2026 Thursday	Global Civil Engineer Workshop; 28th International Summer Symposium at Hokkai-Gakuen University / Hokkai School of Commerce; research presentation from 16:20 to 16:30; IAC Networking Reception.
4 September 2026 Friday	Hotel check-out and return travel via New Chitose Airport and Narita International Airport to Ninoy Aquino International Airport.

Source: Official JSCE Study Tour Grant Schedule, updated 18 August 2026. Activities and times were summarized for readability.

Executive Summary

This report documents my participation as the Philippine delegate to the Japan Society of Civil Engineers Study Tour Grant 2026 in Hokkaido, Japan, from 30 August to 4 September 2026. The program combined technical visits, professional discussions, an international symposium, and cultural observations. It allowed me to examine engineering practices related to river and sediment management, coastal protection, bridge durability, winter-road operations, flood control, and urban development.

The technical visits were closely connected to my research on the impacts of climate and land-use changes on streamflow and sediment yield in the Ala River Basin. They also provided practical lessons for my work in disaster risk reduction and management in Sultan sa Barongis, where recurring floods and sediment-related river changes affect communities, agriculture, and infrastructure.

The most important outcome was the opportunity to connect research with engineering practice. Physical simulations at the Civil Engineering Research Institute for Cold Region clarified how water and sediment interact within a river system. The visits to Otaru Port and the Ishikari River facilities showed how protective structures, monitoring, operation, and public awareness work together. Presenting my research at the JSCE 28th International Summer Symposium also allowed me to share a Philippine river-basin study with an international academic and engineering community.

Program Profile

Program	Japan Society of Civil Engineers Study Tour Grant 2026
Period	30 August to 4 September 2026
Location	Sapporo and Otaru, Hokkaido, Japan
Participant	Engr. Haris B. Ukat, MSCE, Philippine Delegate
Major venues	CERI, Otaru Port Museum, Moerenuma Park, Ishikari River Disaster Prevention Museum, Sapporo Education and Culture Hall, and Hokkai-Gakuen University
Schedule basis	Official JSCE Study Tour Grant Schedule updated 18 August 2026

Objectives

- To observe Japanese research facilities and engineering methods relevant to rivers, sediment, coastal structures, bridges, roads, and disaster prevention.
- To understand how technical research, infrastructure operation, monitoring, and public discipline contribute to safety and resilience.
- To present my research on streamflow and sediment yield in the Ala River Basin before an international audience.
- To exchange knowledge with civil engineers, researchers, students, and STG delegates from other countries.
- To identify lessons that may be adapted to Philippine river-basin management, local disaster risk reduction, and PICE knowledge-sharing activities.

Official Program Summary

Date	Official Program Activity
30 August 2026	Arrival at New Chitose Airport and transfer to Sapporo
31 August 2026	STG orientation and technical tour at the Civil Engineering Research Institute for Cold Region
1 September 2026	Otaru City visit, Otaru Port Museum, and Otaru Bay Cruise
2 September 2026	JSCE Annual Meeting, Moerenuma Park, Ishikari River disaster-prevention facilities, and Welcome Reception
3 September 2026	Global Civil Engineer Workshop, 28th International Summer Symposium, research presentation, and Networking Reception
4 September 2026	Return travel from New Chitose Airport to the Philippines

Program Narrative

Arrival and First Impressions of Sapporo

I arrived at New Chitose Airport on the evening of 30 August 2026 and traveled to Sapporo for hotel check-in. The journey provided my first view of Hokkaido's orderly transport system, clear directions, and well-maintained public facilities.

During my free time, I strolled through the streets of Sapporo at night and enjoyed the cool breeze, peaceful atmosphere, and vibrant city lights. It was a pleasant way to end the day while appreciating the beauty, cleanliness, and charm of Sapporo. The experience also showed how planning, pedestrian-friendly infrastructure, and careful management of shared spaces help create a safe and livable city.



Arrival at New Chitose Airport and transfer to Sapporo on 30 August 2026.



Arrived at Premier Hotel CABIN in Sapporo, Hokkaido



Perfect background of Sapporo TV Tower located right inside Odori Park



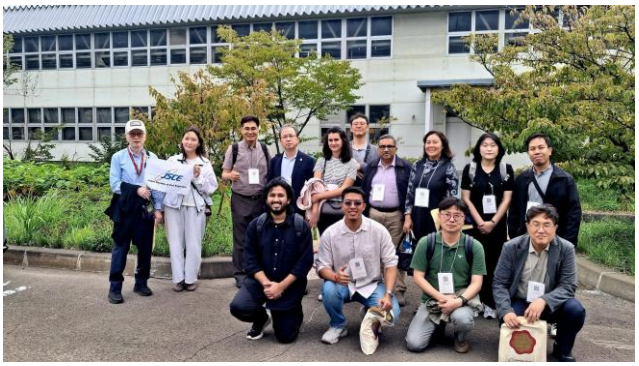
Walk in Sapporo and observation of the city's clean and orderly public spaces.

Orientation and Technical Visit to CERI

On 31 August, the delegates attended the STG orientation before proceeding to the Civil Engineering Research Institute for Cold Region in Sapporo. The visit included facility demonstrations, discussions with researchers, a question-and-answer session, and a group photograph.



STG orientation and introduction of the international delegates.



Group photograph during the technical visit to CERI in Sapporo.



Attending a technical lecture at the Civil Engineering Research Institute for Cold Region (CERI) in Sapporo

The streamflow and sediment-transport simulation showed how added sand and sediment move through a river system and influence flow patterns, channel behavior, erosion, and deposition. Seeing these processes physically demonstrated strengthened my understanding of the interactions represented in watershed and sediment models. It was particularly relevant to my SWAT+ research on the Ala River Basin and to the practical challenges faced by flood-prone communities in Mindanao.

A tsunami simulation demonstrated wave behavior and the role of breakwaters in reducing wave energy before it reaches coastal communities and infrastructure. The demonstration reinforced the need to evaluate protective structures as part of a wider risk-reduction system that includes hazard information, land-use planning, evacuation, and emergency preparedness.



Physical simulation of streamflow and sediment movement at CERI.



Tsunami-wave and breakwater demonstration at CERI.



Observing a tsunami simulation demonstrating how breakwaters reduce wave impact.

We also observed full-scale bridge deck and slab fatigue testing. Specimens taken from actual bridges were subjected to repeated rolling-wheel loads that represented vehicle traffic. This method helps engineers assess deterioration, fatigue performance, and remaining structural capacity. CERI also presented winter-road visibility observation vehicles and automated monitoring systems that transmit field information during severe snow and icy conditions. These systems support timely operational decisions and safer transport services.



Observing full-scale fatigue testing of a bridge deck under repeated rolling-wheel loads while listening to a technical explanation.



Winter-road visibility vehicle and automated monitoring technology.



Full-scale fatigue testing machine and the actual samples used to evaluate bridge decks and slabs under repeated rolling-wheel loads.

Technical Tour and Observations in Otaru

On 1 September, we traveled by chartered bus from Sapporo to Otaru. Along the way, I observed Sapporo's well-planned infrastructure, organized urban development, efficient transportation system, and clean surroundings. The journey showed that good infrastructure produces better results when communities also respect traffic rules, public facilities, and shared spaces.

After arriving at Otaru City Center, we had time to walk around the city, including the Otaru Canal area, before visiting the Otaru Port Museum. The museum explained the development of the port and the engineering strategies used in breakwater construction under demanding coastal conditions. The displays showed how careful design, appropriate construction methods, and long-term planning supported the protection and growth of Otaru Port.



Visit to the Otaru Canal



Otaru City

The Otaru Bay Cruise provided an on-site view of the breakwater system. From the water, we could better appreciate the scale and alignment of the structures and their role in reducing wave energy, maintaining a safer harbor, and protecting coastal infrastructure and nearby communities. The city visit connected port engineering with urban development and demonstrated how major protective works support both safety and economic activity.



The Otaru Port Museum.



Behind us are concrete units used in Otaru Port's breakwater system.



Learning about breakwater construction at the Otaru Port Museum.



On-site view of Otaru Port's breakwater system during the Otaru Bay Cruise.



Actual view of Otaru Port's breakwater system.

JSCE Annual Meeting and Disaster Prevention Facilities

On 2 September, I attended the JSCE Annual Meeting at the Sapporo Education and Culture Hall with fellow international delegates. The presentations were organized and focused on accomplishments, current engineering work, and professional developments. Listening to Japanese engineers discuss their contributions in Japan and abroad gave me a broader view of professional practice and the responsibility of civil engineers to communicate technical work clearly.





Attending the JSCE Annual Meeting at the Sapporo Education and Culture Hall.



A female Japanese engineer sharing her inspiring experience in India, highlighting how her professional expertise and practical strategies helped foster discipline among construction workers.



Welcome Reception for the international STG participants at Sapporo Garden Palace.



STG delegates from the Philippines, Bangladesh, Türkiye, Mongolia, and Myanmar.

The afternoon technical tour began at Moerenuma Park. The park and its Glass Pyramid demonstrated how architecture, landscape design, open space, and nature can be integrated within an urban environment. The visit showed that public infrastructure can serve functional, environmental, and community purposes at the same time.





Visit to Moerenuma Park and the Glass Pyramid in Sapporo.

We then visited the Ishikari River Disaster Prevention Museum and an operational river facility. The tour explained Japan's approaches to river management, flood control, and disaster risk reduction. Seeing a river gate and related facilities helped connect structural measures with monitoring, maintenance, operational procedures, and public education. These are directly relevant to Sultan sa Barongis, which is affected by the Ala, Kabulnan, and Kapingkong Rivers and by backflow from the Ligawasan Marsh.




Technical visit to the Ishikari River Disaster Prevention Museum and river-control facility.



Ishikari River gate and river-control facility.



Images showing how Japanese engineers constructed a straight Ishikari River channel to divert flow from the original meandering course, improve water conveyance, and reduce flood impacts.

The day concluded with the JSCE Welcome Reception at the Sapporo Garden Palace. The event formally introduced the international STG participants and provided an opportunity to meet engineers, organizers, and delegates in a professional but welcoming setting.

Workshop Symposium and Research Presentation

On 3 September, I joined the Global Civil Engineer Workshop and attended the JSCE 28th International Summer Symposium at Hokkai-Gakuen University. The program brought together researchers, students, and engineers from different universities and countries. Discussions with delegates from Bangladesh, Türkiye, Mongolia, and Myanmar showed that countries face different local conditions but share many concerns involving structural safety, climate risks, infrastructure deterioration, and community resilience.

I presented my research entitled Impacts of Climate and Land Use Land Cover Changes on Streamflow and Sediment Yield under Mitigation and Non Mitigation Scenarios in Ala River Basin Southern Philippines using SWAT Plus Model. Presenting the study before an international audience allowed me to explain the conditions of the Ala River Basin and the need to assess reforestation, riparian buffers, and other mitigation measures using a calibrated watershed model.

The presentation was a significant professional experience because it placed a river-basin issue from Southern Philippines within an international technical discussion. Questions and exchanges with other participants helped me reflect on how research results should be communicated so that they are useful to engineers, planners, local governments, and communities.



Research presentation at the JSCE 28th International Summer Symposium 2026 in Hokkai-Gakuen University





Discussion and knowledge exchange with researchers and international delegates.

Time	Presenter / Country	Research Presentation Title
10:30–10:40	**Engr. Md. Imran Hossain** — Bangladesh	*Rehabilitation of Deterioration Bridge Deck Slabs Using Lightweight Concrete and Glass Fiber-Reinforced Polymer Bars*
12:10–12:20	**Ms. Selin Bazancir** — Turkey	*Parametric Analysis of Seismic Performance of RC Structures Strengthened with Fiber-Reinforced Polymers*
14:40–14:50	**Ms. Khulan Baasansuren** — Mongolia	*Investigation of Crack Formation in RC Basement Walls Due to Differential Foundation Settlement*
16:20–16:30	**Engr. Haris Balalang Ukat** — Philippines	*Impacts of Climate and Land Use/Land Cover Changes on Streamflow and Sediment Yield under Mitigation and Non-Mitigation Scenarios in Ala River Basin, Southern Philippines using SWAT+ Model*

18:00–18:10	**Mr. Lin Htin** — Myanmar	*Infill RC Wall Retrofitting for Irregular Reinforced Concrete Buildings Using Multi-objective Mathematical Optimization*

The networking reception at Hokkai-Gakuen University provided additional time to interact with JSCE President Kazumasa Ozawa and the JSCE staff, international students, researchers, and civil engineering professionals. It strengthened professional connections and opened opportunities for continued knowledge exchange beyond the formal sessions.



Photo Opportunity with the JSCE officers, staff, researchers, students, and civil engineering professionals.



Meeting fellow Filipinos—PhD scholars and overseas Filipino workers (OFWs)—during the JSCE Networking Reception.





Networking with JSCE officers, staff, researchers, students, and civil engineering professionals.



STG Delegates with Ms. Mika Ashida of JSCE

Return Travel

On 4 September, I checked out from the hotel, traveled by train from Sapporo Station to New Chitose Airport, and began my return journey to the Philippines via Narita International Airport. The efficient airport rail connection was another practical example of how an integrated transport system can improve mobility and reduce uncertainty for travelers.





At JR Sapporo Station, heading to New Chitose Airport.



Safely arrived at Ninoy Aquino International Airport, Philippines.

Key Technical and Professional Outcomes

Area	Outcome
River engineering	Improved understanding of sediment movement, erosion, deposition, and channel response through physical simulation.
Coastal protection	Observed how breakwaters reduce wave energy and protect ports, infrastructure, and nearby communities.
Structural engineering	Learned how repeated-load testing supports evaluation of bridge-deck fatigue, deterioration, and remaining capacity.
Disaster risk reduction	Reviewed practical links among flood-control structures, monitoring, public information, and operational preparedness.
Urban planning	Observed how infrastructure quality, efficient transport, cleanliness, and public discipline support a safe and orderly city.
Professional development	Presented Philippine research, exchanged ideas with international delegates, and strengthened professional networks.

Application to Research and Public Service

Ala River Basin Research

The CERI demonstrations provided a clearer physical basis for interpreting simulated streamflow and sediment results. They reinforced the importance of examining where sediment originates, how it moves through channels, and where erosion or deposition may alter conveyance. These observations will inform my assessment of reforestation in erosion-prone uplands and riparian buffers along agricultural and high-risk river sections. The Japanese examples will not be copied directly; they must be evaluated against local hydrology, land use, available data, community needs, costs, and Philippine standards.

Disaster Risk Reduction in Sultan sa Barongis

The Ishikari River visit confirmed that flood resilience depends on more than a single structure. River gates, monitoring systems, warning information, operating procedures, trained personnel, and public cooperation must function together. This systems approach is relevant to the municipal Emergency Operations Center, barangay coordination, flood advisories, evacuation planning, and community-based response programs in Sultan sa Barongis.

Infrastructure Management

The bridge fatigue test and winter-road monitoring systems emphasized the value of condition assessment and reliable field data. Even when local hazards differ, the underlying management principle remains applicable: infrastructure decisions should be based on inspection, measured performance, documented deterioration, and timely maintenance rather than waiting for visible failure.

Knowledge Sharing through PICE

I am willing to discuss the STG experience and other topics assigned by PICE in future seminars, technical forums, conventions, chapter activities, or professional discussions. I would be honored to share relevant lessons with fellow civil engineers, students, local government practitioners, and other stakeholders whenever requested by PICE National or the PICE Cotabato City-Maguindanao Chapter.

Conclusion

The Japan Society of Civil Engineers Study Tour Grant (JSCE-STG) 2026 was a meaningful opportunity to strengthen my technical understanding, enhance my research communication skills, and broaden my professional network. Held from August 30 to September 4, 2026, the program brought together laboratory demonstrations, visits to operational infrastructure, urban planning perspectives, and international discussions. These experiences deepened my appreciation of how engineering knowledge is translated into practical solutions that protect lives, sustain essential services, and improve community well-being.

One of the most valuable lessons I gained was that resilient infrastructure requires more than sound design and quality construction. Its long-term effectiveness also depends on continuous monitoring, timely maintenance, clear operating procedures, capable institutions, and responsible public participation. Engineering facilities represent continuing public responsibilities, requiring sustained attention throughout their service life. Their performance depends on both their physical condition and the preparedness of the people and organizations responsible for managing them.

The program reinforced the importance of connecting scientific research with practical engineering needs. Laboratory investigations demonstrated the value of understanding physical processes and evaluating infrastructure performance, while the technical visits illustrated how this knowledge informs actual operations and management. Together, these experiences encouraged me to approach engineering challenges with greater attention to technical evidence, environmental conditions, operational requirements, and the needs of the communities being served.

As a researcher, I found these lessons particularly relevant to my work on streamflow, sediment yield, and the effects of climate and land use changes. The study tour strengthened my commitment to developing research that is technically sound, transparent about its limitations, and useful for planning and decision-making. Presenting in an international setting also reinforced the importance of communicating research clearly, explaining its practical significance, and remaining open to constructive feedback and different perspectives.

As a local disaster risk reduction and management officer, I will carry these insights into my work in Sultan Sa Barongis. The experience affirmed the importance of reliable monitoring, coordinated operations, preparedness, and community involvement in reducing disaster risks. Approaches observed in Japan must be carefully assessed and adapted to our local hazards, resources, and institutional capacities. Nevertheless, the principles of anticipating risks, maintaining essential

facilities, clarifying responsibilities, and using evidence to guide action are highly relevant to our continuing efforts to protect vulnerable communities.

Beyond technical learning, the program demonstrated the value of international cooperation. Exchanges with researchers, engineers, technical hosts, and fellow delegates broadened my understanding of shared engineering challenges and the different approaches used to address them. The professional relationships established during the study tour provide opportunities for continued dialogue, knowledge sharing, and future collaboration.

I intend to share the lessons from this experience through PICE activities and other appropriate academic and professional forums. In doing so, I hope that the benefits of the program will extend to fellow engineers, students, public servants, and the communities we serve. The JSCE-STG 2026 has renewed my commitment to responsible engineering practice, relevant research, and dedicated public service. Its lasting value will be reflected in how I translate this learning into practical contributions toward safer, more resilient, and sustainable communities.

Acknowledgment

Above all, I offer my heartfelt gratitude to **Almighty Allah** for the guidance, strength, protection, and blessings that made my participation in the Japan Society of Civil Engineers Study Tour Grant (JSCE-STG) 2026 possible. This experience was made more meaningful by the support of the institutions, mentors, colleagues, and loved ones who encouraged me throughout this journey.

My profound appreciation goes to the **Japan Society of Civil Engineers, its International Activities Center, and the JSCE-STG program organizers** headed by its president, **Mr. Kazumasa Ozawa** for providing a meaningful platform for technical learning and international exchange. I also thank the **Civil Engineering Research Institute for Cold Region (CERI)**, technical hosts, lecturers, researchers, facility personnel, and travel assistants for generously sharing their knowledge and facilitating the study visits. Your warm hospitality, thoughtful explanations, and dedication made the program informative and memorable. I also extend my sincere appreciation to **Ms. Mika Ashida of JSCE, Mr. H. Mori, and all those who guided and assisted us during the technical tours in Japan**. Their thoughtful coordination, valuable guidance, and warm hospitality helped us navigate each visit with ease and enriched our learning experience. I am grateful for their time and dedication in making the study tour informative, well organized, and memorable.

I extend special appreciation to **Mr. Tokuro ASANO, my assigned Japanese presentation adviser**, for his guidance and support in preparing my presentation. His constructive advice helped me communicate my research more clearly and strengthened my confidence in presenting to an international audience. I am grateful for the time, patience, and attention he devoted to guiding me through this important component of the program.

As a Bangsamoro civil engineer, I am deeply honored and privileged to have represented the **Philippine Institute of Civil Engineers, Inc. (PICE)** in Japan from **August 30 to September 4, 2026**. This opportunity carried both personal significance and a strong sense of responsibility. It allowed me to learn from the international engineering community while proudly carrying my identity, my profession, and my commitment to public service.

I extend my sincerest gratitude to the **PICE National leadership, under Engr. Nerie D. Bueno, National President**, for selecting me as one of the nominees for this prestigious program. Thank you for your trust, endorsement, and support, which opened an important opportunity for my professional and academic development. I am equally grateful to the officers and members of PICE for

encouraging Filipino civil engineers to pursue continuing education, international engagement, and excellence in professional practice. I also express my sincere gratitude to **Engr. Michael J. David, National Auditor of the Philippine Institute of Civil Engineers, Inc.**, for his valuable guidance during my preparations for the JSCE Study Tour Grant, particularly in preparing the required technical documents. His advice and assistance helped me understand and address the program requirements with greater clarity and confidence. I deeply appreciate the time and support he provided in helping me prepare for this international professional engagement.

To the **PICE Cotabato City-Maguindanao Chapter, headed by Engr. Esmael D. Ganduan**, thank you for your confidence in endorsing me to the national organization. Your encouragement strengthened my determination to pursue this opportunity and represent our chapter with dedication. My heartfelt appreciation also goes to **Engr. Al-adzhar Usman** for his recommendation and steadfast support throughout the application process. Your assistance helped make this professional milestone possible.

To my fellow international delegates, thank you for the friendship, exchange of ideas, and shared experiences throughout the study tour. Learning alongside professionals from different countries and backgrounds enriched my understanding of civil engineering and strengthened my appreciation of international cooperation. I hope that the connections established during the program will continue through meaningful dialogue and professional collaboration.

To my former professor at **Cotabato City State Polytechnic College, now Cotabato State University, Engr. Alma Sendad-Kato**, I express my sincere gratitude for your guidance, mentorship, and belief in my capabilities. Your encouragement has remained a source of inspiration as I continue to pursue opportunities for learning and professional growth.

I am deeply grateful to my current academic institution, **Mindanao State University–Iligan Institute of Technology (MSU-IIT)**, and especially to my **Doctor of Engineering dissertation adviser, Dr. Kristine S. Companion**, for the knowledge, guidance, and encouragement you have provided throughout my academic journey. Your insightful advice and commitment to research quality have helped shape my development as a scholar and civil engineer. During my participation and research presentation in Japan, I carried with me the lessons you have imparted and the confidence you have helped me build.

I also extend my sincere appreciation to the **Local Government Unit of Sultan Sa Barongis, Maguindanao del Sur**, particularly to our **Municipal Mayor, Hon. Allandatu M. Angas, Sr.**, for supporting professional growth and career development. Your encouragement affirms the importance of continuous learning in strengthening public service. I look forward to applying relevant insights from this experience to our local disaster risk reduction and management efforts and to initiatives that advance the safety and well-being of our constituents.

To my beloved wife, **Norhanna H. Ukat**, thank you for your enduring love, patience, and unwavering encouragement. Thank you for standing beside me, believing in my aspirations, and supporting me through the demands of my academic and professional responsibilities. Your understanding, strength, and sacrifices have been a constant source of inspiration. This achievement is deeply meaningful because I share it with you.

To everyone who contributed to this journey, please accept my heartfelt thanks. The knowledge, friendships, and inspiration gained through the JSCE-STG 2026 will remain an important part of my growth as an engineer, researcher, and public servant. I hope to honor your trust and generosity by sharing what I have learned and applying it responsibly in the service of others.

In shaa Allah, may this experience lead to continued learning, stronger international cooperation, and meaningful contributions toward a more resilient, innovative, and sustainable future.



Photos of me as the Philippine Delegate to the JSCE Study Tour Grant 2026 together with PICE Cotabato City-Maguindanao Chapter Officers during the 6th Oath-Taking Ceremony for New Civil Engineers, organized by the PICE Cotabato City-Maguindanao Chapter and the Professional Regulation Commission.

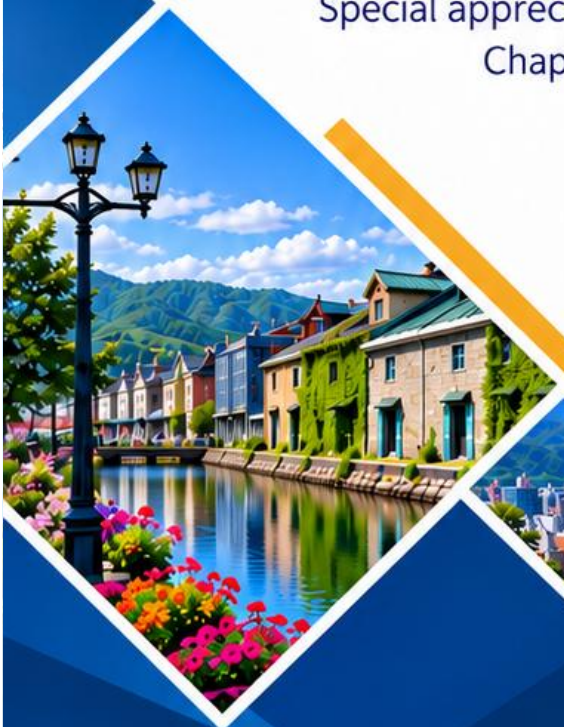
STUDY TOUR GRANT 2026

Hokkaido, Japan | August 30 – September 4, 2026

ACKNOWLEDGMENTS

With sincere gratitude to the Japan Society of Civil Engineers, the International Scientific Exchange Fund, and the Philippine Institute of Civil Engineers for the opportunity to learn, exchange knowledge, and represent the Philippines.

Special appreciation to the PICE Cotabato City–Maguindanao Chapter for its endorsement and support.







ENGR. HARIS B. UKAT, MSCE

Philippine Delegate | STG 2026