INTERNATIONAL
CAPACITY BUILDING WORKSHOP

ADVANCING URBAN FLOOD RESILIENCE

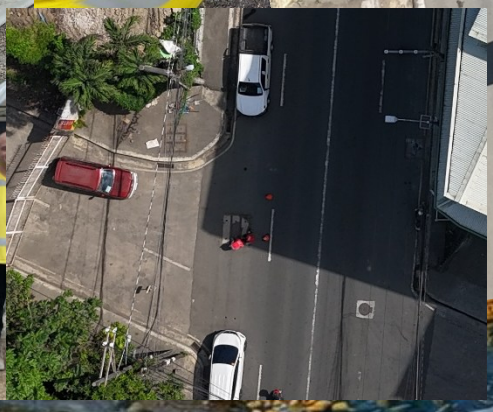
(ICBW AUFR)

Development and Validation of a

PERMEABLE PAVEMENT / POROUS CONCRETE

Construction Procedure and Evaluating Criteria

Venue: Barangay Hall Sienna, Quezon City DRRMO, and UP SURP
Date: June 25 to 27, 2026



INTERNATIONAL CAPACITY BUILDING WORKSHOP - ADVANCING URBAN FLOOD RESILIENCE (ICBW AUFR): DEVELOPMENT AND VALIDATION OF A PERMEABLE PAVEMENT/ POROUS CONCRETE CONSTRUCTION PROCEDURE AND EVALUATING CRITERIA

Venue: Barangay Hall Sienna, Quezon City DRRMO, and UP SURP

Date: June 25 to June 27, 2026

CONCEPT NOTE

INTRODUCTION

The International Capacity Building Workshop - Advancing Urban Flood Resilience (ICBW AUFR): Development and Validation of a Permeable Pavement/ Porous Concrete Construction Procedure and Evaluating Criteria will be organized by **Planning and Development Research Institute PLANADES, Inc. with the collaboration of School of Urban and Regional Planning, University of the Philippines (UP SURP), Diliman Quezon City and Disaster Risk Reduction Management Office (DRRMO), Department of the Engineering and Mayor Office of the Quezon City Government**.

This workshop is in compliance with one of the objectives as an activity under an ongoing TOHO-LEO Corporation, Japan-supported Project entitled "Assessment of the Feasibility of Permeable Pavement as Stormwater Management Strategy". Further, it also contributes to achieved PLANADES primary objectives aligned with SENDAI Framework 2015-2030 – Voluntary Commitment - UNDRR, Sustainable Development Goals (SDGs) 2015-2030 – Sustainable Development Solutions Network (SDSN), and PARIS Agreement 2015.

It is worth noting that urban flooding in Metro Manila continues to intensify due to the combined impacts of climate change and anthropogenic pressures, such as rapid urbanization and inadequate drainage infrastructure (Raza et al., 2020). Severe thunderstorms frequently overwhelm existing stormwater systems, exposing vulnerable communities to recurrent flood risks. Flood-prone areas are often located at the intersections of creeks and road networks, particularly in topographically low-lying zones (Porio, 2014). When waterways overflow or when stormwater accumulates faster than it can be conveyed to nearby drainage channels, adjacent roads and built environments become inundated (Lagmay et al., 2017).

In response, nature-based solutions (NbS) are gaining recognition as adaptive, sustainable, and cost-effective strategies for urban flood management (Contreras, 2025). Among these, permeable pavement systems show strong potential to enhance surface infiltration, reduce runoff volume, and improve overall stormwater management performance. However, there remains a need for a systematic, field-validated tool to guide local engineers in assessing the feasibility and scalability of such interventions in complex urban environments. This workshop aims to build the capacity of local and international engineers through hands-on training in the evaluation and application of permeable pavement systems.

OBJECTIVES

1. Develop a standardized construction procedural guideline that can assist Quezon City Engineering Department Engineers, Disaster Risk Reduction Management and related offices personnel, and representatives of local and international institutional partners in evaluating and scaling up permeable pavement/porous concrete applications.
2. Strengthen the technical capacity of participants through hands-on exercises and construction experiments in the field, and targeted training on permeable pavement systems as an effective stormwater management strategy.
3. Promote collaboration among engineers, planners, and practitioners to refine the experimental design and integrate multidisciplinary insights into the assessment tool.
4. Contribute in achieving PLANADES objectives committed under the voluntary commitment-United Nation Office for Disaster Risk Reduction (UNDRR), Sendai Framework 2015-2030; Sustainable Development Goals (SDGs) 2015-2023, and PARIS Agreement 2015.

TRAINING AND CAPACITY-BUILDING COMPONENTS

The capacity-building program will be delivered through four (4) core modules:

Module 1: Site Selection Criteria for Pilot Site for the Experiment

a. Identification of suitable pilot locations, including considerations of scale, hydrological characteristics, and experimental design.

Module 2: Sample Preparation and Material Aggregation to Comply with Standard Strength and Infiltration Rate for Porous Concrete Preparation for the Sidewalks

a. Procedures for preparing site samples and selecting appropriate aggregate materials for optimal compressive strength and permeability.

Module 3: Experiment Construction Procedure

a. Technical guidelines for the design and construction of permeable/ porous pavement systems

Module 4: Simulation and Performance Evaluation

a. Assessing the impact of permeable concrete sidewalk applications on flood behavior and drainage performance.

DESIGN

The workshop will be in person and will include keynote addresses, lectures, presentations, and interactive sessions. Participants will have the opportunity to share their experiences, exchange ideas, and forge

partnerships for collaborative action. The international Institutional Partners will be invited to ensure the participation of stakeholders from the international community.

ORGANIZERS

The collaborating entities are the Planning and Development Research Institute PLANADES, Inc., in partnership with the School of Urban and Regional Planning, University of the Philippines (UP SURP), Diliman, Quezon City, Disaster Risk Reduction Management Office (DRRMO), the Department of Engineering, and the Mayor's Office of the Quezon City Government.

RESOURCE SPEAKERS:

Dean Dina Magnaye (Chair of the Workshop), UP SURP

Dr. Tabassam Raza (Lead for Correspondents), PLANADES

Hon. Mayor Ma. Josefina "Joy" Belmonte, QCG

Dr. Carmelita R. Liwag, PLANADES

Ms. Bianca Perez, Head DRRMO, QCG

Hon. Emmalyn Star C. Untalan, Punong Barangay, Barangay Siena, Quezon City

Dr. Mark Anthony Morales, PLANADES

Mr. Kota Hayashi, TOHO LEO, JAPAN

Atty. Mark Dale Diamond P. Perral, QC, Department of Engineering

Engr. Vaughn Gonzalez, QC, Department of Engineering

Dr. Cris Edward F. Monjardin, PLANADES

Engr Lean Carlo Consignado, PAL Construction Company

Engr Leo Anthony Calderon, PAL Construction Company

Engr Cherrelyn Alquiros, Republic Cement

Engr Jeffrey Mayao, Republic Cement

VENUE

School of Urban and Regional Planning, University of the Philippines, and the experiment site near the subdivision gate located at N.S. Amoranto Sr. Ave. Cor. Don Jose St., Brgy. Sienna, Quezon City

INTERNATIONAL CAPACITY BUILDING WORKSHOP SCHEDULE

From June 25 to 27, 2026.

The program will be submitted after the meeting with the Barangay and the Homeowner Association

References:

Contreras, A. P. (2025). Nature-Based Solutions to Reduce Flood Risk in the Philippines. *Policy Brief*. https://doi.org/10.13140/rg.2.2.16518.02887

Lagmay, A. M., Mendoza, J., Cipriano, F., Delmendo, P. A., Lacsamana, M. N., Moises, M. A., Pellejera, N., Punay, K. N., Sabio, G., Santos, L., Serrano, J., Taniza, H. J., & Tingin, N. E. (2017). Street floods in Metro Manila and possible solutions. *Journal of Environmental Sciences*, *59*, 39–47. https://doi.org/10.1016/j.jes.2017.03.004

Porio, E. (2014). Climate change vulnerability and adaptation in Metro Manila. *Asian Journal of Social Science*, *42*(1–2), 75–102. https://doi.org/10.1163/15685314-04201006

Raza, T., Liwag, C. R., Andres, A. V. L., Castro, J. T., Cuña, A. C., Vinarao, V. G., Raza, T. K. S., Marasigan, K. M. E., Espinosa, R. I. M., Rentoy, F. C., Perez, B. D., & Ahmed, N. (2020). Extreme weather disasters challenges for sustainable development: Innovating a science and policy framework for disaster-resilient and sustainable Quezon City, Philippines. *Progress in Disaster Science*, *5*, 100066. https://doi.org/10.1016/j.pdisas.2020.100066

DRAFT PROGRAM OF ACTIVITIES

Time	Activities	Person or Institution In- Charge
Day 1	**Thursday, June 25th 2026**	**PLANADES**
09:00 – 09:30 AM	Registration	PLANADES Secretariat
09:30 – 09:40 AM	Opening Prayer and National Anthems	PLANADES Secretariat
09:40 – 09:50 AM	Welcome Remarks from PLANADES Office	**Dr. Mark Anthony Morales** PLANADES President
09:50 – 10:00 AM	Introduction of the Quezon City Mayor	**EnP. Ma. Bianca D. Perez** QCG DRRMO Head
10:00 – 10:15 AM	Welcome Remarks: Guest of Honor	**Hon. Mayor Ma. Josefina "Joy" Belmonte** Mayor of QCG
10:15 – 10:25 AM	Welcome Remarks from UP SURP: Guest Speaker (PLANADES Institutional Partner)	**Dr. Dina C. Magnaye** Dean, UP SURP and Chair of the Workshop
10:25 – 10:35 AM	Welcome Message	**Hon. Emmalyn Star C. Untalan** Punong Barangay, Barangay Siena, Quezon City
10:35 – 10:45 AM	Welcome Remarks	**Mr. Kota Hayashi** TOHO- LEO Corporation, Kamimachi Cyuo-ku, Osaka, Japan
10:45 – 10:55 AM	Welcome Message	**Atty. Mark Dale Diamond P. Perral** Quezon City Department of Engineering
10:55 – 11:05 AM	Coffee Break	PLANADES Secretariat
11:05 – 11:15 AM	Welcome Remarks from the Institutional Partner	**Dr. Indrajit Pal,** Asst. Professor and Chair Disaster Preparedness, Mitigation and Management (DPMM), Asian Institute and Technology (AIT), Thailand
SESSION PROPER		
11:15 – 12:00 NOON	**MODULE I**	**Site Selection Criteria for Pilot Site for the Experiment**

11:15 – 11:25 AM	Identification of Suitable Pilot Locations	**Dr. Shaker Mahmood** Member PLANADES Advisory Team and Professor, Department of City and Regional Planning, University of Engineering Technology, Lahore, Pakistan
11:25 – 11:40 AM	Selection of the Final Experiment Sites: Considerations of Scale, Hydrological Characteristics, and Experimental Design.	**Dr. Engr. Tabassam Raza, Executive** Director, PLANADES and Workshops Correspondents Lead
11:40 – 11:50PM	Selected Sites and Dimensions of the Experiments	**Engr. Vaughn Gonzalez**, Permeable Pavement Project Coordinator QC Department of Engineering
11:50– 12:10 NOON	Photo Session	PLANADES Secretariat
12:10 – 13:00 PM	Lunch - Break	PLANADES Secretariat
13:00 – 13:45 PM	Travel to the Site Visit	PLANADES Secretariat
13:45 – 15:00 PM	Experiment Site Study and Investigation	PLANADES Secretariat and Participants
15:00 – 15:10 PM	Synopsis and Next Steps	**Dr. Carmelita R.E.U. Liwag** Project Advisory PLANADES
15:10 – 15:15 PM	Photo Session and Adjournment	PLANADES Secretariat
15:15 – 15:45 PM	Back to UP SURP via QC DRRMO Office	PLANADES Secretariat
Day 2	**Friday, June 26th 2026**	**PLANADES**
SESSION PROPER		
09:30 – 09:45 AM	Registration	PLANADES Secretariat
09:45 AM – 12:00 NOON	**MODULE II**	**Sample Preparation and Material Aggregation to Comply with Standard Strength and Infiltration Rate for Porous Concrete Preparation for the Sidewalks**
09:45 – 10:00 AM	Permeable Pavement International Good Practices: EbA Capacity Building, Lao	**Dr. Indrajit Pal,** Asst. Professor and Chair Disaster Preparedness, Mitigation and Management (DPMM), Asian Institute and Technology (AIT), Thailand

10:00 – 10:15 AM	Procedures for Preparing Site Samples and Selecting Appropriate Aggregate Materials for Optimal Compressive Strength and Permeability.	Engr. Cherrelyn Alquiros/ Engr. Jeffrey Mayao **Republic Cement Corporation**
10:15 – 10:30 AM	Coffee Break	PLANADES Secretariat
10:30 – 11:45 AM	Jmix, Permeable Concrete, and Infiltration Tests Documentary	Engr. Lean Carlo Consignado/ Engr Leo Anthony Calderon **PAL Construction Company**
11:45 – 12:00 NOON	Photo Session	PLANADES Secretariat
12:00 – 13:00 PM	Lunch - Break	PLANADES Secretariat
13:00 – 13:45 PM	Travel to the Site Visit	PLANADES Secretariat
13:45 – 15:00 PM	Experiment Site Study and Investigation	PLANADES Secretariat and Participants
15:00 – 15:15 PM	Photo Session	PLANADES Secretariat
15:15 – 15:45 PM	Back to QC DRRMO Office	PLANADES Secretariat
15:45 – 16:45 PM	QC DRRMO Emergency Operations Center (EOC) Visit	QC DRRMO
16:45 – 17:00 PM	Photo Session and Synopsis	PLANADES Secretariat
Day 3	**Friday, June 27th 2026**	**PLANADES**
SESSION PROPER		
09:30 – 09:45 AM	Registration	PLANADES Secretariat
09:45 AM – 12:00 NOON	**Module III**	**Experiment Construction Procedure**
09:45 – 10:15 AM	Technical Guidelines for the Design and Construction of Permeable/ Porous Pavement Systems	**Dr. Engr. Tabassam Raza, Executive** Director, PLANADES and Workshops Correspondents Lead
10:15 – 10:30 AM	Coffee Break	PLANADES Secretariat
10:30 – 11:45 AM	Site Preparation, JMIX, and Permeable Pavement Installation Documentary	Engr. Lean Carlo Consignado/ Engr Leo Anthony Calderon **PAL Construction Company**
11:45 – 12:00 NOON	Photo Session	PLANADES Secretariat
12:00 – 13:00 PM	Lunch - Break	PLANADES Secretariat

13:00 – 15:00 PM	**Module IV**	**Simulation and Performance Evaluation**
13:00 – 13:45 PM	Assessing the impact of permeable concrete sidewalk applications on flood behavior and drainage performance.	**Dr. Cris Edward F. Monjardin** PLANADES Hydrologic and Hydraulic Analysis Expert
13:45 – 14:00 PM	Documentary Installation of Permeable Pavement	Engr. Lean Carlo Consignado/ Engr. Leo Anthony Calderon **PAL Construction Company**
14:00 – 14:15 PM	**Coffee Break**	PLANADES Secretariat
14:15 – 14:30 PM	**Graduation:** Closing Remarks, Synopsis, Distribution of Certificates Photo Shot, and Closing	PLANADES Secretariat