



PASCAL International
observatory



SUSTAINABLE DEVELOPMENT FUTURES: FROM KNOWLEDGE TO PRACTICE

12 - 13 November 2024 | The Heritage Hotel Manila, Pasay City, Philippines



UNIVERSITY OF THE PHILIPPINES SCHOOL OF URBAN AND REGIONAL PLANNING

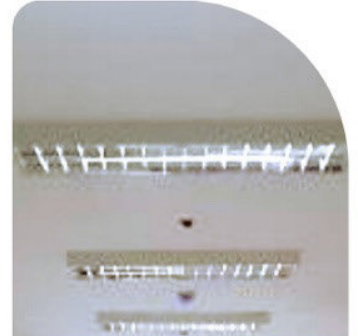


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School of Urban and Regional Planning
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**Honorable Councilor
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D. Vargas III**

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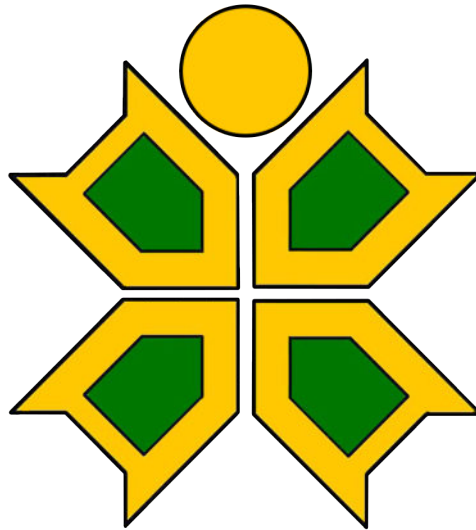
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About the University of the Philippines School of Urban and Regional Planning (UP SURP)

The UP School of Urban and Regional Planning (UP SURP) was established in 1965 by virtue of Republic Act 4341 signed by then-President Diosdado P. Macapagal. It is the premier graduate school of planning in the Philippines offering specialized courses in urban and regional planning. In November 2024, it will be more than 59 years since the School has been at the forefront of the country's development efforts through its fourfold mandate of graduate education, research, training and extension services.

The UP SURP was recently awarded the Philippine Quality Award (PQA) on July 17, 2024 at the Heroes Hall, Malacañang Palace, Manila. The PQA is a national award program by the Department of Trade and Industry (DTI) that aims to encourage and engage public and private entities and other stakeholders to strive for exceptional and excellent performance. The UP SURP is the first degree-granting unit of this prestigious award within the UP system, staying true to its commitment in delivering exceptional customer experiences and ensuring stakeholder satisfaction. The School is dedicated to advancing its legacy of quality management through continuous process improvements, curriculum updates, competency mapping, and the formulation of institutional governance manuals. These initiatives are aligned with the 2025 vision of UP SURP, reflecting steadfast dedication to excellence and innovation towards better service to the Filipino people.

To learn more about the UP SURP, please visit their website: <http://surp.upd.edu.ph>





About the International Conference in Urban and Regional Planning (ICURP)

Communities and cities all over the world are facing the challenges of meeting the current needs of their populations while striving to provide for the needs of the future. Faced with rapid urbanization, environmental degradation, and increasing demand for social services, cities, provinces, and regions of the Philippines need to address their distinct challenges in order to remain sustainable. The crafting of the Sustainable Development Goals in 2015 recognized the growing problem and the severe consequences of unsustainable development worldwide. Through these goals, each action taken by governments, the private sector, and civil society should be geared toward addressing specific sustainable development priorities. Collectively, these priorities shall aim to “end poverty, protect the planet, and ensure prosperity for all.”

The UP SURP International Conference in Urban and Regional Planning (ICURP) provides a platform for the sharing and exchange of knowledge, lessons learned, and experiences in order to leverage smarter processes, technologies, and innovation in cities towards a better quality of life. In 2011, we launched the Green Urbanism Conference, focusing on sustainable urban growth and the vital role cities play in CO2 emissions and climate change. This was followed by the Smarter Cities Conference in 2013, which served as a platform for sharing innovative practices aimed at enhancing urban quality of life. The Sustainable and Resilient Rural Communities Conference in 2015 brought together experts to discuss strategies for supporting rural areas in the face of environmental challenges. Our Planning Towards Sustainability and Resilience Conference in 2018 emphasized the importance of meeting current needs while planning for future sustainability amidst rapid urbanization and environmental degradation.

This year, we are excited to announce the 5th International Conference in Urban and Regional Planning and the 18th PASCAL International Conference on Learning Cities. These events will be held in close collaboration with PASCAL, focusing on the theme “Sustainable Development Futures: From Knowledge to Practice.” We look forward to your participation as we explore pathways to integrate knowledge and practice for a sustainable future.

To learn more about the conferences organized by the UP SURP, please visit their website: <https://www.surp.upd.edu.ph/orp>



About the Theme

As the world confronts climate change, which results in growing disaster risk, biodiversity loss, inequality, and resource depletion, particularly in developing countries, the urgent need for action towards sustainable development becomes ever more apparent. Humanity stands at a crossroads. While knowledge about social, economic, environmental, and institutional challenges abounds, translating this knowledge into concrete, impactful solutions presents a critical obstacle. This international conference aims to bridge the gap, fostering meaningful collaboration and action towards a more sustainable future for all.

The theme of Sustainable Development Futures for the upcoming conference in the Philippines, hosted by the UP School of Urban and Regional Planning and the 18th PASCAL international Conference on Learning Cities, is timely and crucial as the global community grapples with an array of interconnected challenges.

- **Climate Change and Disaster Risk:** The pressing issue of climate change looms large, manifesting through increasing natural disasters that disproportionately affect developing countries. These nations often lack the resources and infrastructure to effectively respond to and recover from such events. The conference will emphasize the need for adaptive strategies that enhance resilience and mitigate disaster risks, ensuring that vulnerable communities are prioritized in planning and response efforts.
- **Biodiversity Loss:** The ongoing loss of biodiversity is another critical concern tied to unsustainable practices. As ecosystems are degraded, the services they provide—such as clean air, water, and food security—are jeopardized. Discussions at the conference will likely explore innovative approaches to conservation, integrating local knowledge and practices to protect biodiversity while promoting sustainable livelihoods.
- **Inequality and Resource Depletion:** Inequality remains a significant barrier to sustainable development. Many marginalized communities lack access to essential resources, decision-making processes, and economic opportunities. This theme will encourage participants to explore inclusive policies and practices that address social equity, ensuring that all voices are heard in the pursuit of sustainable solutions. Additionally, resource depletion—whether it be through overfishing, deforestation, or water scarcity—underscores the need for sustainable resource management practices that balance human needs with environmental health.


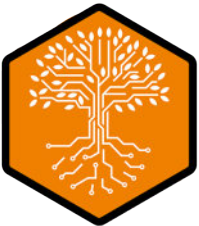



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TARGET PARTICIPANTS

The conference hopes to bring together three hundred to five hundred (300-500) local and foreign participants from local and national government agencies, private organizations and the academe with influence and interest in further advancing national, regional and local development. As stakeholders in national growth, the conference aims to bring together different perspectives in the discussion of present and future policies and actions to improve the resilience and sustainability of our cities and its environs.

CONFERENCE STRUCTURE

The following are the identified conference sub-themes:

	<p>Regional Complementarity and Competitiveness</p> <p>A balancing act of complex interplay of competition and collaboration while understanding the balance of these forces for developing effective strategies for regional development.</p>
	<p>Digital Transformation for Innovation in Planning</p> <p>Leveraging technology to unlock significant and transformative innovation potential such as</p> <ul style="list-style-type: none"> a) enhancing data-driven decision-making, b) improving collaboration and communication, c) empowering stakeholders, and d) predictive and prescriptive planning, among others.
	<p>Inclusive and Transformative Development of Sustainable Cities</p> <p>Embracing sustainable practices that lead to higher quality of life – physical and mental health, social relationships, economic security, and environmental quality.</p>
	<p>Sustainable Living and Climate Change</p> <p>An ongoing process that requires continuous learning, reflection and action by understanding its principles and engaging with relevant resources that contribute to building a more gender-equal world.</p>
	<p>Digital Transformation for Innovation in Planning</p> <p>Connected concepts both emphasizing the continual nature of acquiring knowledge and skills throughout life that empower individuals to navigate a rapidly changing world, lead fulfilling lives and contribute meaningfully to society.</p>



About PASCAL International Observatory

The name "PASCAL" reflects the deep commitment to PLACE and SOCIAL COHESION and LEARNING. It is a global alliance of researchers, policy analysts, decision-makers, and locally engaged practitioners from government, higher education, non-governmental organizations (NGOs) and the private sector. The PASCAL Network operates globally based on university centers in Africa (University of Johannesburg), Asia (University of the Philippines), Australasia (RMIT), Europe (University of Glasgow), and the USA (Rutgers University), each responsible for its activities in that geographical region. PASCAL has its origins in a major conference organized by the OECD in Melbourne in 2002 on the importance of learning cities and regions for regional development. PASCAL's focus is on the development and renewal of place. It gives special emphasis to the role of social capital and lifelong learning in these processes, considering how sustainable economic, social and cultural development can be achieved to the benefit of the communities concerned.

The PASCAL Centre is envisioned to be a research and policy hub strategically positioned at the heart of Asia and the Pacific, dedicated to research and development of emerging urban challenges and linking knowledge creation and public service at the community, city/municipality, and regional level.

The PASCAL Centres worldwide are guided by the following principles:

- Place Management, which shall focus on coordinated, multi-stakeholder efforts to improve life in cities and geographic regions utilizing available assets and resources.
- Social Cohesion, wherein inclusive networks, and internal collaboration are strengthened in cities and regions to compete better in a global economy.
- Learning Cities and Regions, wherein internally collaborative cities and regions facilitate lifespan learning and knowledge sharing (SDG 4). Learning drives innovation and development.

To learn more about the PASCAL International Observatory, please visit their website: <https://pascalobservatory.org>

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Conference Program

Sustainable Development Futures Conference 2024
Heritage Hotel Manila, Pasay City, Philippines
12-13 November 2024

Tuesday, November 12, 2024

7:30 - 9:00 AM	Registration
9:00 - 9:15 AM	Preliminaries <i>Room: Artist Ballroom</i>
9:15 - 9:25 AM	Welcome Remarks <ul style="list-style-type: none"> • Assoc. Prof. Dina C. Magnaye, PhD, EnP, <i>Dean, University of the Philippines School of Urban and Regional Planning</i>
9:25 - 10:25 AM	Keynote I: The Role of Local Government in Delivering Sustainable Development Goal 4 (Quality Education) <ul style="list-style-type: none"> • Prof. Emeritus Michael Osborne, <i>Professor emeritus, University of Glasgow & Chair, Executive Board of PASCAL International Observatory</i>
10:25 - 10:55 AM	Morning Break (Networking)
10:55 - 12:00 PM	Keynote II: Challenges in the Pursuit of Sustainable Development Options: The Case of the Philippines <ul style="list-style-type: none"> • Mr. Christopher Rollo, <i>Country Programme Manager, United Nations Human Settlements Programme (UN-HABITAT)</i>
12:00 - 1:00 PM	Lunch
1:00 - 1:30 PM	Presentation on Assessing the Inclusive Resilience of Tacloban City Post-Typhoon Haiyan: Opportunities for Tool Development and Lessons towards Disability-Inclusive Risk Reduction and Management <ul style="list-style-type: none"> • Councilor Alfred Vargas
1:30 - 3:15 PM	Panel Discussion I: <i>Building Better Cities: Integrating Theory and Practice in Sustainable Urban Development</i> What is the role of the Philippine Local Government Units in bridging knowledge to practice in urban development? This panel discussion focuses on the critical intersection of theory and practice within the field of urban planning and

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	<p>development. It aims to explore how theoretical insights, research findings, best practices, and capacity training can be effectively translated into actionable strategies that enhance urban environments at the local and national levels.</p> <ul style="list-style-type: none"> ● Moderator <ul style="list-style-type: none"> ○ Ar. EnP. Geomilie Tumamao-Guittap, UP School of Urban and Regional Planning ● Discussants <ul style="list-style-type: none"> ○ Dr. Marius Venter, Professor, University of Johannesburg & Director, PASCAL Centre Africa ○ EnP Bianca Perez, Quezon City Disaster and Risk Reduction Management Office ○ Ms. Ma-Lene S. Torio, Local Government of Bayambang, Pangasinan ○ Hon. Nicholas Yulo, Local Government of Bago City, Negros Occidental ● Reactors <ul style="list-style-type: none"> ● EnP Ibani C. Padoa, Department of Human Settlements and Urban Development (DHSUD) 	
3:15 - 3:45 PM	Afternoon Break (Networking)	
3:45 - 5:00 PM	Technical Sessions (Parallel)	
	<p>Technical Session 1A: Regional Complementarity and Competitiveness <i>Room: Heritage Ballroom A&B</i></p> <p>Moderator: Asst. Prof. Ronnie Encarnacion, UP School of Urban and Regional Planning</p> <p><i>This session deep dives into the balancing act of the complex interplay of competition and collaboration while understanding the balance of these forces for developing effective strategies for regional development.</i></p>	<p>Technical Session 1B: Regional Complementarity and Competitiveness <i>Room: Heritage Ballroom C</i></p> <p>Moderator: Asst. Prof. Carmelita Liwag, UP School of Urban and Regional Planning</p> <p><i>This session deep dives into the balancing act of the complex interplay of competition and collaboration while understanding the balance of these forces for developing effective strategies for regional development.</i></p>
	<p>Complementarity in Polycentric Metropolitan Regions: The Case of Metro Manila, Philippines Dina C. Magnaye, UP School of Urban and Regional Planning</p>	<p>Constructing Flooding Risk Among Select Coastal Metro Manila LGUs John Paolo C. Dalupang, Polytechnic University of the Philippines Manila</p>

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	<p>Vegetation Cover Analysis of the Metropolitan Manila, Philippines Using the 2014 and 2024 Dry Season Landsat Imagery <i>Arthur Lagbas, Technological University of the Philippines Manila</i></p>	<p>The Ripple Effect: Analyzing the Effects of Mangrove to Fish Pond Conversion on Flood Risks and Susceptibility of North Manila Bay Delta in 2012, 2017, and 2022 <i>Diomari Centeno, University of the Philippines Diliman</i></p>
	<p>Bohol Island: The First UNESCO Global Geopark in the Philippines for Sustainable Regional Development <i>Mario Delos Reyes, UP School of Urban and Regional Planning</i></p>	<p>Extreme Weather Shocks and Household Welfare: Evidence from the Philippines <i>Michael Timbang, Asian Development Bank</i></p>
4:35 - 5:00 PM	Open Forum and Presentation of Session Certificates	

Wednesday, November 13, 2024

9:00 - 9:05 AM	<p>Synthesis of Day 1 of the Conference <i>Room: Artist Ballroom</i></p> <ul style="list-style-type: none"> • Prof. Ma. Sheilah Napalang, Director, Office of Research and Publication, UP School of Urban and Regional Planning
9:05 - 10:30 AM	<p>Panel Discussion II: Urban Spaces, Lifelong Places: Cultivating Continuous Learning in Cities</p> <p>How do Philippine Local Government Units and government agencies sustain/retain/enhance their planning knowledge, especially that of their technical personnel? By bringing together experts and practitioners in urban planning, education, and community development, this panel discussion explores the vital role of lifelong and lifeward learning in shaping resilient, sustainable, and inclusive urban environments, especially in a highly urbanizing country like the Philippines.</p> <ul style="list-style-type: none"> • Moderator <ul style="list-style-type: none"> ○ EnP April N. Dela Cruz, UP School of Urban and Regional Planning • Discussants <ul style="list-style-type: none"> ○ Dr. Rob Mark, Honorary Professor, University of Glasgow & Coordinator, PASCAL Learning Cities Network ○ Hon. Mar-Len Abigail S. Binay, Local Government of Makati City ○ EnP Ronnie L. Lindog, Municipality of Sariaya, Quezon Province ○ Local Government of Pasig City (TBC) • Reactors <ul style="list-style-type: none"> ○ Dr. Marife Ballesteros, Philippine Institute of Development Studies (PIDS) ○ Ms. Mae Valdez-Irong, ICLEI Local Governments for Sustainability ○ Mr. John Kien D. Develos, Local Government Academy

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10:30 - 11:00 AM	Eco-Zoning the Philippines Towards Inclusive and Sustainable Development (Working Break) <ul style="list-style-type: none"> • Ms. Rowena Torres-Naguit, <i>Philippine Economic Zone Authority</i> 	
11:00 - 12:50 PM	Technical Sessions (Parallel)	
	Technical Session 2: Digital Transformation for Innovation in Planning <i>Room: Heritage Ballroom A&B</i> Moderator: Prof. Jun T. Castro , <i>UP School of Urban and Regional Planning</i> <i>This session focuses on leveraging technology to unlock significant and transformative innovation potential, such as a) enhancing data-driven decision-making, b) improving collaboration and communication, c) empowering stakeholders, and d) predictive and prescriptive planning, among others.</i>	Technical Session 3: Sustainable living and climate change <i>Room: Heritage Ballroom C</i> Moderator: Prof. Evelyn S. Lorenzo , <i>UP School of Urban and Regional Planning</i> <i>This session highlights how urban environments can be transformed to promote sustainability, resilience, and adaptation in the face of climate change. The conference will serve as a platform for discussing innovative practices, policies, and technologies that foster sustainable urban development.</i>
	Development of an Inclusive Community Monitoring Tool for Sustainable Society with a Focus on Social Vulnerability Erris Sanciangco , <i>SaveTravelPH Mobility Innovations Organizations LocationMind Inc.</i>	Investigation of the Compressive Strengths of Coconut Shells as Partial Alternative of Coarse Aggregates in Concrete Mix John Arvin R. Manaloto , <i>University of the Philippines Diliman</i>
	Data Protection, Privacy and Research Ethics in Urban Planning Practice Towards Smart Cities Eugenio Ferrer Santiago , <i>Polytechnic University of the Philippines</i>	Synthesis of the Performance of Slag Cement As Partial Replacement to Ordinary Portland Cement in Concrete John Arvin R. Manaloto , <i>University of the Philippines Diliman</i>
	Minimization of Traffic Congestion Using Traffic Intensity and Assignment Problem Model: A Case Study in Tuguegarao City Ralph Angelo Estiller , <i>Cagayan State University</i>	Repercussions of Dynamic Landscapes: A Look at River-Riparian Environments Jose Dan V. Villa Juan , <i>University of the Philippines Diliman</i>

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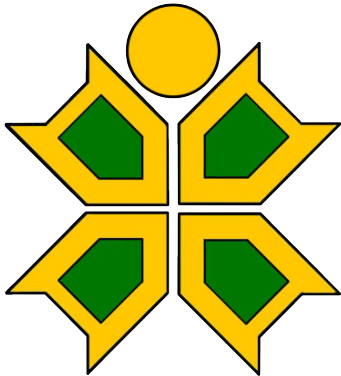
	<p>Geospatial Analysis for Environmental Protection and Rehabilitation of Barangay Payatas, and its Impact on Community Livelihood Aya V. Raymundo, <i>National University Manila</i></p>	<p>Temperature Increase in the Philippines: The Case of three Philippine Cities Marie Patadlas, <i>UP School of Urban and Regional Planning</i></p>
	<p>Exploring the Potential of Participatory Utopia Sketching in Imagining City Futures: The Case of the Cities of Manila and Cauayan, Philippines Mark Anthony Gamboa, <i>UP School of Urban and Regional Planning</i></p>	<p>Spatial Design of Green Hydrogen Production and Transportation Leonard E. Travis, <i>UP School of Urban and Regional Planning</i></p>
	<p>Personnel Digital Capacity Assessment of Disaster Risk Reduction and Management (DRRM) Office, Cavite Province, Philippines Mark Jetro Mortel, <i>UP School of Urban and Regional Planning</i></p>	<p>Living Labs for Active Mobility - Bridging the Gap between Knowledge and Practice Jochen Eckart, <i>Karlsruhe University of Applied Sciences</i></p>
		<p>Assessment of DRRM Programs, Projects, and Activities (PPAs) in Enhancing Flood and Weather Resilience for Sustainable Communities: Barangay Tumana, Marikina City, Philippines Santiago, Arlene, <i>UP School of Urban and Regional Planning</i></p>
	<p>Open Forum and Presentation of Session Certificates</p>	<p>Open Forum and Presentation of Session Certificates</p>
12:50 - 1:50 PM	<p>Lunch <i>Room: Artist Ballroom</i></p>	
2:00 - 3:50 PM	<p>Technical Sessions (Parallel)</p>	
	<p>Technical Session 4: Inclusive and Transformative Development for Sustainable Cities <i>Room: Heritage Ballroom A&B</i></p> <p>Moderator: Dr. Assoc. Prof. Dina C. Magnaye, <i>University of the Philippines</i></p>	<p>Technical Session 5: Lifelong and Lifeward Learning <i>Room: Heritage Ballroom C</i></p> <p>Moderator: Asst. Prof. Mark Anthony Gamboa, <i>University of the Philippines</i></p>

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	<p><i>School of Urban and Regional Planning 2:00 - 2:05 PM</i></p> <p><i>Emphasizing equity, community engagement, and innovative urban planning strategies, this session examines how cities can evolve to meet the needs of diverse populations while promoting environmental sustainability and resilience.</i></p>	<p><i>School of Urban and Regional Planning 2:00 - 2:05 PM</i></p> <p><i>This session will bring together experts and practitioners on the importance of acquiring knowledge and skills throughout life, empowering individuals to navigate a rapidly changing world, lead fulfilling lives, and contribute meaningfully to society.</i></p>
	<p>Reviewing Effectiveness of Quezon City's Green Building Code for Small-Scale Structures in Three Barangays from 2018 to 2023 Mark Anthony Morales, <i>UP School of Urban and Regional Planning</i></p>	<p>Student Living Conditions: A Case of the University of Science and Technology of Southern Philippines – CDO Students' Accommodation Archemedes Wabe, <i>University of Science and Technology of Southern Philippines</i></p>
	<p>Assessing Land Value Dynamics Induced by Rail Project Using Difference-in-difference Method and Hedonic Pricing Model: A Case Study of Metro Manila Light Rail Transit Line 2 Carl Dave Silos, <i>University of the Philippines Diliman</i></p>	<p>Contextual and Thematic Analysis of Studies from the UP School of Urban and Regional Planning from 1977-2022 Karen Ann Jago-on, <i>UP School of Urban and Regional Planning</i></p>
	<p>Green Spaces to Grey Zones: Evaluating the Implications of the Urban Development and Housing Act of 1992 in the Landscape Fragmentation of Silang-Santa Rosa River Subwatershed amidst Manila's Decongestion Efforts Gabrelle Noreen Estrellanes, <i>University of the Philippines Diliman</i></p>	<p>Establishing a Learning Neighbourhood at Nagaland University: Assessing Educational Needs in Kohima Radhakrishan Vasanthan, <i>Nagaland University</i></p>
	<p>Examining the Relationship between COVID-19 and Resiliency of Livelihood Development in Local Government Unit-Administered Resettled Communities of Metro Manila Sonia Islam, <i>UP School of Urban and Regional Planning</i></p>	<p>School Time as Learning Time? Re-imagining School and Non-School Spaces to Bridge Attainment Gaps McRhon Banderlipe I, <i>Strathclyde Institute of Education, University of Strathclyde</i></p>
	<p>Cycling Mobility as a 'Right to the City': Urban Experience of Risk, Right and Spatial Negotiation in Metro Manila</p>	<p>Techquity: Digital Trajectories for Lifelong Learning</p>

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	<p>Marc Angelo C. Sanchez, <i>University of the Philippines Diliman</i></p>	<p>Shnaoli Chakraborty Acharya, <i>West Bengal State University</i></p>
	<p>Open Forum and Presentation of Session Certificates</p>	<p>Innovating Solid Waste Management through a Social and Behavior Change Strategy: The Case of Six Urban Barangays in Manila, Philippines John Anthony Cruz, <i>Catholic Relief Services</i></p>
		<p>Open Forum and Presentation of Session Certificates</p>
<p>3:50 - 4:05 PM</p>	<p>Afternoon Break (Networking) <i>Room: Artist Ballroom</i></p>	
<p>4:05 - 4:30 PM</p>	<p>Ways Forward and Call to Action</p> <ul style="list-style-type: none"> • Dr. Mario Delos Reyes, <i>Director, PASCAL Centre Asia-Pacific</i> • Prof. Emeritus Michael Osborne, <i>Chair, Executive Board of PASCAL International Observatory</i> 	
<p>4:30 - 5:00 PM</p>	<p>Closing Ceremony and Awarding of Certificates for Paper Presenters, Sponsors and the PASCAL Network</p> <p>Closing Remarks: Chancellor Edgardo Carlo L. Vistan II, LLM, <i>Chancellor, University of the Philippines Diliman</i></p>	



Assoc. Prof. Dina C. Magnaye

Dean
UP School of Urban and
Regional Planning

Message

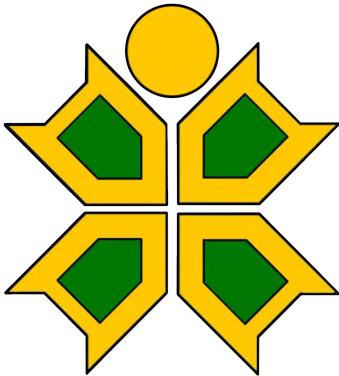
On behalf of the UP School of Urban and Regional Planning (UP SURP) and the PASCAL International Observatory, I am pleased to welcome you to the 5th International Conference on Urban and Regional Planning (ICURP) and the 18th PASCAL International Conference on Learning Cities. In line with UP SURP's four-fold mandate of graduate education, research, training, and extensions services, the UP SURP ICURP is envisioned as the primary platform for sharing and exchanging knowledge, insights, and experiences to leverage smarter processes, technologies, and innovation in cities towards a better quality of life.

Now in its fifth year since its launch in 2011, the conference themed "Sustainable Development Futures: From Knowledge to Practice," aims to address urgent global challenges such as climate change, disaster risk, biodiversity loss, inequality, and resource depletion, and provide practical solutions that bridge critical gaps, fostering collaboration and action towards a more sustainable and equitable future for all. This conference is both timely and critical. As the global community grapples with interconnected challenges, the conference offers a platform to explore solutions that are both practical and impactful.

On November 10, 2024, the University of the Philippines Diliman officially launched the PASCAL Centre Asia-Pacific, which is based at the UP School of Urban and Regional Planning. Like its counterparts worldwide, the PASCAL Centre at UP SURP is dedicated to bridging knowledge gaps between researchers, practitioners, and policymakers.

The establishment of the PASCAL Centre Asia-Pacific represents a significant step toward enhancing collaboration and innovation within the region. Through this conference, the center aims to fulfill one of its key mandates as the regional hub for the Asia-Pacific: to work closely with other PASCAL Regional Centres around the globe. By building strong partnerships and networks, the PASCAL Centre Asia-Pacific is committed to producing actionable, evidence-based solutions that can be implemented in various contexts.

It is once again my great honor to welcome you to this significant event, where local and international participants—from government agencies, private organizations, and academic institutions—come together to transform knowledge into tangible, collaborative solutions that will shape a more sustainable and equitable future for all.



**Prof. Ma. Sheilah G.
Napalang**

Director
Office of Research and
Publication
UP School of Urban and
Regional Planning

Message

This year, we are thrilled to announce and welcome you to the 5th International Conference on Urban and Regional Planning and the 18th PASCAL International Conference on Learning Cities. With the theme “Sustainable Development Futures: From Knowledge to Practice,” this conference seeks to address some of the most pressing global challenges of our time, including climate change, disaster risk, biodiversity loss, inequality, and resource depletion. Our goal is to propose actionable solutions that pave the way towards a sustainable future for all.

We, at the UP School of Urban and Regional Planning, are honored to host this momentous event in collaboration with our partners from the PASCAL International Observatory. This conference invites participants from government agencies, the private sector, and academia to foster a rich exchange of insights, experiences, and innovative ideas, while exploring effective ways to integrate knowledge and practice for a sustainable future.

The conference will feature a diverse array of papers submitted from both the Philippines and PASCAL member countries, all focusing on critical global issues. We will delve into sub-themes such as regional complementarity and competitiveness, digital transformation for planning innovation, sustainable living and climate change, inclusive and transformative development of sustainable cities, and lifelong learning. Each of these themes highlights the essential need to balance competition with collaboration in crafting effective regional strategies and harnessing technology for transformative innovations. Moreover, our discussions will advocate for sustainable practices that enhance the quality of life, addressing aspects like physical and mental health, social connections, economic security, and environmental quality. We recognize that fostering gender equality and promoting continuous learning are crucial components of our discussions, ensuring that all voices are heard and valued.

I would like to extend my deepest gratitude to everyone at the UP School of Urban and Regional Planning and to all participants for their invaluable contributions in making this conference possible. Your enthusiasm and commitment are what drive this event's success. Let us work together to foster sustainable development and create resilient communities that can thrive now and in the future.



Dr. Mario R. Delos Reyes

Former Dean
UP School of Urban and
Regional Planning

Director of PASCAL Centre
Asia-Pacific
PASCAL International
Observatory

Message

It is with great honor and enthusiasm that we welcome the participants to the joint 5th International Conference on Urban and Regional Planning and the 18th PASCAL International Conference on Learning Cities (ICURP5 & PICLC18). This event coming together, creates a unique platform where practitioners, researchers, educators, policymakers, and community leaders can converge to share insights and strategies on two (2) interconnected realms: the sustainable development of urban regions and the fostering of inclusive, lifelong learning in cities around the world.

The global challenges we face today - ranging from urbanization and climate change to economic inequality and the shifting demands of the knowledge economy require interdisciplinary collaboration and innovative solutions. Cities and regions are at the forefront of these challenges and are critical sites for both transformation and resilience.

As the world urbanizes, the need for thoughtful, transcending paradigms, and adaptive urban and regional planning becomes more urgent. Likewise, the concept of learning cities, where communities prioritize lifelong learning and equitable access to education, has become a cornerstone of sustainable urban development.

In this Book of Abstracts presented, you will find a glimpse into the wealth of research, reflections, and projects that are shaping the future of planning and learning especially in the Asia-Pacific Region. They represent the systems thinking solutions being explored in response to the complex challenges facing this region, from widening access to quality education to fostering resilience in communities through participatory learning practices. Each piece encapsulates the essence of the mission to advance lifelong learning and development, providing a window into the depth of knowledge and commitment within the organization.

Message



Prof. Emeritus Michael Osborne

Chair, Executive Board
PASCAL
International Observatory

It is a privilege to contribute a message to the Book of Abstracts for this international conference. First of all, PASCAL International Observatory is grateful for responding to the call for an ongoing and closer partnership with the UP School of Urban and Regional Planning (UP SURP) through the establishment of PASCAL Centre Asia-Pacific based at UP SURP. PASCAL which stands for Placemaking and Social Capital and Learning, is an international observatory and a global alliance of researchers, policy analysts, decisionmakers and locally engaged practitioners from government, higher education, NGOs, and the private sectors. It is currently organized around university centers in Europe (University of Glasgow), Africa (University of Johannesburg), Australia (RMIT, Melbourne) and Asia-Pacific (University of the Philippines).

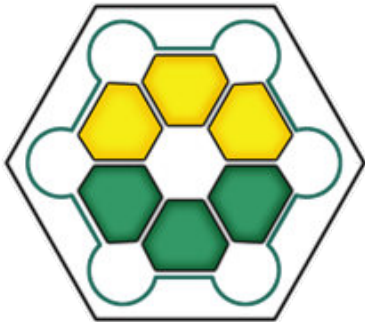
As Chair of the Executive Board of PASCAL International Observatory, I am convinced that we have very strong links internationally with many organizations and networks concerned with place-based educational initiatives and the community engagement role of universities. This is notable in the work it undertakes in the field of Learning Cities with the UNESCO Institute for Lifelong Learning and the Alliance of Learning Cities in Asia based in Seoul, South Korea. PASCAL is also a strategic partner of the Asia-Europe Foundation based in Singapore and the Asia Europe Meeting (ASEM) Lifelong Learning hub.

The Book of Abstracts you are about to read is a powerful reflection of the Centre's work. It offers a window into the innovative research, diverse educational practices, and community-centered approaches that have emerged through the collaborative efforts of researchers, educators, and policymakers across Asia and the Pacific. The abstracts within this volume provide a snapshot of the rich variety of projects and initiatives that embody the spirit of PASCAL—whether through advancing lifelong learning, fostering social inclusion, or responding to the ever-evolving challenges facing the region.

The PASCAL Centre Asia-Pacific has played a central role in advancing the notion of learning cities and communities. This has exemplified the belief that education must be accessible and responsive to the needs of every individual, family, and community. This commitment to lifelong learning is at the heart of the Centre's mission and is deeply reflected in the diverse research and ideas found in this Book of Abstracts. These works reflect not only the academic rigor of the region's scholars but also the grassroots engagement and real-world application that makes this work so impactful.

I commend the organizers and all of those involved in the creation of this book and for their dedication to fostering knowledge exchange, building sustainable educational systems, and improving the lives of individuals and communities throughout Asia-Pacific. The abstracts you will read here offer a powerful testament to their collective effort and to the ongoing importance of PASCAL's work in the region.

As we continue to explore new frontiers in education and learning, the contributions within this volume will serve as an invaluable resource for policymakers, practitioners, and researchers alike, offering insight and inspiration for the next stages of the journey toward creating more inclusive, resilient, and learning-focused communities and neighbourhoods.



Prof. Dr. Tabassam Raza

Executive Director
Planning and Development
Research Foundation, Inc.

Professor
UP School of Urban and
Regional Planning

Message

On behalf of the Planning and Development Research Foundation, Inc. (PLANADES), it is both an honor and a privilege to welcome you to the 5th International Conference on Urban and Regional Planning and the 18th PASCAL International Conference on Learning Cities.

Indeed, this conference brings together experts, policymakers, and practitioners from across the globe to engage in critical discussions on pressing global challenges, including climate resilience, disaster preparedness, equitable urban development, and sustainable resource management. PLANADES is committed to bridging the gap between research and practice, empowering communities, and enhancing urban systems to address these complex issues. Under the theme **“Sustainable Development Futures: From Knowledge to Practice,”** we are reminded of our shared responsibility as urban and regional planners, policymakers, and practitioners to take transformative action. In the face of unprecedented challenge such as climate change, environmental degradation, biodiversity loss, inequality, and resource depletion—this action must be rooted in evidence-based strategies and innovative solutions. By effectively translating academic and professional insights into actionable frameworks, we ensure that knowledge directly benefits cities and communities. Through the collaboration of government agencies, private organizations, NGOs, and academic institutions, this conference amplifies our collective commitment to fostering resilient, inclusive, and sustainable urban futures for all.

Since its founding, PLANADES has worked in close collaboration with the University of the Philippines School of Urban and Regional Planning (UP SURP). Through this partnership, PLANADES is dedicated to advancing applied research and providing technical assistance through consultancy services. Together, we support the development of knowledge, fostering scholarly publications, scholarships, and professorial chairs that contribute to urban and regional planning in the Philippines and beyond. This conference echoes our shared commitment to bridging academic research and practical solutions for the benefit of communities and cities across and beyond the Asia-Pacific region.

I extend my deepest gratitude to our esteemed partners, including UP SURP and the PASCAL International Observatory, whose support has been invaluable in making this event possible. The discussions and presentations shared here today will not only inspire innovative approaches but also contribute to a future in which urban environments are both resilient and inclusive, prioritizing the well-being of all.

Together, let us continue building a foundation for sustainable futures, fostering resilient urban development, and advancing meaningful partnerships that improve the quality of life in our communities.

KEYNOTE 1

The Contribution of Local and Regional Government in Achieving the Targets of SDG 4



Prof. Emeritus Michael Osborne
Professor Emeritus
University of Glasgow
Chair, Executive Board,
PASCAL International
Observatory
michael.osborne@glasgow.ac.uk

ABSTRACT

Much analysis of progress towards the achievement of SDG 4 has been undertaken at a national level. In 2019, UNESCO's Global Education Monitoring team published the first comprehensive review of country-level progress and launched it at that year's High-Level Political Forum (HLPF). Before and since then, a series of Global Education Monitoring reports have assessed key issues in relation to SDG 4. Although these reports are based only on the responses of approximately one third of countries in the world, they suggest that SDG 4 targets will likely not be met by 2030. However if we are to move at least significantly towards the targets, it is widely recognized that nuanced and localized solutions are required, especially in the challenge to reach socially excluded populations, namely people with low socio-economic status; racial, ethnic and linguistic minorities; people with disabilities; older people; migrants and refugees; nomadic people and people in remote areas; sexual and gender minorities; and people in areas of conflict or subject to the effects of climate change. Interventions must also recognize that there is diversity of needs in any population and that intersecting inequalities add to heterogeneity within any population, contributing to further challenges. In this context, it is necessary to factor in the scope of the responsibilities assigned to local and regional governments (LRGs) in educational policy-making, planning, management and funding, which are wide-ranging. The devolution and sharing of responsibility by national government to LRGs are crucial elements in the achievement of SDG 4. This presentation draws upon research that contributed to a report to the UN's High Level Political Forum in 2022 by the Global Taskforce of Local and Regional Governments and United Cities and Local Governments. Amongst other sources it draws upon studies undertaken within the Centre for Sustainable Healthy Learning Cities and Neighbourhoods of which the University of Philippines has been a partner. It also draws upon case studies for the PASCAL Observatory's Learning Cities Networks.

BIOSKETCH

Michael Osborne is Professor Emeritus, and was formerly Professor of Adult and Lifelong Learning at the University of Glasgow. He is experienced in adult and continuing education, Vocational Education and Training (VET), Higher Education research, development and evaluation, International Development and Place-based learning. He was Director of the Centre for Research and Development in Adult and Lifelong Learning (CR&DALL) within the College of Social Sciences, and Co-director of the PASCAL Observatory on Place Management, Social Capital and Lifelong Learning within the School of Education until 2024. He was a Co-I within the ESRC funded Urban Big Data Centre within which he has worked on projects concerned with education, place and disadvantage, and on learning city metrics. He has been PI of the British Academy GCRF funded Strengthening Urban Engagement of Universities in Africa and Asia project. He was also Co-I within the UKRI GCRF funded Global Centre for Sustainable, Healthy Learning Cities and Neighbourhoods. He holds a BSc in Chemistry with Mathematics (1975), a PhD in Organic Chemistry (1979) and a Cert Ed in Further Education (1984). He is a Visiting Professor at RMIT Melbourne, a Docent of the University of Tampere, an associate of the Centre for Neighbourhood Studies, University of the Philippines and of the Centre for Local Economic Development at the University of Johannesburg.

KEYNOTE 2

Challenges in the Pursuit of Sustainable Development Options: The Case of the Philippines



Christopher Rollo
Country Programme
Manager
United Nations Human
Settlements Programme
cris.rollo@un.org

BIOSKETCH

Cris Rollo is the Country Programme Manager of UN-Habitat Philippines since January 2012. As head of the Philippine Country Office, he works with national government agencies, local governments and urban stakeholders in addressing housing and urban development issues. At the national level, he has provided support to the national government in the preparation of the Philippines' New Urban Agenda, the development of the National Guidelines for Local Shelter Planning, the enhancement of the National Urban Development and Housing Framework (NUDHF 2019-2022) and the development of the Resilient and Green Human Settlements Framework (RGHSF). At the local level, he worked directly with more than 60 Philippine cities in implementing sustainable urban development approaches through urban planning and design, planned city extensions, climate change action planning, action planning on marine plastic pollution, localization of the Sustainable Development Goals, among others. He led the agency's shelter program in response to various natural and man-made disasters, where the agency provided permanent adequate housing to disaster-affected families and communities, and empowered their recovery through the People's Process. Prior to his engagement with the UN, he was the Deputy Director for Programs of the Metropolitan Museum of Manila and Chairman of the Committee on Visual Arts of the National Commission for Culture and the Arts (NCCA), being a visual artist himself. He was also a systems analyst responsible for developing management systems and business reengineering for 9 years at the Manila Electric Company. Cris obtained his A.B. Economics degree from the Ateneo de Manila University and Master in Business Management from the Asian Institute of Management including three years of law studies at the University of Santo Tomas Faculty of Civil Law.

SPONSOR PRESENTATION

Assesing the Inclusive Resilience of Tacloban City Post-Typhoon Haiyan: Opportunities for Tool Development and Lessons Toward Disability-Inclusive Risk Reduction and Management

Alfred Paolo D. Vargas¹ and Kristoffer B. Berse²

¹University of the Philippines School of Urban and Regional Planning

²University of the Philippines National College of Public Administration and Governance,
the Philippines



Alfred Vargas

Councilor

Quezon City Council

counciloralfredvargas@gmail.com

ABSTRACT

The aftermath of major metrological and geological disasters in the Philippines in the last decade underscored the need to inform disaster risk mitigation and response based on a calamity's differentiated impacts on the population. This is especially true considering the inordinate effect of disasters to persons with disabilities (PWDs), as the consequences of vulnerability and exclusion demonstrably magnify both human suffering and long-term social damage. Despite this awareness and the integrated approaches introduced in legislation such as Republic Act No. 10121, policymakers are confronted by the paucity of applicable assessment tools that can guide regional or local governments in addressing the disproportionate impacts of disasters to PWDs.

Due to the city's experience with Typhoon Haiyan (locally, Super typhoon Yolanda) in 2013, we utilized the Inclusive Resilience Scorecard (IRS), co-developed by the Inclusive Development and Empowerment Agenda (IDEA) and Women with Disabilities Leap to Economic and Social Progress (WOWLEAP), in Tacloban City, Leyte, the Philippines.

We assessed the city government's inclusive residence index based on six dimensions: (1) assessments, awareness, and capacity; (2) social protection and economic empowerment; (3) representation and participation; (4) planning, regulation, and risk mitigation; (5) emergency preparedness, response, and recover; and (6) critical services and infrastructure. Using focus group discussions and key informant interviews of government officials and sectoral representatives, a comprehensive description of the city's "inclusive resilience" was developed with the end-view of conceptualizing policy reform proposals. Deviations in the assessments between government officials and sectoral representatives were also elicited, exemplifying different salience and appreciation of five of the six dimensions, and underlining the role of active citizen participation in local policymaking.

The IRS was shown to be useful in gauging whether a local government unit is on track in building resilience for all, but localized application may require the following modifications: (1) broader view of marginalized groups, (2) consideration of the Annual Investment Plan and Local Development Investment Program to confront "unfunded mandates," (3) the effectiveness of local information campaigns on existing policies and programs, and (4) consideration of the dynamism and complexity of urban versus rural communities. With these modifications, the IRS can more concretely inform cities and municipalities towards disability-inclusive risk reduction and management; ultimately, saving lives and reducing human suffering in cases of these force majeure.

BIOSKETCH

Alfred Vargas is a distinguished public servant and renowned actor, currently serving as an incumbent Councilor in Quezon City after completing three terms as Representative of the Fifth District. Throughout his political career, he has been recognized for his outstanding contributions to legislation, particularly his work on public health, with notable accomplishments such as the enactment of the National Integrated Cancer Control Act. His legislative expertise is reflected in his impressive record of 1,237 bills and resolutions filed, with 93 of these becoming Republic Acts.

A recipient of the Congressional Medal of Distinction in 2022, Councilor Vargas was also honored as one of the Ten Outstanding Young Men of the Philippines for Public Service in 2019, cementing his reputation as a committed public servant. His leadership and influence have earned him recognition as one of People Asia's "Men Who Matter" in 2023.

In addition to his political achievements, Councilor Vargas is a celebrated figure in the entertainment industry. A five-time Best Actor and award-winning film producer, he has received numerous accolades for his work in film, including back-to-back Best Actor honors at the 2024 FAMAS Awards and the Taipei International Film Festival. His contributions to both politics and the arts have made him a respected and multifaceted figure, balancing his roles in public service with his passion for storytelling and creative expression.

Councilor Vargas continues to make a significant impact in both his community and his industry, working tirelessly to serve the people of Quezon City while also advancing the arts and culture in the Philippines and abroad.



PANEL DISCUSSION I: **BUILDING BETTER CITIES: INTEGRATING THEORY AND PRACTICE IN SUSTAINABLE URBAN DEVELOPMENT**

MODERATOR:

Ar. EnP. Geomilie Tumamao-Guittap

University of the Philippines School of Urban and Regional Planning

DISCUSSANTS:

Dr. Marius Venter

University of Johannesburg & Director, PASCAL Centre Africa

EnP. Ma. Bianca D. Perez

Quezon City Disaster and Risk Reduction Management Office

Ms. Ma. Lene S. Torio

Local Government of Bayambang, Pangasinan

Hon. Nicholas M. Yulo

Local Government of Bago City, Negros Occidental

REACTOR:

EnP. Ibani C. Padao

Department of Human Settlements and Urban Development
(DHSUD)



PANEL DISCUSSION I

Astro-tourism as a local economic development enabler for rural towns: the case of Sutherland in South Africa



Assoc. Prof. Marius Venter
Associate Professor
University of
Johannesburg & PASCAL
Africa
mventer@uj.ac.za

ABSTRACT

Astronomy has the unique capability to spark the imagination of young and old and provides the Municipality of Karoo Hoogland with opportunities in the development of a unique tourism industry associated with astronomy in and for South Africa. Sutherland is situated at a height of 1450m above sea level on the southwest escarpment of the inland Plateau. At this height the area is exposed to all the cold air coming from the southwest. Due to the low moisture levels and thin air, heat radiation at night is high. The heavy cold air flows down to the lower valley where Sutherland is situated. Sutherland is known as one of the coldest places in South Africa. The International Dark-Sky Association (IDSA) is of the opinion that dark night skies can be a fundamental resource to promote sustainable astro-tourism. South Africa has the potential to be a leader in terms of this opportunity due to the following key critical factors such as cloudless skies providing a unique tourism experience for skygazing (optical astronomy); quality dark skies (Low Light Pollution) and radio quiet zones over large areas of the country, especially in rural tourism destinations; the Southern Skies Advantage (South Africa is favourable positioned in relation to several celestial phenomena that cannot be seen from the Northern Hemisphere); four of the world's best-preserved meteorite impact craters are found in South Africa (Unique Multi-Science Offerings); South Africa hosts two of the globe's most significant astronomy initiatives, the Square Kilometre Array (SKA), this groundbreaking project for world science observes, captures and analyses radio signals from the immediate aftermath of the Big Bang. It searches for earth-like planets and potential life elsewhere in the universe, tests fundamental scientific positions such as the theory of gravity, and probes the dark energy of the early universe; and the South African Astronomical Observatory (SAAO). This paper describes the possibility to use an action research approach to understand the potential impact of the draft astro-tourism strategy of South Africa on the small rural town of Sutherland, Northern Cape, South Africa.

BIOSKETCH

Prof. Marius Venter is the founder and director of the Centre for Local Economic Development (CENLED) at the University of Johannesburg. Previously he was the chief executive officer of the Overstrand Local Economic Development Agency (OLEDA), a private company owned by the Overstrand Municipality tasked with implementing LED projects. Prof. Venter worked for the City of Johannesburg for 22 years in various posts: as the head of the Transport Department's Training Centre, deputy director: Privatisation, deputy director: Informal Trade, deputy director: Johannesburg Fresh Produce Market, and executive director: Local Economic Development. Currently he serves as the Chairperson of the Economic Development Council of South Africa (EDCSA) and is the Director of PASCAL Africa of the PASCAL International Observatory and is a visiting Professor at the Philippines Normal University in Manila. His research interests are in local economic development (LED), informal street trading and entrepreneurship.



PANEL DISCUSSION I

EnP. Ma. Bianca D. Perez, MPA

Officer-in-Charge
Quezon City Disaster Risk Reduction and
Management Office
bianca.perez@quezoncity.gov.ph

BIOSKETCH

Bianca has over a decade of experience in Philippine Disaster Risk Management (DRM), including work with global experts on emergency and response management, scientific risk assessments, local planning and governance, disaster risk reduction, and resilience building. As the head of the DRRM office in Quezon City, she oversees the design, planning, and implementation of DRRM activities of the city with the goal in mind to build disaster-resilient communities. Since 2017, she has led the development of the strategic roadmap of the city for building community resilience against disasters. Prior to working with the city government, she worked on long-term DRRM plans of megacities around the world such as Kathmandu, Amman, Mumbai, and Dhaka, as well as highly urbanized cities in the Philippines such as the cities of Quezon and Pasig. She has had experience in implementing projects funded by multilateral organizations such as the World Bank, Global Facility for Disaster Reduction and Recovery, the Asian Development Bank, USAID, DIPECHO, and local authorities and national governments. An accredited trainer on Contingency Planning, Public Service Continuity Planning, and Incident Command System, she is also a GIS Specialist and licensed Environmental Planner. She graduated with a BS Geography degree from the University of the Philippines and holds a Masters Degree in Public Administration and Governance from UP-NCPAG with specialization on Public Policy and Program Administration.



PANEL DISCUSSION I

Ma-Lene S. Torio, MDM

Municipal Planning and Development
Coordinator
Local Government of Bayambang,
Pangasinan
toriom@bayambang.gov.ph

BIOSKETCH

Ms. Ma-Lene Torio has 29 years of dedicated government service, possessing comprehensive and integrated developmental planning, organizational, and leadership abilities. Specializes in zoning and land use planning, investment programming, and monitoring local government projects. Highly effective at training and managing people of all skill levels. Experienced in collaborating with renowned Urban Planner Felino "Jun" Palafox Jr. of Palafox Associates in formulating the Comprehensive Land Use Plan and Zoning Ordinance (CLUPZO) for Bayambang (2018-2027). Currently serves as the Municipal Project Management and Implementing Unit (MPMIU) I-PLAN Unit Head of the Department of Agriculture (DA) Philippine Rural Development Project (PRDP) - World Bank (WB).

She is currently the OIC-Municipal Planning and Development Coordinator for the Municipality of Bayambang. She leads the planning and development initiatives with the municipality, ensuring comprehensive and integrated approaches to developmental planning. She collaborates with various stakeholders to achieve local government objectives, focusing on sustainable urban development and effective resource management.



PANEL DISCUSSION I

Hon. Nicholas M. Yulo

Mayor

Local Government of Bago City,
Negros Occidental

nicholas_yulo@yahoo.com

BIOSKETCH

City Government of Bago, Negros Occidental Mayor Nicholas M. Yulo is a dedicated public servant committed to fostering sustainable community development, innovative local solutions and excellence in public administration. With a career spanning over 20 years in public service, Mayor Yulo has worked tirelessly in promoting environmental stewardship and community well-being. Mayor Yulo holds an A.B. Economics Degree from Adamson University and is currently serving as Mayor of Bago City, Negros Occidental. His leadership has been instrumental to tangible improvements in the quality of life of his Bagonhon constituents, earning numerous recognitions from distinguished award-giving bodies. He received the Honorary Local Chief Executive Award for Mayor and the Certified Most Sustainable and Liveable City Award for Bago during the Nation Builders and Mosliv Awards 2022. In 2023, under his leadership, Bago City was recognized for its Sustainable tourism initiatives during the Green Destinations Story Awards 2023 at the Internationale Tourismus-Börse (ITB) in Berlin, Germany in the Environment and Climate Category for its story "Reviving the Majestic Diversity of Bago Watershed", a ridge-to-reef environmental management/integrated ecosystem management approach project. Bago City was also a Galing Pook Awards Finalist that year for this initiative. Additionally, in 2023, the City of Bago was the overall champion in the city



PANEL DISCUSSION I

EnP. Ibani C. Padoa

OIC-Asst. Director

Housing and Homesite Registration
Office VI, Department of Human

Settlements and Urban Development
ibani.padao@dhsud.gov.ph

BIOSKETCH

Ibani Padoa is a licensed environmental planner and the current OIC-Assistant Bureau Director of the Environmental, Land Use, and Urban Planning and Development Bureau of DHSUD (Department of Human Settlements and Urban Development). Previously, he was the Chief for the Monitoring and Evaluation Division of the said Bureau, wherein he served as the lead for the digitalization of land use and urban planning including the development of a land use monitoring information system. He holds a Bachelor's degree in Geography from the University of the Philippines and earned his Master's Degree in Urban and Regional Planning from the same institution. He was a formerly part of the Policy Development Group of the Housing and Land Use Regulatory Board, where he contributed to the formulation of guidelines and standards in land use planning and zoning, including (1) the current CLUP Guidebooks, which incorporated the ridge-to-reef and Integrated Ecosystems Management (IEM) approaches in land use planning, and (2) guidelines in mainstreaming Climate Change Adaptation and Disaster Risk Reduction (CCA-DRR) in the CLUP and ZO.



TECHNICAL SESSION 1: **REGIONAL COMPLEMENTARITY AND COMPETITIVENESS**

TECHNICAL SESSION 1A:

Moderator:

Asst. Prof. Ronnie Encarnacion

UP School of Urban and Regional
Planning

Presenters:

Assoc. Prof. Dina C. Magnaye

UP School of Urban and Regional
Planning

Asst. Prof. Arthur Lagbas

Technological University of the
Philippines Manila

Prof. Mario Delos Reyes

UP School of Urban and Regional
Planning

TECHNICAL SESSION 1B:

Moderator:

Asst. Prof. Carmelita Liwag

UP School of Urban and Regional
Planning

Presenters:

Assoc. Prof. John Palo C. Dalupang

Polytechnic University of the
Philippines Manila

Lect. Diomari Centeno

University of the Philippines Diliman

Michael Timbang

Asian Development Bank



TECHNICAL SESSION 1A

Complementarity in Polycentric Metropolitan Regions: The Case of Metro Manila, Philippines

Maryam Mazous¹ and Dina C. Magnaye¹

¹University of the Philippines School of Urban Regional Planning



Assoc. Prof. Dina C. Magnaye
Dean
University of the Philippines
School of Urban and
Regional Planning
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ABSTRACT

The Metro Manila Greenprint 2030 of the Metropolitan Manila Development Authority emphasizes the vital role of metropolitan economies as “frontline competitive units in the global economy.” As part of strategic development initiatives, metropolitan regions aim to optimize the potential of their constituent cities. However, without a cohesive vision and concerted efforts to foster complementarity, the result can be detrimental competition among the cities and inefficient development of the region. This issue is particularly relevant in the Philippines, where the dynamics of intercity complementarity remain underexplored. The concept and scope of a polycentric urban region become relevant where the whole system of cities shares an array of economic functions, urban facilities, and business landscapes in a given region to develop synergy within functional urban areas. The main research objective is to assess the degree of complementarity among the cities of MM and analyze key drivers behind the observed trends in the complementary activities of cities. Specifically, the research aims to investigate the degree of complementarity among MM cities based on their economic functions; examine the distribution of the various economic sectors among MM cities; determine whether strategic planning in MM is pushing towards complementarity; and develop strategic actions that can foster complementarity among the cities of MM. The research adopted an “explanatory sequential” approach to evaluate the economic specialization of the cities in MM and its implications for development planning that highlights complementarity of cities. Quantitative data were used to provide valuable insights into the region’s economic landscape and, triangulate the results with key informants to establish the relationship between development planning and complementarity trends. The quantitative analysis revealed a trend of diminishing complementarity among MM cities. Over the period of 2015 to 2021, the complementarity ratio declined by 1.22%, indicating a convergence towards economic similarity rather than diversification. The correspondence analysis scatter plot revealed the prevailing convergence of economic profiles among MM cities. The change in the coefficient of variance of location quotient revealed that only four sectors (agriculture, forestry and fishing; mining and quarrying; information and communication; and real estate activities) showed a statistically significant increase in dispersion of more than 10% among MM cities. This signifies an even distribution of the economic sectors among MM cities. It also confirms the qualitative insights on the autonomy of cities in shaping their respective economic structure. The cooperation among cities tends to be limited to technical levels and infrastructure development projects indicating a lack of strategic-level collaboration. This connotes a fragmented landscape wherein cities stand as distinct entities, pursuing their economic development individually, rather than collectively espousing complementarity. Research findings underscored the need for a comprehensive and sustainable regional development strategy and a balance between the autonomy of LGUs and the imperative for collaboration. Without a unified vision and coordinated efforts, MM risks perpetuating a fragmented landscape where cities pursue individual development at the expense of a cohesive regional strategy.

BIOSKETCH

Dr. Dina Cartagena Magnaye is an Associate Professor and Dean of the University of the Philippines School of Urban and Regional Planning (UP SURP). She holds a BS in Agricultural Business, an MS in Agricultural Economics from UP Los Baños (UPLB), and a PhD in Urban and Regional Planning from UP SURP. Dr. Magnaye’s leadership includes roles as Project Operations Manager at the UP Los Baños Foundation (1992–1996), Project Development Associate at SEARCA (1997–2003), and Program Chair at UP Open University (2016–2022). She became Dean of UP SURP in 2022. She is a licensed Environmental Planner and a member of the College of Fellows of the Philippine Institute of Environmental Planners (PIEP), recognized for her contributions to the planning profession. A prolific researcher and author, Dr. Magnaye has received numerous awards, including the One UP Faculty Grant Award (2019–2021) and the One UP Professorial Chair Award in Urban Planning (2022–2024). Her work includes research, technical assistance to government and NGOs, and contributions to local and international planning projects.

TECHNICAL SESSION 1A

Vegetation Cover Analysis of the Metropolitan Manila, Philippines Using the 2014 and 2024 Dry Season Landsat Imagery



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ABSTRACT

This study describes the analysis of the vegetation cover of the 17 local government unit (LGU) comprising of 16 highly urbanized cities and one municipality in the Metropolitan Manila, Philippines using the Landsat satellite image in the dry season processed in QGIS Desktop version 3.26.3. The Metropolitan Manila is a special and administrative region and the National Capital Region. The Normalized Difference Vegetation Index (NDVI) was used to compare the vegetation cover. In 2014 the average mean NDVI is 0.24 and the average max NDVI is 0.82. Fourteen of the 17 LGU have a mean NDVI within the range of 0.2 to 0.4 except Malabon, Manila and Navotas. Maximum NDVI range from 0.71 to 0.93. Muntinlupa has the highest mean NDVI (0.38) and has the highest maximum NDVI (0.93). Other cities with high mean NDVI are Quezon, Las Piñas, Taguig, Caloocan, Marikina, Parañaque and Pateros. On the other hand, in 2024 the average mean NDVI is 0.23 and the average maximum NDVI is 0.80. Sixteen cities have mean NDVI within the range of 0.2 to 0.4 except Navotas. Maximum NDVI range from 0.70 to 0.88. Similar to the 2014 Muntinlupa has the highest mean NDVI (0.35). Other cities with high mean NDVI are Quezon, Caloocan, Taguig, Marikina, Las Piñas and Pateros. The mean NDVI suggest dominance of grassland and shrub cover but dense vegetation is also present as reflected in the maximum NDVI. Dense vegetation is detected in conservation and areas restricted or regulated to the public such as national park, urban park, school campus, exclusive and gated villages and religious spaces. Two-sample t-test showed that the average of the mean and maximum NDVI are not significantly different ($p > 0.05$). This study may serve as a baseline information for policy recommendations to address areas within the local government units of Metropolitan Manila with inadequate green space provision.

BIOSKETCH

Arthur J. Lagbas is currently Assistant Professor 4 at the Technological University of the Philippines Manila with industry, teaching and research experience. He served TUP in various capacities as a Planning Officer and member of the technical working committee for the procurement of equipment, Land Use Development and Infrastructure Plan (LUDIP), pollution control, hazardous waste management and program accreditation. He is a registered and licensed chemist and an environmental planner. He earned the Bachelor of Science in Chemistry from Cavite State University and the Diploma in Environment and Natural Resources Management, Master of Environment and Natural Resources Management and Diploma in Land Use Planning from the University of the Philippines Open University (UPOU). His current research interests are urban green spaces, land use planning, coastal resources management, GIS and remote sensing. His papers are published in the Journal of Urban Management (ISI, Scopus), Journal of Marine and Island Cultures (Scopus), Journal of Management and Development Studies of the Faculty of Management and Development Studies UPOU, and the Ecosystems and Development Journal of the College of Forestry and Natural Resources UP Los Baños. He is a regular member of the Integrated Chemists of the Philippines, life member of the Forest and Natural Resources Research Society of the Philippines, and an associate member of the National Research Council of the Philippines.

TECHNICAL SESSION 1A

Bohol Island: The First UNESCO Global Geopark in the Philippines for Sustainable Regional Development

Mario Delos Reyes¹, Gero Hillmer², Nancy Aguda³

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²University of Hamburg, Geological and Paleontological Institute,

³University of the Philippines National Institute of Geological Sciences



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ABSTRACT

UNESCO Global Geoparks (UGGp) are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. Their bottom-up approach of combining conservation with sustainable development while involving local communities is becoming increasingly popular. At present, there are 213 UNESCO Global Geoparks in 48 countries (unesco.org). The project aims to establish the first Global Geopark in the island province of Bohol recognized by UNESCO Paris that addresses the unique framework towards sustainable island development. This was the result of a 10-year research and field works in Bohol Island. The methodology are as follows: 1) A series of scientific studies and fieldwork were conducted to establish the national and international geological, ecological, biological, archeological significance of Bohol Geopark; 2) Likewise, workshops and fora were conducted for the formulation of the comprehensive management plan of the Geopark; 3) Networking with local and international experts that were useful for the development of the Geopark; and 4) Meetings and consultations with various stakeholders that included relevant national and local government agencies, academe, and private sectors. Boholanos officially resolved to continue their commitment to the protection of their natural environment and promotion of sustainable development through geopark initiatives by submitting the Bohol Island a UGGp application to UNESCO Paris. The results of the study are the following: 1) Documentary and scientific requirements that forms a dossier for submission to UNESCO Paris; 2) Data and information collected on Geopark for the publication of the book titled, "Bohol – A Window to the Philippines' Natural History: Towards Sustainable Island Development"; 3) Potential key geosites and their descriptions were prepared that will constitute the Bohol Geopark; 4) Participation to the Global Geopark Network (GGN) and the Asia-Pacific Geopark Network (APGN) through meetings, workshops, fora and conferences; and 5) Trained and educated various sectors of society in collaboration with the Provincial Government of Bohol. Last year in May 2023, Bohol Island was designated as the first UNESCO Global Geopark in the Philippines (UGGP). This designation of Bohol as the first UGGp in the country is not only because of "its exceptional geological landscape or nice karst formation, but also about its rich cultural heritage, rich biodiversity, biological and ecological protection, conservation and management, socio-economic development, sustainable island regional development, and educational opportunities that a geopark brings as an outdoor classroom. The advantages of being inscribed as UGGP in the Philippines are the following: 1) international recognition; 2) conservation and protection; 3) educational opportunities; 4) ecotourism and local economy; 5) networking and collaboration; 6) environmental awareness and sustainability; and 7) sustainable island development. It brings attention to the unique geological, biological, ecological and cultural heritage of the island while fostering environmental awareness and promoting responsible tourism. Other LGUs are inquiring for the team's technical assistance to become another UGGp. They have asked the team for help in highlighting their area on the unique geological, environmental, biological, cultural, historical, and archeological features of their respective provinces and/or municipalities. Further, they are requesting assistance in emphasizing the national and international significance of their respective areas, in order to accomplish the same recognition.

BIOSKETCH

Dr. Mario Delos Reyes is a Professorial Lecturer and former Dean at the University of the Philippines School of Urban and Regional Planning (UP SURP). At present, he is the Director of PASCAL (Placemaking and Social Cohesion and Learning) Centre for Asia-Pacific. Prof Delos Reyes is the President & CEO of the SEC-registered NGO, Centre for Neighbourhood Studies (CeNS) Philippines. He presented papers at the 16th and 17th PASCAL International Conferences on Learning Cities at the University of Tampere, Finland in October 2023 and at the University of Taipei, Taiwan in July 2024, respectively. He was the Principal Investigator of the project titled, "Local challenges, global imperatives: Cities at the forefront to achieve the Education 2030 Agenda" funded by UK Research and Innovation (UKRI) – Global Challenges Research Fund (GCRF) and the UNESCO – International Institute for Educational Planning (IIEP). He was awarded UP Scientist 3 for CY 2021-23 and received from the University Board of Regent's Meritorious Public Service Award in Environmental Governance in 2016. He earned a Doctor of Natural Science degree at the University of Hamburg in Germany.

TECHNICAL SESSION 1B

Constructing Flooding Risk Among Select Coastal Metro Manila LGUs



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ABSTRACT

Disaster risk assessment plays a crucial role in shaping disaster governance policies and programs within local government units (LGUs). This study delves into the multifaceted aspects considered by LGUs when assessing their vulnerability to flooding, with a specific focus on two coastal municipalities in Metro Manila: Malabon and Navotas. By examining these urban coastal areas, the research aims to uncover the complex interplay of factors that influence flood risk perception and management at the local level. The study employed a mixed-method approach to data collection, conducted in 2016. This included a comprehensive review of city Disaster Risk Reduction and Management (DRRM) plans, providing insights into formal risk assessment processes and strategies. Additionally, key informant interviews were conducted with pivotal members of the cities' DRRM councils, offering valuable perspectives on decision-making processes and risk perceptions. Findings from this research reveal a nuanced picture of flood risk assessment in these coastal LGUs. While scientific data and analysis form a cornerstone of the assessment process, the study highlights the significant influence of other factors. Local historical experiences of flooding emerge as a critical component, shaping how communities and officials perceive and respond to flood risks. Moreover, the personal perceptions of key officials play a substantial role in defining what constitutes a "risky" situation, underscoring the subjective nature of risk assessment. This interplay between scientific data, historical experience, and personal perception points to the importance of local context in the risk assessment process. The study suggests that effective flood risk governance cannot rely solely on scientific metrics but must also incorporate the lived experiences and insights of local communities and officials. This finding has significant implications for how flood risk is understood, communicated, and managed in urban coastal areas. Interestingly, while personal perceptions and local experiences significantly influence how local officials respond to flooding challenges, these factors are not fully mainstreamed into formal policy. This disconnect between informal knowledge and official policy frameworks presents both challenges and opportunities for enhancing flood risk management. The research underscores the need for a more holistic approach to disaster risk assessment that can bridge the gap between scientific data, local knowledge, and personal insights. It suggests that effective flood governance requires mechanisms to integrate diverse sources of information and experience into formal decision-making processes.

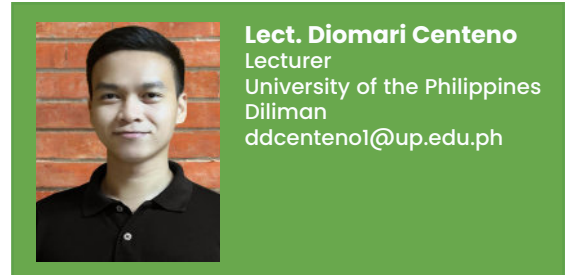
BIOSKETCH

John Paolo C. Dalupang is an Associate Professor and former Chair of the Department of Sociology and Anthropology at the Polytechnic University of the Philippines, where he teaches courses on Social Research Methods, Urban Sociology, and Sociology of the Environment. He has a Master of Science in Environmental Technology from the New York Institute of Technology and has completed all academic requirements for a Ph.D. in Sociology at Ateneo de Manila University. With over a decade of academic experience, his research focuses on environmental sociology, disaster risk reduction, and climate change adaptation. He has contributed to various research projects, authored textbooks, and presented at numerous conferences, showcasing his expertise in social vulnerability assessments and resilience to flooding in Metro Manila. Additionally, he has held roles as a Research Associate and Part-Time Lecturer, further enhancing his professional profile in both academic and applied research settings.

TECHNICAL SESSION 1B

The Ripple Effect: Analyzing the Effects of Mangrove to Fish Pond Conversion on Flood Risks and Susceptibility of North Manila Bay Delta in 2012, 2017, and 2022

Diomari Centeno¹, Vincent P. Dayrit¹, Nappy L. Navarra¹
¹University of the Philippines Diliman



ABSTRACT

Flooding has been a widespread issue throughout the Philippines. As a coastal area, the North Manila Bay Delta or the Pampanga Delta is highly vulnerable to such risks. This is specifically observed during major typhoons like Ondoy, and the continuous rain during Southwest Monsoon Season. One of the main contributing factors to this is the extensive land use conversion of mangrove forest to fishponds. Mangroves greatly help in mitigating and controlling surface runoff in the events of high tide and rain. However, within the last century, almost 90% of the existing mangrove forest has been converted to fish ponds for agricultural and economic benefits. The study aims to determine the effect of the conversion of mangrove forest to fish pond land use in the North Manila Bay Delta area to flood susceptibility. The main methodology utilizes geographic information systems (GIS) mapping, while data were analyzed through landscape metrics to determine these land use changes through time. Using historic mapping and comparative analysis of existing fish ponds and mangrove patches, findings show that the land use conversion of mangroves had a negative impact on the site's susceptibility to flooding from 2011 to 2017. Aside from flooding, the site became more vulnerable to other risks like storm surge and sea level rise. This is especially prevalent with patches of mangrove forests becoming less dense and more fragmented throughout the time period. This led to patches becoming less secure and harder to manage due to the distance between land areas and the increasing space dedicated for built areas and fish pond. However, recent efforts of LGUs, such as the reforestation in Bulacan and Pampanga and conservation of the Mangrove forests, have proved beneficial to the site. This positively impacted the site's capacity to mitigate the effects of typhoons and storm surges, with more areas becoming less susceptible to widespread surface flooding.

BIOSKETCH

Diomari Centeno is a licensed landscape architect and a member of the Faculty of the University of the Philippines College of Architecture - Environmental Landscapes Studio Laboratory. His research agenda traverses on the different fields of sonic environments of urban landscapes, cultural tourism landscapes, and ecological revitalization of riverine and coastal communities, where he presented in different national and international colloquiums and conferences. In his practice as a landscape architect, his work focuses on the design and construction of several mid- to large-scale landscape developments including residential master planned communities, condominium leisure amenities, retail hubs and commercial centers, hotels and resorts, universities, medical institutions, streetscapes, and public open spaces in the urban setting.

TECHNICAL SESSION 1B

Extreme Weather Shocks and Household Welfare: Evidence from the Philippines

Michael Timbang¹ and Manuel Devera²
¹Asian Development Bank, ²Asian Institute of Management



Michael Timbang
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ABSTRACT

Much of the existing evidence on the adverse effects of climate change such as warming on economic outcomes are concentrated at the country level. At the household level, however, where the direct effects are felt, empirical evidence on the climate–economy relationship remain scarce. Because poor households account for a modest fraction of national income, the detrimental effects of weather shocks on the poor are often obscured using national income accounts.

This study aims to contribute to the literature by examining the causal effects of extreme weather shocks on household welfare in the Philippines. Household welfare is expressed in terms of: (1) household income; (2) household’s vulnerability to poverty; (3) income inequality; and (4) human capital. Meanwhile, extreme weather shocks are captured via: (1) the amount or the change in the amount of rainfall or precipitation; (2) the change in temperature, expressed in degree Celsius; and (3) soil temperature and soil moisture. We build an independently pooled cross sectional dataset by pooling together several rounds of the Family Income and Expenditure Survey (FIES), whenever available from its latest reference year. The FIES provides data on family income and expenditure, which include among others, the levels of consumption by item of expenditure, as well as sources of income in cash and in kind. The FIES also specifically discusses the levels of living and disparities in income and spending patterns of families belonging to different income groups. For the weather data, we use the ERA5 (ECMWF Re-Analysis-5) dataset produced by the European Centre for Medium Range Weather Forecasts (ECMWF). ERA5 is a global reanalysis dataset that provides hourly estimates of a large number of atmospheric, land, and oceanic climate variables, and includes information about uncertainties for all variables at reduced spatial and temporal resolutions. ERA5 combines vast amounts of historical observations into global estimates using advanced modelling and data assimilation systems. While the study is still at the initial stage, we deem that the findings from this research will serve as a basis in crafting effective policy measures and interventions—i.e. social protection and social infrastructure programs, to mitigate the adverse effects of weather shocks on household welfare.

BIOSKETCH

Michael Timbang contributes to ADB’s macro-monitoring, forecasting, and research work for the Asian Development Outlook, the Bank’s flagship publication. His work focuses on Euro Area and Hong Kong, China’s economic monitoring, surveillance, and forecasting, and leads the preparation and update of the Macroeconomic Monitoring and Forecasting Tool that is widely used by ADB country economists. He has written and co-authored several research papers and policy briefs for the department. His research interests include public-private partnerships, behavioral finance, poverty analysis, and quantitative evaluations of climate change impacts. He received his MA in Economics degree from the UP School of Economics, Philippines.



PANEL DISCUSSION II: **URBAN SPACES, LIFELONG PLACES: CULTIVATING CONTINUOUS LEARNING IN CITIES**

MODERATOR:

EnP April N. Dela Cruz

University of the Philippines School of Urban and Regional Planning

DISCUSSANTS:

Dr. Rob Mark

University of Glasgow / PASCAL Learning Cities Network

Hon. Mar-len Abigail S. Binay

Local Government of Makati City

EnP. Ronnie L. Lindog

Municipality of Sariaya, Quezon Province

REACTORS:

Dr. Marife M. Ballesteros

Philippine Institute of Development Studies (PIDS)

Ms. Mae Valdez-Irong

ICLEI Local Governments for Sustainability

Mr. John Kien D. Develos

Local Government Academy

PANEL DISCUSSION II

New Challenges for Higher Education in Promoting an Age-Friendly Approach



Dr. Prof. Rob Mark
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ABSTRACT

“Active ageing is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. It applies to both individuals and population groups.” World Health Organisation. Older people form an increasing proportion of the global population, and as society is reshaped, educationalists are challenged to consider how to respond to an ageing population. Through new pedagogies and practices of teaching, research, and community engagement, universities, as major educational providers, can and should adapt to adequately address the challenges and barriers faced by older adults through the creation of appropriate opportunities for learning in later life. A key objective of this presentation will be to examine and reflect upon ways in which universities can respond to the needs of older adults. A vision for later-life learning which includes older people learning within the university will be discussed. This paper is based on a joint research initiative for developing age friendly universities focusing on the contribution of 3 universities in Ireland, Scotland and the USA to developing an age friendly approach over an extended period. Using the concept and strategic focus of the Age-Friendly University, the presentation will explore how the three universities worked together to develop shared ideas and principles around age-friendly universities. It will outline the foundational elements of ten AFU design principles, illustrating how the implementation of these design principles has transformed universities into lifelong learning universities for students of all ages. This transformation was brought about through new forms of inter-generational teaching and the development of new strategies for university-community partnerships with new synergies to advance the mission of higher education for all ages. The paper will also demonstrate the benefits which can accrue from people learning in later life. It will highlight the many different types of learning, including learning for personal development, learning for work, and learning for social and community engagement. It will argue that universities have the potential to play a major role in innovation in learning through increasing and widening participation of older adults and creating institutional change. The paper argues that the age friendly university has the potential to bring social, personal and economic benefits for older adults and universities alike. The presentation will demonstrate how universities might respond to future proofing city response in working to transform the lives of older adults.

BIOSKETCH

Rob Mark is a senior honorary researcher at the University of Glasgow, Scotland. He has had extensive engagement with research and policy activities at national and international level and has published widely in the broad field of lifelong learning, literacy and community, inter-generational learning, health and well-being, transitions and learning and formal and non-formal learning. He has an interest in excluded groups such as older adults, adults with literacy difficulties, mental and physical disabilities and learning, and the benefits of lifelong learning policies and practices can bring.



PANEL DISCUSSION II

Hon. Mar-len Abigail Binay

City Mayor

Local Government of Makati City

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BIOSKETCH

Mar-Len Abigail S. Binay is a lawyer who has served in both the legislative and executive branches of government. After serving nine years in Congress as Makati's 2nd District Representative, she was elected Mayor of Makati in May 2016 and is now on her third and final term. Her administration embraced technology to promote greater transparency, efficiency and competitiveness while accelerating Makati's transformation into a Smart City. A champion of resilience and sustainability, Mayor Abby declared a climate emergency in 2022 to mobilize multi-stakeholder climate action. Makati was subsequently proclaimed by UNDRR as the first-ever Resilience Hub in Southeast Asia.



PANEL DISCUSSION II

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Municipal Planning and Development

Coordinator/Zoning

Administrator-Designate

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BIOSKETCH

EnP Ronnie De Luna Lindog of Sariaya, Quezon Province, Philippines, has carved a strong commitment to public service. Born on October 25, 1973, EnP Lindog's journey began with a strong foundation in education. His academic pursuits earned him a Bachelor of Science in Computer Engineering from Adamson University, a Master of Science in Environmental Management from Philippine Women's University, and a Bachelor of Science in Geodetic Engineering through the Expanded Tertiary Education Equivalency and Accreditation Program (ETEEAP) from Manuel S. Enverga University Foundation. For more than two decades, EnP Lindog has dedicated his career to public service, steadily progressing through the ranks until he became the Municipal Planning and Development Coordinator of the Local Government Unit of Sariaya in 2018. EnP Lindog's longevity in public service speaks volumes about his competence and dedication. His unwavering commitment to his role as the MPDC is a testament to his passion for serving his community. Additionally, EnP Lindog serves as the chapter president of the Philippine Institute of Environmental Planners (PIEP)- Quezon- Marinduque Chapter since 2019 and the current National Treasurer of the League of Local Planning and Development Coordinators of the Philippines, Inc. (LLPDCPI).



PANEL DISCUSSION II

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BIOSKETCH

Marife Ballesteros is the Vice President of the Philippine Institute for Development Studies. She leads the conduct of policy research in the fields of urban development, housing and land policy at the Institute. She is a member of the Society of Industrial and Organizational Economics (SIOE); the International Development Evaluation Association (IDEAS) and the Philippine Economics Society (PES). Dr. Ballesteros holds a PhD in Social Sciences from the Radboud University, the Netherlands; and a Master of Arts Degree in Economics from the University of the Philippines, Diliman.



PANEL DISCUSSION II

Mae Valdez-Irong

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BIOSKETCH

Mae serves as the Regional Program Manager. She is an Expert Certified Development Project Management Professional (CDPM® Level II) with over a decade of experience in environment-related projects, focusing on climate action and governance at the national and local level. Prior to joining ICLEI, she worked with various international organizations, civil society organizations and national and local government agencies on initiatives that support the country's commitment to multilateral environmental agreements, more prominently, the Paris Agreement. At ICLEI-SEAS, she facilitates the development, implementation and oversight activities under the climate change portfolio, including inter-LGU knowledge exchange initiatives.



PANEL DISCUSSION II

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SPONSOR PRESENTATION

Eco-Zoning the Philippines Towards Inclusive and Sustainable Development



Rowena Torres-Naguit
Acting Group Manager
Management Information
Systems and Corporate
Planning Group
Philippine Economic Zone
Authority

BIOSKETCH

ROWENA TORRES-NAGUIT is a seasoned professional with a rich background in communication, business administration, and economic zone management. She holds a degree in AB Communication Arts, Major in Journalism from the University of the Philippines, Diliman, and a Master's in Business Administration from the Lyceum of the Philippines, Manila.

She joined the Philippine Economic Zone Authority (PEZA) in 1997, where she steadily rose through the ranks from Records Officer to her recent appointment as Acting Group Manager. Throughout her tenure, [Full Name] has held various key positions, including her initial assignment at the Cavite Economic Zone under the Office of the Administrator. She was later transferred to the Office of the Deputy Director General for Policy & Planning, Promotions, and Public Relations, and subsequently served at the Office of the Director General.

Before returning to the Management Information Systems and Client Portfolio Group (MISCPG) in April 2024, she was Zone Manager for several special economic zones in Cavite for six years, playing a crucial role in



TECHNICAL SESSION 2: **DIGITAL TRANSFORMATION FOR INNOVATION IN PLANNING**

MODERATOR:

Prof. Jun T. Castro

UP School of Urban and Regional Planning

PRESENTERS:

Erris Sanciangco

Save Travel PH Mobility Innovation Organizations

Eugenio Ferrer Santiago

Polytechnic University of the Philippines

Ralph Angelo Estiller

Cagayan State University

Preyo Darshan Dash

American International University–Bangladesh

Aya V. Raymundo

National University Manila

Atty. Mark Anthony Gamboa

UP School of Urban and Regional Planning

Mark Jetro Mortel

UP School of Urban and Regional Planning

TECHNICAL SESSION 2

Development of an Inclusive Community Monitoring Tool for Sustainable Society with a Focus on Social Vulnerability

Mariko Shibasaki¹, Deepanshu Agarwal¹, Satoshi Miyazawa¹, Saurav Ranjit¹, Mitsuha Miyake¹, Ueta Shoji¹, Ryosuke Shibasaki¹, Timothy Alconga², Erris Sanciangco³, Noriel Christopher Tiglao⁴, Hiroyuki Miyazaki⁵, Apichon Witayangkurn⁶ LocationMind Inc., ²Salt Payatas, ³SafeTravelPH Mobility Innovations Organization Inc., ⁴University of the Philippines, ⁵Glodal Inc., ⁶Thammasat University



ABSTRACT

In recent years, as cities expand and urban populations grow, there is a need for regional development that integrates public transportation planning, housing policies, and regional economic development. In order to improve the living environment of vulnerable residents, in particular in a sustainable manner, it is necessary to design and implement necessary support policies while maintaining communication with the local community and to implement a PDCA cycle that continuously verifies the effectiveness of the policies. In this process, it is necessary to continuously collect information on the socioeconomic status of local residents and their access to and use of public transportation services, education, and medical resources. However, collecting such information is time-consuming, costly, and infrequent.

We focused on public transportation services and collected information on their actual use from behavioral data of local residents, land use data from satellite images, and field survey applications. We then developed an information visualization dashboard to develop measures to support the improvement of public transportation services that can be used by local residents, including women and children. Specifically, behavioral data indicators were estimated from mobile GPS data and supplemented with more detailed travel conditions from field surveys using a smartphone application. To confirm the usefulness of the dashboard, we gathered potential users, such as local residents and LGU staff, to test the dashboard and obtained questionnaires regarding improvements and necessary functions, data, and application methods. Disaster response departments and public transportation departments were assumed as stakeholders. In addition to conducting a separate interview session to collect requirements, users who participated in the user evaluation were categorized into Transportation, Economics, Urban Planning, etc. based on organizational attributes. Responses were collected regarding useful functions, data to be added, scalability, and feasibility through the workshop. We evaluated the usefulness of the service as a service for improving vulnerability in accessing public services and infrastructure and also evaluated its feasibility. As for useful features obtained from each group, detailed OD data is required for transportation, while satellite imagery, especially information on land use, is needed for urban planning. In addition, each group requested disaggregated data for the Vulnerability population, for example, to make the aggregation unit finer than the Barangay unit. In addition, more than 80% of the respondents gave a positive evaluation of the scalability and business usability of the solution, indicating that a solution that provides a dashboard integrating satellite imagery and mobile GPS data is effective. The dashboard was proposed as a solution to visualize the social vulnerabilities and to link stakeholders. Through user evaluation, the dashboard was confirmed to be useful, and the importance of open data was demonstrated with regard to scalability. The visualization results of vulnerability need to be more flexible in terms of the aggregation unit on the dashboard side in accordance with user requests. This identified the requirements necessary to provide services across organizations.

BIOSKETCH

Erris S. Sanciangco is the Executive Director of SafeTravelPH Mobility Innovations Organization, a non profit technology and policy research and development spinoff from the University of the Philippines, established in 2021. A mechanical engineer by profession, he worked at the Department of Public Works and Highways for over eight years. Currently, he is pursuing his master's degree in urban and regional planning at the University of the Philippines. In addition to leading the software development team for the PIVE Survey App, Erris oversees the software and hardware development programs at SafeTravelPH. These programs include open-source and open-data platforms for road safety incident recording, visualization, and analytics; public transport vehicle location tracking and passenger counting telematics; and transport route planning and service monitoring web applications. As a bike commuter and urban planner, he also consults on cycling and walking (or active transport) planning and advocacy. He has contributed to or led studies on bus vehicle monitoring technologies and the planning and operations of informal transport in the Philippines.

TECHNICAL SESSION 2

Data Protection, Privacy and Research Ethics in Urban Planning Practice Towards Smart Cities



Assoc. Prof. Eugenio Ferrer Santiago III
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ABSTRACT

The processes involved with the growth of cities and the development of cities have been alienated by extreme Artificial Intelligence as urbanization and technology have come of age. Over the last decade, there has been a change from developing smart cities that are only focused on technology to goals of broader urban development. Advanced Technologies are deployed in smart cities to enhance the quality of life, increase economic development, as well as aid in the sustainable development of urban areas. This increased necessitation of data-driven decision-making in urban governance, however, raises serious issues on privacy, data ethics, and other concerns. The study seeks to explore how data protection, privacy and research ethics inform or interface with the urban planning and policy-making processes within the smart city context. Specifically, the research seeks to advance the current debate on urban governance in a digital context by reviewing literature and exploring trends in policy and governance practices. The research adopts literary techniques of a qualitative approach through systematic literature review, content analysis, and conceptual synthesis. The analytical framework includes comparative definitions of Smart City and conceptual each of them, thematic review of the literature on smart governance, and comparative analysis of smart governance. Interdisciplinary synthesis. The main contributions are categorized as follows: (1) Smart cities have three main dimensions: technological, human and institutional; (2) Governance issues including data ownership and privacy are development bottlenecks in smart cities; (3) Urban design strategies that rely on artificial intelligence and big data raise ethical issues; (4) Cybersecurity is a distinctive problem for smart cities; (5) Environmental policies conflict with technological progress, and both cannot be neglected; and (5) Need for new forms of urban governance that can cope with the challenges posed by smart city projects. Above all, the development of a smart city should be done with caution incorporating innovations while protecting citizens' ethical values. It underlines the necessity of appropriate and effective information governance technologies, proper data safety measures, and environmental sustainability. The development of Smart Cities creates opportunities and poses some challenges to urban planners and policy-makers. While urban technology provides powerful instruments for the improvement of urban life, it also raises critical issues regarding data privacy, security and the use of information ethics. In the case of smart city projects, the innovation of technologies should be coupled with attention to ethical processes and protection of residents' personal data. Among recommendations are comprehensive policies for data governance, ethics as a part of the planning stages, a cross-disciplinary approach, and strong cyber security policies.

BIOSKETCH

Dr. Eugenio Ferrer Santiago III, is a licensed Environmental/Urban Planner in the Philippines, specializing in Transportation Policy Planning and Development. He finished his Master in Business Administration, Graduate Diploma in Project Management, Post-Doctoral Diploma in Strategic Leadership and Management, Doctor of Philosophy in Development Studies/Administration, Juris Doctor, Master in Public Administration and Bachelor in Business Administration. He has more than ten years adjunct faculty experience teaching governance and urban planning subjects in the bachelors, masters and doctoral levels. He has solid eighteen (18) years of government service as corruption prevention officer, public assistance front line action officer and paralegal.

TECHNICAL SESSION 2

Minimization of Traffic Congestion Using Traffic Intensity and Assignment Problem Model: A Case Study in Tuguegarao City

Ralph Angelo Estiller¹, Claridel Orallo¹, Guiller Jay Asuncion¹, Sunshine Babaran¹
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ABSTRACT

Traffic congestion is a continuous and growing challenge in urban areas causing general ineffectiveness in transportation systems. This study aimed to propose a more effective and sustainable urban transportation system using the Assignment Problem and Traffic Intensity Analysis to show an innovative way to minimize traffic congestion and enhance traffic flow in Tuguegarao City. The researchers studied how traffic intensity can impact congestion levels at intersections. Traffic intensity is the relationship between the number of arrival rates and service rates through an intersection. The researchers obtained real-time traffic flow data over three non-special weekdays through the use of advanced surveillance systems. The data was thoroughly recorded and tallied to identify peak hours that were then considered as the service rate. Once the peak hour was determined, the arrival rate was then measured. Through in-depth analysis, it showed that the arrival rate constantly exceeded the service rate indicating a need for optimized traffic management. Then, the mean volume count of vehicles was calculated and was used to develop an assignment problem model. This model aims to optimize traffic flow by assigning vehicles to specific routes, establishing a more balanced distribution of traffic, and reducing congestion. The study utilized the Temporally-Ordered Routing Algorithm (TORA), a specialized research statistical software, to provide a solution to the assignment problem. Two parameters were inputted into the software. These were the volume count as sources and the vehicle turning directions as destinations. By entering the data in the matrix, TORA provided a precise and efficient calculation of the optimal vehicle allocations. The results illustrated that traffic intensity in all lanes at the studied intersections was classified as highly stable traffic systems and very smooth traffic flow. The assignment problem model showed the optimal allocation for vehicle distribution at the two studied intersections. The researchers concluded that understanding traffic control techniques could effectively reduce traffic congestion and improve urban mobility. The findings hold important implications for urban planners, transportation engineers, and policymakers by showcasing the benefits of synchronized traffic signals and adaptive intersection control. However, further research is necessary to explore the long-term sustainability of these solutions and their applicability to other urban environments. This study contributes to the expanding body of research on traffic management and highlights the critical role of practical, data-driven solutions to urban congestion problems.

BIOSKETCH

Engr. Estiller, is the current head of the Transportation Engineering Track and concurrent Research Development focal person of the Civil Engineering Department of the Cagayan State University. He also served as the College Extension Coordinator from 2019-2023 on which he spearheaded various research-based extension programs for the Cagayano communities particularly the members of the Indigenous Communities. He is a graduate of the degree Bachelor of Science in Civil Engineering from the Cagayan State University-Carig Campus in 2015, and obtained his Master in Climate Resilience and Sustainable Development Management in 2019. He served as a full time Faculty Member of the said University for nine (9) years, particularly handling courses in the field of Transportation Science and Engineering, Structural Engineering and Engineering Sciences. He is currently involved in various university-funded researches in the field of disaster resilient low-cost housing design, urban and transportation planning of city center and local towns, and traffic management and flow modelling. His research interest is inclined on field of Disaster Resiliency, Traffic Planning and Modelling, and Highway Materials.

TECHNICAL SESSION 2

High-Rise Living: A Sustainable Approach to Land Demand in Rampura, Dhaka



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ABSTRACT

Due to rapid urbanization, population growth, and land scarcity, housing is now one of the most pressing problems in Dhaka, the capital of Bangladesh. It has a growing population that exceeds natural growth, this trend has led to land scarcity, rising housing costs and deterioration in living conditions. Vertical housing such as high-rise buildings is offered as a sustainable solution to these issues. This research concentrates on examining the viability of vertical housing in the rapidly urbanizing Rampura area of Dhaka (which is also underdeveloped where people live) and how it meets or fails to solve the problem of housing in the city. The aim of this research is to evaluate the social, economic and environmental effects that vertical housing might have on the local population and urban scenery in Rampura, as well as assess whether it can provide a long-term housing solution. On the basis of demographic trends, land use patterns and environmental considerations, the study presents insights into how vertical housing can be successfully applied in such a place. The methodology uses a mixture of quantitative and qualitative research approaches. Primary data was collected in the form of interviews and surveys with residents, urban planners and architects. Secondary data that came from literature in urban housing and sustainability on the other hand was also provided. The study also conducted a spatial analysis of land usage in Rampura, comparing vertical housing against other forms of housing. The results show that vertical housing can significantly reduce land pressure, accommodate more residents in fewer spaces and create sustainable urban growth scenarios. However, the findings also highlight problems such as infrastructure, affordability and societal adjustments. The study argues for sound urban planning, policy reform and active community participation to break through these barriers. In conclusion vertical housing offers a feasible solution to the housing crisis in Dhaka but it must be implemented with careful consideration of socio-economic, environmental and infrastructure factors. The study points to strategic policy interventions and sustainable design principles as the way forward so that vertical housing makes a lasting contribution to urban resilience and growth in Dhaka.

BIOSKETCH

Preyo Darshan Dash is an accomplished architecture student and professional with a strong academic background and practical experience in design and consultancy. He is currently pursuing a Master of Architecture at the Bangladesh University of Engineering & Technology (BUET), building on his earlier academic achievements, including a Bachelor of Architecture from the American International University-Bangladesh (AIUB). Mr. Dash demonstrated exceptional academic excellence early on, achieving top results in his secondary and higher secondary education with a GPA of 5.00 out of 5.00. His academic journey includes numerous design projects, ranging from the redevelopment of sacred spaces for Hindu pilgrims at Langalbandh to re-thinking urban spaces like Rampura Super Market, showcasing his diverse architectural interests and passion for societal impact through design. Professionally, Mr. Dash has held significant roles in the field of architecture, currently serving as a faculty member in the Department of Architecture at AIUB and as the Principal Architect and CEO of DASHConsultants. Previously, he worked as a Junior Architect at Vernacular Consultants Ltd., contributing to projects such as the Bangladesh Bank Officers' Housing, Red-Crescent Tower, and the Dhaka University CARASS Building Extension. He has also been involved in high-profile design competitions, including the IAB competition for the Dhaka North Civic Center and DNCC Tower, and has a strong focus on computational design and BIM modeling. His work and thesis, "Langalbandh – A Road to Supreme Reality," were nominated and published in the "KSRM Awards for Future Architects," further establishing him as a rising talent in the architectural community.

TECHNICAL SESSION 2

Geospatial Analysis for Environmental Protection and Rehabilitation of Barangay Payatas, and its Impact on Community Livelihood

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ABSTRACT

Barangay Payatas in Quezon City, Philippines, has experienced significant environmental degradation due to informal waste collection and scavenging. Socioeconomic challenges, including poverty and high unemployment, have intensified following the closure of the Payatas Dumpsite in 2017. Current initiatives aimed at rehabilitating the environment, such as converting the dumpsite into a green space, offer significant benefits, including improved environmental quality and public health. However, these efforts could negatively impact the livelihoods of those dependent on informal waste collection and potentially worsen disaster risks. Balancing the drive for environmental improvement with the need to address economic dependence and disaster vulnerability presents challenges that must be carefully managed to achieve both environmental and improved community livelihood goals. This study aims to identify critical areas for environmental protection and rehabilitation in Barangay Payatas while supporting the livelihood of those reliant on informal waste collection. A qualitative approach was employed, consisting of semi-structured interviews with eight informal waste collectors who have lived in Payatas for over two decades, along with six residents from Sampaguita St. and Scandinavian St., which were identified as high-risk areas through thematic analysis and geospatial mapping using QGIS software. Additionally, a government official was interviewed to validate the data gathered from residents regarding which government agencies they should rely on in the event of a disaster. The informal waste collector interviewees stated their daily income, which ranges from PHP 200 to PHP 1000, is essential for their survival in the face of health and environmental difficulties. Based on the overlaid maps in QGIS, interviewees from the identified areas recognize the potential for disasters, such as floods and landslides, particularly in critical locations near canals or water bodies. A government official emphasized that the Quezon City Disaster Risk Reduction and Management Office (QCDRRMO) is the primary agency residents should contact during disasters, as it is responsible for addressing the locality's needs regarding disaster preparedness, prevention, and mitigation. The study's findings indicate that although environmental protection and rehabilitation have proven beneficial, it has also resulted in less stable economic conditions for those who engage in informal waste collection. One interviewee noted a shift from waste collection/scavenging at the dumpsite to garbage trucks. While interviewees recognized improvements in cleanliness and environmental health, they also reported fewer materials to collect and sell which caused concerns about their livelihood. To address these challenges, the study recommends developing integrated strategies to balance environmental restoration with sustainable livelihood opportunities. This includes implementing targeted economic support programs, such as vocational training and microfinance for former waste collectors, and enhancing health and safety initiatives, including medical care and protective gear. Fostering community engagement and participatory planning is crucial to addressing residents' needs, particularly in critical areas. Strengthening disaster preparedness and involving local organizations and government agencies will contribute to a more resilient and sustainable community in Barangay Payatas.

BIOSKETCH

Aya V. Raymundo is a third-year college student currently pursuing a Bachelor of Science in Environmental Planning degree at National University - Manila. She is an active member of the Junior Philippine Institute of Environmental Planners, where she engages in extra curricular activities related to environmental sustainability and urban planning. Aya possesses intermediate proficiency in AutoCAD and QGIS, expanding her skill set and knowledge in environmental planning and digital tools. She also has a foundational knowledge in HTML and additionally, Aya holds a CEFR B2 proficiency in English, enabling effective communication in both academic and professional settings. Her academic focus and skills are complemented by a passion for applying technology and planning principles to real-world environmental challenges.

TECHNICAL SESSION 2

Exploring the Potential of Participatory Utopia Sketching in Imagining City Futures: The Case of the Cities of Manila and Cauayan, Philippines

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ABSTRACT

The criticisms about the current Philippine local spatial planning as being too reactive call for a re-thinking of how desired ends in planning are envisioned. Although the current approach allows for the elaboration of several development alternatives, it is inclined to only build upon a single, and generally preferable, future vision. Also, even with multiple entry points for public participation, the approach tends to lack broad and sincere co-ownership despite its good form. It has the tendency to employ buzzwords from the sustainability agenda without clear, actionable, and locally sensible meaning. Given this context, the study's aim is to offer an approach to city visioning that takes a more plural and visual turn. This contribution employed a variation of participatory utopia sketching, inspired by the work of Tönroth et al. (2020), to collectively envisage long-term future scenarios for the cities of Manila and Cauayan. The activity began with a visual depiction of a range of city futures with local department staff, where the vision-setting became a platform for experimentation and local knowledge co-production. It then proceeded with a mapping of driving factors that could likely shape nascent trajectories. The session concluded with a backcasting exercise, where steps that might have led to the envisioned futures were collectively examined and framed into a set of actionable strategies. This study takes the argument that a more open, experimental, and soft visioning approach—one that draws from mutual learning and creativity—could eventually steer the practice of local planning towards a more anticipatory, deliberative, and situated civic act.

BIOSKETCH

Atty. Mark is an assistant professor at the UP School of Urban and Regional Planning (UP SURP), where he teaches planning theory, land use, project development, planning law, and research methods. He previously taught at the UP National College of Public Administration and Governance (UP NCPAG) and the UP Open University, and served as a visiting professor in Thailand. Mark has a fellowship from UNESCO and MASHAV, focused on sustainable development. As a lawyer and licensed environmental planner, Atty. Mark specializes in legal geography, planning law, land use policy, spatial justice, and anticipatory governance. His recent research includes urban policy, healthy cities, and sustainable development. He has published papers on urban planning and the judiciary's influence on land use patterns. Atty. Mark has held various administrative roles at UP, including College Secretary and Director of the Center for Public Administration and Governance Education, and has contributed to several university projects. He also serves on committees related to land use and admissions at UP SURP. Outside academia, Atty. Mark is a consultant for government and international organizations and is involved with the Centre for Neighbourhood Studies, where he promotes interdisciplinary research on neighborhood science. He also co-investigates urban health and education projects with international partners, including UNESCO and the University of Glasgow. Atty. Mark holds degrees in Public Administration, Urban and Regional Planning, and Law from the University of the Philippines and is currently a PhD candidate in Urban and Regional Planning at UP SURP.

TECHNICAL SESSION 2

Personnel Digital Capacity Assessment of Disaster Risk Reduction and Management (DRRM) Office, Cavite Province, Philippines

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ABSTRACT

Frequent climate-related disasters, including floods, droughts, and heatwaves, pose growing risks worldwide, especially in vulnerable areas like the Philippines. Ranking 1st in disaster risk globally, the Philippines faces urgent needs for effective disaster data management. UNDP advocates digitizing disaster data across Asia-Pacific to improve risk mitigation and development planning. While technology is critical for Disaster Risk Reduction (DRR), a skilled workforce is essential for operating these systems. However, local governments face challenges due to a lack of human resources and digital expertise, hindering the development of effective disaster assessments and post-disaster analyses. This study focuses on the digital readiness of the Research and Planning (R&P) Division of Cavite's Provincial Disaster Risk Reduction and Management Office (PDRRMO). The key objectives are to: 1. Assess the digital competency of R&P personnel in using digital tools for DRRM, 2. Evaluate training opportunities for personnel assigned to DRRM functions, and 3. Identify skills gaps and training needs related to managing DRR digital resources. The study aims to help Cavite's local government create a targeted capacity-building program for PDRRMO's R&P Division. The research employs a mixed-methods approach, combining a survey and interviews to assess digital readiness. A self-administered survey was distributed to eight R&P personnel, using the Digital Disaster Risk Reduction Maturity Model (DDRRMM) by UNDP. The survey assessed proficiency in data access, analysis, and management, while semi-structured interviews gathered qualitative insights. The research framework involved two main steps: digital skills assessment and evaluation of training opportunities. The study highlights that while most R&P personnel have practical knowledge of DRR digital tools, they still require consultation for complex tasks. Digital platforms like GeoRiskPH, internal communication tools, and data visualization tools are frequently used, but there is limited familiarity with advanced platforms like PhilAWARE and REDAS. Data access received the highest competency score, followed by data analysis and management. However, all skills are at a "practical" level, indicating the need for further training. Training opportunities are not fully aligned with personnel roles, and performance evaluations do not effectively identify training gaps. There is a strong demand for advanced training in data analysis, modeling, and GIS applications. The study underscores the need for capacity-building programs to enhance the digital competency of Cavite's PDRRMO R&P Division. The findings revealed that while most of the staff have practical knowledge on the DRRM DR&Ts, they still require consultation and assistance from more experienced colleagues for complex tasks. This highlights a need for enhanced training, particularly in data analysis and modeling, to improve the effectiveness of DRRM plan development and implementation. Furthermore, the training programs that address the existing skills gaps compete with other priority projects of the government. Indeed, training in advanced digital tools, data collection, and analysis is essential for improving disaster preparedness and mitigation. Additionally, the lack of permanent technical positions limits the division's ability to retain qualified professionals. Future research should address this organizational gap to ensure the office can meet evolving DRR demands.

BIOSKETCH

Engr. Mark Jetro Sosa Mortel attained his B.S. Agricultural and Biosystems Engineering with the field of Specialization in Agricultural and Bio-process Engineering from the University of the Philippines Los Baños in August 2018. He is a licensed Agriculture and Biosystem Engineer with a substantial number of years' experience in disaster risk reduction and management under government agencies. Engr. Mortel possesses excellent interpersonal skills and the ability to communicate at appropriate levels with a varied set of people. He also has the ability to multitask and work in detail in fast-paced circumstances. He possesses great knowledge in Agriculture and Fisheries, Research, Project Management, Data Management and visualization. Engr. Mortel worked as Project development Officer of the Department of Agriculture until May 2024. Currently, he is working as an Economic Development Specialist with the National Economic Development Authority, Central Office. Engr. Mortel is presently enrolled in M.A urban and Regional Planning program specialization in Environmental and Natural Resources under School of Urban and regional Planning, University of the Philippines, Diliman, Quezon City. Engr. Mortel is presently involved in several local and international research projects.



TECHNICAL SESSION 3: **SUSTAINABLE LIVING AND CLIMATE CHANGE**

MODERATOR:

Sr. Lect. Evelyn S. Lorenzo

UP School of Urban and Regional Planning

PRESENTERS:

John Arvin R. Manaloto

University of the Philippines Diliman

Jose Dan V. Villa Juan

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Marie Patadlas

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Leonard E. Travis

UP School of Urban and Regional Planning

Jochen Eckart

Karlsruhe University of Applied Sciences

EnP. Arlene Santiago

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TECHNICAL SESSION 3

Investigation of the Compressive Strengths of Coconut Shells as Partial Alternative of Coarse Aggregates in Concrete Mix



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ABSTRACT

As the infrastructure development continues to thrive in the Philippines, the demand for concrete in the construction industry also grows. Aggregates, being one of the major components of concrete plays a vital role in construction. The method of extracting these aggregates entails numerous environmental issues such as land degradation, water pollution, air and dust pollution. The presence of these non-eco-friendly ways of acquiring raw materials of concrete calls for a need to explore and to find out suitable material to substitute the natural stone. Alternative materials show increasing potential in concrete mix design strategies and provide new opportunities for a number of design conditions. This paper introduces the usage of agricultural wastes namely the coconut shell as a substitute to coarse aggregates. Context of concrete mix and how standard design measures are enacted. The research incorporated the crushed coconut shell into the concrete mixture as an aggregate. The physical properties of coconut shell as well as the components of concrete were presented. The compressive strength, slump test, concrete density, and air content were also presented. The slump test and compressive strength test were conducted in accordance to ASTM C143 and ASTM C39 respectively. Results show that workability of concrete is slightly affected at increasing replacement of coconut shell. Integration of coconut shell caused a 24% concrete strength reduction for every 20% coconut shell replacement at 28 days strength.

BIOSKETCH

John Arvin R. Manaloto graduated with three bachelor degrees in Engineering namely: BS-Geodetic Engineering, BS-Civil Engineering and BS-Sanitary Engineering from the University of the Philippines-Diliman and National University. Completed his MS-Civil Engineering (Structures) and his PhD-Civil Engineering (Geotechniques) from the National Graduate School of Engineering (NGSE), College of Engineering, University of the Philippines-Diliman. He is a holder of nine (9) Professional Licenses from the Professional Regulation Commission (PRC), an active member of different local and international professional organizations and currently a Faculty Member of the Building Science Studio Laboratory of the UP College of Architecture in Diliman and an Affiliate Faculty of the UP Institute of Civil Engineering also in Diliman. He holds a portfolio of being an Engineering Consultant and Advisor from big different construction and development companies in the country right now. As a Planner and Design Engineer, he founded J.A.R. MANALOTO & Associates Co., MANALOTO + Verceles and Associates and GEOTEKNIKA Surveying and Mapping Services as his own Engineering Planning and Design Consultancy Firm. He is a part owner and the Senior Executive Vice President for Construction and Project Management of HAWKSTOW Construction & Development doing and managing small to large scale horizontal and vertical construction management and supervisions both for private and public infrastructure projects.

TECHNICAL SESSION 3

Synthesis of the Performance of Slag Cement As Partial Replacement to Ordinary Portland Cement in Concrete



ABSTRACT

Portland cement is extensively used in the Philippine construction industry, making it one of the biggest construction expenditures in the country and worldwide. It plays a vital role in concrete technology and is also the one used more often as compared to the other types of cement. With the wide use of Portland cement in the many infrastructure developments in the Philippines and abroad, various alternatives are being considered and desired in order to reduce construction costs. Moreover, the trend for sustainable engineering advancement has been more favored and pursued. Slag cement, with its pozzolanic properties, has been identified to be a possible partial replacement to ordinary Portland cement. Being a byproduct from the iron manufacturing process, this waste can be put to good use in concrete technology. In this study, the feasibility of partially replacing Portland cement with Slag Cement, an industrial byproduct of iron manufacturing, was investigated. This provides alternative and sustainable solutions to concrete design that could aid in the construction cost reduction. In this research, the effect of replacing Portland cement with 0%, 30%, 40% and 50% slag cement in concrete mix design were investigated for compressive and flexural strengths. For the determination of strengths, a Universal Testing Machine (UTM) was used to apply compressive and flexural loads to concrete cylindrical and beam samples, respectively. ASTM, AASHTO and British Method were utilized as procedures in testing the samples. Water demand, slump and slump retention at constant water-cement ratio for the said proportions were also tested. The results show that concrete using slag cement has lower water demand as it achieved higher slump and better slump retention versus concrete using pure Portland cement. Moreover, with the increasing amount of slag cement replacement to Portland cement, the compressive and flexural strength of concrete increases. An optimum replacement of 50% slag cement to Portland cement in concrete is therefore recommended for both compressive strength and flexural strength designs.

BIOSKETCH

John Arvin R. Manaloto graduated with three bachelor degrees in Engineering namely: BS-Geodetic Engineering, BS-Civil Engineering and BS-Sanitary Engineering from the University of the Philippines-Diliman and National University. Completed his MS-Civil Engineering (Structures) and his PhD-Civil Engineering (Geotechniques) from the National Graduate School of Engineering (NGSE), College of Engineering, University of the Philippines-Diliman. He is a holder of nine (9) Professional Licenses from the Professional Regulation Commission (PRC), an active member of different local and international professional organizations and currently a Faculty Member of the Building Science Studio Laboratory of the UP College of Architecture in Diliman and an Affiliate Faculty of the UP Institute of Civil Engineering also in Diliman. He holds a portfolio of being an Engineering Consultant and Advisor from big different construction and development companies in the country right now. As a Planner and Design Engineer, he founded J.A.R. MANALOTO & Associates Co., MANALOTO + Verceles and Associates and GEOTEKNIKA Surveying and Mapping Services as his own Engineering Planning and Design Consultancy Firm. He is a part owner and the Senior Executive Vice President for Construction and Project Management of HAWKSTOW Construction & Development doing and managing small to large scale horizontal and vertical construction management and supervisions both for private and public infrastructure projects.

TECHINICAL SESSION 3

Repercussions of Dynamic Landscapes. A Look at River-Riparian Environments



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ABSTRACT

River-Riparian ecosystems have a crucial role in supporting ideal natural processes, water quality, and providing green space for end users. Such environments are dynamic by virtue of inherent processes and channelization of such ecosystems with hard infrastructure which though beneficial from the point of view of efficient drainage especially in urban environments, is detrimental overall to the aquatic and terrestrial environment. Numerous studies have been conducted by other researchers on the negative effects of urban river channelization. In the Philippines, the classic example is the Pasig River that traverses a large area of the metropolis. Observation of the river shows that it is channelized with concrete structures lining the riparian area as protection against erosion and flooding. To explore and discuss the problems consistent with the channelization of rivers and recognize, understand, and appreciate the positive impact of permeable infrastructure. The topic is approached not just from a theoretical but a practical point of view through review of related literature supplemented with observations of the natural phenomena. Literature abounds on the negative outcomes of channelization to physical habitat and vegetation patterns, on the form and function of river systems in terms of water flow and the movement of materials. The movement of sediment because of such natural process replenishes what was eroded along river segments downstream. Concrete structures on riparian areas prevents the natural transportation of material. Soil is an example, but this also includes nutrients, vegetation debris and beneficial organisms that would otherwise aid in controlling eutrophication. Because of the well-defined nature of such river systems as ecological corridors, there is a question on Biodiversity. River-Riparian landscapes function as the link between the aquatic and the terrestrial and requires certain conditions for it to do so. With the hard infrastructure of concrete revetments placed on such areas, there is truly little room for plant biodiversity. Related research shows that "human influenced" riparian environments yielded fewer botanical species. Similarly, the riparian landscape becomes fragmented diminishing its ability to function as habitat and as a corridor to allow the movement of organisms. There is little green space left in the urban setting, it is imperative that corridors fulfill their function as links to these patches. Researchers show that with fewer variation in plant species there is a corresponding fewer number of zoological wildlife. Biodiversity is crucial in the health of river-riparian environments but so also of other green spaces. It is the nature of a river to periodically flood its natural flood plain and erode its banks. Understanding this dynamism more so the biodiversity function of rivers is critical for planners and allied professions when locations for human settlements, other related land uses, urban and landscape design are considered and proposed and when policies are crafted. Numerous studies have shown consistent conclusions whether direct or implied that natural permeable approaches are better for river-riparian environments as opposed to hard and impermeable infrastructure.

BIOSKETCH

Jose Dan V. Villa Juan is a registered and licensed Landscape Architect and Environmental Planner. He is also a Master's graduate in Tropical Landscape Architecture. He is a faculty member of the U.P. College of Architecture and is currently its Assistant Dean. He has 20 years experience in professional practice having worked on various private/corporate and public project types alongside other allied professionals. His research interests include vegetation analysis and looking at the landscape as a geomorphological rather than static entity with focus on fluvial landscapes. He is currently pursuing PhD studies in the School of Urban and Regional Planning in U.P. Diliman.

TECHINICAL SESSION 3

Temperature Increase in the Philippines: the Case of Three Philippine Cities



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ABSTRACT

2023 was recorded as the warmest year in modern temperature records. Years prior to this (2010- 2023), the global temperature increase has been at record high as documented by weather observatories globally. The condition of living in warmer environs impacts urban planning decisions. Although research in this field is growing, it is notable that planning for extreme heat remains an area of development where there is a lack of existing case studies and researches in the local setting. In analyzing the aspects of this issue, global data is informative. However, a localized perspective and understanding of urban warming based on vernacular conditions may give more insights for planners. Unique and country-based conditions will further inform urban heat assessment process and gain insights on exploring specific intervention options in mitigating extreme heat impacts. The following are the some of the documented impacts of temperature increase in the Philippines from 2023-2024: Significant increase of air conditioner purchase, overwhelmed power grids in Luzon, Visayas and Mindanao with warnings of frequent brownouts and power outages, higher electrical costs, increased investment on solar panels, class cancellations and shortened classes due to high heat index, deaths (7 cases, 2024) and heat-related illnesses (77 cases, 2024 and 512 cases, 2023), reduction of economic aggregate output growth by .37 percentage point. Considering three (3) highly urbanized cities in the Philippines as a case in point, the study quantified how the warming manifested in some cities of the country based on a 42-year historical temperature record. Moreover, it analyzed a studied zone within a 3-kilometer radius considering land uses and area distribution, natural features and built environment. The study acquired mean temperature data and area tabulations. It performed map analysis and field observations.

The following are remarkable in zones with increased temperature reading:

- Complex land use system with varied building typologies (a mix of one storey, two-storey, low rise, midrise and high-rise)
- Presence of natural water bodies (ex. Manila Bay, Pasig River, Cavite Coastal, which act as heat absorbers)
- High built up area with no open space
- Heavily asphalted environment

The following are detected in a zone with decreased temperature reading:

- Land use system is dominantly institutional with large lots having high daytime population and low night time population.
- Simpler and more organized morphology and block systems.
- More open spaces and blue areas (fountains) which reduce the net area of concrete pavements
- Higher altitude and elevation.

The study further informs land use planning and policy, advocacies for renewable energy, green design and infrastructure material sciences, economic planning and planning education among many.

BIOSKETCH

Architect Environmental Planner Marie Grace Amistoso-Patadlas is a practicing architect for over 20 years. She has served private institutions, an international organization and the academe. She is currently an instructor at Mapua University. She has completed her Master of Arts in Urban and Regional Planning in 2012 at the University of the Philippines, School of Urban and Regional Planning UP-SURP, and became a licensed Environmental Planner in 2014. She is married and blessed with two (2) children.

TECHINICAL SESSION 3

Spatial Design of Green Hydrogen Production and Transportation



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ABSTRACT

Every part of the world is facing challenges in meeting their energy needs now and into the future. Combined with this, the United Nations Framework Convention on Climate Change (UNFCCC) has requested signatories to create goals, known as “Nationally Determined Contributions” (NDCs), to keep the rise in global surface temperatures to well below 2 °C (3.6 °F) above pre-industrial levels. Implementation of Renewable Energy is a key for almost every country as a strategy to help achieve their NDC commitment. An emerging effort in this field is the production of GREEN HYDROGEN, as a foundation element to enable the Hydrogen Economy. Although work has been done to understand the spatial challenges in the location of more traditional renewable energy sites, little has been done to develop frameworks for the effective site locations for Green Hydrogen sites. This presentation demonstrates preliminary work in the development of a useful framework for the assessment and development of sites for Green Hydrogen Production. It demonstrates a proposed approach for a multi-criteria assessment based not only upon the generation of Green Hydrogen, but also considers the extensive challenges in transportation models needed for the efficient distribution of the finished Green Hydrogen product. Comparisons are also presented considering traditional and latest technology for Green Hydrogen production, as well as latest assessments of transportation using compressed gas, liquified hydrogen, and solid hydrogen technologies.

BIOSKETCH

Mr. Travis has decades of experience in the area of urban and infrastructure development. He has specific experience in the strategic development of Operating Control Centers (example : Changi Airport in Singapore), and Big Data installations (example, Philips Semiconductor, Singapore Airlines, among others). As a former associate partner in the strategy consulting business of Accenture, Mr. Travis was a leader in the global Transportation practice with projects in Africa and Asia. The combination of his global experience in the USA, Europe, Asia, and Africa, with his subject matter experience, renders him a unique asset in the analysis and development of Urban solutions around the world.

TECHNICAL SESSION 3

Living Labs for Active Mobility – Bridging the Gap between Knowledge and Practice

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ABSTRACT

So far, the promotion of active mobility often has been based on the premise of “what do experts think, what users need”? In order to further develop active mobility an understanding of “what users really need” is required. Based on this premise there are numerous research projects utilising the approach of living labs to test innovative solutions to promote active mobility. The concept of living labs is to carry out applied research not only for but also together with the users and practitioners. Core elements of living labs are in field-experiments, where innovative solutions are implemented on site on a temporary basis and their performance is scientifically evaluated. There are attempts to transfer the concept of living labs, which has been tried and tested in Germany, to low- and middle-income countries. Great disparities exist across the characteristics of living labs regarding innovation support and uptake based on local characteristics. Limited studies exist about the variation in living labs in low- and middle-income countries. This paper aims to identify the success factors and limitations for living labs as well as the variation in characteristics based on the comparison of case studies in Germany, Kirgizstan and Uganda. Based on experiences from different countries, this article reflects on and discusses the process and results of living labs. In the research project “Passing Distances Between Motor Vehicles and Bicycles” in 10 cities in Germany the passing distance was measured. Based on the data researchers and city administrations jointly developed strategies for the redesign streets in order to increase the passing distance. These solutions were tested in temporary living labs in the cities. The results inform evidence-based interventions for optimizing the coexistence of motor vehicles and bicycles. In the project “Cycling Living Lab Bischkek” innovative solutions for safe and affordable cycling infrastructure were developed in cooperation with local and German stakeholders. In order to promote innovative solution in the Kyrgyz context, a living lab was implemented on a section of road in Bishkek. The research project “Collaboration for Active Mobility in Africa CAMA” facilitates the development and uptake of tailor made solutions to promote active mobility. The project utilizes learning alliances (bringing together researchers, community representatives, decision makers and experts from the field) to prepare living labs and test innovative solutions. Within Kampala innovative solutions to improve the conditions for crossing pedestrians were developed with the local stakeholders. The implementation of a temporary living lab is in progress. The opportunities and limitations of the living lab approach to bridge the knowing doing gap are presented. Living labs facilitate the uptake and transfer of novel solutions for promoting active mobility from science to practice.

BIOSKETCH

Dr. Jochen Eckart is professor for traffic ecology at Karlsruhe university of applied science. His research and teaching is focused on sustainable urban traffic planning and sustainable mobility. His emphasis is the integration of environmental science and traffic planning with an emphasis on active mobility. He has broad experiences with living labs and in numerous projects in Germany, Kirgizstan, Kenya and Uganda.

TECHINICAL SESSION 3

Assessment of DRRM Programs, Projects, and Activities (PPAs) in Enhancing Flood and Weather Resilience for Sustainable Communities: Barangay Tumana, Marikina City, Philippines

Tabassam Raza¹, Arlene D. R. Santiago¹, Patience Mazanhi¹, Donna Rabe¹, Arlene D. R. Santiago¹, Carmelita R. E. U. Liwag¹, Thess Khaz Raza¹, Dina C. Magnaye¹, Shaker Mahmood Mayo², Mark Anthony M. Morales² University of the Philippines School of Urban and Regional Planning, ²University of Engineering and Technology, ³Department of City and Regional Planning



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ABSTRACT

Barangay Tumana in Marikina City, Philippines, faces recurring floods that pose significant risks to its residents. Positioned in a low-lying area, Tumana has long been susceptible to environmental hazards, particularly flooding. In 1988, when Marikina was still largely agricultural, a severe flood caused the Marikina River to rise to 19 meters. To enhance the community's resilience, Disaster Risk Reduction and Management (DRRM) Programs, Projects, and Activities (PPAs) have been implemented. These include Early Warning Systems, emergency policies, risk assessments, and the efforts of the Barangay Disaster Risk Reduction and Management Committee. However, despite these interventions, Tumana continues to experience property damage, loss of lives, and financial strain on Local Government Units (LGUs) and NGOs due to repeated relief efforts. The study's main goal is to explore strategies for enhancing Barangay Tumana's flood resilience by assessing the functionality of DRRM PPAs. The specific objectives include: (1) Characterizing the community's flood vulnerability; (2) Determining the effectiveness of DRRM PPAs in enhancing flood resilience; and (3) Assessing ways to reduce flood risk exposure and vulnerability. A conceptual framework was developed to evaluate the efficiency of existing DRRM PPAs. The study uses a desktop approach, reviewing secondary literature such as records, reports, and datasets on DRRM programs, flood occurrences, and community impacts. The review of collected data highlighted the importance of enhancing resilience in vulnerable communities like Tumana. The literature revealed key factors contributing to flooding, helping shape potential strategies to strengthen the community's resilience. DRRM PPAs, such as Early Warning Systems, emergency policies, and risk assessments, have been implemented. However, Tumana continues to suffer severe property damage, loss of lives, and financial strain. A significant issue during disasters is theft, as looters exploit the chaos. Many men stay behind to protect their properties, risking their lives. The destruction of livelihoods makes recovery difficult, with many households hesitant to replace lost assets, fearing future floods. Residents employ survival strategies, such as moving to higher floors or using makeshift rafts from household items. However, poor emergency preparedness by local authorities leads to disorganized food and relief distribution, leaving many without aid. Unsustainable land use upstream further exacerbates flooding in lower areas like Tumana. To effectively manage floods, upstream communities must adopt resilience measures. Typhoon Ulysses in 2020 caused the Marikina River to rise to 21.8 meters, forcing residents to seek rooftop refuge. While Tumana has made progress through risk assessments, Early Warning Systems, and community initiatives like the "palangana" program, key areas require improvement. Post-disaster support remains limited, and theft during evacuations poses risks, highlighting the need for better security and community engagement. Coordination gaps among local government agencies further complicated disaster response. Enhancing flood resilience requires collaboration with upstream communities, improved post-disaster recovery, stronger security measures, and better communication among stakeholders.

BIOSKETCH

Arlene Santiago is a University Extension Specialist at the University of the Philippines School of Urban and Regional Planning (UP SURP) and has been engaged in research and capacity building work since 2003. Ms. Santiago is a licensed and registered Environmental Planner in the Philippines. She is the corporate secretary of the Planning and Development Research Foundation, Inc. (PLANADES) and sits as member of its Board of Trustees since 2021. Prior to joining UP SURP, she served as university research associate at the Center for Leadership, Citizenship and Democracy (CLCD) at the UP National College of Public Administration and Governance (UP NCPAG) from 2003 to 2012. Ms. Santiago earned her Master of Arts in Asian Studies from the University of the Philippines Asian Center (with specialization in Northeast Asia; major in Japan). She obtained her Bachelor of Arts in Public Administration from UP NCPAG. Ms. Santiago was a recipient of Certificates of Distinction from the University of the Philippines Diliman Chancellor from 2014 to 2020. She received the UP International Publications Award in 2016. She was also granted the K. Matsushita Foundation Scholarship Award in December 2019. Ms. Santiago has been an official representative of UP in several international workshops, conferences, and student exchange programs in the Philippines and abroad. She has presented her papers and researches in many countries in Asia, the United States, and Europe.



TECHNICAL SESSION 4: **INCLUSIVE AND TRANSFORMATIVE DEVELOPMENT FOR SUSTAINABLE CITIES SESSION**

MODERATOR:

Assoc. Prof. Dina C. Magnaye

UP School of Urban and Regional Planning

PRESENTERS:

Assoc. Prof. Mark Anthony M. Morales

UP School of Urban and Regional Planning

Carl Dave Silos

University of the Philippines Diliman

Gabrelle Noreen Estrellanes

University of the Philippines Diliman

Sonia Islam

UP School of Urban and Regional Planning

Lect. Lars Weller

Hochschule Karlsruhe

Marc Angelo C. Sanchez

University of the Philippines Diliman



TECHNICAL SESSION 4

Reviewing Effectiveness of Quezon City's Green Building Code for Small-Scale Structures in Three Barangays from 2018 to 2023

Tabassam Raza^{1,2}, Mark Anthony Morales¹, Mark Anthony Abrenical,
Jefferson Cruz, Richelle Ann Tomas¹, Anthony Morales¹,

¹University of the Philippines School of Urban and Regional Planning, ²Planning and Development



ABSTRACT

The criticisms about the current Philippine local spatial planning as being too reactive call for a re-thinking of how desired ends in planning are envisioned. Although the current approach allows for the elaboration of several development alternatives, it is inclined to only build upon a single, and generally preferable, future vision. Also, even with multiple entry points for public participation, the approach tends to lack broad and sincere co-ownership despite its good form. It has the tendency to employ buzzwords from the sustainability agenda without clear, actionable, and locally sensible meaning. Given this context, the study's aim is to offer an approach to city visioning that takes a more plural and visual turn. This contribution employed a variation of participatory utopia sketching, inspired by the work of Tönroth et al. (2020), to collectively envisage long-term future scenarios for the cities of Manila and Cauayan. The activity began with a visual depiction of a range of city futures with local department staff, where the vision-setting became a platform for experimentation and local knowledge co-production. It then proceeded with a mapping of driving factors that could likely shape nascent trajectories. The session concluded with a backcasting exercise, where steps that might have led to the envisioned futures were collectively examined and framed into a set of actionable strategies. This study takes the argument that a more open, experimental, and soft visioning approach—one that draws from mutual learning and creativity—could eventually steer the practice of local planning towards a more anticipatory, deliberative, and situated civic act.

BIOSKETCH

Dr. Mark Anthony M. Morales is a well renowned Architect (Ar.) and Environmental Planner (EnP.), and an Associate Professor from the University of the Philippines - School of Urban and Regional Planning (UP-SURP). Dr. Morales completed his B.S. in Architecture degree from the University of Santo Tomas in Manila in 2004. Dr. Morales pursued a Master's degree in Urban and Regional Planning at the University of the Philippines in Diliman in 2008. After graduation, he became part of UP-SURP's full-time faculty roster to teach Land Use Planning, Site Planning, Project Planning and Development, and Planning Process; acquiring tenure in 2010. Dr. Mark became a Monbukagakusho (MEXT) scholar of the Japanese Government in 2012, where he lived and worked in Japan for 3 years en route to a Doctor of Engineering degree (Major in Urban and Regional Planning) from the Department of Urban Engineering, Graduate School of Engineering, University of Tokyo. Soon after, Dr. Morales became part of a research team mobilized by Nikken Sekkei Research Institute (NSRI) to study the challenges and opportunities of Transit-Oriented Development (TOD) in developing countries such as the Philippines; paving the way to his current inclinations in both research and practice. Dr. Morales' research interests are on the socio-spatial impacts of cultural development in cities with emphasis for the poor and marginalized, and the synergy of green Transit-Oriented Developments (TODs) and Open Space Network Systems as a conduit for inclusive mobility and growth opportunities acknowledge with green building Code. Aside from teaching and research, Dr. Morales also does environmental planning and design consultancy as part of his extension work agenda; merging theoretical and practical inclinations to benefit clients and students alike. Dr. Mark recently served as Director of the UPD - Office of the Campus Architect (OCA) and is part of the Committee formed by the Office of the Chancellor to prepare the Land Use Development and Infrastructure Plan (LUDIP) for UP Diliman.

TECHNICAL SESSION 4

Assessing Land Value Dynamics Induced by Rail Project Using Difference-in-difference Method and Hedonic Pricing Model: A Case Study of Metro Manila Light Rail Transit Line 2

Carl Dave Silos¹ and Sandy Mae A. Gaspay¹
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ABSTRACT

There are several rail investments in the government pipeline that aim to address the decade-long mass transportation issues in the Philippines, especially in Greater Manila Area. However, the total project cost exceeds the 5% infrastructure investment gap threshold in Asian developing countries, indicating a massive fiscal constraint. To address this, the government should explore additional funding sources, one of which is land value capture (LVC). LVC utilizes tax-based or development-based instruments to capitalize the land value increase, known as value uplift, resulting from improved accessibility to the rail network. There are limited research on value uplift due to inconsistent land valuation systems and outdated land use maps. Despite these challenges, the study used zonal values from the Bureau of Internal Revenue (BIR) and the latest land use maps from five local government units (LGUs), namely Manila, San Juan, Quezon City, Marikina, and Pasig. The study assessed the potential of LVC for the Metro Manila Light Rail Transit Line 2 (LRT 2) as a case study. With the aid of geographic information system (GIS), two common econometric methods in quantifying value uplift were performed: the Difference-in-difference (DID) Method and the Hedonic Pricing Model (HPM). These analyzed the value dynamics induced by rail accessibility for residential and commercial land before and after the operation of the first operational line of LRT 2 in 2003. Land value increases between treatment areas (i.e., 0.5, 1.0, and 1.5 km from the LRT 2 stations) versus control group (i.e., areas beyond these distances up to 3.0 km) were analyzed to determine uplifts in land values or positive treatment effects. Using linear regression, DID reveals negative treatment effects within the treatment areas for LRT 2 stations for residential and commercial land values a year after the start of the rail operation. This means that during this period, the control group experienced larger mean value increase with up to PHP 2,800 and PHP 2,300 per square meter for residential and commercial land, respectively, compared to the treatment areas. However, after 15 years, commercial land value experienced a positive treatment effect of around PHP 10,500 per square meter within the 1.0 km and 1.5 km treatment areas. In aggregate, about 30-55% of the total land value increase could potentially cover the entire LRT 2 project cost. Using logarithmic - linear regression within the 1.0 km treatment area, HPM showed that land value for residential within 251-500 meters and for commercial within 250 meters from rail stations experienced the highest increase immediately and even after 15 years of rail operation. Residential land experienced increases as high as 37.2% immediately and 79% after 15 years, while commercial land saw increases of 37.0% immediately and 94.9% after 15 years. Both methods show the potential of LVC around LRT-2 as an alternative financing mechanism. The portion of the land value increase can fund future rail projects through strategic implementation of LVC mechanisms such as tax-based policies and transit-oriented development, offering a sustainable funding source for urban development and mass transportation improvement.

BIOSKETCH

Carl Dave Silos is a Filipino civil engineer with experience in transportation and land development projects. Over the past five years, he has worked on diverse local projects and international projects in Australia and New Zealand. His expertise includes managing earthworks, road design, and utilities management for residential, commercial, and industrial projects using software such as AutoCAD, Civil 3D, and Geographic Information Systems (GIS). He also has experience as a quantity surveyor, overseeing materials, equipment, and labor for subdivisions in North Luzon and Visayas, where he improved budget management processes. In 2018, Carl graduated from the University of the Philippines Los Baños with a Bachelor of Science in Civil Engineering. His undergraduate thesis focused on the analysis of mode-switching behavior of public utility vehicles (PUV) passengers towards Metro Manila Metro Rail Transit Line 7 (MRT 7). In the same year, he passed the Civil Engineering licensure exam. He began his industry career in January 2019 as a land development design engineer and quantity surveyor, working on both local and multinational projects, including those in New Zealand and Australia. In 2022, Carl started his master's degree in Transportation Engineering and recently graduated from the University of the Philippines Diliman. His master's thesis assessed land value dynamics induced by rail project accessibility and the feasibility of Land Value Capture (LVC) from Metro Manila Light Rail Transit Line 2 (LRT 2). With his diverse industry and academic experience, Carl envisions providing innovative solutions in transportation and urban development. He aims to utilize advanced technology to promote sustainable rural and city planning for developing countries such as the Philippines.

TECHNICAL SESSION 4

Green Spaces to Grey Zones: Evaluating the Implications of the Urban Development and Housing Act of 1992 in the Landscape Fragmentation of Silang–Santa Rosa River Subwatershed amidst Manila’s Decongestion Efforts

Gabrelle Noreen Estrellanes¹, Nappy Navarra¹, Diomari Centeno¹
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ABSTRACT

Metro Manila faces challenges due to rapid urbanization, including traffic congestion, overpopulation, and inadequate housing. The local government has initiated decongestion efforts to redistributing population and economic activities to neighboring regions, such as the “Build, Build, Build” program. These efforts aim to stimulate economic growth, reduce pressure on Manila, and improve quality of life. The Urban Development and Housing Act of 1992, aimed at addressing the urban housing crisis, mandated affordable housing and socialized projects. However, it also contributed to the fragmentation of green spaces, highlighting the trade-offs between housing development and environmental conservation. This study aims to evaluate the implications of the Urban Development and Housing Act of 1992 on the landscape fragmentation of the Silang–Santa Rosa River Subwatershed amidst Manila’s decongestion efforts from 2000 to 2020. Using Geographic Information System (GIS) software, the subwatershed was precisely delineated based on topographical and hydrological data. Green spaces were mapped and classified into Coastal, Grassland, Recreational, Agricultural, and Barren categories for the years 2000, 2010, and 2020. Landscape metrics, including the number of patches, mean patch size, and percentage of landscape (PLAND), were calculated to quantify fragmentation. The study further analyzed land cover changes by overlaying residential zone maps on green space maps to assess the impact of the Urban Development and Housing Act of 1992. The findings indicate significant fragmentation of green spaces, driven by the implementation of the Urban Development and Housing Act of 1992, reducing the size and continuity of green spaces as agricultural and recreational areas are converted into residential and industrial zones. This study highlights the need for sustainable land use planning to mitigate the adverse effects of the Urban Development and Housing Act of 1992 on green spaces, with policies such as the Philippine Green Building Code and the Philippine Urban Development and Housing Framework (2017–2022) offering solutions to balance development with ecological preservation.

BIOSKETCH

Gabrelle Noreen Estrellanes is a fresh graduate of the Bachelor of Landscape Architecture from the University of the Philippines College of Architecture. Her undergraduate research agenda focuses on the transformation of cities to blue zones, providing a comprehensive city-wide model for physical activities in promoting longevity and improving the overall quality of life. As a budding landscape architect, her experiences have equipped her with the expertise needed to nurture and sustain outdoor environments, blending design creativity with practical stewardship, embodying a commitment to sustainable practices and environmental stewardship in her professional endeavors.

TECHNICAL SESSION 4

Examining the Relationship between COVID-19 and Resiliency of Livelihood Development in Local Government Unit-Administered Resettled Communities of Metro Manila

Sonia Islam¹, Dina C. Magnaye¹, Ronnie H. Encarnacion¹, Patricia Shaira P. Esguerra¹
¹University of the Philippines School of Urban and Regional Planning



ABSTRACT

The global health, economic, environmental, and social challenges brought about by the COVID-19 pandemic require thorough community-level information to recognize people's strengths and resources. This is essential for creating risk response plans at all sectors of government and varied livelihood opportunities at the community level. Resettlement projects have been considered as possible options for informal settlements by governments of developing countries to address the concerns of housing and living conditions. In the Philippines, these communities frequently exhibit resilience, ingenuity, and resourcefulness in addressing obstacles such as economic instability, natural catastrophes, and restricted access to resources through their collective action or bayanihan. This research focuses on resettlement sites, as the resettlement, while often essential, induces alterations in the lives and livelihoods of the communities. Understanding the various dimensions of vulnerabilities and deprivations is essential for developing a comprehensive and sustainable strategic framework that fosters resilient livelihoods and empowers marginalized people through inclusive policies. The overall research objective is to assess the relationship of global pandemic disease with the resiliency of livelihood development in two Local Government Unit (LGU) -administered resettlement sites in Valenzuela City and Pasig City, situated in the National Capital Region (NCR). The communities were relocated due to their placement in high-risk areas, including danger zones, regions susceptible to natural disasters, or sites impacted by government infrastructure initiatives. The study examined the impact of the pandemic on the livelihood status of households, focusing on five asset capitals: human, social, physical, financial, and natural. To find the interrelationship between such a global health emergency and livelihood resiliency, the five asset capitals (human, social, physical, financial and natural) were analyzed using statistical tools under the lens of the Sustainable Livelihood Framework (SLF), where livelihood assets are placed at the center to determine the potential enhancement. These served as inputs in formulating resilient livelihood strategies for settlement development planning and implementation at the local level. The study, through household surveys and focus group discussions, revealed that the asset capitals of the case study communities were affected by the pandemic on different levels, but the sites were able to well manage their physical, social and natural capital assets, which were not affected on severe levels. The study also reflected how policies, processes, and institutions are coherently formulating resettlement action plans for resettlement projects and supporting resilient livelihood strategies. Respondents during COVID-19 reported social discrepancies and diminished neighborly interactions; thus, socio-economic preparedness might be developed to enhance the positive and engaging psychological attitudes and behaviors of resettled families. The primary issue following relocation occurs when residents are unable to secure income or access critical services in the new site. To guarantee the success of any relocation venture, greater emphasis must be placed on the pre-move phase during the project's first stages. It is recommended to examine the community's capacity for engaging in cooperative problem-solving techniques that could underpin proposals for enhancing social ties in the formulation of livelihood strategies.

BIOSKETCH

Dr. Sonia Islam graduated in 2010 in Architecture, BRAC University, Bangladesh. After working briefly as consultant for construction and Interior Design projects, she was awarded a scholarship from the Dutch Government under the Netherlands Fellowship Program; for completing a Master's program in Institute of Housing and Urban Development Studies (IHS), Rotterdam. She received her degree in Urban Management and Development in 2013, specializing in Urban Housing and Livelihoods. Since then, she has worked with local consultants in Bangladesh and taken part in various research-based projects focusing on informal settlement and community development. From 2015-2018, she worked with a Denmark based consultancy studio which involved working in renovation and restoration projects in major cities of Denmark, Sweden and Norway. She recently received her Doctorate degree from the School of Urban and Regional Planning, University of Philippines Diliman where she specialized in Estate Planning and Management. Her major research area focuses on establishing resilient communities and livelihoods in resettlement areas of Metro Manila. During her stay, Dr. Islam has been a University Scholar and has received Certificate of Distinction during the Parangal sa Mag-aaral held in 2020, 2021 and 2022. Besides working as a Graduate Researcher, she is serving as Junior Researcher cum Project Coordinator for the "Linking Disaster Risk Governance and Land use Planning" (LIRLAP) project, which is a joint undertaking between the Planning and Development Research Foundation (PLANADES) and the School of Spatial Planning of the Technical University of Dortmund (TU Dortmund) since July, 2021.

TECHNICAL SESSION 4

Potential of the European Train Control System ETCS in case of application in the Greater Toronto and Hamilton Area



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ABSTRACT

In contrast to road traffic, friction is significantly lower in rail traffic, which on the one hand leads to lower energy consumption but on the other hand to a longer braking distance. Depending on the speed, this can be up to 30 times longer. The problem here is that at these high speeds the human eye cannot see far enough ahead to recognize a possible danger. Therefore, there is no guarantee that a train driver will recognize a signal in time. To solve this problem, train control systems have been developed which display the signal aspect and other information directly on monitors in the cab unit or locomotive. Various versions of these train control systems are available in Europe. A new standardized train control system, the ETCS (European Train Control System), has been developed to offer problem-free cross-border travel. This train control system enables cross-border operations in rail traffic, it can safely guide high-speed trains up to speeds of more than 330 km/h and it can ensure that the capacity on a railroad line can be increased. The North American metropolitan area of Toronto which was chosen for the example presented here. This is because there are plans to use ETCS in a modified form in order to increase capacity on existing lines and possibly save on infrastructure expansion costs. In the area under consideration, the population is expected to grow by 70 % to over 12 million inhabitants by 2041. In addition, the number of weekly train journeys is expected to increase from the current 2400 to over 6000. The following section examines whether the train control system would have a positive effect, i.e. by what percentage the capacity of a line can be increased without expansion. In the first step, the ETCS train control system with its individual levels and the area under consideration are described in more detail. To this end, the individual routes are analyzed and the new system is fictitiously installed. Various operating programs are then simulated and a possible train mix is mapped. Additional expansion measures are then considered and combined with the ETCS train control system in order to determine which infrastructure measures need to be implemented in order to be able to handle the future number of trains. Finally, an outlook is given on further applications of the ETCS train control system and the potential offered by the use of ATO (automatic train operation) systems.

BIOSKETCH

Lect. Lars Weller is a highly qualified expert in transportation systems engineering and rail transport management, with a robust academic and professional background. He completed his undergraduate studies at the University of Applied Sciences Zwickau (FH) from 2003 to 2008, where he specialized in traffic engineering, system planning, and mobility research. His diploma thesis focused on Austria's regional railroads in transition, and he produced several notable publications during his studies. In 2021, he completed a Master of Science in Transport System Management at Karlsruhe University of Applied Sciences, concentrating on rail transport and transport planning. His research projects included studies on increasing capacity on railroad lines through new control and safety technologies and infrastructure expansion, particularly focused on southwestern Ontario. Currently, Lect. Weller is pursuing a PhD in collaboration with TU Braunschweig, researching the environmental impacts of automated rail systems. Professionally, he has been working at the Eisenbahn-Bundesamt Ast Karlsruhe since 2018, where his responsibilities include examining rail infrastructure projects under the Federal Rail Infrastructure Expansion Act, providing technical opinions, and supporting projects like NBS/ABS Karlsruhe-Basel. He is also a lecturer at Karlsruhe University of Applied Sciences, where he teaches courses on rail transport technology, railroad operations, and capacity planning. Additionally, he has taught railway planning at the University of Waterloo. With expertise in railway engineering, planning, and BIM (Building Information Modeling), Lect. Weller is dedicated to advancing the field of sustainable and efficient rail transport.

TECHNICAL SESSION 4

Cycling Mobility as a 'Right to the City': Urban Experience of Risk, Right and Spatial Negotiation in Metro Manila



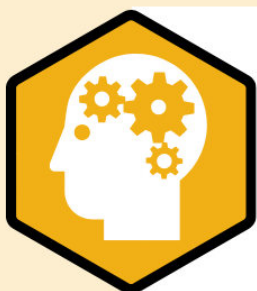
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ABSTRACT

Mobility has been a predominant subject of inquiry within urban studies, engineering, transportation studies, and geography where it has been primarily discussed in terms of the land and physical structures of the urban space, and how these structures affect the movement of vehicles and people. Social theorists, however, extend this discussion beyond physical urban infrastructures by emphasizing the social interaction of people within and with their physical environment, often within the contexts of 'automobility' in car-dependent metropolitan centers. However, diverse forms of urban mobilities also coincide and collide with each other as urban actors generally traverse risky and unsafe roads on a daily basis. This study aims to examine urban cycling as one form of urban mobility especially in the recent institutionalization of networks of bikeways and bike lanes in Metro Manila. Drawing on the conceptual groundwork of Egan and Philbin's precarious entitlement to public space (2021), this study will explore the mobility strategies employed by actors to circumnavigate road hazards, and 'insecure space' produced by the fragmented and poor integration of bike lanes into the larger traffic spaces. Given this precarious positioning of bikeways that make cyclists and 'biker-commuters' vulnerable on the road, this study will analyze how they negotiate with and challenge the predominance of automobility characterized by 'spatial disregard' of bike lanes that at times, which may lead to aggressiveness and harassment towards active mobility actors despite the recent local-level and national-level guidelines and rules surrounding the network of bike lanes. Given the lack of implementation and existing 'spatial disregard' of the rights of cyclists and biker-commuters, I argue that they employ 'hyper-awareness' not only of the cycling risks and road hazards but also of other mobility actors in terms of sharing physical space or copresence to mitigate the risk of mobility collision and diffuse tensions on the road that stem from the stiff competition over scarce urban and traffic spaces. The study utilized a "ride-along method", where the researcher cycled in different parts of Metro Manila that have bike paths, in-depth interviews, and visual sociology to gather data from the sixteen (16) cycling participants with different cycling identities as well provide images of spatial changes, risks and obstructions that cyclists are exposed to in their everyday lives in Metro Manila. The gathered responses from the participants, the collected visual images and experience during the process of autoethnography presents a description regarding how cyclists maneuvers in Metro Manila and how cyclists express their right to the city which subsequently claim and re-claim space for their own mobility. The study provides evidence supporting the objectives of the study wherein cyclists, and its identities, are exposed to similar and different risks as well as spatial contestation in different spaces in Metro Manila, and employ necessary strategies or competencies to circumvent these risks and claim and restructure space as their right to the city.

BIOSKETCH

I am Marc Angelo C. Sanchez currently a research analysts for a financial and equities firm in Bonifacio Global City, a mobility advocate, a part time professor in City of Malabon University, and a graduate student in the College of Social Science and Philosophy Graduate School, University of the Philippines, Diliman. The topic of my M.A thesis and my research interest is about Urban Sociology, specifically the interactions between social agents and urban structures, whereas how these structures are restructured and how these structures condition the social agents that engage within the field of the city.



TECHNICAL SESSION 5: **LIFELONG AND LIFEWARD LEARNING SESSION**

MODERATOR:

Asst. Prof. Mark Anthony Gamboa

UP School of Urban and Regional Planning

PRESENTERS:

Archemedes Wabe

University of Science and Technology of Southern Philippines

Prof. Karen Ann Jago-on

UP School of Urban and Regional Planning

Assoc. Prof. Radhakrishan Vasanthan

Nagaland University

McRhon Banderlipe I

Strathclyde Institute of Education, University of Strathclyde

Asst. Prof. Shnaoli Chakraborty Acharya

West Bengal State University

John Anthony Cruz

Catholic Relief Services



TECHNICAL SESSION 5

Student Living Conditions: A Case of the University of Science and Technology of Southern Philippines – CDO Students' Accommodation

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ABSTRACT

Student accommodation is an important component of a student's journey while studying away from home. Several foreign and local universities have provided a variety of on-campus student accommodations with appropriate amenities and facilities to students who originate from distant places while providing them the opportunity to have a holistic experience in college. This study investigated the living conditions of the University of Science and Technology, Cagayan de Oro campus students, as well as their satisfaction level with their current accommodations and the factors that students take into consideration when searching for accommodations. This study also identified factors that could potentially explain the students' decision to seek accommodation by presenting a number of hypothetical scenarios. Data collection was primarily done through survey questionnaires to university students who are currently enrolled during the conduct of the study and are currently living in a boarding house or a dormitory. We used descriptive statistics to summarize the collected data, and conducted a binary logistic regression to identify potential factors that could influence a student's decision to avail a hypothetical university accommodation. Results show that 45% of students said that their existing accommodations lack necessary safety and security features, while 46% expressed satisfaction with their existing living conditions. Results of the logistic binary regression showed that significant predictors for students to avail the university accommodation are their fare expenses, satisfaction of their current living conditions, parents' monthly income, and safety and security features of their accommodation. The findings emphasize the importance of studying the needs, preferences, and satisfaction of students who are living in boarding houses or dormitories to better understand their current living conditions as well as which aspect the university can help in their accommodation. Furthermore, this study can contribute towards policy crafting in dormitory guidelines and possible supervision and regulation of third-party student accommodations.

BIOSKETCH

Architect Archemedes G. Wabe is a faculty member in the Department of Architecture at the University of Science and Technology of Southern Philippines, Cagayan de Oro City. He graduated with a bachelor's degree in Architecture from the Mindanao University of Science and Technology, Cagayan de Oro, in 2013 and a Master of Arts in Urban and Regional Planning from the School of Urban and Regional Planning, University of the Philippines, Diliman, Quezon City, in 2019. As a faculty member, he is responsible for teaching courses such as Architectural Design, Site Planning, Community Planning Development, and Urban Planning. As a researcher, he published a peer-reviewed and Scopus-indexed work in the Mindanao Journal of Science and Technology (MJST) in 2022 titled "Factors Influencing the Size of a Mass Transit Station's Pedestrian Shed in Quezon City, Philippines."

TECHNICAL SESSION 5

Contextual and Thematic Analysis of Studies from the UP School of Urban and Regional Planning from 1977–2022

Karen Ann Jago-on¹, Jun T. Castro², Ma. Paulo O. Cruz¹, Angelica G. Nimer¹

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ABSTRACT

This study primarily sought to understand the field of urban and regional planning in the Philippines through a temporal and spatial analysis of more than 400 theses and dissertations of UP School of Urban and Regional Planning students from 1977 to 2022. Specifically, it aims to identify prevalent themes in urban and regional planning studies, determine how these studies reflect and address prevailing issues and challenges during their corresponding period, identify frequently selected study areas, and identify existing gaps in topics and study sites. Using thematic analysis and mapping, studies were categorized into identified recurrent themes. Context analysis was also used to determine how these studies reflect the issues and concerns of the country during the time, thereby illustrating how they further evolve and adapt to address current national issues. Studies about economic development as well as transportation and mobility were prevalent from 1977 to 1989. During the martial law era, development initiatives to make housing accessible to the general populace were mostly undertaken. The 1980s emphasized economic growth, environmental management and urban reform, while the 1990s underscored substantial progress in infrastructure, heritage and tourism, and land use planning studies. In the 2000s, studies in environment and natural resources planning became prominent due to occurrence of natural disasters, emphasizing the need for more robust economic and environmental strategies. The following decade was marked by an increase in climate change and disaster risk reduction management studies due to the occurrence of extreme and destructive weather, and continued in the early 2020s, in which the emphasis remains on reducing disaster risk, increasing climate resilience, and improving infrastructure reflecting the ongoing efforts to balance environmental and social initiatives for sustainable development. The studies primarily concentrated on NCR and its neighboring regions, Central Luzon and CALABARZON while regions like Davao, Cagayan Valley, Northern Mindanao, and CARAGA were underrepresented. This presents a substantial gap and the need for a broader and more comprehensive research within these areas to ensure a holistic understanding of the country's diverse urban and regional planning landscapes. Addressing these knowledge gaps would better inform policy-making that puts an equitable and more inclusive approach to the development of regions across the country. The continuous evolution of study themes shows that planning tries to continuously adopt and incorporate new knowledge and techniques to address emerging concerns. Through a culture of lifelong learning, these urban and regional planning studies contribute to the ongoing improvement of planning practices and the achievement of long-term sustainable development goals in the Philippines.

BIOSKETCH

Dr. Karen Ann B. Jago-on is a Professor and Director of Graduate Studies of the School of Urban and Regional Planning at the University of the Philippines Diliman. She is a licensed Environmental Planner and holds a doctorate and master's degree in Development Science from Hiroshima University, Japan. She also holds a diploma in Urban and Regional Planning and a Bachelor's Degree in Community Development from the University of the Philippines. Her body of work is concentrated on Environment Management and Socio-economic development. She currently teaches Resource Use and Development, Special Problems in Environment and Natural Resources Planning, and Research Methods in Planning and Planning Process courses. She has also been involved in research related to natural resource management, disaster risk reduction, and climate change adaptation. Currently, she is engaged in projects related to mining communities and fisherfolk settlements.

TECHNICAL SESSION 5

Establishing a Learning Neighbourhood at Nagaland University: Assessing Educational Needs in Kohima



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ABSTRACT

This paper presents a report on the study carried out to initiate a learning neighborhood program around Nagaland University focusing on Kohima, the capital of Nagaland. The study aims to understand the needs of the region and explores the possibility of learning neighborhood neighborhood initiation to address the educational challenges in this region that are connected to sustainable development. The study focuses on the area surrounding Nagaland University, Kohima Campus. The unique socio-cultural attributes of the region offer a suitable space for implementing a learning neighborhood. In this way, the study identifies critical needs such as improving access to education and vocational skills, preserving prior knowledge, and nurturing community engagement. The several issues crucial to the successful implementation of the Learning Neighbourhood Programme raised in the work include the issues in integrating traditional knowledge with modern education, addressing the problems with educational access, and prevailing over infrastructural limitations. As studies from various regions have shown that localized learning initiatives can effectively bridge educational gaps and empower communities, the research also draws on case studies of successful learning cities and neighborhoods for insights into best practices and potential drawbacks. The research involves a mixed-methods approach, combining qualitative and quantitative data collection. Surveys and interviews with local residents, educators, and policymakers were conducted to gather information about the needs of the region. Data analysis has been carried out to identify key requirements and areas of intervention. Recommendations include establishing community learning centers, bringing in the local cultural practices into the curriculum, and establishing partnerships between the university and local institutions. The paper recommends a collaborative approach, engaging all stakeholders to ensure the productivity and sustainability of the program.

BIOSKETCH

Dr. Radhakrishan Vasanthan is an Associate Professor at Nagaland University, India, specializing in English Language Teaching (ELT) and Literature. He holds a Ph.D. in ELT from Anna University, Chennai, an M.Phil., in Literary Criticism, and an M.A. in English Language and Literature. With 22 years of teaching experience, Dr. Vasanthan has a publication record, covering articles and books on ELT methodologies, language teaching, literature, and cultural studies. He has authored textbooks on English communication and soft skills specifically tailored for students in the northeastern region of India. His contributions to literature include the publication of an anthology titled "Wings of Conscience." Beyond academia, Dr. Vasanthan engages himself as a resource person for FDPs, workshops, training programs, and orientations. As a mentor, he has guided numerous students, overseeing M.A., and M.Phil., projects and currently providing guidance to Ph.D. scholars.

TECHNICAL SESSION 5

School Time as Learning Time? Re-imagining School and Non-School Spaces to Bridge Attainment Gaps



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ABSTRACT

Recent proposals from the Philippine legislature acknowledged the need to re-evaluate and rethink how students and teachers spend their time in schools. Following the recommendations from leading institutions, shortening schooling or working time in schools was explored as a possibility to address attainment gaps and in improving teacher quality. In re-conceptualising learning spaces, reimagining spaces and community outside schools could complement the quality of instruction and assessment by teachers to their students. The presentation will provide insights from a recent completed study about teachers' participation in an urban community in the Philippines. The study involved semi-structured qualitative interviews of 16 public school teachers in the City of Manila, Philippines. A constructivist thematic analysis was utilised to analyse the rich interview data. An interesting finding revealed that teachers' involvement in communities outside the schools were instrumental to the enactment of teachers' professional work and have informed their classroom teaching practices. For some of these teachers, professional identities extend to the communities outside of schools. As such, professional learning practices for teachers have been recommended to include involvement and participation in community activities. To expand the discourse further during the presentation, the reflections from this study will also be cross-referenced to existing studies on attainment gaps in Scotland and from other countries. Finally, this invites a collaborative dialogue reimagining schools and non-school spaces as integral in planning for sustainable planning and in improving career long professional learning or lifelong activities among teachers and students.

BIOSKETCH

McRhon's lived experiences as migrant worker, researcher and student informed his professional and research activities related to teacher education, lifelong learning and professional development. McRhon headed the regional programmes for executive, lifelong and skills development for Southeast Asia at the National University of Singapore (NUS) School of Continuing and Lifelong Education (SCALE) and for various regions at the NUS Lee Kuan Yew School of Public Policy (LKYSPP). While at NUS, McRhon led projects in collaboration with various international, government, non-for-profit and private sector organisations. McRhon's PhD study at the University of Strathclyde in Scotland focuses on teacher activism, the role of inquiry and practice in teachers' professional work in schools and communities. In his current professional capacity at the University of Glasgow, McRhon is a Learning and Teaching Team Manager for the School of Social and Political Sciences; and as an Associate Tutor for the School of Education. An Erasmus Mundus Joint Master Degree scholar, McRhon holds an International Master degree on Adult Education for Social Change (offered by the University of Glasgow, University of Malta, Tallinn University and the Open University of Cyprus). At LKYSPP, NUS, McRhon has a Master in Public Administration and was a full academic scholar. McRhon completed his BA History and Diploma in Industrial Relations at the University of the Philippines.

TECHNICAL SESSION 5

Techquity: Digital Trajectories for Lifelong Learning



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ABSTRACT

In the present day, Lifelong learning is seen as a critical factor in creating a progressive and knowledgeable society. Lifelong and life-wide learning—these connected concepts emphasise the continual nature of acquiring knowledge and skills throughout life. As society undergoes a digital transformation, we need a new way of viewing learning. These days, we often change careers several times, requiring new skills and knowledge. Companies are required to update processes, leadership, and development opportunities to remain relevant to employees and the market. Lifelong learning is necessary to master new methods, processes, and innovations in a changing world. This empowerment enables individuals to navigate a rapidly changing world, lead fulfilling lives and contribute meaningfully to society. Lifelong learning enables individuals to continuously enhance their knowledge and acquire the necessary skills for career opportunities. In the 21st century, people embrace “earning while learning” to ensure a sustainable and advanced society within the industrial framework. Online courses, such as Massive Open Online Courses (MOOCs), Open Educational Resources (OERs), and various digital platforms, provide diverse learning opportunities on a global scale. However, further discussion is needed to explore the macro-effect of digitalisation that could significantly promote lifelong learning in a vast country like India. The article is framed using Descriptive research methodology. Sources such as the Census 2011 Report, Human Development Report 2016, 2018, and Economic Survey 2016 are also consulted. The data extracted from the secondary sources of information are used for analysis. It briefly defines and conceptualises digitalisation in lifelong learning and its impact on two variables: the learners’ expectations and the nature of available platforms. The research questions framed for the study are as follows: What are the learners’ expectations regarding accessing the reliability and validity of the available digital platforms?

What is the nature of the platforms available for lifelong learning? How could these platforms be strengthened by providing diverse dimensions? The literature review in the paper suggests that educational institutions in India could benefit from adopting successful national and international practices to transform society. This could involve creating customised MOOCs (Massive Open Online Courses) on the SWAYAM platform and several digital platforms to promote lifelong learning opportunities. The aim is for these initiatives to cater to the three fundamental principles of Indian education: accessibility, equity, and quality through digitalisation—thereby justifying the “Techquity”. However, numerous challenges exist when implementing and developing these platforms for lifelong learning in India. Assessing the current methods and popularity of digitally delivered education in India is essential to justify these efforts. Furthermore, this paper discusses a new form of social constructivism that can emerge in lifelong learning. In this model, learners can interact directly with others in the community, share their ideas and thoughts, and collaborate on new research projects. To conclude, the study offers some implications for different stakeholders in the context of lifelong learning. It enumerates several research gaps and future directions for future scholars in this line of inquiry.

BIOSKETCH

Dr. Shnaoli Chakraborty Acharya is an Assistant Professor in the Department of Education at West Bengal State University, India, with 17 years of teaching experience. Her interests include digital learning, women’s education, techno-pedagogical skills in teaching, educational administration, and management. She obtained her PhD in Educational Psychology from the University of Kalyani in 2011. Lap Lambert Publishing House, Germany, published her thesis, *Enhancing Achievement in English Learning—Influence of Psycho-variables on English Learning*. Dr. Acharya’s work has garnered international recognition, with her papers being presented at over 40 International, National, and State Conferences. She has published research papers in International and National Journals and contributed Chapters in different Edited Volumes and Modules. She is the Principal Investigator of a Minor Research Project funded by the Indian Institute of Teacher Education, Gujarat, India, and a Collaborator of a Project by the Institute for Adult Learning, Singapore, titled “International Survey on Artificial Intelligence in Higher Education, Training and Adult Learning”. Four scholars are pursuing Ph. D.s under her current guidance.

TECHNICAL SESSION 5

Innovating Solid Waste Management through a Social and Behavior Change Strategy: The Case of Six Urban Barangays in Manila, Philippines

John Anthony Cruz¹, Marcelle Rubis¹, Marell Wong¹, Jordz Amman Operio¹, Aleen Gamelon²
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ABSTRACT

Metro Manila is regarded as the biggest generator of waste in the Philippines. A study shows that in 2021, Metro Manila was producing around 587,029 metric tons of waste per day, and an article also stressed that at least 45% of waste in Metro Manila is not properly disposed of, with kitchen waste, plastic, and paper being the top three types of waste. With this, the Clean Manila, Blue Bay Project, implemented by Catholic Relief Services (CRS) and with funding support from the United States Agency for International Development's Clean Cities, Blue Ocean Program (USAID- CCBO), aimed to contribute to having more sustainable environments and cleaner waterways in Metro Manila through improving the capacity of local actors in the Reduce, Reuse, and Recycle (3Rs) strategy and in Solid Waste Management (SWM). The project employed a social and behavior change communication (SBCC) campaign anchored on their social and behavior change (SBC) framework, guided by the results of trials of improved practices (TIPs) formative research and a series of assessment activities, e.g., waste flow mapping, on solid waste management. The campaign aimed to evaluate the effectiveness of an SBC strategy in waste management by strengthening the behavior and practices of community residents in existing barangay SWM systems, particularly waste segregation at-source and the waste collection system. The team implemented the campaign in Barangays 91, 93, 98, 105, 118, and 128 in the City of Manila; and strictly monitored the waste management practices of selected households, as random samples, for seven days and simultaneously administered qualitative monitoring and evaluation activities. General findings reveal that the institutionalization of SWM efforts heavily impacts the behaviors and practices of households in proper SWM. Households participate more proactively in ensuring sound waste management if proper systems for waste segregation, collection, and diversion are in place. On the other hand, the practical capacities and resources of individuals also heavily affect their SWM behaviors and practices. With these, stakeholders should place the utmost importance on policy development and resource management for actualizing SWM positive behavioral changes for better local SWM implementation.

BIOSKETCH

John Anthony Cruz is completing his Master of Arts Degree in Urban and Regional Planning, specializing in Environment and Natural Resource Planning, at the University of the Philippines. He works with Catholic Relief Services for the implementation of Clean Manila, Blue Bay Project, one of the local grantees of the United States Agency for International Development – Clean Cities, Blue Ocean Program for the reduction of ocean plastic pollution. Following his graduation from the University of the Philippines Diliman with a Bachelor of Science in Community Development, he has been involved in environmental and development activities. He thinks that in order to achieve inclusive and sustainable development—which starts at the local level and works from where our communities are—the theory and practice of community development work, or “praxis,” is crucial. As a result, he was able to delve deeper into the field of solid waste management development work, which includes participatory action research, organizational development, community organizing, and capacity building and training. He worked on a research and development project, Project Integrated Waste Analysis, Survey, and Technological Options (Project IWASTO), implemented by the University of the Philippines and funded by the Philippines' Department of Science and Technology. The Project aimed to innovate solutions to the solid waste management issues of the Manila Bay watershed. Additionally, he worked as a social impact consultant for AMH Philippines Inc., assisting with projects including Plan International and Artelia PacificTech Solutions for the Pasig River Plastic Waste Ecosystem and the Pasay City Solid Waste Management Baseline Assessment Project, respectively.

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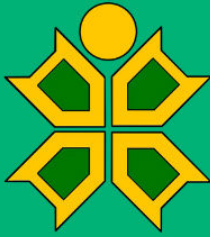
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