



The University of
Papua New Guinea



Australian
National
University

2023 PNG UPDATE

Resilient and diverse development

PROGRAM AND ABSTRACTS

The 2023 PNG Update is organised by The University of Papua New Guinea School of Business and Public Policy and The Australian National University Development Policy Centre. Funding support is provided by the PNG-Australia Partnership, with assistance for travel from The Asia Foundation.



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Mr Panditha Bandara, Head of Division, Accounting, University of Papua New Guinea

Mrs Patricia Angopa, Head of Division, Banking and Finance, University of Papua New Guinea

Mr David Mo, Acting Head of Division, Business Management, University of Papua New Guinea

Mr Raymond John, Head of Division, Human Resource Management, University of Papua New Guinea

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Vice Chancellor and Management of University of Papua New Guinea

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Ms Brooke Disney, Head of Advancement, College of Asia and the Pacific, Australian National University

Mr Jonathan Dampney, Director, International Office, Australian National University

We acknowledge generous funding support from the PNG-Australia Partnership and The Asia Foundation.

THURSDAY 17 AUGUST

8.30am	Registration						
9.00-10.30am	Welcome remarks and opening plenary* <i>New Lecture Theatre (NLT)</i> Chair: TBC Opening prayer, national anthem and national pledge – Rev. Koloma Makewin, Chaplain, UPNG Welcome remarks – Professor Frank Griffin, Vice-Chancellor, University of Papua New Guinea Opening address – The Honourable Mr James Marape, Prime Minister of Papua New Guinea Reflections on UPNG, ANU relationship – Professor Brian Schmidt, Vice-Chancellor, Australian National University UPNG-ANU MoU signing						
10.30-11.00am	Morning tea						
11.00am-12.30pm	Plenary session* <i>New Lecture Theatre (NLT)</i> Chair: Professor Leo Marai Plenary address – Elizabeth Genia, Acting Governor, Bank of Papua New Guinea Book launch: Collaboration and Public Policy – Professor Helen Sullivan, Dean College of Asia and the Pacific, Australian National University						
12.30-1.30pm	Lunch						
1.30-3.00pm	1A: Economic issues <i>New Lecture Theatre (NLT)</i>	1B: Gender and society <i>SBPP Lecture Theatre 1 (UG.02)</i>	1C: Agricultural commodities <i>SBPP Lecture Theatre 2 (UG.07)</i>	1D: Culture and development <i>SBPP Tutorial Room 1 (LG.02)</i>	1E: Climate change impacts <i>SBPP Tutorial Room 3 (LG.04)</i>	1F: Primary and secondary education <i>MBA Suite</i>	
3.00-3.30pm	Afternoon tea						
3.30-5.00pm	2A: Gender, family and sexual violence <i>New Lecture Theatre (NLT)</i>	2B: Conflict dynamics in Papua New Guinea <i>SBPP Lecture Theatre 1 (UG.02)</i>	2C: Public sector and governance <i>SBPP Lecture Theatre 2 (UG.07)</i>	2D: Agricultural policy <i>SBPP Tutorial Room 1 (LG.02)</i>	2E: Development and service delivery <i>SBPP Tutorial Room 3 (LG.04)</i>	2F: Development and change <i>MBA Suite</i>	
5.00pm	Close						

*Session will be livestreamed

FRIDAY 18 AUGUST

8.30am	Registration					
9.00-11.00am	Plenary session*	New Lecture Theatre (NLT) Chair: Dr Modowa T. Gumoi Keynote – Winnie Kiap CBE Keynote – The Honourable Kessy Sawang				
11.00 -11.30am	Morning tea					
11.30am-12.30pm	Plenary session: Panel – How rural and urban PNG people respond to major disasters*					
	New Lecture Theatre (NLT) Dr Mike Bourke, Australian National University; Sally Lloyd, Strickland Bosavi Foundation; Matthew Kanua, Consultant; Brendan Jinks, Consultant; James Komengi, United Church, Hela Province, PNG					
12.30-1.30pm	Lunch					
1.30-3.00pm	3A: Mining and development case studies New Lecture Theatre (NLT)	3B: Review of the form and system of government: Election of the prime minister by the people SBPP Lecture Theatre 1 (UG.02)	3C: Forestry and agriculture SBPP Lecture Theatre 2 (UG.07)	3D: Crime and corruption SBPP Tutorial Room 1 (LG.02)	3E: Tertiary education SBPP Tutorial Room 3 (LG.04)	3F: Development issues MBA Suite
3.00-3.30pm	Afternoon tea					
3.30-5.00pm	4A: Politics and governance New Lecture Theatre (NLT)	4B: Combating climate change SBPP Lecture Theatre 1 (UG.02)	4C: Banking and finance SBPP Lecture Theatre 2 (UG.07)	4D: Gender and leadership SBPP Tutorial Room 1 (LG.02)	4E: Agriculture and food security SBPP Tutorial Room 3 (LG.04)	4F: Urban and rural development MBA Suite
5.00pm	Closing Session: concluding remarks*	New Lecture Theatre (NLT) – SBPP, University of Papua New Guinea; Development Policy Centre, ANU				
7.00-10.00pm	Update dinner (by invitation only)	UPNG SBPP Foyer				

*Session will be livestreamed

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PROGRAM

DAY ONE – THURSDAY 17 AUGUST

8.30am	Registration
9.00am	Welcome remarks and opening plenary* <i>New Lecture Theatre (NLT)</i> Chair: TBC Opening prayer, national anthem and national pledge Rev. Koloma Makewin, Chaplain, University of Papua New Guinea Welcome remarks Professor Frank Griffin, Vice-Chancellor, University of Papua New Guinea Opening address The Honourable Mr James Marape, Prime Minister of Papua New Guinea Reflections on UPNG-ANU relationship Professor Brian Schmidt, Vice-Chancellor, Australian National University UPNG-ANU MoU signing
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12.30pm	Lunch
1.30pm	Parallel session 1 1A: Economic issues* <i>New Lecture Theatre (NLT)</i> Chair: Dr Albert Prabhakar <i>Can the adjustment of average personal and company income tax rates sustain government revenue and taxpayers' welfare?</i> Solomon Kasingu , Researcher, Bank of Papua New Guinea <i>Macroeconomic impact of budget deficits in Papua New Guinea</i> Diana Tuam , Senior Analyst, and Mark Ofoi , Senior Analyst, Economics Department, Bank of Papua New Guinea <i>An econometric analysis of the determinants of foreign exchange reserves in PNG</i> Dr Modowa Trevor Gumoi , Lecturer in Economics, Dr Ponnusamy Manohar , Deputy Dean and Senior Lecturer in Business Management, and Masidah Tonaim , Tutor in Economics, School of Business and Public Policy, University of Papua New Guinea <i>How much is too much? Inflation-growth threshold for Papua New Guinea</i> Meson Tumsok , Senior Research Analyst, Bank of Papua New Guinea

*Session will be livestreamed.

1B: Gender and society
SBPP Lecture Theatre 1 (UG.02)

Chair: Dr Anna Joskin

An investigation into factors influencing female student dropout in the rural primary schools in Southern Highlands Province of Papua New Guinea

Janet Niningi, Tutor, University of Goroka; **Joy Asiure**, Lecturer and Director, Centre for Educational Research, University of Goroka

Access and gender equity in Papua New Guinea: Where is it getting better or worse for girls?

Peter Michael Magury, Research Fellow, PNG National Research Institute

Evaluation of characteristics of helpline users and emerging issues: A case study of Papua New Guinea

Thea Joy-Jarvis, Program Manager, ChildFund PNG; Dr **Eugene Ezebilo**, Director of Research, PNG National Research Institute; **Henry Gorea**, Data officer, **Kinime Daniel**, Helpline Manager, ChildFund PNG

1C: Agricultural commodities
SBPP Lecture Theatre 2 (UG.07)

Chair: Mr Wilson Thompson

Determinants of coffee production in Papua New Guinea: Evidence from three coffee-producing provinces

Dr **Eugene Ezebilo**, Deputy Director for Research, PNG National Research Institute

Assessment of the impact of downstream processing of agricultural commodities on PNG's economy: A case of cocoa

Kenneth Baliwasa, Tutor, UPNG School of Business and Public Policy

Agribusiness and landowner partnership models: Some cases from the Markham Valley agriculture growth corridor

Dr **Elly Kinkin**, Lecturer, University of Papua New Guinea; **John Simango**, CEO, Grow PNG

1D: Culture and development
SBPP Tutorial Room 1 (LG.02)

Chair: Dr Linus Digim'rina

Awagasi: Our market stories –using visual creative methods to understand market vendors' perspectives

Wilma Langa, PhD Candidate, Queensland University of Technology; Verena Thomas, Professor, Edith Cowan University; Jackie Kauli, Associate Professor, Queensland University of Technology; Laurie Buys, Professor, Australian Catholic University

The presentation of academic identity at a Papua New Guinean University: Agency and liminality in postcolonial higher education

Peter Nasale, Lecturer, Western Pacific University; Jeanette Baird, Adjunct Professor, Divine Word University

Samting i narakain: Reconceptualising change and resilience from the ground up

Glenn Banks, Professor, John Overton, Professor, Geography, Massey University; Gordon Nanau, Senior Lecturer, University of the South Pacific; Henna Steven, Senior Lecturer, Clare Kokinai, Lecturer, Pacific Adventist University

1E: Climate change impacts
SBPP Tutorial Room 3 (LG.04)

Chair: Dr Olive Bailoloi

Climate resettlement: A comparative presentation of Kiribati and the Carteret Islands

Akka Rimon, PhD Candidate, Australian National University

Sustainable development through the blue economy in Papua New Guinea

Professor Chalapan Kaluwin, Discipline Head of Environmental Science and Sustainable Development, School of Natural and Physical Science, University of Papua New Guinea

Climate proofing Port Moresby's urban development: Reducing the impact of urban heat island effect

Samuel Awayang, Research Project Officer, PNG National Research Institute

1F: Primary and secondary education
MBA Suite

Chair: Professor Boe Lahui

Impacts of population growth on enrolment and transition rates in primary and secondary schools in Papua New Guinea

Peter Michael Magury, Research Fellow, PNG National Research Institute; Esther Kabura, Graduate Analyst, Logohu Capital

Factors affecting the implementation of standard-based curriculum in Papua New Guinea: A case study of three selected primary schools in Jiwaka Province

Samuel Vue, Tutor, University of Goroka; **Joy Asiure**, Lecturer and Director, Centre for Educational Research, University of Goroka

Improving mathematical learning in PNG secondary classrooms using the worked example based instructional strategy

Alice Napasu, Program Manager, Research and Postgraduate Studies, Pacific Adventist University; Dr Elisapesi Manson, Education Lecturer, School of Pacific Arts, Communication and Education, University of the South Pacific

An investigation into factors affecting Grade 10 and 12 students' mathematics performance in Port Moresby, Papua New Guinea

Jerome Oko, Campus Administrator, Divine Word University

3.00pm

Afternoon tea

3.30pm

Parallel session 2

2A: Gender, family and sexual violence*
New Lecture Theatre (NLT)

Chair: Dr Dora Aiyus

The role of women in addressing gender-based and sorcery accusation-related violence in Milne Bay and Simbu Provinces of Papua New Guinea

Sophie Naime, PhD Candidate, **Bomai Witne**, PhD Candidate, Queensland University of Technology

Addressing sorcery-related violence through peacebuilding: The Yuri experience

Bomai Witne, PhD Candidate, Queensland University of Technology and University of Goroka

Strategy for strengthening interventions to family violence using helplines in Papua New Guinea

Thea Joy-Jarvis, Program Manager, ChildFund PNG; Dr **Eugene Ezebilo**, Director of Research, PNG National Research Institute; **Henry Gorea**, Data officer, **Kinime Daniel**, Helpline Manager, ChildFund PNG

2B: Panel – Conflict dynamics in Papua New Guinea: Findings from a United States of Peace research project
SBPP Lecture Theatre 1 (UG.02)

Chair: Dr Gordon Peake

Findings from a United States of Peace research project

Camilla Pohle, Senior Program Specialist, Dr **Gordon Peake**, Senior Adviser, **Zuabe Tinning**, Program Manager, United States of Institute of Peace; **Dennis Kuiai**, Autonomous Bougainville Government; Dr **Almah Tararia**

2C: Public sector and governance
SBPP Lecture Theatre 2 (UG.07)

Chair: Mr Emmanuel Gorea

Analysis of ICT competencies and public service delivery: A case study of Pacific Institute of Leadership and Governance (PILAG)

Erwin Rayel, ICT Manager, Benny Lip, Online Training Coordinator and Trainer, **Phil Kuso**, Training Designer and Quality Analyst, Pacific Institute of Leadership and Governance; Dr **Joyce Rayel**, Head of Department, Tourism and Hospitality, University of Papua New Guinea

Enhancing governance, rule of law, peace and development in Papua New Guinea through local institutions: The (unrealised) potential of the local-level government and the village court

Kyline Koroka; Dr Julienne Kuman; **Shahar Shalom Yadin**, Consultant/Educator, Kingku Village of Peace

Financing the development of customary land in Papua New Guinea: Challenges and prospects

Logea Nao, Research Fellow, Joecy Kabi, Project Officer, Samuel Awayang, Project Officer, Lindsay Kutan, Program Leader and Senior Research Fellow, PNG National Research Institute

2D: Agricultural policy
SBPP Tutorial Room 1 (LG.02)

Chair: Dr Ponnusamy Manohar

The limitations and opportunities on key agricultural commodities in the PNG economy

Germaine Vigil, Senior Public Servant, **Joseph Malabag**, Public Servant, Treasury Department

The establishment of Provincial Didiman Centres (PDC's) as agricultural hubs in the highlands of Papua New Guinea

Johannes Pakatul, Research and Development Coordinator, NARI Highlands

Regional Centre, Aiyura; Stanley Amben, Research and Development Coordinator, Okrupa Mauro, Research Associate, Jeremiah Ahizo, Livestock Scientist, Jonah Anton, Research Associate, NARI High Altitude Regional Centre, Tambul; Laurie Fooks, Program Director, NARI Head Office, Bubia, Lae

Identification and response to agricultural risks in the highlands of Papua New Guinea

Stanley Amben, Research and Development Coordinator, NARI High Altitude Regional Centre, Tambul; Johannes Pakatul, Research and Development Coordinator, NARI Highlands Regional Centre, Aiyura; Jonah Anton, Research Associate Jeremiah Ahizo, Livestock Scientist, NARI High Altitude Regional Centre, Tambul; Maima Sine; Laurie Fooks, Program Director, NARI Head Office, Bubia, Lae

2E: Development and service delivery
SBPP Tutorial Room 3 (LG.04)

Chair: Professor Lekshmi N. Pillai

Health worker perceptions and attitudes to vaccines in PNG: Lessons from the COVID-19 pandemic

Josh Barlow, Research Officer, **Caroline McGann**, Project Manager of Media Development Initiative, Prashanth Pillay, Manager of Monitoring, Research and Evaluation, Lachlan Leeds, Research Assistant, **Gaius Sabumei**, PNG Manager of Monitoring, Evaluation and Research, ABC International Development

Harnessing Facebook for online marketing in PNG: How does it transpire?

Geetha Rani Prakasam, ICCR Chair Professor, **Amanda Towi**, Research Assistant and Tutor, PNG University of Technology

Understanding the domestic travel market in Papua New Guinea: An analysis of travel motivations, destination choice and tourism activities

Dr **Joyce Rayel**, Head of Division and Senior Lecturer, **Imelda Atu**, Lecturer, Ronald Raka, Teaching Fellow, **Jason Eki Kundi**, Lecturer, Tourism and Hospitality Management Division, School of Business and Public Policy, University of Papua New Guinea; **Grace Guaigu**

2F: Development and change
MBA Suite

Chair: Dr Suresh Babu

Analysis of the tourism supply components of Port Moresby as an urban tourism destination of Papua New Guinea

Jason Eki Kundi, Lecturer, Dr **Joyce Rayel**, Head of Division and Senior Lecturer, Tourism and Hospitality Division, School of Business and Public Policy, University of Papua New Guinea

Analysis of smartphone usage among university students: Papua New Guinea experience

Panditha Bandara, Senior Lecturer, University of Papua New Guinea

Generative AI for education in Papua New Guinea: Opportunities and challenges

Raymond Kamb John, Lecturer in HRM, University of Papua New Guinea

5.00pm

Close

DAY TWO – FRIDAY 18 AUGUST

8.30am	Registration
9.00am	Plenary session* <i>New Lecture Theatre (NLT)</i> Chair: Dr Modowa T. Gumoi <i>Keynote</i> Winnie Kiap CBE <i>Keynote</i> The Honourable Kessy Sawang
11.00am	Morning tea
11.30am	Plenary session: Panel – How rural and urban PNG people respond to major disasters * <i>New Lecture Theatre (NLT)</i> Chair: Dr Mike Bourke, Honorary Associate Professor, Australian National University <i>Impact of the 2015-16 drought and 2018 earthquake on villagers in the remote Strickland Bosavi area of Western Province</i> Sally Lloyd , Director, Strickland Bosavi Foundation <i>Disruptions to supply chains and food supply in PNG caused by global issues</i> Matthew Kanua , Consultant <i>How communities responded to COVID-induced lockdowns in 2020</i> Brendan Jinks , Consultant; Dr Mike Bourke, Honorary Associate Professor, Australian National University <i>Reducing the impact of tribal conflict in Hela Province</i> James Komengi , United Church, Hela Province, PNG
12.30pm	Lunch
1.30pm	Parallel Session 3 3A: Mining and development case studies* <i>New Lecture Theatre (NLT)</i> Chair: Dr Elly Kinkin <i>Estimating the impact of mining projects on local development in Papua New Guinea</i> Kelly Samof , Lecturer, Economics Department, University of Papua New Guinea <i>Indigenous people and the mining industry: A case in point of Papua New Guinea</i> Dr Londari Yamarak , Lecturer, PNG University of Technology; Kevin Parton, Professor, Charles Sturt University

*Session will be livestreamed.

Importance of national oil and gas companies in generating sustainable wealth For Papua New Guinea

Dr **Glen Mola Pumuye**, Research Assistant, Bond University

3B: Panel – Review of the form and system of government: Election of the prime minister by the people

SBPP Lecture Theatre 2 (UG.02)

Chair: Mr Patrick Kaiku

Michael Kabuni, PhD Student, Australian National University; Dr **Mange Matui**, Secretary, **Xavier Winia**, Deputy Director of Research, Constitutional Law Reform Commission of PNG; **Russel Yangin**, Lecturer, University of Papua New Guinea; **Lucy Mathew**, Constitutional Law Reform Commission

3C: Forestry and agriculture

SBPP Lecture Theatre 1 (UG.07)

Chair: Professor Simon Saulei

Organic matter addition in composted mounds for sweet potato production can improve soil fertility and increase yield under climate change

Peter Topas, Masters Candidate, **Patrick Michael**, Associate Professor, Department of Agriculture, PNG University of Technology

Drones and deep learning (AI): A new approach to monitoring forest plantation health in PNG

Russel Tarutia, Drone Specialist, DroneTree Mapping and Solutions

Deforestation and forest degradation: Increasing concerns in the Pomio District of East New Britain Province

Joecy Kabiu, Research Project Officer, PNG National Research Institute

3D: Crime and corruption

SBPP Tutorial Room 1 (LG.02)

Chair: Mr Albert Aiyus

Youth unemployment of Morata Informal settlement, Port Moresby

Julian Melpa, Research Officer, Dr Francis Odhuno, Senior Research Fellow, PNG National Research Institute

Abolition of the death penalty in Papua New Guinea: What's the next step?

Moses Sakai, Researcher, **Sharon Niaga**, Lecturer, **Rex Kupil**, Lecturer, **Kenneth Baliwasa**, Tutor, University of Papua New Guinea

City residents' perceptions on crime and safety: A case of Port Moresby

Jack Assa, Lecturer, School of Business and Public Policy, University of Papua New Guinea; Professor Leo Marai, Executive Dean, School of Humanities and Social Sciences, University of Papua New Guinea; Shane Amanu, **Leanne-Marie Aneisia**, Joe Frank, Joel Kumusi, Seth Passingan, **Andrew Richard**, Gerhard Siune, Zechariah Suii, Trevor Towati, Caleb Yalikiti, Final Year Students, School of Business and Public Policy, University of Papua New Guinea

3E: Tertiary education
SBPP Tutorial Room 3 (LG.04)

Chair: Professor Boe Lahui

Artificial intelligence (AI) tools in higher education: Challenges and strategies

Dr **Ponnusamy Manohar**, Senior Lecturer, **David Mo**, Lecturer, **Richard Lan**, Lecturer, School of Business and Public Policy, University of Papua New Guinea

Evaluating students' errors in academic writing for curriculum development

Dr **Anna Joskin**, Acting Dean for Research and Post Graduate Studies, University of Papua New Guinea

Evaluating lecturers' and learners' perceptions and experiences towards Technology-Enabled Learning (TEL) in UPNG

Anna Olga, Research Officer, Dr Boe Lahui-Ako, Executive Director, **Jessica Wohiemani**, A/Associate Director of Centre and Student Support, **Ivy Pagolu**, A/Associate Director of Programs and Production, UPNG Open College

The challenges of teaching business courses using WEB 2.0 in Papua New Guinea universities

Kenneth Wak'nbu Tapungu, Lecturer, University of Papua New Guinea

3F: Development issues
MBA Suite

Chair: Professor Stephen Howes

Lecturer competency from the perspective of postgraduate students and lecturers: A case of the School of Business and Public Policy, University of Papua New Guinea

Jack McDonald, Tutor, **Wasita Pomel**, Tutor and Teaching Fellow, Dr **Joyce Rayel**, School Chairperson, Research and Post-Graduate Committee and Head of Division of Tourism and Hospitality Management, University of Papua New Guinea

The nexus between tourism and women's empowerment: The context of the tourism industry in Papua New Guinea

Dr **Albert Prabhakar Gudapati**, Senior Lecturer, Economics Division, School of Business and Public Policy, University of Papua New Guinea; Dr **Joyce Rayel**, Senior Lecturer, Ronald Raka, Teaching Fellow, Imelda Atu, Lecturer, Tourism and Hospitality Management Division, School of Business and Public Policy, University of Papua New Guinea

A study on tax knowledge and awareness of Papua New Guinea Salary Wages Tax (SWT) among the employees of The University of Papua New Guinea

Dr **Suresh Babu Nagarajan**, Senior Lecturer in Accounting, Professor **Lekshmi N. Pillai**, Executive Dean, **Benedicta Gabonen Mellam**, Lecturer in Accounting, **Jack McDonald**, Tutor in Business Management, **Lucy Kerua**, Tutor in Accounting, **Kepi Yogomin Mato**, Tutor in Accounting, School of Business and Public Policy, University of Papua New Guinea

3.00pm

Afternoon tea

Parallel Session 4

4A: Politics and governance*

New Lecture Theatre (NLT)

Chair: Dr Grant Walton

Fiscal decentralisation and governance

Maholopa Laveil, FDC Pacific Fellow, Lowy Institute

Updating ministerial durations and stability in PNG from 1972-2022

Dr **Henry Ivarature**, Deputy Director, Australia Pacific Security College, Australian National University

Papua New Guinea's Public Services Commission (PSC) since independence: Sidelined or strengthened?

Dr **Nematullah Bizhan**, Lecturer, **Stephen Howes**, Professor of Economics, Development Policy Centre, Australian National University

4B: Combating climate change

SBPP Lecture Theatre 1 (UG.02)

Chair: Dr Modowa T. Gumoi

Papua New Guinea's Nationally Determined Contribution: Advancing sustainable development and climate resilience

Alfred Rungol, General Manager, MRV and National Communication Division, Climate Change and Development Authority

Use of ICT tools and technology in PNG to support climate change and environmental sustainability education

Arun Kumar Singh, Professor, **Benson Mirou**, Senior Lecturer, **Sankwi Abuzo**, Senior Lecturer, **Yaling Tapo**, DHoD, Peter Halebi, Senior Lecturer, PNG University of Technology

PNG should look beyond gas for energy resilience

Kevin Morrison, Energy Finance Analyst, Institute for Energy Economics and Financial Analysis

4C: Banking and finance

SBPP Lecture Theatre 2 (UG.07)

Chair: Mr Panditha Bandara

A study on quality of corporate boards of banking and finance sector in Papua New Guinea

Professor **Lekshmi N. Pillai**, Executive Dean, Dr **Suresh Babu Nagarajan**, Senior Lecturer–Accounting Division, **Benedicta Gabonen Mellam**, Lecturer–Accounting Division, **Patricia Angopa**, Head and Lecturer of Banking and Finance–Accounting Division, School of Business and Public Policy, University of Papua New Guinea

Determinants of commercial bank interest rate spread in PNG: An empirical analysis

Jamie Sali, Research Analyst, Mark Ofoi, Senior Analyst, Jechonia Hamua, Research Analyst, Economics Department, Bank of Papua New Guinea

Determinants of excess liquidity in the banking system of PNG

Thomas Wangi, Research Fellow, PNG National Research Institute

Examining challenges and strategies for enhancing the robustness of the PNG Stock Market

David Mo, Lecturer, **Patricia Angopa**, Head and Lecturer of Banking and Finance–Accounting Division, **Sharon Niaga**, Lecturer, Imelda Atu, Lecturer, University of Papua New Guinea

4D: Gender and leadership
SBPP Tutorial Room 1 (LG.02)

Chair: Dr Joyce Rayel

Women media leaders as drivers for change

Joy Eggins, Project Manager of Media Development Initiative, Josh Barlow, Research Officer, Gaius Sabumei, PNG Manager of Monitoring, Evaluation and Research, Prashanth Pillay, Manager of Monitoring, Evaluation and Research, Lachlan Leeds, Research Assistant, ABC International Development

Empowerment through the GEDSI policy: Evaluations of the implications of GoPNG GEDSI (Gender Equity, Disability and Social Inclusion) policy on students and staff of Divine Word University, Madang Campus

Calista Hamadi, Gender Equity Promotional, Papua New Guinea Business Coalition for Women

Factors affecting female leaderships within the rural health care facilities in South Bougainville, AROB, PNG

Emelda Ariku, Graduate Researcher, Divine Word University

4E: Agriculture and food security
SBPP Tutorial Room 3 (LG.04)

Chair: Dr Nakapi Tefuarani

The role of green manures in sustaining soil health and crop productivity in PNG – A review

Paula Kaupa, PhD Candidate, Rajashekhar Rao BK, Associate Professor, PNG University of Technology

Development of a seasonal farm advisory in Papua New Guinea for climate-smart agriculture

Ruth Baiga, Natural Research Management Scientist, National Agriculture Research Institute; Dr Rachel Friedman, Postdoctoral Fellow, and Dr Steven Crimp, Research Fellow, ANU Institute for Climate, Energy, and Disaster Solutions; Mauro Okrupa, Research Associate, Alex Galus, Johannes Pakatul, HRC Research Development Coordinator, and Laurie Fooks, Program Director, National Agriculture Research Institute

Equitable agricultural extension through institutional youth engagement in Papua New Guinea: A case study in Kokopo District, East New Britain Province

Donald Kanini, Masters Candidate, School of Humanities and Social Science, University of Papua New Guinea

4F: Urban and rural development
MBA Suite

Chair: Mr Vincent Malaibe

Assessment of surface runoff on different surfaces (pervious and impervious) within the urban region: A case study of Lae City

Runitha Nickson, Postgraduate Student, Tingneyuc Sekac, Senior Lecturer and Research Coordinator, Sujoy Kumar Jana, Associate Professor, Papua New Guinea University of Technology

Use of multicriteria decision approach to identify an alternative solid waste dump site around Lae City

Den Einstein, Masters Candidate, Dr **Sailesh Samanta**, Associate Professor, PNG University of Technology

An analysis of social cultural trends and the growth of Chinese business: A case of Goroka urban and peri-urban area in Eastern Highland Province

Johnson Ahupa, Senior Tutor, University of Goroka

5.00pm

Closing Session*

Concluding remarks

Chair: Dr Ponnusamy Manohar

School of Business and Public Policy, University of Papua New Guinea;
Development Policy Centre, Australian National University

7.00pm

Update dinner (by invitation only)

SBPP Foyer

ABSTRACTS

DAY ONE – THURSDAY 17 AUGUST

Parallel Session 1A: Economic issues

Can the adjustment of average personal and company income tax rates sustain government revenue and taxpayers' welfare?

Solomon Kasingu, Researcher, Bank of Papua New Guinea

The study investigates the short-run dynamic effects of average personal and company income tax rates in Papua New Guinea. It specifies proxy variables formulated from personal and company income taxes, goods and services tax, company profits, government revenue, and real gross domestic product in the Structural Vector Autoregressive model. The research aims to contribute to the fiscal policy front and the importance of adjustment on average tax rates to answer the primary question, 'What are the effects of an adjustment in the average personal and company income tax rates on the macroeconomy?' Related studies showed that tax adjustments affect macroeconomic variables in developed economies and provided a benchmarking guide for tax policy decisions and application. Similarly, this research examines the tax adjustments and their effects in Papua New Guinea as a developing economy. The results show that adjusting the average personal income tax rate significantly affects the personal income tax base and government revenue directly. While an adjustment in the average company income tax rate indirectly affects company profits, company income tax base, government revenue and real growth at significant levels over specific periods. The research findings provide an essential tax policy guide for negative and positive tax rate adjustments based on the country's state of the economy and government fiscal priorities. In addition, the study highlights research gaps in the current tax policy and legislation, to encourage related studies in PNG and other developing countries.

Macroeconomic impact of budget deficits in Papua New Guinea

Diana Tuam, Senior Analyst, Mark Ofoi, Senior Analyst, Economics Department, Bank of Papua New Guinea

The paper examines the macroeconomic impact of budget deficits in Papua New Guinea for sample period 1980 to 2018. The paper uses data on fiscal balances, real output, inflation, money supply, commercial bank lending rates and real effective exchange rates while examining the impact of budget deficits using both Vector Autoregressive and Vector Error Correction models. The results in the paper suggest that budget deficits have been ineffective in driving growth, while affecting inflation and monetary conditions, suggesting elements of fiscal dominance. This is further constrained when rising inflation feeds back into running cost of government operations. For monetary policy, the central bank's ability to influence money supply, lending rates and inflation remain a challenge in the presence of persistent budget deficits, which affect the aforementioned.

An econometric analysis of the determinants of foreign exchange reserves in PNG

Dr Modowa Trevor Gumoi, Lecturer in Economics, Dr Ponnusamy Manohar, Deputy Dean and Senior Lecturer in Business Management, Masidah Tonaim, Tutor in Economics, School of Business and Public Policy, University of Papua New Guinea

Using time series data and the employment of the OLS method, an econometric analysis of the determinants of foreign exchange reserves in PNG is undertaken to determine the impacts of the determinants on foreign reserves. The determinants of foreign exchange reserves include exchange rates, interest rates, GDP, unit price index of imports, unit price index of exports, inflation, broad money supply and foreign aid.

Unit root tests for stationarity of data, including Granger causality tests for causality between determinants and cointegration tests to establish long run equilibrium of variables are conducted as well to validate the econometric model.

Given the protracted foreign exchange problems in PNG and the lack of empirical evidence to substantiate the magnitude and extent of the problem, this study should provide empirical evidence as to the factors responsible for the foreign exchange problem and the magnitude of their impacts. The findings from the study should aid the PNG Government to take corrective policy measures to rectify the problems associated with foreign exchange reserves in the country.

How much is too much? Inflation-growth threshold for Papua New Guinea

Meson Tumsok, Senior Research Analyst, Bank of Papua New Guinea

This study employs annual data for the period 1980-2020 to establish the inflation threshold level for PNG. Adopting the threshold regression approach of Khan and Senhadji, the study estimates that the inflation threshold for PNG is 12.0 per cent. The inflation level above this threshold level is found to have adverse effects on long-run economic growth. In contrast, the paper finds a statistically insignificant impact of inflation on growth for inflation levels lower than the threshold, implying an ambiguous relationship. The results have important policy implications for monetary policy management as it provides a guide to set inflation targets to ensure a low inflation outcome is achieved as well as assist policy makers prioritise policy objectives given the level of inflation and multiple monetary policy objectives including economic growth and employment, and price stability.

Parallel Session 1B: Gender and society

An investigation into factors influencing female student dropout in the rural primary schools in Southern Highlands Province of Papua New Guinea

Janet Niningi, Tutor, University of Goroka; Joy Asiure, Lecturer and Director, Centre for Educational Research, University of Goroka

This study was conducted in the rural primary schools of the Southern Highlands Province to identify factors influencing female student dropout. To generate and refine the study ideas literature review was done in developed and developing countries including PNG. The study based on two theories of motivation: Bernard Weiner's attribution theory and Abraham Maslow's theory on human motivation.

The constructivism paradigm was used with the qualitative research mode as a case study approach. 32 teachers, 16 parents/guardians and eight female student dropouts were the key participants. Data analysis was done manually using responses tally method and interpreted using descriptive statistics and was expressed as percentages with brief descriptions.

Findings confirmed that not all female students enrolled in the rural primary schools completed their education. Some left due to a number of factors such as family-related, school-related, personal and other factors. Recommendations were drawn to suggest remedies to minimise the issue. These are as follows:

- female primary education must be free and compulsory
- gender-based in-service to be conducted in rural primary schools
- female primary education awareness to be conducted in rural areas
- proper guidance and counselling services in rural primary schools
- teachers' attendance to be strictly monitored by the school inspectors
- gender equality in teacher postings

Access and gender equity in Papua New Guinea: Where is it getting better or worse for girls?

Peter Michael Magury, Research Fellow, PNG National Research Institute

This study looks at school participation using the gross enrolment ratio. In this study, the current female enrolment ratio is compared with the male enrolment ratio. The study then looks at the absolute gender gap to identify the difference between the male and female enrolment ratios. It also looks at the gender ratio that measures the ratio between the female and the male enrolment ratios which is designated as the gender parity index. This study employs the quantitative research method on which secondary data are collected and analysed. Findings show that among the regions, gender gaps in basic education are most significant in the Momase Region while in secondary education is most

significant in the Highlands Region. Combined regional gender gaps for basic and secondary education are more significant in the Highlands region, followed by the Momase, Southern and New Guinea Island Regions. The absolute gender gaps indicates that in the Highlands Region the female enrolment ratios in secondary education should increase by 14 percentage points to attain gender equity. The gender parity index indicates that in the same region the female enrolment ratio for secondary education is only two thirds (0.59) of the male enrolment ratio. The ranking of the regions where it is getting better or worse for girls in Papua New Guinea is identified based on the criteria (gender gap or GPI) chosen to order them. Policy implications are discussed, and study recommendations are made to improve access and gender equity in PNG.

Evaluation of characteristics of helpline users and emerging issues: A case study of Papua New Guinea

Thea Joy-Jarvis, Program Manager, ChildFund PNG; Dr Eugene Ezebilo, Director of Research, PNG National Research Institute; Henry Gorea, Data officer, Kinime Daniel, Helpline Manager, ChildFund PNG

Gender-based violence (GBV) response and programs should be informed by quality evidence generated through research and service monitoring and evaluation. A partnership between ChildFund Papua New Guinea's 1-Tok Kaunselin Helpim Lain, and PNG National Research Institute was formed to contribute to GBV evidence-based practice. The paper reports on the preliminary analysis of Helpline call data identifying key characteristics of callers, emerging issues and potential strategy that can be used to improve services. Data originated from 50,927 de-identified call records made to the Helpline from 2015 to 2021 and was analysed using descriptive statistics. The results provide insight into trends in PNG, areas that need strengthening and gaps that need further inquiry. Majority of callers were male, however, for callers identifying as survivors of violence majority were female. Relationship issue was associated with the highest number of calls, followed by family violence and intimate partner violence and safety issue the lowest. Callers are more likely to call from urban areas and certain regions in PNG. Helpline and GBV services can be improved by considering caller characteristics and using results to inform service delivery, awareness raising and programming. It is hoped that the findings will support evidence-based practices in the GBV sector in Papua New Guinea and other Pacific nations.

Parallel Session 1C: Agricultural commodities

Determinants of coffee production in Papua New Guinea: Evidence from three coffee-producing provinces

Dr Eugene Ezebilo, Deputy Director for Research, PNG National Research Institute

Coffee contributes to government revenue and income of households who engage in businesses associated with coffee production, processing and marketing. However, some coffee-producing countries including Papua New Guinea have continued to face challenges that restrict them from achieving their full potential in coffee production. This paper reports on a study which examined farm characteristics and coffee grower's characteristics influencing the quantity of coffee produced. The data originated from interviews with coffee growers in Eastern Highlands, Morobe and Western Highlands provinces and was analysed using descriptive statistics and Ordinary Least Squares (OLS) regression model. The results showed that the interviewees produced an average of 42 of 60kg bags of coffee each year. The average age of trees on the coffee plots was 21 years and only a few of the interviewees (10%) benefited from the Productive Partnership in Agriculture Project (PPAP). Pruning of the coffee trees was conducted on an average of two times each year. The OLS results showed that the most important factors influencing the quantity of coffee produced include location of the coffee plot, labour type, coffee production scale, access to PPAP, awareness of the productive age of coffee tree, participation in coffee production training, educational level and membership of a co-operative society. The findings provide an input into the development and implementation of coffee production improvement program by considering the determinants of coffee production in PNG in making informed decision by coffee industry planners and managers.

Assessment of the impact of downstream processing of agricultural commodities on PNG's economy: A case of cocoa

Kenneth Baliwasa, Tutor, UPNG School of Business and Public Policy

Papua New Guinea needs economic independence. The catchphrase, rich in abundance of resources yet very poor in socio-economic development indicators. While there are many factors contributing to resource curse, lack of economic diversification through downstream processing of its resources is one area that has been lacking due to poor national leadership and inappropriate agro-industrial and trade policies. Therefore, in an effort to arrest this trend, the current government has taken decisive actions through the slogan 'Take Back PNG' aimed at achieving greater economic autonomy. In taking the first step forward, the government reviewed and amended existing resource laws and directing emphasis towards downstream processing of country's resources including agricultural export commodities. To realise this agenda, it has created a new Ministry of International Trade and Investment (MITI) which was responsible for creation of Special Economic Zone (SEZ) concept, an economic instrument adopted to promote and drive economic diversification. This presentation is to assess the impact of downstream processing of agricultural commodities such as cocoa which have a significant socio-economic impact on PNG's overall economy. Findings from this research imply that processing of cocoa beans into end-products yield significant benefits in terms of creating employment, generating revenue, export promotion and import substitution. While the study is based on cocoa processing, the results from this study can also be replicated to other resource sectors for inclusive socio-economic development and sustainable growth. The purpose of this presentation is to inform the government, policy makers and industry stakeholders.

Agribusiness and landowner partnership models: some cases from the Markham Valley agriculture growth corridor

Dr Elly Kinkin, Lecturer, University of Papua New Guinea; John Simango, CEO, Grow PNG

This study will discuss the various partnership models in the agriculture sector within Papua New Guinea. While business partnership models have been used extensively in the agriculture sector, it is quite surprising that very little research and studies have been undertaken to look at and understand some of the success stories and failures of these models. Further, the study will have very important lessons for business partnership around the country as it will provide insights on the positions and perceptions of the various stakeholders. It will also offer a deeper appreciation of the socio-cultural forces that are at work which may or may not apply to specific area contexts. The fact that a lot of the foreign owned companies with practices that are not compatible with local cultural values is very critical to understanding partnership models. Additionally, the lack of documentation of the partnership models involving huge capital outlays by the various investors, government and landowners is a cause for concern. This is especially the case considering the impact of some these agricultural undertakings on the economy (in terms of foreign exchange earnings, employment, and multiplier effect) and society generally.

In essence, getting the right business partnership models at the beginning can be the difference between success and failure. The frustrations experienced by landowners and investors may be the result of not understanding and accepting the basis of the partnership arrangements. The government and its various agents also need to have a better appreciation of the models.

Parallel Session 1D: Culture and development

Awagasi: Our market stories – using visual creative methods to understand market vendors' perspectives

Wilma Langa, PhD Candidate, Queensland University of Technology; Verena Thomas, Professor, Edith Cowan University; Jackie Kauli, Associate Professor, Queensland University of Technology; Laurie Buys, Professor, Australian Catholic University

Urban settlements are common features of the urban landscape in Papua New Guinea. From the exterior, they are often perceived from a deficit perspective. However, people living in urban settlement communities play a vital role in the urban economy. In order to challenge the dominant narrative of

urban settlements, this study privileged visual creative arts-based research methods and storytelling with photos taken by market vendors to identify market challenges and solutions. This culminated in the co-creation of a photo booklet as creative output from the creative process. The photo booklet contains photo stories of market vendors of Awagasi market in Lae, PNG –acknowledging the difficulties and constraints in the market vendors’ lives, but also communicating local responses to address these hardships. Drawing from visual creative arts-based research methods of photovoice and participatory creative mapping, underpinned by Melanesian values of relational reciprocity and respect, the research investigated the stories of market vendors to better understand local responses to everyday market challenges.

The study argues that it is important to capture and share perspectives of people affected and include them in conversation about change. The research demonstrates that visual creative arts-based research methods provided the opportunity for market vendors to share their stories and experiences about how local responses contribute to address everyday difficulties in an urban economic environment. The study also presents an alternative narrative of vibrant communities thriving and supporting each other.

The presentation of academic identity at a Papua New Guinean University: Agency and liminality in postcolonial higher education

Peter Nasale, Lecturer, Western Pacific University; Jeanette Baird, Adjunct Professor, Divine Word University

The development, enhancement and ongoing curation of one’s identity as an academic is crucial ‘self-maintenance’ work for those who teach and research in universities. Ensuring that academic staff are supported in this work is important also to university administration to note, as skilled experts’ continued involvement in university is needed for mission fulfilment.

This paper presents research findings on the ‘naming’ and identification of oneself as an academic by lecturers at Divine Word University in PNG. The lens of postcolonial theory is used to indicate relations of acquiescence, adaptation, hybridity, or liminality in respect of dominant Western academic norms.

The analysis of self-descriptions provided by interviewees reveals complex dynamics in which many lecturers must negotiate the tension between a belief that an academic must have a doctorate or conduct research and their own lived focus on student learning and role modelling. The research presents the ways lecturing staff describe themselves to their families, communities and personal networks, and their perceptions of academic values and characteristics.

While DWU academics show agency in shaping their own identities as teachers and professionals, many acquiesce uncritically in feeling ‘not quite legitimate’ as an academic in respect of an assumed requirement to undertake Western-style research. Cultural norms and understandings also exert an influence on how an academic identity can be presented. This study provides the basis for further critical self-reflection by PNG universities and their academics on the need for affirmation of teaching expertise and the generation of distinctively PNG ways of ‘being an academic’.

Samting i narakain: Reconceptualising change and resilience from the ground up

Glenn Banks, Professor, John Overton, Professor, Geography, Massey University;
Gordon Nanau, Senior Lecturer, University of the South Pacific; Henna Steven, Senior Lecturer, Clare Kokinai, Lecturer, Pacific Adventist University

As part of a Royal Society of New Zealand Marsden Fund project, a multi-country team of researchers and students is focussing on knowledge systems across a number of locations in the Pacific as they relate to concepts of change, ‘progress’, ‘development’ and resilience. This work will be carried out with communities and explore the ontological and epistemological bases for the way people think and act in the face of change. The project will work to co-construct indigenous understandings of change that foreground relational assumptions of causality and temporality and will draw on local experiences and stories of change, sometimes within a long historical view. This opens up possibilities for new strategies to make sense of and respond actively to shifting conditions of life locally.

Drawing on Pacific and participatory research methodologies and technologies, particularly tok-stori, and locally-based approaches, alongside digital story-mapping and photo-elicitation, local accounts

of change—in environments, society and economy—will be constructed. The project is also concerned with presenting these local knowledge systems, narratives and insights alongside more dominant and contemporary global discourses, and with the development of culturally appropriate repositories of change narratives and digital materials. We expect that the research will not produce a singular narrative but rather acknowledge and reflect the diversity of Pacific peoples and environments—across cultural groups, between genders and generations, and between individuals. In this way, the project will be well-positioned to contribute to a richer and more critical understanding of change in the region.

Parallel Session 1E: Climate change impacts

Climate resettlement: A comparative presentation of Kiribati and the Carteret Islands

Akka Rimon, PhD Candidate, Australian National University

The threats of climate induced displacement in the Pacific range from small island states with low elevation to bigger island countries with higher elevation. Whilst the re-settlement concerns in atoll countries like Kiribati involve lack of land, the question for the bigger countries like Papua New Guinea involve concerns over re-settlement on customary lands. This presentation looks at re-settlement efforts in PNG and Kiribati with PNG's experience re-settling displaced communities by the Kadwor and Manam volcanoes to the mainland, whilst Kiribati's experience was from Phoenix Islands in Kiribati to the western parts of the Solomon Islands and Fiji during the colonial era. The study compares the cases in these two countries and draws lessons on the challenges and opportunities that both Pacific Island countries face with re-settlement due to climate change.

Both the Carterets and Kiribati are similar in terms of their fragile geographies (land mass and altitude) and related socio-economic challenges which are compounded by climate change. However, with limited internal relocation options for Kiribati, the experience of the Carterets as well-profiled first climate refugees in the world, provides useful insights for Kiribati to learn from.

Sustainable development through the blue economy in Papua New Guinea

Professor Chalapan Kaluwin, Discipline Head of Environmental Science and Sustainable Development, School of Natural and Physical Science, University of Papua New Guinea

Through the endorsement of the PNG National Ocean Policy 2020–2030 after becoming a signatory to the United Nations Convention on the Law of the Sea (UNCLOS) the strategy is to enhance sustainability in PNG and its small island states. Protecting and conserving the marine environment has become critical to sustainability of livelihoods and hence the strict observance of policy and especially Blue Economy implementation. The focus of this study and presentation blue carbon has recently been popularised in PNG with attention focused on quantifying carbon stocks and emission factors in mangroves, tidal salt marches and seagrass meadows. While PNG's contribution to global carbon emission is a mere 0.02%, its government continues to support implementation of programs with a target for net zero emission by 2050. International Partners such as Tasmanian Environment Markets (TEM) have recently partnered with institutions in PNG to achieve carbon emission reduction goals and connect them to carbon offset projects. Projects has been conducted in Manus Island, New Ireland, Bougainville Islands of PNG. Preliminary analysis for Manus show a total mangroves area coverage of 5,760 hectares of however 109 hectares were lost through degradation. Off the existing mangroves sites, blue carbon storage was estimated at 9,881,424 tons. These measurements were conducted following standard approved procedures. Local communities have been educated to protect, conserve and integrate agriculture activities for sustenance livelihoods.

The project team worked with communities and develop management plans for designated mangrove protection and restoration areas. TEM and University of Papua New Guinea (UPNG) worked on policy for integrated coastal management. The same exercise will be held around the country where there are regions of high mangroves populations to determine the full content of blue carbon all around PNG. These data should form part of the total carbon storage to determine net zero levels which can be offset against carbon credits in financial terms for PNG.

Climate proofing Port Moresby's urban development: Reducing the impact of urban heat island effect

Samuel Awayang, Research Project Officer, PNG National Research Institute

As urbanisation increases in intensity and space, the urban heat island (UHI) effect phenomena is noticeable. This effect is observable in Port Moresby, Papua New Guinea, through use of geographical information system and remote sensing technology. This research examines the UHI effect in Port Moresby and suggests UHI mitigation measures that can be implemented in Port Moresby's Urban Development Plan. To analyse UHI, spectral data was acquired from Copernicus Open Science Hub website and processed in Sentinel Application Platform (SNAP) and Quantum Geographical Information System (QGIS) software to assign geographical coordinates to the data known as georeferencing, and to convert the temperature unit from kelvin to degree celsius respectively. To mitigate UHI, the use of high reflective materials that can reflect incoming solar radiation and materials that allow liquid or gases to pass through must be encouraged as well as adapting to greening city concepts.

Parallel Session 1F: Primary and secondary education

Impacts of population growth on enrolment and transition rates in primary and secondary schools in Papua New Guinea

Peter Michael Magury, Research Fellow, PNG National Research Institute; Esther Kabura, Graduate Analyst, Logohu Capital

The population growth rate for Papua New Guinea has remained significantly at high level per year over the 47 years of Independence. It has a lot of impacts on our education system in provinces, particularly those with large population. The current study sought to look at the impact of population growth on school-age population, and the implications on students' enrolments, and transition rate in primary and secondary education. The study employed the quantitative research method on which secondary data were collected and analysed using Microsoft excel. The findings show that student enrolments increase in both primary and secondary education by 4 and 8.4 per cent surpassing the PNG population growth rate of 3.1 per cent. The transition rates at the two major points of Grade 8 to 9 and Grade 10 to 11 in secondary schools have always been low in the last five years. This indicates a smaller number of Grades 9 and 11 spaces available in the secondary schools. Policy implications are discussed, and study recommendations are made to increase the number of secondary schools, infrastructures, and train more qualified teachers to meet the demand for growth in school enrolment and absorption of more students into secondary schools.

Factors affecting the Implementation of Standard-Based Curriculum in Papua New Guinea: A case study of three selected primary schools in Jiwaka Province

Samuel Vue, Tutor, University of Goroka; Joy Asiure, Lecturer and Director, Centre for Educational Research, University of Goroka

The curriculum reforms in PNG have failed to achieve their intended goals due to lack of understanding by implementers. The former Outcome-Based Curriculum (OBC) was abolished due to the unfulfillment outcome and was argued as a failed curriculum. The current Standard-Based Curriculum (SBC) implementation has brought challenges to teachers. Therefore, this report aims to identify teachers' perception of internal and external factors affecting the implementation of SBC in the three selected primary schools in the Jiwaka Province.

The methodology for the study was a mixed method consisting of both qualitative and quantitative approaches. Quantitative method was used with help of questionnaires for base level teachers and the senior teachers. Qualitative method was used with the help of personal interview guide for head teachers. A comparative analysis was done to capture the validity of the findings.

The study revealed that about 75 per cent of the teachers are not incapable to teach SBC. There were also lack of curriculum materials, textbooks, limited teachers' houses, libraries and school facilities in schools. The external factors of SBC implementation were political and economic factors.

Therefore, the research recommends that the NDoE, PEB and the head-teachers need to mobilise curriculum materials, textbooks, conduct effective SBC in-services and awareness for teachers. The BOG, parents, stakeholders and students also need SBC awareness from the authorities. More funding is also needed from the national, provincial and local governments for effective implementation. Thus, the study recommends similar studies to be conducted in elementary, high and secondary schools in the future.

Improving mathematical learning in PNG secondary classrooms using the worked example based instructional strategy

Alice Napasu, Program Manager, Research and Postgraduate Studies, Pacific Adventist University; Dr Elisapesi Manson, Education Lecturer, School of Pacific Arts, Communication and Education, University of the South Pacific

Substantial evidence in the cognitive load theory research advocate for worked examples as a highly effective instructional strategy compared to the conventional problem-solving strategy, especially for novice learners. Various forms of problem solving have been systematically researched and compared to worked examples including non-routine problem-solving strategies but not in the context of mathematics classrooms in Papua New Guinea. The main aim of this study was to investigate how worked examples can be used as an effective instructional tool for mathematical learners in PNG.

Two experiments were conducted in authentic mathematics classrooms to investigate three instructional strategies, namely, worked examples, non-routine problem-solving strategy and the conventional problem-solving strategy. Students ranging from 13 to 14 years old were randomly assigned to one of the three instructional groups investigated. Each experiment followed the same procedure where students received a particular intervention out of the three instructional strategies followed by a post intervention test on the novel learning material in order to confirm the effects of worked example.

The overall results from the study indicated that students in the worked example-based group significantly produced higher learning gains compared to their counterparts in the non-routine problem-solving strategy. Evidence was also collected that students who received the worked example-based strategy demonstrated higher understanding of the usefulness of mathematics compared to students in both the conventional and non-routine problem-solving groups. The study suggested that worked examples can be an effective instructional strategy for enhancing quality mathematics learning in PNG classrooms.

An investigation into factors affecting Grade 10 and 12 students' mathematics performance in Port Moresby, Papua New Guinea

Jerome Oko, Campus Administrator, Divine Word University

This study aims to examine the school, teacher and student-level factors and their interrelationships that affect Grade 10 and 12 students' mathematics results in Port Moresby, Papua New Guinea.

A quantitative-dominant mixed-method approach is employed in this study, which has 729 student and 41 teacher participants. The instruments used in this study are: survey questionnaires, mathematics test, and interview questions. The survey questionnaires and tests are validated and verified through confirmatory factor analysis and Rasch analysis. Rasch analysis scores obtained from the survey questionnaires and tests are used to examine the relationships between the independent and dependent variables at the teacher and student levels through the use of Structural Equation Modelling, respectively. Hierarchical Linear Modelling is also employed to examine the direct effects from teacher and student levels and cross-interaction effects between variables at these two different levels. The interview data at the teacher level is analysed through thematic approach to capture information that might have been missed in teachers' survey questionnaires to complement the findings of quantitative (survey) data.

A number of significant factors (attitude, motivation, fathers' occupation, private schools, students' gender, teachers' with mathematics major and quality of teaching) that are influencing students' mathematics results are identified by this study, with mothers' highest education level found to be the

most critical factor. The study concludes that more attention should be given to the factors identified in this study, in order to improve Grade 10 and 12 students' mathematics results. This study contributes to theoretical, methodological, and practical knowledge towards mathematics education.

Parallel Session 2A: Gender, family and sexual violence

The role of women in addressing gender-based and sorcery accusation-related violence in Milne Bay and Simbu Provinces of Papua New Guinea

Sophie Naime, PhD Candidate, Bomai Witne, PhD Candidate, Queensland University of Technology

This presentation examines the role of women in storytelling and peacebuilding in raising awareness and reducing gender-based and accusations of sorcery and sorcery-related violence (SARV) among the Yuri women of Simbu and Wagawaga women of Milne Bay provinces of Papua New Guinea respectively. The presentation is part of the two PhD projects, under the Australian Awards Scholarships undertaken by the authors in their home provinces. In Simbu Province, the Yuri community-led peace movement in 2013 led to a stop of tribal and inter-clan fights and increased women's agency in speaking openly and addressing SARV. In the Milne Bay Province, the Wagawaga community used community-based arts programs and storytelling methods, as a tool to understand the significant traditional leadership roles of women in decision making and conflict resolution particularly in response to gender-based violence. The action research projects discussed here included the local storytelling approaches framed within the indigenous knowledge systems in the context of Simbu and Milne Bay Provinces. We examined the gendered dynamics in local activism and the cultural context of the women with regards to community well-being and leadership to inform future violence prevention strategies. We demonstrate how women enact their agency in both private and public spaces, informed by empathy, traditional and Church values, family, and relational concepts to respond to violence.

Addressing sorcery-related violence through peacebuilding: The Yuri experience

Witne Bomai, PhD Candidate, Queensland University of Technology and University of Goroka

Responses to sorcery accusation-related violence (SARV) has been an ongoing challenge in many Pacific Island countries, including Papua New Guinea. In PNG, the narratives of sorcery and manifestations of SARV change with new technologies, and socioeconomic and cultural developments. Weak policing, cultural and language diversity are some challenges impeding national and community responses to SARV. In this presentation, I will discuss how the Yuri people of Simbu Province addressed SARV through an inclusive peacebuilding effort since 2013. The research used semi-structured interview and integrated photovoice methods with a local form of storytelling called kapori. There were 42 participants of equal numbers of men and women, representing over 13 clans. The findings revealed that prior to inter-clan peacebuilding initiatives, SARV was perceived as a family or clan matter, which meant members of other clans, including community leaders and village court magistrates from other clans would not intervene to stop the perpetrators, who were armed and acted in mobs. However, after the peacebuilding initiative, individuals, including women, young people, community, and elected leaders such as the councillors and village court magistrates openly condemned SARV and intervened to address it at the community level. The stories of the participants have been documented in a photo booklet for further education and advocacy. The research methods are useful and can be replicated in other communities and the Yuri response to SARV offers a unique perspective to local, national, and regional conversations to address SARV.

Strategy for strengthening interventions to family violence using helplines in Papua New Guinea

Thea Joy-Jarvis, Program Manager, ChildFund PNG; Dr Eugene Ezebilo, Director of Research, PNG National Research Institute; Henry Gorea, Data officer, Kinime Daniel, Helpline Manager, ChildFund PNG

Services provided by helplines contribute to health and social care by directly responding to issues such as gender-based violence (GBV) and violence against children (VAC). However, the little scope

for users' feedback or follow-up of impacts makes assessment of the effectiveness of helplines problematic. This paper reports on several studies that focus on the accessibility of helplines to different user groups and strategy relevant to helplines for strengthening interventions to family violence. Systematic literature review was used to examine the literature on the subject from 2000 to 2022 and was analysed using content analysis. The results show that in general, women and young people access helplines more than men for GBV support. The effectiveness of counselling can be improved by focusing on a single problem at a time, adopting to the pace of callers and creating a supportive environment that provides the caller with emotional safety. All papers that originated from Papua New Guinea focused on response to different types of violence and none focused on helplines and very few on GBV specialist services. The findings from this study will provide more understanding to government, and non-government organisations focused on providing GBV and VAC services in PNG on how to strengthen the effectiveness of response using helplines. The findings also identify the need for more research to support evidence-based programming and service delivery in PNG and the Pacific.

Parallel Session 2B: Panel – Conflict dynamics in Papua New Guinea: Findings from a United States of Peace research project

Conflict dynamics in Papua New Guinea: Findings from a United States of Peace research project

Camilla Pohle, Senior Program Specialist, Dr Gordon Peake, Senior Adviser, Zuabe Tinning, Program Manager, United States of Institute of Peace; Dennis Kuiai, Autonomous Bougainville Government; Dr Almah Tararia

In 2022, Papua New Guinea was designated as one of five priority countries or regions under the US Strategy to Prevent Conflict and Promote Stability, a “ten-year, whole-of-government effort to foster peace and long-term stability through integrated diplomacy, development, and security-sector engagement”.

The guidelines accompanying the strategy emphasise the importance of “learning, data-driven analysis ... and information-sharing to understand local dynamics, target interventions, and hold actors accountable”.

The United States Institute of Peace has been supporting the US government as it develops its strategy. As part of this effort, the Institute commissioned five papers, which are on topics relevant to areas of emerging focus. (The papers have been peer-reviewed and published on the USIP website)

This panel will present three of the these papers which focus, on: prevailing conflict dynamics in Morobe, one of the two provinces that the United States will focus upon in implementing the strategy; the precise meaning of the frequently bandied phrase ‘consultation’; and the linkages between conflict and climate. The panel will be an opportunity to reflect on renewed US engagement in Papua New Guinea and the wider Pacific.

Parallel Session 2C: Public sector and governance

Analysis of ICT competencies and public service delivery: A case study of Pacific Institute of Leadership and Governance (PILAG)

Erwin Rayel, ICT Manager, Benny Lip, Online Training Coordinator and Trainer, Phil Kuso, Training Designer and Quality Analyst, Pacific Institute of Leadership and Governance; and Dr Joyce Rayel, Head of Department, Tourism and Hospitality, University of Papua New Guinea

The use of information and communication technology (ICT) has become increasingly important in the public sector, as it can improve the efficiency and effectiveness of government services. In Papua New Guinea, public servants are expected to have a certain level of ICT competency to carry out their duties effectively. However, there is a lack of research on the current level of ICT competency among public servants in the country. This study analyses the ICT competencies of public servants in PNG, using the Pacific Institute of Leadership and Governance (PILAG) as a case study. PILAG, the oldest public service training institution, provides targeted training programs to public servants throughout the various tiers of PNG's government system. Hence, the use of ICT is vital in creating engaging and stimulating learning experiences to ensure effective performance of their trainees.

This research analyses the ICT competencies of the staff of PILAG in the areas of computer hardware and software, word processing, spreadsheets, databases and internet and how ICT plays a crucial part in the delivery of the institution's core services. The study also explores ICT issues and challenges encountered in their service delivery.

The results of this research have important implications for policymakers as they provide insights into the current state of ICT competency among public servants and highlight areas for improvement. The study recommends the development of training programs, provision of adequate ICT resources, and implementation of policies to support the integration of ICT into public sector operations.

Enhancing governance, rule of law, peace and development in Papua New Guinea through local institutions: The (unrealised) potential of the local-level government and the village court

Kyline Koroka; Dr Julianne Kuman; Shahr Shalom Yadin, Consultant, Educator, Kingku Village of Peace

True and sustainable development and social harmony in Papua New Guinea can only emerge from the 'bottom-up', by individuals taking constructive actions towards peaceful individual and communal governance, something which each individual and each community must realise within themselves and in their own terms. Too little attention, however, has been given to the most fundamental local institutions of the local-level government and the village court which, for the vast majority of people, constitute the first point of contact with any formal political and legal system. We describe a few important aspects of the legal and institutional framework involved, most notably the ward development committee, the jurisdiction of the village court, and the lawmaking power of the local-level government. We present a case of addressing the issue of sorcery accusations-related violence (SARV) through the local-level government, and some relatively new statutory provisions related to gender equity. Our observation throughout this paper is that much of the potential of these local institutions is currently greatly unrealised. Knowledge, awareness and realisation of such potential can promote a greater sense of individual, communal and social governance and the rule of law, emerging from the bottom-up and facilitating proper development towards social harmony, peace and prosperity. Preprint available at: <https://osf.io/6p4dv/>

Financing the development of customary land in Papua New Guinea: Challenges and prospects

Logea Nao, Research Fellow, Joecy Kabiu, Project Officer, Samuel Awayang, Project Officer, Lindsay Kutan, Program Leader and Senior Research Fellow, PNG National Research Institute

Financing the development of customary land in Papua New Guinea continues to be a challenge. This is because formally registered land titles issued over customary land, through the Voluntary Customary Land Registration (VCLR) process, are not being accepted as collateral by commercial banks as these titles are considered risky. To understand the factors contributing to risky customary land titles as well as provide pragmatic strategies on the way forward, this study used focus group discussions with key and targeted stakeholders, including commercial banks, across four regional centers in PNG – Mt Hagen, Alotau, Kokopo and Lae. The study found that customary land titles are risky due to lack of confidence in the administration of customary land under current arrangements, including problems with the VCLR process; lack of confidence in the ability of landowners to service loans; and, bank officers not being fully conversant with current processes and laws on the administration of customary land. To move forward, study participants proposed the following: the establishment of a new agency to administer customary land, with a key focus on proper recording and digital storage of land and associated genealogical records; more extensive awareness on customary land processes and laws; and, a government-funded credit guarantee facility or a National Customary Land Bank to provide a conducive environment that promotes the security of title and the development of customary land. With potential policy, legal and cost implications, further research is required if such propositions are to be effectively undertaken in PNG.

Parallel Session 2D: Agricultural policy

The limitations and opportunities on key agricultural commodities in the PNG economy

Germaine Vigil, Senior Public Servant, Joseph Malabag, Public Servant, Treasury Department

The research paper will be addressed in two phases. Firstly it will consist of budget analysis on the PNG Budgets allocation figures (2010 -2021) for the Department of Agriculture and Livestock. Taking into account the budget expenditure portion directed to programs for agriculture in light of the initial, revised, and actual warranted expenditure for the years(s) ending 2010 -2021. The focus of the first phase is the comparison of the budget allocation (in principle). Secondly, the paper will expound on the importance of our kina price (exchange rate regime) and provide an ecstastic hypothetical case study given the key agricultural exports relevant data to forecast export revenues for the top three producing agricultural commodities (i.e., palm oil, coffee and cocoa).

This research paper seeks to ensure budgeting rules are followed to improve effectiveness and efficient budget allocation to priority sectors (i.e., agriculture sector, etc.) and minimise costs of public expenditure. In turn, supporting the government fiscal framework and instilling confidence in the economy by linking the resources allocation via the budget to its aims and goals in alignment with the established National Strategic Plans and sectoral programs.

The establishment of Provincial Didiman Centres (PDC's) as agricultural hubs in the highlands of Papua New Guinea

Johannes Pakatul, Research and Development Coordinator, NARI Highlands Regional Centre, Aiyura; Stanley Amben, Research and Development Coordinator, Okrupa Mauro, Research Associate, Jeremiah Ahizo, Livestock Scientist, Jonah Anton, Research Associate, NARI High Altitude Regional Centre, Tambul; Laurie Fooks, Program Director, NARI Head Office, Bubia, Lae

The demise of Papua New Guinea's national agricultural extension system is attributed to the decentralisation of national functions to the lower tiers of government (provincial and local level), and further estrangement from national agricultural research systems. This has subsequently contributed towards the fragmentation of its focus and created bottlenecks in pathways for the transfer of agricultural research information and validated farming technologies to its end users. While agricultural commodity boards and associated research arms have established alternative extension models customised for its growers, concerted efforts are needed to progress a farming systems approach for food crops and livestock production systems. NARI, through a public investment program under the Research, Economic & Marketing theme, anticipates the development of Provincial Didiman Centres (PDC's) in each of the highland provinces in PNG. It is envisaged that PDC's will progressively develop into agricultural innovation hubs for hosting and disseminating an array of validated farming technologies and building capacities for supporting agricultural extension models in the provinces. Farming information and technologies derived from agricultural research for development (AR4D) efforts is expected to be streamlined directly into the provincial DPI's via established PDC's and accessed by relevant stakeholders. This paper will be discussing challenges and opportunities in the establishment of PDCs and suggest appropriate interventions for improvement and identify policy gaps and coalesce existing policies to ensure viable outcomes to revive the dilapidated extension system.

Identification and response to agricultural risks in the highlands of Papua New Guinea

Stanley Amben, Research and Development Coordinator, NARI High Altitude Regional Centre, Tambul; Johannes Pakatul, Research and Development Coordinator, NARI Highlands Regional Centre, Aiyura; Jonah Anton, Research Associate Jeremiah Ahizo, Livestock Scientist, NARI High Altitude Regional Centre, Tambul; Maima Sine; Laurie Fooks, Program Director, NARI Head Office, Bubia, Lae

The diversity of Papua New Guinea's ecology, geography and anthropology equates into complex scenarios when attempting to identify threats to agricultural production. More so in the densely populated highlands region with risks associated with climate variability, natural disasters, and hazardous events experienced under prevailing socioeconomic and political challenges. While it has

been established that 80 per cent of the population depend on agriculture for their livelihoods, a greater portion continue to subsist directly on food-based agriculture with limited participation in the mainstream tree crop agriculture. Historical evidence of both natural and human-induced disasters has fully exposed the precarious state of food-based agriculture in PNG's rural agrarian livelihoods. There is an urgent need to determine and document these threats to develop suitable response mechanisms for promoting resilient livelihoods. Targeted effort is needed to ensure farming communities are able to withstand the adverse effects of disasters and have robust recovery systems for immediate-to long-term disaster response. A series of consultative workshops with seven highlands provincial DPI's was undertaken to identify and prioritise key threats to agriculture in the provinces. Key issues identified were grouped into several themes to determine appropriate agricultural interventions for the region. The provinces prioritised seed and breeding stock systems as well as early warning systems for climate variability. Validated agricultural interventions were identified and actions are being taken to ameliorate existing systems in terms of information exchange, extension models and the establishment of physical facilities and equipment for responding to agricultural demands by relevant stakeholders.

Parallel Session 2E: Development and service delivery

Health worker perceptions and attitudes to vaccines in PNG: Lessons from the COVID-19 pandemic

Josh Barlow, Research Officer, Caroline McGann, Project Manager of Media Development Initiative, Prashanth Pillay, Manager of Monitoring, Research and Evaluation, Lachlan Leeds, Research Assistant, Gaius Sabumei, PNG Manager of Monitoring, Evaluation and Research, ABC International Development

Throughout December 2022 and January 2023, ABC International Development conducted 68 semi-structured interviews across five regions in PNG as part of research into health workers' perceptions of vaccine health messaging, including existing pressures faced by health workers around vaccine communication and advocacy, with a view towards tailoring communication strategies for health workers to confidently address misinformation and knowledge gaps. Health workers undertake an important role as key proponents of vaccine communication and advocacy. They are attuned to methods of communication that are most effective in educating the general public about vaccines and health measures. The COVID-19 pandemic has exposed nations to the challenges associated with communicating to the public about how to prevent the spread of preventable communicable diseases.

The findings highlight that the ongoing prevalence of myths and misinformation continues to impede the work of health workers even amongst those who reported having access to vaccine information. Interviews with health workers have showed that 'being informed' goes beyond the issue of informational access alone; it also necessitates access to reliable and supportive communication networks for health workers to understand, clarify and use up-to-date information when engaging with communities, amidst an environment of widespread misinformation. It is hoped that the findings from this research will guide health services and their intermediaries in diminishing the effect of misinformation in the context of a broader infodemic, with potential application outside the health context and beyond COVID-19.

Harnessing Facebook for online marketing in PNG: How does it transpire?

Geetha Rani Prakasam, ICCR Chair Professor, Amanda Towi, Research Assistant and Tutor, PNG University of Technology

Digital marketplaces in the context of Papua New Guinea are at their nascent stage. Mobile penetration rate including one bang (basic phone) subscribers is 30 per cent of the population, with a highly skewed distribution tilted toward the capital city. Further, the enabling technology for online marketing has just begun or is in the process of emerging. In this backdrop the questions raised here are: (i) Is e-commerce happening in Papua New Guinea if at all other than Port Moresby?; (ii) As an alternative, is s-commerce the possibility?; (iii) If so, is it the same s-commerce operating elsewhere works out for PNG?; (iv) What is it that is working in PNG?. To understand this, we explore the sample of online sellers via Facebook using the snowballing method of data collection. Having explored these questions, the research further

examines how Facebook is used as somewhat of an onsite marketing place in PNG. And lastly, we try to answer why e-commerce or s-commerce could not work in PNG? Facebook online sellers are identified during the period from April to May 2022. In this manner, we identified 242 Facebook online sellers.

Understanding the domestic travel market in Papua New Guinea: An analysis of travel motivations, destination choice and tourism activities

Dr Joyce Rayel, Head of Division/Senior Lecturer, Imelda Atu, Lecturer, Ronald Raka, Teaching Fellow, Jason Eki Kundi, Lecturer, Tourism and Hospitality Management Division, School of Business and Public Policy, University of Papua New Guinea; Grace Guaigu

Papua New Guinea is a culturally diverse country with an abundance of natural resources that offers enormous potential for sustainable tourism development. The tourism industry in the country is driven by international visitors and the domestic tourism market remains untapped. This presents an opportunity for PNG to focus on developing domestic tourism as an important contributor to achieve economic prosperity. With the current Tourism Sector Development Plan (TSDP) 2022-2026, the industry envisions an increase in domestic visitor numbers to provinces and local tourism sites with the aim of significantly contributing to local, provincial and PNG economy as a whole. Realising this tourism goal necessitates tourism strategies that will stimulate growth and development of domestic tourism in the country.

This study analyses travel motivation, destination choices and preferred tourism activities of selected national residents in Port Moresby. Using the push and pull factor theory, this research determines the inner drives and the external forces that motivate respondents to engage in domestic tourism. This study also reveals their preferred provinces to visit and the tourism activities they want to engage in.

This research concludes that understanding the domestic travel market is a critical enabling factor in devising tourism strategies and intervention programs to increase domestic visitor numbers. This study contributes to the body of knowledge on domestic tourism in developing countries, particularly in the Pacific and it is hoped that this study will spark development of the tourism industry in PNG, and ultimately improve the socioeconomic well-being of the country.

Parallel Session 2F: Development and change

Analysis of the tourism supply components of Port Moresby as an urban tourism destination of Papua New Guinea

Jason Eki Kundi, Lecturer, Dr Joyce Jazmin Rayel, Head of Division and Senior Lecturer, Tourism and Hospitality Division, School of Business and Public Policy, University of Papua New Guinea

The tourism industry plays a significant role in the economic development of Papua New Guinea. Port Moresby, the capital city and gateway of PNG, has the potential to be a leading urban tourism destination in the region. However, there is a lack of research conducted on the tourism supply components of an urban tourism destination. This research aims to fill the gap and analyse the tourism supply components of Port Moresby as an urban tourism destination of PNG.

This research will utilise a mixed-methods approach, combining qualitative and quantitative methods. Data will be collected through surveys, interviews, and observation to gather pertinent information on the tourism supply components of Port Moresby in terms of its accommodation facilities, accessibility, attraction, amenities and other tourism-related products and services. The study will focus on investigating the perceptions of both international and domestic tourists towards the tourism supply components of Port Moresby.

The results will identify the strengths and weaknesses of the tourism supply components of Port Moresby and determine areas for improvement. The study will provide vital information for tourism policymakers, tourism operators, and other key stakeholders to devise strategies to enhance the tourism supply components of Port Moresby and promote the capital city as an urban tourism destination in PNG. It is envisaged that this research will contribute to the sustainable tourism development of Port Moresby and of PNG in general.

Analysis of smartphone usage among university students: Papua New Guinea experience

Panditha Bandara, Senior Lecturer, University of Papua New Guinea

There is a significant increase in the use of smartphones among university students. At the same time, the university has introduced a blended learning method for delivering courses during the COVID-19 pandemic period. This method is still being used in universities and encourages students to download teaching resources from their smartphones or other similar devices. Most of the lecturers do not provide printed study notes like in the past, instead, upload them to Moodle or Google Classroom. Students are compelled to use smartphones or similar devices for them to download these resources and use. As a result, now smartphones are an essential tool for learning in universities. The students may use smartphones for different purposes including academic purposes. This study investigates the purposes for which the students use their mobile phones and whether it has a balance between academic purposes and other purposes while in the university. It also investigates the relationship between the frequency of use, the purpose of use, reasons for smartphone use in the course and demographic variables (gender and year of study). The use of the intended purpose will benefit the students and it has an impact on academic performance. However, off-tracking may have an adverse effect leading to addictions. It is expected that the finding will assist universities to re-design the policy concerning promoting smartphones as a learning tool.

Generative AI for education in Papua New Guinea: Opportunities and challenges

Raymond Kamb John, Lecturer in HRM, University of Papua New Guinea

The ability to generate new and diverse content from data is a key feature of generative AI, a subfield of artificial intelligence that is poised to disrupt all industries. This paper examines how generative AI, especially the Large Language Model like ChatGPT, can impact education in Papua New Guinea. We propose that generative AI can enhance the quality and scale of education in PNG by offering personalised and adaptive learning opportunities, supporting teacher development and motivation, and stimulating creativity and innovation among learners. We also discuss some ethical issues and challenges that arise when using generative AI in education, such as data privacy, bias, plagiarism, and digital literacy. We provide some suggestions for future research and policy development in this emerging area.

DAY TWO – FRIDAY 18 AUGUST

Plenary session: Panel – How rural and urban PNG people respond to major disasters

We examine four different types of disruptions or disasters; note how rural and urban people respond to them; and suggest some implications for national policy. The impact of each event varies between locations, with the greatest impact usually on the most disadvantaged people.

Impact of the 2015-16 drought and 2018 earthquake on villagers in the remote Strickland Bosavi area of Western Province

Sally Lloyd, Director, Strickland Bosavi Foundation

The major drought in 2015-16 had a major impact on the lives of many rural villagers in the remote Strickland Bosavi region in Western Province and adjacent parts of Southern Highlands and Hela. In the drought, subsistence food was scarce for many months; people's health was badly affected; and the death rate increased. The 2018 earthquake also had a huge impact on many people. Impacts included displacement, shortage of fish and destruction of houses and gardens.

Disruptions to supply chains and food supply in PNG caused by global issues

Matthew Kanua, Consultant

The COVID-19 pandemic and Russia's invasion of Ukraine have disrupted global supply chains, including

an increase in price of wheat, other crops and fertiliser; and shortages of shipping containers. PNG has been affected by these international events, but not as severely as in many other nations as most food consumed in PNG is produced within PNG. The impacts are reviewed and implications for national policy are noted.

How communities responded to COVID-induced lockdowns in 2020

Brendan Jinks, Consultant; Dr Mike Bourke, Honorary Associate Professor, Australian National University

Between late March and May 2020, the PNG Government declared a state of emergency in response to COVID-19. The government-imposed restrictions had a significant impact on the livelihoods of Papua New Guineans, including major disruptions to fresh food markets, increased price of goods and significant loss of income for many. Some of the ways that rural and urban people responded to these measures are examined here.

Reducing the impact of tribal conflict in Hela Province

James Komengi, United Church, Hela Province, PNG

Tribal fighting and sorcery accusation-related violence has a huge impact on the lives of many people in Hela Province, particularly women and children. Many people have lost their livelihood and been displaced. A community peace initiative managed by the United Church in Tari is addressing tribal fighting by facilitating peace between warring groups. One way community peace is supported is promoting improved food production in the 'Agriculture for Peace' program.

Parallel Session 3A: Mining and development case studies

Estimating the impact of mining projects on local development in Papua New Guinea

Kelly Samof, Lecturer, Economics Department, University of Papua New Guinea

Despite its fragile status, a poverty rate of around 40 per cent and a population of around 9 million people, Papua New Guinea firmly remains one of the least studied countries in economics. PNG's natural resource sector has been a large source of national economic growth over the last few decades. One would believe that with this abundance of natural mineral resources, the wealth generated would spill over into local communities. Using a difference in difference econometrics model, my research estimates the impact of mining on local districts in Papua New Guinea during the resource boom of the 2000s, between 2000 and 2010. Given the availability of district population data and urban population data, urbanisation is used as a proxy for development at the district level. Comparing the levels of urbanisation in mining districts, before and after the opening of mines, provides some quantitative evidence of the positive economic impact of mines on local communities in PNG. During the resource boom, districts that had a mine were, on average, 10 per cent more developed than districts without a mine. Despite my data limitations in providing more comprehensive developmental outcomes, the initial figures are promising that mining does cause development at the local level.

Indigenous people and the mining industry: A case in point of Papua New Guinea

Dr Londari Yamarak, Lecturer, PNG University of Technology; Kevin Parton, Professor, Charles Sturt University

Mining in PNG has had a controversial past with many negative social, political, environmental and health impacts. Our approach is to acknowledge these problems and move on to focus directly on some measurable effects on economic wellbeing of the Indigenous population. This was achieved by using a sustainable livelihood framework with mining-poverty-reduction linkages to assess how livelihoods have been impacted by mining operations. We also measured overall poverty reduction, the fifth component of the mining-poverty-reduction model.

In our analysis we compared four types of communities: those in the Ok Tedi region close to mining operations, those in the Ok Tedi region distant from mining, those in the Porgera region close to mining operations and those in the Porgera region distant from mining. A well-known confounding problem of this type of analysis is that there are no observations prior to the arrival of mining, so how do we

measure the impact of mining? If you simply compared current data from mining households and non-mining households, it would not be possible to claim that the differences between them are entirely due to mining. The approach is to use a technique called matching. Then, the differences observed can be diagnosed effectively.

We briefly introduce the method of propensity score matching and emphasise the way in which it overcomes the biases of ordinary least squares (OLS) regression and dummy variable regression.

The results show that residents of mining villages have received some small improvements in their wellbeing.

Importance of national oil and gas companies in generating sustainable wealth for Papua New Guinea

Dr Glen Mola Pumuye, Research Assistant, Bond University

My paper will examine the important role of PNG's state-owned enterprises (SOEs) in the petroleum sector of PNG. The economy of PNG is reliant on natural resource extraction and the revenue generated from these resources, which are being managed by Kumul Petroleum Holdings Limited (KPHL). My paper suggests practical reforms to KPHL and how this SOE can eliminate political control and hopefully be given constitutional protection. This is to ensure that the revenue for petroleum in PNG is managed and invested for sustainability and economic diversification projects in PNG. The paper will use a comparative approach to examine different SOEs in the Asia Pacific region and how PNG can use functionality in adopting SOE structures that are profitable and eliminate political control.

3B: Panel – Review of the form and system of government: Election of the prime minister by the people

Michael Kabuni, PhD Candidate, Australian National University; Dr Mange Matui, Secretary, Xavier Winia, Deputy Director of Research, Constitutional Law Reform Commission of PNG; Russel Yangin, Lecturer, University of Papua New Guinea; Lucy Mathew, Constitutional Law Reform Commission

The PNG government tasked the Constitutional Law Reform Commission to review the present form and system of government, with a specific focus on direct election of the prime minister by the people. Despite its unbroken democracy PNG struggles with executive instability, with only two prime ministers completing their terms in parliament in the country's 47 years of independence. Such instability prevents governments from fully implementing developmental policies, and politicians becoming pre-occupied with overcoming votes of no confidence instead of focusing on providing representation, lawmaking, and –since the 1995 and 2014 reforms– service delivery. The proposed reform for the people to elect the prime minister directly is an attempt to find a system that brings stability to the government. However, PNG's political instability is driven by many factors ranging from weak political parties to strong patron-client relationships in PNG which forces politicians to align with the government side to access resources to satisfy the voters. Furthermore, PNG struggles with electoral issues such as violence, malpractice, and high number of candidates. A reform in the political system will have to contend with these and other underlying issues.

The panel discussion will begin with the Constitutional Planning Committee's (1974) insights on the political and legal systems prior to independence. This will be followed by discussions on the four main questions that the government directed the CLRC to consult the population on, namely direct election of the prime minister, relevance of the position of the governor general, the unicameral parliamentary system, and decentralisation. The discussions will conclude with an update on the national wide consultation on these questions undertaken by the CLRC and the issues that are emerging.

3C: Forestry and agriculture

Organic matter addition in composted mounds for sweet potato production can improve soil fertility and increase yield under climate change

Topas Peter, Masters Candidate, Patrick Michael, Associate Professor, Department of Agriculture, PNG University of Technology

One of the biggest challenges PNG will face under climate change is adapting, becoming resilient, and feeding the increasing population with the production of a smaller number of root and tuber crops without impacting the environment. This study investigated how sweet potato (*Ipomoea batatas*) can be sustainably produced in composted mounds under climate change in PNG. A replicated trial ($n=3$) using composted mounds containing cogon grass material and fern leaves as organic matter (OM) was conducted with seven treatments. In the first, no OM (control); in the second, cogon material; in the third, fern leaf; in the fourth, both OM was added and not planted. In the fifth cogon, sixth fern, and seventh, both OM were added and planted, respectively. In each planted treatment, four vines were planted around the top of the mounds in four spots, 16 vines in each planted mound. The treatments were set up in a completely randomised design and managed for 12 months. Soil samples were collected from within 30cm, and where tubers were harvested in the planted treatments. The yield was assessed based on marketable tuber size, and the soil samples were analysed for nutrient content. The results showed OM increased the soil nutrient content and increased yield. Marketable tuber yield was cogon material (45.71 t ha⁻¹) > cogon+fern (28.57 t ha⁻¹) > fern (19.05 t ha⁻¹) > control (8.66 t ha⁻¹). The results have implications for producing sweet potatoes in composted mounds in PNG under climate change.

Drones and deep learning (AI): A new approach to monitoring forest plantation health in PNG

Russel Tarutia, Drone Specialist, DroneTree Mapping and Solutions

Traditionally, forest health data are acquired from ground-based surveys carried out by field experts. However, data are limited to only a sample area and are subjective. With satellite imagery, costs to acquire such data on a regular basis are quite high and with less details for tree-level assessments due to their medium-low spatial resolution. In the last decade drones have complimented ground and satellite data for forest monitoring due to their high spatial resolution, time and cost saving, and flexibility to acquire data when needed. Deep learning in recent times have been used to classify remote sensing data in environment fields such as forestry. Thus, this study proposes an approach that will utilise drone data and deep learning techniques to improve forest health monitoring in the country's forest plantations (e.g., Bulolo Pine Plantation). A drone with a specialised multispectral camera will be used to collect aerial imagery within 200x100m plots categorised as healthy and unhealthy within the pine plantation. Using a deep learning technique known as Convolution Neural Network with the drone data, a model will be trained to detect unhealthy pine trees. It is expected that by the end of this study, a model to assess forest health will be developed and can be utilised by the National Forest Service to better monitor and manage the plantation into the future.

Deforestation and forest degradation: Increasing concerns in the Pomio District of East New Britain Province

Joecy Kabi, Research Project Officer, PNG National Research Institute

Deforestation and forest degradation in Papua New Guinea has long been practiced by the indigenous people at smaller scales to support their livelihoods. However, both their rates have increased since the 1970s due to the use of technology by foreign logging companies and large agribusinesses resulting in large extents of forest destruction that has destroyed forest ecosystems and affected the lives of local people. This study gives an insight into the issue of deforestation and forest degradation in the Pomio District of East New Britain Province (ENBP). It investigates their extent in Pomio District and how they have affected the natural environment and, the lives of the local people. The study was done through the review of papers on deforestation and forest degradation in ENBP and PNG. The findings indicated that logging is the major cause of forest degradation in Pomio District while agribusiness through oil palm is the main cause of deforestation. Compounded by the introduction of the oil palm industry in

ENBP, logging has destroyed vast extents of primary forests most of which is now happening in Pomio District. This vast extent of deforestation and forest degradation has destroyed forest ecosystems, and affected the local people who have long relied on these forests for survival. Concerned authorities within the national and sub-national levels of government should review their forestry and agriculture policies to ensure sustainable forestry and agriculture, and also set up a forestry taskforce team to look into the forestry-related environmental and social issues.

3D: Crime and corruption

Youth unemployment of Morata Informal settlement, Port Moresby

Julian Melpa, Research Officer, Dr Francis Odhuno, Senior Research Fellow, PNG National Research Institute

There are large numbers of unemployed youths in urban settlements in Port Moresby, the capital city of Papua New Guinea. Without land or jobs, some of these unemployed urban youths are often part of gangs that contribute to law and order problems through break-and-enter, hold-ups, shoplifting, or any criminal activity to earn a living. Thirty-five young people aged 20 to 35 living in Port Moresby's Morata informal settlement were interviewed (using questionnaires and face-to-face discussion) to understand why they are unemployed and what they believe should be done to keep them out of social evils. The young people believe that poverty, inadequate training, lack of job opportunities, and corruption are the main reasons for their extended periods of unemployment situation. They also believe that enhanced government funding for youth training and engagement in community youth activities for pay would help keep them out of social evils. The government should consider creating employment opportunities, particularly in downstream processing where graduating youths can begin their employment careers. But establishing government-backed microfinance schemes where they can access loans or grants to kick-start their self-employment ventures is also an option that some of the youths are yearning for.

Abolition of the death penalty in Papua New Guinea: What's the next step?

Moses Sakai, Researcher, Sharon Niaga, Lecturer, Rex Kupil, Lecturer, Kenneth Baliwasa, Tutor, University of Papua New Guinea

The Second Optional Protocol to the International Covenant on Civil and Political Rights (OP2-ICCPR) aims at the complete abolition of the death penalty in a de jure abolitionist state. The ratification of OP2-ICCPR ensures that the death penalty will not be reintroduced by that state's legislature in its criminal/penal code both in the present and in the future. In accordance with international law, states that are eligible to ratify OP2-ICCPR are ones that have already abolished the death penalty and have ratified the International Covenant on Civil and Political Rights (ICCPR). PNG is classified as an abolitionist de jure state because the country abolished the death penalty already in law. In 2008, PNG ratified the ICCPR and this means PNG is eligible to start the process of ratifying the OP2-ICCPR.

In this presentation, we will look at the developments of the death penalty from pre-and post-independence contexts and provide the reasons why PNG should ratify the OP2-ICCPR. PNG had long maintained an 'abolitionist in practice' status for more than three decades. This means PNG had the death penalty in its law without implementing it for more than three decades although death sentences were imposed. The death penalty was abolished twice for lack of deterrence to violent crimes among cultural and religious reasons. To justify whether PNG should take the next step of ratifying the OP2-ICCPR is the aim of this presentation.

City residents' perceptions on crime and safety: A case of Port Moresby

Jack Assa, Lecturer, School of Business and Public Policy, University of Papua New Guinea; Professor Leo Marai, Executive Dean, School of Humanities and Social Sciences, University of Papua New Guinea; Shane Amanu, Leanne-Marie Aneisia, Joe Frank, Joel Kumusi, Seth Passingan, Andrew Richard, Gerhardt Siune, Zechariah Suii, Trevor Towati, Caleb Yalikiti, Final Year Students, School of Business and Public Policy, University of Papua New Guinea

Large cities tend to have higher crime rates than small cities and rural areas. Port Moresby, the capital city of Papua New Guinea, is no exception. It is rated as one of the least liveable cities in the world by

the Economist Intelligence Unit. Despite the metropolitan city authorities spending millions of kina on developing the city, cases of crime and violence are still on the rise.

This paper examines the perceptions of the city's residents on crime and safety. A cross-sectional survey was conducted between March and May 2023, with more than 500 participants across Port Moresby. The preliminary analysis of the study reveals that 53.6 per cent of the residents perceive the level of crime as very serious and 84.6 per cent feel that the level of crime is increasing in Port Moresby. In relation to local police response to crime, 49.1 per cent of the participants said they are unsatisfied. In addition, close to half of the participants (47.6 per cent) said they do not trust their local police and a majority of the participants (70.6 per cent) feel that the government is not doing enough to reduce crime and violence in Port Moresby.

We conclude that relevant agencies within the law and justice sector need to develop sound strategies and focus on improving safety for residents and restoring confidence in Port Moresby and other urban centers in PNG.

3E: Tertiary education

Artificial intelligence (AI) tools in higher education: Challenges and strategies

Dr Ponnusamy Manohar, Senior Lecturer, David Mo, Lecturer, Richard Lan, Lecturer, School of Business and Public Policy, University of Papua New Guinea

In recent years, the emergence of innovative digital technologies has had an impact on the higher education sector to improve the overall educational capacity and performance. Artificial intelligence (AI) tools have brought more attention to the digital environment, which is expected to create a paradigm shift in the field of education and other sectors. AI has the potential to transform the way institutions manage higher education teaching, learning, assessment and evaluation.

Regardless of the many benefits that AI has brought to education, there are also concerns about its impact on higher education institutions. With the rise of online education and the growing availability of educational resources on the internet, many traditional universities are worried about the future of their institutions. There are also ethical considerations, protection of student privacy, data security and digital divide that need to be addressed.

Therefore, this study is to examine the possible consequences of the application of AI in education and the kind of implications. The objective of this study is to explore the main challenges affecting the application of AI in the higher education sector in teaching, learning, assessment and evaluation.

The research approach is phenomenological study, a qualitative research method, in which the perceptions of participants from different sectors are examined. The significance of the study is to contribute new knowledge and provide possible strategies and policy directives to embark on the benefits of the AI tools that support the higher education sector.

Evaluating students' errors in academic writing for curriculum development

Dr Anna Joskin, Acting Dean for Research and Post Graduate Studies, University of Papua New Guinea

Academic writing is a skill that has to be learned and perfected over courses of academic learnings in different levels of schooling in society. Teaching and learning academic writing can be daunting and overwhelming when English is the language of instructions in the tertiary space; especially when English is not the first language for instructors, nor for recipients of a course, such as the Communication and Life Skills Course (CLS) at The University of Papua New Guinea (UPNG). The main purpose of academic writing is for one to have an opinion on an issue, and provide support and well thought out reasons with evidence to justify one's stance. Furthermore, organisation, research and referencing skills, structure, language use, grammar, and form are also important features in developing good academic writing skills. However, one too many mistakes are often noted in the CLS students' academic writing at UPNG over the years. Hence, this paper investigates the types of academic writing errors made, and evaluates how those errors can inform curriculum development for the CLS course. Data is drawn from students' written essays (30 x), 70 students' questionnaires, and

interview questions from seven academics who teach CLS. Data analysis will focus on process writing, content and thematic analysis. This paper aims to present preliminary findings and get feedback, to be able to develop a model for teaching academic writing in the CLS foundation year course which is to be through evidence-based teaching.

Evaluating lecturers' and learners' perceptions and experiences towards Technology-Enabled Learning (TEL) in UPNG

Anna Olga, Research Officer, Dr Boe Lahui-Ako, Executive Director, Jessica Wohiemani, A/Associate Director of Centre and Student Support, Ivy Pagolu, A/Associate Director of Programs and Production, UPNG Open College

This research report presents the findings of a study conducted at The University of Papua New Guinea (UPNG) on learner's and lecturers' perceptions and experiences of Technology-Enabled Learning (TEL) at UPNG in 2022. The study aimed to explore the extent of technology use in teaching and learning, investigate the TEL environment and practices at UPNG, and identify learners' and lecturers' perspectives on its benefits and challenges. A mixed-methods approach was employed, involving qualitative and quantitative methods with 73 learners and 56 academic staff participating. The findings indicate that both learners and lecturers recognise the importance of technology teaching and learning, but there are differences in their levels of comfort and proficiency with technology. Benefits of technology use include increased engagement, flexibility, and access to resources, while challenges include technical issues, lack of training, and the need for more support from the university. The conclusion emphasises the importance of technology in teaching and learning at UPNG and highlights the report's findings and recommendations to improve the TEL environment to meet the needs of learners and lecturers. The integration of TEL requires proper planning, training, ongoing evaluation, and feedback mechanisms for continuous improvement. The recommendations include developing an appropriate ICT policy, improving infrastructure and capacity building, and establishing partnerships with leading ICT companies to enhance e-teaching and learning. Implementation of these recommendations will transform the pedagogic teaching and learning experience at UPNG.

The challenges of teaching business courses using WEB 2.0 in Papua New Guinea universities

Kenneth Wak'nbi Tapungu, Lecturer, University of Papua New Guinea

The research assesses the effectiveness of teaching business courses using Web 2.0 in Papua New Guinea universities. By using the Grounded Theory methodology in assessing the application of the MOODLE software in three universities, the progress of technology and software is evaluated amid changing teaching and learning strategies in delivering business courses. Reflections on the experiences of the application of the Moodle within The University of Papua New Guinea, the Divine Word University, and Papua New Guinea University of Technology, in the effective application of Web 2.0 in delivering business courses is assessed. Discussions will reveal the many challenges faced by these institutions. Hence, recommendations for the use of more improved strategies and or technologies/software for effective delivery of business courses in PNG universities will be put forward.

3F: Development issues

Lecturer competency from the perspective of postgraduate students and lecturers: A case of the School of Business and Public Policy, University of Papua New Guinea

Jack McDonald, Tutor, Wasita Pomel, Tutor and Teaching Fellow, Dr Joyce Rayel, School Chairperson, Research and Post-Graduate Committee and Head of Division of Tourism and Hospitality Management, University of Papua New Guinea

The School of Business and Public Policy (SBPP) is one of the faculties of the premier university of the Pacific, University of Papua New Guinea (UPNG). SBPP is an innovative, entrepreneurial and vibrant school that offers not only undergraduate programs but postgraduate degrees aimed at providing advanced knowledge and skills in the broad areas of business and public policy. Determining lecturer competence is crucial for ensuring high standards of teaching and learning, meeting the expectations of students, and maintaining the competitiveness and success of higher education institutions. This

study aims to assess lecturers' competency from the perspective of postgraduate students and lecturers coordinating courses in the postgraduate programs of SBPP.

The study will employ a mixed-methods approach, using both quantitative and qualitative data collection techniques. The quantitative data will be collected through a survey questionnaire administered to postgraduate students taking Executive Master in Business Administration, Master in Economic and Public Policy, and Master in Human Resource Management. Qualitative data will be collected through in-depth interviews with lecturers in the postgraduate programs of SBPP.

The anticipated outcome of this research will help address the research problem and fill gaps in knowledge related to postgraduate lecturers' competence in SBPP at UPNG. The findings of the study will be vital in enhancing the quality of teaching in the postgraduate programs through improved lecturers' competency. The results will offer valuable insights that are critical in strategic planning, institutional reforms, and decision-making related to academic development, educational policy-making, and postgraduate education in general.

The nexus between tourism and women's empowerment: The context of the tourism industry in Papua New Guinea

Dr Albert Prabhakar Gudapati, Senior Lecturer, Economics Division, School of Business and Public Policy, University of Papua New Guinea; Dr Joyce Rayel, Senior Lecturer, Ronald Raka, Teaching Fellow, Imelda Atu, Lecturer, Tourism and Hospitality Management Division, School of Business and Public Policy, University of Papua New Guinea

Tourism plays a significant role for economic growth and sustainable human development. It has the capability to alleviate poverty, create employment, regenerate the environment, preserve socio-cultural fabric and promote women's advancement. The role of women in development is most intricately related to the goal of comprehensive social-economic development and is a strategic question for the development of all societies.

Tourism in Papua New Guinea has demonstrated its potential in creating employment opportunities and an avenue for women's economic empowerment. However, little is known in terms of empirical investigations in developing nations about the experiences of women employed in tourism and the impact of their employment on their empowerment. This study aims to address this gap by exploring the issues and challenges confronted by women employed in the tourism industry in Port Moresby and examining the extent to which their employment contributes to their empowerment in terms of self-confidence, creativity, employer-employee relationship and job satisfaction.

The study will contribute to the existing literature on establishing the nexus between tourism and women's empowerment by providing insights into the experiences of women employees in the tourism industry in PNG. The findings of the study will be beneficial for policymakers, tourism stakeholders and women's rights advocates in PNG and other developing nations in advocating women's empowerment and gender equality in the tourism industry.

A study on tax knowledge and awareness of Papua New Guinea Salary Wages Tax (SWT) among the employees of The University of Papua New Guinea

Dr Suresh Babu Nagarajan, Senior Lecturer in Accounting, Prof Lekshmi N. Pillai, Executive Dean, Benedicta Gabonen Mellam, Lecturer in Accounting, Jack McDonald, Tutor in Business Management, Lucy Kerua, Tutor in Accounting, and Kepi Yogomin Mato, Tutor in Accounting, School of Business and Public Policy, University of Papua New Guinea

Tax is a way of collecting revenue from individuals, companies or other entities by the government in order to finance state expenditure. It is considered the most important source of government income to drive economic growth and achieve the status of a developed country and high income. There are various taxes levied on users such as direct taxes and indirect taxes. Personal taxation (Salary Wages Tax and Non-Salary Income Tax) plays a significant role in the PNG economy. Personal taxation has a variety of rules that have been set in tax legislation and varies through periodical amendments. Every taxpayer is required to understand all the rules applicable to their Salary Wages Tax calculation, superannuation, long service leave pay tax benefits, various rebates applicable, salary sacrificing and

salary packaging concepts, etc. But not all taxpayers are fully aware of the basic information. The low number of registered taxpayers is also due to the lack of public awareness and the tax benefits of ownership of a Taxpayer Identification Number (TIN).

This research aims to analyse the influence of taxpayers' awareness and knowledge of taxation, on taxpayers' attitude to Salary Wages Tax. Convenience sampling will be conducted in this research as a method. Data will be obtained in the form of primary data questionnaire distributed to The University of Papua New Guinea employees (academic and non-academic of entire schools, including open campus staff members). Data will also be obtained from IRC website and related sources.

Parallel Session 4A: Politics and governance

Fiscal decentralisation and governance

Maholopa Laveil, FDC Pacific Fellow, Lowy Institute

Fiscal decentralisation in Papua New Guinea has been a contentious topic for much of the country's history. While generally poor, the decline in governance in PNG over time has been linked to the various attempts to decentralise state functions, including fiscal functions, to lower levels of government. Government effectiveness and service delivery have suffered as a result, leading to poor socio-economic outcomes.

This paper analyses data collected from PNG government budget reports to provide both a snapshot and trends in subnational finances since 2007. Where data is publicly available, the paper compares subnational revenues, recurrent and capital spending in PNG globally, and across provinces. This paper explores the fiscal capacity of each province in achieving autonomy and draws on budget quality assessments and acquittal submissions to develop governance indicators at the different levels of subnational government. The paper ends with a brief case study of New Ireland province, which is working towards greater autonomy.

Updating ministerial durations and stability in PNG from 1972-2022

Dr Henry Ivarature, Deputy Director, Australia Pacific Security College, Australian National University

In an article published in the Asia Policy Studies journal in 2022, I introduced a dataset on ministers of states in PNG from 1972 to 2017. A total of 15 governments and 321 ministers is covered by this dataset, and which I used to examine ministerial duration and stability. Two measures of ministerial duration and two stability indicators were developed to examine ministerial stability between 1972 and 2017. With the dataset updated for the 2017-2022 parliament, the measures for ministerial durations and stability are updated to present the results for 17 governments from 1972-2022.

Papua New Guinea's Public Services Commission (PSC) since independence: Sidelined or strengthened?

Dr Nematullah Bizhan, Lecturer, Stephen Howes, Professor of Economics, Development Policy Centre, Australian National University

This paper investigates reforms to the PSC in PNG since independence. It looks at the original roles of the PSC, and then the various reforms it has been subject to: in 1986, 2003 and 2013 by constitutional and legislative change; and in 2019 by court ruling. We argue that the PSC has been both sidelined and strengthened, that is, made both less and more powerful. From 1986, the PSC has been stripped of the power it had at independence in relation to the civil service as a whole. In that year, it also lost its central role in relation to senior appointments. However, it reclaimed that latter role, in an even stronger form, starting in 2003 and retains it to this day, despite an interim period, 2013 to 2019, in which it again lost it. We explain these conflicting reform trajectories by reference to conflicting reform objectives. The 1986 and 2013 reforms were driven by the goal of making the civil service more flexible and responsive. The 2003 reforms were driven by a loss of faith in PNG's politicians and the goal of protecting the civil service from corruption. Both objectives are valid, but where the right balance between them is to be found remains unclear. PSC's role in relation to senior appointments is likely to

change further in the future, but we are sceptical that this will lead to improvements in civil service performance. What PNG needs is less structural reform than a change in political behaviour.

4B: Combating climate change

Papua New Guinea's Nationally Determined Contribution: Advancing sustainable development and climate resilience

Alfred Rungol, General Manager, MRV and National Communication Division, Climate Change and Development Authority

This paper provides an overview of Papua New Guinea's Nationally Determined Contribution (NDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC). PNG, as a developing nation highly vulnerable to the impacts of climate change, presents a comprehensive and ambitious NDC that emphasises sustainable development, climate resilience, and low-carbon pathways. PNG's NDC acknowledges the country's unique challenges and opportunities, recognising the interlinkages between climate action and sustainable development. The NDC sets ambitious targets, focusing on three key pillars: mitigation, adaptation, and means of implementation. PNG aims to reduce GHG emissions by 30 per cent below business-as-usual levels by 2030, contingent on international support, technology transfer, and capacity building.

In the mitigation sector, PNG prioritises transitioning to renewable energy sources, enhancing energy efficiency, sustainable land management, and forest conservation. The country plans to scale up renewable energy generation, particularly from hydro, solar and biomass sources, while also improving energy efficiency across various sectors. Furthermore, PNG commits to promoting sustainable land use practices and reducing deforestation rates, recognising the critical role of forests in sequestering carbon and preserving biodiversity.

To address the increasing risks and vulnerabilities associated with climate change, PNG's NDC emphasises adaptation and resilience-building measures. The country focuses on enhancing climate information systems, strengthening disaster risk reduction efforts, and implementing community-based adaptation strategies. PNG recognises the importance of integrating traditional knowledge with modern science in adapting to climate change impacts.

The successful implementation of NDC requires robust means of implementation, including financial resources, technology transfer, and capacity building support.

Use of ICT tools and technology in PNG to support climate change and environmental sustainability education

Arun Kumar Singh, Professor, Benson Mirou, Senior Lecturer, Sankwi Abuzo, Senior Lecturer, Yaling Tapo, DHoD, Peter Halebi, Senior Lecturer, PNG University of Technology

Climate change and environmental sustainability are significant issues in Papua New Guinea, a country located in the southwestern Pacific Ocean. PNG is known for its rich biodiversity, extensive rainforests, and unique ecosystems, which are highly vulnerable to the impacts of climate change. Education with technology can play a crucial role in addressing climate change, promoting environmental sustainability, raising awareness, fostering understanding, empowering individuals to make informed decisions and take sustainable actions. While these efforts demonstrate PNG's commitment to addressing climate change and promoting environmental sustainability, challenges remain. These include limited resources, capacity constraints, the need for technology transfer, and balancing development priorities with environmental conservation. Continued international support, domestic policies, and community engagement are crucial for advancing PNG's climate change and sustainability agenda. It is important to ensure that ICT (information and communication technology) initiatives are implemented in a way that considers the local context and addresses challenges related to internet, infrastructure, and digital literacy. Collaboration between the government, educational institutions, NGOs, and private sector partners can help establish sustainable ICT infrastructure and develop tailored solutions that meet the specific needs of PNG's education sector and support climate change and environmental sustainability goals. It is important to note that any educational initiatives in Papua

New Guinea should be culturally sensitive, contextually relevant, and inclusive of local communities' needs and aspirations. By incorporating these considerations, education can serve as a powerful tool for promoting climate change awareness, environmental sustainability, and empowering individuals to become agents of change in PNG.

PNG should look beyond gas for energy resilience

Kevin Morrison, Energy Finance Analyst, Institute for Energy Economics and Financial Analysis

Papua New Guinea should demand payment from developers of oil and gas projects in the country to fund domestic adaptation measures from the profits that will accrue to the private companies from operating in PNG.

The fund would be akin to a 'loss and damage' fund mechanism approved at the COP-27 meeting in Egypt last year, only this will be funded by corporate entities and not governments. This potential source of financing would help make the PNG economy more resilient and diversify development by addressing the future effects of climate change.

The partners, TotalEnergies, ExxonMobil and Australia's Santos, in the proposed Papua LNG venture are doing little to combat scope 3 greenhouse gas emissions, which is a problem for PNG given its vulnerability to climate change and propensity to landslides, soil erosion, deforestation, loss of biodiversity, recurrent floods and droughts.

This fund could also act as a template for other developing countries where hydrocarbon resources are largely exploited by large international oil and gas firms.

The addition of Papua LNG will materially increase PNG's GHG emissions. Over the life of the project, PNG may have to reduce emissions to abide by any update of the 2015 Paris climate agreement and this will come at a financial cost. Yet under the current system the entities behind the rise in PNG's emissions are not paying for the impact this will have on the country.

4C: Banking and finance

A study on quality of corporate boards of banking and finance sector in Papua New Guinea

Professor Lekshmi N. Pillai, Executive Dean, Dr Suresh Babu Nagarajan, Senior Lecturer–Accounting Division, Benedicta Gabonen Mellam, Lecturer–Accounting Division, Patricia Angopa, Head and Lecturer of Banking and Finance–Accounting Division, School of Business and Public Policy, University of Papua New Guinea

The banking and finance sector in Papua New Guinea went through tough times with several organisations facing financial challenges or go into 'administration'/'liquidation'. This impacted the savings of ordinary people and, subsequently, it affected the economy of the country. Further, this also led to lots of social problem. All these problems germinated from weak corporate governance system in the country. Then Prime Minister, Sir Mekere Morotau, introduced structural reforms to address challenges in the banking and finance sector. This empowered the central bank of the nation, Bank of Papua New Guinea (BPNG), to regulate the banks and finance sector. Through the reforms BPNG introduced several measures, including prudential standards to ensure good practices on boards and at top management level.

This study aims to examine the whether the boards of banking and finance companies are adhering to the good practices initiated by BPNG, along with other acceptable good practices which result in the quality of board of directors in the banking and finance sector.

Determinants of commercial bank interest rate spread in PNG: An empirical analysis

Jamie Sali, Research Analyst, Mark Ofoi, Senior Analyst, Jechonia Hamua, Research Analyst, Economics Department, Bank of Papua New Guinea

Financial liberalisation that encompassed interest rates deregulation was undertaken in the early 1980s and the 1990s in Papua New Guinea favoring a more market-based system. Contrary to expectations, the interest rate spread widened post-liberalisation. The paper aims to empirically establish the major

determinants of the interest rate spread in PNG. It uses selected macroeconomic and banking sector variables for sample period 1984:1–2018:4 in an Autoregressive Distributed Lag model. The paper finds that government deficits, the real exchange rate, the ratios of loans to deposits, the liquid assets ratio, external liabilities to assets, and administrative expenses to revenue are statistically significant in explaining movements in the spread. These findings suggest that the government's fiscal operations, and commercial banks' external positions, as well as liquidity conditions and the cost of doing business, are major determinants of the interest rate spread in PNG.

Determinants of excess liquidity in the banking system of PNG

Thomas Wangi, Research Fellow, PNG National Research Institute

The accumulation of excess reserves may have undesirable implications on the financial system, macroeconomic stability and monetary policy implementation. Hence, this study examines the factors that induce commercial banks to hold unremunerated excess reserves. The paper employs an ARDL model to estimate the determinants of excess reserves using monthly time-series data for the period January 2002 to December 2017. The model includes three precautionary variables of volatility of demand deposits, discount rate and cash reserve requirement and four involuntary variables of foreign reserve inflows, private sector lending, private sector deposits and treasury bill rate. The selection of these variables is determined by data availability and relevance to the economy of PNG. The findings suggest that the discount rate, volatility of demand deposits and private sector deposits significantly contribute to the accumulation of excess reserves. In contrast, foreign exchange reserves, private sector credit and the treasury bill rate effectively reduce excess reserves pressure in the banking system. However, the cash reserve requirement is not effective in influencing the demand for excess reserves. The empirical analysis concludes that involuntary variables are the leading determinants of excess reserves in PNG. Hence, the central bank should review the determinants of involuntary variables to take appropriate policy actions in order to reduce the level of excess reserves in the banking system.

Examining challenges and strategies for enhancing the robustness of the PNG Stock Market

David Mo, Lecturer, Patricia Angopa, Head and Lecturer of Banking and Finance–Accounting Division, Sharon Niaga, Lecturer, Imelda Atu, Lecturer, University of Papua New Guinea

The stock exchange plays a critical role in the economic growth and development of a country by facilitating efficient allocation of capital, promoting liquidity, and fostering investor confidence. However, achieving and maintaining a robust stock exchange is not without challenges. This research aims to investigate the challenges faced by the Stock Exchange in Papua New Guinea (PNGX) and how this impacts on economic growth and development.

The study will employ a mixed-method approach, combining both the quantitative analysis of stock market data and qualitative exploration through interviews and surveys with key stakeholders, including stock exchange officials, market participants, regulators, and policymakers.

The research will identify and analyse the key factors influencing the robustness of the PNGX. It includes regulatory frameworks, market infrastructure, investor protection mechanisms, market liquidity, and the overall business and economic environment.

Through data analysis and stakeholder perspectives, the study aims to provide insights into the challenges hindering the robustness of the PNGX. It will investigate issues such as limited market depth, lack of diversification, inadequate regulatory enforcement, technological limitations, and the impact of global economic trends on the local stock market.

The findings of this study will have important implications for policymakers, regulators, stock exchange authorities, and market participants in developing strategies to address the identified challenges. By enhancing the robustness of the stock exchange, the study aims to contribute to the sustainable economic growth and development of Papua New Guinea.

4D: Gender and leadership

Women media leaders as drivers for change

Joy Eggins, Project Manager of Media Development Initiative, Josh Barlow, Research Officer, Gaius Sabumei, PNG Manager of Monitoring, Evaluation and Research, Prashanth Pillay, Manager of Monitoring, Evaluation and Research, Lachlan Leeds, Research Assistant, ABC International Development

Under the MDI (Media Development Initiative) program, ABCID (ABC International Development) recently conducted a series of in-depth semi-structured interviews with women leaders in the PNG media sector to understand the organisational policies and efforts in place to address gender marginalisation and inequity. Many of the sampled interviewees held senior roles across broadcasting, editorial and news teams. Having women in positions of leadership is an implicit sign of equitable progress, but this progress has often happened despite predominant and entrenched societal biases.

This study builds on previous MDI research on women in media, which identified barriers to women and recommended measures for the advancement of their careers into leadership positions.

The findings revealed that there was greater attention placed by media leaders on policies to prevent gender-based harassment or discrimination rather than active and adaptable strategies to address such issues and challenges in the workplace. The study concludes that there may be a knowledge gap in the industry between gender policy formulation and gender policy implementation across the media sector. Our findings show that media leaders are influential drivers for change and play a critical role in establishing the bridge between gender policy formulation and implementation at organisational level.

Empowerment through the GEDSI policy: Evaluations of the implications of GoPNG GEDSI (Gender Equity, Disability and Social Inclusion) policy on students and staff of Divine Word University, Madang Campus.

Calista Hamadi, Gender Equity Promotional, Papua New Guinea Business Coalition for Women

Irrespective of the PNG constitution which rightly stipulates; ‘calling for equality of citizens in all areas of social, economic and political development regardless of race, sex, tribe, place of origin, political opinion, color, creed or religion’ there is still more work to be done in terms of addressing the issues of gender equality by simplifying laws into policies, and making sure strategies are realistic that would drive best practices for tangible change in any organisation. Furthermore, for all citizens to take ownership of implementing the recognised GEDSI policy because our identity as a diverse sovereign nation depends on it. This study looked closely into how organisations of higher learning have incorporated the GEDSI policy into practice and what the impacts have been like for both staff and students including the community at large.

This research was conducted to evaluate the implications of the Papua New Guinea government’s GEDSI policy on staff and students of Divine Word University (DWU), Madang Campus.

The main objective of this study is to emphasise the importance of the GEDSI policy in implementing good governance and gender inclusion at all levels of DWU.

The philosophy underlying this study was interpretivism. This research employed a qualitative method for data gathering. Instruments used for the data gathering were semi-structured interviews. All data were gathered in DWU Madang Campus from July to September 2020. This research involved 15 participants (mainly students) and the data collected were analysed using thematic analysis approach to write up the final report.

Factors affecting female leaderships within the rural health care facilities in South Bougainville, AROB, PNG

Emelda Ariku, Graduate Researcher, Divine Word University

This study was carried out to identify the socio-cultural factors affecting female leaders in the rural health care facilities in South Bougainville (AROB). Moreover, the study was conducted to identify any support services for female leaders in the rural health care facilities. Also, to suggest ways to address these factors to empower and enhance their performances and roles in their working facilities.

Bougainville is dominated by matrilineal society whereby women take ownership of the land as well as involvement in decision making within society. Hence, involving females as executives in the rural health care facilities create opportunities for them to exercise their leadership qualities in their roles. The study adopts a qualitative approach using one-to-one interviews and focus group discussions. The study participants were female managers, administrative and clinical staff of the three rural health care facilities in South Bougainville, AROB. A total of 18 participants both male and female staff were involved in this research. The research found that socio-cultural factors are the contributing factors towards female leadership which have greater impacts on female leaders in the rural health facilities. Accordingly, there are limited support services available in the province to help female frontrunners to seek assistance from. 4E: Agriculture and food security

4E: Agriculture and food security

The role of green manures in sustaining soil health and crop productivity in PNG – A review

Paula Kaupa, PhD Candidate, Rajashekhar Rao BK, Associate Professor, PNG University of Technology

Green manure (GM) crops are those crops, that are grown either in situ or ex situ and are ploughed into the soil to improve soil fertility and crop productivity. The use of GM not only solves the issue of timely accessing suitable fertilisers, increasing cost of chemical fertilisers and its environmental problems but also improved the soil biological fertility. This review study highlights the benefits of GMs, their role in sustaining soil health and challenges in the integration of GMs in the PNG cropping systems. The results of research around the globe indicated that the incorporation of GM crops fixes nitrogen, suppresses weeds, conserves soil water, and improves soil fertility and crop productivity. Furthermore, studies have shown that incorporation of GM crops substituted 50-60 per cent of nitrogen (N) fertiliser needs in various cropping systems. Maximum maize grain yield was obtained under *Mucuna pruriens* (3261 kg ha⁻¹) and Lablab (2359 kg ha⁻¹) treatments used as GM. The incorporation of GM crops increased soil organic matter by 0.1 to 0.3 per cent and increased the total N status of soil by 0.04 per cent. These results play a key role in promoting GM incorporation in cropping systems in PNG, however, suitable machinery, seed availability and technology for incorporation is a challenge faced by farmers. As the subsistence agricultural practices are replaced by intensive agricultural systems, soil fertility management options should be evaluated and available for different agro-climatic conditions of PNG. The role of GMs appears to be the most feasible and sustainable option.

Development of a seasonal farm advisory in Papua New Guinea for climate-smart agriculture

Ruth Baiga, Natural Research Management Scientist, National Agriculture Research Institute; Dr Rachel Friedman, Postdoctoral Fellow, Dr Steven Crimp, Research Fellow, ANU Institute for Climate, Energy, and Disaster Solutions; Mauro Okrupa, Research Associate, Alex Galus, Johannes Pakatul, HRC Research Development Coordinator, Laurie Fooks, Program Director, National Agriculture Research Institute

Communities in Papua New Guinea reliant on agriculture-based livelihood systems have been identified as particularly at risk from climate variability and change. Making strategic food production plans ahead of evolving seasonal climate conditions is an important way to improve the resilience of food production systems. Seasonal climate forecasts provide rainfall and temperature projections up to five months in advance and can facilitate medium-term planning and adaptation to seasonal climate variability. Farmers know about the general effects of weather and climate on their agricultural production and often use traditional indigenous knowledge to guide their decisions. However, seasonal climate forecasts are vital in decision-making for farm production as farmers move to more commercial and market-oriented production, yet it is more difficult for them to understand how information from these complex weather forecasts is directly relevant to their activities. Therefore, the introduction and use of seasonal climate forecasts in rural community food production decisions have been very challenging. This project combined methods to understand how seasonal climate information can be made accessible and useful to farmers. Field trials, along with existing scientific evidence, were conducted to test management practices under different weather conditions. This further raised the

importance of seasonal forecast information's role in supporting farm decisions. Finally, farmer field days and gender-specific focus groups were held to get input from farmers and build engagement. We're now bringing these findings together to translate seasonal climate forecasts into farm advisory services for enhanced food production.

Equitable agricultural extension through institutional youth engagement in Papua New Guinea: A case study in Kokopo District, East New Britain Province

Donald Kanini, Masters Candidate, School of Humanities and Social Science, University of Papua New Guinea

The importance of agriculture to Papua New Guineans is significant. Subsistence farming and certain organised modern farming practices are the main priorities of the bulk of the population. The organised commercial farming for young people in Kokopo, East New Britain Province, the main objective of the fair agricultural extension of youths through institutional participation. This study looks into why obstacles to youth agricultural extension through institutional involvement go undetected.

In quest of work, youths escape from their farms and move to urban regions. The youth have found the social, economic, and emotional demands of life to be quite difficult. They frequently don't take part in planning, making decisions, or carrying out important agricultural duties. This study employed qualitative approaches by asking semi-structured questions of key informants relevant to the specific local level and wards.

The research's themes are offered in order to fill in the blanks. Concerns of youth participation in institutions extended equitable agriculture, the findings were considerable and diverse. Several youths in the ward have stopped working in agriculture, which has a severe impact on their ability to sustain themselves. Misconceptions about money and prosperity, fair agricultural extension gradually ignores youths. The institutions' expansion continued to communicate the ideology that had been conveyed. The finding is significant in PNG where people make their living through farming and agriculture. The discrepancy youths experienced as a result of institutions that distributed resources for their benefit, this also made them trustworthy in terms of agricultural services.

4F: Urban and rural development

Assessment of surface runoff on different surfaces (pervious and impervious) within the urban region: A case study of Lae City

Runitha Nickson, Postgraduate Student, Tingneyuc Sekac, Senior Lecturer and Research Coordinator, Sujoy Kumar Jana, Associate Professor, Papua New Guinea University of Technology

The problem of urban surface runoff is a major issue and it is one of the essential topics in geographical and hydrological research. Lae City is an Industrialised hub where it is paved everywhere and surface runoff is seen as a major problem when it rains. Therefore, the aim of this research is to evaluate and assess the surface runoff from pervious and impervious surfaces within the urban catchment using a geographic information scientific approach. For this research the SCS-CN runoff method is used. Basically, these three parameters were inputted into the model and were used, that is; hydrological soil, land use and land cover, and rainfall data. For the rainfall data the maximum daily storm rainfall recorded within a 20-year return period was used to carry out the analysis. Surprisingly, the results have demonstrated a high surface run off in the impervious areas which range from 213 to 223 ml per day and a low surface runoff to those pervious areas which range from 40 to 140 ml per day. Furthermore, the results show that, the more the city is paved and being industrialised, the more the surface runoff which cause city's to experience more flash floods. The results assist urban developers and city planners for effective urban planning that can reduce surface runoff and water clogged in the city by creating innovative solutions for proper drainage systems and other urban development mitigation strategies.

Use of multicriteria decision approach to identify an alternative solid waste dump site around Lae City

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Solid waste management is one of the burning topics encountered due to the rapid increase in the human population and the expansion of urbanisation. Identifying sustainable convenient dumpsites is another challenging task that takes much time and more concentration. This study is conducted in Lae City, which is the largest industrial hub of Papua New Guinea. Ineffective legislation and lack of law enforcement in the area are causing enormous environmental pollution to the surrounding unscientific, unmanaged, and scattered open dump sites. In order to de-escalate the current solid waste situation, the only option is to find a suitable solid waste disposal site that will help reduce the impact on the environment and the people as well. Remote sensing (RS) and geographical information systems (GIS) are very useful tools in the identification of suitable sites for the dumping of solid waste using a multi-criteria decision approach. This study considered some handful factors to identify suitable solid waste disposal sites, namely distance from major roads, river/lake/coastline, hospitals/clinics/schools, residential/supermarkets/industries, height and slope of the ground, land use, and land cover, hydrological soil characteristics, rainfall, and lithological setting. The study identifies very highly suitable land areas in the northwest and the northeast part of the study area.

An analysis of social cultural trends and the growth of Chinese business: A case of Goroka urban and peri-urban area in Eastern Highland Province

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This paper analyses socio-cultural trends that contribute to the growth of Chinese business in the urban and peri-urban space in Goroka. China as a growing economic power exerts significant influence in the world, the presence of Chinese private businesses in Goroka testifies to that effect. While China's political and economic status is imposing enough to warrants its strong influence, certain socio-cultural trends to some extent propagate the growth and expansion of Chinese business in Goroka, which can be the case also in other parts of the country. This article examines the number of social and cultural trends including strong cultural antagonism on the part of the locals that not only supports the growth of Chinese business but also inhibit the ability of the locals to excel in business and other facets of life. This article is designed within a qualitative research approach and uses content analysis and random-semi structured interviews as well as content analysis from other sources to generate data for the analysis. The findings revealed that socio-cultural trends to some degree allow the growth of Chinese business. The current rate in which Chinese private entities are expanding will no doubt put struggling local entrepreneurs out of business unless government intervenes with regulatory mechanisms. This research sets a new parameter in understanding Chinese private business expansion from a local socio-cultural perspective.

