



INSTITUT TEKNOLOGI BANDUNG

Disaster Risk Financing  
& Insurance Program



Global Shield  
Financing Facility



# Executive Education Program on Disaster Risk Finance (DRF) for Indonesia

*A program designed to enhance understanding and implementation of Indonesia's National Disaster Risk Finance and Insurance strategy.*

March 4 - 7, 2024

Multipurpose Hall, 3rd Floor, CRCS Building, Institut Teknologi Bandung,  
Jl. Ganesa No.10, Lb. Siliwangi, Kecamatan Coblong, Kota Bandung  
Jawa Barat 40132, Indonesia





# ABOUT THE ORGANIZERS

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## Disaster Risk Financing & Insurance Program



**The World Bank's Disaster Risk Financing and Insurance Program (DRFIP)** leads the dialogue on financial resilience as a component of the World Bank's support to countries in better managing disasters and climate shocks. DRFIP helps developing countries manage the cost of disaster and climate shocks, supports governments to become more effective risk managers, rather than emergency borrowers, protecting their fiscal balance and the welfare of households and businesses and supports the development of comprehensive financial protection strategies, develops innovative policies and instruments, and structures insurance programs. The World Bank Group has assisted over 130 countries in developing Disaster Risk Finance strategies and solutions.



INSTITUT TEKNOLOGI BANDUNG

**Institut Teknologi Bandung (ITB)** is the first technical university in Indonesia, established on March 2, 1959, in West Java. Born in a dynamic atmosphere fueled by the spirit of the Proclamation of Independence, ITB is dedicated to optimizing the development of a progressive and dignified nation. ITB's vision is to be an outstanding, dignified, independent, and internationally recognized university that leads changes aimed at enhancing the welfare of both the Indonesian nation and the global community. Its mission is to create, share, and apply knowledge in science, technology, arts, and humanities, and to produce exceptional human resources dedicated to improving Indonesia and the world. ITB's motto, "In Harmonia Progressio," was established through Rector's Decree Number 451/SK/K01/OT/2009. "Harmonia" means harmony or togetherness, and "Progressio" means progress. These words, derived from Greek terminology, signify progress achieved through harmony. They embody the collective advancement in unity or togetherness in realizing ITB's vision and mission. By consistently upholding unity in diversity, the tradition of "In Harmonia Progressio" is poised to endure for the next hundred years and beyond.



**The Global Shield Financing Facility (GSFF)** is a trust-funded program that has evolved from the Global Risk Financing Facility. The program is positioned under the Global Shield against Climate Risks initiative, launched by the G7 and Vulnerable Twenty (V20) Group of Ministers of Finance. The program aims to protect vulnerable countries from the financial impacts of climate shocks and disasters by pre-arranging finance through a suite of financial solutions. The GSFF does this by co-financing World Bank projects and providing grant resources with technical expertise for the design and implementation of these solutions.

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# ABOUT THE PROGRAM

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The Executive Education Program on DRF for Indonesia is tailored to strengthen knowledge and skills in DRF, aligning with Indonesia's specific strategies. This program focuses on practical applications and analysis of Indonesia's DRF scenarios. Emphasizing capacity building, it will address challenges and propose actionable solutions, with sessions primarily in Bahasa Indonesia, to ensure effective communication and understanding among Indonesian government officials and stakeholders. We aim to create an environment that enables meaningful knowledge exchange and provides deep insights into building financial resilience against disaster and climate risks.

## Program Objectives

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- 1 To enhance understanding of Indonesia's National DRFI strategy and its five priority areas.
- 2 To facilitate knowledge sharing and best practices on risk financing solutions relevant to the local context.
- 3 To build the skill set required to effectively implement the National DRFI strategy.
- 4 To encourage communication and strengthen coordination among key ministries working on the Pooling Fund.



# Program at a Glance

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Gain key insights into DRF and why it is important. Understand Indonesia's DRFI strategy and the associated challenges.

Learn about Policy and Regulation, DRF Reserve Funds, and Stakeholder Mapping.



Introduction to the Financial Protection of Public Assets, and Data and Analytics in DRF.

A deep dive into DRF for SMEs, Agriculture, and Adaptive Social Protection.



# PROGRAM AGENDA

## EXECUTIVE EDUCATION PROGRAM MARCH 4-7, 2024, BANDUNG, INDONESIA PROGRAM AGENDA

The program agenda has been specifically curated for Indonesia and tailored to align with the country's overarching disaster risk financing and insurance (DRFI) strategy.

Time	Session
<b>DAY 1 – MONDAY, MARCH 4, 2024</b>	
09:00 - 09.45	<b>Opening Remarks &amp; Group Photo Session</b> <ul style="list-style-type: none"><li>• Febrio Kacaribu (BKF)</li><li>• Prof. Ir. Ridwan Sutriadi, S.T., M.T., Ph.D. (ITB)</li><li>• Cecile Thioro Niang (WB)</li></ul>
09:45 - 10:00	<b>Break</b>
10:00 - 11:00	<b>Fundamentals of Disaster Risk Finance (DRF)</b> <p>Overview of the fundamentals of DRF, its purpose, scope, development impact and basic principles, and how governments must make difficult trade-offs in the aftermath of a disaster.</p> <p>Kristiyanto (BKF), Irwan Meilano (ITB)</p>
11:00 - 12:00	<b>Challenges and Actions in DRF in Indonesia</b> <p>Understanding Indonesia's DRFI strategy and the associated challenges.</p> <p>Yogi Rahmayanti (BKF)</p>
12:00 - 13:00	<b>Lunch</b>
13:00 - 14:30	<b>Master the Disaster (Interactive Session)</b> <p>Experience different contexts and options within the space of disaster risk financing.</p> <p>Dumaria R. Tampubolon (ITB) Meditya Wasesa (ITB)</p>



14:30 - 14:45	<b>Break</b>
14:45 - 16:30	<p><b>Introduction to different types of DRF Instruments and mapping of Indonesia's arsenal of Financial Instruments (Round Table)</b> Mapping of Indonesia's arsenal of DRF Financial instruments followed by round table of common DRF Instruments:</p> <ul style="list-style-type: none"> <li>• Parametric insurance, CAT Bond Shannen Nicole H. Chua (BTr Philippines), Nicolas Pondard (WB)</li> <li>• Regional mechanism: Risk Pools Ellen Yong (SEADRIF)</li> <li>• Public asset protection Idris Aswin (DJKN), Greg Fowler (WB)</li> <li>• DRF funds Yogi Rahmayanti (BKF), Dara Lengkong (WB)</li> <li>• Protection of the poorest Ekki Syamsulhakim (WB)</li> </ul>
16:30 - 16:45	<b>Break</b>
16:45 - 17:45	<b>Syndicate Group Discussion</b>
17:45 - 18:00	<b>Wrap-up of Day 1 and Overview of Day 2</b>
18:00 - 19:30	<b>Social Event and Welcome Dinner (at ITB)</b>
<b>DAY 2 – TUESDAY, MARCH 5, 2024</b> <b>Protection of Government (Budget)</b>	
09:00 - 09:15	<b>Day 1 Recap and Day 2 Agenda Overview</b>
09:15 - 10:30	<p><b>Policy and Regulation</b> Overview of the importance of effective policy, regulatory, and institutional frameworks in implementing and operationalising DRF instruments in Indonesia.</p> <p>Rita Helbra Tenrini (BKF), Sumati Rajput (WB)</p>



10:30 - 10:45	<b>Break</b>
10:45 - 12:00	<p><b>DRF Reserve Funds - Homeowners Protection (Global Experience)</b> Best practices and lessons learnt from DRF reserve funds globally.</p> <p>Dumaria R. Tampubolon (ITB), Hugh Cowan (WB)</p>
12:00 - 13:00	<b>Lunch</b>
13:00 - 13:30	<p><b>DRF Reserve Funds – Pooling Fund Bencana (PFB)</b> Overview of Pooling Fund Bencana.</p> <p>Rita Helbra Tenrini (BKF), Devi Setiawan (WB)</p>
13:30 - 14:30	<p><b>CAT Bonds</b> Overview of the role of CAT bonds in disaster risk finance, with insights from the Philippine experience.</p> <p>Shannen Nicole H. Chua (BTr Philippines)</p>
14:30 - 14:45	<b>Break</b>
14:45 - 15:45	<p><b>Stakeholder Mapping</b> Help develop a strategy to engage DRF stakeholders, providing a systematic approach to identify key DRF stakeholders and a dynamic map to prioritize them.</p> <p>Kristiyanto (BKF), Devi Setiawan (WB)</p>
15:45 - 16:30	<b>Syndicate Group Discussion</b>
16:30 - 16:45	<b>Wrap-up of Day 2 and Overview of Day 3</b>
<p><b>DAY 3 – WEDNESDAY, MARCH 6, 2024</b> <b>Protection of Lives, Livelihoods, Jobs</b></p>	
09:00-09:15	<b>Recap of Day 2 and Day 3 Agenda Overview</b>

09:15-10:00	<p><b>Overview Session (SME, Agriculture, ASP)</b> Moderated panel discussion</p> <p>Dumaria R. Tampubolon (ITB), Dan McGree, Ekki Syamsulhakim, and Sumati Rajput (WB)</p>
10:00-10:15	<b>Break</b>
10:15-11:45	<p><b>DRF for SMEs</b> Gain key insights into the immense difficulties faced by the Indonesian economy in recovering from natural disasters, and how DRF is essential in such a situation.</p> <p>Meditya Wasesa (ITB), Dan McGree (WB)</p>
11:45-13:00	<b>Lunch</b>
13:00-14:30	<b>ITB Laboratory Tour</b>
14:30-14:45	<b>Break</b>
14:45-16:15 (Elective 1 of 2)	<p><b>DRF for Agriculture</b> Bridges knowledge gaps pertaining to the development and use of disaster-responsive financing mechanisms and instruments for the agriculture sector. Provide a basis to establish, evaluate, and implement Disaster Risk Financing Agriculture (DRFA) programs as part of an overarching risk financing strategy.</p> <p>Tulsi Priya Rajkumari (MoF India), Riantini Virtriana and Fiza Wira (ITB), Dan McGree (WB)</p>
14:45-16:15 (Elective 2 of 2)	<p><b>DRF for Adaptive Social Protection (ASP)</b> Provide insights into the importance of ASP, showcasing international best practices on how to incorporate the ASP framework in developing an effective adaptive social protection system to help protect the poor and most vulnerable.</p> <p>Ekki Syamsulhakim (WB)</p>
16:15-16:30	<b>Break</b>



16:30-17:15	<b>Syndicate Group Discussion</b>
17:15-17:30	<b>Wrap-up of Day 3 and Overview of Day 4</b>
17:30-20:00	<b>Social Event and Dinner</b>
<b>DAY 4 – THURSDAY, MARCH 7, 2024</b> <b>Protection of Public and Private Assets</b>	
09:00-09:15	Recap of Day 3 and Day 4 Agenda Overview
09:15-10:30	<p><b>Introduction to Financial Protection of Public Assets (Global Experience)</b> Introduction to Financial Protection of Public Assets and how prearranged finance can help respond to damages due to disaster shocks.</p> <p>Dumaria R. Tampubolon (ITB), Greg Fowler (WB)</p>
10:30-10:45	<b>Break</b>
10:45-11:45	<p><b>Introduction to Financial Protection of Public Assets (ABMN)</b> In-depth exploration of Indonesia's efforts in protecting its public assets, key challenges faced, and valuable lessons learned.</p> <p>Encep Sudarwan (DJKN)</p>
11:45-13:00	Lunch
13:00-14:30	<p><b>Introduction to Data and Analytics in DRF</b> Discuss the importance of data in developing DRF solutions and in implementation of DRF strategies.</p> <p>Riantini Virtriana and Fiza Wira (ITB), Nico Pondard (WB)</p>
14:30-14:45	Break
14:45-15:00	<b>Certificate Distribution, Closing Ceremony, and Group Photo Session</b>

# MEET THE SPEAKERS



**Daniel McGree** is a Disaster Risk Finance and Insurance Consultant at the World Bank / Fellow of the Institute and Faculty of Actuaries (United Kingdom). He brings over 15 years of actuarial experience to his role as a Disaster Risk Finance and Insurance Consultant at the World Bank. He is recognized for his international proficiency and extensive experience in climate risk and sustainable finance across public and private sectors. Daniel's contributions to strategic engagements and technical analyses extend to the South-East Asia Disaster Risk Insurance Facility (SEADRIF) and country-specific projects in Indonesia, Kyrgyzstan, Laos, Moldova, Samoa, the Solomon Islands, Tajikistan, the Philippines, Tonga, Türkiye, and Uzbekistan. Daniel's expertise centres on designing interventions to address protection gaps, constructing adaptable financial models for assessing natural hazard-related financial risks, and developing disaster risk finance strategies. His work spans from sovereign to micro-levels, as demonstrated through collaborations with the International Labour Organization in the Caribbean. Daniel holds an MSc in Actuarial Management and a fellowship with the Institute and Faculty of Actuaries.



**Dara Lengkong** has about 25 years' experience working in various World Bank sectoral/thematic and corporate units, in Washington DC, Jakarta, and New Delhi. The units include finance, macroeconomics, urban and rural/microfinance, and donor funding and partnerships. She now works as a Senior Financial Sector Specialist in the Finance, Competitiveness and Innovation (FCI) Global Practice team based in Jakarta, responsible for providing technical leadership and expertise to the World Bank financial sector development programs in Indonesia and Pacific Island countries (e.g., Fiji, Samoa, Tonga, and regional). These programs cover a wide range of lending, analytical and advisory activities related to disaster risk finance, financial resilience, infrastructure finance and sustainable/green finance.



**Deviarandy Setiawan** has been working with the World Bank for about 20 years and works in various sectors, including governance reform and poverty reduction, water supply and sanitation, water resource management, nutrition and disaster risk finance. He has led various technical assistance programs for the government and acted as the Indonesia country coordinator for the Water and Sanitation Program (WSP) for about a decade, supporting Southeast Asia countries in the sector. He now works as a Senior Consultant in the Finance, Competitiveness and Innovation (FCI) Global Practice team based in Jakarta that supports the government in establishing and operationalizing the Pooling Fund for Disasters. He graduated from the Institut Teknologi Bandung and holds a Master's degree in social development from the University of Indonesia. He enjoys equestrian sport in his leisure time.

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**Dumaria Rulina Tampubolon** has been a fulltime faculty member of the Faculty of Mathematics and Natural Sciences (FMIPA) at Institut Teknologi Bandung (ITB), Indonesia, since 1989. She obtained her Doctor of Philosophy degree in Actuarial Studies from Macquarie University, Sydney, Australia; her Master of Science degree in Mathematics, majoring in Statistics, from Monash University, Melbourne, Australia; and her Sarjana degree in Mathematics from Institut Teknologi Bandung, Indonesia. Dr. Tampubolon's research interests are in General (Non-Life) Insurance, with topics such as: Earthquake (Re)Insurance; the estimation of the outstanding claims liability for a long tail general insurance business; and in Health and Automobile Insurance. For the periods of 2018 to 2024, Dr. Tampubolon is the Head of the Actuarial Science Division of the Indonesian Mathematical Society (IndoMS). Since September 2020, Dr. Tampubolon has been an Independent Commissioner at PT AXA Financial Indonesia; and since December 2019 she has been an independent member of the Board of Risk Committee and of the Board of Audit and Compliance Committee at PT Mandiri AXA General Insurance (PT AXA Insurance Indonesia). From 2011 to 2019, Dr. Tampubolon was an actuarial consultant at PT Reasuransi MAIPARK Indonesia; in particular, for actuarial problems relating to earthquake insurance. From 2013 to February 2021, Dr. Tampubolon is a Person in Charge at FMIPA ITB for the establishment and the implementation of the READI (Risk Management, Economic Sustainability, and Actuarial Science Development in Indonesia) Project; a cooperation between University of Waterloo, Canada, and 8 (eight) universities in Indonesia, funded by the Canadian Government, Manulife Indonesia, and Sunlife Indonesia.



**Ekki Syamsulhakim** is currently a Senior Social Protection Specialist at the World Bank, with his involvement spanning advising on the development of social assistance programs and contributing to a wide range of reports and scholarly papers. His work focuses on important areas such as Conditional Cash Transfer, Food Assistance, and Adaptive Social Protection programs. Additionally, Ekki has engaged in advisory work on Green Jobs with the Indonesian Government, aiming to support sustainable development and labor market resilience. Before joining the World Bank, Ekki was the Head of the Monitoring & Evaluation unit at the Secretariat of the National Team for the Acceleration of Poverty Reduction (TNP2K), under the Vice President of the Republic of Indonesia. Ekki obtained his master's degree in economics from Monash University, Australia, in 2003 and earned a Bachelor of Economics degree from the University of Padjadjaran in 1998

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**Ellen Yong** is a qualified actuary with over 15 years of experience in the insurance sector. As the Chief Operating and Financial Officer at SEADRIF Insurance Company, she leads the insurance management, financial oversight, and governance critical to achieving SEADRIF's strategic goals. In her prior leadership role at Fidelis Insurance, Bermuda, Ellen focused on property reinsurance, gaining insights into natural catastrophes and the impact of climate change. Before Fidelis, Ellen was an actuarial manager at AXA Singapore and started her career in 2007 with Aon as a broking analyst. With expertise across pricing, portfolio analysis, reserving, underwriting policies, claims handling, reinsurance, finance and regulatory reporting, Ellen possesses a comprehensive understanding of insurance operations. Ellen is dedicated to enhancing community resilience through Disaster Risk Financing initiatives and is motivated by the pressing needs to strengthen financial resilience and to advance financial inclusion in the face of climate challenges.



**Encep Sudarwan** has been the Director of Policy Formulation of State Asset since April 2022. Born in Garut on December 19, 1967, he has dedicated his career to the development and management of state asset in Indonesia. Encep is a seasoned professional with a rich educational background, holding a Master's in Business and Financial Economics from Claremont Graduate School, California, and a Bachelor's from the Faculty of Economics at Universitas Padjadjaran, Bandung. Before his current role, Encep served as the Director of State Asset from August 2017 to April 2022. His extensive career also includes positions such as Guest Lecturer at Universitas Padjadjaran, Head of the Regional Office of the Directorate General of State Assets (DJKN) DKI Jakarta, and Director of State Asset Management and Information Systems. Encep's commitment to leadership, negotiation, and strategic management in the public sector is further evidenced by his participation in notable programs, including the ASEAN Global Leadership Program in Spain and the Oxford Strategic Leadership Program at SAID Business School. He has also completed executive training in negotiation at the same institution in the UK.



**Fiza Wira Atmaja** is a Ph.D. candidate in Geodesy and Geomatics at ITB. He completed his undergraduate studies in Geophysics at ITB and obtained a Master of Business Administration (Strategic Management) from UGM. From 2014 to 2019, he served as the Group Head of RDI (Research, Development, and Innovation) at Reasuransi Maipark. His primary research focus is on disaster risk modeling and financing. Since 2021, he has been involved as a researcher with the Disaster Risk Financing Research Team, funded by LPDP in collaboration with the Directorate General of State Financing and Risk Management (DJPPR Ministry of Finance).





**Greg Fowler** is a Senior Disaster Risk Financing Consultant who has over 35 years' experience in the risk financing industry. As an insurance broker and risk consultant, he has guided a diverse range of clients in Washington DC, Australia, the Pacific Islands and New Zealand (NZ). In 2010, Greg became the Portfolio Manager Risk and Insurance for the NZ Department of Corrections. This included an integral role in managing the Department's response to the Canterbury Earthquake sequence, while maintaining an effective insurance program on a property portfolio valued at several billion NZD. From 2013 to early 2020, Greg led the NZ government's exploration of an All of Government approach to public asset risk financing. This included the development of a center-led strategy for public asset risk financing and insurance. Since 2020, Greg has supported World Bank efforts to embed sustainable public asset financial protections programs in South-East Asia (particularly in Indonesia, the Philippines, and Cambodia) and the Pacific Islands regions.



**Hugh Cowan** is a consultant in disaster risk management and experienced in the application of science, engineering, and insurance to risk financing and resilience. He has advised on matters ranging from seismic risk under building regulations, to the safeguarding of cost-effective financial protection for water services and their resilience. Hugh has held senior roles with the New Zealand Earthquake Commission (EQC) leading its national reinsurance programme during the decade of destructive earthquakes following 2010, and guiding EQC's investment in research on natural disaster damage and ways of modelling and mitigating disaster impacts. In earlier years, Hugh led the establishment of New Zealand's geological hazard monitoring system "GeoNet" for the national geoscience organisation, GNS Science. Hugh is a graduate of the University of Canterbury and Victoria University of Wellington; a Fellow and Life Member of the NZ Society for Earthquake Engineering; and a member of the New Zealand Institute of Directors.



**Idris Aswin** is a Deputy Director at the Directorate of Policy Formulation in the Directorate General of State Assets Management, Ministry of Finance. He started his career in the Ministry of Finance as junior staff in the Financial Education and Training Agency in 1998. Idris has more than 20 years of experience in education and training programs, loan and credit management, government accounting, and public assets insurance. He served as a lecturer in the Indonesia State College of Accountancy in 2009-2011 and in Ar-Raniry State Islamic University in 2016-2017. He has also served as a Board of Director of PPSI IV (Indonesia Saria Bonds Issuer Corp.) since 2018. He was a team leader for several Government of Indonesia's policy formulation in government assets management as well as a team leader in the technical supervisor unit for the public service entity State Assets Management Agency. Idris holds a Bachelor's degree in Accounting from the University of Indonesia and a postgraduate degree in Financial Management from the University of Indonesia. He is a State Registered Accountant from the Ministry of Finance and Chartered Accountant from the Institute of Indonesia Chartered Accountants.





**Irwan Meilano** completed his undergraduate studies in Geodesy Engineering at ITB in 1997, followed by postgraduate studies in 2003 (Master's degree) and 2006 (Doctoral degree) from Nagoya University, Japan. Since 2020, he has served as the Dean of the Faculty of Earth Sciences and Technology (FEST) at ITB, and since 2021, he has been the head of the Disaster Risk Financing Research Team funded by LPDP in collaboration with the Directorate General of State Financing and Risk Management (DJPPR Ministry of Finance).



**Kristiyanto** is a Lead Policy Analyst in the Center for Budget Policy, Ministry of Finance. He started his career as a journalist in Gatra Weekly News Magazine in 1999 before finally joining the Indonesian Ministry of Finance in late 2002. Kristiyanto has more than 20 years of experience in fiscal policy; international economic, finance and development cooperation; and disaster risk financing. He served as an Advisor for Executive Director in the World Bank Group, in Washington DC for 2 years (2012-2014). He also served as an Alternate Director of the ASEAN Infrastructure Fund (AIF) in 2020-2022. He was a Team Leader for several Government of Indonesia's projects with development partners in financing risk of disasters and health as well as team leader in the establishment of Indonesia Agency for International Development Cooperation (known as Indonesia AID). Kristiyanto holds a Bachelor's Degree in Economics from Sebelas Maret University and a Post-Graduate Degree in Business and Information Technology from the University of Melbourne.



**Meditya Wasesa** is an assistant professor at the School of Business and Management, Institut Teknologi Bandung. He holds a Ph.D. in Management Information Systems from Rotterdam School of Management, Erasmus University, Netherlands, an M.Sc. in Logistics Engineering from Duisburg-Essen University, Germany, and a Bachelor of Mechanical Engineering (S.T.) from Institut Teknologi Bandung. His career spans work with international companies, including General Motors Europe - Germany and Rotterdam School of Management - the Netherlands. In Indonesia, he has served as an executive and consultant for a diverse range of organizations, from private companies and state-owned enterprises (BUMN) to notable start-up unicorns and ministries. His primary research and teaching areas revolve around leveraging advanced information systems to enhance business decisions, with a particular emphasis on business analytics. His work has been featured in renowned publications like IEEE Access, Journal of Enterprise Information Management, Decision Support Systems, Journal of Cleaner Production, etc. Since 2024, he has been involved as a researcher with the Disaster Risk Financing Research Team, funded by LPDP in collaboration with the Directorate General of State Financing and Risk Management (DJPPR Ministry of Finance).

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**Dr. Nicolas Pondard**, Senior Disaster Risk Financing Specialist, has worked on disaster risk management issues for twenty years, gaining direct experience with international institutions (The World Bank), academia (e.g. GNS Science, New Zealand), government (Bank of England), and the reinsurance industry (Willis Re, UK). Currently, Nicolas helps low and middle-income countries in designing risk reduction and risk transfer strategies at the World Bank, primarily in Asia (e.g. investment in resilient infrastructure, building financial protection programs). In the financial sector, he also leads the development of financial protection solutions in the Pacific at PCRIC. Previously, he was the lead catastrophe risk specialist at the Bank of England, evaluating the resilience of the insurance industry to natural hazards, and also worked as a principal risk analyst in Asia Pacific and Middle East for the global (re)insurance broker Willis Re. As a research scientist, Nicolas assessed earthquake hazard and risk in New Zealand, following the 2010-2011 Christchurch seismic sequence. From 2002 to 2006, he contributed to the largest international programme assessing seismic hazard in the region of Istanbul (Turkey). His ambition is to bridge the gap between science and risk management.



**Riantini Virtriana** holds a Ph.D. in Geodesy and Geomatics. She began her research career in 2010 in the fields of GIS, Spatial Database, and Remote Sensing as a scientific and research assistant at the Remote Sensing and Geographic Information Science Research Group at ITB. Since 2014, she has worked at ITB as an academic staff member, focusing on teaching and research. She is also a member of the Center for Spatial Data Infrastructure at ITB. Her current research interests include environmental spatial modeling, particularly in the area of Disaster Risk Assessment. Since 2021, she has been involved as a researcher with the Disaster Risk Financing Research Team funded by LPDP in collaboration with the Directorate General of State Financing and Risk Management (DJPPR Ministry of Finance).



**Rita Helbra Tenrini** is a Senior Policy Analyst who leads the Disaster Risk Financing team at the Regional and Bilateral Policy Center, Fiscal Policy Agency, Ministry of Finance. Rita has a Master's degree in Planning and Public Policy from the University of Indonesia. Before joining the Fiscal Policy Agency, from 2002 to 2011 she worked at the Directorate General of Taxes, from 2011 to now at BKF, Ministry of Finance, and from 2017 to now at PKN STAN as a lecturer. She is the Editor-in-Chief of KEK Journal and an editor at Warta Fiskal magazine. She received a scholarship from the Ministry of Finance's PHRD. She has contributed to books, journals, and articles in the media as a writer.





**Shannen Chua** leads the Bureau of the Treasury's disaster risk financing and insurance agenda in the Philippines. Under this agenda, she task-managed the implementation of the Philippine Catastrophe Bond (CAT Bond) and the recently implemented National Indemnity Insurance Program. She spearheads the BTR's risk analysis initiative using GIS (Geographic Information System) to better quantify and qualify the nation's disaster risk and the exposure of its strategically important assets. She advises the Treasurer of Philippines in the formulation and execution of innovative disaster risk financing solutions to address the country's vulnerability to disaster risk. Aside from disaster risk finance and insurance, Ms. Chua is the Bureau's focal technical staff for non-financial asset management. As the focal technical staff, she provided key inputs to the Philippine Government Asset Management Policy and was key in shepherding its issuance. In 2017, she earned her Bachelor of Science in Legal Management from Ateneo de Manila University, where she graduated Magna Cum Laude and was given the Legal Management Program Award. In 2022, she earned her Master of Professional Studies in Global Development from Cornell University.



**Sumati Rajput** is a Senior Financial Sector Specialist in the Crisis and Disaster Risk Finance team in the World Bank Group. She co-manages the Global Shield Financing Facility (GSFF). As part of her operational focus, she works in countries across Asia and Africa to embed financial solutions for macro-fiscal shocks across sectors, particularly through World Bank projects focused on disaster risk management, financial planning, and social protection. In her previous role, she spent five years at the Global Facility for Disaster Reduction and Recovery and worked on preparing disaster risk management projects in Africa and the Caribbean. Prior to joining the Bank, she worked as an Urban Development Economist at AECOM, where she also worked on a redevelopment strategy for the city of Miyako in Japan for economic recovery post the 2011 Tsunami. Sumati holds a Bachelor's Degree in Economics and Psychology from Columbia University and a Post-Graduate Degree in Development Economics from Yale University.



**Tulsipriya Rajkumari** joined the Indian Economic Service in 2014 and is currently serving as Joint Director in the Ministry of Finance. Her work involves coordinating international economic discussions and shaping India's stance on G20 Finance Track matters. During India's G20 Presidency, she contributed to the formulation of the G20 Finance Track agenda, priorities, and deliverables, including the Communique and the New Delhi Leaders' Declaration. Previously, Tulsipriya worked in the Department of Economic Affairs, assisting the Chief Economic Adviser of India in policy research and formulation, drafting the 'Economic Survey', and guiding India's policy response to Covid-19. Tulsipriya also worked in the Cabinet Secretariat, facilitating the transition of welfare schemes to the Aadhaar-based Direct Benefit Transfer platform. Before joining the Government, she was a Business Analyst with the India unit of the US-based retailer, Target Corporation, providing data-driven insights to support retail operations. Tulsipriya holds an M.Phil. and a Master's degree in Economics with specialization in World Economy from Jawaharlal Nehru University, and a Bachelor's degree in Economics (Honours) from Miranda House, Delhi University.

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**Yogi Rahmayanti** has been an integral part of the Indonesian Ministry of Finance since 1997, focusing on Budgeting, Treasury, and Public Financial Management. Before June 2023, she held the position of Deputy Chief of Staff in the Minister's Office, where she was pivotal in analyzing and aligning policies related to spending and asset management. Presently, Yogi serves as the Director of the Center for Regional and Bilateral Policy at the Fiscal Policy Agency, where she leads a team of 55. Her responsibilities encompass the coordination and implementation of policy analyses and recommendations, particularly in the realms of ASEAN economic and financial cooperation, as well as interregional, bilateral, and trade partnerships. Yogi Rahmayanti's academic achievements are substantial, holding a Doctorate in Public Policy from Osaka University, where her dissertation examined government expenditure efficiency, economic growth, and income inequality. She earned her Master of Public Policy from Hitotsubashi University, focusing on Indonesian tax reform, and a Diploma IV in Accounting from Sekolah Tinggi Akuntansi Negara.



# ORGANIZING TEAM



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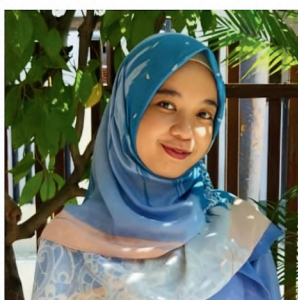
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# NOTES

## Session 1

**Objectives :**

**Key Takeaways :**

## Session 2

**Objectives :**

**Key Takeaways :**

# NOTES

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## Session 3

**Objectives :**

**Key Takeaways :**

## Session 4

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# NOTES

## Session 5

**Objectives :**

**Key Takeaways :**

## Session 6

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## Session 7

**Objectives :**

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## Session 8

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## Session 9

**Objectives :**

**Key Takeaways :**

## Session 10

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## Session 11

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## Session 12

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## Session 13

Objectives :

Key Takeaways :

## Session 14

Objectives :

Key Takeaways :

# NOTES

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## Session 15

**Objectives :**

**Key Takeaways :**



# GLOSSARY

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## ***Financial protection***

Financial protection refers to the security offered by a financial tool, instrument, mechanism or strategy that serves to minimize the negative financial impact(s) of a loss event. For instance, the financial protection offered by DRF instruments mitigates the overall financial risks associated with natural disaster events by offsetting disaster costs with additional funding.

## ***Financial resilience***

Financial resilience refers to the ability and/or capacity of individuals, businesses, and governments to absorb and recover from the financial impacts of natural disaster events. DRF strategies can help build financial resilience by providing financial protection against potential losses from natural disasters.

## ***Financial risks***

In the context of DRF, financial risks refer to the potential negative consequences if insufficient funding is available to cover losses that could occur due to natural disaster events.

## ***Financial solution(s)***

Financial solution(s) refers to the use of a financial tool, instrument, mechanism or strategy that addresses the financial impacts of natural disaster events. In DRF, financial solutions aim to provide financial protection against potential losses, promote financial resilience, and mitigate the overall financial risks associated with natural disasters.

## ***Financial vulnerability***

Financial vulnerability in the context of disaster risk finance (DRF) refers to the potential for financial loss resulting from exposure to natural disaster events.

## ***Fund modelling***

Fund modelling is a type of financial modelling used to estimate and project the PFB's potential assets and liabilities in future. Fund modelling integrates the loss model projections and assesses the adequacy of PFB funds available. This is intended to help PFB develop a DRF strategy that fits within the stated risk appetite and helps achieve its overall goals and strategic objectives. Fund modelling creates additional analysis which can be used to support informed decisions to ensure PFB has sufficient resources to meet their financial obligations, meet all expected cash outflows as they fall due, manage risks effectively, and achieve long-term financial stability.

## ***Investment returns***

Investment returns, also known as returns on investment, refer to the gains or losses generated as a result of holding an investment over a specific period of time. Investment returns are received from a variety of sources including capital gains, interest, dividends, and changes in the value of the investment, and are typically expressed as an annual percentage of the original investment amount.

## ***Liabilities***

Liabilities in the context of DRF refer to financial obligations incurred as a result of a natural disaster event. These obligations may extend across different areas including emergency response costs, infrastructure damage, economic losses, social protection payments, long term recovery costs and other disaster-related costs PFB is obligated to cover.



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### ***Loss modelling***

Loss modelling is the process of estimating potential financial losses or damages resulting from a natural disaster or other catastrophic event. In the context of DRF, loss modelling focuses on the potential financial impacts of natural disasters through a combination of data and analytical tools. The model can consider a variety of factors, such as the likelihood and severity of different types of disasters, the exposure and vulnerability of different types of assets, and the potential damage and loss, as well as the economic and social impact of such events.

### ***Maximum Possible Loss***

The Maximum Probable Loss is a statistical estimate of the largest amount of loss (i.e. worst case scenario) that PFB is likely to incur in the event of either a single catastrophic disaster event or a series of independent disaster events within a given time frame, based on historical data and modelling. The Maximum Probable Loss is used to determine the appropriate level of financial reserves and/or risk transfer mechanisms needed to manage potential losses and maintain the fund's solvency.

### ***Modelling of gaps***

The modelling of gaps refers to the process of conducting analysis to estimate and compare the difference between the liabilities created by natural disaster events, and the amount of funding available to finance these liabilities.

### ***Natural hazard risks***

Natural hazard risks are risks associated with natural disasters such as earthquakes, floods, hurricanes, tornadoes, wildfires, and other similar events. In the context of this document, natural hazard risks refer to the financial risks created by these events and the long-term implications these risks will have for PFB and the Government.

### ***Natural peril risks***

Identical to natural hazard risks: Natural peril risks are risks associated with natural disasters such as earthquakes, floods, hurricanes, tornadoes, wildfires, and other similar events. In the context of this document, natural peril risks refer to the financial risks created by these events and the long-term implications these risks will have for PFB and the Government.

### ***Projection model***

A projection model is a type of statistical or mathematical model that is used to forecast or estimate future trends or outcomes based on historical data and assumptions about future conditions. DRF usually involves using financial projection models to generate possible financial outcomes across various different scenarios which can be useful for planning and decision-making.

### ***Risk appetite***

Risk appetite refers to the amount of risk PFB is willing and able to tolerate in pursuit of its overall goals and strategic objectives. In this context, PFB's risk appetite will be influenced by a variety of factors, such as contribution levels, products, tolerance for losses, time horizon, liquidity needs, and legal and regulatory requirements. A clear and well-defined risk appetite can inform investment decisions, help to monitor risk exposure, and better manage risk over time.

### ***Risk financing***

Risk financing refers to the process of identifying and managing financial risks associated with potential disaster events by matching financial resources with the potential financial impact of those events.



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### ***Risk preference***

Risk preference refers to an organization's inclination towards a certain level and/or type of risk while choosing from various alternatives to attain its overall strategic objectives and goals. PFB's risk preference is reflected in their decision to either retain or transfer risks when evaluating different options to ensure they align with their risk appetite and strategic objectives.

### ***Risk transfer***

Risk transfer is a risk management strategy that involves moving the financial burden of a potential loss from one entity to another in exchange for a fee or premium. In this context, PFB can consider options to transfer financial risks associated with natural disasters and other catastrophic events to other entities that are better able to manage them. This can help to reduce PFB's overall financial risk and improve the efficiency of risk management.

### ***Risk transfer instruments***

Risk transfer instruments (or tools) are financial instruments and mechanisms that can be used to transfer financial risks associated with natural disasters and other catastrophic events. These instruments are designed to provide financing in the event of a disaster and to help mitigate the financial losses that may result.

### ***Scenario analysis***

Scenario analysis in the context of DRF refers to a modelling process that assesses the potential financial impact of various different disaster scenarios by analysing the likelihood of occurrence and severity of potential loss events. This process involves the development of potential disaster loss scenarios based on historical data, modelling and expert opinion. These scenarios are then used to assess the financial impacts of different disaster events, identify vulnerabilities and evaluate the adequacy of existing financial risk management strategies.

### ***Stochastic modelling***

Stochastic modelling is a mathematical approach used for modelling random and uncertain events, incorporating probabilistic techniques, statistical methods, and simulations. Stochastic models can provide quantifiable financial information to help inform decision-makers about the risks associated with different types of disasters and can aid in the development of effective strategies for mitigating these risks. In the context of the loss model proposed for PFB, a stochastic model can be used to estimate the likelihood of different types of natural disasters occurring and to determine the potential financial impact of these disasters on PFB.

### ***Theory of change***

The theory of change is used in strategic planning to map out the cause-and-effect relationships between an intended action and the desired outcomes. It is a process that starts with identifying the ultimate goal(s) and then works backward to identify the necessary interim milestones and steps required to achieve the stated goal(s) to help stakeholders understand the expected outcomes and how they will be achieved.

### ***Value proposition***

The value proposition for disaster risk finance (DRF) describes the benefit or solution that any proposed financial tools, instruments or mechanisms offer when managing the financial impact of natural peril risks. This may include certain benefits such as increased financial protection, increased resilience, cost reduction, greater access to capital, improved liquidity or enhanced risk management.

# Want to be more involved ?

## Financial Protection Forum

The Financial Protection Forum is a global knowledge repository on Disaster Risk Finance (DRF) and one-stop information platform enabling wider distribution of publications, learning materials, and case studies and serving as a virtual convening space for knowledge exchange on DRF.

Explore: [www.financialprotectionforum.org](http://www.financialprotectionforum.org)

Visit the website



## Disaster Risk Financing Community of Practice

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Join our LinkedIn Community to network with Disaster Risk Finance professionals and follow the latest in the field of Disaster Risk Finance.

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