

Principles for Sustainable Insurance Responding to the Climate Change and Biodiversity Loss

February 13, 2025 Masayuki Tanaka FALIA

Agenda

- **1.** Historical Background of Sustainable Development
- 2. Risk related to climate change
- **3. Climate Change Impact**
- **4.** Principles for Sustainable Insurance (PSI)
- **5.** The Joint Crediting Mechanism (JCM)

1. Historical Background of Sustainable Development

United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992



The United Nations Framework Convention on Climate Change (UNFCCC) was signed. After this COP (Conference of the Parties) started its activities.

https://www.un.org/en/conferences/environment/rio1992

Millennium Summit, 6-8 September 2000, New York



8 MDGs (Millennium Development Goals)

- . Eradicate extreme poverty and hunger
- 2. Achieve universal primary education
- 3. Promote gender equality and empower women
- 4. Reduce child mortality
- 5. Improve maternal health
- 6. Combat HIV/AIDS, malaria and other diseases
- 7. Ensure environmental sustainability
- 8. Develop a global partnership for development

https://www.un.org/en/conferences/environment/newyork2000

United Nations Conference on Sustainable Development, 20-22 June 2012, Rio de Janeiro (Rio+20)



https://www.un.org/en/conferences/environment/rio2012

United Nations Summit on Sustainable Development, 25-27 September 2015, New York



Declaration of SDGs

https://www.un.org/en/conferences/environment/newyork2015

Sustainable Development Goals (SDG)

SUSTAINABLE GEALS

https://www.un.org/sustainabledevelopment/news/communications-material/

The Paris Agreement, adopted at COP21 in 2015

The Agreement sets goal to guide all nations to reduce GHG emissions and limit the global temperature increase in this century to 2 °C above pre-industrial levels.

https://www.un.org/en/climatechange/paris-agreement

D1.

climate finance to

developing countries

Limit temperature rise to 1.5C

Paris Agreement 29 Articles

Article 6	<u>Voluntary Corporation to</u> <u>Implement NDCs</u> Carbon Trading including JCM	International transfer of mitigation outcomes (ITMOs) Sustainable Development Mechanism or SDM
Article 14	Global Stocktaking	
Article 13	Transparency framework	
Article 11	Capacity development	
Article _ 10	Technology transfer	
Article 9	Finance	
Article 8	Losses and Damages	
Article 7	Adaptation	
Article 4	Mitigation	
Article 2	Objectives	
Structure of the Paris Agreement		

https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf#:~:text=Parties%20recognize%20that%20some%20Parties%20choose

Nationally Determined Commitment (NDC)?

NDCs, are national climate action plans by each country under the Paris Agreement. A country's NDC outlines how it plans to reduce greenhouse gas emissions to help meet the global goal of limiting temperature rise to 1.5C and adapt to the impacts of climate change.

https://www.un.org/en/climatechange/all-about-ndcs

NDC of Cambodia

https://ncsd.moe.gov.kh/search/node?keys=NDC&page=0

NDC of Cambodia

The estimated emission reductions of the NDC scenario are shown below.

Overall GHG emissions reduction (including the FOLU)

https://unfccc.int/sites/default/files/NDC/2022-06/20201231_NDC_Update_Cambodia.pdf

NDC breakdown by sector

Summary over BAU emissions and NDC emissions reduction

Sector	BAU 2016 emissions	BAU 2030 emissions	NDC 2030 Scenario	NDC 2030 reduction	NDC 2030 emission
	(MtCO ₂ e)	(MtCO ₂ e)	(MtCO ₂ e)	(MtCO ₂ e)	reduction %
FOLU	76.3	76.3	38.2	-38.1	-50%
Energy	15.1	34.4	20.7	-13.7	-40%
Agriculture	21.2	27.1	20.9	-6.2	-23%
Industry (IPPU)	9.9	13.9	8.0	-5.9	-42%
Waste	2.7	3.3	2.7	-0.6	-18%
Total	125.2	155.0	90.5	-64.5	-42%

Trends of GHG emissions by Sector in Cambodia 1994-2022

(Source) Cambodia's Initial Biennial Transparency Report under Paris Agreement (BTR1) P4

2. Risk related to Climate Change

The Great Acceleration

<u>https://www.bpb.de/system/files/dokument_pdf/Steffen2015Thetraje</u> <u>ctoryoftheAnthropoceneTheGreatAcceleration.pdf</u>

Earth system trends

Socio-economic trends

(Source) Will Steffen et al (2015) The trajectory of the Anthropocene: The Great Acceleration

Global fossil CO2 emissions (1960-2023)

https://essd.copernicus.org/articles/15/5301/2023/ https://s

https://globalcarbonbudget.org/

Global land temperature

https://www.nature.com/articles/s43247-024-01371-1/figures/3

Global Sea Surface temperature

Climate Change Service

Data: ERA5 1979-2024 • Credit: C35/ECMWF

DAILY SEA SURFACE TEMPERATURE 60°S-60°N

Global Sea Level Rise

https://marine.copernicus.eu/access-data/ocean-monitoring-indicators/global-ocean-mean-sea-level-trend-map-observations

What is IPCC?

ipcc

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About the IPCC

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

OVERVIEW_ HISTORY STRUCTURE PREPARING REPORTS GENDER AD-HOC AND TASK GROUPS FUTURE WORK SCHOLARSHIP ENGAGE CONTACT

https://www.ipcc.ch/

IPCC 6th Assessment Report (AR6)

Risks are increasing with every increment of warming

a) High risks are now assessed to occur at lower global warming levels

IPCC 6th Assessment Report (AR6)

c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term

https://report.ipcc.ch/ar6syr/pdf/IPCC AR6 SYR SPM.pdf

AR6 Assumptions

Scenarios and warming levels structure our understanding across the cause-effect chain from emissions to climate change and risks

a) AR6 integrated assessment framework on future climate, impacts and mitigation

(Reference) IPCC AR6

AR6 Assumptions

SSP-RCP scenarios used in IPCC-AR6

(Reference) IPCC AR6

What is SSP (Shared Socioeconomic Pathways)?

SSP1: Sustainability (Taking the Green Road)

This pathway envisions a world making a gradual shift towards sustainability, with a focus on inclusive development and respect for environmental boundaries. Investments in education and health accelerate demographic transitions, and economic growth emphasizes human well-being over material consumption.

SSP2: Middle of the Road

This scenario assumes that current social, economic, and technological trends continue without significant deviations. It represents a world where development and environmental challenges are managed in a balanced way, without major shifts towards sustainability or fossil-fuel dependency.

SSP3: Regional Rivalry (A Rocky Road)

In this pathway, the world becomes more fragmented, with countries focusing on their own interests. This leads to slower economic growth, less international cooperation, and significant challenges in both mitigation and adaptation to climate change. (Reference) IPCC AR6

What is SSP (Shared Socioeconomic Pathways)?

SSP4: Inequality (A Road Divided)

This scenario highlights a world with high levels of inequality both within and between countries. A small, wealthy elite drives technological advancements, while large segments of the population face limited access to resources and opportunities.

SSP5: Fossil-fueled Development (Taking the Highway)

This pathway envisions rapid economic growth driven by intensive use of fossil fuels. Technological advancements and high energy consumption lead to significant greenhouse gas emissions, posing high challenges for climate mitigation.

What is RCP (Representative Concentration Pathway)?

RCP2.6: In this scenario, radiative forcing peaks in the mid-21st century and then declines to 2.6 Watt/m2 (Radiant flux leaving (emitted, reflected and transmitted by) a surface per unit area) by the end of the 21st century. This means that greenhouse gas emissions will decline rapidly and atmospheric carbon dioxide concentrations will stabilize. In this scenario, the impacts of climate change can be minimized, but this requires strong mitigation measures and negative emissions technologies.

RCP4.5: In this scenario, radiative forcing stabilizes at 4.5 W/m2 by the end of the 21st century. This means that greenhouse gas emissions will peak in the mid-21st century and then gradually decline. In this scenario, the effects of climate change can be limited to some extent, but this requires moderate emissions reduction measures and improvements in energy efficiency.

RCP (Radiation Concentration Pathway)

RCP6.0: In this scenario, radiative forcing stabilizes at 6.0 W/m2 by the end of the 21st century.

This means that greenhouse gas emissions will peak in the second half of the 21st century and then decline slightly. In this scenario, the impacts of climate change would be significant, but they would require lower-level emissions mitigation and energy transitions.

RCP8.5: In this scenario, radiative forcing will reach 8.5 W/m2 by the end of the 21st century. This means that greenhouse gas emissions will continue to increase throughout the 21st century. In this scenario, the impacts of climate change will be very severe, but it assumes that few mitigation or adaptation measures will be taken.

Estimation of Temperature in Cambodia

FIGURE 6. Historic and projected average annual temperature in Cambodia under RCP2.6 (blue) and RCP8.5 (red) estimated by the model ensemble. Shading represents the standard deviation of the model ensemble.²⁷

Estimation of hot days (35°C>) in Cambodia

FIGURE 11. Increase in the annual average number of hot days (>35°C) in Cambodia under two emissions pathways. RCP2.6 (blue) and RCP8.5 (red).⁶³

https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15849-WB_Cambodia%20Country%20Profile-WEB.pdf

Planetary Boundaries

<u>https://www.weforum.org/videos/how-16-tipping-points-</u> <u>could-push-our-entire-planet-into-crisis/</u>

https://www.stockholmresilience.org/research/planetary-boundaries.html

Transition of Planetary Boundaries

2009 NOVEL ENTITIES CLIMATE CHANGE (Not yet quant (fies)) STRATOSPHERIC OZONE BIOSPHERE DEPLETION INTEGRITY ATMOSPHERIC AEROSOL LAND-SYSTEM LOADING CHANGE (Not yet quant/fied) OCEAN ACIDIFICATION FRESHWATER USE Ň P BIOGEOCHEMICAL 7 boundaries assessed,

3 crossed

9 boundaries assessed, 6 crossed

https://www.stockholmresilience.org/research/planetary-boundaries.html

Global Warming Vulnerable Tipping Points

Committed global warming (>2°C) commits most, most likely past tipping Thawing permafrost is emitting CO2, methane & nitrous oxide Cryosphere Entities
Circulation Patterns
Biosphere Components

Oceans: Heating, Acidification & Deoxygenation

Adapted from Potsdam Climate Institute Tipping Elements the Achilles Heels of the Earth System

https://www.pik-potsdam.de/en/output/infodesk/tipping-elements

The Atlantic Meridional Overturning Circulation (AMOC)

Mechanism: The AMOC is driven by differences in water temperature and salinity, which affect water density. Warm, salty water flows northward near the surface, cools, and sinks in the North Atlantic, then flows back southward at deeper levels

https://climate.metoffice.cloud/amoc.html
The Atlantic Meridional Overturning Circulation (AMOC)

Current Status: Recent studies suggest that the AMOC is at risk of collapsing if current greenhouse gas emissions continue. This collapse could occur between 2025 and 2095, with a high probability around 2057.

Potential Impacts: A collapse of the AMOC could lead to severe climate disruptions, including:

Cooling in Europe: Despite global warming, Europe could experience significant cooling due to the disruption of heat distribution.

Warming in the Tropics: Increased temperatures in tropical regions, exacerbating already challenging living conditions.

Sea Level Rise: Particularly along the East Coast of the United States, due to changes in ocean currents and thermal expansion.

Extreme Weather: More intense storms and altered precipitation patterns globally.

Global Carbon Sink 2023



https://essd.copernicus.org/articles/15/5301/2023/ https://globalcarbonbudget.org/

Global Carbon Budget 2023



https://globalcarbonbudget.org/

Global CO2 emissions must reach 0 to limit global warming



https://globalcarbonbudget.org/

3. Climate Change Impact

Average annual weather-related displacements, 2010–2020



(Reference) IPCC AR6 WGII Chapter 7

Natural disaster in Cambodia 1990-2020

Key Natural Hazard Statistics for 1980-2020



Number of People Affected

(Source) Cambodia's Initial Biennial Transparency Report under Paris Agreement (BTR1) P4

Saltwater intrusion and human health risks for coastal populations



3

≥1 km saltwater intrusion in 2050 under RCP4.5

in ≥

≥1 km saltwater intrusion in 2050 under RCP8.5



Coastal areas with >50% reliance on groundwater https://www.researchgate.net/publication/382146190 Saltwater intrusion and human health risks for coas tal_populations_under_2050_climate_scenarios

(Source) Mueller et al., 2024, Saltwater intrusion and human health risks for coastal populations under 2050 climate scenarios

Impact of Sea Level Rise

Drinking Water Supply: Contaminated groundwater affects the availability of potable water.

Agriculture: High salinity levels in irrigation water can harm crops and reduce agricultural productivity.

Ecosystem Disruption: Saline groundwater can affect the health of ecosystems, especially in wetlands and lakes.

Climate Change impact on Human Health



(Reference) https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

Climate Change impact on Food Security (Agriculture Loss)



(Reference) https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2017/mtg3/5_4_Assessing_Damage.pdf

Climate Change impact on Dengue

IMPACTS OF CLIMATE CHANGE ON DENGUE



(Reference) WHO

Dengue fever at a glance

WHAT IS DENGUE?

It is a viral infection transmitted by the bite of an infected female *Aedes* mosquito (WHO, 2012)



Dengue Virus (DENV) Has 4 serotypes



(Reference) WHO

Dengue fever at a glance



(Reference) Merinda and Bill Gates Foundation

Projected change in the abundance of Aedes aegypti

<-200 -100 100 >200 (a) RCP2.6

(Reference) IPCC AR6 WGII Chapter 7

Potential abundance change (2090–2099) - (1987–2016)

Projected change in the abundance of Aedes aegypti

<-200 -100 100 >200 (b) RCP8.5

(Reference) IPCC AR6 WGII Chapter 7

Potential abundance change (2090-2099) - (1987-2016)

4. Principles for Sustainable Insurance (PSI)

Principles for Sustainable Insurance (PSI)



Launched at the 2012 UN Conference on Sustainable Development, the UNEP FI Principles for Sustainable Insurance (PSI) serve as a global framework for the insurance industry to address environmental, social and governance risks and opportunities. The PSI initiative is the largest collaborative initiative between the UN and the insurance industry.

What is Sustainable Insurance?

Sustainable insurance is a strategic approach where all activities in the insurance value chain, including interactions with stakeholders, are done in a responsible and forward-looking way by identifying, assessing, managing and monitoring risks and opportunities associated with environmental, social and governance issues.

Sustainable insurance aims to reduce risk, develop innovative solutions, improve business performance, and contribute to environmental, social and economic sustainability.

PSI's 4 Principles



Ban Ki-moon Secretary-General of the United Nations_

Principle 1 - We will embed in our decision-making environmental, social and governance issues relevant to our insurance business.

Principle 2 - We will work together with our clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.

Principle 3 - We will work together with governments, regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues.

Principle 4 - We will demonstrate accountability and transparency in regularly disclosing publicly our progress in implementing the Principles.

Sustainability Reporting will become popular as Financial Disclosure



https://www.fsb-tcfd.org/

https://tnfd.global/wp-content/uploads/2023/08/Recommendations_of_the_Taskforce_on_Nature-related_Financial_Disclosures_September_2023.pdf?v=1695118661

PSI Participants (As of February 11th 2025)

Latest Signatory Stats:

175 Signatories

114 Supporting Institutions



ROYAUME DU MAROC





https://www.unepfi.org/insurance/insurance/signatory-companies/



Asia Pacific

Association of Insurers and Reinsurers of Developing Countries, Philippines Australian Prudential Regulation Authority, Australia Friends of the Earth (HK), China Financial Services Council of New Zealand, New Zealand Foundation for Advancement of Life and Insurance Around the World (FALIA), Japan General Insurance Council of India, India Hong Kong Federation of Insurers, China Insurance Commission of the Philippines, Philippines Insurance Council of Australia, Australia Insurance Council of New Zealand, New Zealand Insurance Institute for Asia & the Pacific, Philippines Insurance Institute of India, India Korea Deposit Insurance Corporation, Republic of Korea Philippine Insurers & Reinsurers Association, Philippines Philippine Life Insurance Association, Philippines Thaipat Institute, Thailand Tobacco Free Portfolios, Australia University of Technology, Sydney (UTS) Business School, Australia

The insurance industry and sustainable development: A UN system-wide agenda

(A)

environment



Principles for Sustainable Insurance



Affairs

International **UN** DESA Labour Organization UN Dept. of **Economic & Social**



World Health Organization



UN Human Settlements Programme



UN Office for Disaster Risk Reduction



UN Conference on Trade & Development

24



World Food Programme



UN Educational. Scientific & Cultural Organization

WMO World

Meteorological

Organization











Office of the UN High Commissioner for Human Rights



UN Development

Organization

PSI market events: Shaping the global sustainable insurance agenda V

PSI Principles for Sustainable Insurance







The UK



Switzerland



Germany



Costa Rica



Colombia



Brazil



Morocco



South Africa



The Philippines



Australia

https://www.youtube.com/watch?v=HCDXw2sTz0U

Health is Our Greatest Wealth: How life & health insurers can drive better health outcomes and address the protection gap

The global health crisis has highlighted the importance of population access to healthcare and the need for individuals to take...

The Four-Point Plan for Life & Health Insurers

to drive better health outcomes and address the protection gap

Strategy 1	Strategy 2	Strategy 3	Strategy 4
	\bigotimes	I	
Offering insurance products that are suitable, affordable and accessible	Engaging with policyholders and other stakeholders to promote preventative healthcare	Leveraging technology and ethical use of data to expand access to insurance and support prevention measures	Collaborating with healthcare providers, policymakers and local communities

https://www.unepfi.org/category/publications/?ca%5B%5D=5

Appendix: Summary of case studies by theme

Theme	Insurer	Case Study Name	Summary	Impact	Region	Partnership
Theme 1: Health capability and awareness	Swiss Re	Partnership with Women's World banking to provide microinsurance to women in Egypt	Provide microinsur- ance to women in Egypt	397,700 customers and their family members benefitted from insurance cover by the end of 2021	Egypt	World Bank
	Babyl (digital plat- form), AXA	Delivering affordable healthcare services through telehealth	Telehealth use in rural and remote areas		East Africa/ Global	National health scheme
	AXA	Inclusive insurance	Emerging market customers' coverage	By 2022, AXA had covered over 10 million emerging market customers across the globe.	Global	Multiple
	AXA XL, Chubb, Liberty Specialty Markets, Sovereign Risk Insurance, Swiss Re Corporate Solutions, and Tokio Marine HCC	COVAX—partnering for access to vaccines	Supporting the bulk purchase of vaccines to lower the cost	Increased vaccination rates in developing countries	Global	Marsh, multi- ple public and private sector participants

5. The Joint Crediting Mechanism (JCM)

Concept of JCM Project



*measurement, reporting and verification

(Source) <u>https://www.jcm.go.jp/kh-jp/about</u>

Cambodia and Japan signed a bilateral document



Mongolia	Bangladesh	(@) Ethiopia	Kenya	C Maldives	★ Vietnam
Lao PDR	Indonesia	⊖ Costa Rica	Palau	Cambodia	کی Mexico
Saudi Arabia	* Chile	X Myanmar	Thailand	Philippines	* Senegal
Tunisia	C• Azerbaijan	Moldova	+ + + + Georgia	Sri Lanka	C.::: Uzbekistan
Papua New Guinea	United Arab Emirates	O Kyrgyz	Kazakhstan	Ukraine	

(Source) <u>https://www.jcm.go.jp/kh-jp/about</u>

IGES JCM Database - Project Data

Title	Participant (Host Country)	Participant (Japan)	Project Type	Technology used	Starting date	Avg. Annual (tCO2e/y)	Total
Introduction of Ultra- lightweight Solar Panels for Power Generation at International School	International School of Phnom Penh (ISPP)	Asian Gateway Corp.	Renewable energy	Solar photovoltai c (PV) system, -	2016/10/1	99	1,496
Introduction of High Efficiency LED Lighting Utilizing Wireless Network	 (1) (OCIC); (2) (APSARA Authority); (3) Siem Reap Provincial Hall 	MinebeaMitsu mi Inc.	Energy efficiency	LED Street Lighting with Dimming System	2018/1/1	508	5,589
Energy Saving by Inverters for Distribution Pumps in Water Treatment Plant	Phnom Penh Water Supply Authority (PPWSA)	METAWATE R Co., Ltd.	Energy efficiency	Inverter	2018/6/30	413	5,378
Prey Lang Wildlife Sanctuary - Stung Treng REDD+ project	Ministry of Environment, Cambodia	Mitsui & Co., Ltd.	REDD+	-	2018/3/12	345,770	4,149,242

"JCM Global Match" JCM Business Matching Platform - Free of charge -



(Source) <u>https://www.iges.or.jp/jp/pub/iges-joint-crediting-mechanism-jcm-database/en</u>

JCM Partner Network



https://gec.jp/jcm/jp/publication/JCM2024Sep_Web_En.pdf

This is the end of the presentation.

Thank you for listening to my presentation.



FALIA

The Foundation for the Advancementof Life & Insurance Around the world(Public Interest Incorporated Foundation)公益財団法人国際保険振興会

Mission

FALIA aims for enlightenment and dissemination of sound insurance philosophy through education, guidance and support. It aims to widely contribute to sound development of insurance business around the world.

Vision

Be a Platform to encourage connections between people

FALIA will develop a human network of horizontal collaboration among insurance supervisors, companies and students globally through group training seminars and essay competitions.

1. Invitational Seminars in Japan



Breakdown of Participants in the Seminars held in Japan

Total 4,283 persons as of March 2024

China	286	Philippines	362
Hong Kong	46	Singapore	63
Taiwan	730	Sri Lanka	319
India	65	Thailand	474
Indonesia	447	Turkey	81
Korea	843	Uzbekistan	159
Malaysia	205	Vietnam	49
Mongolia	40	Others (*)	114
2. Overseas Seminars

Year	Location	Topics
2010	Taipei, Taiwan	CS Promotion Strategy at a Life Insurance Company
	Manila, Philippines	Risk Management at a Life Insurance Company
	Seoul, Korea	Total Life Planning Strategy and Sales Promotion
	Bangkok, Thailand	Risk Management at a Life Insurance Company
2011	Colombo, Sri Lanka	Product Development and Control of Pricing Risk
	Tashkent, Uzbekistan	Life Insurance Product Development Strategy
2012	Jakarta, Indonesia	Product Development and Control of Pricing Risk
	Ulaanbaatar, Mongolia	Product Development Strategy of Life Insurance
2013	Kuala Lumpur, Malaysia	Risk Management at a Life Insurance Company
2014	Manila, Philippines	Risk Management at a Life Insurance Company
	Jakarta, Indonesia	Overview of Life Insurance Industry in Japan
		Risk Management at a Life Insurance Company
2015	Taipei, Taiwan	Product Development and Control of Underwriting Risk
2016	Colombo, Sri Lanka	Product Development and Control of Pricing Risk
	Kuala Lumpur, Malaysia	Product Development Strategy in responding to Changes in Social Environment
		Internet Life Insurance in Japan-Current Situation and Challenge
2018	Bangkok, Thailand	Product Development Strategy under Lowering Interest Rate and Aging
		IT Utilization "The Digital"
	Tashkent, Uzbekistan	Risk Management in Life Insurance Companies
2023	Kathmandu, Nepal	Challenges of Life Insurance Industry in a Rapidly Changing Business Environment
		Challenges of Life Insurance Industry in Japan and Suggestions for Life Insurance Industry in Nepal
		Sustainability Management of Life Insurance Company

FALIA holds essay competitions annually since 2014, aiming to increase the awareness of life insurance among international students currently studying in Japan.







East Asia Insurance Congress (EAIC)



Welcome to EAIC

The EAIC was founded in 1962 with the aim of furthering and developing international collaboration in the field of insurance of every sort.



https://eaic2024.hk





EAIC Hong Kong 2024







