CENTER FOR EXCELLENCE IN DISASTER MANAGEMENT
AND
HUMANITARIAN ASSISTANCE

Setting the Scene: USINDOPACOM and Climate Security

2022 APRU Multi-Hazards Summer Lecture Series

5 August 2022

Who We Are: Command Relationships

CFE-DM

Mission

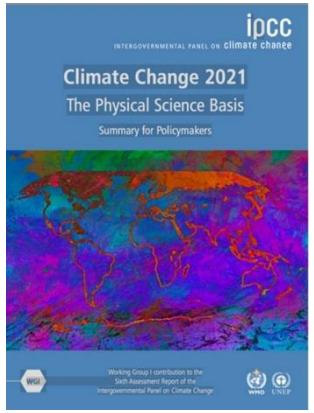
CFE-DM builds crisis response capacity, enhances coordination and collaboration, and strengthens relationships to save lives and alleviate human suffering before, during, and after humanitarian crises.

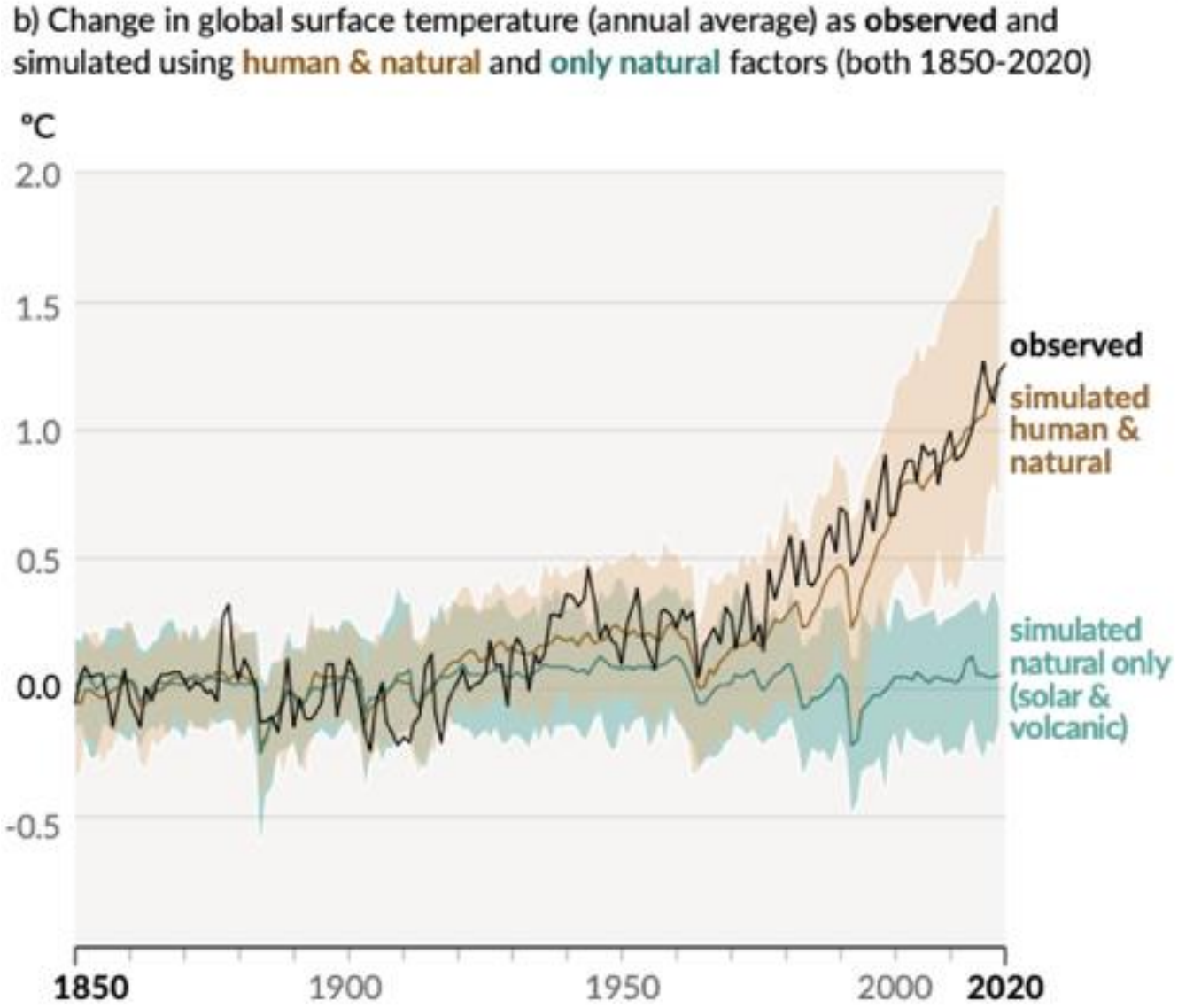
Vision

The Joint Force, allies, and partners are fully prepared to conduct and support foreign humanitarian assistance.

FACT: Climate is Changing

- **Empirical Evidence**
  - Recorded temperatures
  - Rising sea levels
  - Declining Arctic sea ice
  - Extreme weather events
  - Increasing ocean acidity
- **Theoretical Support**
  - Greenhouse effect
    - Rising CO_2 & other GHGs
    - Correlated with rising temperatures





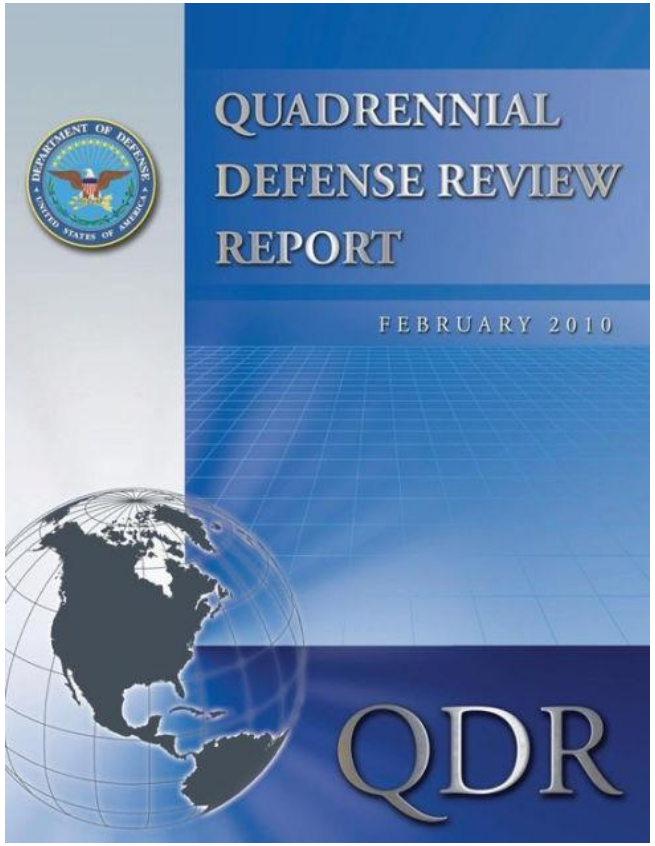
Source: IPCC 2021 Summary for Policy Makers, p. 7.

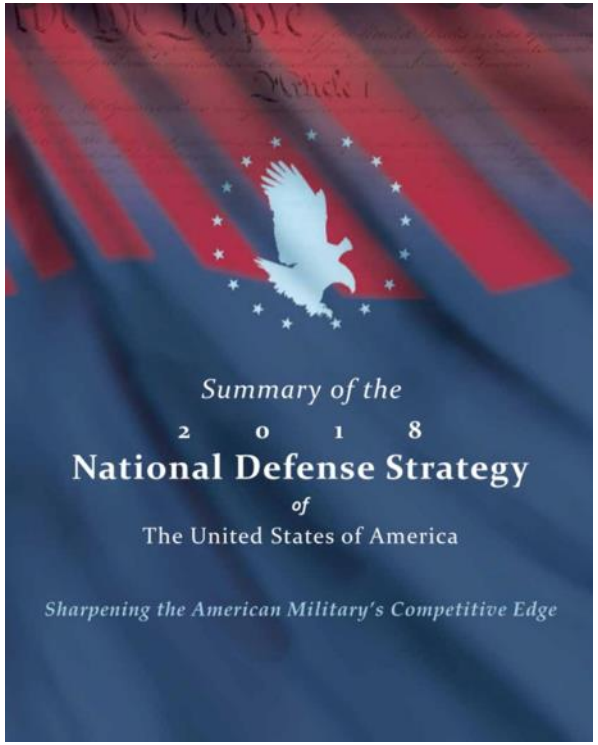
Evolving DoD Response to Climate Change

Secretary of Defense William S. Cohen (left) and Deputy Under Secretary of Defense (Environmental Security) Sherri W. Goodman (right).

2001: "U.S. Department of Defense: Climate Change, Energy Efficiency, and Ozone Protection"

2010: QDR: Climate Change a "Threat Multiplier"





2018: National Security Strategy: No mention of climate change

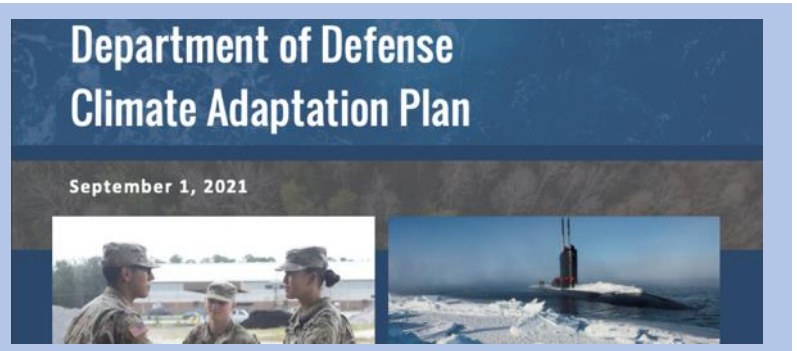
Key U.S. Climate Security Policy Documents

EXECUTIVE ORDER 14008, TACKLING THE CLIMATE CRISIS AT HOME AND ABROAD (January 27, 2021)

- Put the climate crisis at the center of the country's foreign policy and national security.
- Elevated climate change across the federal government.
- Declared immediate actions to confront climate change

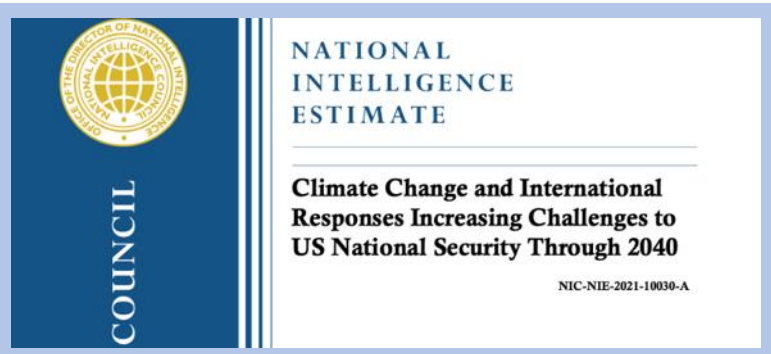
FACT SHEET: PRIORITIZING CLIMATE IN FOREIGN POLICY AND NATIONAL SECURITY (October 21, 2021)

- Suite of analyses fulfilling EO 14008
- Analyses will be a foundation for work on climate and security
- Analyses released included reports from the DOD and ODNI



- Climate-informed decision making;
- Train and equip a climate-ready force;
- Resilient built and natural infrastructure;
- Supply chain resilience and innovation;
- Enhance resilience through collaboration.

- Strategic risks of climate change.
- Security implications of climate to missions.
- Integrating climate change considerations at every level of the DoD enterprise.



Areas of risk to national security:

- Tension over who should be doing more, how quickly, and energy transition competition;
- Cross-border flashpoints from the physical effects of climate change; and
- Climate effects straining stability.

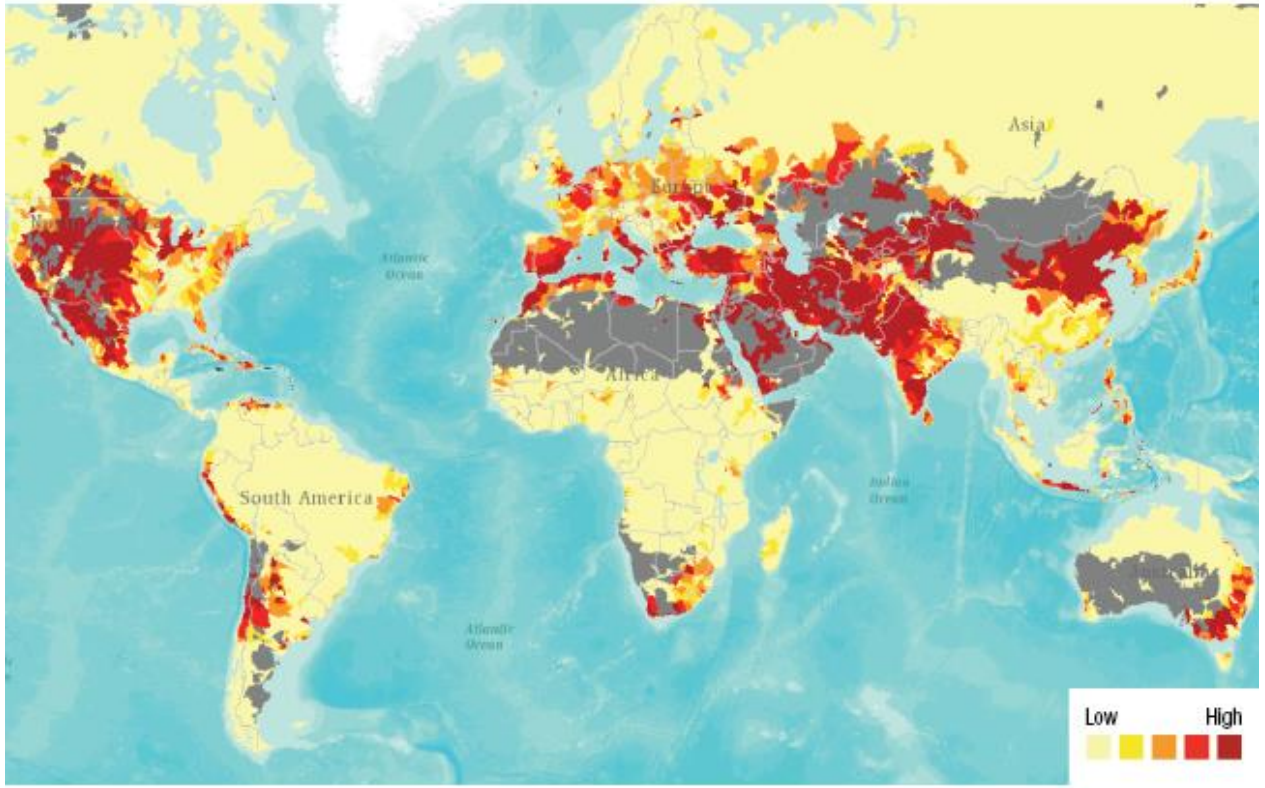
Climate Change and Climate Security

Climate Facts	Climate Impacts	Human Security Impacts	State Security Impacts	Military Impacts
• Sea and air temperature rise • GHG increases • Sea level rise • Ocean acidification • Glacier/Ice cap melting	• Coastal sea levels • Tropical cyclones • More flooding • More droughts • Riverine erosion • Desertification	• Freshwater access • Food production • Infrastructure destruction • Disease outbreak • Migration • Fisheries	• Increasing need for HADR • Conflict over resources • Increased stress on fragile governments • Existential threat for coastal cities and nations	• More HADR Responses • Reduced training time / locations • Facility and equipment loss • Damage to operating locations

- **The Security Sector must manage emerging security impacts of climate change**
- **We must improve regional mil – mil and civ-mil cooperation to meet the threat**

Climate Change and Freshwater Access

Projected Water Stress in 2030



Business as usual scenario
aqueduct.wri.org

AQUEDUCT WORLD RESOURCES INSTITUTE

Link

Image: Indranil Mukherjee
Source: New Scientist (18 May 2016)

Lake Oroville, California July 22, 2021
Source: KSAT.com. Aug 20, 2021.

Climate Change and Food Insecurity

Image: Asian Development Bank
Source: O. Nyamol. 2021. "Climate change threatens food security of 65 nations," Scidev.net (Jul 30)

Image: Susan Montoya Bryan/ Associated Press
Source: H. Fountain. 2021. " Severe Drought, Worsened by Climate Change, Ravages the American West," NYT (Sep 24).

Image: Rajesh Kumar Singh/Associated Press
Source: C. Flavelle. 2019. "Climate Change Threatens the World's Food Supply, United Nations Warns," NYT (August 8.)

Climate Change and Migration

Source: UNCCD Knowledge Hub

Image: Dmitry Malov/Alamy
Source: The Guardian. 2020. " Climate refugees can't be returned home, says landmark UN human rights ruling" (20 Jan)

Image: Mahmud Hossain/AP Photo
Source: Aljazeera. 2022. "The Bangladesh town offering new life to climate migrants" (30 March).

Climate Change Impacts Scorecard

Climate Impact Trends

Climate Impact Trends	Southeast Asia	Pacific Islands	South Asia	East Asia
Heat Extremes	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Mean Air Temperature	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Relative Sea Level	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Coastal Floods	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Ocean Acidity	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Marine Heatwaves	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Cyclones	MEDIUM CONFIDENCE	MEDIUM CONFIDENCE	LOW CONFIDENCE IN DIRECTION OF CHANGE	MEDIUM CONFIDENCE
Heavy Precipitation	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE	HIGH CONFIDENCE
Mean Precipitation	MEDIUM CONFIDENCE	MEDIUM CONFIDENCE	MEDIUM CONFIDENCE	MEDIUM CONFIDENCE

Climate Impact Outcomes

Increased disaster and hazard events

- Increased frequency and intensity of **climate hazards, disasters and extreme weather events pose a threat to life, livelihoods, food production, freshwater resources, property, infrastructure and services.**

Food and water scarcity

- Impacts on and disruption to food production, yields, and systems will **decrease food security**
- Strain on freshwater resources from decrease in **water supply and quality**

Migration and displacement

- **Migration and displacement** from shifting populations seeking labor opportunities, shelter, food, water and safety.

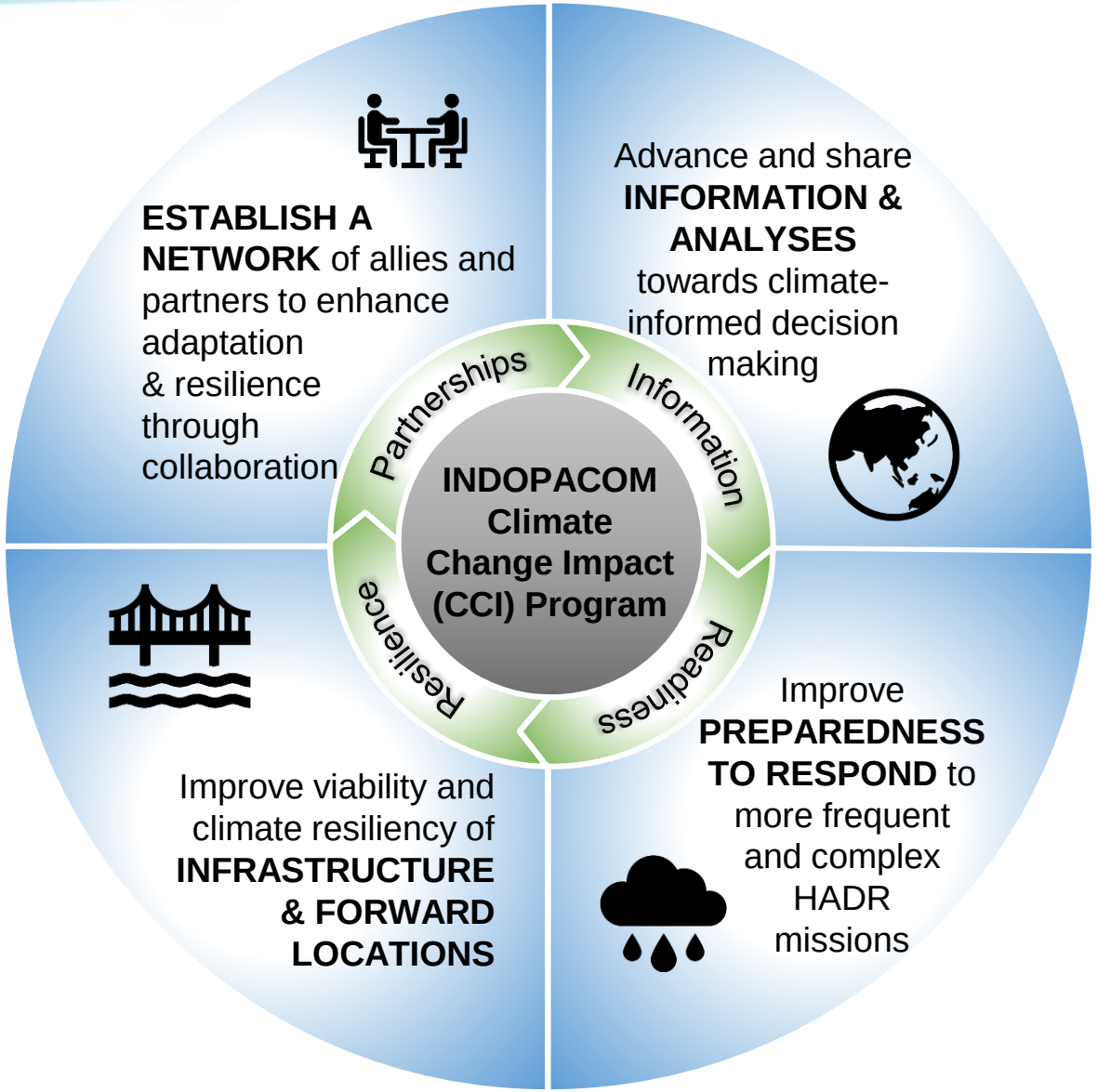
Infrastructure, facilities, and services

- Damage and disruptions to **infrastructure, facilities, services**, transportation, communications, and human settlements.

Outbreak of pests and diseases

- Impacts on **human health** include increased risk of outbreaks of diseases, malnutrition, and direct mortality from climate-related hazards.

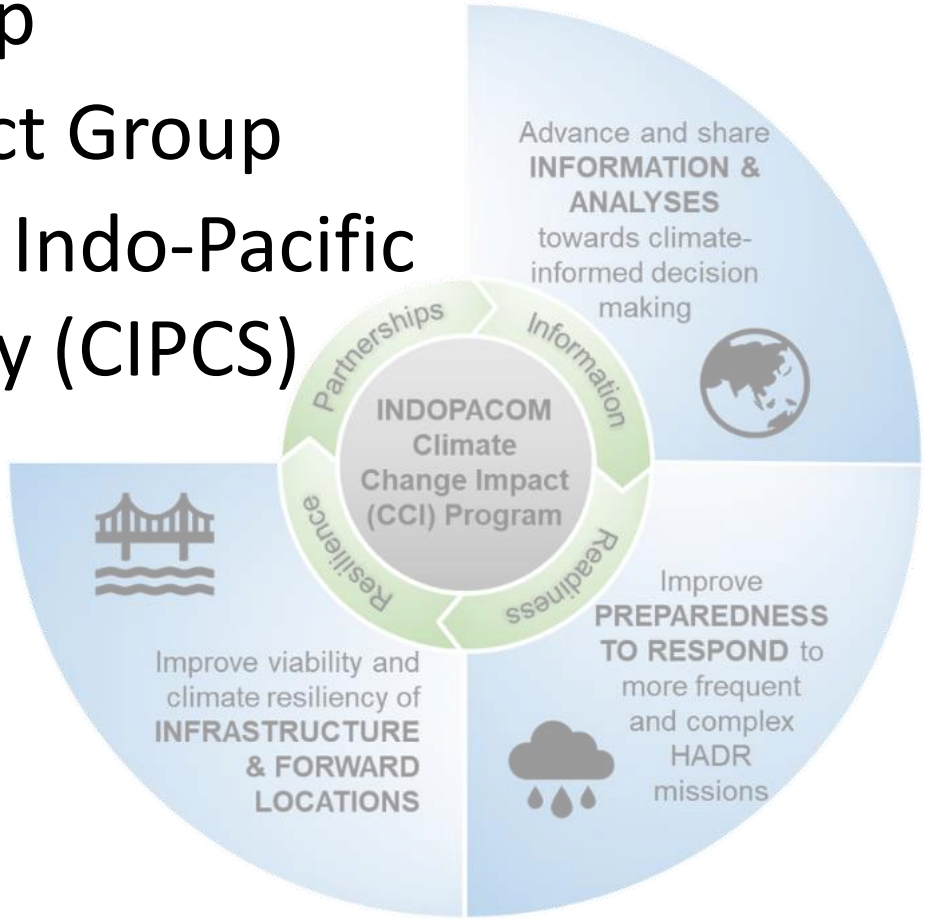
INDOPACOM Climate Change Impact (CCI) Program



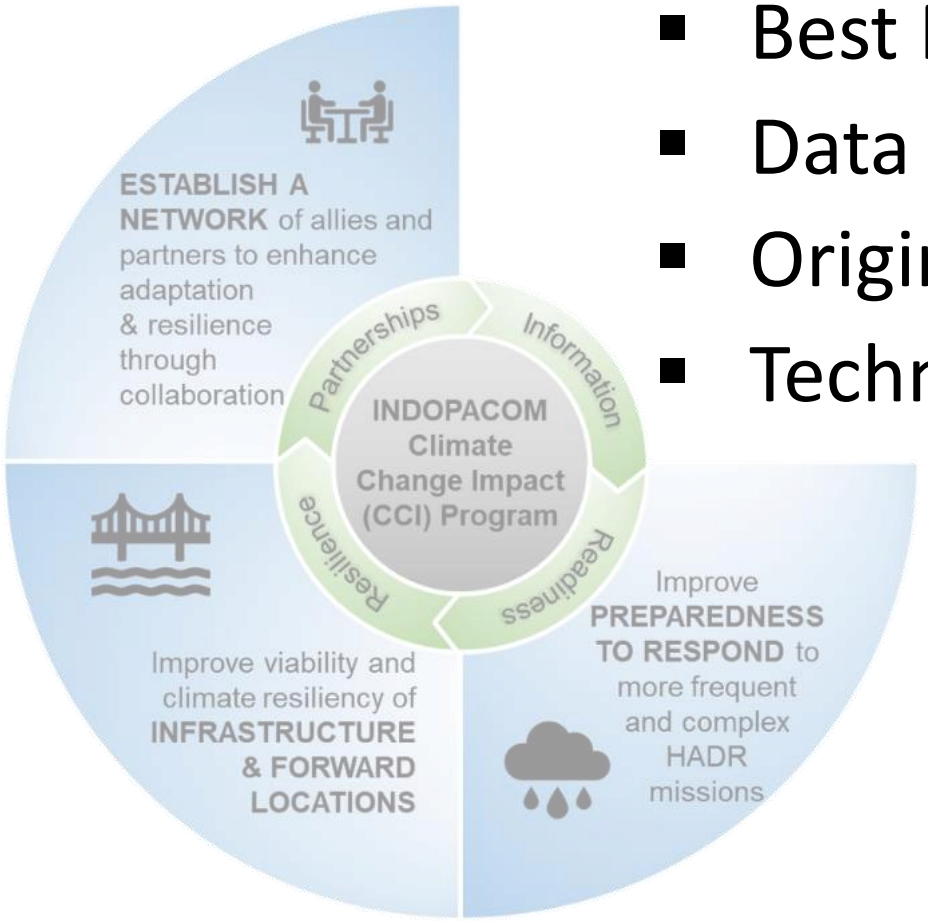
INDOPACOM Climate Change Impact (CCI) Program

ESTABLISH A NETWORK

- CCI Focus Group
- Military Connect Group
- Community for Indo-Pacific Climate Security (CIPCS)

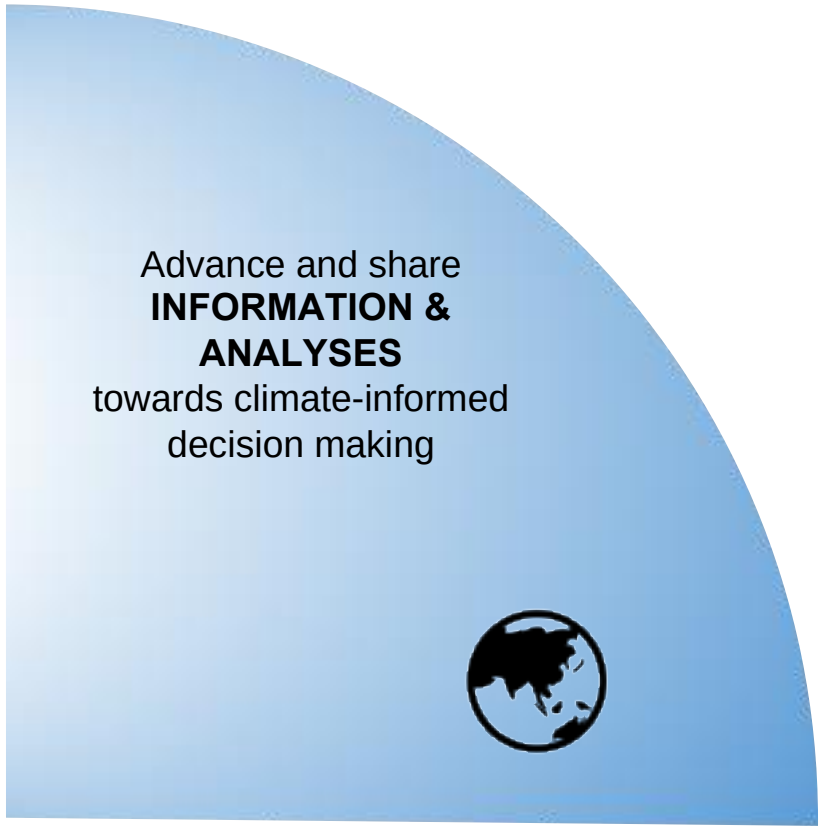


INDOPACOM Climate Change Impact (CCI) Program



INFORMATION & ANALYSIS

- Best Practices
- Data Repository
- Original Research
- Technology Insertion



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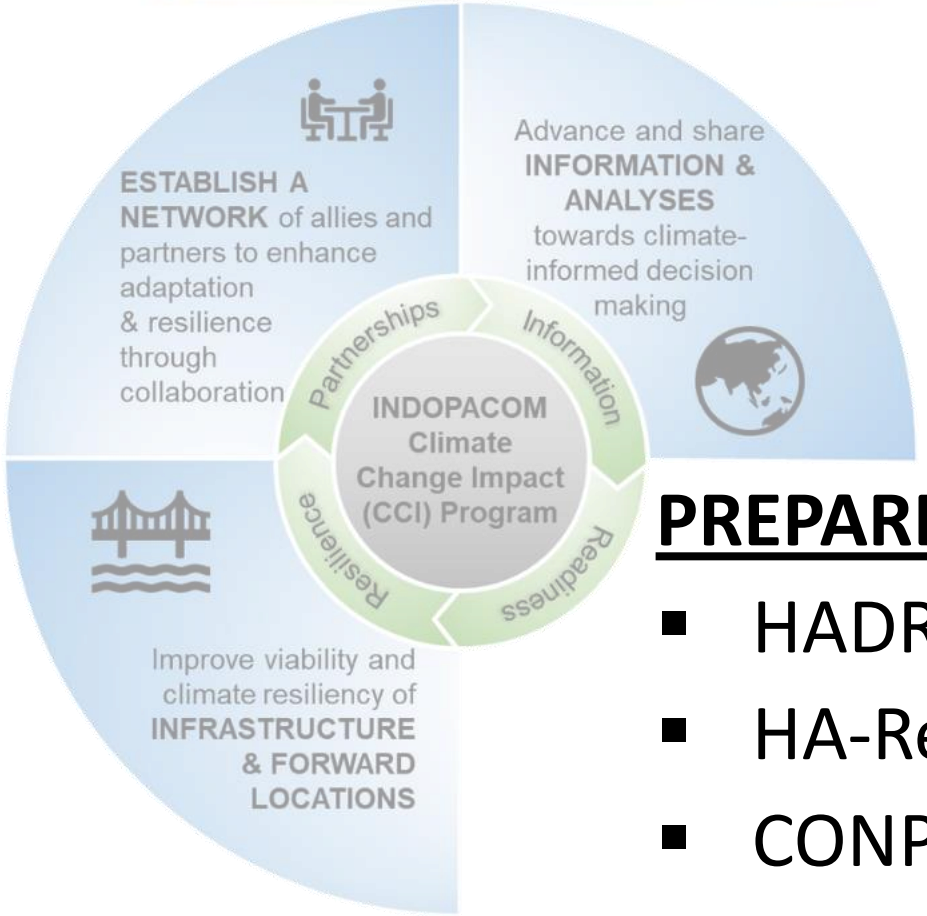
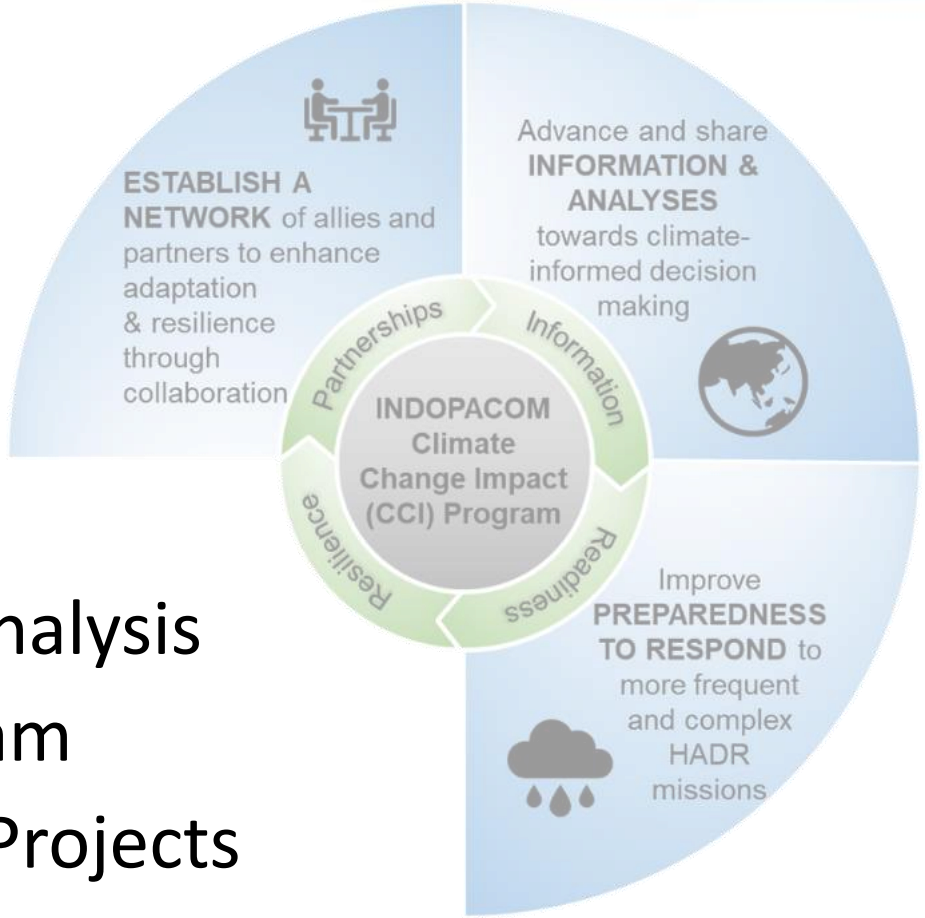


PREPAREDNESS TO RESPOND

- HADR Training (HART, JHOC)
- HA-Related Exercises
- CONPLAN 5004, HADR
- Disaster Net Program
- Joint CCI Wargame w/OSD

INDOPACOM Climate Change Impact (CCI) Program



Improve viability and climate resiliency of **INFRASTRUCTURE & FORWARD LOCATIONS**

INFRASTRUCTURE & POSITIONS

- PDC Vulnerability Analysis
- Construction Program
- Mission Assurance Projects
- Allies & Partner Climate Resilience Development

Good News, but…

- “Over the past two decades, many countries in Asia and the Pacific have strengthened their resilience against numerous natural calamities.”
- Fewer people are dying as a result of natural hazards as countries have been devising more robust systems of early warning and responsive protection.
- But there is still a lot to be done. Most countries are still ill-prepared for multiple overlapping crises. There is an acute need to build back better and more resiliently.

Source: UN Economic and Social Commission for Asia and the Pacific (ESCAP) 2021 Report (Exec Summary)

Center for Excellence in Disaster Management & Humanitarian Assistance
456 Hornet Avenue, Building 76 | Joint Base Pearl Harbor-Hickam, HI 96860-5303
TEL: 808.472.0518 | FAX: 808.472.0382

Download free resources at www.cfe-dmha.org

@cfedmha

Strategies for integrating research, innovations in higher education and international collaboration in interdisciplinary disaster sciences

APRU Summer Seminar, August 5, 2022

Gretchen Kalonji, Sichuan University

Outline:

- What are the challenges facing the further development of the emerging interdisciplinary field of “disaster sciences”?
- What can we learn from the history of the development of another highly interdisciplinary field, “materials science”, which was “emerging” not too long ago?
- Integration of research, education and international collaborations as a **strategy** for strengthening our contributions to “disaster sciences” in service to society
- Examples from the efforts of IDMR, the Sichuan University – the Hong Kong Polytechnic University, Institute for Disaster Management and Reconstruction
- Conclusions

The challenges facing the further development of the interdisciplinary field of “disaster sciences”?

- The huge disconnect in the increasingly innovative character of our research collaborations and our relatively slow progress in curricular innovation
- Challenges in the reward structures of our universities and research institutes
- Relatively weak connections with the private sectors, including with engineering communities, and to a lesser degree, with civil society
- The lack of mature professional societies, which can promote the professional development of both researchers and students, and which can assist in various multi-sector collaborations
- The challenges, which vary country by country, in making the policy connection, as the “disaster” portfolio is typically spread across a wide variety of ministries
- Further strengthening our international collaborations, with a focus on sustainable multi-institutional networks. The APRU Multi-Hazard Thematic Working Group is an excellent example. Making connections between the various existing networks is a challenge, but very worthwhile to address

Lessons from the evolution of materials science as a discipline

- "Materials Science" as an academic discipline did not exist formally anywhere until the first department was formed at Northwestern University in 1960.
- As a field of human activity, however, its history is very long:

  (See: "*The Search for Structure*", Cyril Stanley Smith, MIT Press. 1981)
- "Materials science" now incorporates contributions from the basic sciences (physics, chemistry, more recently life sciences), essentially all of the engineering disciplines, computational sciences, etc., but also economics and development studies. Materials science is now a top priority for all national funding agencies, and programs at undergraduate, Masters and Phd levels are top priorities at almost all universities.
- How and why did this happen? Combination of needs, and emerging tools, and **VISION**
- Community gelled around a **comprehensive conceptual framework**

Overarching conceptual framework: “the materials paradigm”

The basic concept is that the **history** of the material (how it is ”**processed**”), determines its **structure** at a variety of scales (electronic, atomic, microscopic, macro), which then determine its **properties** (electronic, mechanical, optical, etc), and its performance.

> *“It is the first example of a new academic discipline emerging by fusion rather than fission”* (Rustum Roy, Interdisciplinarity in Higher Education, Penn State Press 1979).

So **what is the overarching framework for Disaster Sciences?** What fields should we be “fusing”? How will our choices affect our ability to build useful research communities?

Ultimately, “disaster sciences” is about **mobilizing knowledge** to promote effective **societal action** for disaster risk reduction and response, drawing from multiple disciplines, and building on the **foundation** of understanding of **complex adaptive human and natural systems**.

Integration of research, education, service and international collaboration as a strategy for strengthening our contributions in “disaster science”

- In “Disaster Sciences”, we need to focus on **multinational project-based approaches** to linking our research in service to society.
- What kind of projects? Those in which our faculty and student teams can collect and share data at the local levels – citizen science approaches.
- Projects in which we can share data and strategies across national boundaries, given than many of our hazards are transboundary hazards.
- Projects in which we can work on the concrete policy challenges, at local regional and global levels.
- Projects in which we can share educational strategies, for primary and secondary school levels but also for university curriculum.
- For all of these projects, we should collaborate within the framework of the UN internationally agreed 2030 Sustainable Development Agenda.

Overview of the work of IDMR, the Institute for Disaster Management and Reconstruction, co-founded by Sichuan University and the Hong Kong Polytechnic University

Founded in the aftermath of the massive Wenchuan earthquake of May 12, 2008, with very generous support from the Hong Kong Jockey Club

IDMR pursues a highly interdisciplinary research agenda, similar to our colleagues at IRIDeS in Tohoku and the Disaster Prevention Research Institute (DPRI) in Kyoto University, the true pioneer in our field.
What is distinctive about IDMR?

- Very strong efforts in disaster health sciences, in collaboration with our world-class medical school: emergency medicine, disaster nursing, disaster mental health, public health.
- Our curricular programs in “integrated disaster sciences and management”, not only at masters and PhD levels, but at undergraduate levels
- Our linkages with international collaborative projects, including with the UN system and multiple universities worldwide.
- Research opportunities in western China, including poverty reduction and sustainable development in ecologically sensitive areas.

New Building B

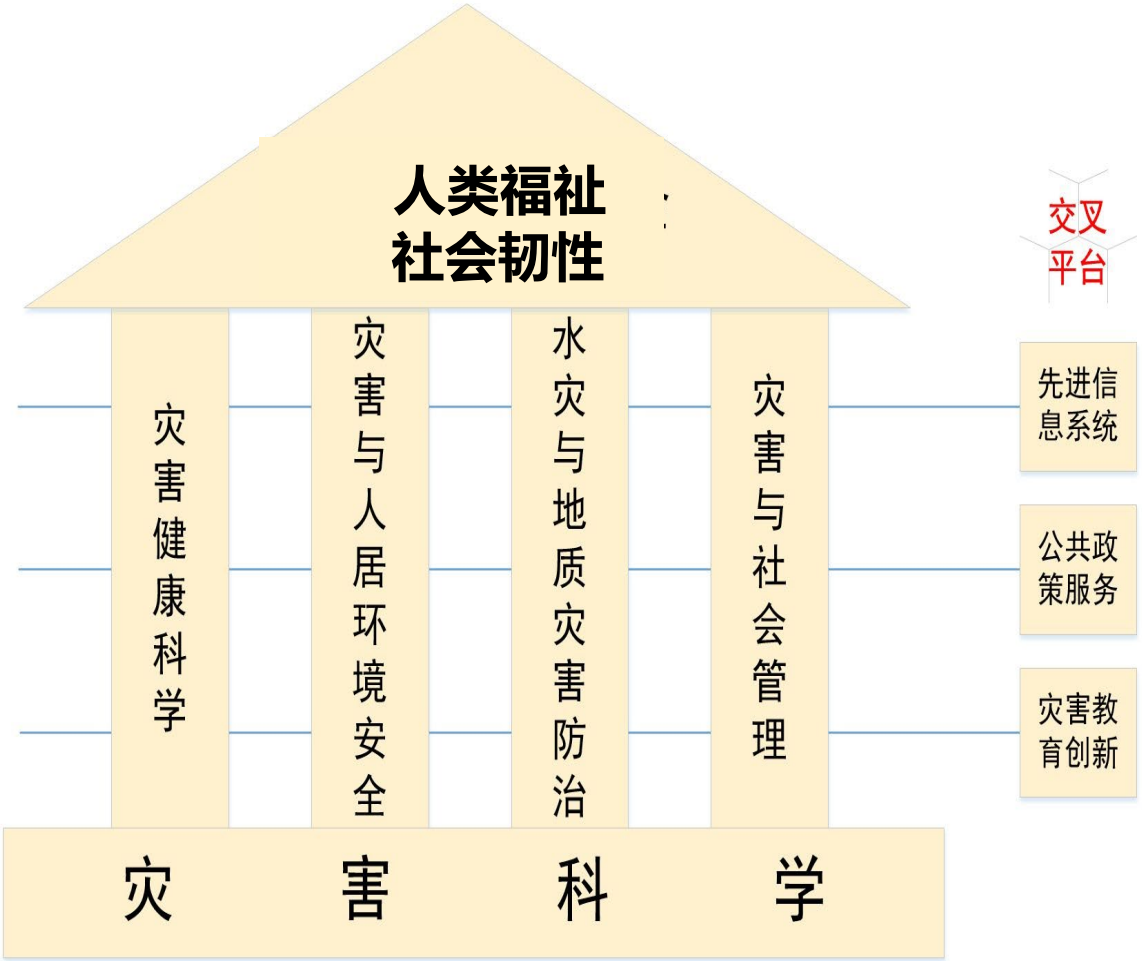
IDMR Campus

Aera： 20000 m^2
Buildings： 3
Building Aera： 28000 m^2

创建学科名称：**综合灾害科学与管理**

Integrated Disaster Sciences and Management

1. **高度跨学科：以工科为基础，在灾害健康科学、自然科学、灾害相关的社会科学方面进行高度跨学科**
   Highly interdisciplinary, based in engineering with clusters o activity in disaster health sciences, natural sciences, and disaster-related social sciences
2. **开创新型综合灾害研究和教育，建立新的跨学科本科**
   Pioneering new approaches to integrating disaster research and education, including developing new undergrad progran
3. **深化与全球顶尖名校和国际组织深入国际合作**
   Build on deep international collabs, in both education and research, with some of the best universities worldwide
4. **加强与中国国家和地方相关机构合作** Collaborate closely with key Chinese national and provincial bodies
5. **强调国际公认的2030可持续发展议程和仙台减灾框架**
   Focus our programs on internationally agreed Agenda 2030 f Sustainable development, including the Sendai Framework f Disaster Reduction



1. 项目背景-1.1 学院概况介绍-灾难医学

紧急医学救援队 (2018~)

- WHO Type 3国际紧急医学救援队，WHO区域合作中心

成员牛！

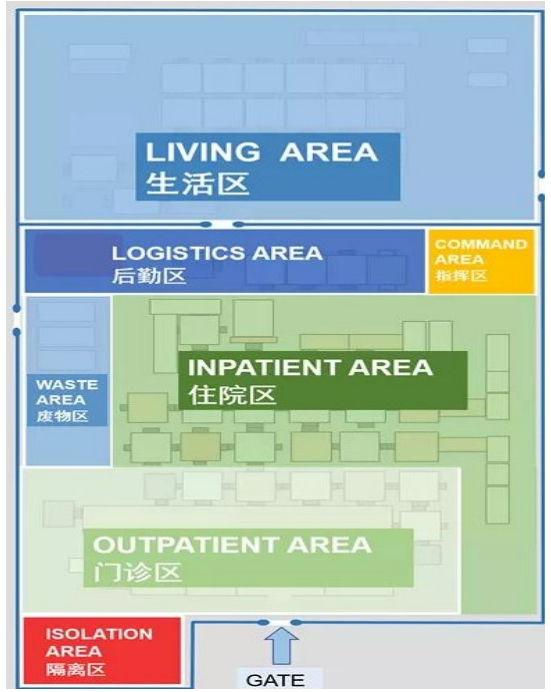
•中国四川国际应急医疗队有核心队员166人，成员主要来自四川大学华西医院、华西第二医院、华西口腔医院、四川省疾控中心、成都市疾控中心亦参与其中。覆盖所有临床医学专业二级学科，其中医生41人，护理人员65人，指挥后勤保障等其他人员60人。

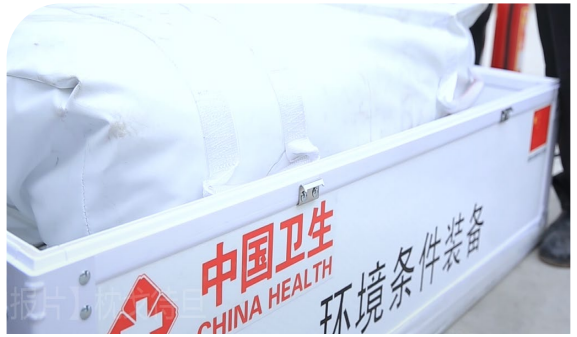
设备牛！

•全队标准配置下占地面积约9000平米，全布局情况下配备帐篷共95顶，装备总数1827件（其中医疗装备274件，后勤装备1318件，通讯装备111件，生活装备124件），60余吨，除燃油外，能独立完成28天的临床医疗工作。

服务牛！

能完成200人次/日门诊患者诊治，15台大手术/日，30台次/日小手术。





- **科研+教育+服务+创业方向：新式防灾帐篷研发、应急医疗器械研发、微课程、MOOC、视频教程开发、应急救援队伍准备、应急个人设备研发**

IDMR

High-level Experts and Leaders Panel on Water and Disasters (HELP)

To assist the international community, governments and stakeholders in mobilizing political will and resources;

- promote actions to raise awareness;
- ensure coordination and collaboration;
- establish common goals and targets;
- monitor progress; and
- take effective measures aimed at addressing the issues of water and disasters.

Chair: Dr. Han Seung-soo
Former Prime Minister of the Republic of Korea,
President of the 56th Session of the UN General Assembly (2001-02)

Vice Chairs
H.E. Dr. Basuki Hadimuljono, Minister of Public Works and Housing, Republic of Indonesia
H.E. Mr. Mark Harbers, Minister of Infrastructure and Water Management, Kingdom of the Netherlands

Members
President, AMCAW / Commissioner, EU/ Vice-Minister, MLIT, Japan/Chief of Engineers and Commanding General, USACE/ Secretary-General, WMO/ Director General, UNESCO/ Under-Secretary-General and Executive Secretary, ESCAP/ Special Representative of the Secretary-General for Disaster Risk Reduction, UNDRR/ President, JICA, Japan/ Global Director, World Bank/ Vice President, ADB/ Director for Public Governance, OECD/ Professor, ITB, Indonesia/ Chair, GWP/ Chairman, NARBO/ Secretary General, Public Services International/ President, WWC/ Chairman, AIT

The Fifth UN Special Thematic Session on Water and Disasters

Plenary Session, June 25, 2021

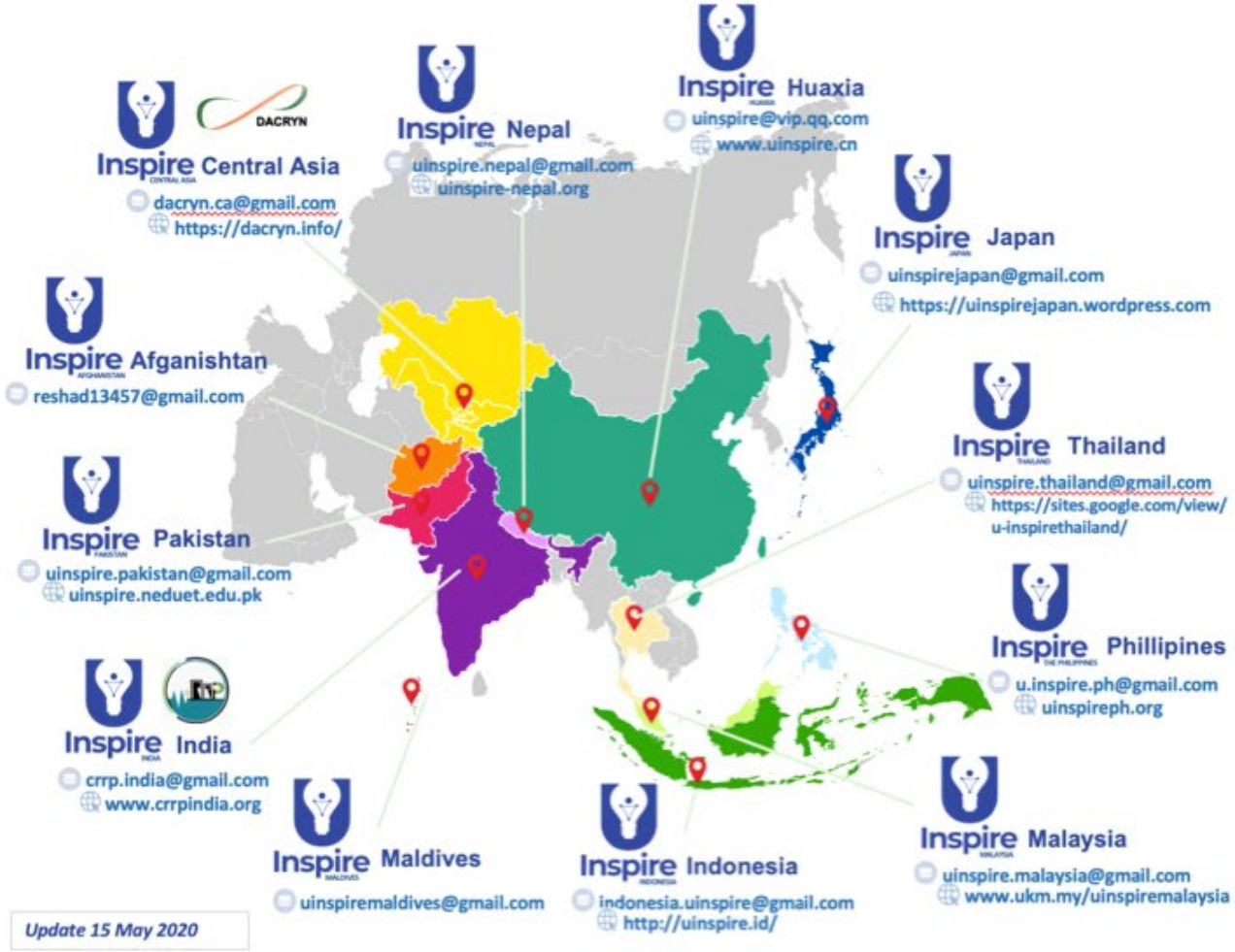
Opening Remarks

- Dr. Han Seung-Soo, Former Prime Minister of the Republic of Korea and Chair of HELP
- H.E. Mr. Antonio Guterres, Secretary-General of the United Nations
- H.E. Mr. Volkan Bozkir, President of the 75th Session of the United Nations General Assembly

Science and Technology Panel

- Science needs to be more closely connected to societal needs by promoting equal opportunities for all and strengthening the science-policy interface.
- On-site stakeholders should develop integrated scenarios and execute concrete measures.
- The international society should support all stakeholders in taking concerted actions to enhance governance teamwork through tripartite cooperation among science, policy and operations at different spatial scales and in thematic and functional terms.

Video recording of the Science and Technology Panel available on UN Web TV:
https://media.un.org/en/asset/k1u/k1ukouea5m



UINSPIRE is an **Alliance of youth and young professionals' platform in Science, Engineering, Technology and Innovation (SETI) to accelerate the implementation of Disaster Risk Reduction (DRR) and Climate Change** in-line with SDGs and the SFDRR to support DRR policy and action at local, national, regional, and global level.

Our Vision

A strong coordination and collaboration for empowering Youth and Young Professionals in Science, Engineering, Technology and Innovation in Disaster Risk Reduction at the Global Level

Our Mission

1. Bringing Voice of Youth & Young Professionals in SETI for DRR
2. Creating and Endorsing Space for Youth & Young Professionals to empower their role in SETI for DRR
3. Bridging The Valley of Death : Leveraging Disaster Data Literacy and development of Open Innovation and Creative Problem Solving
4. Science Policy Interface with Youth and Young Professionals as the Medium

U-INSPIRE Alliance's Engagement in **COVID-19**

U-INSPIRE would continue to advocate meaningful engagement of YYP in the implementation of DRR, water security, and climate change policies and plans through SETI , and continue to strengthen collaborations among the U-INSPIRE National Chapters as well as with other Regional Youth Organizations around the World, including engagement in COVID-19 activities at all levels to find solutions and good practices to respond to these COVID-19 challenges.

Risk Communication and Community Awareness

Myth and hoax buster through Infographics, Videos, Fact sheets, Blogposts (Central Asia, Indonesia, Nepal, Pakistan)

Technology and Innovation

Various topics, among others: Low Cost Ventilator (Pakistan), The Importance of Data and Information Management (Indonesia), Meeting COVID Recovered Patients (Pakistan), Official Government portal for COVID 19 and low cost booths (Nepal)

Localized on the Ground Actions

On the ground volunteer work as frontlines
Assisting less fortunate (Malaysia)

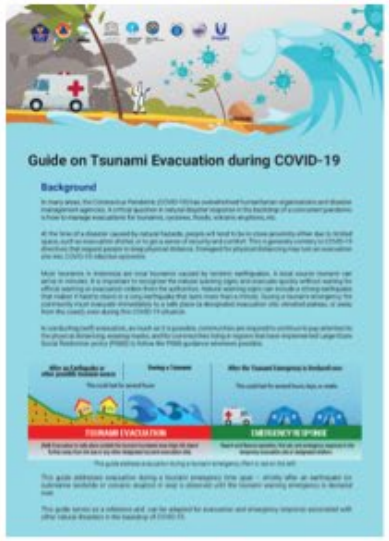
Assessment and Monitoring Tools

Tracking cases of COVID19 Risk – using available data & crowdsourcing | Assessment tool – social behavior & Science (RIKA and CRRP India and used by Malaysia, Indonesia, India, Nepal and Japan)

Research and Publications

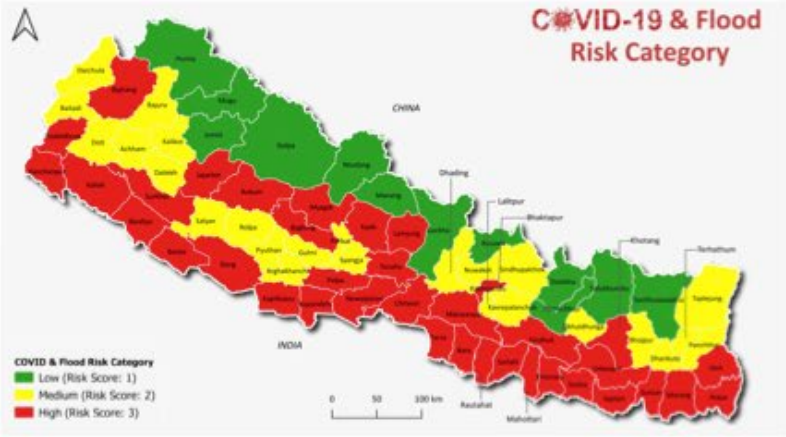
Various topics, among others: Impact of COVID-19 to Tourism (Maldives) | SIR Modeling to determine peak infection time on COVID-19 in Karachi (Pakistan) | GIS Based Smart Lockdown Plan for Karachi (Pakistan) | COVID-19 Social Studies (Indonesia) | Natural Disasters in times of COVID19

U-INSPIRE Alliance and U-INSPIRE National Chapters



- ✓ One of Indonesia's COVID-19 Protocols
- ✓ As example and reference in the UNESCO-IOC Indian Ocean Tsunami Warning and Mitigation System for Tsunami Evacuation during COVID-19

https://covid19.go.id/p/protokol/panduan-langkah-evakuasi-darurat-peringatan-dini-tsunami-dalam-situasi-covid-19
https://en.unesco.org/sites/default/files/guide_for_tsunami_evacuation_covid-1_final-1_eng.pdf



The COVID flood and risk category map was developed based on the number of floods and deaths due to flood that occurred since May 2010 to may 2020 and current COVID positive cases.

Research themes for the IDMR ”Innovation Class”

- Disaster Mental Health, especially in the context of covid19
  - ✓ Mental health of college students
  - ✓ Mental health of nurses
- Mapping of International Collaborations in Research and Education (UNESCO Category 2 Center IKCEST and Soichiro Yasukawa from UNESCO are collaborators)
- Disaster Risk Education and Service Learning
- Climate Stress and Urban Resilience
- Water, Disasters and Culture (Partners include the Graduate Institute of Policy studies in Japan (GRIPS), and the UN Center for Regional Development, in Nagoya).
- Earth Sciences for Disaster Resilience
- Resilience of Health Care Systems
- Post-Disaster Environmental Management (including themes of water and air quality, and disaster waste management)

Conclusions

- To optimize the societal impact of our “disaster science” research we need to need be more creative both in the process of our research within our institutions, and in our connections with society more broadly.
- Educational innovations are essentional, not only within out university curricula but with our work with local communities.
- We need to work on Increased international collaborations, including on addressing transboundary challenges.
- We should link our work to the internationally agreed sustainable development goals – a theme which can encompass all of our educational and research goals.

Thank you for your attention

gretchen.kalonji@qq.com

Asia-Pacific Economic Cooperation

APEC Emergency Preparedness Capacity Building Center

APRU Multi-Hazards Webinar Series

August 5, 2022

Enhancing Regional Disaster Resilience

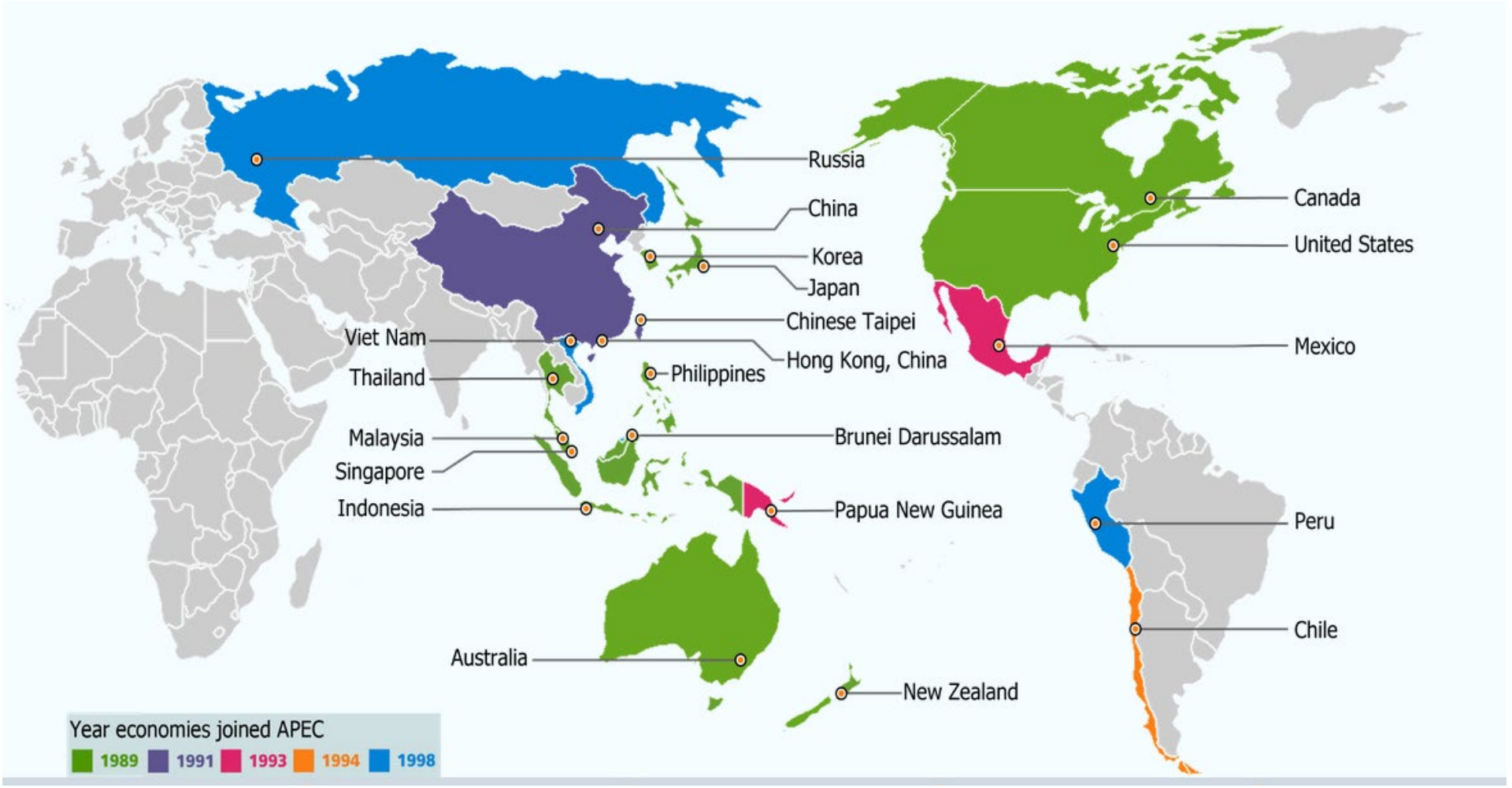
Learning from the APEC Good/Best Practices

Yanling Lee (Sophia)

Secretary General

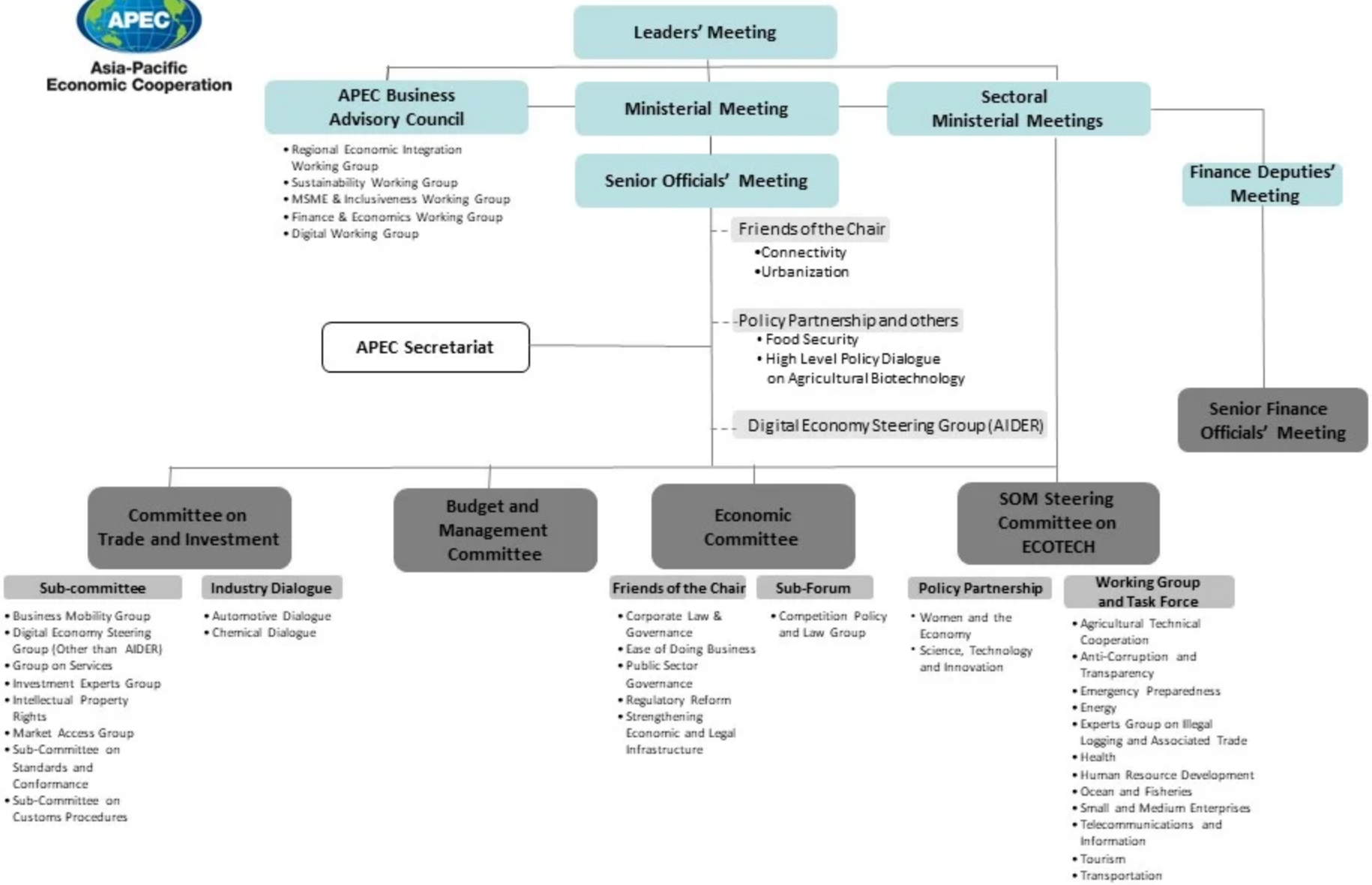
APEC Emergency Preparedness Capacity Building Center

21 Member Economies in APEC



ASIA-PACIFIC ECONOMIC COOPERATION

Asia-Pacific Economic Cooperation

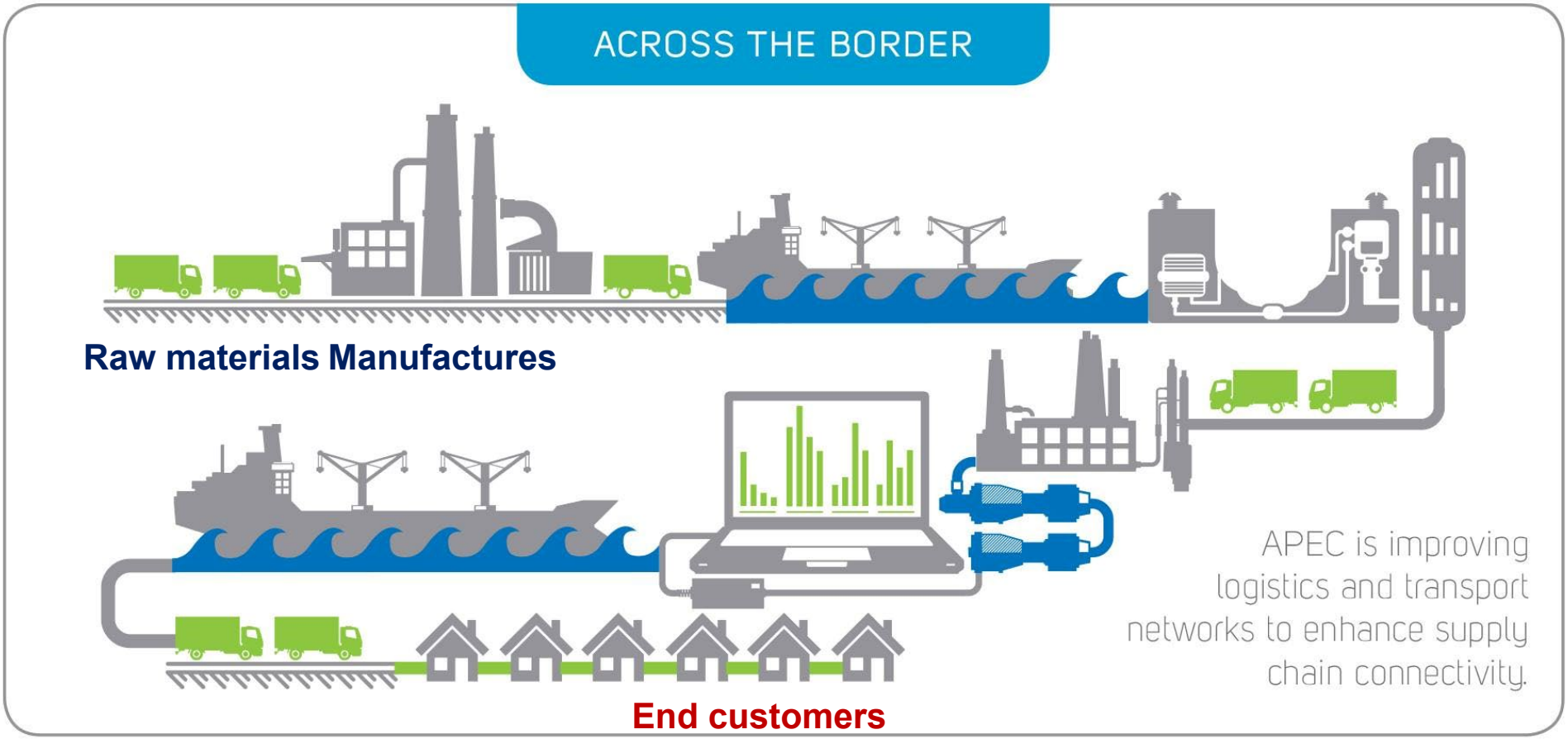


* In addition to the above, a number of sub fora exist as part of the APEC Structure that are not reflected in the chart.

As of 1 August 2022

Business Continuity Planning for Supply Chain Connectivity

- trans-boundary and end-to-end issues



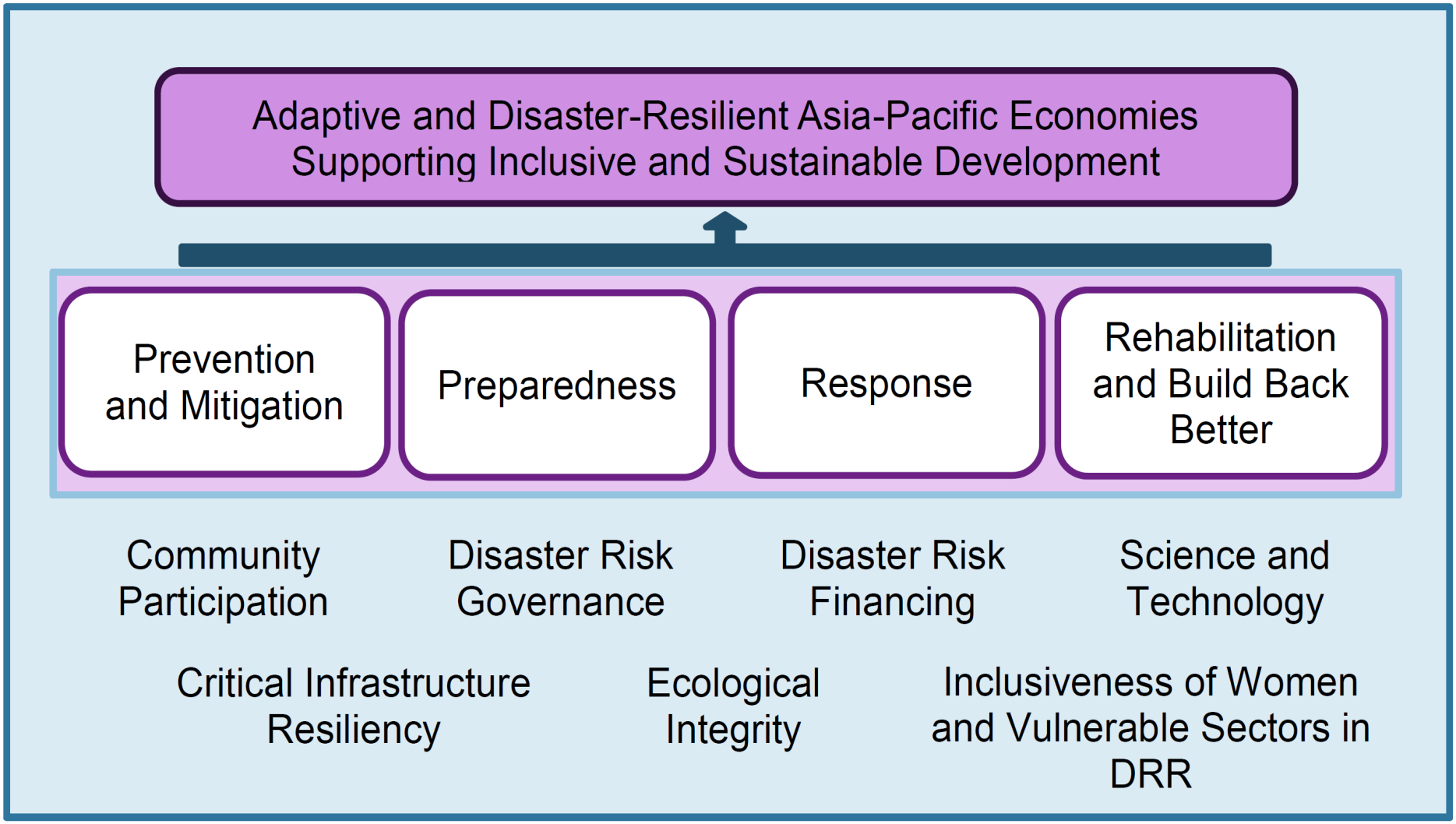
www.apec.org

EPWG Mandate
Emergency Preparedness Working Group

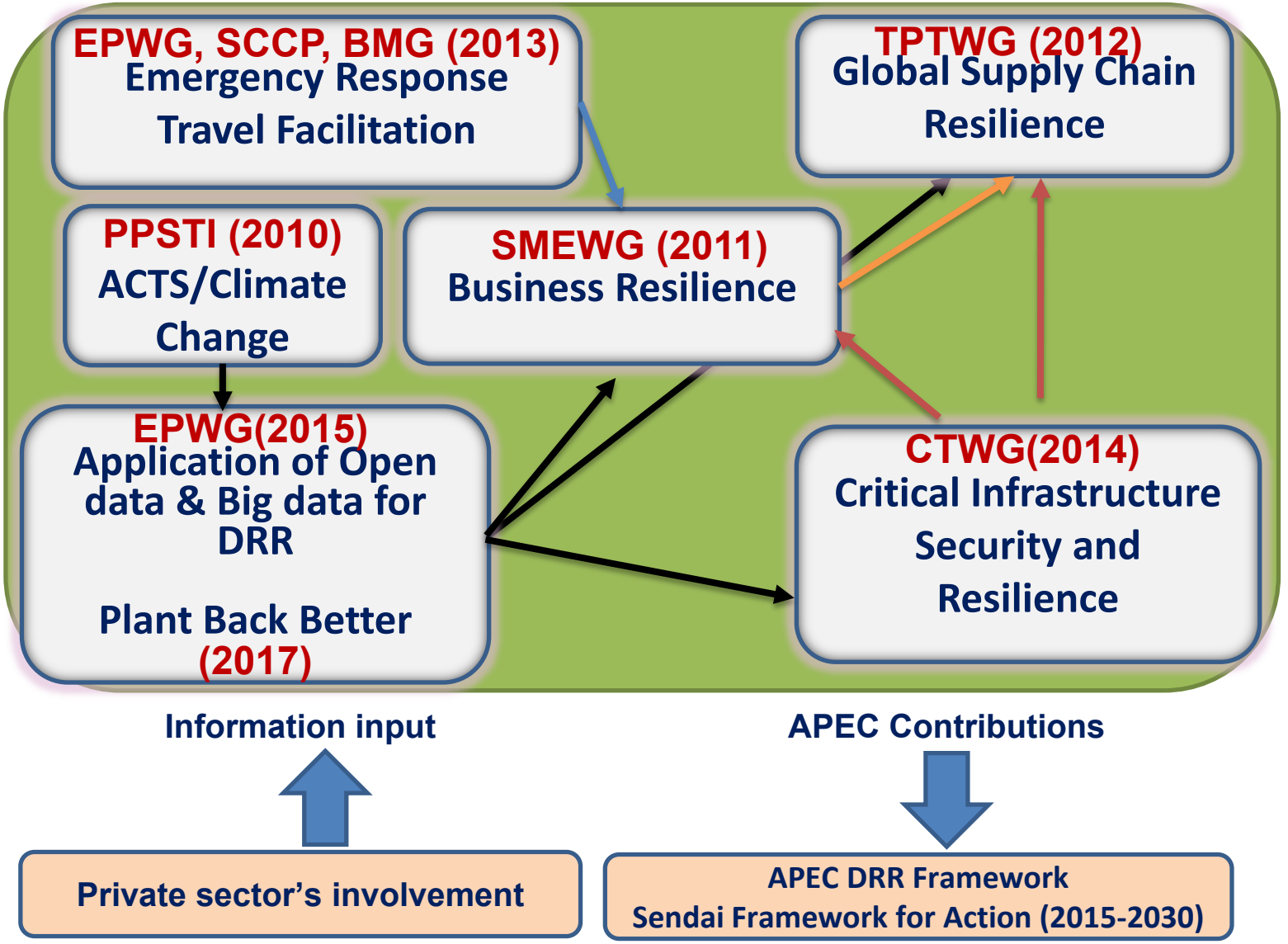
- **To build the capacity of APEC economies to mitigate, prepare for, respond to and recover from emergencies and disasters;**
- **To improve coordination and cooperation on emergency and disaster preparedness efforts within APEC.**

The EPWG – along with the health (HWG) and counter-terrorism (CCTF) working groups – is an important part of APEC's human security agenda to protect business, trade and economic growth from disruptions.

APEC Disaster Risk Reduction Framework
October 2015



EPWG Active Engagement



The 8 pillars of EPCC on capacity building :

1. Supply Chain Resilience
2. Digital Resilience
3. Critical Infrastructure Resilience
4. Financial Resilience
5. Labour Mobility
6. Gender Balance
7. Climate Smart Agriculture
8. Food Security

Best Practices for Food Security

APEC funded project – Plant back better (PBB)
collaborations with the Philippines in Iloilo City
September 30 - October 2, 2019

CLIMATE-SMART AGRICULTURE

APEC Plant back better (PBB)
Up to 56% of experts and practitioners are Women

- **"Plant back better"**
  1. Resilient-and-sustainable plantation of vegetables and flowers
  2. Integrated Smart and Sustainable Micro business model
- **To have local partners to succeed the project**
  1. Iloilo City Government
  2. National Resilience Council
  3. SM Group
  4. Manila Observatory
- **Other stakeholder**
  1. NCDR, EPCC
  2. World Vegetable Center
  3. Known You Seed Company
- **Amidst COVID-19**
  1. Food Security
  2. Circular Economy

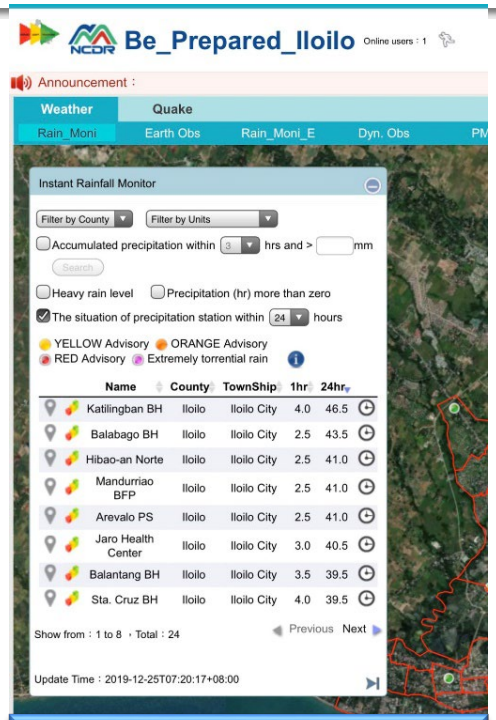
1st Phase - Iloilo City
April 30- May 02, 2019

2nd Phase - Iloilo City
August 08-10, 2019

3rd Phase -Taipei, September 30 - October 2, 2019

APEC Plant back better (PBB) on Cross-border PPP Amidst COVID-19

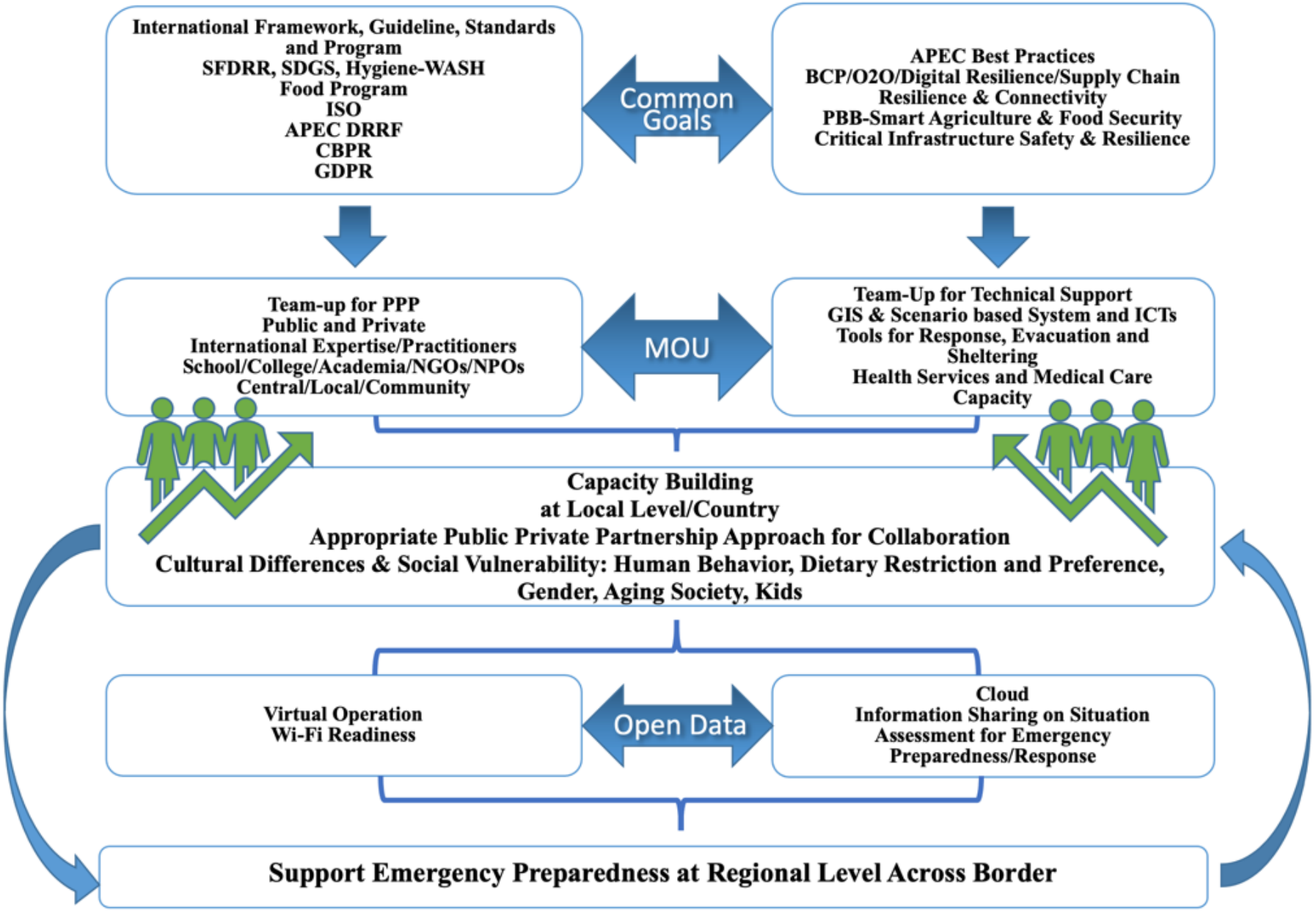
Sustainable Food Supply Chain with Nutrition



Smart ICTs support on Early Warning of Weather Related Disasters

Circular Economy in 2020 while Lock-down

Cross-Border PPP Approach for DRR



Publication on “Plant Back Better”

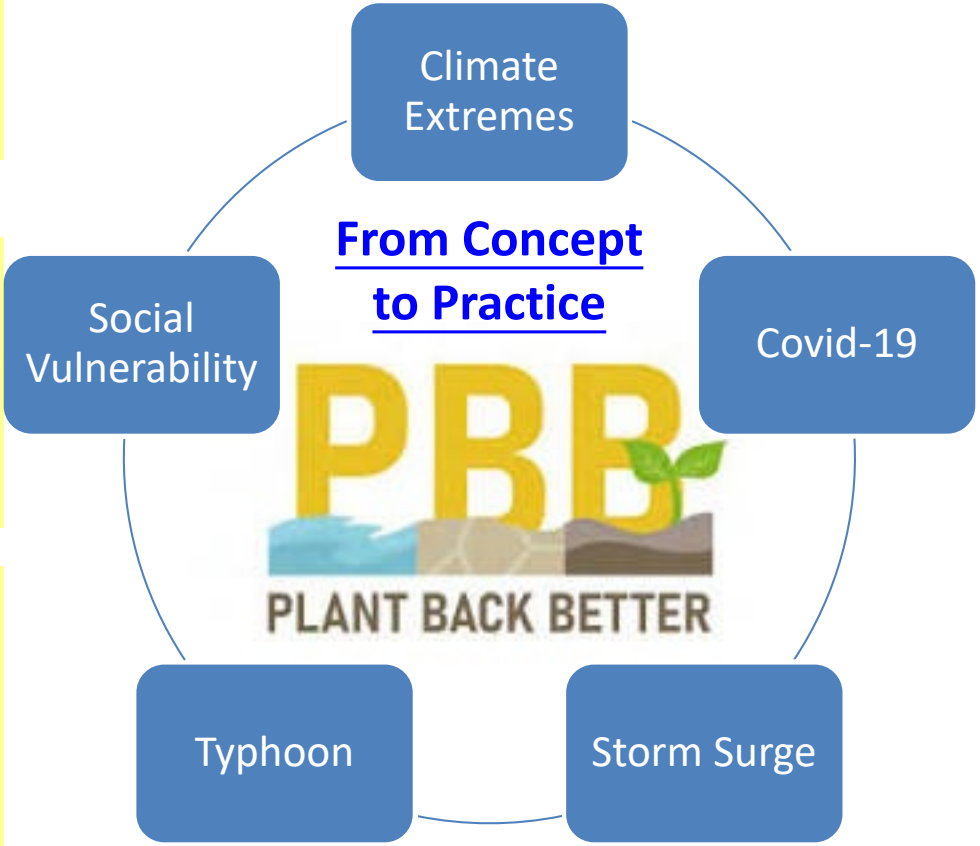
- **Toolkit download link**
  - https://www.apec.org/Publications/2020/04/Plant-Back-Better-Toolkit
  - https://www.apec-epcc.org/resources/publications/
- **Video clips to introduce “Plant Back Better”**
  - https://www.youtube.com/watch?v=mw85_loTJ7k

Thank for your attention

Preference

Need

Motivation



Confident

Dignity

Simple

Yanling Lee (Sophia)
E-mail: sophiancdr@gmail.com

APRU Multi-Hazards

CHULA ENGINEERING
Innovation toward Sustainability | ACTNOW

RDM RISK AND DISASTER MANAGEMENT PROGRAM

DRMIS
Disaster and Risk Management Information Systems
Chulalongkorn University

2022 APRU Multi-Hazards Summer Lecture Series
Disaster risk management initiatives in various sectors and fields

Disaster and Risk Management Program Development

Associate Professor Natt Leelawat, D.Eng., MBCI

Assistant Dean for Communications and International Affairs, Faculty of Engineering, Chulalongkorn University

Director of Risk and Disaster Management Program. Graduate School, Chulalongkorn University

Head of Disaster and Risk Management Information Systems Research Unit, Chulalongkorn University

Associate Professor in Industrial Engineering, Faculty of Engineering, Chulalongkorn University

Contents

Episode 0 - The beginning

- The Indian Ocean earthquake and tsunami in 2004 encountered many countries including Thailand

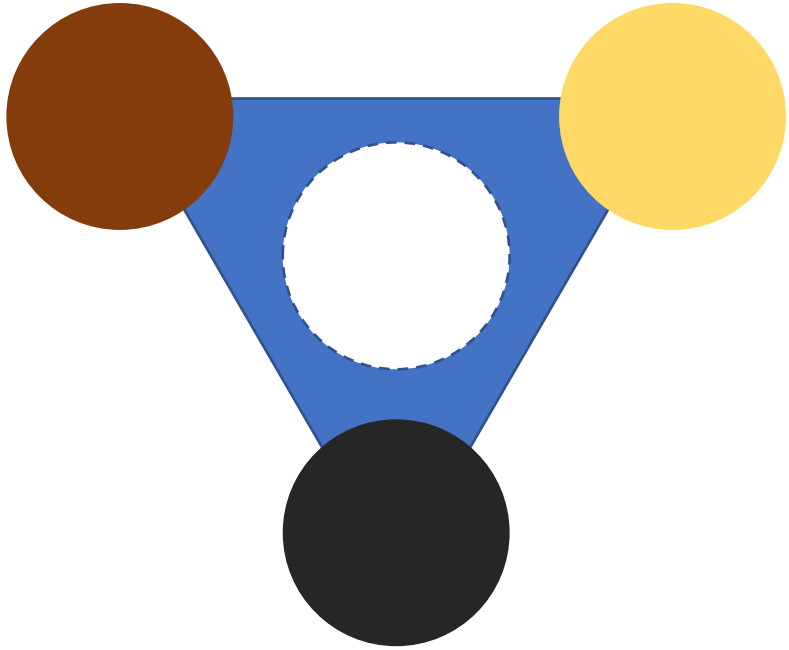
Leelawat, N., Suppasri, A., & Imamura, F. (2015). Disaster recovery and reconstruction following the 2011 Great East Japan earthquake and tsunami: A business process management perspective. *International Journal of Disaster Risk Science, 6*(3), 310-314. doi:10.1007/s13753-015-0066-1

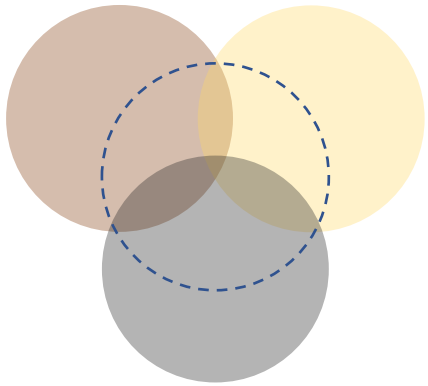
Episode 0 – University's movement

- Chulalongkorn University initiated the idea to establish a disaster management program

- After a long review process, the Risk and Disaster Management (RDM) Program has been approved in 2018

Multi vs. Interdisciplinary





- Multidisciplinary
- Interdisciplinary

Focusing Points

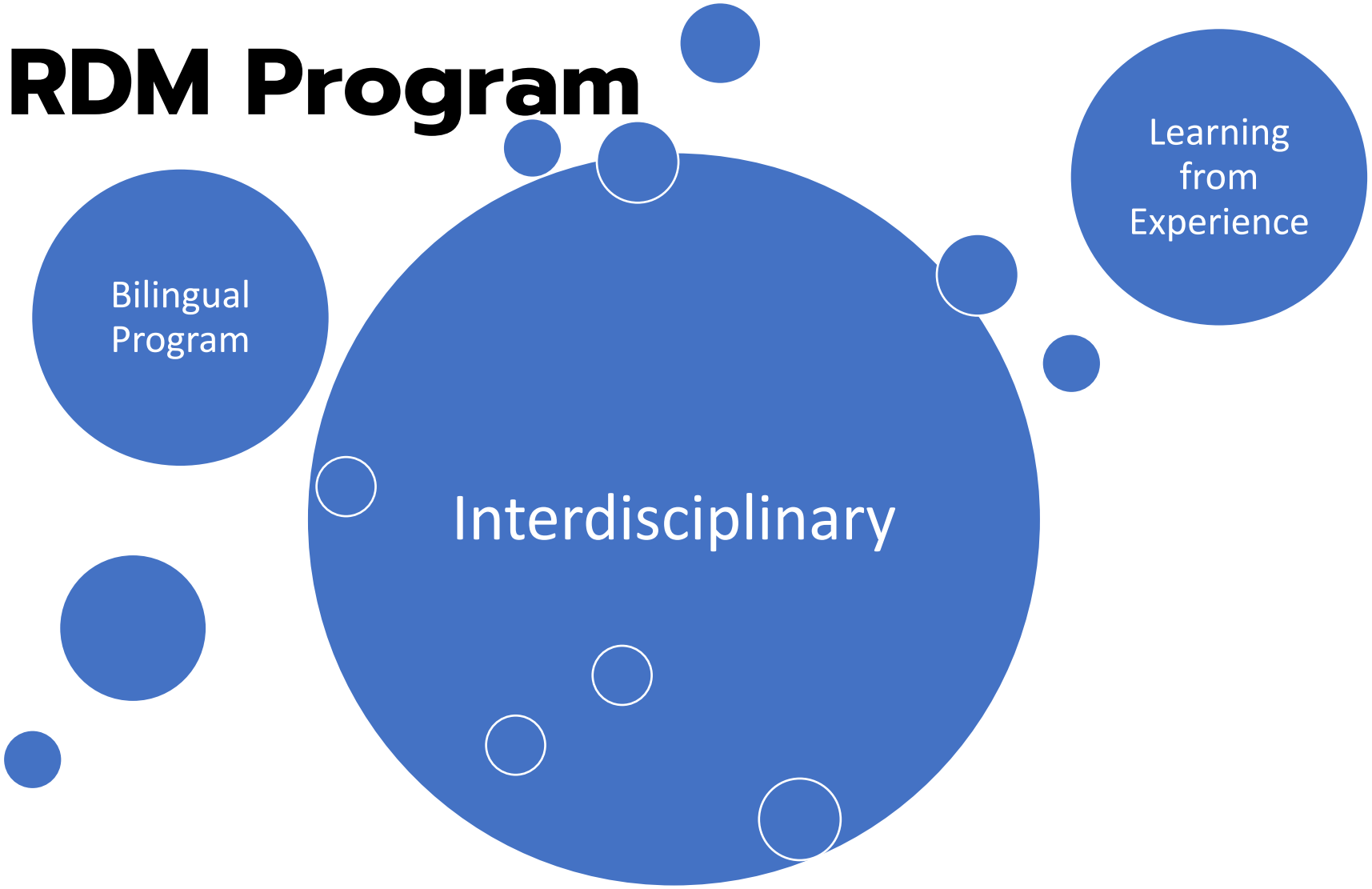
- The interdisciplinary program needs to be integrated with the related knowledge fields in the university

- Integrated **physical science**, **health science**, and **social science** into the program.

Focusing Points (cont.)

- The program should focus on producing graduates who have substantial knowledge and expertise in risk and disaster management with integration skills, and practical and systematic thinking processes
- The core courses should be designed to ensure that **students with a bachelor's degree in any field will be able to understand and enjoy learning**
- The program should focus on giving the best learning experience and bringing out the best potential in students

To be RDM Program



From 1 February 2017 onward
Semester begins in August 2018

Chulalongkorn University

RDM
RISK AND DISASTER
MANAGEMENT PROGRAM
LEARN FROM THE BEST

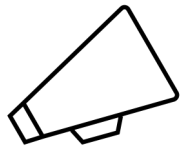
Master of Science

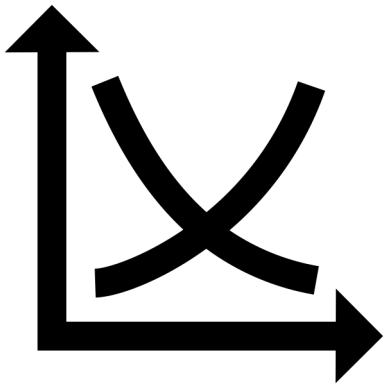
RISK AND DISASTER MANAGEMENT

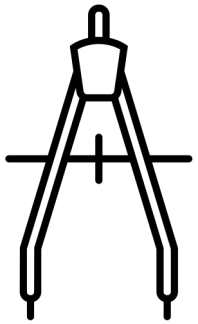
Always prepared, Timely reaction, Mitigating Loss

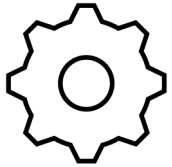
What disciplines?

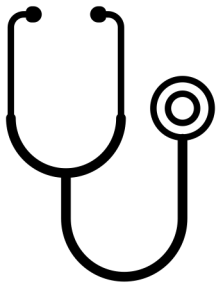
- Engineering
- Architecture
- Communication Arts
- Law
- Medicine
- Economics

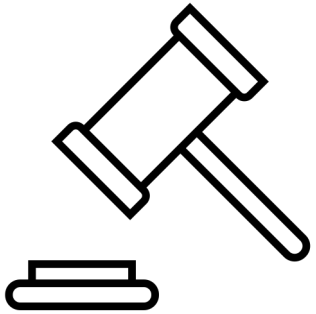


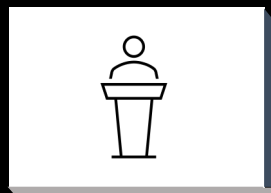


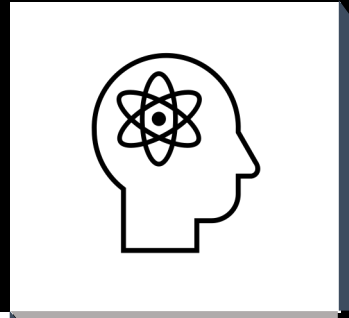


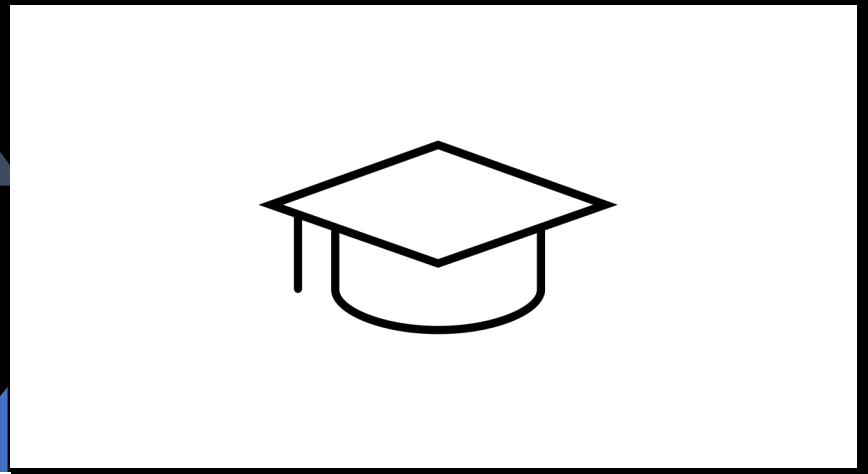


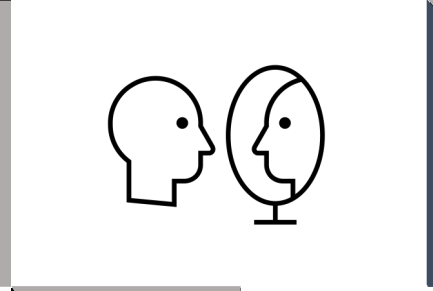


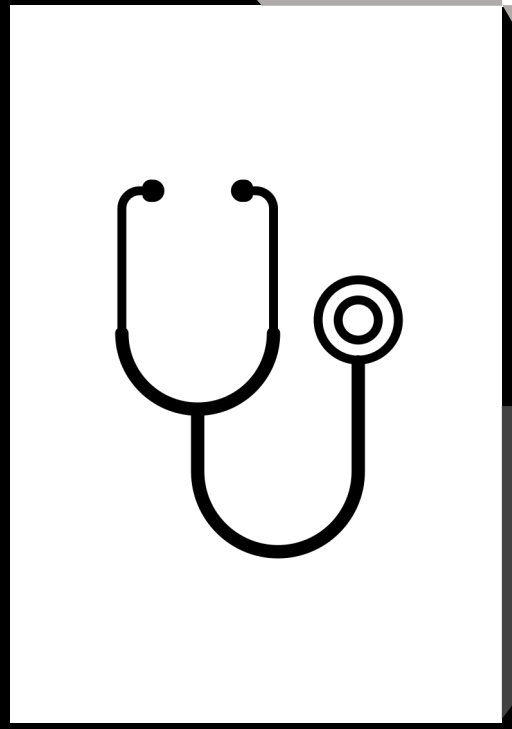


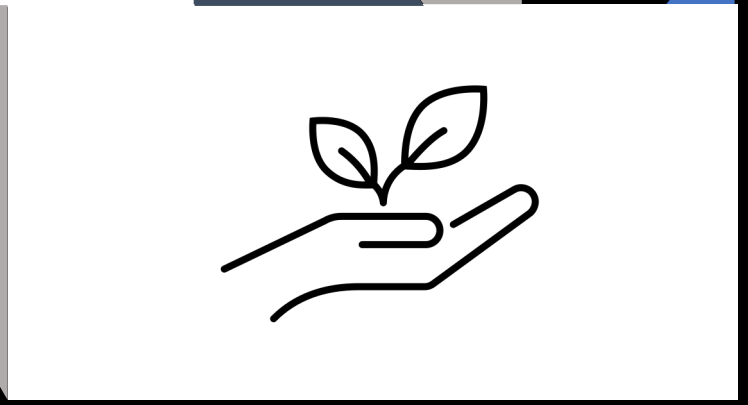












What disciplines? (cont.)

- Nursing
- Science
- Political Science
- Psychology
- Environmental Research

Strength

- Interdisciplinary program founded with the strong collaboration
  - Faculty of Engineering
  - Faculty of Architecture
  - Faculty of Communication Arts
  - Faculty of Law
  - Faculty of Medicine
  - Faculty of Economics
  - Faculty of Nursing
  - Faculty of Science
  - Faculty of Political Science
  - Faculty of Psychology
  - Environmental Research Institute
  - Graduate School

The Courses

- Core Courses
  - Disaster Management
  - Research Methodology in Disaster Management
  - Seminar in Risk and Disaster Management

- Elective Courses
  - Emergency Management
  - Special Topics in Disaster Management
  - Climate Change Mitigation and Adaptation
  - Disaster Communication
  - Law in Disaster Management

The Courses (cont.)

- Elective Courses (cont.)
  - Engineering for Disaster Mitigation
  - Logistics for Disaster Management
  - Disaster Management and Technology
  - Risk Management for Industry
  - Environmental Engineering for Disaster Management
  - Radar Remote Sensing
  - Remote Sensing and GIS
  - Water Resources Systems Engineering
  - Engineering for Water Disaster Mitigation
  - Landslide Disaster Mitigation

The Courses (cont.)

- Elective Courses (cont.)
  - Flood Disaster Mitigation
  - Risk and Emotions in Society
  - Urban Environmental Planning for Disaster Mitigation
  - Landscape Planning for Disaster Mitigation
  - Workshop on Community Disaster Risk Reduction and Response Preparedness
  - Disaster Economic Assessment
  - Medical Management in Disaster
  - Health Management for Disaster Survivors
  - Psychological Rehabilitation for Disaster Survivors

Learning Opportunities

- Internal and external cooperation
  - Guest lecturers
  - Invited lecturers
- Possibility to enroll in other courses from the partner faculties*
- University's support in education and research activities

* Up to the decision of the faculty and the program committee

Job Opportunities

- Public sector such as central and local government agencies, public hospitals
- Private sectors such as companies, private hospitals, factories
- Non-governmental organizations
- International and regional organizations

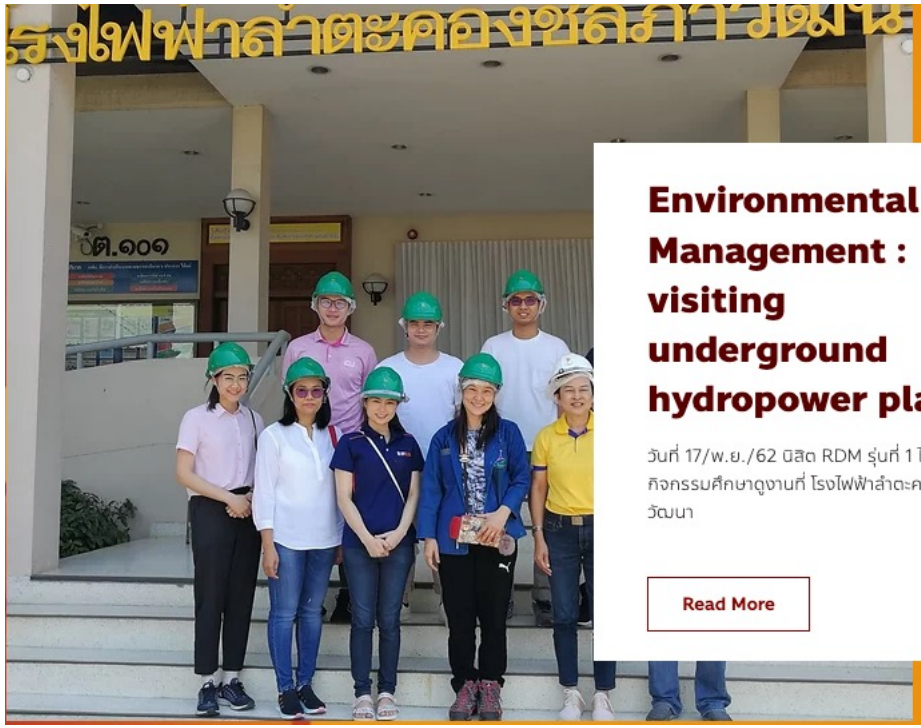
RDM Activities

RDM Activities (cont.)

Emergency Management THAI RED CROSS DISASTER OPERATION CENTER

เมื่อวันที่ 25/เม.ย./63 นิสิต RDM รุ่นที่1-2 ได้เข้าร่วมกิจกรรม Emergency Management กับทางศูนย์ปฏิบัติการ ภัยพิบัติ สภากาชาดไทย (THAI RED CROSS DISASTER OPERATIONS CENTER)

Read More



Environmental Management : visiting underground hydropower plant

วันที่ 17/พ.ย./62 นิสิต RDM รุ่นที่ 1 ได้จัดกิจกรรมศึกษาดูงานที่ โรงไฟฟ้าลำตะคองชลภาวัฒนา

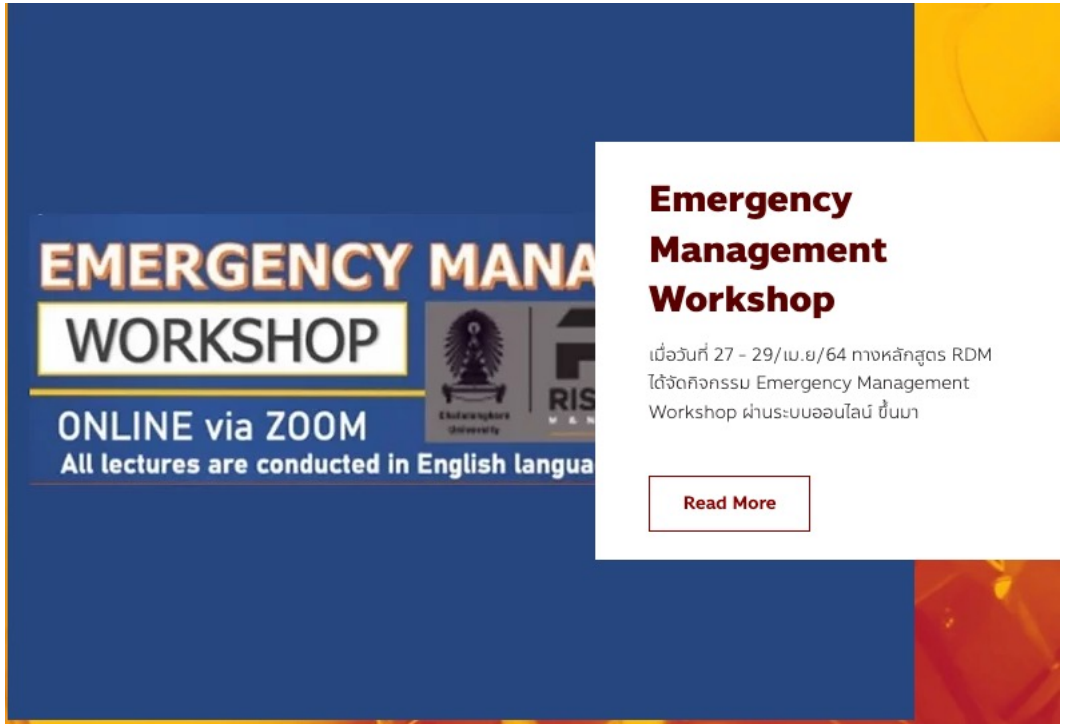
Read More

RDM Activities (cont.)

Seminar on "BCM Concept towards Public Healthcare System during the Disaster"

เมื่อวันที่ 10/ก.ย./64 ทางหลักสูตร RDM ร่วมกับ AUN/SEED.Net และ ฯลฯ ได้จัดกิจกรรมเสวนาผ่านระบบออนไลน์

Read More



Emergency Management Workshop

เมื่อวันที่ 27 - 29/เม.ย/64 ทางหลักสูตร RDM ได้จัดกิจกรรม Emergency Management Workshop ผ่านระบบออนไลน์ ขึ้นมา

Read More

RDM Activities (cont.)

Partnership

Thai Network for Disaster Resilience (TNDR)

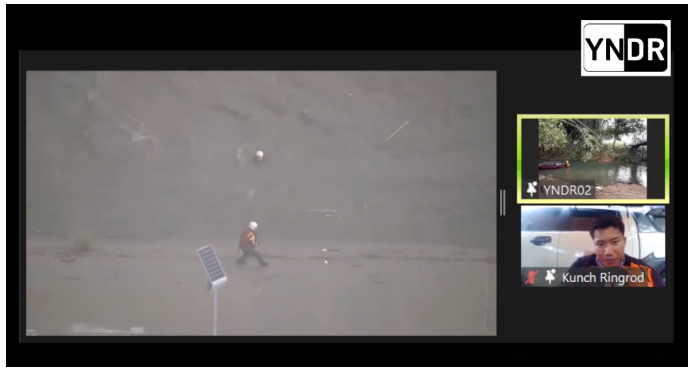
RDM - as the part of Chulalongkorn University - has signed the MoU with the TNDR

TNDR
Thai Network for Disaster Resilience

Thai Network for Disaster Resilience (TNDR)

Youth Network Disaster Resilience (YNDR)

TNDR is a group of volunteer students who are interested in the activities of disaster management and emergency management



More Information about RDM

- RDM Website
  https://www.rdm.grad.chula.ac.th

- RDM Facebook Page
  https://www.facebook.com/ChulaRDM

"As the world is developing, it is our goal to reduce the disaster losses by creating Sustainable Innovations from the multidisciplinary knowledge."

Prof. Supot Teachavorasinskun, D.Eng.
Dean of Faculty of Engineering, Chulalongkorn University

Nowadays, our world has been impacted by multiple hazards, including one of the most severe pandemics, COVID-19, since the end of 2019. For each time, the affected countries were facing losses based on lives. Also, the cooperation between people from various fields of knowledge and operation, whether in engineering, social science, communication, or other areas. Thus, it is crucial for disaster management in every phase, including preparedness, response, recovery, and mitigation. Therefore, we must mitigate future disasters' impact using innovation toward sustainable growth and disaster risk reduction.

"Among all phases of the disaster risk management cycle: preparedness, response, recovery, and prevention and mitigation, there is still room for more innovations to reduce the disaster risk and impact."

Assoc. Prof. Natt Leelawat, D.Eng.
Committee Chair of the 17th APRU Multi-Hazards Symposium 2022
Director of the Risk and Disaster Management Program, Chulalongkorn University
Assistant Dean of Faculty of Engineering, Chulalongkorn University

The 17th APRU Multi-Hazards Symposium is a space for professors, researchers, practitioners, students, and everyone to share their concepts, prototypes, findings as well as lessons learned. We are looking forward to welcoming you to the 17th APRU Multi-Hazards Symposium 2022 in Bangkok, Thailand.

We are pleased to welcome you to the 17th APRU Multi-Hazards Symposium 2022, Bangkok, Thailand.

APRU Multi-Hazards | CHULA ENGINEERING Innovation toward Sustainability | ACTNOW | RDM RISK AND DISASTER MANAGEMENT PROGRAM | Chula Chulalongkorn University

THE 17th APRU MULTI-HAZARDS SYMPOSIUM 2022 (HYBRID)

November 29 - 30, 2022
Mandarin Hotel Bangkok Samyan, Thailand

CALL FOR ABSTRACTS

Theme

INNOVATION TOWARD SUSTAINABLE GROWTH AND DISASTER RISK REDUCTION

Topics

1. Innovation for Disaster Risk Reduction
2. Engineering and Infrastructure for Disaster Risk Reduction
3. Community Health and Well-being for Disaster Risk Reduction
4. Social and Governance Policies/Socio-economic Issues in Disaster Management
5. Building Community Resilience in Disaster Management
6. Disaster communication in Disaster Management

Important Dates

> Abstract Submission: 1 May – ~~30 June 2022~~
(Last call) 15 August 2022
> Acceptance Notification: ~~1 August 2022~~
20 August 2022
> Early Bird Registration: 20 – 31 August 2022
> Normal Registration: 1 – 30 September 2022
> Event Date: 29 – 30 November 2022

Submission Link

Submit your abstract
at the QR code or the link.

shorturl.at/ftH28

Hosted by Faculty of Engineering, Chulalongkorn University
Co-hosted by Risk and Disaster Management Program, Chulalongkorn University

APRU MH 2022

- Website
  https://apru2022.eng.chula.ac.th

- Facebook
  https://web.facebook.com/APRU.MH2022

Conclusion

- Interdisciplinary
- Theories + Practices
- Partnership
- Student affairs/activities

Always prepared,
Timely response,
Mitigating loss

Assoc. Prof. Natt Leelawat, D.Eng., MBCI
Website: http://natt.leelawat.com
Email: natt.l@chula.ac.th

THANK YOU

Risk and Disaster Management Program:
https://www.rdm.grad.chula.ac.th
Disaster and Risk Management Information Systems Research Unit:
https://drmis.eng.chula.ac.th
APRU Multi-Hazards Symposium 2022:
https://apru2022.eng.chula.ac.th