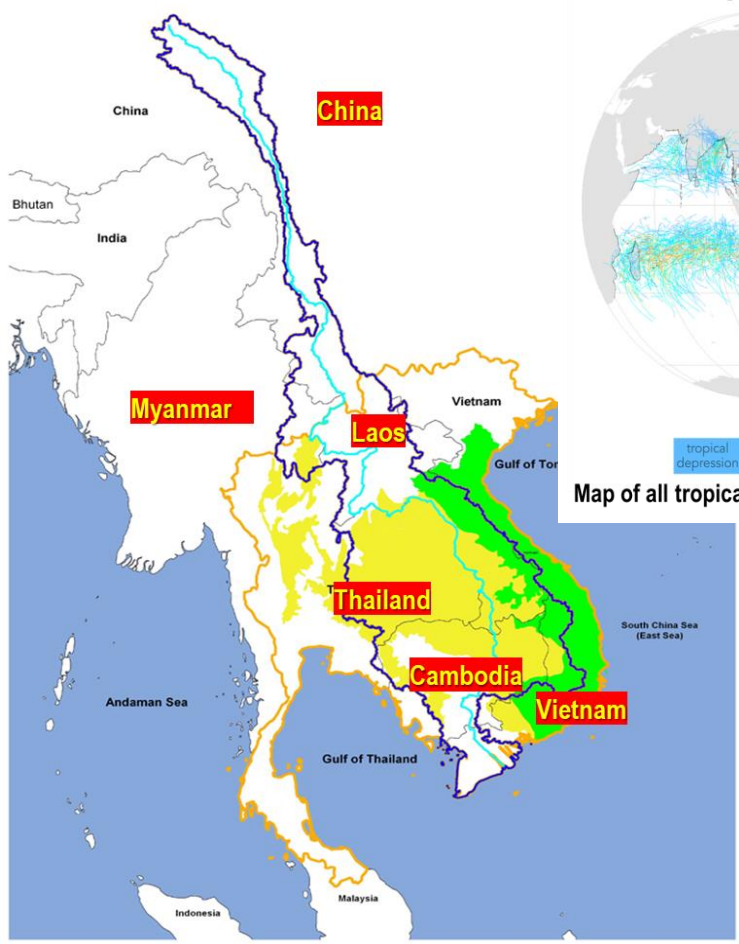
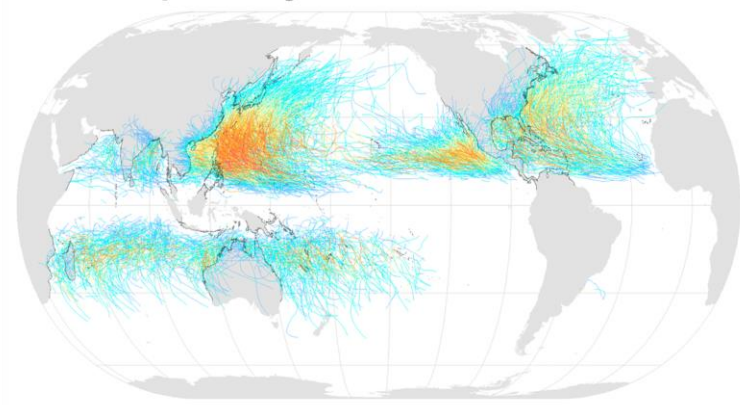


# New Adaptation Strategies to Support a Sustainable Watershed Management in Asia

Mekong River watershed



Tropical Cyclones, 1945–2006



Saffir-Simpson Hurricane Scale:



Map of all tropical cyclone tracks from 1945 to 2006. Equal-area projection.

Important four linkages between ???

**SUSTAINABLE DEVELOPMENT GOALS**  
17 GOALS TO TRANSFORM OUR WORLD



Center for Environmental Biology and Ecosystem  
National Institute for Environmental Studies  
(Senior Researcher)

Kyoto University, C-PIER  
(Specially-Appointed professor)  
**Satoshi KAMEYAMA**

# Sustainable Watershed Management ?

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

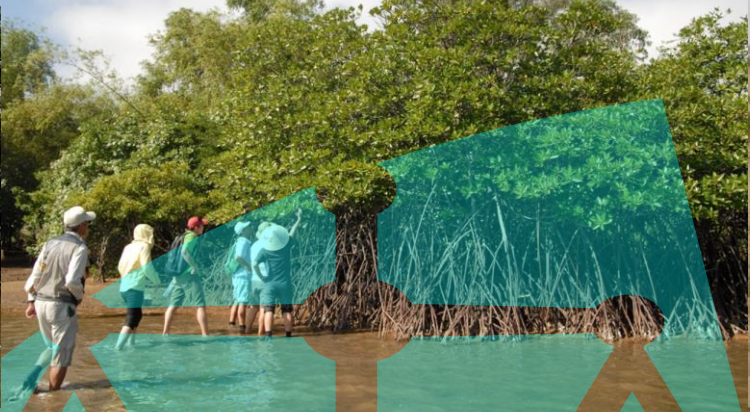
UNITED NATION  
SUSTAINABLE  
DEVELOPMENT SUMMIT  
2015



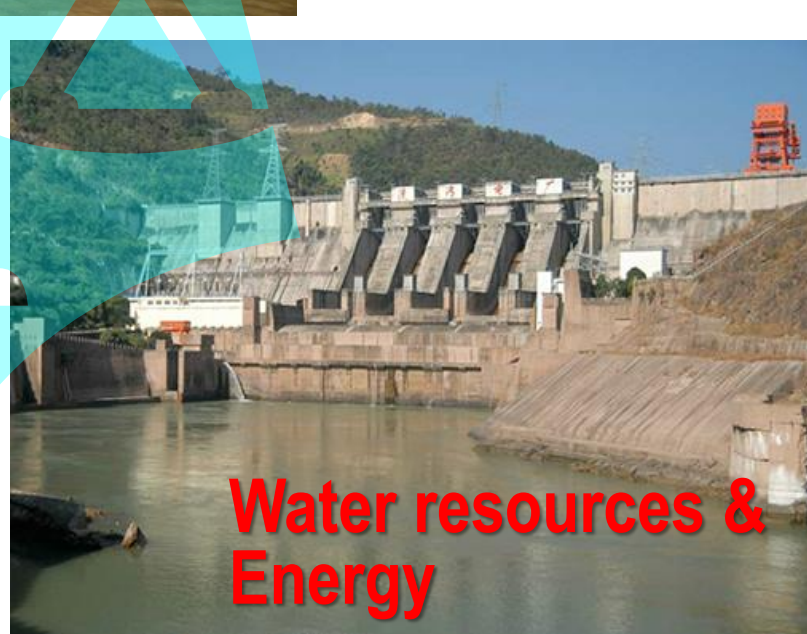
It is very easy to show the target.

# The endless **TRILEMMA** in watershed management

**Nature conservation /  
restoration**



**Disaster  
prevention/reduction**



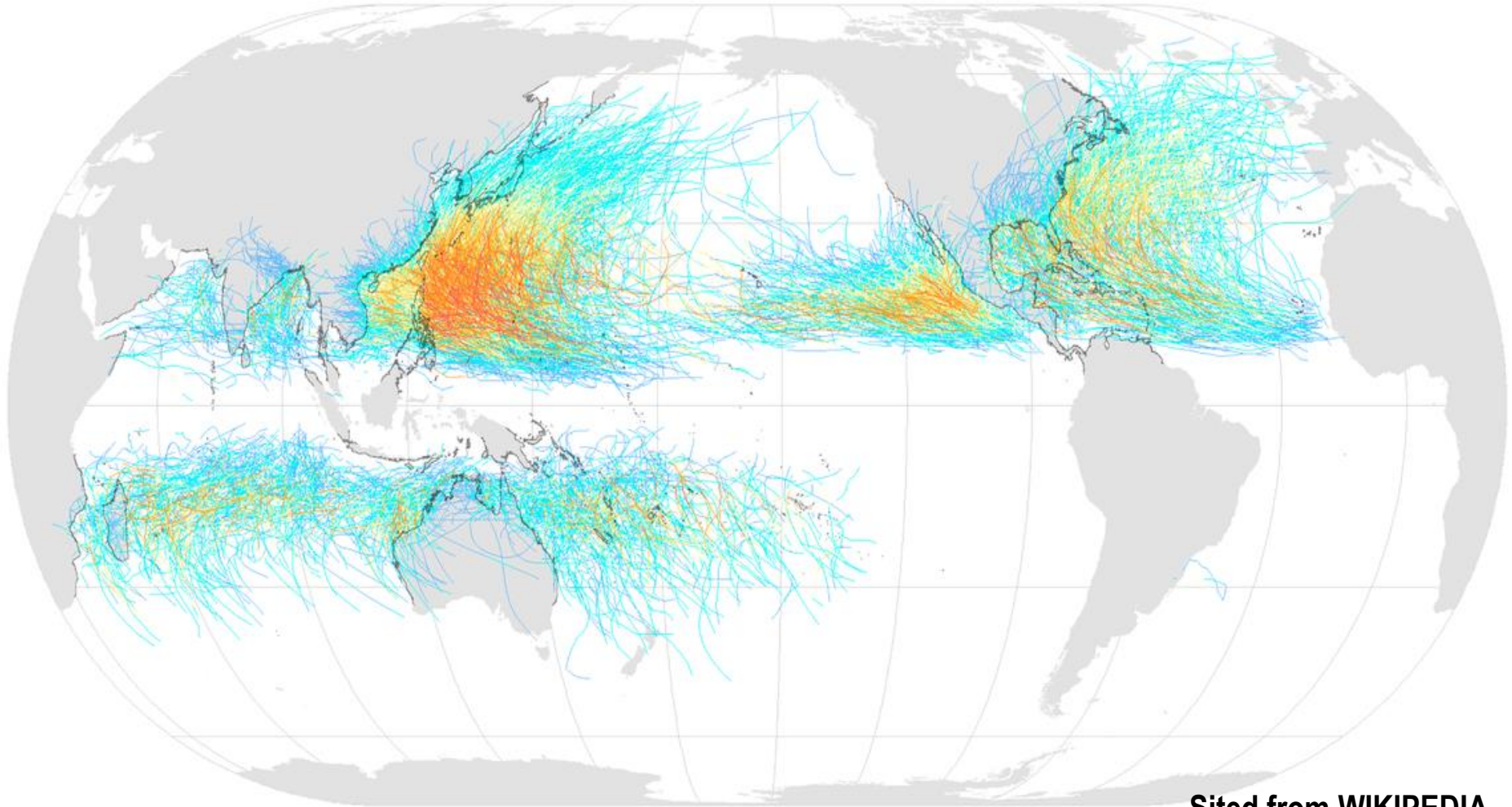
**Water resources &  
Energy**

*nearly*

All their policy are “ **correct**” →

What should we do for their harmonization

# Tropical Cyclones, 1945–2006



Sited from WIKIPEDIA  
(Tropical cyclone)

Saffir-Simpson Hurricane Scale:



**Map of all tropical cyclone tracks from 1945 to 2006. Equal-area projection.**

# 台風24号 (29日5時推定)

大きさ	大型
強さ	非常に強い
方向・速さ	北 15 km/h
中心気圧	950 hPa
最大風速	45 m/s
最大瞬間風速	60 m/s = 216 km/h

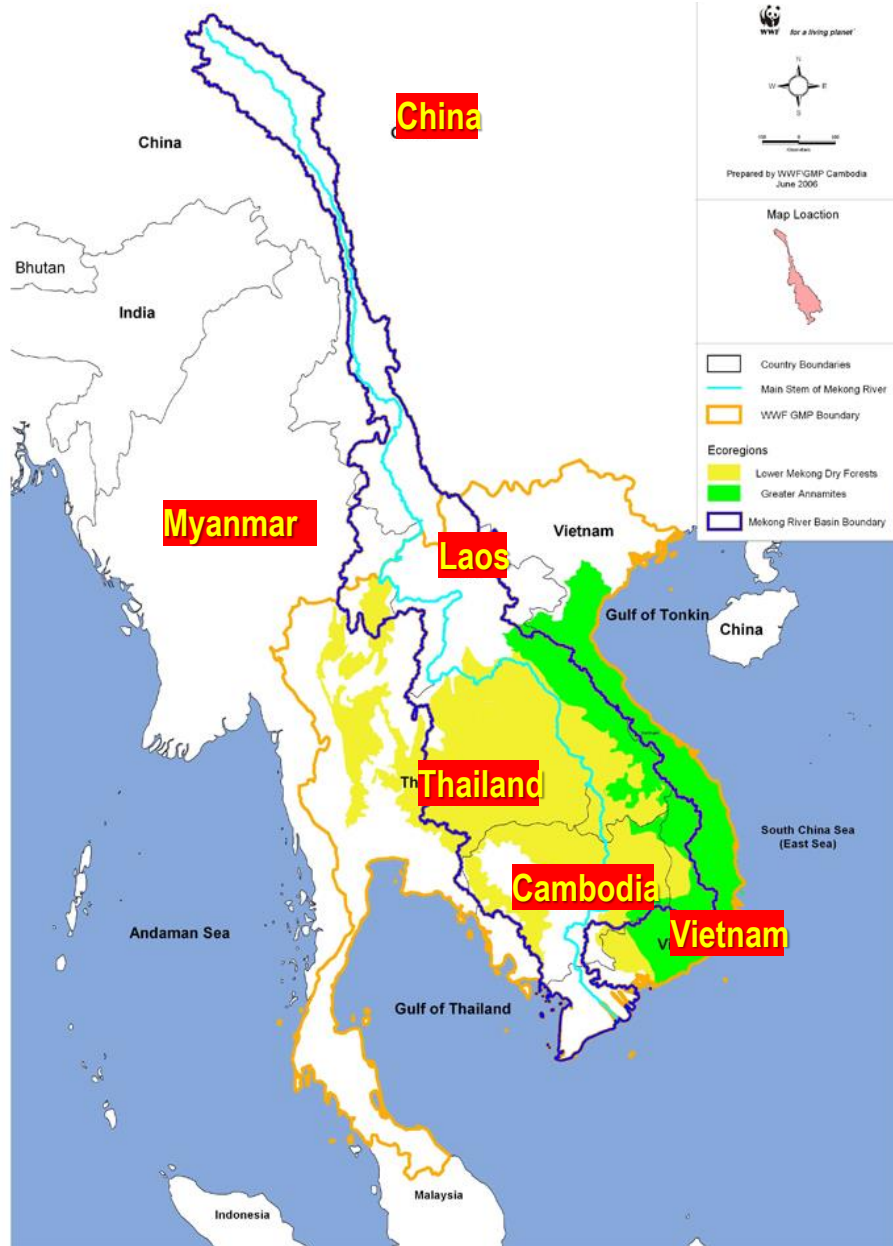


Sited from weather news H.P.

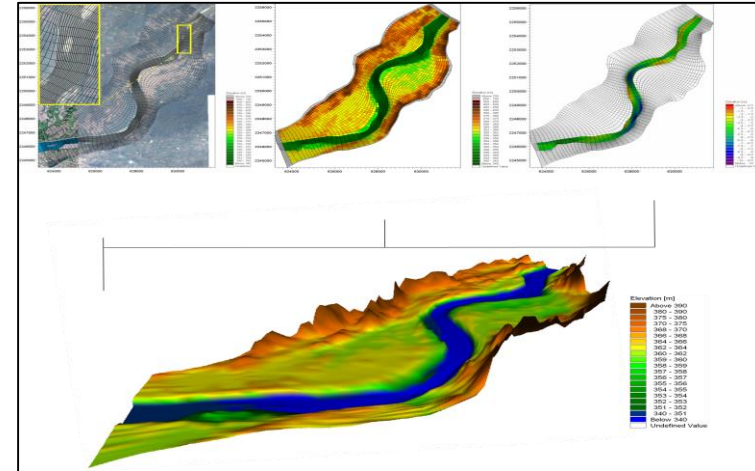


The path of the typhoon (24) in 29 Sep. 2018.

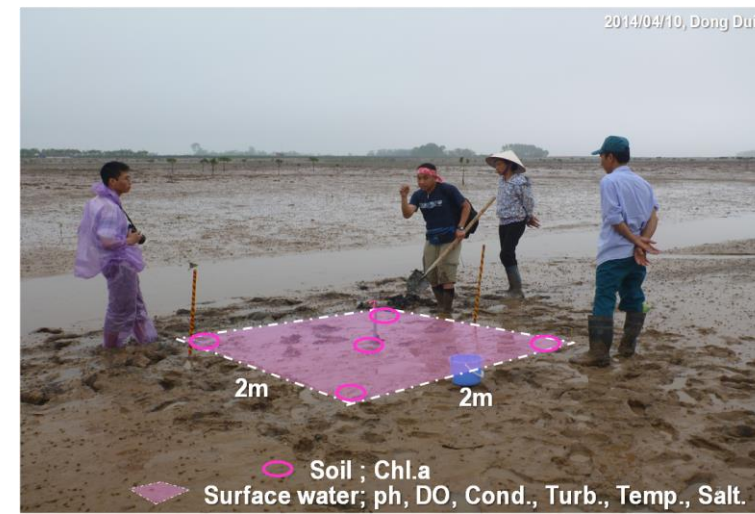
# Important four linkages between ???



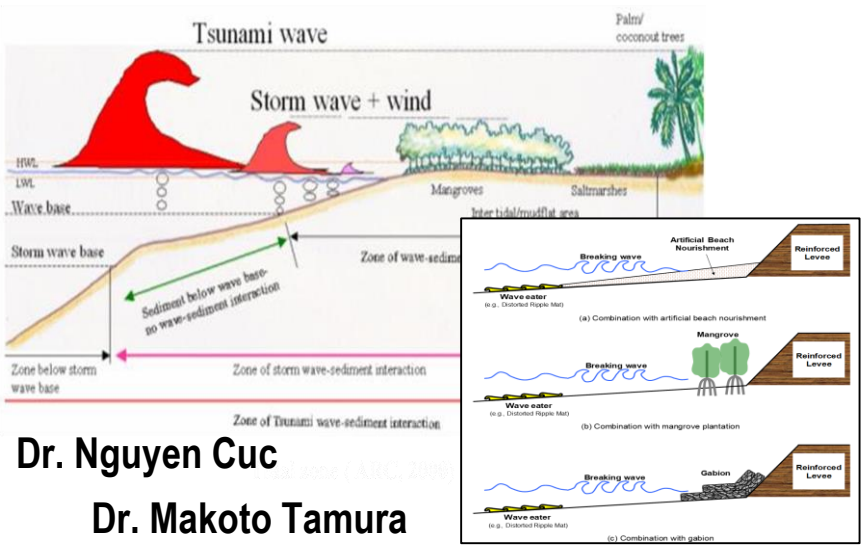
## Big data and Simulation Model?



## Field data and Statistical Model?

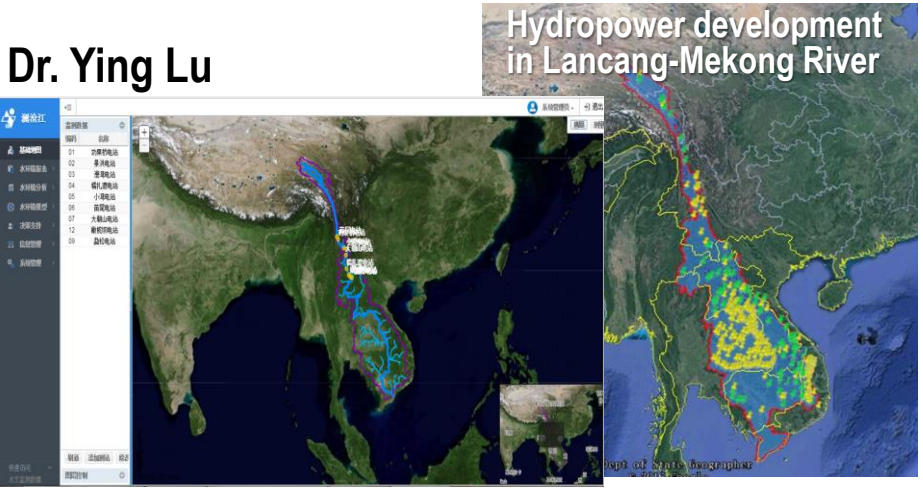


# 1) Geosphere & Biosphere



Dr. Nguyen Cuc  
Dr. Makoto Tamura

# 2) Upstream (freshwater) & Downstream (marine)

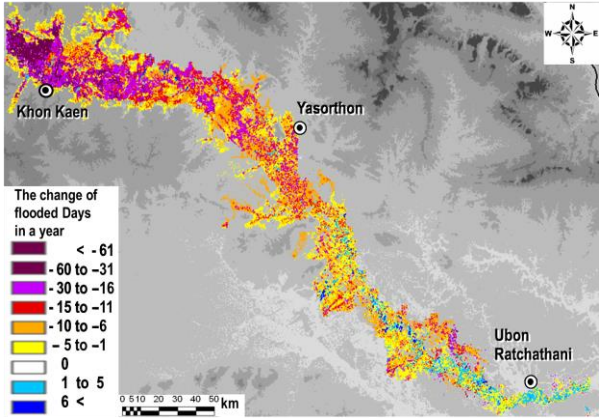


Dr. Ying Lu

Hydropower development in Lancang-Mekong River

# 3) River channel & Flood plane (Riparian zone)

The change in the number of flooded days from 1945 to 2002



# 4) People (Organization) & People (Organization)



Face to Face communication

**Thank you for your attention!.**

4<sup>th</sup> NIES International Forum (Hanoi, Vietnam)  
2019/Feb./23-24

