

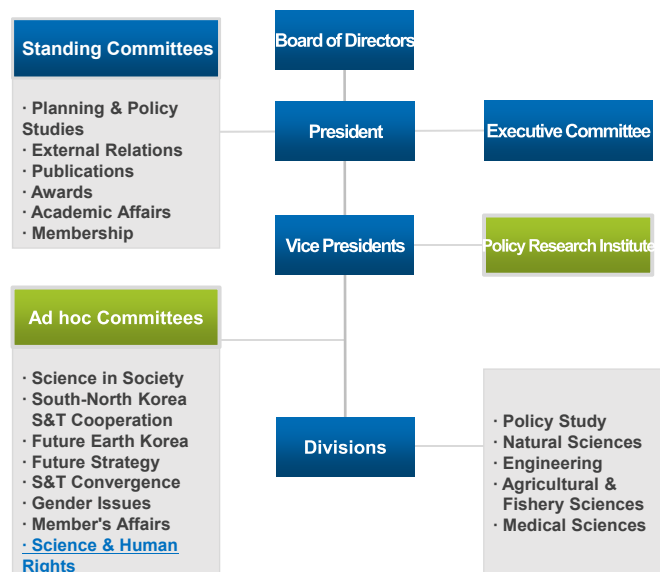
The Role of Academies in Supporting the SDGs: The Korean Academy of Science and Technology (KAST)

Proposal for Multidisciplinary Research for Health and Disaster Response in a Changing Climate:

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Organization of KAST



- Five Divisions with **492 fellows**
 - Policy Study
 - Natural Sciences
 - Engineering
 - Agricultural & Fishery Sciences
 - Medical Sciences
- **449 Fellow Emeritus**
- **125 Y-KAST Fellows**
- **76 Foreign Members**





Role of KAST

- A. Convening Power
- B. Promotion of Science
- C. Global Leadership



Convening Power

Presenting long-term visions
in the field of S&T

based on its independent consultation and
recommendation on governmental policies

- **KAST Roundtable Discussion**
 - held 8~10 times per year
 - 129 times since its launching (1994)
- **Trusted Reports**
 - Policy Study Reports
 - Voice of the KAST



Policy Proposals for Multidisciplinary Research for Health and Disaster Response in a Changing Climate

by Kim et al. (2018. 12):
Yonsei University division of KAST



THE GLOBAL GOALS
For Sustainable Development

YONSEI UNIVERSITY
KAST Research Report 2018

변화하는 기후에서
보건 및 재난 대응을 위한
다학제간 연구에 대한 정책적 제언

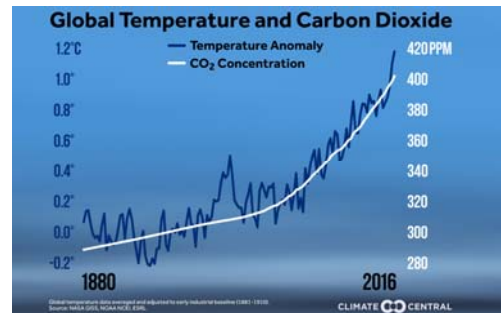
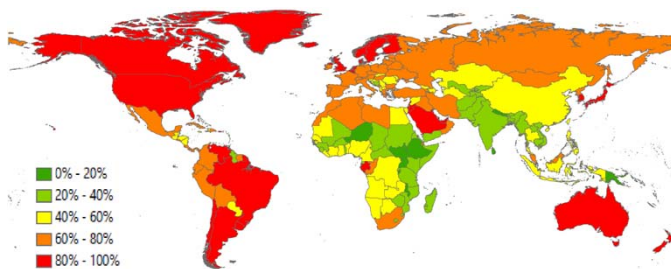
Policy proposals for multidisciplinary research for health and disaster response in a changing climate



Urbanization

Global Warming & Urbanization, World-wide issue

Urbanization percentage



- Only 2% of the world land but >50% in the population in cities
- 1.3 million people into cities each week
- 75% of the world's resource are used
- Strong greenhouse gases emission
- Vulnerable to natural and anthropogenic disasters (e.g., heatwave, flood, air pollution, etc)

Urbanization

Urbanization in Korea

▪ **Rapid growth of megacities in Asia**

1) Rapid economic growth of Korea since 1970

- ✓ 17% of land cover
- ✓ ~90% of population

2) Moving toward the urban re-development stage

- ✓ ~ 40% buildings are older than 20 years



Industrialization

Dark side of the rapid industrialization



Apartment collapse (1970): 33 death



Department store collapse (1995): 501 death

A bridge collapse (1994): 32 death



Flash Flooding in the new Central Business District (2011-2013)

Industrialization

Sustainable Urban Development:

- Universal Health Care System started in Korea (1999)
- Large aging population and declining birth rate (<1.0)
 - Susceptible urban structure to natural disaster and extreme weather events
 - Mess of communications and blackout influence on healthcare systems

Mess of Communications (2018)



Massive Blackout (2011)



Collapse of Emergency system



Avian Influenza



MERS incident (2015) / Swine flu (2009)

Urbanization

- There are **known knowns**
- There are **known unknowns**
- But there are also **unknown unknowns**

Donald Rumsfeld

Research Organization focusing on the Unknowns.

- **Advance of sciences of weather, environment and health in changing climate**
- **Public outreach and information for decision makers**

The image is a collage of various elements arranged in a roughly circular pattern. At the top left, a satellite orbits a bright orange sun. Below this is a cityscape with wind turbines and solar panels. In the center, there are images of a storm and autumn trees. To the right, a person stands in a city street, and a mosquito is shown on a skin surface. Text boxes are placed around these images, and a large oval at the bottom contains a cityscape with the text 'Megacity and Sustainable Society'. The phrase 'Thank you for listening !!' is written in the bottom right corner.

Communications & Infrastructure

Energy

Extreme weather

Air pollution

health

Megacity and Sustainable Society

Thank you for listening !!