



Climate Change and COVID-19

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The health-climate connection:

- In **Bangkok**, industrial growth and vehicle use led to a 23% increase in pollution from 1998- 2016. As a result, residents' life expectancy is cut short by 2.4 years. ([Greenstone 2019](#)).
- 2019 dengue cases reached 50,000 in **Bangladesh, Indonesia, Sri Lanka and Thailand**.
- The 2004 Indian Ocean tsunami killed some 230,000 and affected 12 countries including **Indonesia, Thailand, Sri Lanka, India, Maldives and Myanmar**.

Evidence for action

COVID-19 and Climate Change Situation in Southeast Asia



In 2019, more than 2.4 million people in [Bangladesh](#) including 1.3 million children are affected by flooding, cyclone

- during health response systems are working hard to contain the spread of the COVID-19
- and urgently needed water, sanitation and hygiene supplies to communities in need.



Over 6 million people in [India](#) are affected by flooding

- at the same time as daily number of COVID-19 cases crossing the 30,000 thresholds



More than 100 people in [Nepal](#) are affected by flooding and landslides , estimated 7,500 displaced from their homes.

- This same period has also seen a significant number of COVID-19 positive cases.

“Does climate change affect the transmission of **COVID-19**?”

The first question is how the corona virus that transmit them will respond to temperature, rainfall and other impacts.



There is currently no conclusive evidence that either....

weather (short term variations in meteorological conditions) or **climate** (long-term averages)

have a strong influence on the transmission

(WHO, 2020)

Early Warnings: The Lessons of COVID-19 for Public Health Climate Preparedness

Mary C. Sheehan¹  and Mary A. Fox¹

Abstract

The early 2020 response to COVID-19 revealed major gaps in public health systems around the world as many were overwhelmed by a quickly-spreading new coronavirus. While the critical task at hand is turning the tide on COVID-19, this pandemic serves as a clarion call to governments and citizens alike to ensure public health systems are better prepared to meet the emergencies of the future, many of which will be climate-related. Learning from the successes as well as the failures of the pandemic response provides some guidance. We apply several recommendations of a recent World Health Organization Policy Brief on COVID-19 response to 5 key areas of public health systems – governance, information, services, determinants, and capacity – to suggest early lessons from the coronavirus pandemic for climate change preparedness. COVID-19 has demonstrated how essential public health is to well-functioning human societies and how high the economic cost of an unprepared health system can be. This pandemic provides valuable early warnings, with lessons for building public health resilience.

Keywords

COVID-19, climate change, public health

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Early Warnings: The Lessons of COVID-19 for Public Health Climate Preparedness

Sheehan, Mary C., and Mary A. Fox. "Early warnings: the lessons of COVID-19 for public health climate preparedness." *International Journal of Health Services* 50, no. 3 (2020): 264-270.

Introduction

The researchers have been concerned for decades about the potential for global warming to support conditions for infectious disease outbreaks and to amplify other health impacts associated with heat, drought, storms, and related hazards.

COVID-19 pandemic serves as a clarion call to governments and citizens alike to ensure public health systems are better prepared to meet the emergencies of the future, many of which will be climate-related.

Climate change also affects health indirectly, through interaction of climate hazards with social, natural, or built environments.

Such as in 2018, 220 million more older adults were exposed to heatwaves, a top cause of direct climate related deaths, than in 2000.

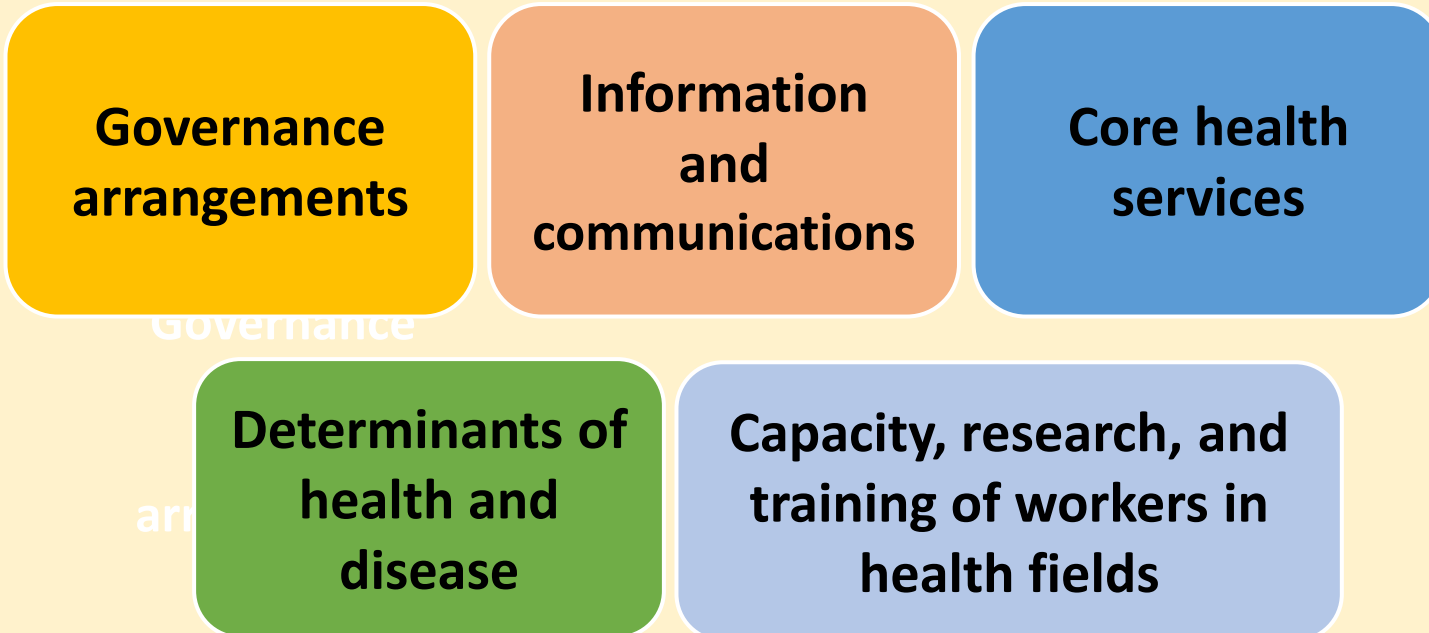




Identified of challenges by Adaptation Gap Report of the UNEP

- ✓ Building health system skills, workforce, and funding
- ✓ Placing greater attention on economic and social factors that lead to climate relevant disease
- ✓ Enhancing use of climate-adaptive tools such as early warning systems, and enhanced surveillance

The framework for building blocks of resilient health care systems defined by WHO



Objective : Learning from the successes as well as the failures of the COVID-19 pandemic response provides some guidance

SCOPE : This paper is apply several of recommendations to the 5 climate-related public health system gap areas to suggest some early lessons from the coronavirus pandemic



Lesson from the COVID-19

Institutional confusion across agencies:

COVID in US: demonstrated miscommunication and unclear mandates among large federal agencies and state public health department resulted in lost time and lives

WHO policy briefs recommends actions aim to ensuring clarity in roles, relationship, and coordination mechanisms in health system governance



Clear roles and responsibilities



Challenges of sourcing, stockpiling, and distributing emergency equipment and of scaling up hospital

In 2019 California wildfires and 2020 Australia bushfires: a shortages of N-95 Masks

Climate change is creating the need for clearer coordination mechanisms and defining public health relationships with partner agencies

- Urban planning department to reduce the urban heat island effect
- Water utilities in time of drought
- Electric power utilities to ensure hospital post-disaster response

“
Lesson from the COVID-19 pandemic is that addressing health challenges from climate change will require redoubling efforts to define clear modes of collaboration among actors with responsibilities that affect health outcomes in a crisis
”

Korea: quickly responded to COVID with

- strong messaging on hand washing & social distancing , twice-a-day press briefings

Others: Daily updates on COVID-19 cases

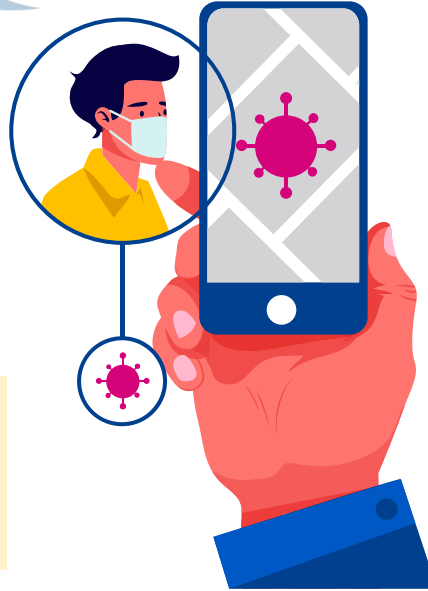
- Hospitalizations & deaths by age, gender

National and global mapping initiatives have also sprung up : **Johns Hopkins Center for system Science & Engineering COVID-19 map**

WHO Policy Brief recommends expanding communication capacity and proactively managing media relations

“ Information ”

Risk communication



Information-related activities of climate adaptation actions by local governments such as

- Geographic information system mapping of extreme heat and flood hazards including vulnerability factors

This information could be scaled up to address additional risks and locations by incorporating surveillance and risk data and climate-relevant health monitoring indicators

More regular communication with the public via regularly updated online portals and direct text messaging would contribute to better public emergency preparedness and resilience

- “
- COVID-19 has demonstrated the importance of health information and shown there is a strong demand for it
 - Both the public and public health agencies could benefit from amplifying information flow on climate-relevant disease surveillance, risk and hazard information, and strategies, particularly for the most vulnerable
- ”

Use experience of dealing with other epidemics to guide detection, case reporting, surveillance in managing an infectious disease epidemic (Exp. H1N1, Zika, SARs)

Singapore employed digital contact tracing,
Massachusetts has hired a corps of 1,000 contact tracers as an auxiliary to DOPH

WHO Policy Brief recommends training, mobilizing, and repurposing the health workforce according to priority services

“Service”

Climate change similarly challenges the effective delivery of public health services to engage with digital technology and to train, retain, and repurpose the workforce.



Citizen-science initiatives: collecting temperature data in areas of cities that may be vulnerable and poorly reflected in regular measurement systems, or documenting locally occurring flooding in poorly mapped, at risk neighborhoods

“

- The experience of COVID-19 suggests the opportunity for and some public willingness to support, nontraditional approaches to augment core public health service provision in order to address growing risks from climate change impacts on health

”

The measures to prevent COVID-19 resulted unprecedented economic impacts
Restrictive social-distancing causes global growth slow by 2% per month, whereas global trade fall by 13% to 32%

In **US**, unemployment claims had reached 16 million by mid-April 2020

Impacts of COVID-19 have also brought decreased greenhouse gas emissions

- In 2020 reduction of 6% in global energy demand, as well as major reductions in transportation

Milan city are planning way to continue the health advantages of reduced vehicle traffic by adding bike lanes (active transport)

“Determinants”

Health & environmental & economic & social well-being



Climate change-related population impacts are likely to be extensive

- Disaster: injury, lost of life, damage to property and assets that affect personal financial well-being and mental health

Hurricane Katrina: survivors have post-traumatic stress even 12 yrs after 2005 storm

Effective public health policy that takes account of determinants of health will increasingly need to address the social and economic well-being of the most vulnerable, provide for social safety nets, and account for mental health needs

- The ongoing effort to define policies that protect populations from the enormous economic impact of COVID-19 combined with the reality of reduced emissions may provide opportunities to identify sustainable social protection strategies for climate-related population health risks

Hong Kong's strategy to combat COVID-19 is good lesson in public health leadership

- Rapid and intensive surveillance
- Case and contact isolation
- Strict social distancing
- Closing of schools
- Effective communication

HK: university, partners, citizen volunteers develop open database of COVID policies, rating the success intervention “stringency index”

The WHO checklist recommends bolstering the capacity of public health organizations and professionals to respond to an emergency

“Capacity”

Technical skills, data, knowledge & leadership



Building more effective capacity to reduce the risks of COVID-19 is likely to also help public health agencies improve their adaptive capacity to address climate related population health risks

CDC Climate-Ready States and Cities program or the **Center for Climate Change and Health** capacity building project, have shown what can be done at low cost to train the public health workforce in local jurisdictions

- **COVID-19 would be helpful to bolster climate adaptive public health capacity**
- **Public health actors have an opportunity to transition from the strong leadership role they have with COVID-19 to an enhanced leadership role within climate change planning and action**

What have we learned from COVID-19 ?

Governance

The challenges of the pandemic and of climate change both require proactive action from **public health agencies** to protect populations, and responsive and frequently updated **health information**

Information

Health agencies will also need to double down on their core functions and may benefit from enlisting the support and **engagement of citizen volunteers**

Service

Capacity

Interventions in support of climate-relevant health impacts will increasingly have to take into account **broader determinants and the full concept of well-being**

Determinants

Public health field will also need to model **adaptive capacity leadership** and to work to build the skills required for this, including better integration in broader climate change planning and action.

Take home message

COVID-19 has demonstrated how essential public health is to well-functioning human societies and how high the economic cost of an unprepared health system can be. It provides us with **valuable early warnings of future risk in a warmer and less predictable climate**

Climate Change and COVID-19 in Thailand

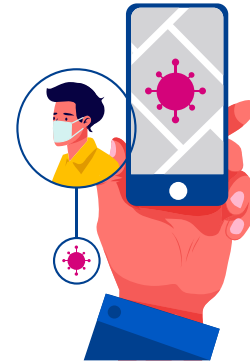
“COVID-19”

Governance

All sectors work integrated under Center for COVID-19 Situation Administration (CCSA) both the national and regional levels

Service

- Detection, case reporting, surveillance in managing COVID-19
- Use application Thai-Chana to checked COVID-19 measures



Information

- Health sector have communicated about DMHTT to protect from COVID-19 ,
- Report daily case , deaths, age, gender on social network (Facebook , Line)

Determinants

- COVID-19 resulted economic impacts damage financing , mental health , suicide
- Social mobility such as Tu Pan Suk

Capacity

- Public Health guideline and recommendation to protect COVID-19

Climate Change and COVID-19 in Thailand

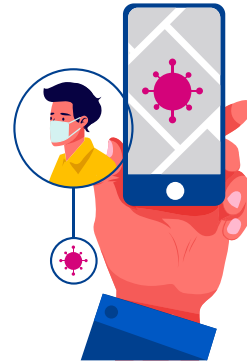
“ Climate Change ”

Governance

- Policy context for managing health risks contained in the National Strategy plan , Thai CC Master Plan , NAP , HNAP
- G&C hospitals increase climate resilience and environmental sustainability, especially reduction of energy

Service

- Community engagement and partnerships on surveillance
- Health service units working with local sectors when disaster strikes



Information

- Have disaster surveillance system by TMD , DDPM
- Lack of impact base information ; geographic information system mapping of extreme heat and flood hazards including vulnerability factors

Determinants

- Have a many climate change project ; CSR , Energy saving measures, Planting trees ,G&C Hospital

Capacity

- A training module for health sector
- Health literacy for protect health impact from disaster

Benefit from this paper to Thailand for Climate Change and **COVID-19**

01

Can be applied to strengthen health systems for the challenges ahead follow 5 keys of WHO recommendation

02

Develop effective surveillance and communication systems against climate change and health in the future

03

Develop the economy or the city in the future along with the cultivation of a consciousness of health

Challenges for Climate Change and COVID-19

While CC & COVID activities are underway across the region, much more needs to be done,

- **Preparing systems** for climate-driven shifts in disease burdens and disaster impacts, including continuity of care during and after disasters.
- Doctors, nurses, medical students and others in the health care community, as well as community members at large, are needed to **advocate for climate resilience**.
- The big challenge is to go beyond current efforts to mitigate climate changes – **to prepare for future impacts**

Benefit from this paper to Thailand for Climate Change and **COVID-19**



As a working guideline for the Department of Health Used to drive Climate Change Adaptation for Health Sector



Useful to educate public health workers for a lesson lean to apply for both health promotion and environmental health



THANK YOU

Climate Change and Health in Thailand



Thailand's Current Status



Following WHO Operational Framework for building climate resilient health systems



1

- **Strengthen CC&H unit** at Department of Health, Ministry of Public Health, Thailand.

- **Develop coordinating platforms for CC&H focal point** to other climate-sensitive programmes and health-determining sectors (such as water, environment, agriculture, energy).

Competent and functional climate change and health (CC&H) unit



- **Health national adaptation plan (HNAP):**

- National Adaptation Plan on CC in Health Sector 2020 – 2030
- Develop M&E framework for HNAP

THE NATIONAL ADAPTATION PLAN ON CLIMATE CHANGE IN HEALTH SECTOR 2020-2030

Vision

Thailand achieves international excellence and best in class of Asia in managing health and climate risks

Ultimate Goal

- “ Decrease morbidity, Decrease impacts to the country, and being learning center in Asia”
1. Decreasing of morbidity and mortality rate caused by Dengue, Malaria, Heat-related illness, Natural disaster related illness, injuries and death, malnutrition, respiratory diseases, not less than 5%/year
 2. 100% of health risk areas on climate change has been managed meet the standard
 3. Decreasing of economic loss due to climate change related health problems by 20%

Mission

1. Formulate public health policy and direction in response to CC
2. Establish national excellence on health & climate risks management
3. Enhance cooperation in national, ASEAN & international level on CC & health management to ensure the most benefits to Thailand

4 Strategic issues

Strategy 1 :
Strengthening community capacity & people skills in health literacy coping with health risks from CC

Relevant agencies: MoPH/MoI/MoNRE/M.Social dev./M. Education/MoAC/M. Labor/Public and Private sector

Strategy 2:
Integrating capacity of all sectors to drive public health implementation & CC & extending supports to ASEAN & Asia

Relevant agencies: MoPH/MoEn/MoI/M.Industry/M. Defence/MoFA/M.Education/Public and Private sector

Strategy 3:
Strengthening public health preparedness in CC for national driven on economic, social & security

Relevant agencies: MoPH/M.Tourism/MoI/M.Industry/Private sector

Strategy 4:
Developing international excellence public health system dealing with CC

Relevant agencies: MoPH/MoI/MoST/M.Digital/MoNRE/M.Education/NIEMS/Private sector

2



- **Advocate on climate and health for policy-makers.**
- MOU between DOH and ONEP on CC adaptation
- Collaboration between MOPH, MONRE and GIZ on Risk-based National Adaptation Plan(Risk-NAP) project

- **Provide training for selective health workforce on CC&H.**

- Training module development and workshop on CC & H for executive level and practitioner at national & subnational level



Training module development on CC & H Collaboration between DOH, ONEP, and GIZ-Thailand

Workshop on CC and health for National and Regional PH officers



Workshop on CC and health for Provincial Public Health officers



26

Health professionals with better awareness and understanding on CC&H

2

- **Integrate climate and health modules in existing curricula/courses** – integrate in training modules of caregiver & Care manager (heat-health, PM2.5)



- **Develop and implement a CC&H communication strategy (awareness and advocacy)** – Risk communication via social media, LINE groups, Facebook, Website, etc.



Download:

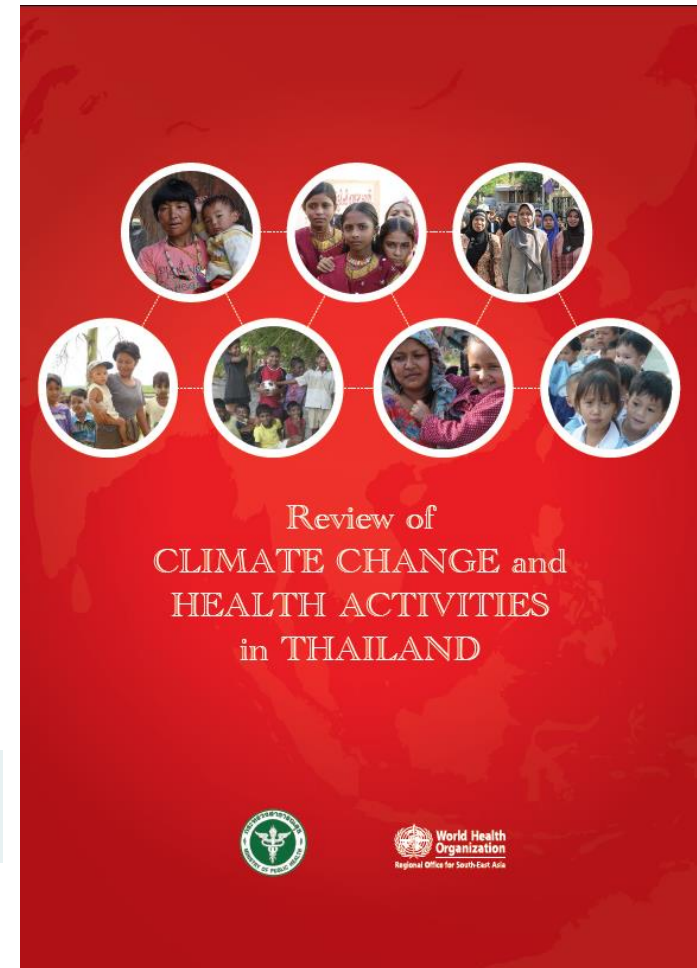
http://hia.anamai.moph.go.th/main.php?filenam=hia_book_2

3

- **Develop/update health vulnerability assessment**

Review of climate change and health activities in Thailand (WHO, 2016)

Health V&A developed and reported for Thailand



4

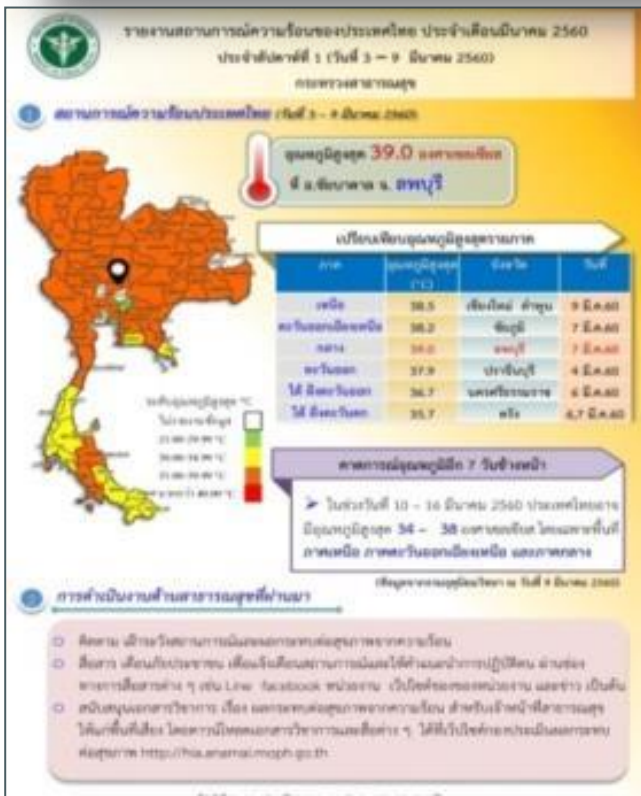
• **Prioritize climate-sensitive diseases (CSDs) and develop integrated monitoring system with climate data.** – Developing DOH Dashboard on

- **Heat-related illness** and temperature
- **Air pollution-related illness** and PM2.5

• **Pilot-test early warning system for Heat-Health warning system**

- Develop heat-health warning criteria and surveillance system collaborating with TMD
- Integrated risk monitoring in Heat-health action plan in communities

Develop and implement effective risk communication strategy for the health issues of concern - Develop Heat & health advisory for risk groups (eg. infants, elderly, pregnant women, patients, outdoor workers, athletes)





1. Development of **EH.indicators** on climate change
2. Health outcomes **related** to CC (vector-borne, water-borne/heat /RD /CVD)
3. Qualitative Health **vulnerability assessment** in Thailand
4. Development of health **surveillance and adaptation** options in community
5. Development of **heat-health warning criteria**
6. Study of **relationship between air pollution, heat and health effects** in urban area.
7. Health impact assessment from Heat in Thailand

6

CLIMATE RESILIENT
& SUSTAINABLE
TECHNOLOGIES &
INFRASTRUCTURE

MANAGEMENT
ENVIRONMENTAL
DETERMINANTS
OF HEALTH

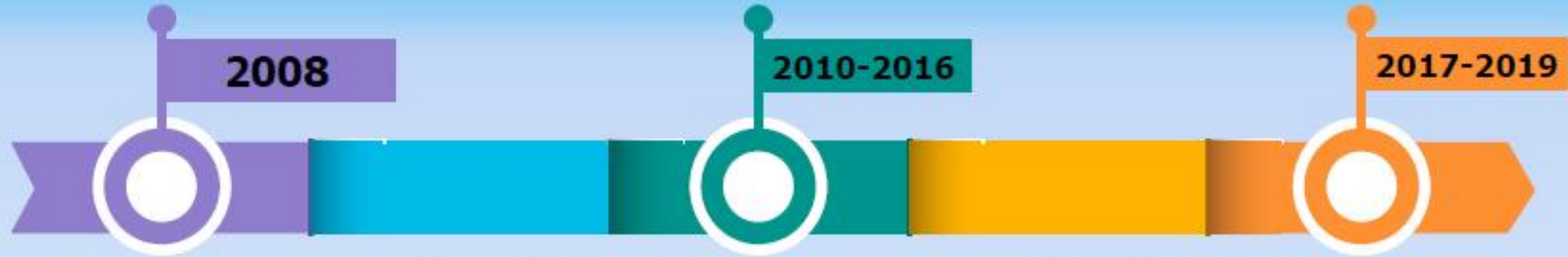
- **Formulate and implement plans of action to promote climate-resilient health facilities, including**

1. assess vulnerability of health-care to make them resilient to climate change (flooding, drought);
- 2 implement sustainable and environment-friendly products and services in health-care facilities (water, waste management, locally grown food, renewal energy).: **GREEN and CLEAN Hospitals**

- **Promote measurement of the health sector carbon footprint and implement measures to reduce emissions and monitor progress**

GREEN and CLEAN Hospitals

Development of GREEN and CLEAN Hospitals Project



New Delhi Declaration on the Impacts of Climate Change on Human Health

WHO/SEARO organized Health Ministerial Meeting

- Addressing the challenges posed by global warming and climate change
- Recognizing the need for accelerating actions to reduce the health impacts from climate change
- Called for leadership role of health sector

Reduce Global Warming through Sustainable and Ecological Sanitation Project

DOH Initiative

- Health care facilities were encouraged to join the project
- Voluntary Basis
- 814 hospitals, 3400 Sub-district Health Promotion Hospitals involved
- 190 model hospitals

GREEN and CLEAN Hospitals Project

Minister's policy

- All hospitals have to sign as one of Performance Agreement Indicator
- Innovation Competition in 2018



GREEN & CLEAN Hospital Concept/Results

GREEN Activities + **CLEAN Strategies** = **Results**

C : Communication
L : Leader
E : Effectiveness
A : Activities
N : Network

1. Effective environmental management within hospitals
2. GREEN Health Sector
3. Expand to GREEN & CLEAN Communities
4. Social benefits

1. CLEAN Strategies



13. Innovation

14. Create network for GREEN Communities

	Results (2017-2018)	Targets (2019)
Basic level	194 Hospitals (20.25%)	144 Hospitals (15%)
Good level	388 Hospitals (40.50%)	354 Hospitals (36.96%)
Best level	376 Hospitals (39.25%)	383 Hospitals (40%)
Best Plus	-	77 Hospitals (8.04%)

The way forwards



Apply climate mitigation and adaptation measures to improve health care services

Introduce new strategies/ programme for carbon footprint calculation

Promote resilient and adaptive health systems

7

Strengthen Environmental health services

for prevention collaboration with other sectors

- Such as local municipality by integrated water safety plan and sanitation management

Development of Health & CC adaptation in communities

- Flooding adaptation in Ayudhaya province
- Heat, Drought & Haze Adaptation at community level in Khonkean province



Cool Room



Cool land



Cool lann



8

Climate risks included in planning & implementation

9

EMERGENCY PREPAREDNESS & MANAGEMENT

Collaborating with Emergency response plan to extreme weather events (Flood/Drought/Heat)



Development of Public health action plan on heat, haze & drought (2HD)

- Develop 5yrs action plan (2016-2020) including 3 measures;
 1. Information & surveillance system
 2. prevention system
 3. Treatment & emergency response system

Haze



Drought



Heat

Heat, Drought & Haze Adaptation at community level in Khonkean province



เตือนภัยความร้อนที่รับผลขอมศูนย์อนามัยที่ 7

ข้อมูล : วันที่ 2 พฤษภาคม 2562

กรมอนามัย
ศูนย์อนามัยที่ 7 ขอนแก่น

ระดับที่ร้ายแรง
35.0-38.0 °C

ระดับเตือนภัย
38.1-40.0 °C

ระดับอันตราย
40.1-43.0 °C

ระดับที่ระดับอันตรายมาก
ที่เกินหรือมากกว่า
43.1 °C

ข้อมูลจากกรมอุตุนิยมวิทยา ๑๖.๐๕.๖๒ น.

คำแนะนำในการปฏิบัติตนเพื่อป้องกันผลกระทบจากภัยร้อน

- ติดตามข่าวสารหรือการเตือนภัยจากหน่วยงานราชการเสมอ
- หลีกเลี่ยงกิจกรรมกลางแจ้งในช่วงเวลา 11.00 - 15.00 น.
- สวมเสื้อผ้าสีอ่อน หลวม บางเบาระบายอากาศได้ดี
- เมื่อออกนอกอาคาร ควรสวมหมวกปีกกว้าง แว่นกันแดด และทาครีมกันแดด
- ดื่มน้ำบ่อยๆ โดยไม่ต้องรอกระหาย
- หลีกเลี่ยงกิจกรรมกลางแจ้งที่เครื่องใช้ที่มี
- ดูแลกลุ่มเสี่ยง
- หากมีอาการผิดปกติ โทรแจ้งศูนย์ฯ โทร 1669



10



- **Conduct needs assessment and resource monitoring exercises for CC&H.**
- **Develop resource mobilization plan/strategy (domestic and external) with proactive role of the health sector.** - Mainstreaming climate risk into planning process
- **Conduct sensitization and advocacy exercises within and outside the health sector for allocation of resources to address climate risks.** - Scaling Up Thailand's Climate Finance Readiness to access the Green Climate Fund – Project Pipeline Development (by GIZ Thailand)
- **Develop quality CC proposals integrating Health for development partners – IKI concept note**

Challenges : Climate change in Health sector:



Goal 3. Ensure healthy lives and promote well-being for all at all ages



Goal 13. Take urgent action to combat climate change and its impacts

Climate change offers an opportunity to strengthen health systems & cross sectoral collaboration

- 1) CC interacted with range of other factors, varied current and future risks that changing rapidly.**
- 2) Mainstream H-NAP at all levels and integrated information system for M&E H-NAP**
- 3) M&E for CCA and Health**
- 4) Cross-sector collaboration: Health Economics and CCA**

Thank you



More Information

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