

Public Health Responses to Health Risks of Climate Change

Seminar on Climate Change and Health: Exploring the Linkages

UNU-IIGH, UKM Medical Centre, Kuala Lumpur, Malaysia

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Ministry of Health

Outline of presentation

- Introduction
- Vulnerability
- Public health responses



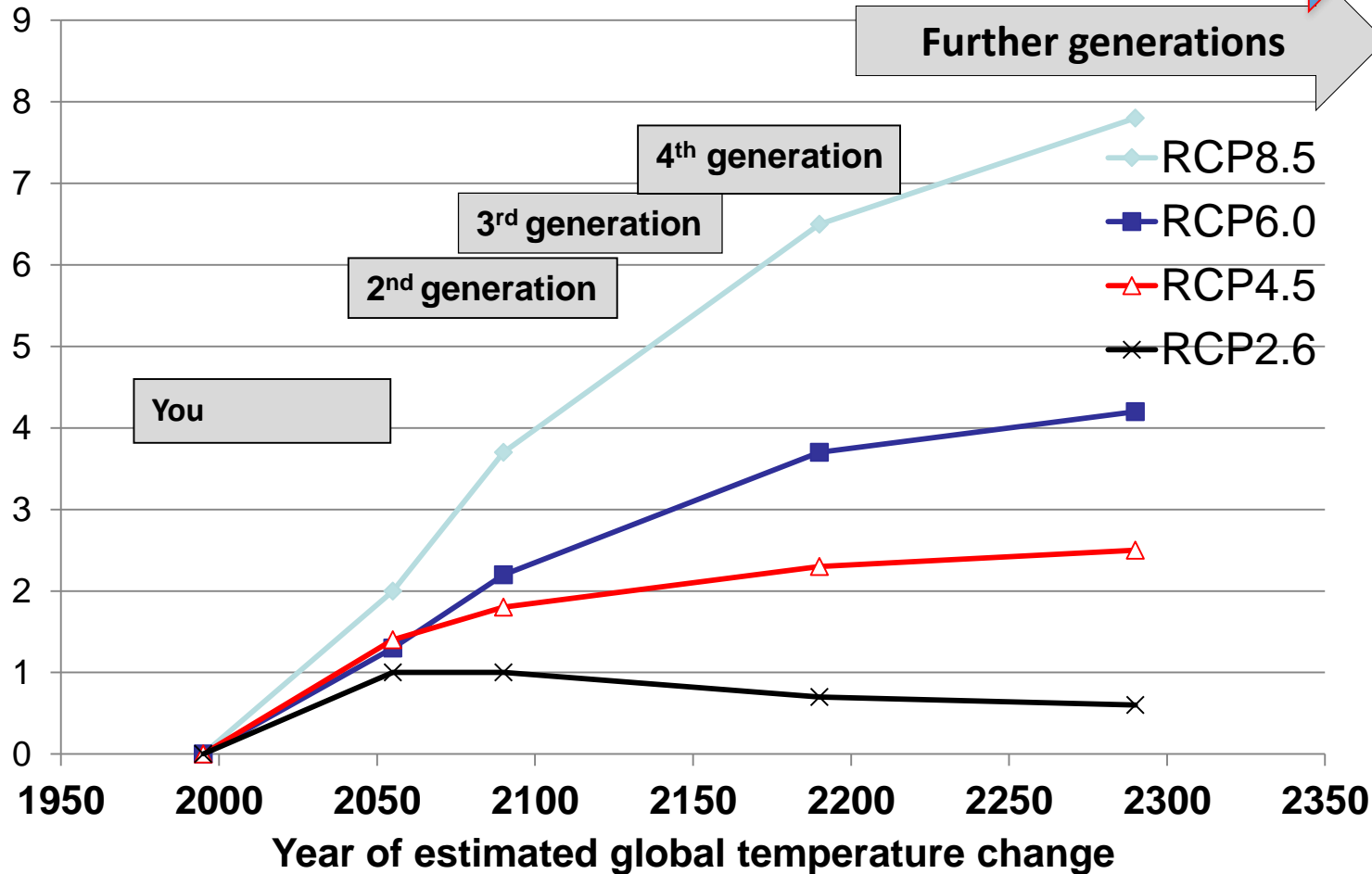


Climate change is a special threat to public health

Persistence of CO2 emitted by the past & current generations

Further generations

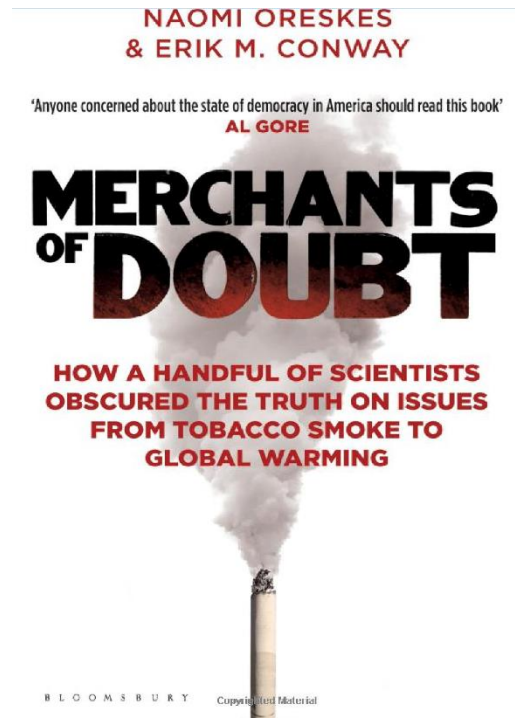
CC is long term and irreversible
Involving our future generations



Greenhouse gas	Atmospheric survival time
CO ₂	100y-1000y
CH ₄	10 y
Black carbon, CAP	5 y
N ₂ O	150y

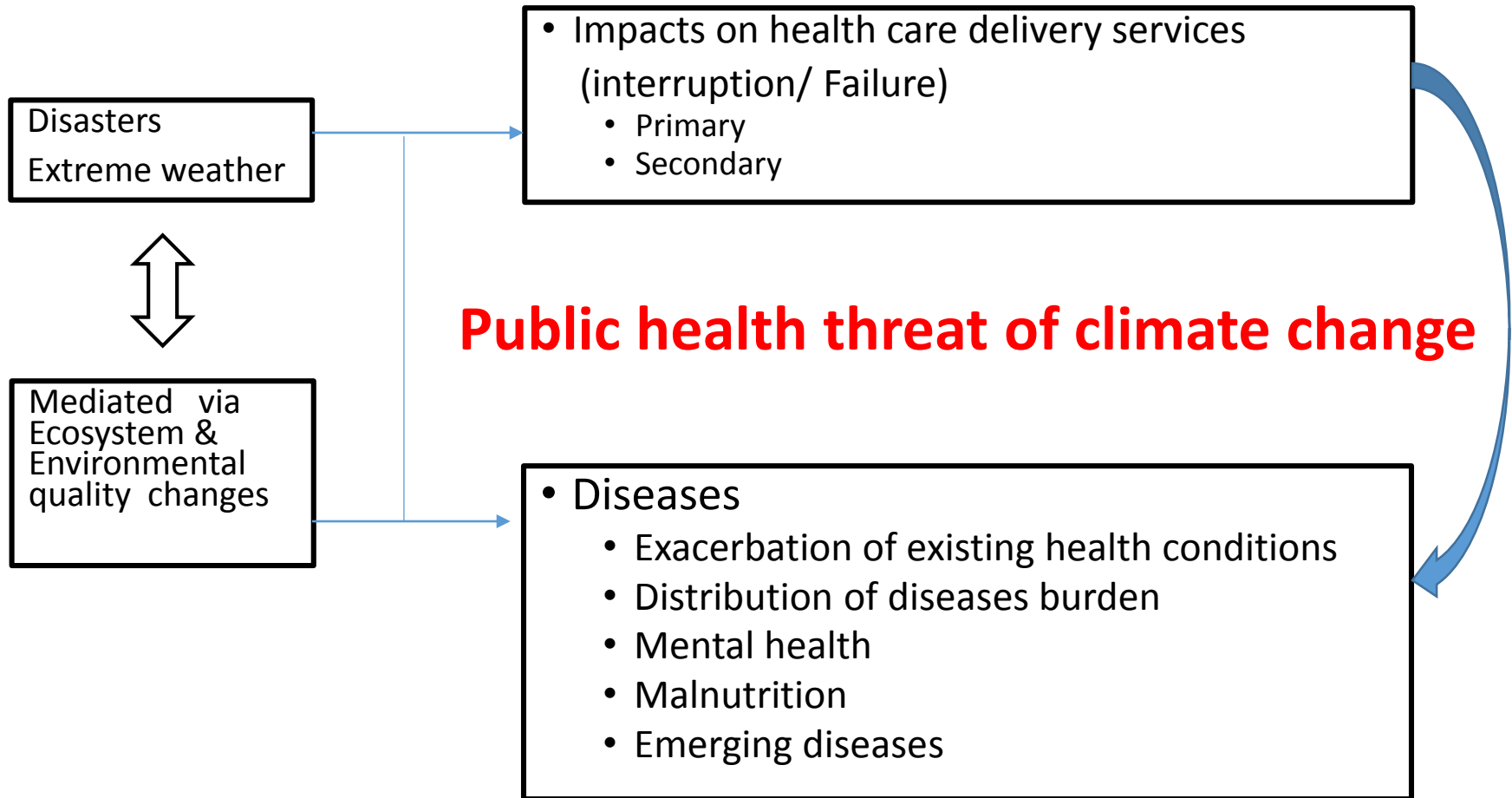
Different atmospheric survival times of some GHGs crucial for policy

- ...it means... “wait and see” policy is dangerous?



- Asking for 100% proof of attribution while the situation deteriorates (smoking deaths, lead childhood deaths, climate related deaths) and in order to **avoid responsibilities=payments**

The impacts on health



Vulnerability

*“The first step towards adaptation to future climate change is **reducing vulnerability** and **exposure** to present climate variability.”*

IPCC, 2014

Who are the most vulnerable?

- The young
- The old
- The Obese
- The PWD
- Pregnant mother
- People with acute and chronic diseases
- Poor people living and working under hot weather
- People living in poor housing conditions (poorly ventilated, no air conditioning, roof made from zinc, too many people)
- People living in disaster prone area

OVERWEIGHT POPULATIONS IN SOUTHEAST ASIA
Overweight prevalence (%) for adults of both sexes (BMI of > 25 kg/m²)



Source: WHO Non-Communicable Diseases Country Profiles, 2011



Who are the most vulnerable?

- Health facilities located in disaster prone area
 - Primary health clinics
 - Community health clinics
 - Hospitals
 - District Health Office and other health service centers

Banjir Disember 2014. Kelantan



Hospital Ampuan Zainab



Wad Hospital Kota Bharu



Stor Integrasi Hosp. K.Krai



Klinik Desa Limau Kasturi, Gua Musang



Pejabat Radicare H. K.Krai

State of vulnerability depend on:

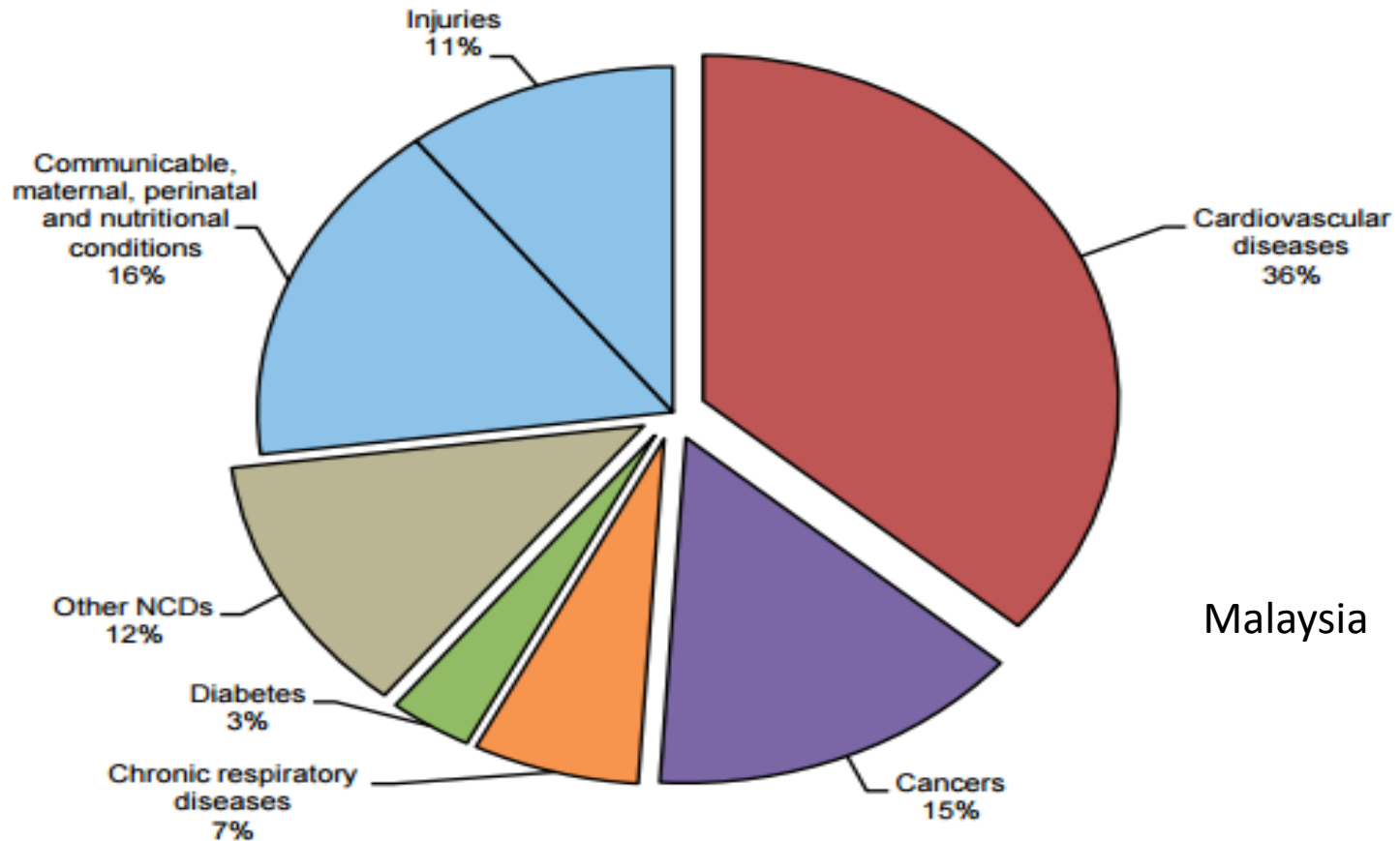
A decorative horizontal line with a blue background and a black border. It features seven circles of varying sizes and colors: a large light gray circle on the left, a small white circle, a medium white circle, a large red circle, a small white circle, a small yellow circle, and a large light gray circle on the right.

- Existing public health status
- Capacity of Public health program that we provide to control the existing health problems and prevent the future impacts
 - Primary prevention
 - Secondary prevention
 - Tertiary prevention
 - Emergency preparedness and response for extreme weather events

State of vulnerability:

Depend on the existing public health problem

Proportional mortality (% of total deaths, all ages, both sexes)*



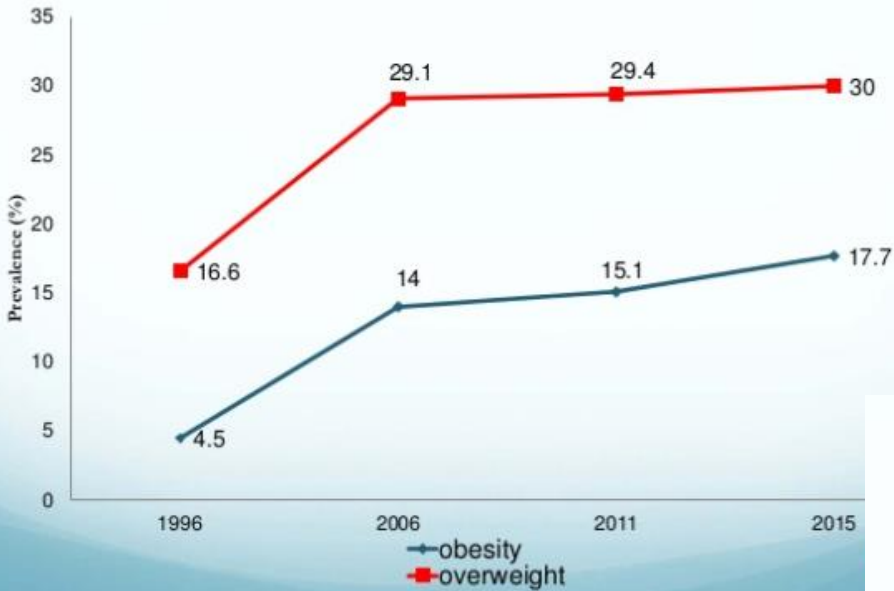
Malaysia

Total deaths: 146,000

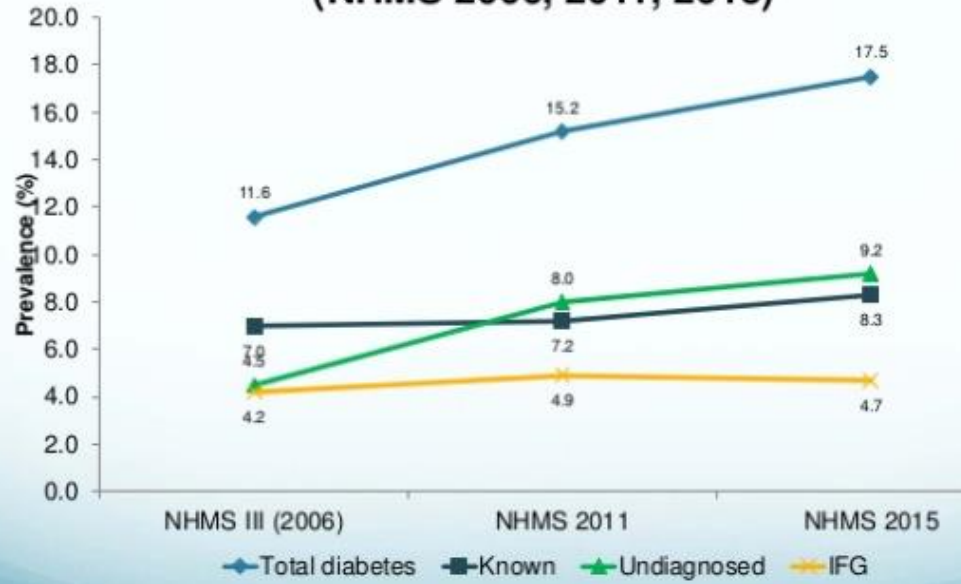
NCDs are estimated to account for 73% of total deaths.

NCD Epidemic

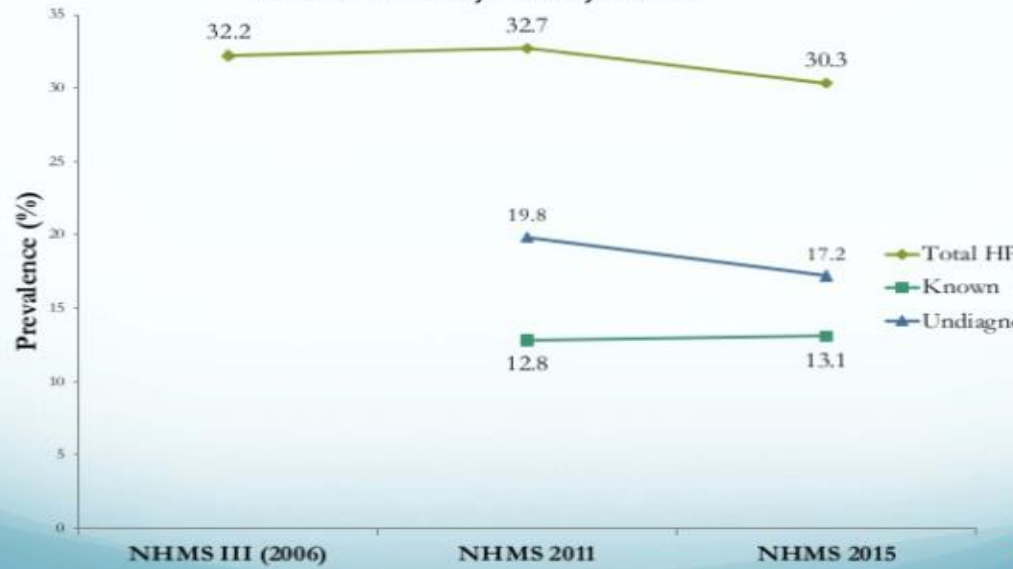
Prevalence of obesity and overweight, ≥18 years (NHMS 1996, 2006, 2011, 2015)



Prevalence of Diabetes, ≥18 years (NHMS 2006, 2011, 2015)



Prevalence of Hypertension, ≥18 years NHMS 2006, 2011, 2015



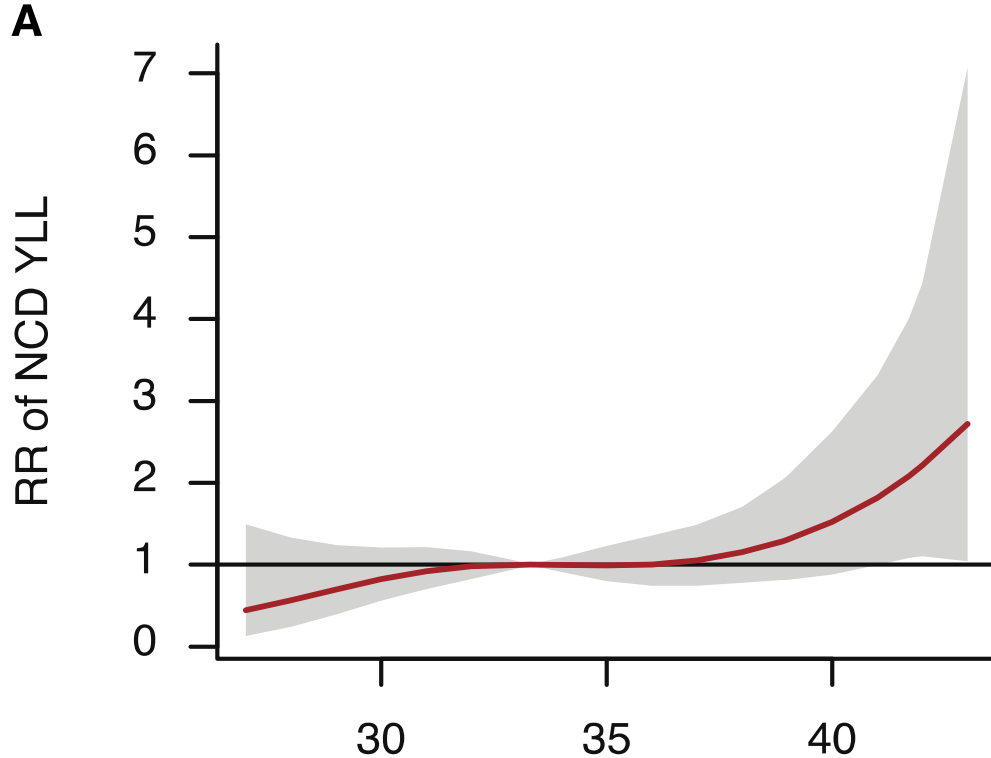
OVERWEIGHT POPULATIONS IN SOUTHEAST ASIA

Overweight prevalence (%) for adults of both sexes (BMI of > 25 kg/m²)



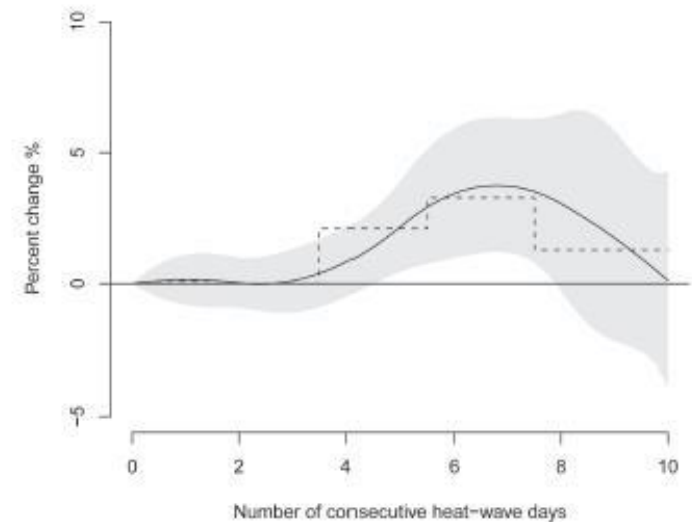
Source: WHO Non-Communicable Diseases Country Profiles, 2011

Temperature-related risk of NCD



Courtesy of Aditi Bunker, University of Heidelberg
(Not yet published)

(Gasparrini, A and Armstrong, B (2011) The impact of heat waves on mortality, *Epidemiology*, 2011 Jan;22(1):68-73.)



State of vulnerability:

Depend on the existing public health problem

Impacts mediated via Air Pollution

• Major impacts on the existing NCD

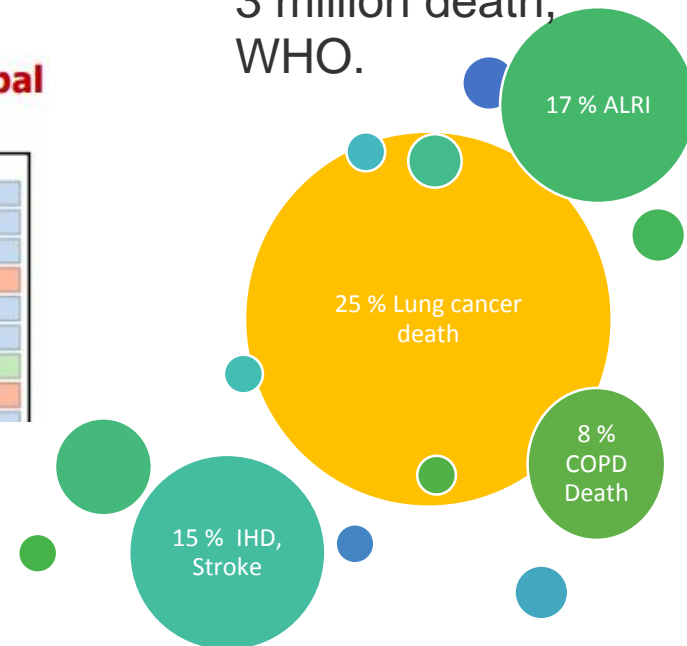
- Worsened pulmonary function and respiratory distress
- Acute exacerbation respiratory illness
- Acute exacerbation cardiovascular events.

In the year 2012, ambient air pollution was responsible for 3 million death, WHO.

Diseases affected by air pollution: 4 of the top 5 causes of the global burden of disease in 2013



GBD 2013 Mortality and Causes of Death Collaborators The Lancet 2014



Public Health Responses

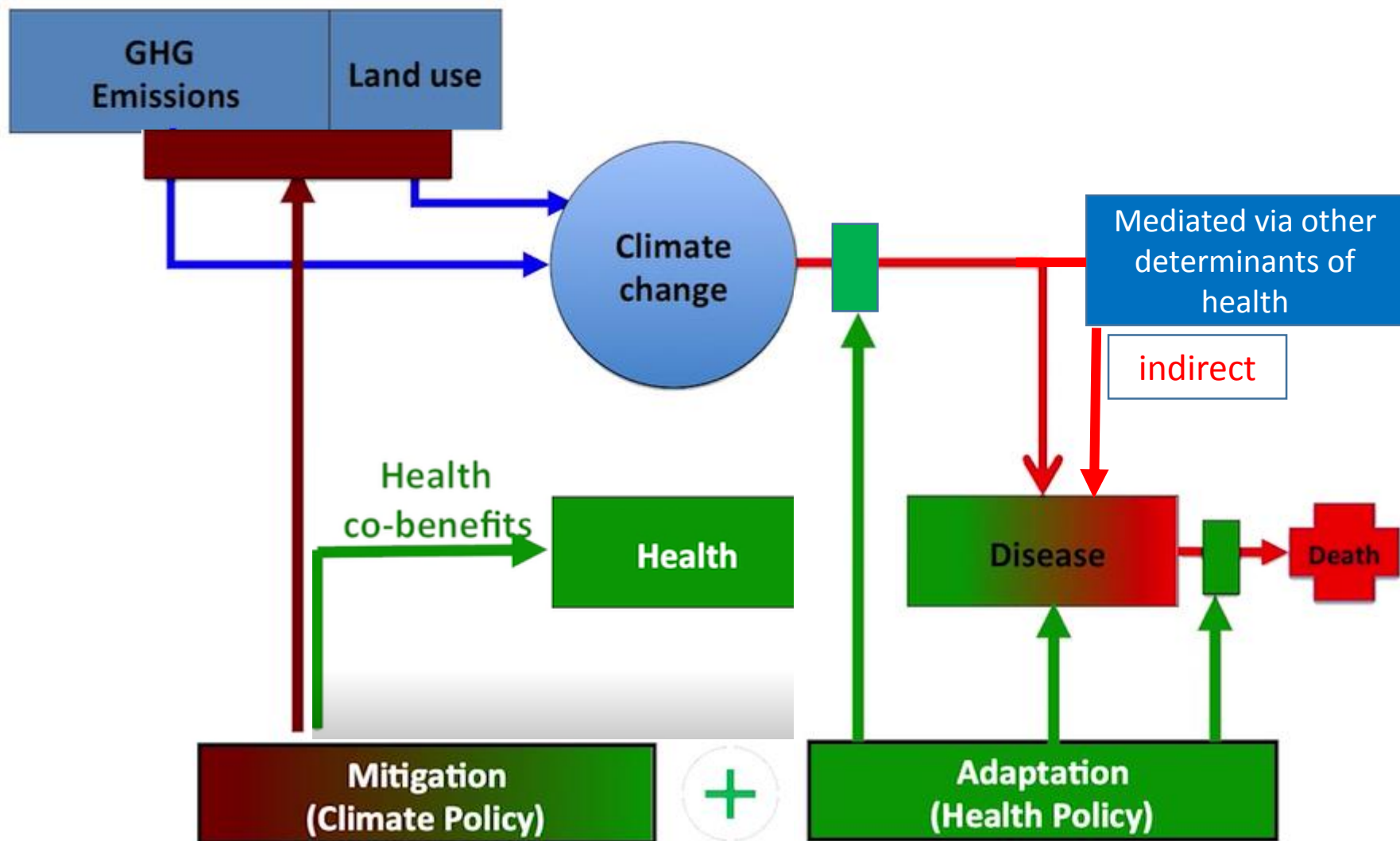
Transition from MDG to SDG 2030

...addressing climate change is the biggest opportunity to meet the set targets of most SDGs

...and vice versa...addressing other SDGs will reduce the state of vulnerability to climate change impacts



Public health responses: Exploring the linkages



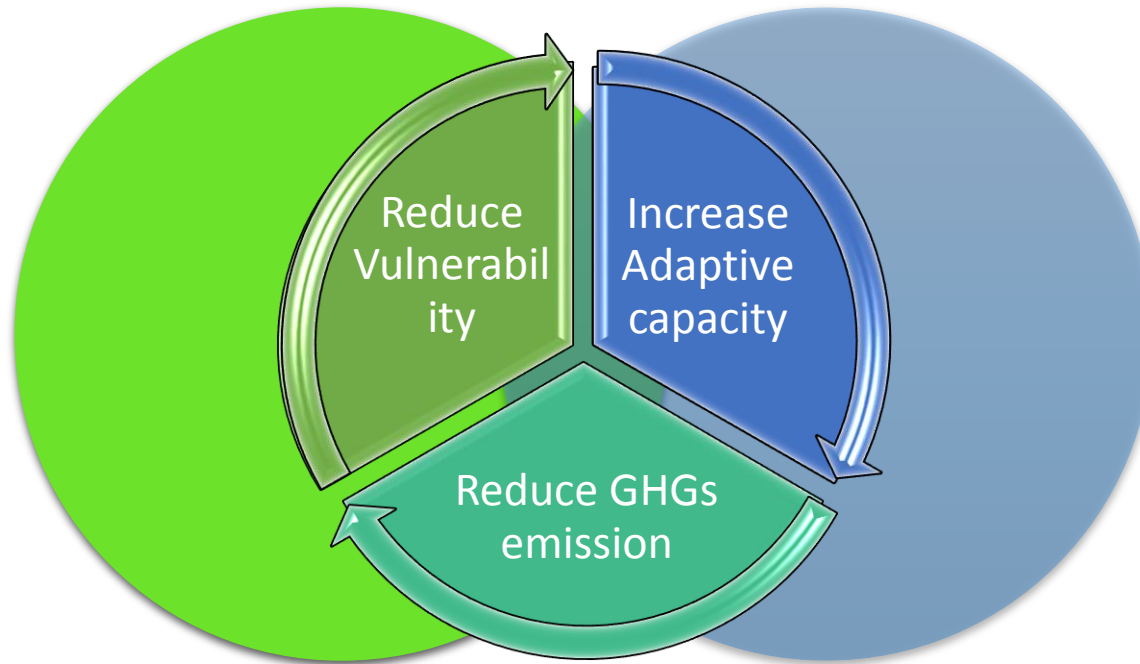
Public health responses

Beyond Health sectors

Within Health sectors

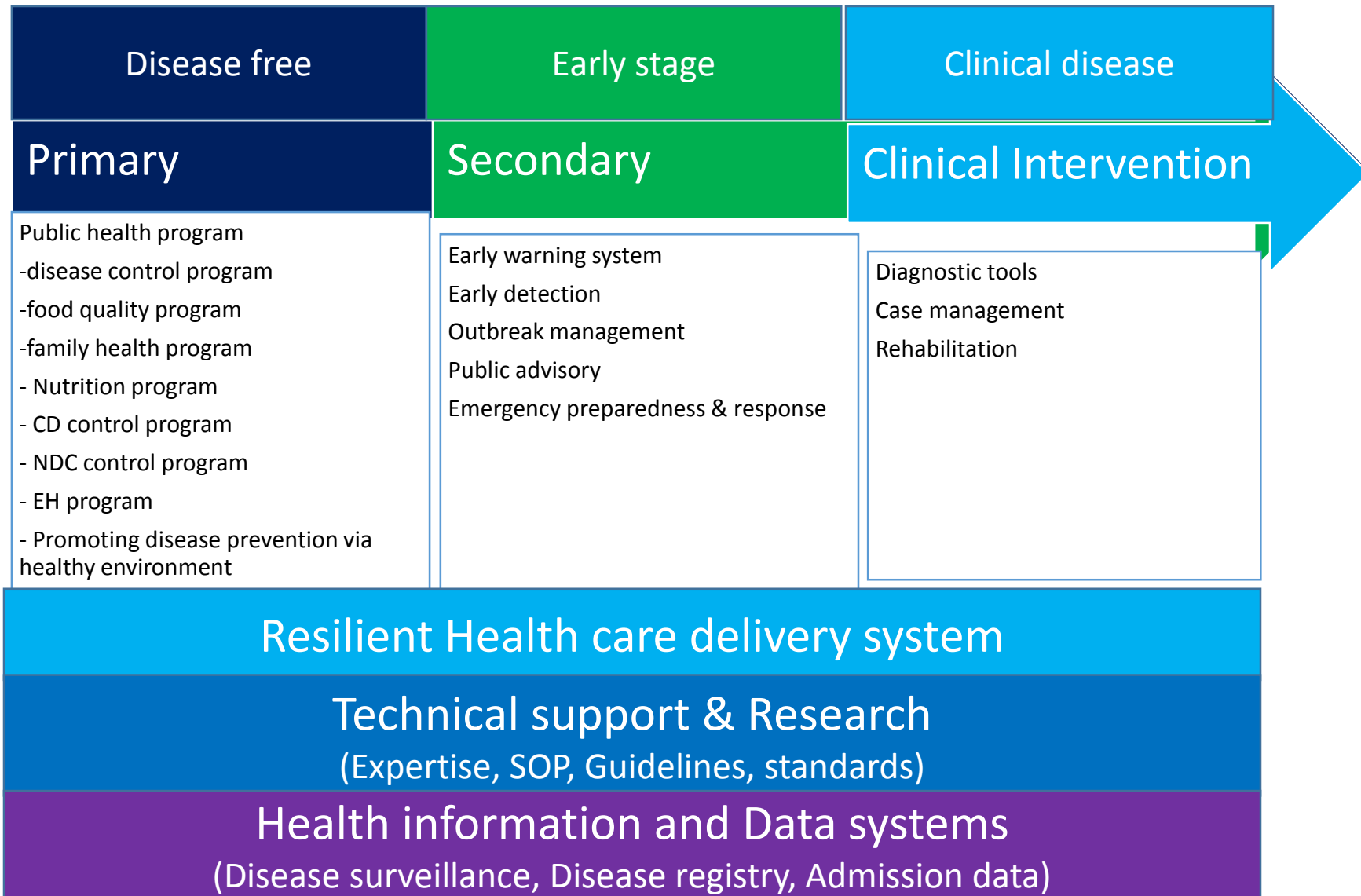
Addressing the upstream activities

- Sustainable development
- Health Co-benefit

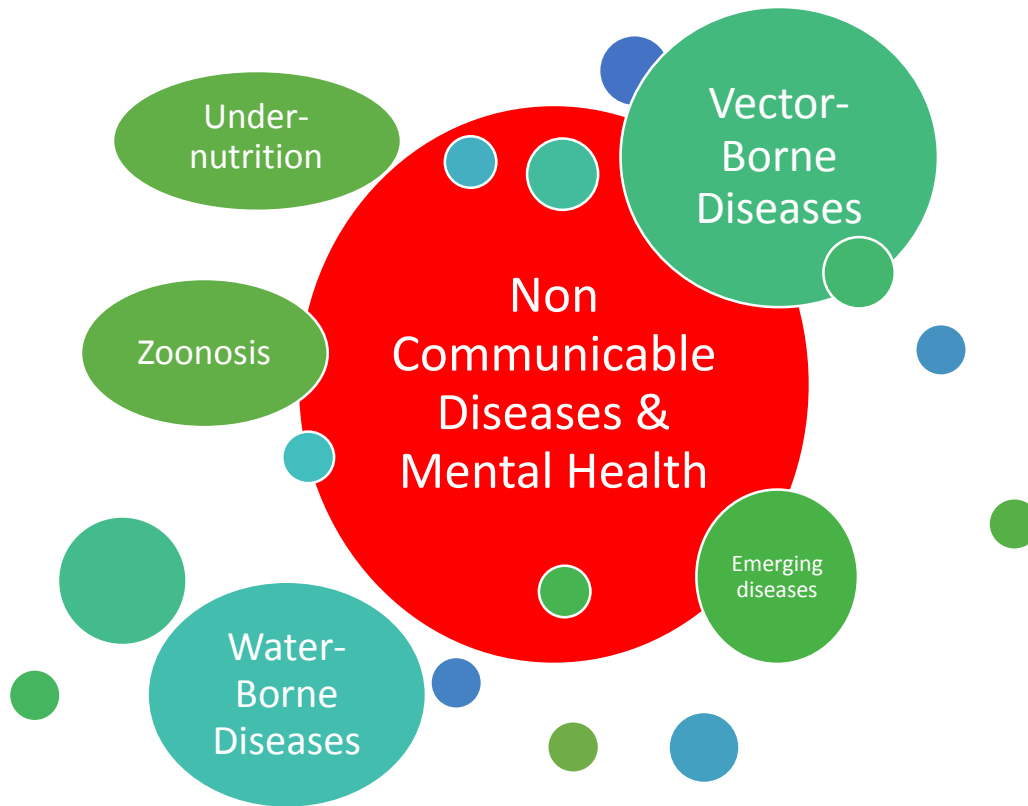


- Resilient HCS
- Strengthening public health program
- Reducing carbon emission

Spectrum of Responses/Adaptation to reduce vulnerability and impact



General responses to climate sensitive diseases



Strengthening all public health programs are the best responses to reduce the state of vulnerability and subsequently reduce the impact of climate change and meet the SDGs targets

PUBLIC HEALTH PROGRAM

MINISTRY OF HEALTH, MALAYSIA

Water and Sanitation
Program

Food Safety Program



**FAMILY HEALTH
DEVELOPMENT DIVISION**

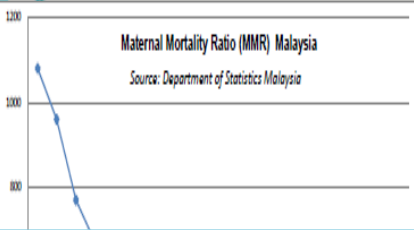
**DISEASE
CONTROL
DIVISION**

**HEALTH
EDUCATION
DIVISION**

**NUTRITION
DIVISION**

**OFFICE OF DEPUTY
DIRECTOR GENERAL OF
HEALTH (PUBLIC
HEALTH)**

MATERNAL HEALTH PROGRAM



- SCOPE OF SERVICES :**
- Pre-pregnancy Care ((hospitals/ health clinics)
 - Ante-natal Care (hospitals/ health clinics / mobile services/ home visits)
 - Delivery services – institutional (Hospitals,

Strengthening Lifecycle public health programs

CHILD HEALTH PROGRAM

INTERVENTIONS AND TRENDS OF INFANTS AND UNDER 5 YEAR MORTALITY 1950 - 2007

IS INITIATED	1950's	1960's	1970's	1980's	1990's	2000's
Health services	Health services	CC vaccination	Child Health Card	Child Health Card	Child Health Card	Child Health Card
3 tier system	3 tier system	P1 vaccination	5 Growth Chart	5 Growth Chart	5 Growth Chart	5 Growth Chart
Immunisation	Immunisation	Contraceptive method	3 tier system	3 tier system	3 tier system	3 tier system
			to rural areas	to rural areas	to rural areas	to rural areas
			ached services	ached services	ached services	ached services
			es vaccination	es vaccination	es vaccination	es vaccination
			BP screening	BP screening	BP screening	BP screening
			n Rehabilitation	n Rehabilitation	n Rehabilitation	n Rehabilitation
			nd CBD Progra	nd CBD Progra	nd CBD Progra	nd CBD Progra
			Investigatorm	Investigatorm	Investigatorm	Investigatorm
			ella vaccination	ella vaccination	ella vaccination	ella vaccination
			3 B vaccination	3 B vaccination	3 B vaccination	3 B vaccination
			ation Program	ation Program	ation Program	ation Program
			Feeding Policy	Feeding Policy	Feeding Policy	Feeding Policy
			to Community	to Community	to Community	to Community
			Nurse	Nurse	Nurse	Nurse
			atal Jaundice	atal Jaundice	atal Jaundice	atal Jaundice
			Hypothyroidism	Hypothyroidism	Hypothyroidism	Hypothyroidism
			ring System of	ring System of	ring System of	ring System of
			Neonatal Deam	Neonatal Deam	Neonatal Deam	Neonatal Deam
			ang, Sabah and	ang, Sabah and	ang, Sabah and	ang, Sabah and
			Sarawak	Sarawak	Sarawak	Sarawak
			VR vaccination	VR vaccination	VR vaccination	VR vaccination
			pregnancy care	pregnancy care	pregnancy care	pregnancy care
			high risk women	high risk women	high risk women	high risk women
			ing of 1000 Hari	ing of 1000 Hari	ing of 1000 Hari	ing of 1000 Hari
			erah Generasi	erah Generasi	erah Generasi	erah Generasi
			Sihat	Sihat	Sihat	Sihat

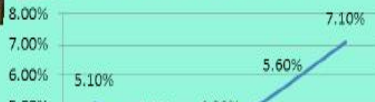
ADOLESCENT HEALTH PROGRAM

ADOLESCENT HEALTH SERVICES

1. Scope of services

CORE SERVICES	OPTIONAL SERVICES
Adolescent Health Promotion & Education	Group Physical Activities
Adolescent Health	Group Counseling/ Family /Peer Counseling/ – Quit Smoking, Healthy

Screening Coverage 2009-2013



ELDERLY HEALTH PROGRAM

ACHIEVEMENTS

- Till June 2014, almost 69% of elderly population registered at health clinics
- Yearly, almost 5 - 7% of elderly population, screened at health clinics

Five Most Common Morbidities Among Elderly (Jan 2011 – Jan 2014)



CHALLENGES

SCHOOL HEALTH PROGRAM

Health Education & Promotion

Physical Examination
Immunization For School children 7 years, 12 years and 15 years old

Detection & Diagnosing School Children with learning

Vision Examination and referral to eye clinic

Nutritional Assessment and referral

ADULT HEALTH PROGRAM

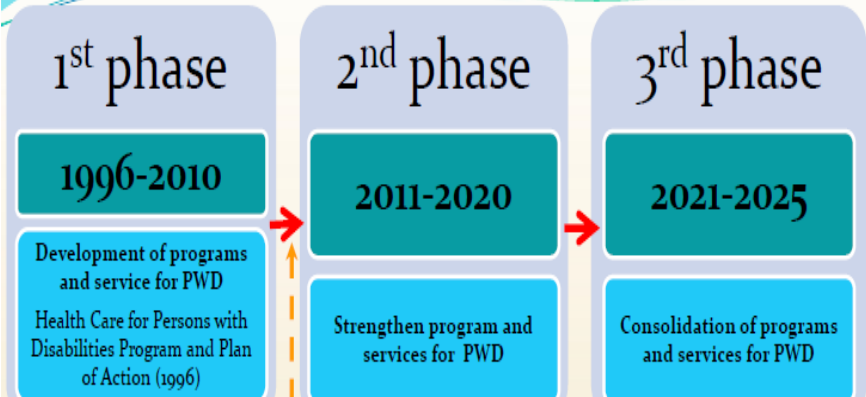
SERVICES :

- ❖ Health Risk Screening for Adults (Women and Men)
- ❖ Cervical Cancer Screening –Pap Smear

Incidence of Breast Cancer in Malaysia (selected years of cancer reporting)

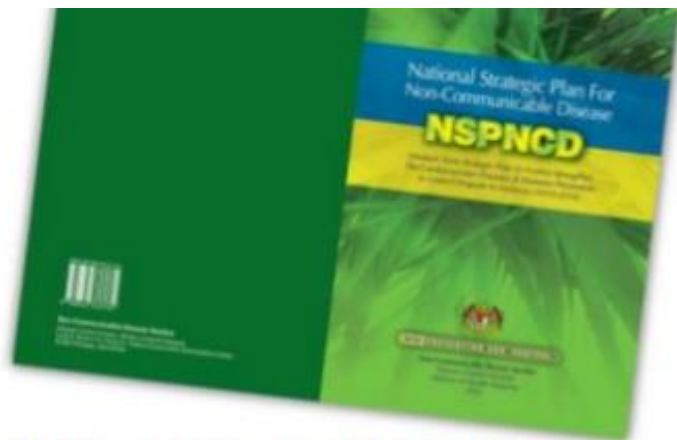
	No. of cases reported	ASR
NCR 2002 (Peninsular)	4337	52.8

HEALTH CARE PROGRAM FOR PWDs



Strengthening NCD control program

Multi-sectoral Approach



National Strategic Plan for Non-Communicable Diseases (NSP-NCD) 2010-2014

- Presented and approved by the Cabinet on 17 December 2010
- Provides the framework for strengthening NCD prevention & control program in Malaysia
- Adopts the “whole-of-government” and “whole-of-society approach”

Seven Strategies:

1. Prevention and Promotion
2. Clinical Management
3. Increasing Patient Compliance
4. Action with NGOs, Professional Bodies & Other Stakeholders
5. Monitoring, Research and Surveillance
6. Capacity Building
7. Policy and Regulatory interventions

The Health Gradient

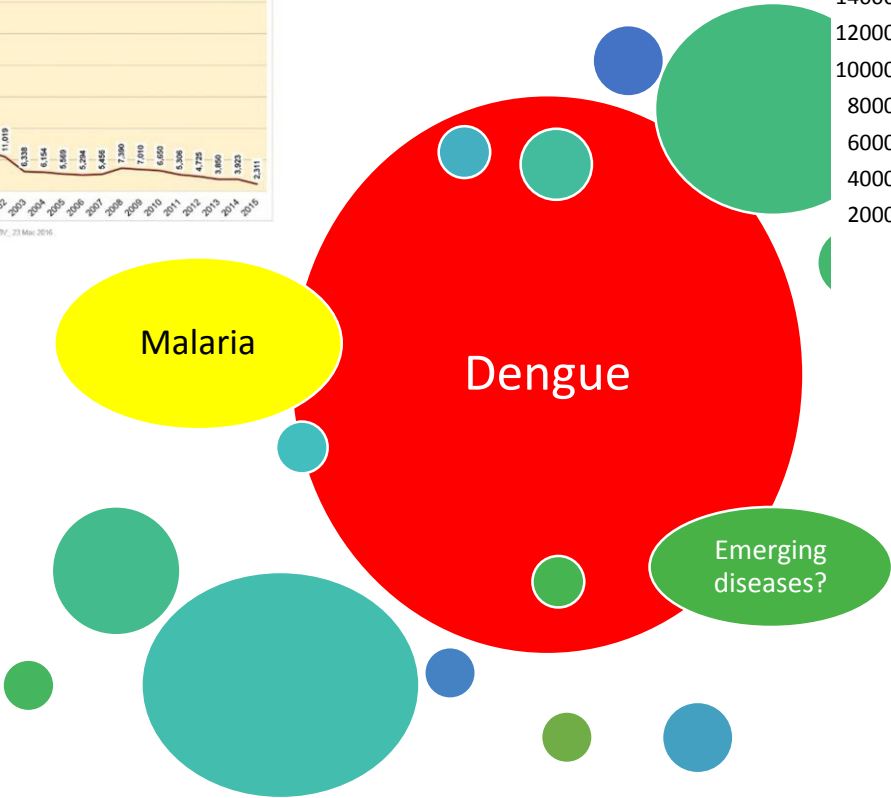
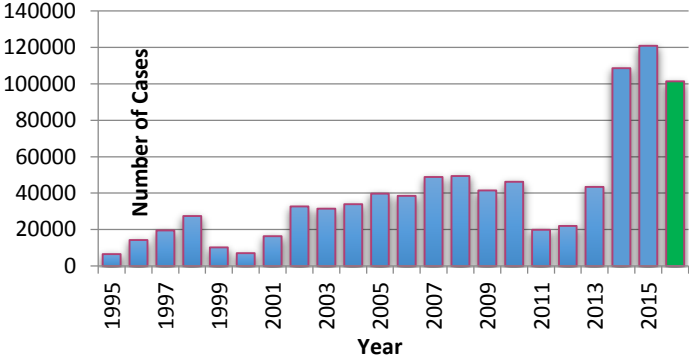
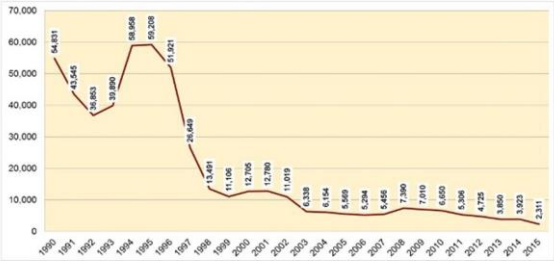


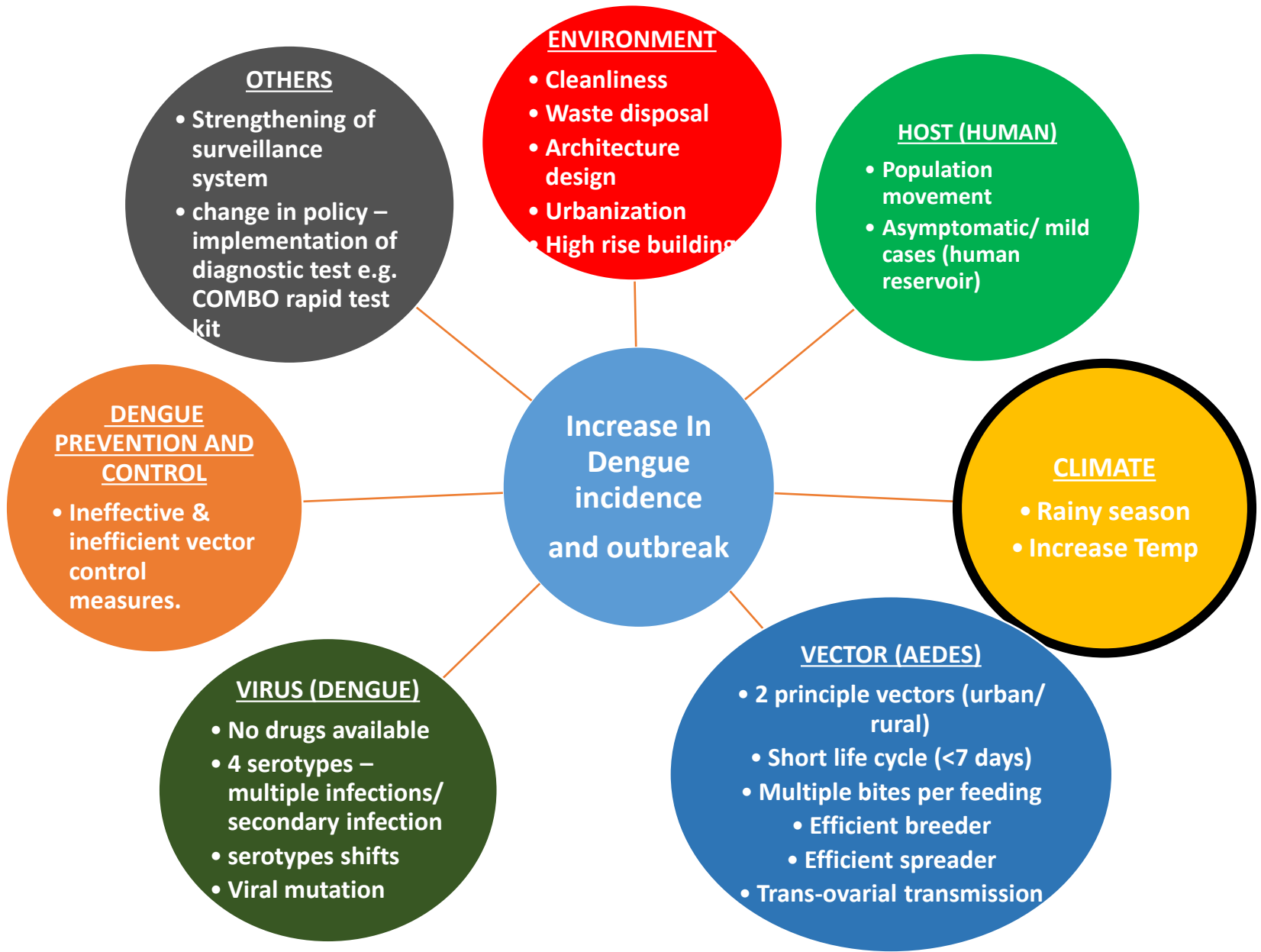
Source: Making Partners: Intersectoral Action for Health 1988 Proceedings and outcome of a WHO Joint Working Group on Intersectoral Action for Health, The Netherlands



Vector-borne diseases

Malaysia : Total Malaria Cases : 1990-2015





NATIONAL STRATEGIC PLAN FOR DENGUE (NSPD)

1. Implemented in April 2009
2. Strengthening on the Dengue prevention and control through seven strategies:
3. In 2014 - NSPD Reviewed and realigned with new strategies and policy



NATIONAL DENGUE SPECIAL TASK FORCE PLAN OF ACTION

NATIONAL DENGUE SPECIAL TASK FORCE PLAN OF ACTION

A. CASE MANAGEMENT

- Dengue Clerking Sheet
- Home Based Card
- COMBO Rapid Test Kit
- Extended Working Hours in Clinics
- Special Dengue Clinic in Primary Care

•Ministry of Health

B. ENVIRONMENTAL MANAGEMENT & CLEANLINESS

- Source reduction
- Outsourcing of Solid Waste Management
- Inspection of Construction site
- Dengue Free Program in School and University/collage

•Ministry of Housing & Local Government
•Ministry of Human Resource
•Ministry of Education
•Ministry of Defence

INTEGRATED MANAGEMENT

C. VECTOR CONTROL

- Fogging
- Temephos EC spray
- Source Reduction of Aedes Breeding Places
- Outdoor Residual Spray for hotspots area

•Ministry of Communication & Multi media
•Ministry of Housing & Local Government
•Ministry of Human Resource
•Ministry of Education

D. HEALTH PROMOTION & ADVOCACY

- Advertisement in Mass Media
- National Cleanliness Campaign Program
- Program COMBI
- Intervention Kiosk for Health Promotion

Specific responses to extreme weather events

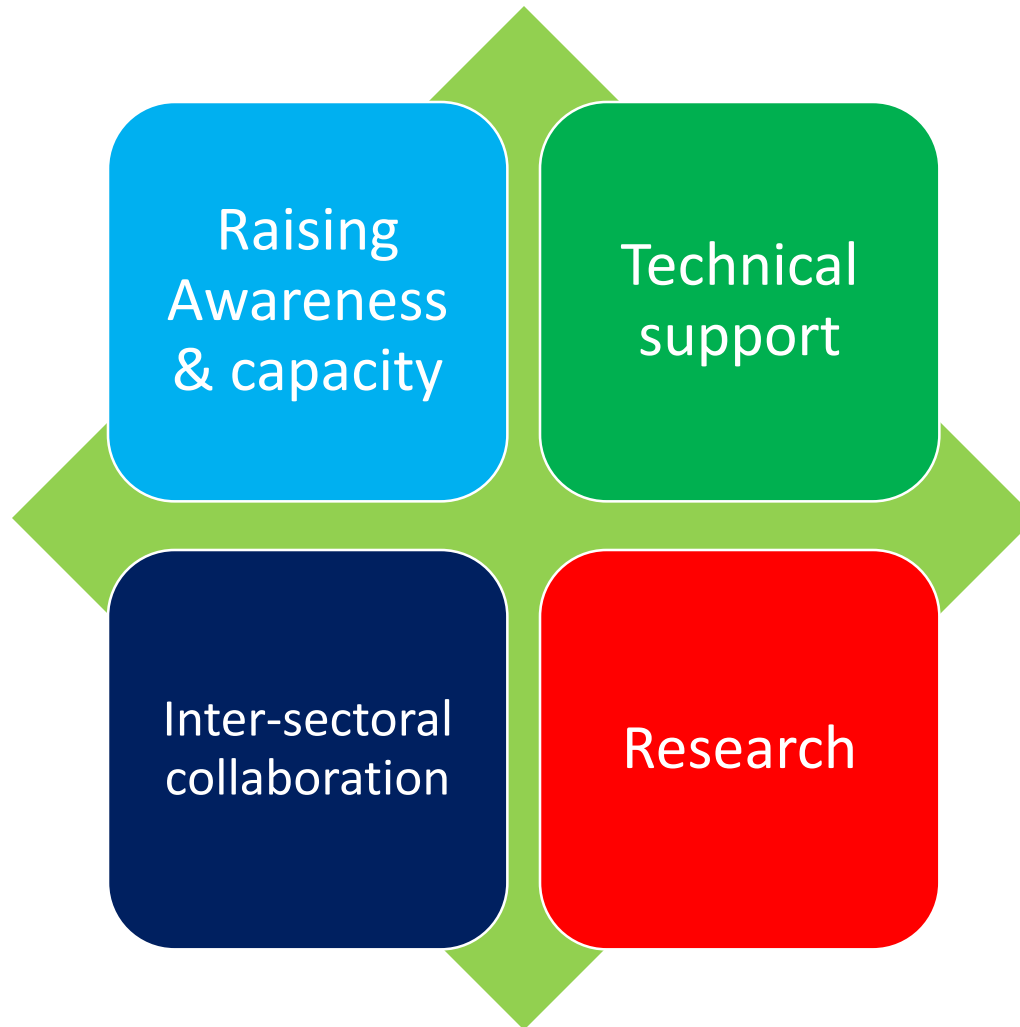
Heatwave

Flood

Drought

Other disaster

Framework for public health respond to climate change



Heat

THE LA NINA AND EL NINO WEATHER PATTERNS...



IN THE PAST



TODAY

ARCINCT

Heat wave 2016

Respond to heatwave

Clinical Guidelines on Management of Heat Related Illness at Health Clinic and Emergency and Trauma Department, Ministry of Health, Malaysia (2016)

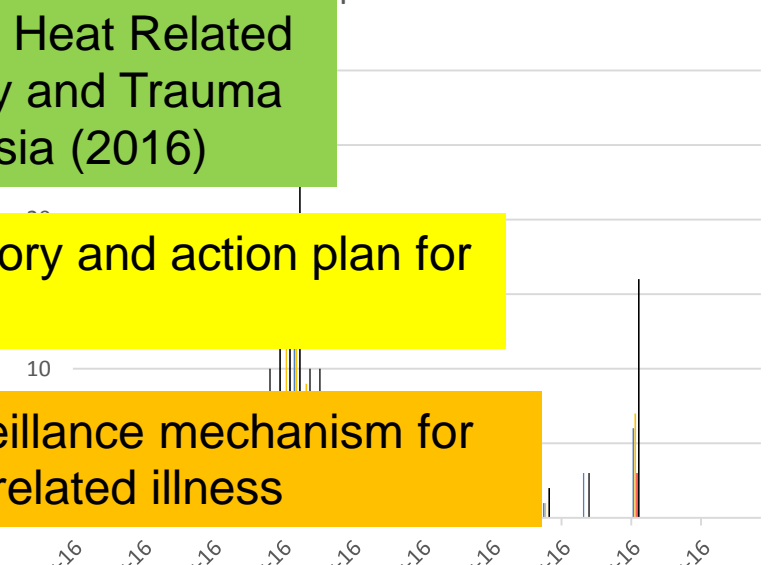
Public health advisory and action plan for heatwave (draft)

Surveillance mechanism for heat related illness

Inter-agency collaboration / action plan during heatwave

Health education

Heat related illness reported from Government Health Facilities, 1 Mac- 19 April 2016



Kementerian Pendidikan keluar SOP gelombang hab kepada semua sekolah

New Sabah Times 26/3/2016

PETALING JAYA: Kementerian Pendidikan akan mengarkan Prosedur Operasi Standard (SOP) gelombang kepada semua sekolah di negara ini dalam masa terdekat.

■ Total (H. Cramp) ■ Total (H. Exhaustion) ■ Total (H. Stroke) ■ TOTAL

Drought: Forest fire and Haze/Air Pollution

Unresolved issuesHaze
2015, Prolong and widely
distributed

With Climate Change...



Frequency

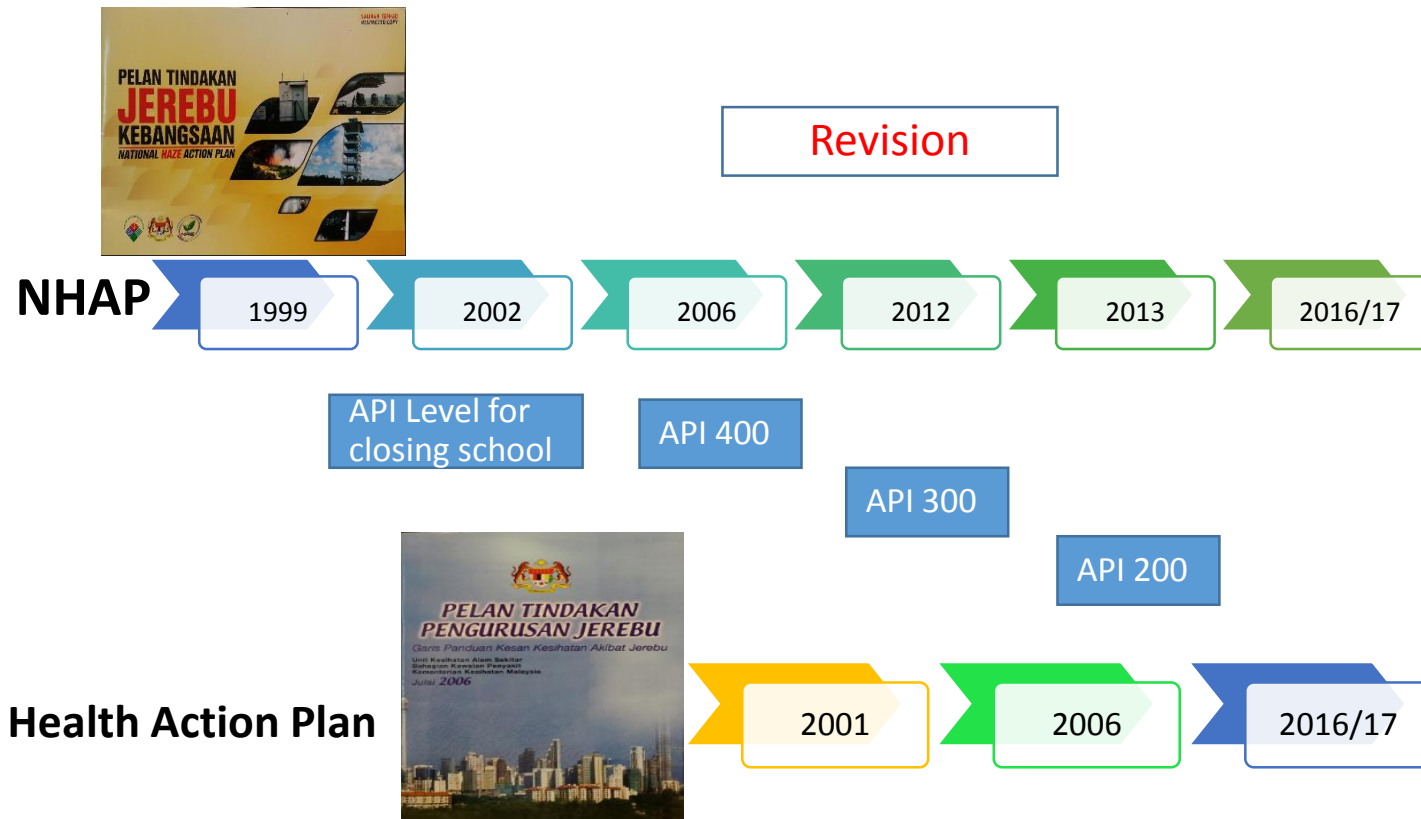
**Intensity of haze
due to prolong drought**

> 74 % of
Particulate
matter during
haze is

PM2.5

Wildfire

Progression toward a better response





With inclusion of PM2.5 for calculation of API by next year

We need to redefine the risk level for school closure and cancelling public/sport events



International Journal of Public Health Research Vol 6 No 1 2016, pp (685-694)

PUBLIC HEALTH RESEARCH

Health Risk Assessment of PM₁₀ Exposure among School Children and the Proposed API Level for Closing the School during Haze in Malaysia

Norlen Mohamed¹, Lokman Hakim Sulaiman², Thahirahatul Asma Zakaria¹, Anis Salwa Kamarudin¹ and Daud Abdul Rahim¹



NHAP Version	API Level for closing school
2006	400
2012	300
2013	200
MOE Instruction (Haze 2015)	150

Risk Matric for strenuous physical activity

Outdoor game						Indoor							
		Inhalation Rate (m3/min) 95 Percentile						API LEVEL					
		API LEVEL						API LEVEL					
		101	105	110	115	120			101	105	110	115	120
Duration of Sport Activity (Min)	90	1.23	1.31	1.39	1.47	1.55	Duration of Sport Activity (Min)	90	1.01	1.07	1.14	1.20	1.27
	60	1.14	1.21	1.29	1.36	1.43		60	0.90	0.96	1.01	1.07	1.13
	50	1.10	1.17	1.24	1.31	1.38		50	0.86	0.92	0.97	1.03	1.08
	40	1.06	1.13	1.20	1.27	1.33		40	0.83	0.88	0.93	0.99	1.04
	30	1.05	1.11	1.18	1.25	1.32		30	0.79	0.84	0.89	0.94	0.99
	20	1.02	1.08	1.15	1.21	1.28		20	0.75	0.80	0.85	0.90	0.95
	15	1.00	1.06	1.13	1.19	1.26		15	0.74	0.78	0.83	0.88	0.92
10	0.98	1.05	1.11	1.17	1.24	10	0.72	0.76	0.81	0.86	0.90		
0	0.95	1.01	1.08	1.14	1.20	0	0.68	0.72	0.77	0.81	0.86		

Efforts at regional level

- Member of TWG Air Quality under the Regional Forum on Health and Environment in Asia Pacific Region

Current project:

HIA of exposure to particulate matters in Southeast Asia and East Asian Countries



Both Drought and flood events

Impacts on Wa-SH (Water, Sanitation & Hygiene)

PH response:

Continue improving the WASH program
SDG 6

KMAM program

Water safety plan for all water treatment plants

RUU safe drinking water



DEMOGRAPHIC, HEALTH, AND COVERAGE ESTIMATES

Current status	Population (millions, 2017) ¹	Diarrhoea deaths due to inadequate WASH in children under 5 years (2012) ²		Use of improved sanitation facilities (% of population, 2015) ³		Use of improved drinking-water sources (% of population, 2015) ³			
		per 100 000	Total	Urban	Rural	National	Urban	Rural	National
COUNTRY	National								
Madagascar	25.61	72.6	2 558	18	9	12	82	35	52
Malaysia	31.16	1.0	26	96	96	96	100	93	98
Maldives	0.38	1.6	1	97	98	98	100	98	99
Mali	18.69	214.1	6 109	38	16	25	97	64	77
Mexico	130.22	3.7	416	88	74	85	97	92	96

Respond to increase resilient to disaster impacts...

Vulnerability
assessment



Preparedness and
Response Plan

Table 1: Primary Health Clinics (PHC) affected by flooding at Baseline and ARI-20, 100 & 500

Vulnerability assessment

	RTP								TOTAL n
	Baseline		20		100		500		
	n	(%)	n	(%)	n	(%)	n	(%)	
	80	85.1	5	5.3	5	5.3	4	4.3	94
KEDAH	44	77.2	5	8.8	6	10.5	2	3.5	57
KELANTAN	58	73.4	10	12.7	5	6.3	6	7.6	79
MELAKA	24	82.8	1	3.4	2	6.9	2	6.9	29
NEGERI SEMBILAN	45	97.8	-	-	1	2.2	-	-	46
PAHANG	65	79.3	5	6.1	9	11.0	3	3.7	82
PERAK	65	77.4	9	10.7	6	7.1	4	4.8	84
PERLIS	7	77.8	-	-	1	11.1	1	11.1	9
PULAU PINANG	24	80.0	1	3.3	2	6.7	3	10.0	30
SABAH	79	79.8	9	9.1	6	6.1	5	5.1	99
SARAWAK	120	60.9	51	25.9	17	8.6	9	4.6	197
SELANGOR	57	78.1	5	6.8	5	6.8	6	8.2	73
TERENGGANU	39	86.7	-	-	5	11.1	1	2.2	45
W.P. KUALA LUMPUR	9	75.0	1	8.3	1	8.3	1	8.3	12
W.P. LABUAN	1	100	-	-	-	-	-	-	1
W.P. PUTRAJAYA	3	100	-	-	-	-	-	-	3
TOTAL	720	76.6	102	10.9	71	7.6	47	5.0	940

940 Primary Health Clinics (PHC) currently available in Malaysia, 102 (10.9%) have risk of flooding in 20-year ARI; whilst, 71 (7.6%) and 47 (5.0%) PHC's have risk of flooding in 100-year ARI and 500-year ARI, respectively.

Table 2: Community Health Clinics (CHC) affected by flooding at Baseline with

**Vulnerability
assessment**

	RTP								TOTAL n
	Baseline		20		100		500		
	n	(%)	n	(%)	n	(%)	n	(%)	
JOHOR	214	82.6	18	6.9	19	7.3	8	3.1	259
KEDAH	188	86.2	17	7.8	10	4.6	3	1.4	218
KELANTAN	131	74.9	11	6.3	22	12.6	11	6.3	175
MELAKA	55	94.8	0	0.0	2	3.4	1	1.7	58
NEGERI SEMBILAN	90	92.8	0	0.0	5	5.2	2	2.1	97
PAHANG	184	78.0	36	15.3	14	5.9	2	0.8	236
PERAK	151	64.0	41	17.4	32	13.6	12	5.1	236
PERLIS	24	80.0	2	6.7	2	6.7	2	6.7	30
PULAU PINANG	47	78.3	3	5.0	6	10.0	4	6.7	60
SABAH	125	75.8	17	10.3	15	9.1	8	4.8	165
SARAWAK	5	71.4	1	14.3	0	0.0	1	14.3	7
SELANGOR	86	74.1	16	13.8	8	6.9	6	5.2	116
TERENGGANU	98	76.6	11	8.6	6	4.7	13	10.2	128
W.P. LABUAN	10	100.0	0	0.0	0	0.0	0	0.0	10
TOTAL	1408	78.4	173	9.6	141	7.9	73	4.1	1795

From 1795 Community Health Clinics (CHC), 173 (9.6%) CHC's are estimated to have risk of flooding in 20- year ARI. A total of 141 (7.9%) CHC's have risk of flooding in 100-year ARI and 73 (4.1%) CHC's with risk of flooding in 500-year ARI.

Slide courtesy Dr Bala, EHRC

Table 3: Hospitals affected by flooding at Baseline with ARI-20,100 & 500

**Vulnerability
assessment**

	RTP								TOTAL n
	Baseline		20		100		500		
	n	(%)	n	(%)	n	(%)	n	(%)	
	10	83.3	2	16.7	0	0.0	0	0.0	12
KEDAH	9	100.0	0	0.0	0	0.0	0	0.0	9
KELANTAN	8	88.9	1	11.1	0	0.0	0	0.0	9
MELAKA	3	100.0	0	0.0	0	0.0	0	0.0	3
NEGERI SEMBILAN	6	100.0	0	0.0	0	0.0	0	0.0	6
PAHANG	9	81.8	0	0.0	1	9.1	1	9.1	11
PERAK	12	80.0	2	13.3	1	6.7	0	0.0	15
PERLIS	0	0.0	0	0.0	0	0.0	1	100.0	1
PULAU PINANG	6	100.0	0	0.0	0	0.0	0	0.0	6
SABAH	21	87.5	0	0.0	2	8.3	1	4.2	24
SARAWAK	15	68.2	2	9.1	5	22.7	0	0.0	22
SELANGOR	9	75.0	1	8.3	1	8.3	1	8.3	12
TERENGGANU	5	83.3	0	0.0	1	16.7	0	0.0	6
KUALALUMPUR	3	100.0	0	0.0	0	0.0	0	0.0	3
W.P. LABUAN	1	100.0	0	0.0	0	0.0	0	0.0	1
W.P. PUTRAJAYA	2	100.0	0	0.0	0	0.0	0	0.0	2
TOTAL	119	83.8	8	5.6	11	7.7	4	2.8	142

A total of 8 (5.6%) government hospitals have a risk of flooding in 20-year ARI, followed by 11(7.7%) hospitals with the risk of flooding in 100-year ARI. Only 4 (2.8%) hospitals have a risk of flooding in 500-year ARI.

Preparedness and Response Plan

Before A Disaster (Preparedness Phase)

- Designing / establish disaster plans
- Dissemination of the plan and provision of training
- Conduct facility-wide / agency-wide drills
- Coordination mechanisms
- Assessing flexibility of surveillance systems

Source: Noji EK, The public health consequences of disasters. Prehospital and Disaster Medicine. 15(4): 147-157. 2000

- **Continuous Alert system**
 - CPRC
 - 7 days/week
 - Daily analysis and report dissemination
 - Monitor outbreak, disasters, incidents



Strengthening Health Systems response: ...What has been done against extreme weather events

	Early warning system	Health response plan	Cross-sector emergency plan	Health-sector engagement in emergency plan
Flood	Y	Y	Y	Y
Haze	Y	Y	Y	Y
Heat waves	P	P	Y	Y
Drought	N	N	Y	Y

Technical documents

- Crisis and Disaster Management Plan for MOH (2015)
- Guidelines on Internal Emergency Preparedness Plan for MOH Hospitals
- Guidelines of Flood Management, MOH (2008)
- Clinical Guidelines on Management of Heat Related Illness at Health Clinic and Emergency and Trauma Department, Ministry of Health, Malaysia (2016)
- Malaysia Strategy on Emerging Diseases (MySED) 2012 – 2015, Disease Control Division, Ministry of Health, 2012

During A Disaster (Response Phase)

- Conducting rapid health assessments
- Prioritizing relief efforts
- Identifying urgent needs and matching resources
- Establishment of disaster communications
- Conducting disease surveillance



Adequate staffing



Planning Evacuation



Transportation



Power supply

Back-up Generators

Fuel

Food and water supply



Aftermath responses

Psychological
First Aid
Services



WASH



Disease control
activities



Disease
surveillance

Upgrading existing healthcare facilities frequently affected by floods to increase resilient

- either relocated to non-flood prone areas or re-designed and built on stilts or raised platform level at the same site
- Under the 11th Malaysia Plan, RM 162 million has been allocated to upgrade the existing hc facilities to increase resilient
- “Flood Mitigation Wall” which will be built in Hospital Raja Perempuan Zainab II in Kota Bharu, Kelantan



Health Clinic,
Rantau
Panjang, Pasir
Mas



Hospital Raja
Perempuan Zainab II

Flood Mitigation Gate



Proposal For HRPZII

Source: Slide Pembentangan Dato' Dr Ahmad Razin Bin Dato' Ahmad Mahir, Pengarah Kesihatan Negeri, Jabatan Kesihatan Negeri Kelantan

Our respond will not complete...if we do not address the root causes...the GHGs

Addressing the upstream activities
advocating the co-benefit
of mitigation measures

The health care industry has a critical role to play in climate change mitigation. Energy usage in medical facilities is highly intensive. In fact, hospitals expend about twice as much total energy per square foot as traditional office space.

(Department of Energy, 2003 Commercial Building Energy Consumption Survey)

Reduce carbon emission from health sector

Advocate Climate benefit of
Healthy lifestyle &
Healthy setting program

...to reduce carbon emission from health sector & maximize health co-benefit

Toward climate friendly health facilities

1

Energy efficiency

2

Promote green building

3

Promote healthy & safe mobility

4

Waste Management 3R

5

Procurement of consumable items



GREEN BUILDING CERTIFICATION ACTION PLAN FOR HOSPITAL LANGKAWI



Prepared by:
Hospital Operation Section
Engineering Services Division
Ministry of Health Malaysia

May 2016

16 NATION The Star, TUESDAY 7 AUGUST 2012

Hospitals to go green

Environmental-friendly move adopted to cut costs, says Liow

BY WONG PER NEE
epee@thestar.com.my

KUALA LUMPUR: Major government hospitals will adopt green technology to lower their electricity bills by next year.
Health Minister Datuk Seri Liow Joo Long said 28 government hospitals would be adopting several energy-saving methods to reduce electricity bills by 10%.
"We found that these hospitals had electric bills of RM115mil per year. This does not include smaller hospitals as there are 125 hospitals nationwide," he told a press conference after the "Promote Me 2012" campaign launch by Truly Living company Sdn Bhd here yesterday.

He said the hospitals would be using energy-saving air conditioning units and light bulbs.
Liow added that he would be announcing the names of the hospitals that have been selected to go green on a later date.
On another matter, Liow said the ministry supported the proposal to set up community clinics for psychiatric patients.
He said the clinics could help care for those who have recovered from psychiatric illness and that it was crucial to involve not only family members but also the local community in caring for them.
Liow added that there was such a clinic in Muar, operated by the Hospital Visitors Board, which had

enabled psychiatric patients to fully recover and return to society.
"This will help reduce the stigma attached to psychiatric patients," he said.
Liow said the Government had also implemented such a clinic in Putrajaya, where psychiatric patients could receive medical attention.
"We want to build more of such community clinics which are near hospitals that have psychiatrists next year.
"If anything serious happens to the patients, they can be referred to the hospitals," he said.
He also urged the public to look out for signs of depression among family members.

Those suffering from depression usually think they are just stressed. They usually want to be alone and take matters into their own hands.
"Family members have to detect signs or symptoms and get medical help to avoid the condition from getting worse," he said.
On the issue of the Trans Pacific Partnership Agreement, he said the ministry disagreed with the idea of extending patents for products from 20 to 25 years.
"During the discussion, the United States wanted to extend the patent for another five years but we disagreed."
"We have yet to come to a conclusion but the negotiations will continue on this matter," he said.



Klinik Pesiangan, Sabah

Ministry of Health is transforming toward using clean energy



Hosp Sungai Buluh

Reduce vulnerability & Reduce GHG emission

The eatwell plate

Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



Advocate Climate co-benefit of Healthy lifestyle & Healthy setting

PINGGAN SIHAT MALAYSIA



#SukuSukuSeparuh

Healthy lifestyle: Reduce vulnerability & Reduce GHG emission

Advocate Climate co-benefit
of
Healthy lifestyle & Healthy
setting



...to reduce carbon footprint of health sector & maximize health co-benefit



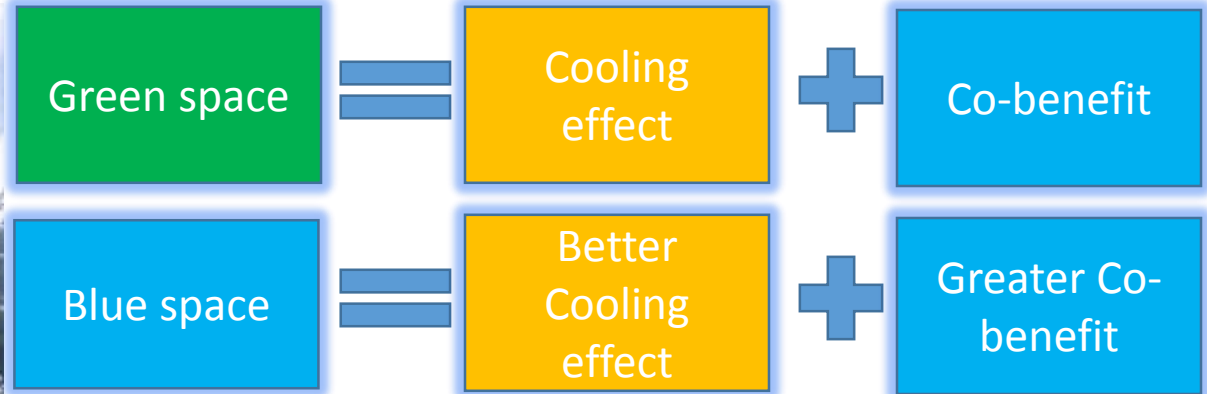
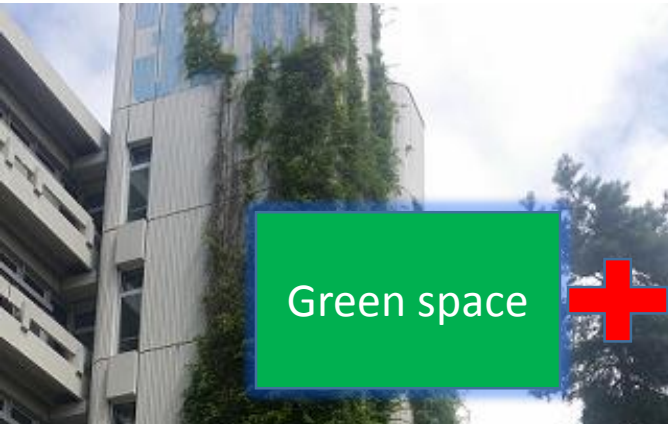
Strengthening Healthy Setting program

1 Addressing social determinants

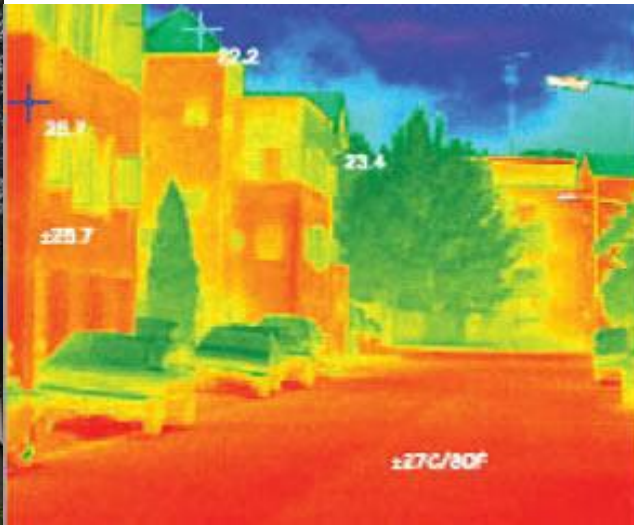
2 Addressing environmental determinants

3 Promoting green and blue health

Example of Health Co-Benefit of Green and Blue space

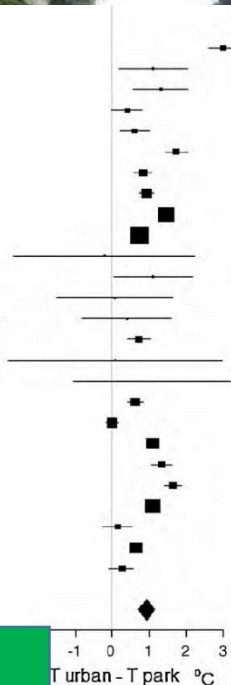


- Improve air quality
- Improve carbon footprint

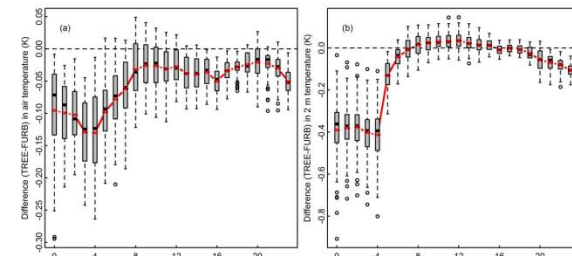


- Improve mental health
- Reduce all cause mortality
- Reduce CVD
- Improved pregnancy outcome

Study
 Barradas 1991 AP
 Barradas 1991 FV
 Barradas 1991 LGU
 Barradas 1991 MP
 Barradas 1991 TP
 Ca et al. 1998
 Chang et al. 2007 61 parks
 Chen & Wong 2006 BBNP
 Chen & Wong 2006 CWP
 Jansson et al. 2007
 Jauregui 1991
 Jonsson 2004 Garden lush veg
 Jonsson 2004 Garden no veg
 Jonsson 2004 Garden sparse veg
 Jonsson 2004 Park
 Kjellgren & Clark 1992
 Lahme & Bruse 2003
 Mayer & Hoppe 1987
 Potchter et al. 2006 A
 Potchter et al. 2006 B
 Potchter et al. 2006 C
 Shahgedanova et al. 1997
 Thorsson et al. 2007
 Watkins 2002 BM
 Watkins 2002 PH
 Zouli et al. 2009



Summary
 Green is cool



Addressing the upstream

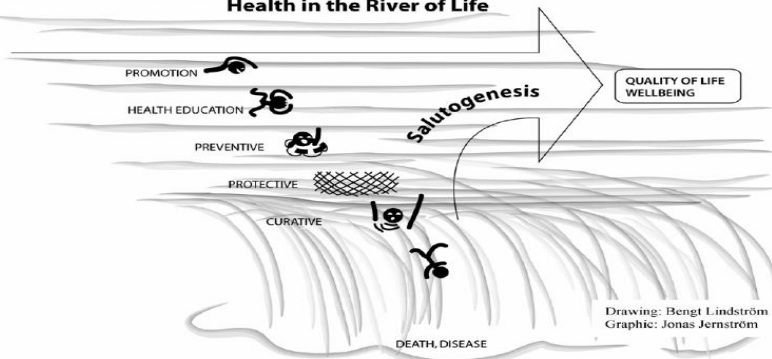
...promoting sustainable development, reduce GHGs, reduce pollution, reduce vulnerability



All development and economic policies are happening at upstream activities



Health in the River of Life



Advocate health at the center of development activities through various approaches

Advocate health co-benefit of climate policy

Health Standard

Healthier Policy

Better EH Standard

Advocate SD through HIA of development projects

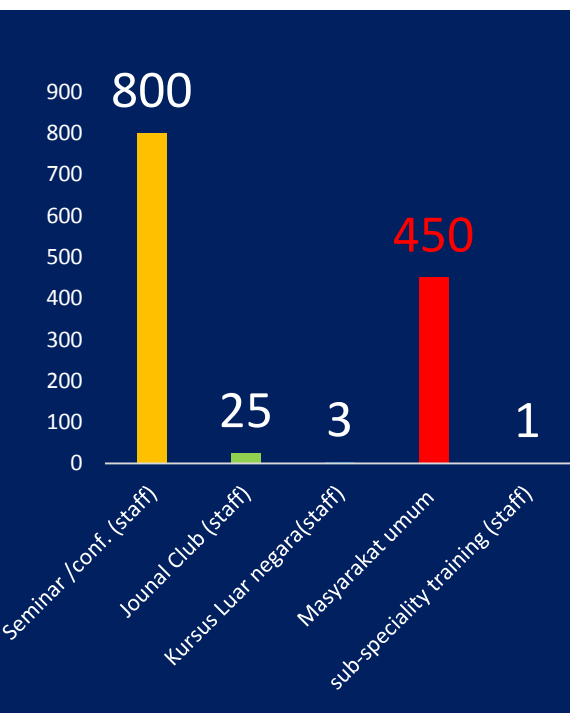
Collaboration

Healthier setting

Well informed community

Effective response requires a proper understanding ...

Awareness Program



Inter-sectoral
collaboration

Technical
support

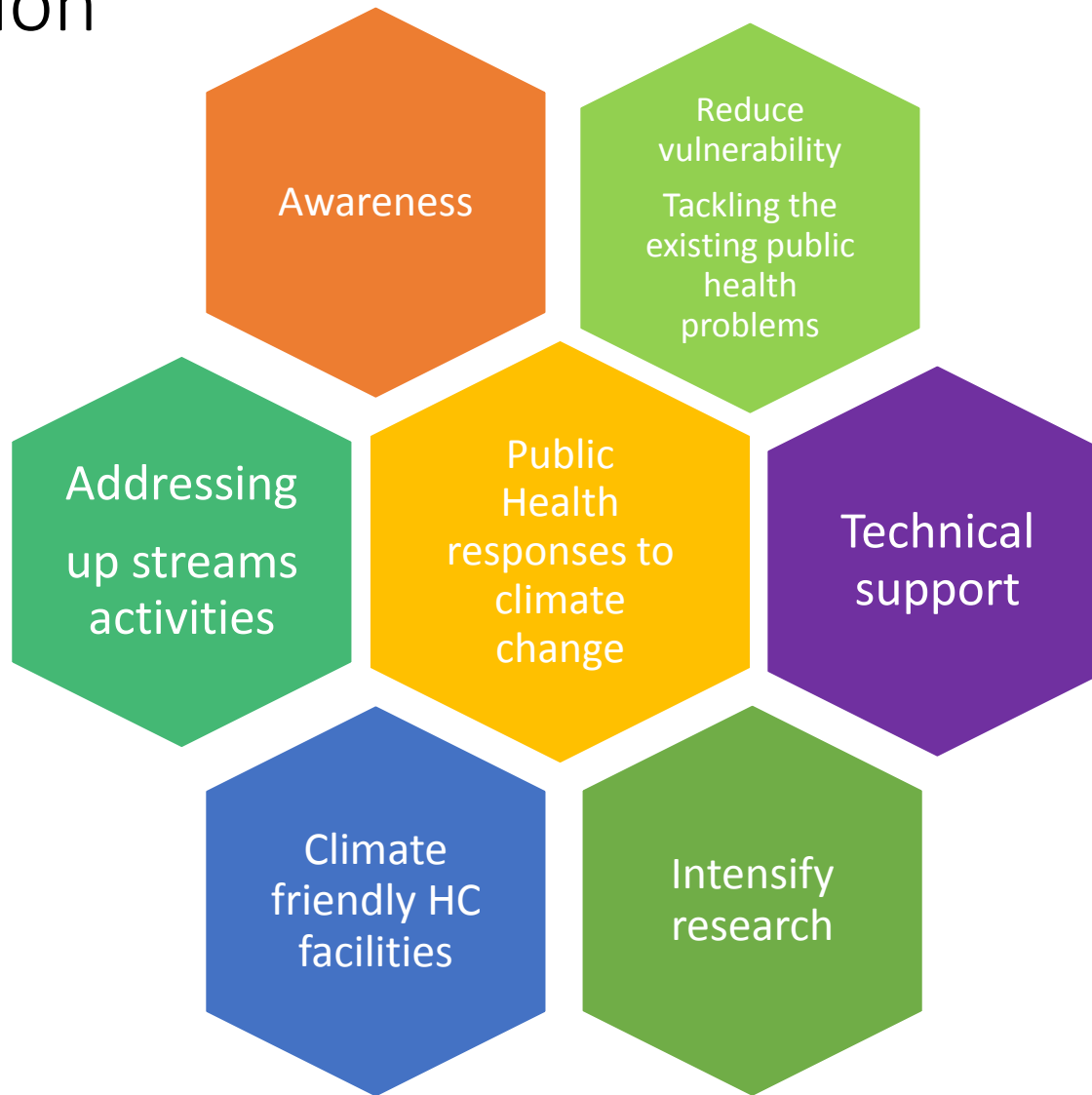
Raising
Awareness
& capacity

Research

Under RMK 11, MOH -
established 5 research
Clusters

- 1. Sustainable Environment and Climate change.**
2. National health surveys
3. Burden of diseases
4. Non communicable diseases
5. Health services

Conclusion



THANK YOU