

ADAPTING TO IMPACT OF CLIMATE CHANGE ON DENGUE HEMORRHAGIC FEVER IN INDONESIA

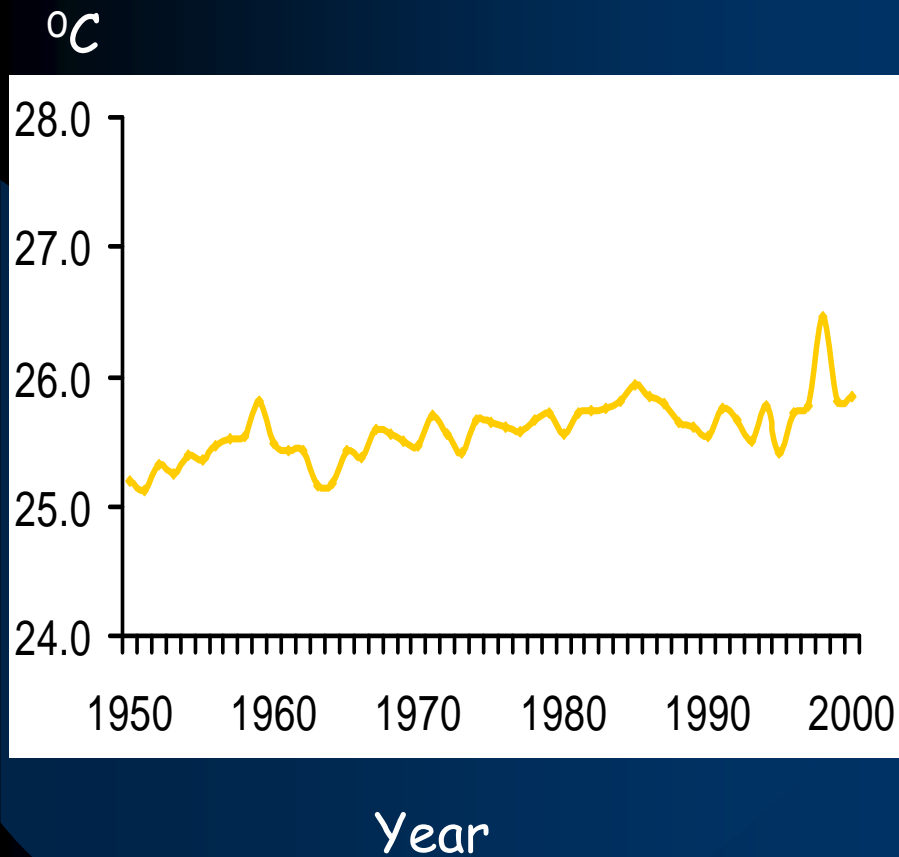


Budi Haryanto

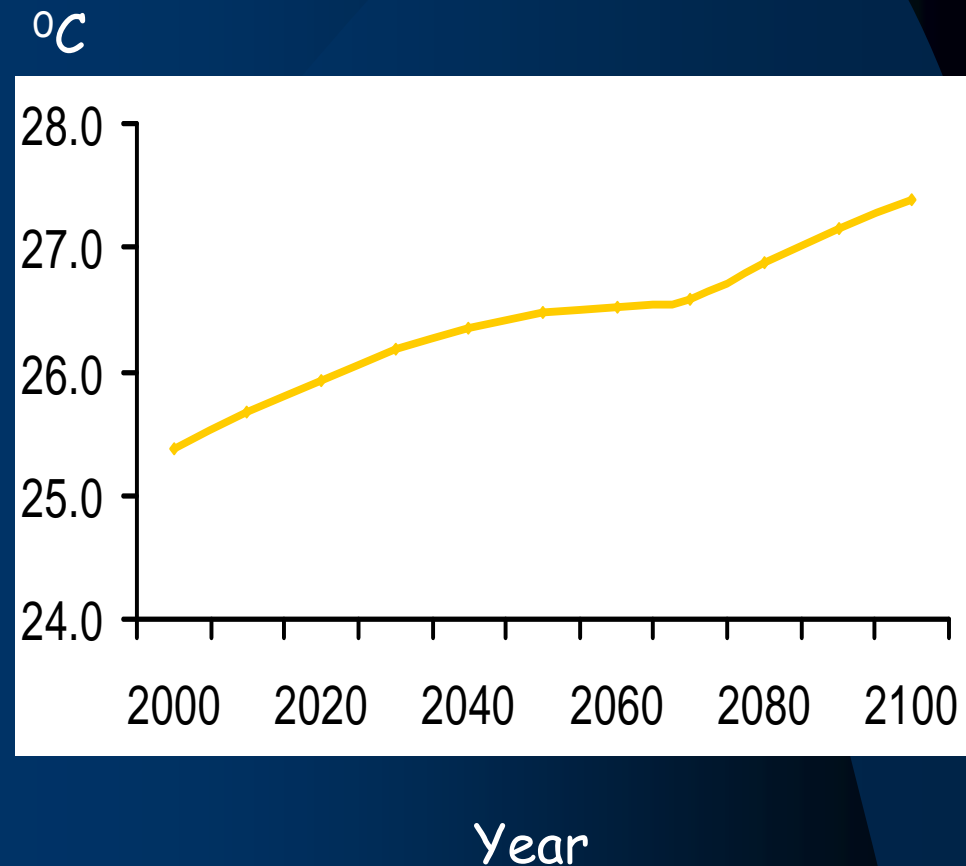
DECISION MAKERS

- Minister of Health
- Director of the National Planning and Development Board

TEMPERATURE PROJECTION ON INDONESIA

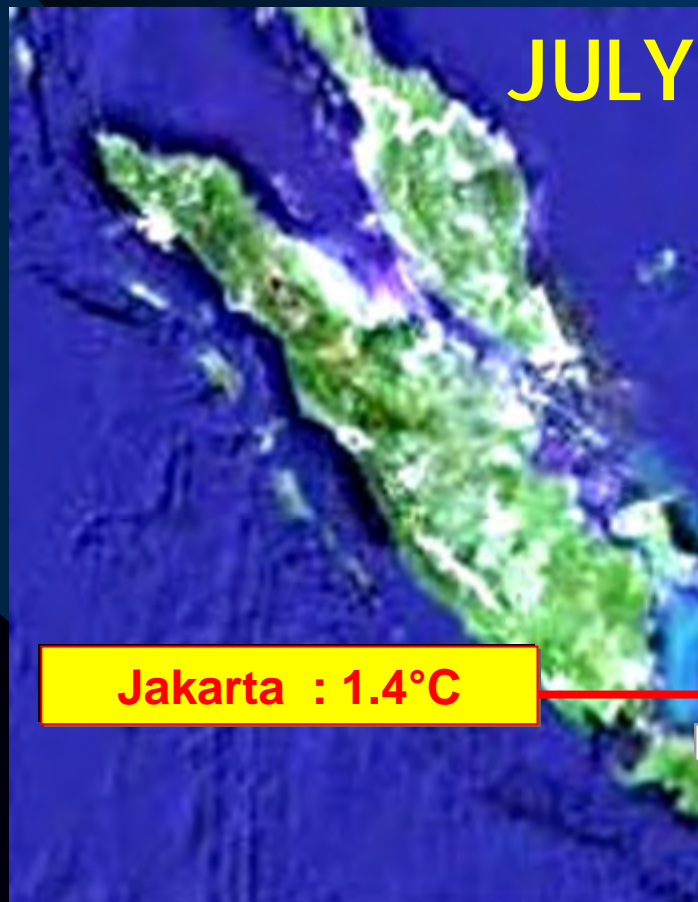


Source: NOAA, 2002



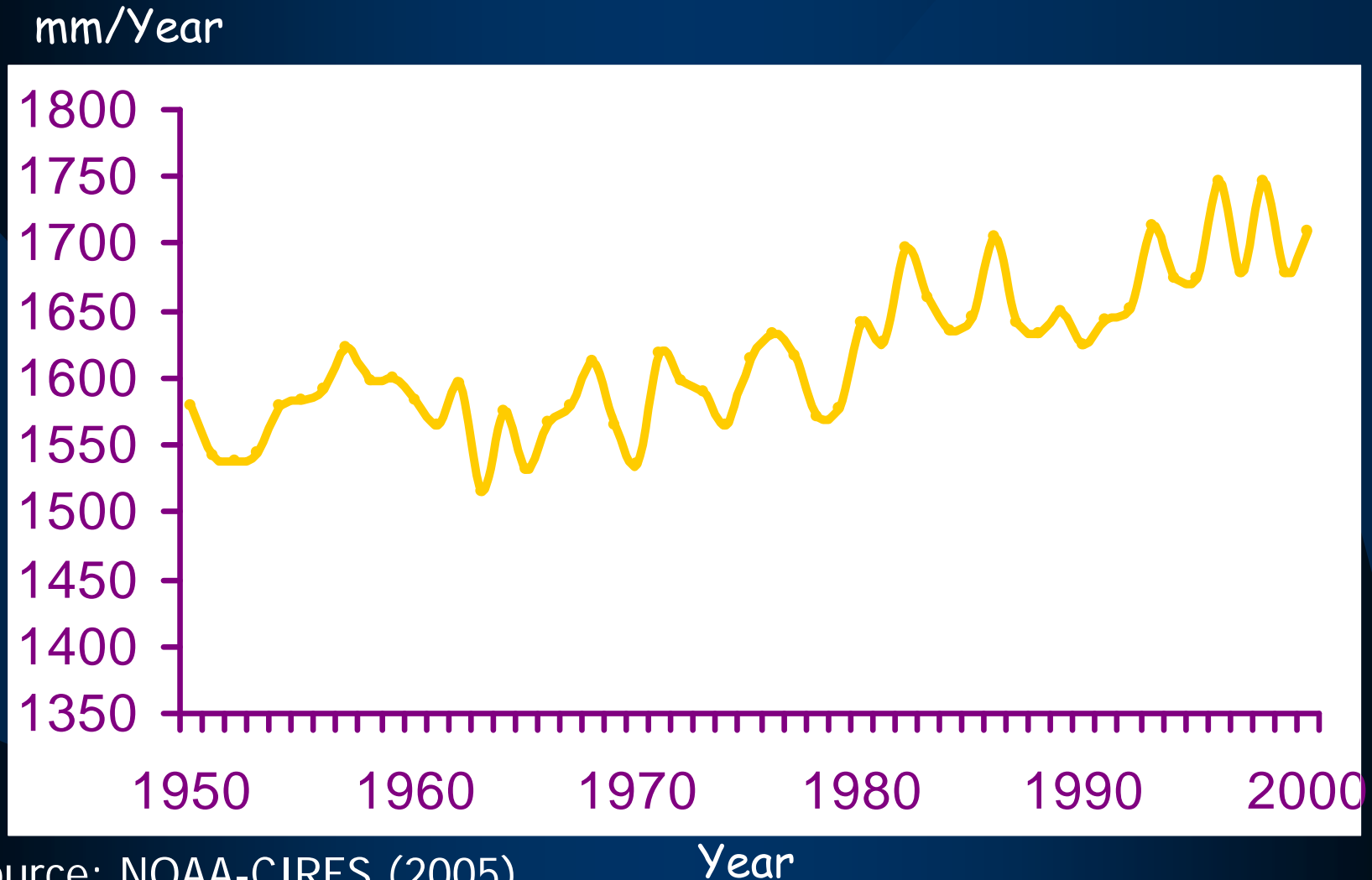
Source: Susandi, 2005

INCREASING TEMPERATURE IN JAKARTA & SURABAYA 1900 - 2000



GLOBAL : 0.7°C/100 years

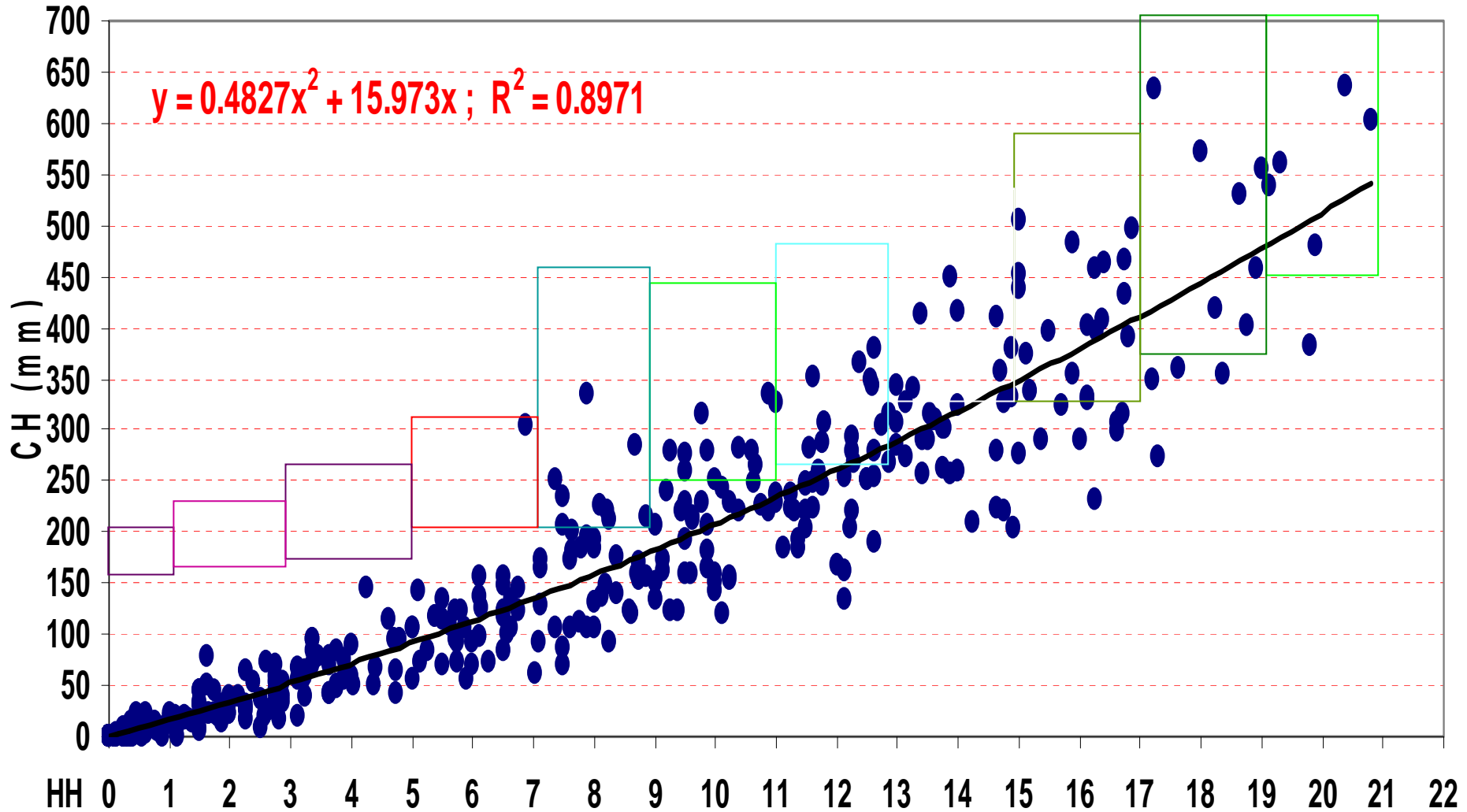
RAINFALL TREND IN INDONESIA 1950-2000



Source: NOAA-CIRES (2005)

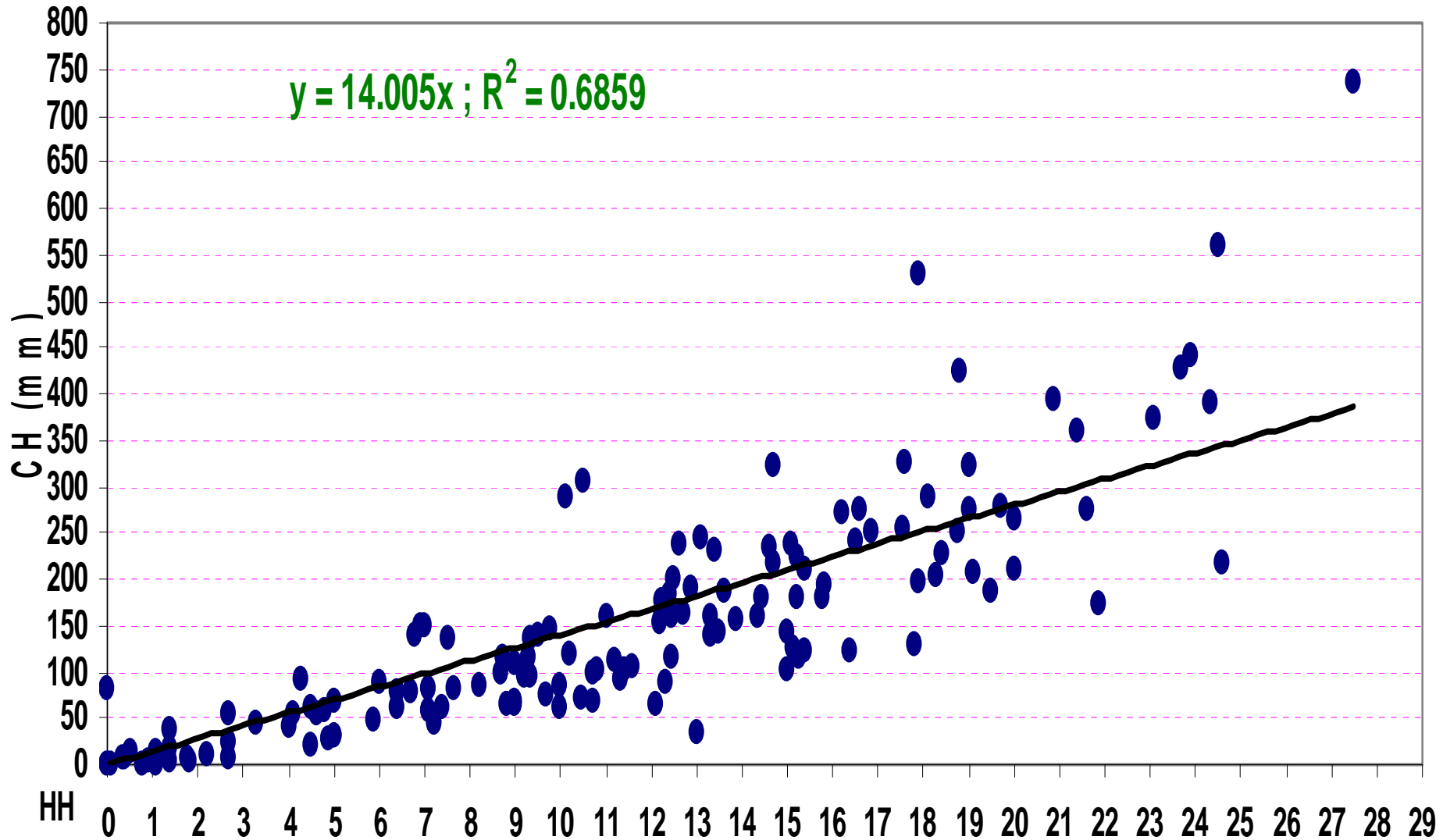
Empirical Model Prediction for Rain Fall Surabaya 1973-2007

Scatter Diagram HH vs CH Rata-2 Area Bulanan Kota Surabaya (1973-2007)

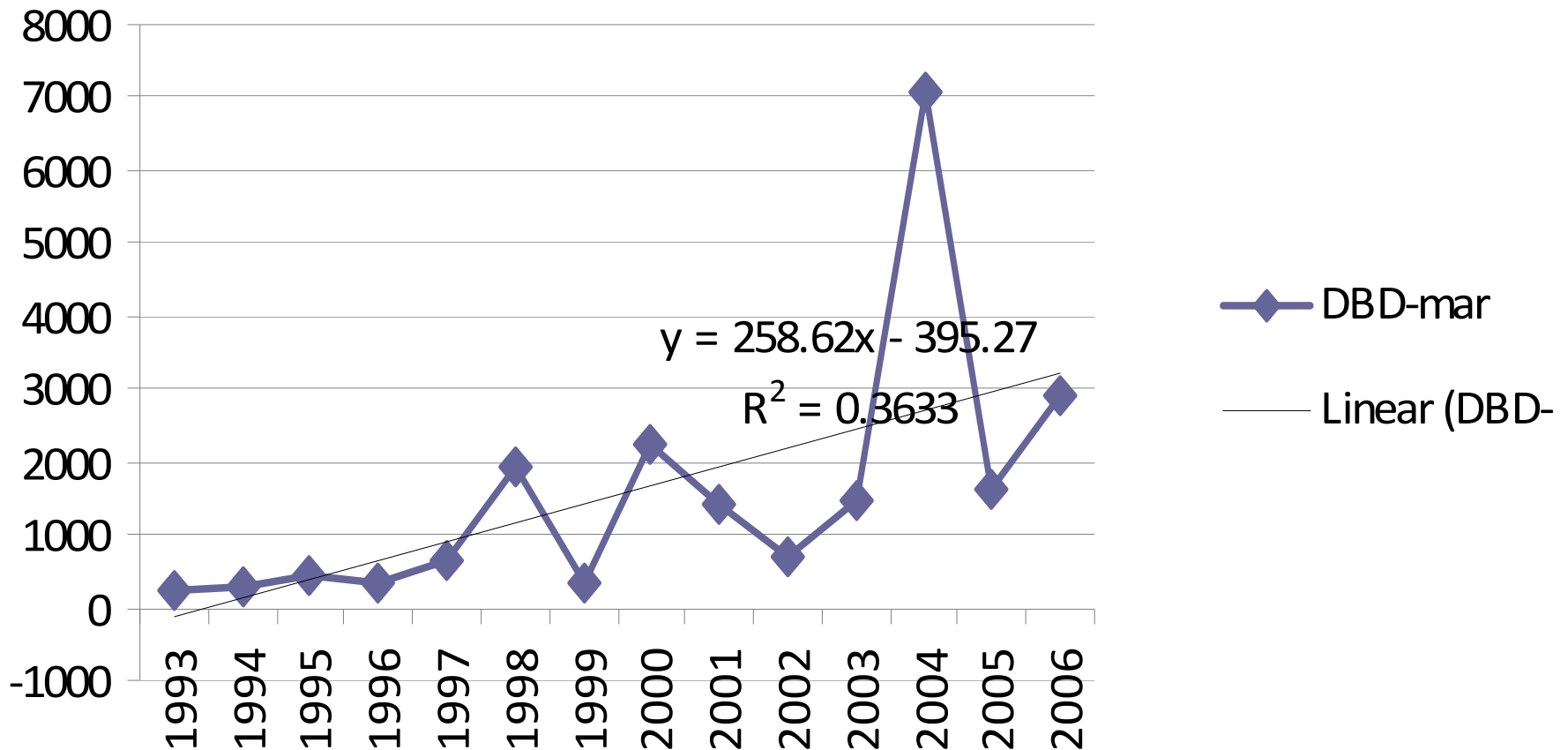


Empirical Model Prediction for Rain Fall Jakarta 1995-2005

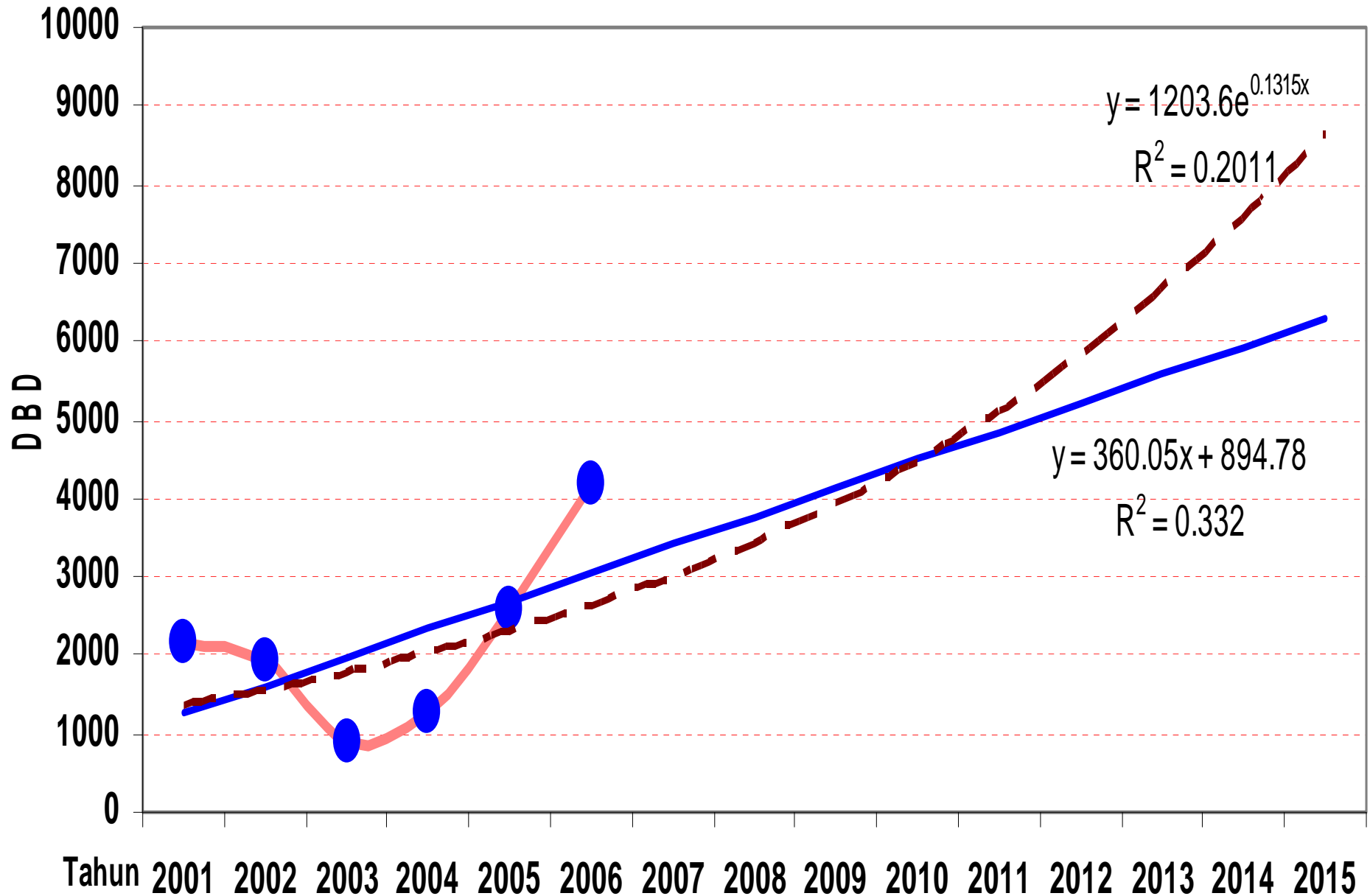
Scatter Diagram HH vs CH Propinsi DKI Jakarta tahun 1995-2006



RAINFALL AND DHF CASES IN DKI JAKARTA 1993-2006



PREDICTION OF DHF CASES IN SURABAYA 2007-2015



PREDICTION OF DHF CASES IN JAKARTA 2007-2015

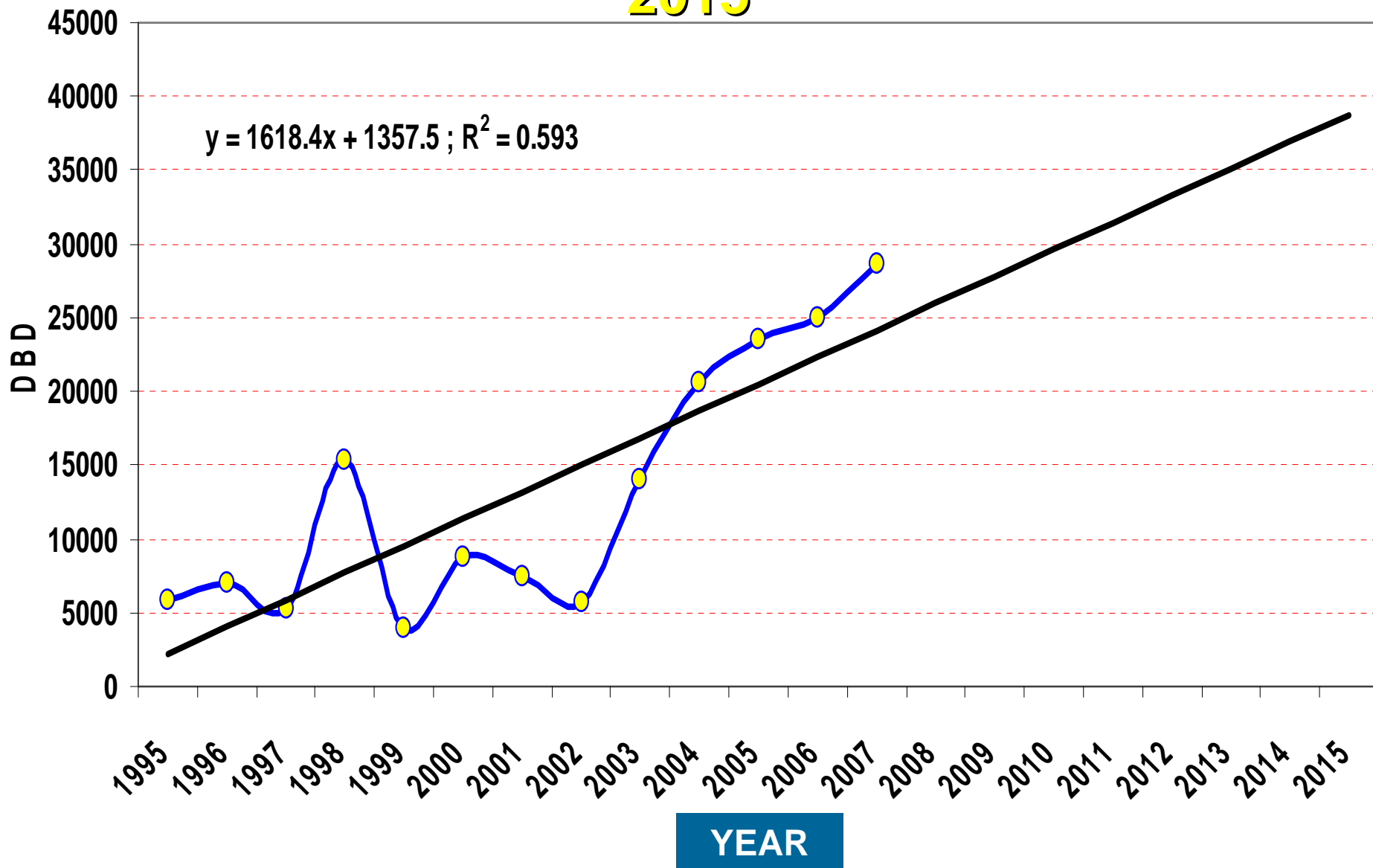
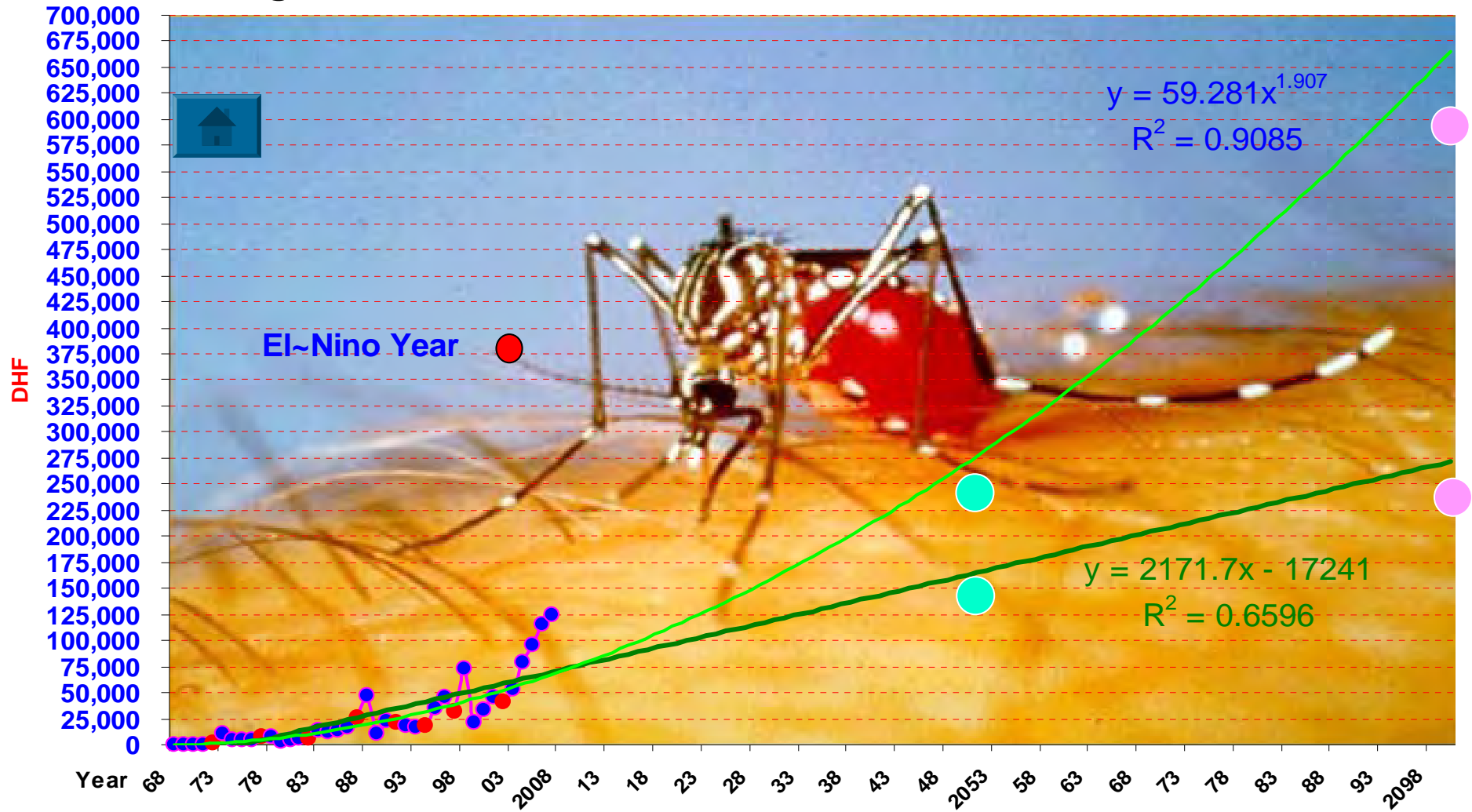


Figure 3. Scenario DHF Cases Over Indonesia (1968~2100)

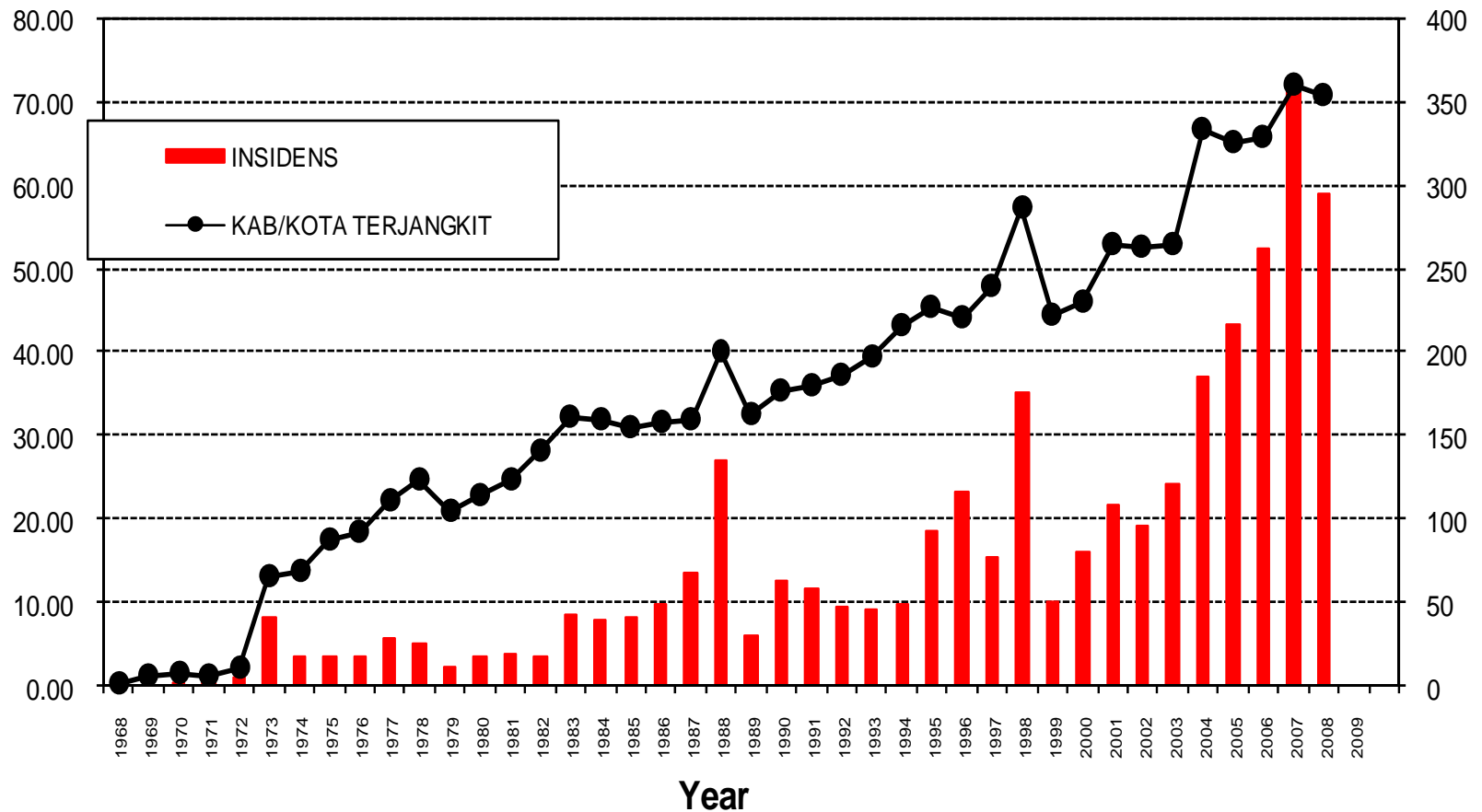


Using data cases of dengue fever since 1968-2007, scenario that cases of dengue fever in years 2050 and 2100 in Indonesia, up to 150,000/275.000 and 275,000/675.000 cases.

DHF CASES BY CITIES/DISTRICTS IN INDONESIA 1968 - 2008

Incidence Rate per 100,000

Districts/Cities

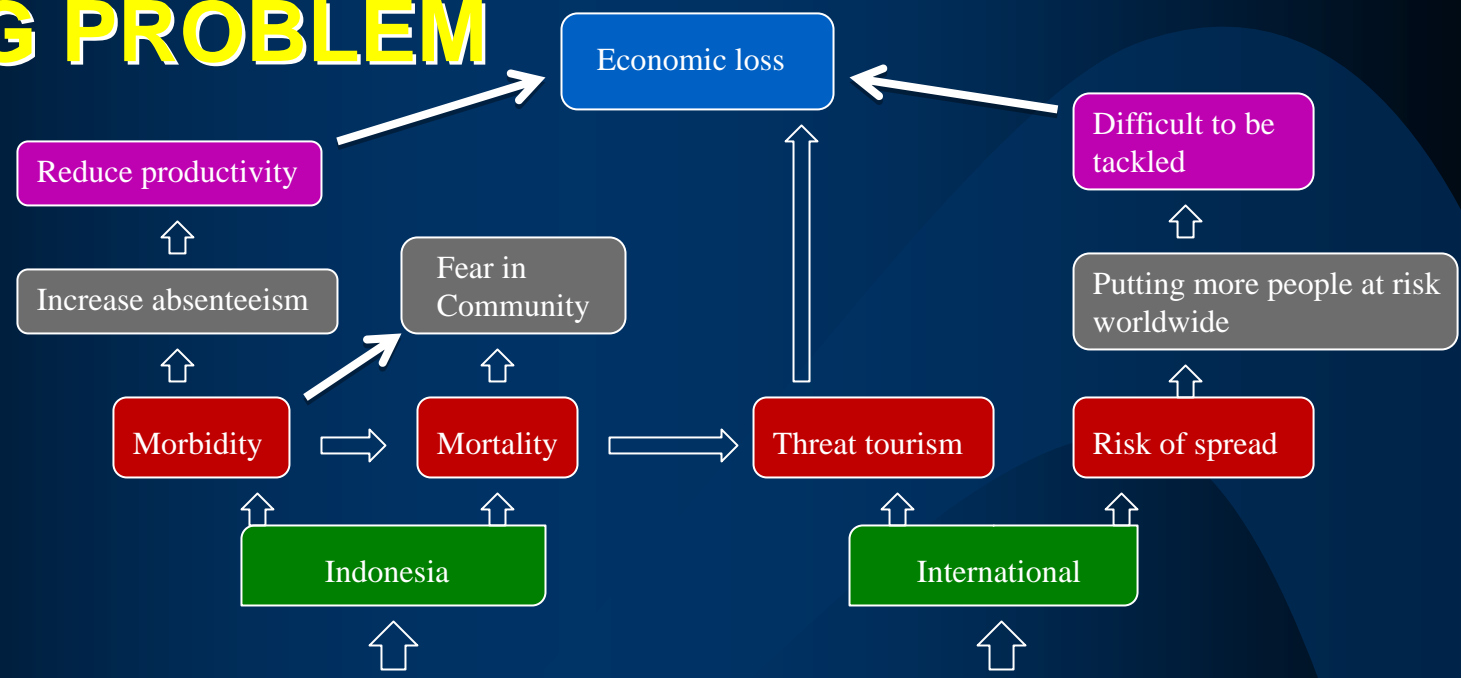


MAIN PROBLEM

Rising of DHF incidence in
Indonesia

SCOPING PROBLEM

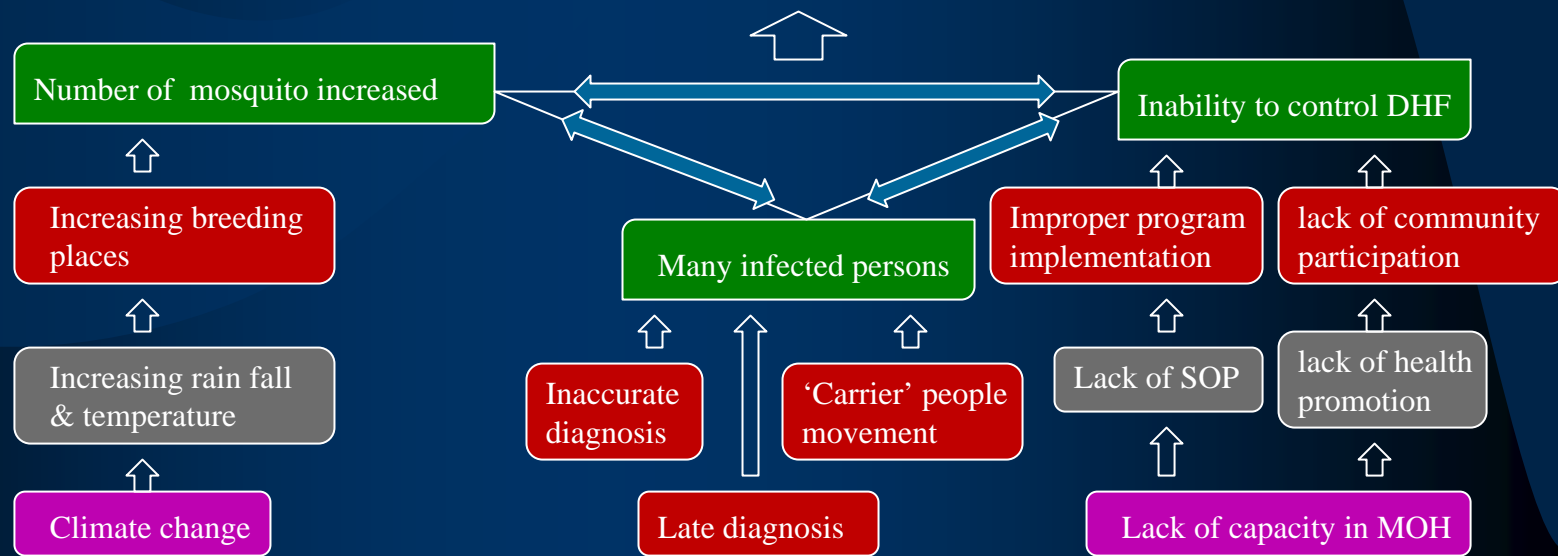
EFFECTS



PROBLEM

Rising incidence of DHF in Indonesia

CAUSES



PROBLEM

Rising incidence of DHF in Indonesia

CAUSES

Number of mosquito increased

Inability to control DHF

Increasing breeding places

Many infected persons

Increasing rain fall & temperature

Climate change

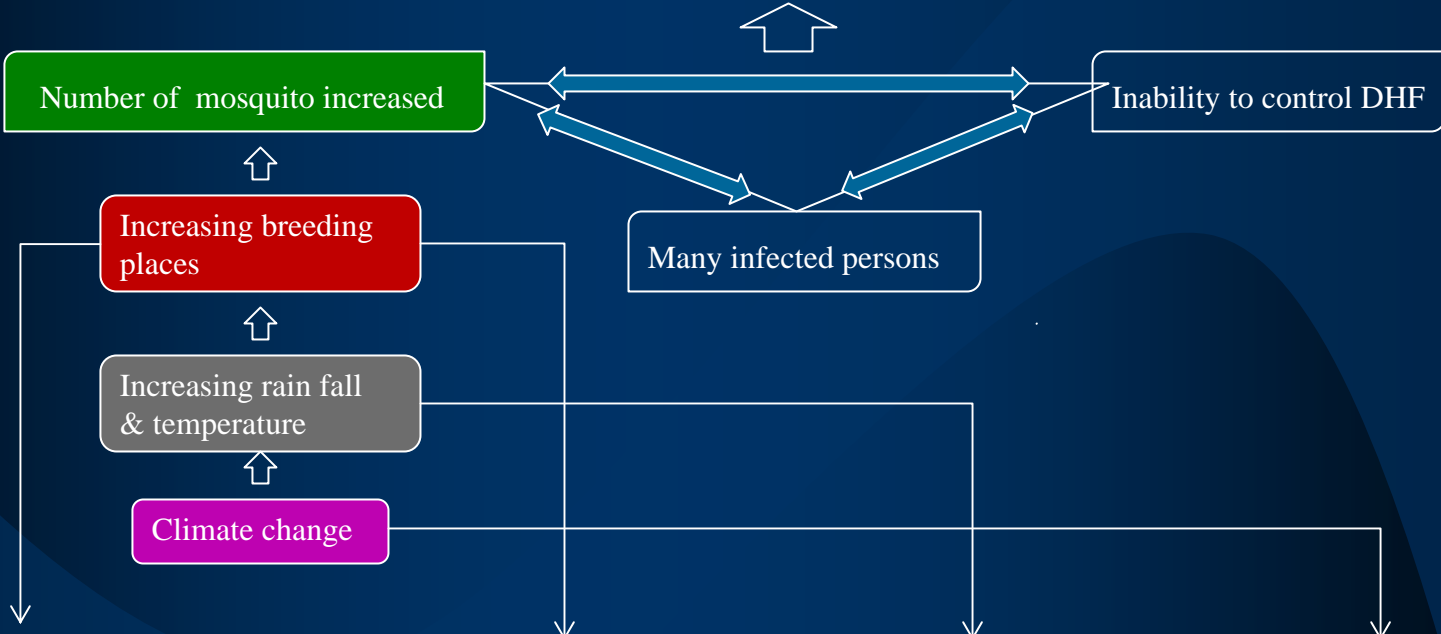
SOLUTIONS

Burying, Covering, and Cleaning the potential mosquito breeding places (community & government)

Intensifying control for Aedes' adult & pupa (comm & govt)

Early warning system information from BMKG sent to government to activate control of breeding places (govt & univ.)

Mitigation to reduce sources of GHG (govt, univ., NGO & comm)



BURYING, COVERING, & CLEANING MOSQUITO BREEDING PLACES

WHAT SHOULD DO	STAKE HOLDERS
To find potential Aedes's breeding places at the home yard (can, bottle, etc.)	Individual, household, & community
To burry the removable breeding places	Individual, household, & community
To cover the non-removable breeding places	Individual, household, & community
To clean or drain clean water which is potential for Aedes's breeding places	Individual, household, & community

INTENSIFYING CONTROL OF AEDES'S ADULT & PUPA

WHAT SHOULD DO	STAKE HOLDERS
Health promotion & education of BCC to community	Local Health Office
Training of eradicating Aedes's adult (fogging) and pupa surveillance	MOH & Local Health Office
To do fogging properly in the area of new DHF patient living	Local Health Office & Public Health Center
Surveillance of Aedes's pupa and breeding places	Local Health Office & Public Health Center
Community empowerment for combating Aedes's adult and pupa	Public Health Center & Local Government

EARLY WARNING SYSTEM

WHAT SHOULD DO	STAKE HOLDERS
To generate collaboration of Early Warning System between MOH & BMKG	MOH BMKG
BMKG to send warning to Local Health Office of the increasing trend of rainfall & temperature within 24 hours	BMKG Local Health Office MOH

MITIGATION TO REDUCE SOURCES OF GREEN HOUSE GASES

WHAT SHOULD DO	STAKE HOLDERS
To take part to reduce all energy uses as a daily life	Individual, community
To take part to generate 'green' environment	Individual, community
To take part to act 'environmental friendly' behavior	Individual, community
To prioritize climate change on the national development	President, MOH, Bappenas
To involve other sectors and stake holders in implementing national mitigation strategy	Central government, Local government, Civil society, NGOs

PROBLEM

Rising incidence of DHF in Indonesia

Number of mosquito increased

Inability to control DHF

CAUSES

Many infected persons

Late diagnosis

'Carrier' people movement

Inaccurate diagnosis

SOLUTIONS

Health promotion on recognizing the symptoms of DHF (govt)

Send the DHF suspect to hospital immediately (comm)

Capacity building for medical, health service providers, and laboratories (govt & univ.)

Health promotion on recognizing the symptoms of DHF (govt) and Delay for travelling (comm)

HEALTH PROMOTION ON RECOGNIZING DHF'S SYMPTOMS

WHAT SHOULD DO	STAKE HOLDERS
To develop health promotion materials on DHF symptoms and early prompt treatment for community	MOH, Local health office
To conduct health promotion and education on DHF symptoms and early prompt treatment to community	Local health office, Health center, key persons in community
To use media for disseminating health promotion on DHF symptoms and early prompt treatment to community	MOH, local health office, local government

SEND DHF'S SUSPECT TO HOSPITAL IMMEDIATELY

WHAT SHOULD DO	STAKE HOLDERS
To identify member of family and neighborhood who having symptoms like DHF	Individual, household, community
To send those who have symptoms like DHF to hospital immediately	Individual, household, community

CAPACITY BUILDING FOR MEDICAL HEALTH SERVICES & LABORANTS

WHAT SHOULD DO	STAKE HOLDERS
To conduct frequent workshop on DHF treatment for medical and health service officers	MOH, local health office, hospitals
To conduct training on Laboratory analysis for DHF	MOH, local health office, hospitals
To standardize the DHF treatment management and laboratory analysis	MOH

HEALTH PROMOTION ON THE SYMPTOMS OF DHF & DELAY TRAVELLING

WHAT SHOULD DO	STAKE HOLDERS
To conduct health promotion and education on DHF symptoms and early prompt treatment to community	Local health office, health center, local government
To recognize the DHF symptoms and decide to delay for travelling	Individual, community

PROBLEM

Rising incidence of DHF in Indonesia

CAUSES

Number of mosquito increased

Many infected persons

Inability to control DHF

Improper program implementation

lack of community participation

Lack of SOP

lack of health promotion

Capacity building for health officers and supervision (govt & univ.)

Lack of capacity in MOH

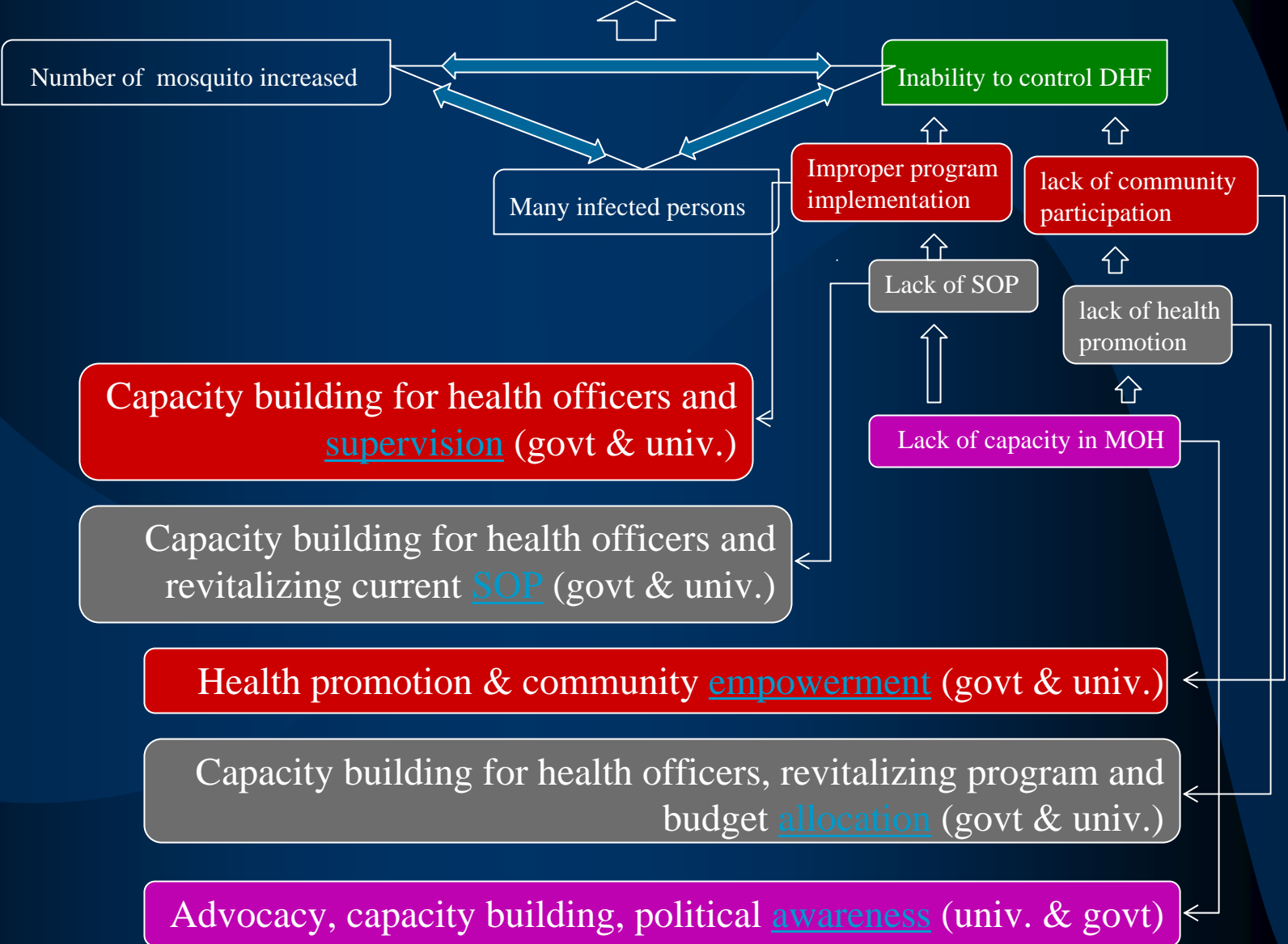
Capacity building for health officers and revitalizing current SOP (govt & univ.)

Health promotion & community empowerment (govt & univ.)

Capacity building for health officers, revitalizing program and budget allocation (govt & univ.)

Advocacy, capacity building, political awareness (univ. & govt)

SOLUTIONS



CAPACITY BUILDING FOR HEALTH OFFICERS AND SUPERVISION

WHAT SHOULD DO	STAKE HOLDERS
To conduct training on DHF control management	MOH, Local health office
To facilitate equipments and materials for DHF control implementation	MOH, Local health office
To provide appropriate funding for DHF control implementation	MOH, Local health office, local government
To supervise regularly on DHF control implementation	Local health office

CAPACITY BUILDING FOR HEALTH OFFICERS & REVITALIZE SOP

WHAT SHOULD DO	STAKE HOLDERS
To revitalize the current standard operating procedure of DHF program based on empirics, current research, and theories	MOH
To conduct training for the assigned health officers on new SOP of DHF	MOH, Local health office

HEALTH PROMOTION AND COMMUNITY EMPOWERMENT

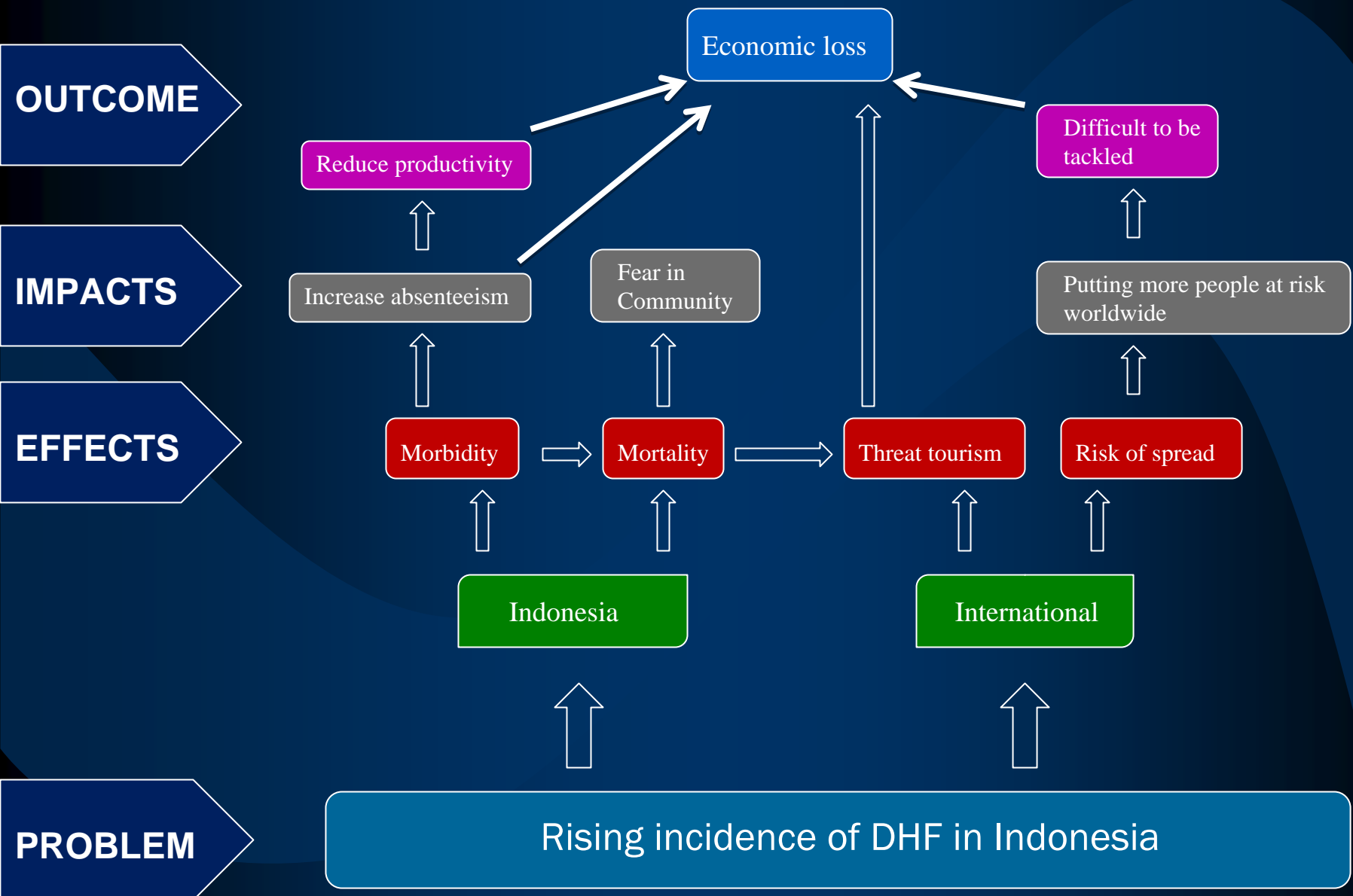
WHAT SHOULD DO	STAKE HOLDERS
To promote and educate community on DHF awareness and prevention through media or other potential ways on local wisdom	Local health office, health center, local government, key persons in the community
To conduct community capacity building on DHF awareness and prevention	Local health office, health center, local government, key persons in the community
To support community participation on DHF awareness and prevention	Local health office, health center, local government

CAPACITY BUILDING FOR HEALTH OFFICERS, REVITALIZING PROGRAM AND BUDGET ALLOCATION

WHAT SHOULD DO	STAKE HOLDERS
To conduct training on health promotion & education among health officers	MOH, Univ., Local health office
To conduct training on health community development among health officers	Univ., Local health office
To evaluate & revitalize DHF eradication program	MOH, Local health office
To implement the revised program & supervise frequently	Local health office, MOH
To provide appropriate budget	MOH, Local health office, Local government

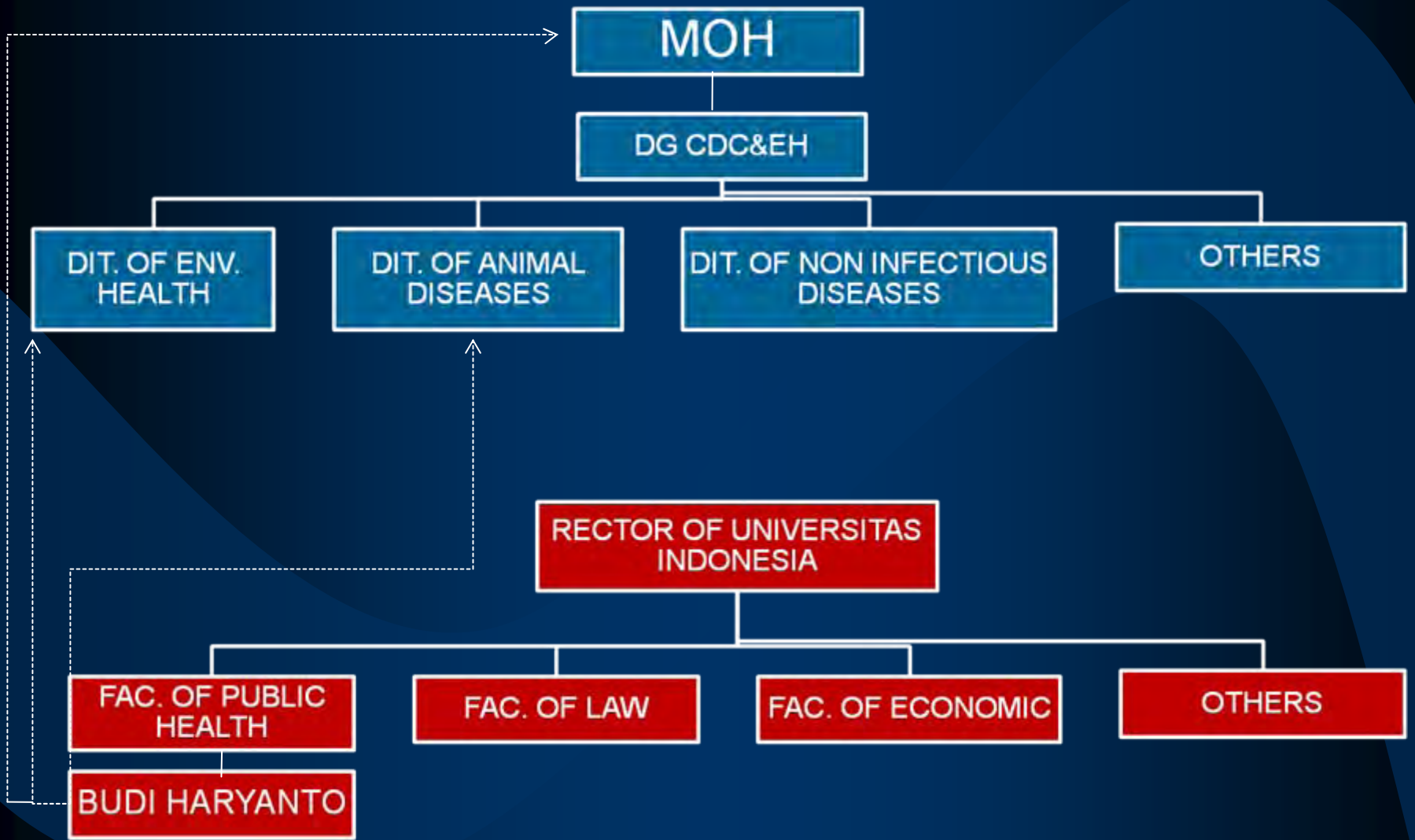
ADVOCACY, CAPACITY BUILDING, POLITICAL AWARENESS

WHAT SHOULD DO	STAKE HOLDERS
To conduct meeting/workshop on DHF eradication ideas for MOH high level positions	University
To conduct seminar/workshop on DHF current research & prevention for MOH	University
To conduct public hearing/seminar on current status of DHF & its prevention for politicians/parties	University



STAKE HOLDERS RELEVANT TO THE EFFECTS

- DHF patients
- General population
- Tourists
- Neighborhood countries



MOH & University charts

ORGANISATIONAL STRUCTURE

ORGANISATIONAL STRUCTURE

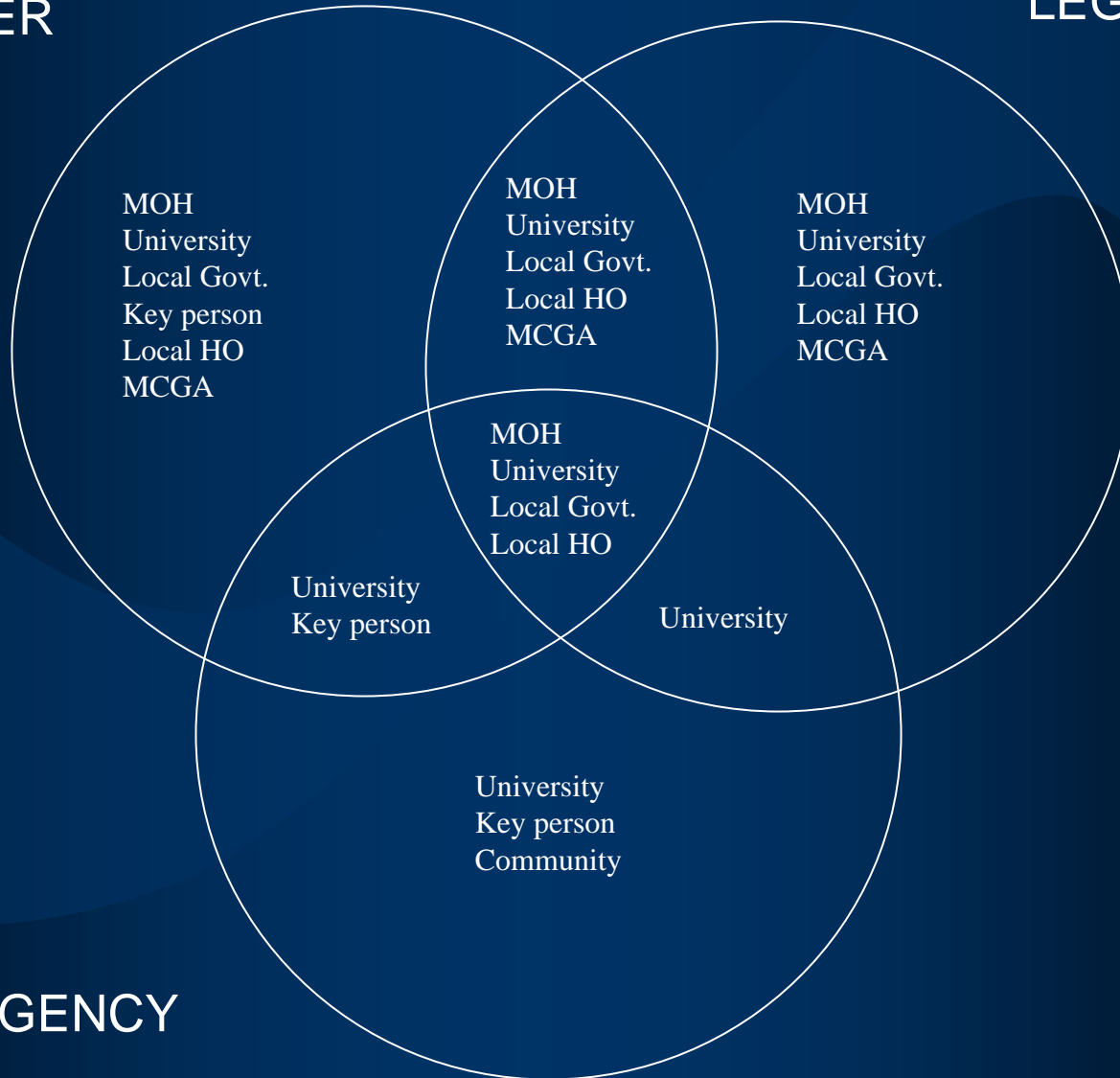


Provincial & city government with health office charts

STAKEHOLDER ANALYSIS

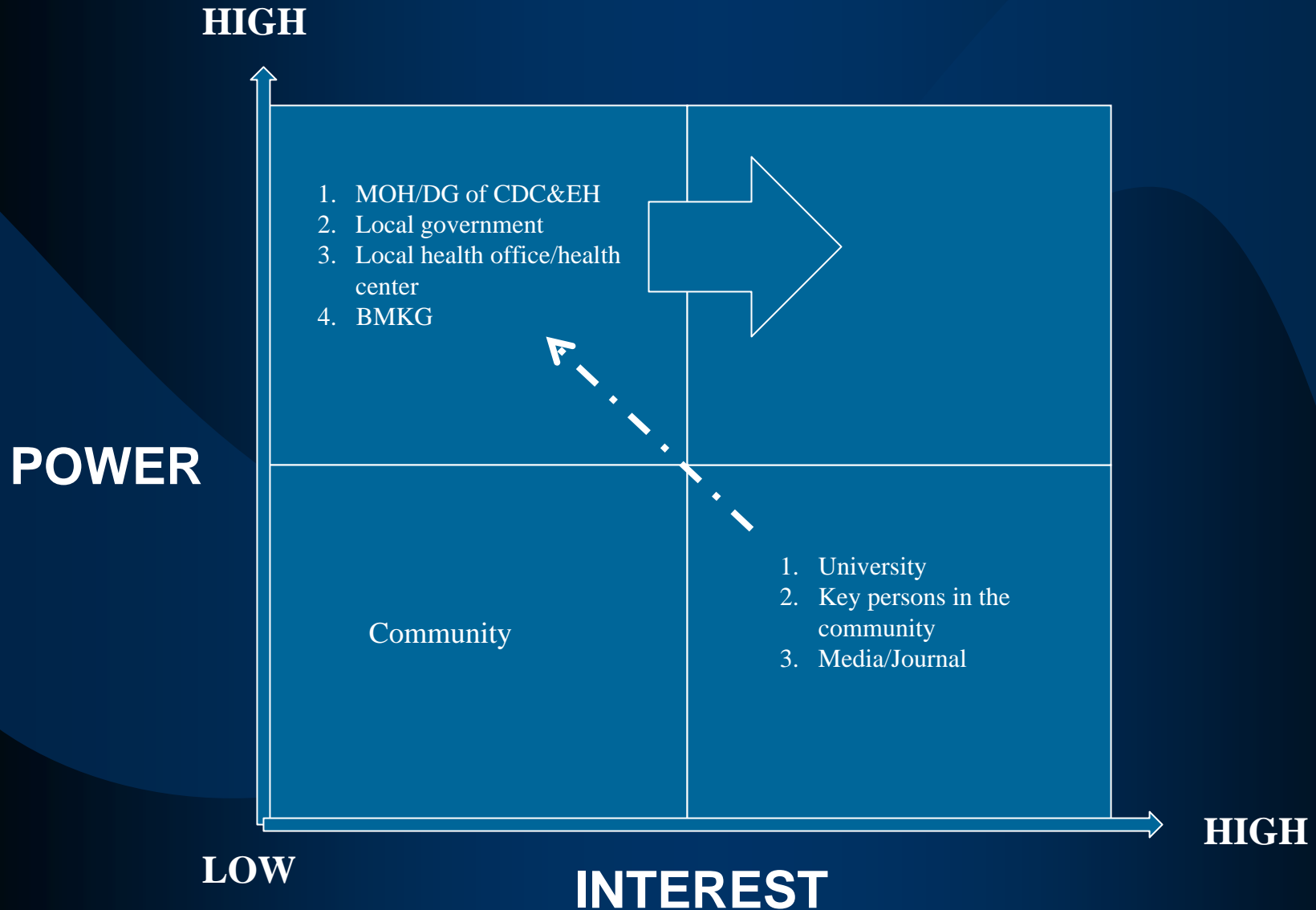
POWER

LEGITIMACY



URGENCY

POWER → POWER+INTEREST?



ACTION PLAN

GOAL

The policy brief adopted by the Indonesia Ministry of Health

OBJECTIVES:

- Adopt an evidence-based solution
- Develop innovative or solution-oriented research agenda
- Strengthen capacity of public health practitioner and professional
- Strengthen knowledge & awareness of academician & public

OBJECTIVE #1

OBJECTIVE	ACTION PLAN	TARGETED STAKE HOLDERS	INDICATORS	TIME
Adopt an evidence-based solution	To discuss the policy brief approach with the decision makers on a personal meeting	Dit of Env. Health MOH Dit of Animal Diseases MOH RC for Health Ecology MOH Center for CC & Air Pollution MCGA	Decision makers adopt & commit to the approach	2010
	To share the policy brief approach on the development of national CC health adaptation process	Dit of Env. Health MOH	The team accept & utilize the approach	2010
	To disseminate the policy brief approach to potential staff working on CC health adaptation	Dit of Env. Health MOH Dit of Animal Diseases MOH RC for Health Ecology MOH	The potential staffs understand the policy brief approach	2010
	To advocate a specific decision maker to adapt policy brief approach for other animal diseases related to CC	Dit of Animal Diseases MOH	The policy brief approach adapted by Dit of Animal Diseases MOH	2010
	To advocate decision makers on the important to develop Early Warning System on climate related diseases	Dit of Env. Health MOH MCGA Local Health Office	The MOU of collaboration Early Warning System signed	2010

OBJECTIVE #2

OBJECTIVES	ACTION PLAN	TARGETED STAKE HOLDERS	INDICATORS	TIME
Develop innovative or solution-oriented research agenda	To suggest potential research for verifying & eradicating DHF causes or other possible CC-related illnesses	RC for Health Ecology MOH Center for CC & Air Pollution MCGA Academicians at SPH UI & RCC UI	More research proposals are developed among institutions	2011
	To advocate of sharing data support for research on DHF causes and or other possible CC-related illnesses to decision maker	DG of MCGA	MCGA shared climate data to MOH & Universities	2010
	To share research focus & methods on the development of collaboration research on CC and DHF, Malaria, Diarrhea	Center for CC & Air Pollution MCGA	The team accepted the research focus & methods	2010

OBJECTIVE #3

OBJECTIVE	ACTION PLAN	TARGETED STAKE HOLDERS	INDICATORS	TIME
Strengthen capacity of public health practitioner and professional	To present modification of policy brief on the ongoing CC health adaptation training of MOH	Dit of Env. Health MOH Public health practitioner & professional	Public health practitioner & professional accept the approach	2010
	To adopt the bridging research-policy divide to train the trainer for capacity building	Decision makers PH professionals PH practitioners Academicians	The training of trainer conducted at the University of Indonesia	2011

OBJECTIVE #4

OBJECTIVE	ACTION PLAN	TARGETED STAKE HOLDERS	INDICATORS	TIME
Strengthen knowledge & awareness of academician & public	To rewrite the policy brief into a scientific article to publish on an international journal	Academicians Students	Published by international journal	2011
	To rewrite the policy brief into a popular article and to publish on a media	Community Decision makers Politicians	Published by national media	2010

POTENTIAL BARRIERS

- A few number of research available due to limited number researcher interested in the issue.
- Advocating and influencing policy makers

HERE IT IS....!

