

The ASEAN Integration and Regional Collaboration in S & T Symposium

on March 5, 2014

at the National Graduate Institute for Policy Studies

About the



## The Framework, Missions and Research Outcomes

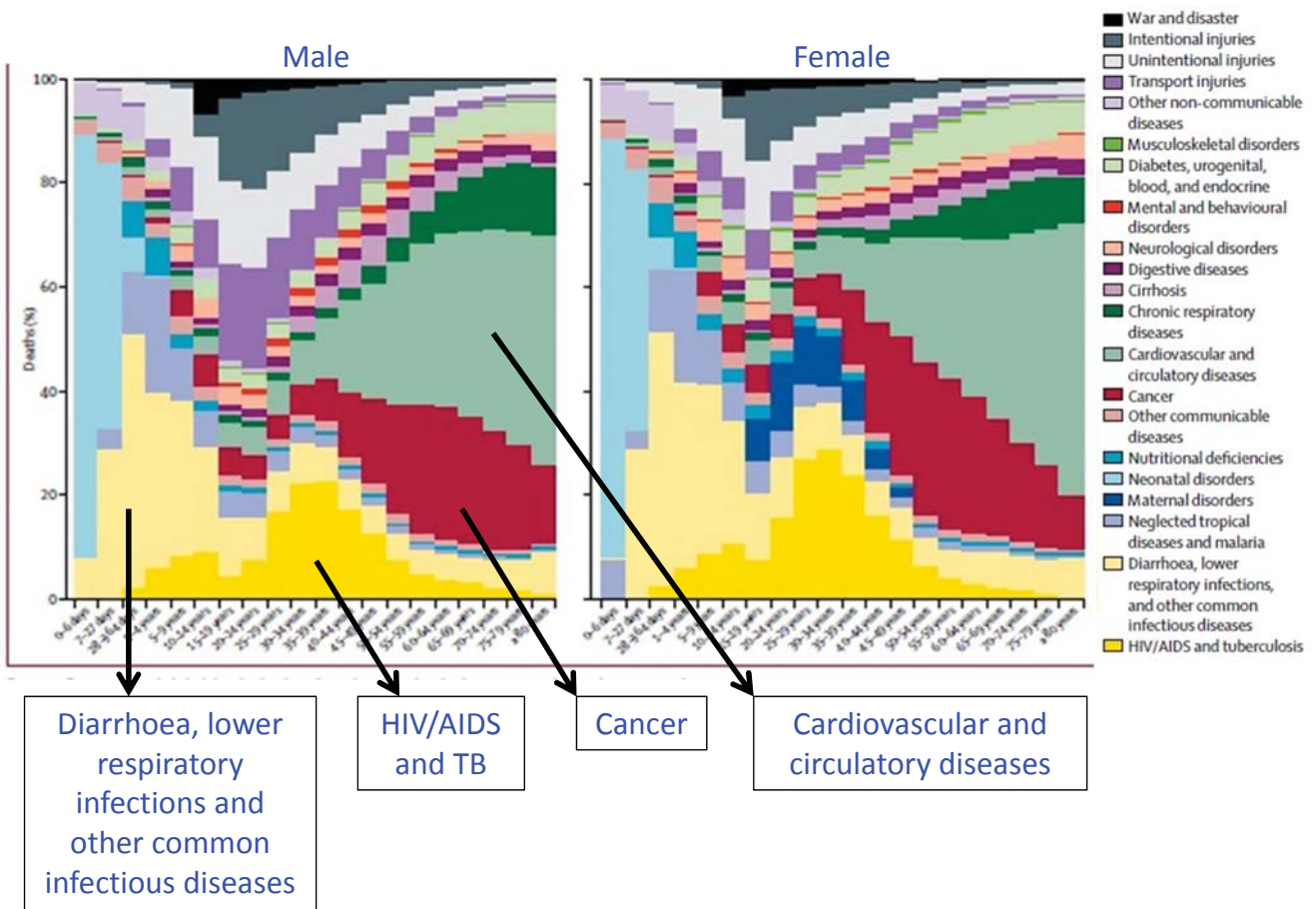
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on Infectious Diseases (CRNID) &  
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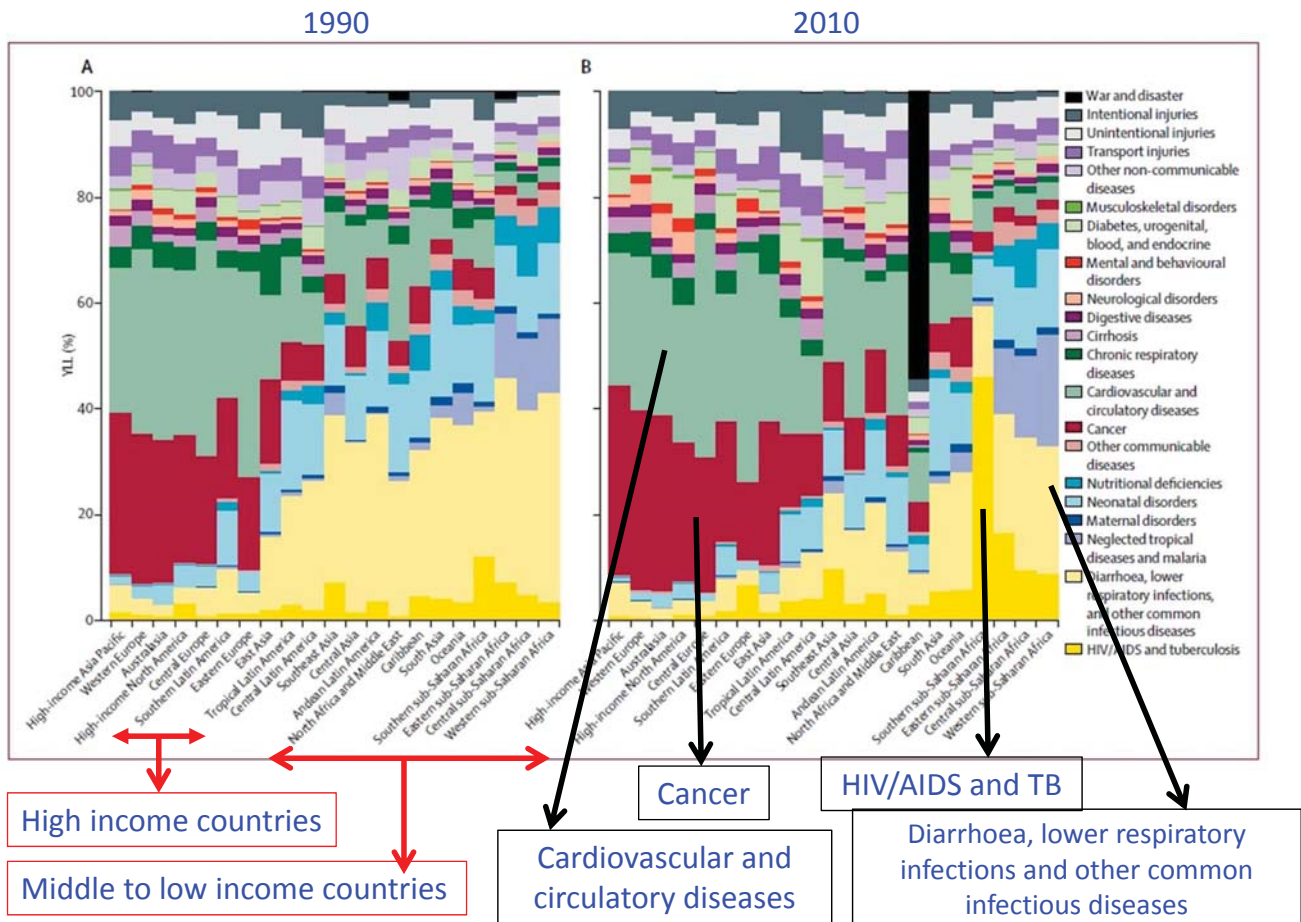


### 1. Global and Regional Burden of Infectious Diseases

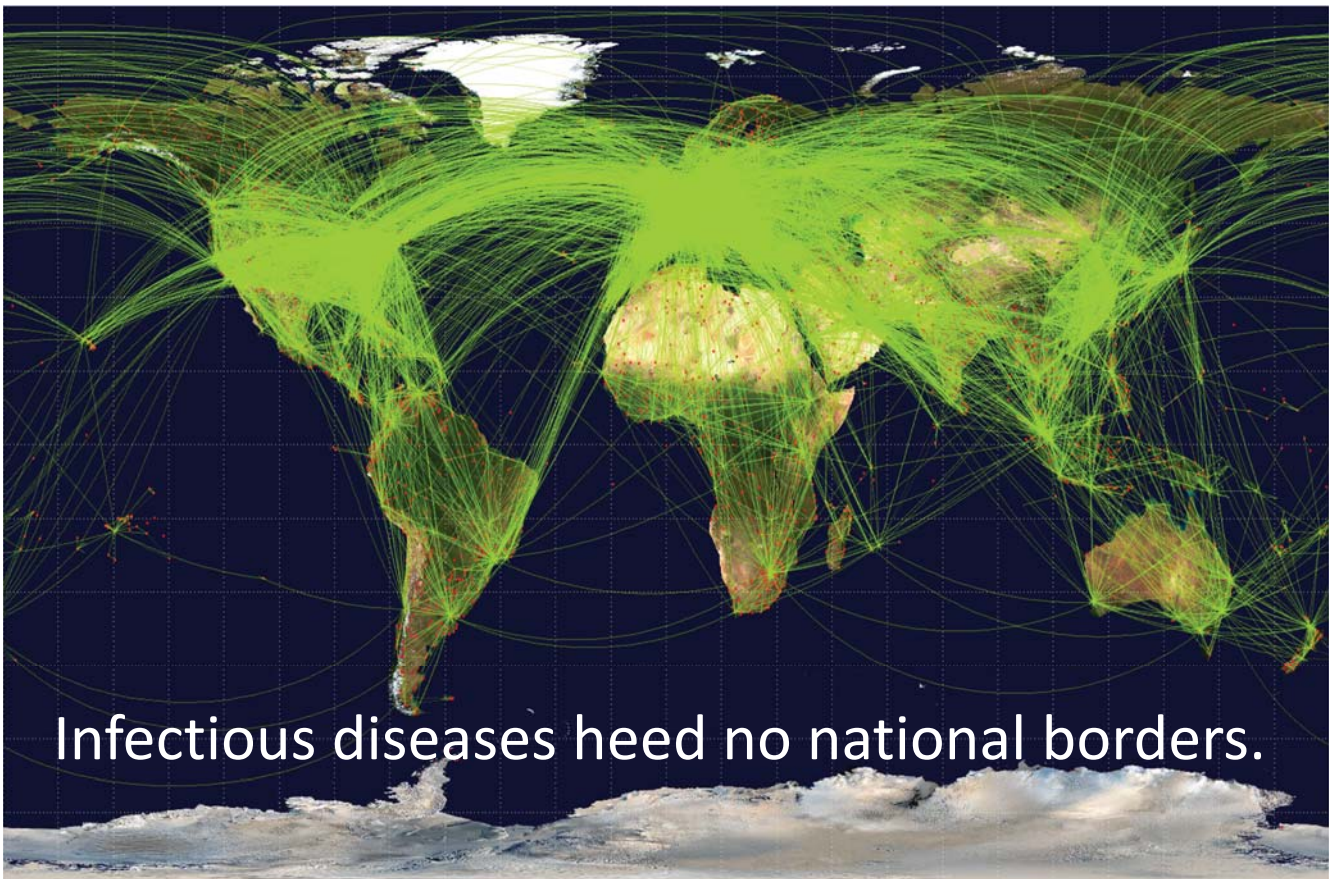
Percentages of global deaths in 2010 by cause and age: The Lancet, 380, 2095-2128, 2012.



Percentages of YLLs (years of life lost) by cause and region: The Lancet 380, 2095-2128, 2012.



## 2. Infectious Diseases Heed No National Borders but Borders Do Exist for Their Research.



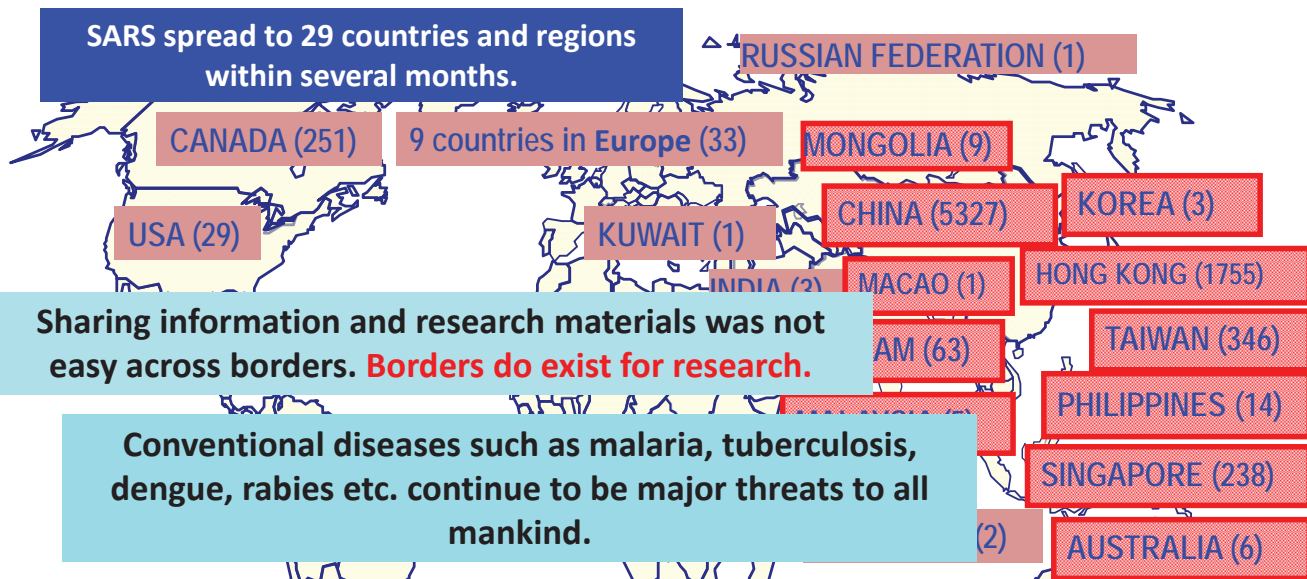
Authored by Jpatokal, from

<http://commons.wikimedia.org/wiki/File:World-airline-routemap-2009.png?uselang=ja>



# Summary of probable SARS cases by country and region (Nov. 01 2002 - July 31 2003)

SARS spread to 29 countries and regions within several months.



Sharing information and research materials was not easy across borders. **Borders do exist for research.**

Conventional diseases such as malaria, tuberculosis, dengue, rabies etc. continue to be major threats to all mankind.

	World
Cases	8,098
Deaths	774
Fatality	9.6%

Enhance research collaboration across borders! → **J-GRID**

WHO (as of Sep. 26 2003)

## 3. Framework and Missions

There are two elements for J-GRID:

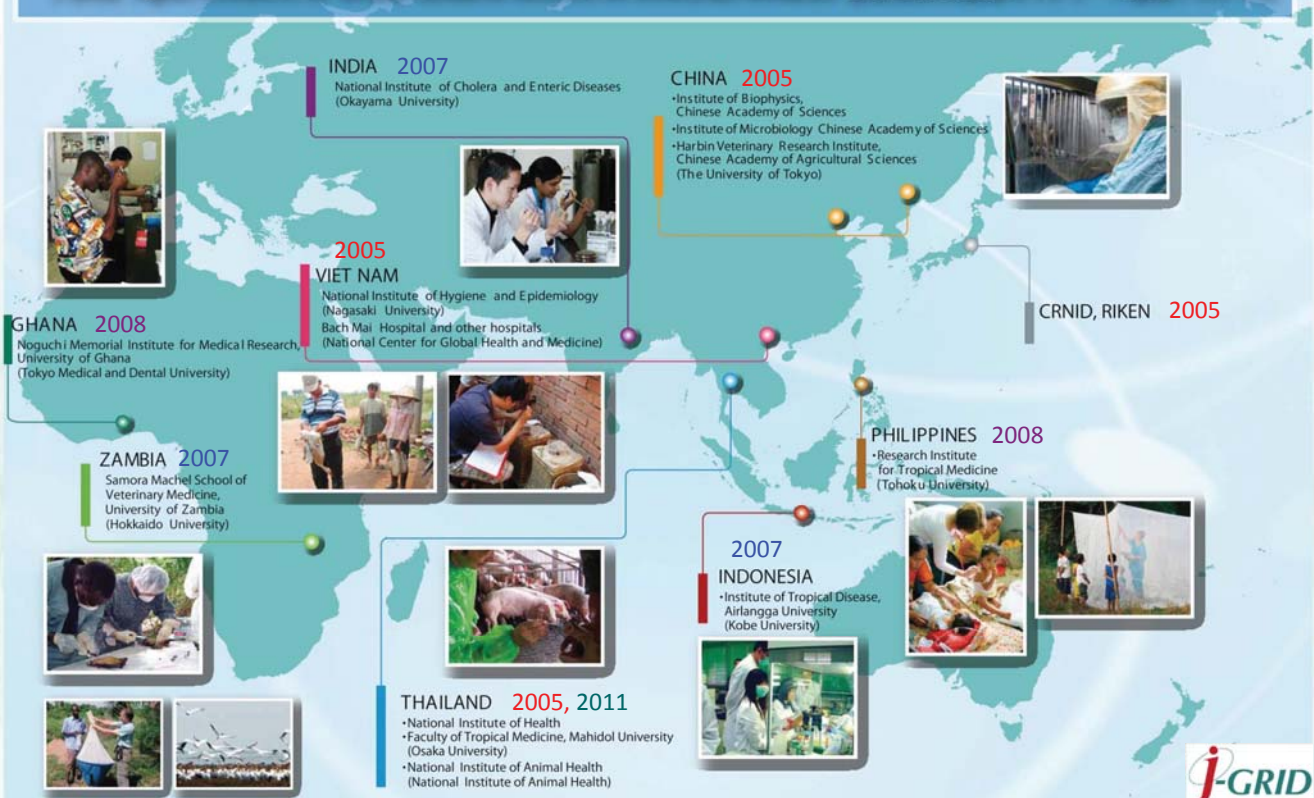
1. **Construction of collaboration centers in Asian and African countries on a reciprocal basis** between a Japanese university/institution and the overseas partner university/institution, where the researchers from both countries daily work together.
2. **Networking** of those bilateral collaboration centers and setting up its headquarters (**CRNID: the Center of Research Network for Infectious Diseases**) at RIKEN.

Recent budget/year: 1.7 -1.8 billion JPY=about 17-18 million USD

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Country	Year	Overseas Counterpart	Japan Side
<b>Thailand</b> 	2005	National Institute of Health	Osaka University
	2011	Faculty of Tropical Medicine, Mahidol University	
	2005	National Institute of Animal Health	National Institute of Animal Health
<b>Vietnam</b> 	2005	National Institute of Hygiene and Epidemiology	Nagasaki University
		Bach Mai Hospital and other hospitals	National Center for Global Health and Medicine
<b>China</b> 	2005	Institute of Biophysics Chinese Academy of Sciences	The University of Tokyo
		Institute of Microbiology Chinese Academy of Sciences	
		Harbin Veterinary Research Institute Chinese Academy of Agricultural Sciences	
<b>Zambia</b> 	2007	Samora Machel School of Veterinary Medicine University of Zambia	Hokkaido University
<b>India</b> 	2007	National Institute of Cholera and Enteric Diseases	Okayama University
<b>Indonesia</b> 	2007	Institute of Tropical Disease Airlangga University	Kobe University
<b>Philippines</b> 	2008	Research Institute for Tropical Medicine	Tohoku University
<b>Ghana</b> 	2008	Noguchi Memorial Institute for Medical Research University of Ghana	Tokyo Medical and Dental University
<b>Japan</b> 	2005	Center of Research Network for Infectious Diseases (CRNID), RIKEN	

ASEAN members in red.



A total of 13 research centers have been established in 8 countries, six in Asia and 2 in Africa.

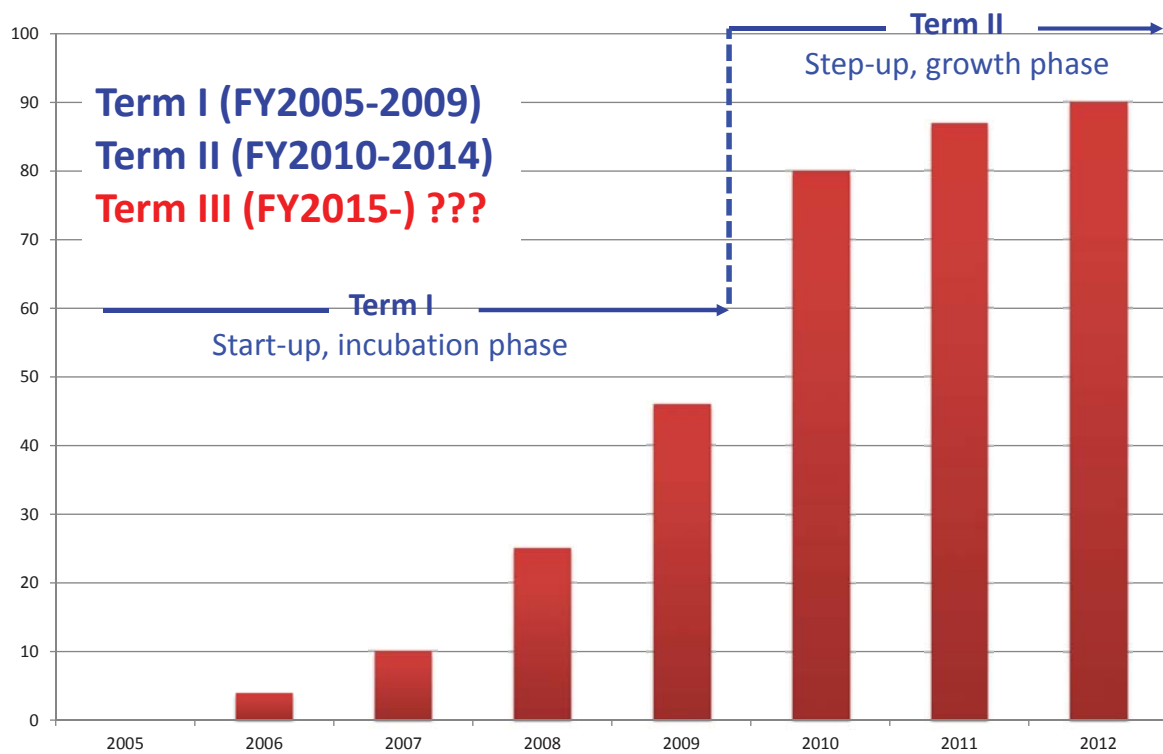


J-GRID's missions:

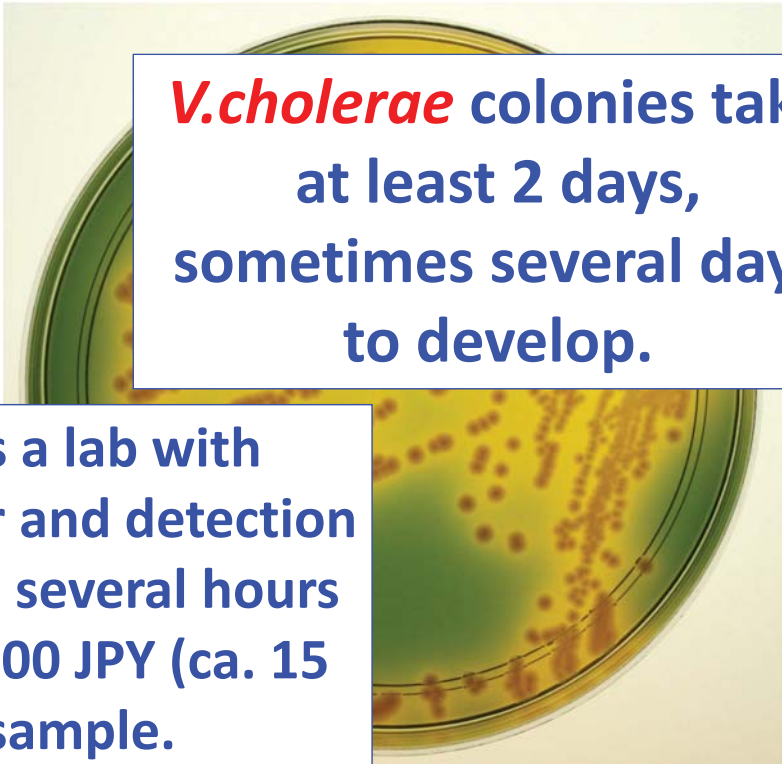
1. High quality research
2. Technological innovation
3. Human resources development
4. Dissemination of research outcomes to the society

## 4. Research Outcomes

Number of papers published from J-GRID



*Vibrio cholerae* is a major pathogen for diarrhoe.



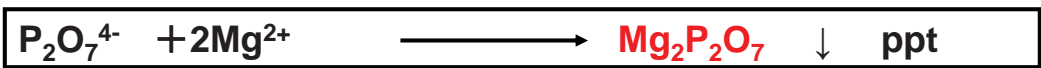
*V.cholerae* colonies take at least 2 days, sometimes several days to develop.

PCR needs a lab with thermal cycler and detection system, takes several hours and costs 1,500 JPY (ca. 15 USD)/sample.

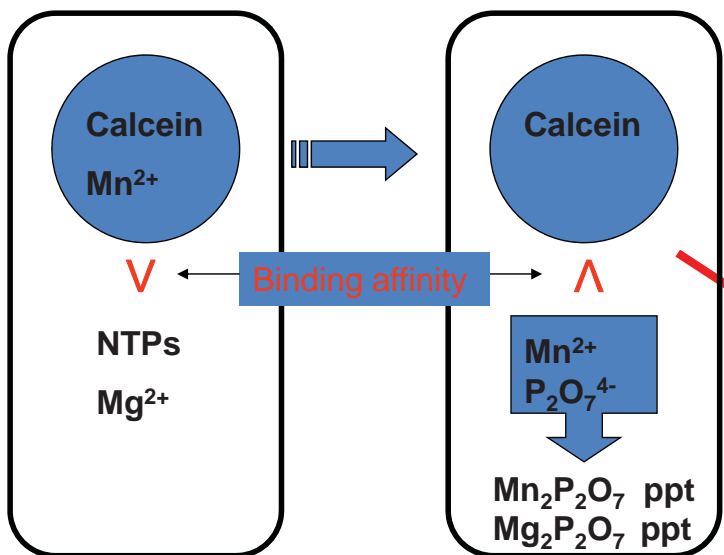
*Vibrio cholerae*

LAMP reaction becomes visible to the naked eyes within 30 to 60 min and costs 1 USD/sample (in-house made).

1) Insoluble turbid by-products



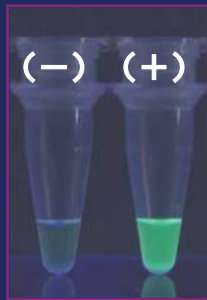
2) Green fluorescence emission by free calcein



(Courtesy of Eiken Chem. Co. Ltd.)



# Detection and immediate measures on-site



Collaboration with Phop Phra Public Health and SRRT



Rapid detection for cholera using LAMP testing on the site



Cholera surveillance



Rapid response



Dr. Kazuhisa Okada (Thai-Osaka U. Collaboration Center) receiving a plaque from HRH Princess Chulabhorn for successful application of LAMP for cholera outbreak control



269 participants in total; 180 from Japan; 89 from overseas, China, Philippines, Thailand, Vietnam, Indonesia, India, Zambia, Ghana in J-GRID, Nepal, Brunei, Bangladesh, Pakistan, Eritrea, Cameroon, Democratic Republic of the Congo, Nicaragua, Ecuador, USA outside J-GRID.



Asian-African Research Forum on Infectious Diseases 2014, Jan 20-22, in Sendai

文部科学省  
**感染症研究国際ネットワーク推進プログラム**  
 Japan Initiative for Global Research Network on Infectious Diseases

**J-GRID**

Post term I evaluation (2009): An ideal model of Japan's science and technology diplomacy

Mid-term II evaluation (2012): A strong case of Japan's leadership in science and technology

For more details see this brochure.

Thank you very much

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