

# **PEER Indonesia Forum 2017: Apply the Science Closing Remarks**

**Empowering Young Scientists of Indonesia**

**Jakarta, 1 August 2017**

**Sangkot Marzuki  
Indonesian Academy of Sciences  
National Library Complex, Jl. Medan Merdeka Selatan 11  
Jl. Hang Lekiu I No. 5A (temporary address)**



[www.aipi.or.id](http://www.aipi.or.id)

**Welcome All Participants of  
Wallacea Young Scientists Conference  
US Special Envoy for Science Visit to Ternate**

**Ternate –Indonesia, May 13-15,2010**



**AIPI**

**INDONESIAN ACADEMY OF SCIENCES  
AKADEMI ILMU/ PENGETAHUAN INDONESIA**



**INDONESIA**



**LIPI**

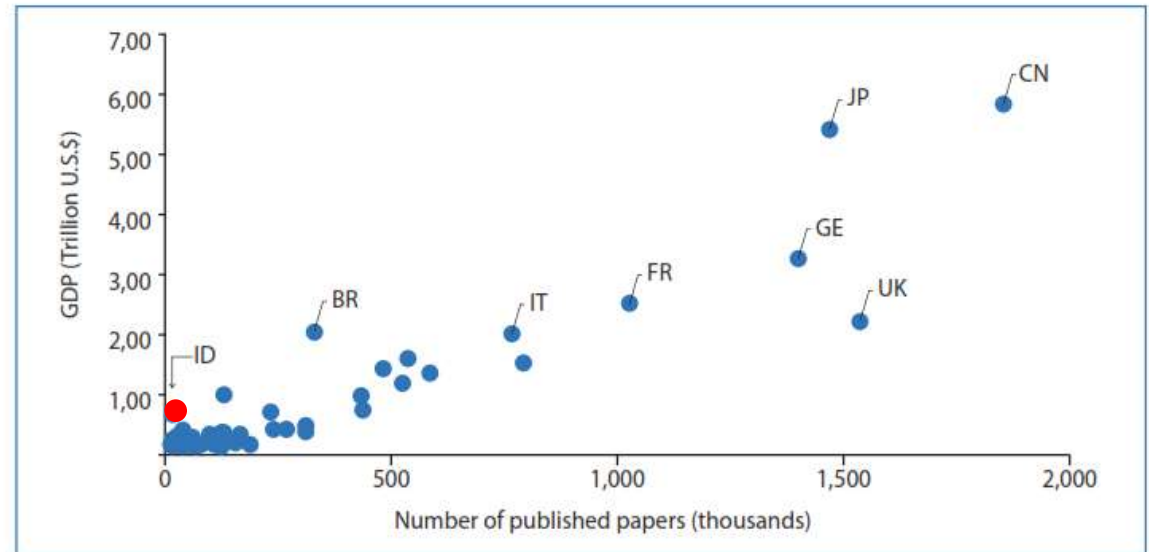




Three days in Ternate with 40 selected young scientists of Indonesia  
Consistent message: lack of incentives for scientific excellence

# Indonesia Does Not Produce Knowledge nor Technology as It Should

FIGURE 2. GDP (2010) VERSUS NUMBER OF PAPERS PUBLISHED: SELECTED COUNTRIES, 1996–2010. U.S. NOT INCLUDED



Sources: Table 6 and World Bank (<http://data.worldbank.org/country>)

TABLE 6. NUMBER OF PATENTS GRANTED BY U.S. PATENT AND TRADEMARK OFFICE, SELECTED YEARS

Economy	1992	2000	2008
Japan	23,151	32,922	36,679
Singapore	35	242	450
Taiwan, China	1,252	5,806	7,779
Korea, Rep.	586	3,472	8,731
Malaysia	11	47	168
Thailand	2	30	40
China	41	163	1,874
Indonesia	9	14	19
Philippines	7	12	22
Vietnam	0	0	0

Source: USPTO data.

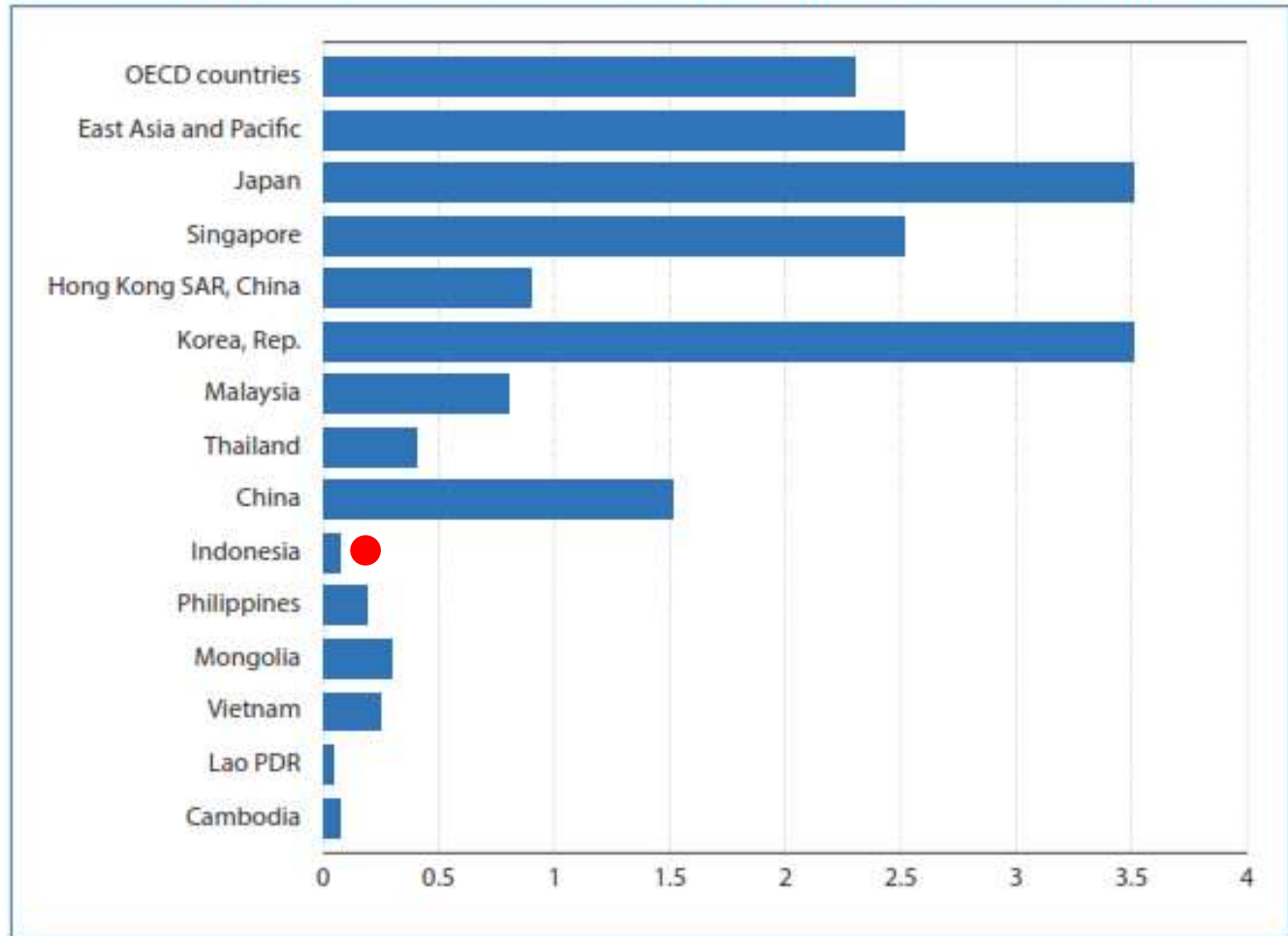
<sup>1</sup> Master Plan for Acceleration and Expansion of Indonesia Economic Development Jakarta: Coordinating Ministry for Economic Affairs, 2006.

Creating an Indonesian Science Fund



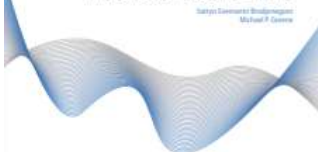
# Indonesia is Not Investing Enough in Science

FIGURE 1. GROSS EXPENDITURE ON R&D AS A PERCENTAGE OF GDP, EAST ASIA AND OECD

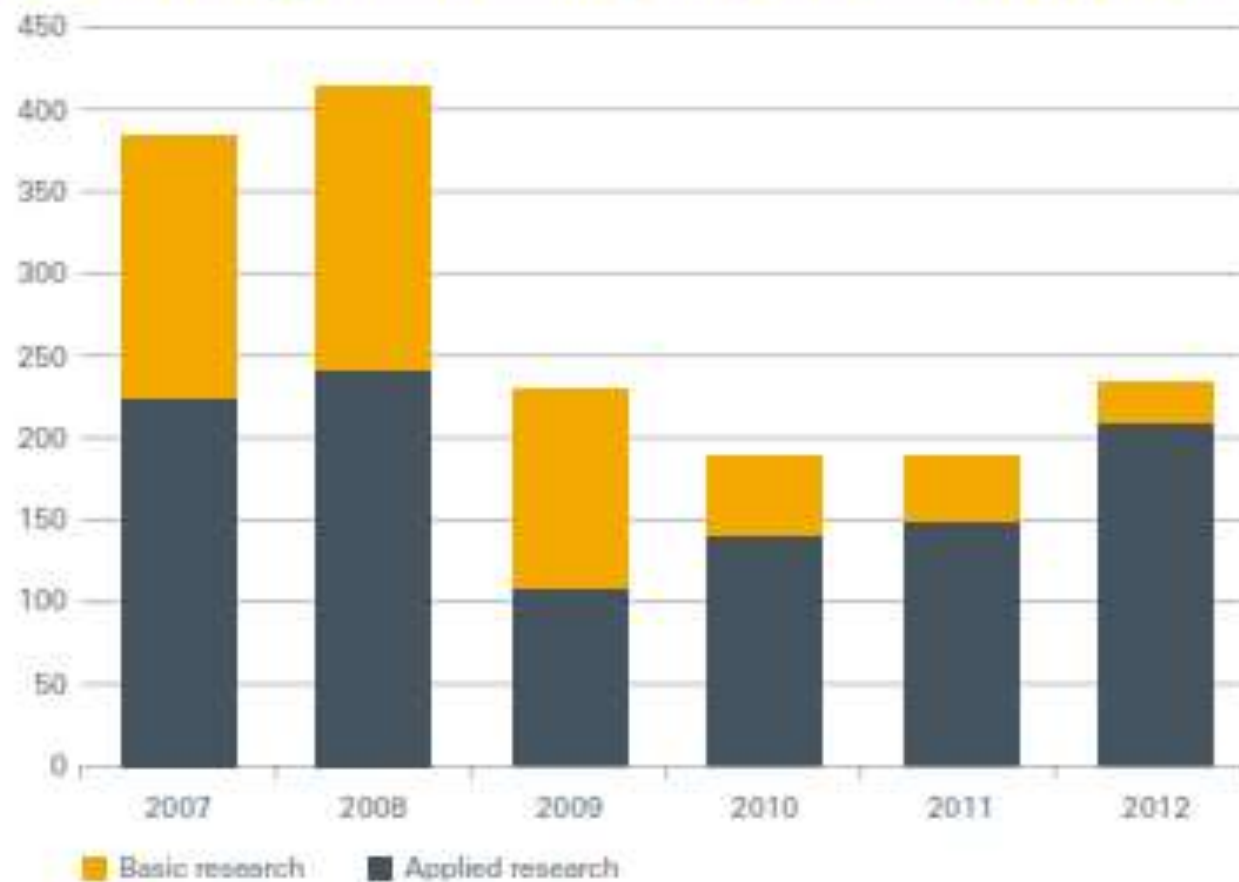


Source: World Development Indicators database (latest year, 2002-07).

Creating an  
Indonesian Science Fund



## Numbers of approved research proposals: basic vs applied<sup>79</sup>



..... the country needs a strong foundation of basic research to produce robust applied research; Indonesia is trying, and failing, to leapfrog this essential step in the development of a science and technology system. This means that applied research is often done without the expertise, innovation, or resources to make it really successful.





# Strategy

Build linkages between the Indonesian and United States' Academies of Science; help Indonesia build and bolster its culture of science

- Empower young scientists – Indonesian-American Kavli Frontiers of Science
- Need to create merit based competitive research funding mechanism
- Build capacity in AIPI to produce independent reports (through joint reports)

# INDONESIAN ACADEMY OF SCIENCE (AIPI)

FOUNDED IN 1990 WITH LAW NO. 8/1990 OF RI

BJ Habibie



Fuad Hasan



Samaun Samadikun



- independent and non structural in nature, and it is not a government body nor part of such a body (Article 4)
- bring together Indonesian most prominent scientists to give opinions, suggestions, and advice on their own initiative and/or on request on the acquisition, development and application of science and technology to the government and society .... (Article 3)
- membership is based on election (Article 8)



# Academies of Science - Akademi Ilmu Pengetahuan perangkat peradaban bangsa



Academia Sinica; 1928  
Chinese Academy of  
Sciences; 1949



Australian Academy  
of Science; 1954



Science Council of  
Netherlands-Indies; 1928



Accademia dei Lincei  
(Italy); 1603 (1986)



Royal Netherlands  
Academy of Arts and  
Sciences (KNAW); 1808



Indonesian Council of  
Sciences (MIPI); 1956



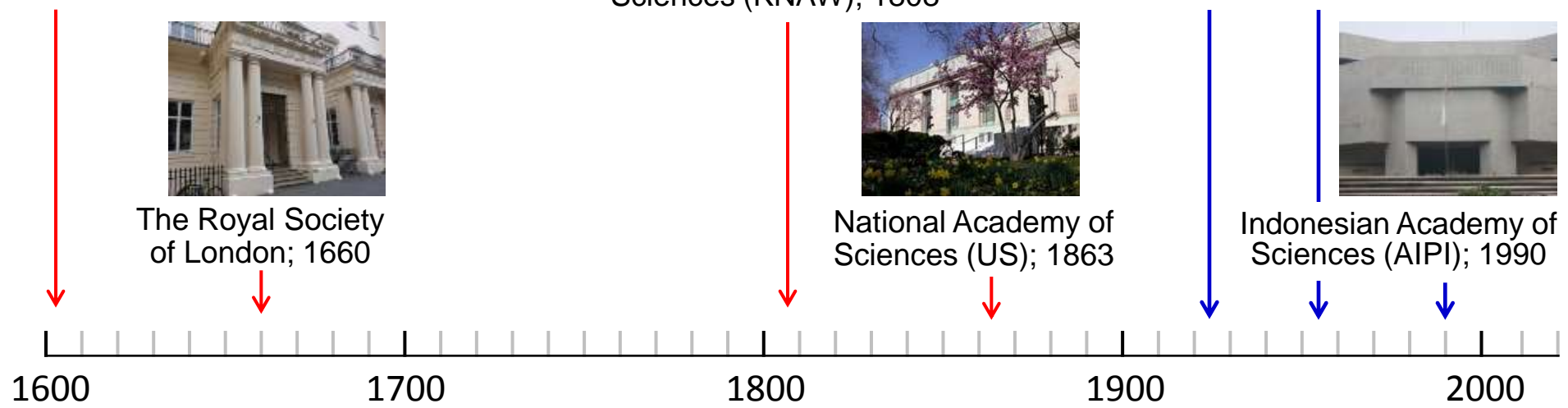
The Royal Society  
of London; 1660



National Academy of  
Sciences (US); 1863



Indonesian Academy of  
Sciences (APII); 1990



# Indonesian Young Scientists Network: Indonesian-American Kavli Frontiers of Science Symposium as foundation

- Joint initiatives of Indonesian Academy of Sciences and US National Academy of Science
- Brings together the very best young scientists—PhD under 45 who have made significant contribution to science—to discuss advances and opportunities in format that encourages discussions
- Each symposium: 70 participants, selected by Organizing Committee of young scientists, 40 from Indonesia and 30 the US
- Bogor 2011, Solo 2012, Denpasar 2013, Medan 2014, Makassar 2015, Malang 2016
- Pool of the best young scientists of Indonesia—the next generation of leaders—still actively engaged in competitive scientific endeavors
- Indonesian Young Science Academy announced – 24 May 2015



# Indonesian American Kavli Frontiers of Science Symposium



**2011  
BOGOR, JULY 9-11**

- Alternative Energy Supply Responding to Global Changes
- Biodegradable Plastics, Solution for Future Eco-Materials
- Climate Change: Science, Adaptation and Impact
- Infectious Diseases – Biogeography and Genetic Links
- Rapid Exploration of Marine Microbial Diversity with Metagenomic Methods
- Rice Genomics Research for Better Human Life



**2012  
SOLO, JULY 12-15**

- Crop Diversification for Food Security
- Earthquake and Tsunami
- Epigenetics and Stem Cells: Fate and Plasticity to Assist in Human Biomedicine
- Local Selection and Adaptation on Humans/Pathogens
- Impacts of Climate Change and Pollution on Ecosystems – Marine Ecology
- Nanotechnology: The Road towards Applications



**2013  
BALI, JUNE 24-27**

- Decision Making and Social Networks
- Human Microbiome and Personalized Medicine
- Indonesian Biogeography and Biodiversity
- Life in Extreme Environments: from Deep sea to Space
- Marine and Geothermal Energy
- Genetic Engineering and Synthetic Biology

# What is Indonesian Science Agenda



- Fundamental scientific questions of strategic importance to major challenges faced by Indonesia today
- Solutions should make significant impact in meeting challenges
- Time frame - towards the centenary of Indonesian independence in 2045
- Capitalize on experience of the Ternate Wallacea Young Scientists Meeting and three Indonesian-American Kavli Frontiers of Science Symposia
- Formal establishment of an Indonesian Young Scientists Network is integral part of initiative; leading to Indonesian Young Academy?

# SAINS 45

Indonesian Science Agenda  
Towards A Century of Independence

## THE VOICE OF INDONESIAN YOUNG SCIENTISTS



Akademi Ilm



Akademi Ilmu Pengetahuan Indonesia



KEMENTERIAN  
SEKRETARIAT NEGARA RI



**USAID**  
FROM THE AMERICAN PEOPLE



Kementerian PPN/  
Bappenas



**Australian  
Aid**



**TEMPO INSTITUTE**  
Center for Excellent Journalism



**KNOWLEDGE**  
SECTOR INITIATIVE

**KOMPAS**



## INDONESIAN YOUNG ACADEMY OF SCIENCES 2016

Est. By President RI Decree No. 9/2016



# Science Policy Discussion Forum

## Promoting Scientific Culture of Excellence



Release of Consultation Draft  
Creating an Indonesian  
Science Fund

# Creating an Indonesian Science Fund

## Dana Ilmu Pengetahuan Indonesia

- Launched - 26 May 2015 by the Indonesian Minister of Finance and Minister of National Development Planning
- Initial funding – LPDP Indonesian Endowment Fund for Education, MoU signed 7 August 2015
- Supported by Knowledge Sector Initiative, Australian Department of Foreign Affairs and Trade (Australian Aid), and the USAID & US National Academy of Science
- Included in RI-US joint statement during visit of President Joko Widodo to the United States, 27 October 2015
- New AIPI Constitution and Bylaw signed by Indonesian President on 29 February 2016
- Call of proposals in two focus areas: Life Sciences; Identity and diversity

# Reducing of Maternal and Child Mortality in Indonesia

## AIPI-National Academy of Science (US) – Funded by USAID

Meeting Ministers of  
Health & National  
Development Planning:  
13 January & 21 March  
2012

Launching:  
30 Jan 2014





**USAID**  
FROM THE AMERICAN PEOPLE



NATIONAL ACADEMY OF SCIENCES

**THE 7<sup>th</sup> INDONESIA - AMERICAN  
KAVLI FRONTIERS OF SCIENCE SYMPOSIUM  
Ambon, Maluku, July 16-22 2017**



FORT AMSTERDAM  
HILA MALUKU



*Bobbyarstek*  
2016  
IG@bobbyarstek



Courtesy Dr. Bruce Alberts

“Science knows no country..

Knowledge belongs to humanity..

It’s the torch that illuminates the world.”

Louis Pasteur



APII 25 tahun: 1990 -2015