



# My Experience as a Science Adviser

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# Our challenge: 2030 Development Agenda



# My Experience as a Science Adviser

- ▶ Science Adviser to the Prime Minister of Malaysia (2010 – 2018)
- ▶ Secretary, National Science Council (2011 – 2018)
- ▶ Secretary, Global Science and Innovation Council for Malaysia (2011 – 2018)
- ▶ Member, Scientific Advisory Board to UN Secretary-General Ban Ki-moon (2013 – 2016)
- ▶ Chief Science Advisors and Equivalents Group, Asia-Pacific Economic Cooperation (APEC) (2013 – 2017)
- ▶ Member, Scientific Advisory Board to the President of the Islamic Development Bank (2017 – present)

# Science – Policy Nexus

- ▶ Co-Chair (with Sir Robert Watson) of the Millennium Ecosystem Assessment (2001 – 2005)
  - This is the precursor of IPBES. Undertaken by 2,000 experts from 95 countries to assess the state-of-health of the world's ecosystems
- ▶ Founding Chair of the 132- Member States Intergovernmental Panel on Science – Policy Advice on Biodiversity and Ecosystem Services (2013 – 2016)



# SCIENCE DIPLOMACY IN ACTION



The Second Meeting Of The Conference Of The Parties To The  
CONVENTION ON BIOLOGICAL DIVERSITY  
Jakarta, November 1995

# SCIENCE DIPLOMACY IN ACTION



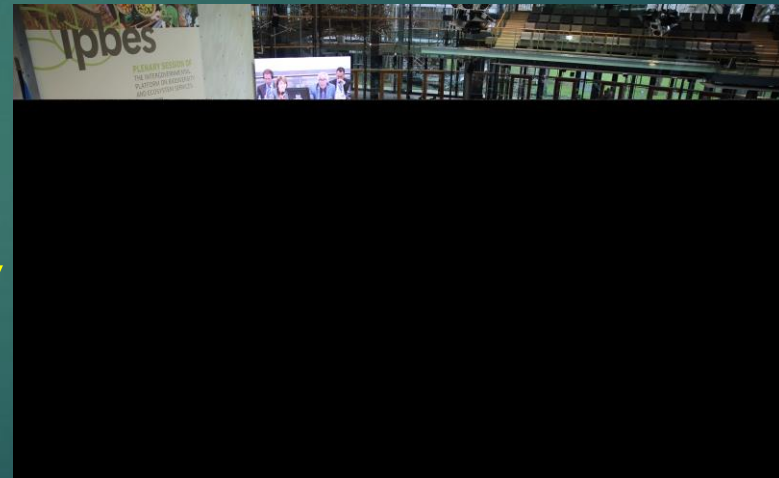
# SCIENCE DIPLOMACY IN ACTION





# Birth of IPBES

- A need quickly became apparent for a sustained, ongoing mechanism to bridge the gap between policymaking and the scientific world's ever-accumulating insights
- In response, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) was established in 2012





# Global Science and Innovation Advisory Council (GSIAC)



*The objectives of the Council include providing advice on Malaysia's aspirations of being a high income country through wealth creation and societal well-being, benchmarking Malaysia's ranking and competitiveness in Science and Innovation against technologically advanced countries and improving Malaysia's capabilities in Science, Technology and Innovation*

# Science – Policy Nexus

The interface between science and public policy formation from the perspective of what policy makers require and what the science community can provide, both responsively and proactively



“What do you see as the biggest environmental challenge facing us today?”

“ I used to think that the top environmental problems were biodiversity loss, ecosystem collapse and climate change. I thought that 30 years of good science could address these problems. I was wrong. **The top environmental problems are selfishness, greed and apathy,** and to deal with these we need a cultural and spiritual transformation.

**And we scientists do not know how to do it.”**

- Gus Speth





# “We scientists don’t know how to do that”

- ▶ In other words, even if armed with an avalanche of data and scientific information, nothing changes if policymakers and citizens aren’t moved to take action.
- ▶ Earth scientists collect and analyse information on topics such as biodiversity loss, ecosystem collapse and climate change. We take a systematic, logical approach to discovering how things in the universe work.
- ▶ The word ‘science’ itself is derived from a Latin word, scientia, defined as knowledge based on demonstrable and reproducible data — measurable results arrived at through testing and analysis.

# “We need a cultural and social transformation”

- ▶ science is based on facts. We have always assumed that people would understand and appreciate the problems and act accordingly, taking the necessary actions when they are presented with the stark reality of these looming calamities. But for many decades nothing much has happened.
- ▶ As noted by several observers, most people continue to live their lives as normal; they have done little or nothing to address climate change issues. Indeed, many people continue to deny the very validity of the scientists' claims.

“We need a cultural and spiritual transformation”

And it surely doesn't help when the leader of the US, the world's largest economy, ignores the science, announces the withdrawal of his country's signature on the world's climate agreement signed in Paris, having declared that global warming is a foreign conspiracy





# “We need a cultural and social transformation”

- ▶ As Speth stresses it, science has no answer to “selfishness, greed and apathy”. Not many people would voluntarily trade their standard of living for less, although we know that we are living in a very inequitable world.
- ▶ For example, developed countries use more than their share of resources. The average American uses 20 times the energy of a Costa Rican and 70 times that of a Bangladeshi.
- ▶ The world’s richest one billion people use 80 per cent of the world’s resources. That means, the other seven billion plus people use only 20 per cent of the world’s resources

# Cultural and spiritual transformation needed

- ▶ Sustainable Development Goal (SDG) #12 (Responsible Consumption and Production) of the 17 Global Goals agreed to by heads of governments in 2015 at the United Nations talks about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all.
- ▶ Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty.

# Cultural and spiritual transformation needed

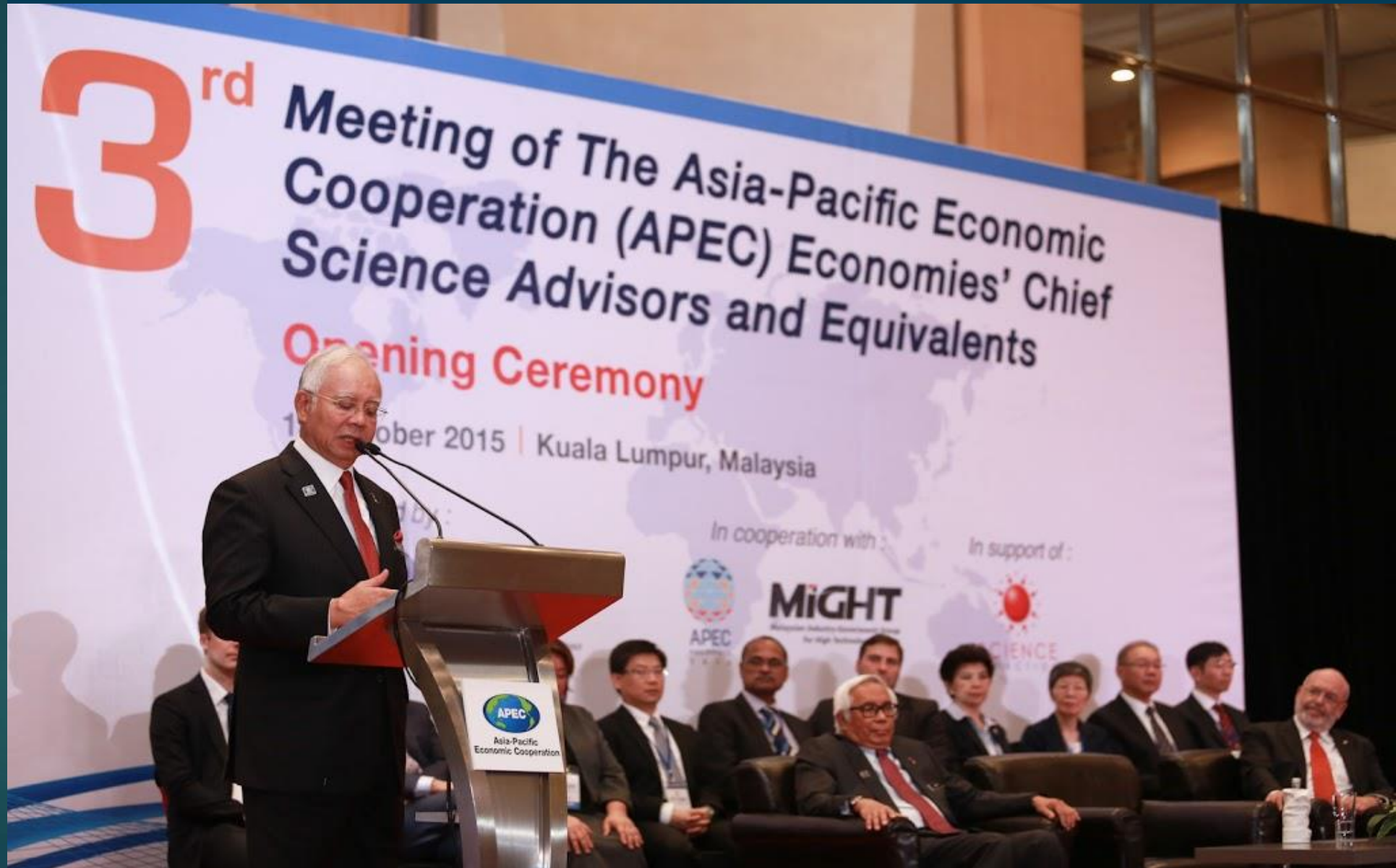
- ▶ When Speth talks about the need for a “spiritual and cultural transformation”, he has in mind a paradigm shift in our attitude towards caring for the environment while we concurrently pursue economic development and social well-being
- ▶ The monumental environmental challenges we face today are largely anthropogenic in nature, and largely due to our self-centred human behaviour
- ▶ Earth scientists are essential guides to the identification of current conditions, drivers of change, trends, future scenarios and potential solutions, but notorious in their inability to move mountains
- ▶ It is fitting, therefore, that we reassess our approach to setting things right and engaging the many branches of social science as well to help foster an overdue cultural and social transform



# “ASEAN Haze” – the problem that refuse to go away”



# PM requested science to provide the answer





# Scientific help sought against haze

## PM seeks advice from experts at Apec to tackle smog in the country

By RAZAK AHMAD  
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**KUALA LUMPUR:** Datuk Seri Najib Tun Razak created a stir when he walked back to the podium after giving a speech at an event here and announced that he had forgotten to mention something "very important".

The Prime Minister had just finished his address to open the Third Meeting of the Apec (Asia-Pacific Economic Cooperation) Chief Science Advisers and Equivalents at a hotel here when he turned back.

It turned out that the Prime Minister had a request to make to the scientists attending the meeting. He wanted to tap into their expertise for advice on the choking haze that had blanketed Malaysia for the past two months.

Saying that he had forgotten to mention something very important in his speech, Najib said: "Malaysia has been suffering from the haze problem for the past 18 years and I hope that the science advisers can also discuss this during their meeting."

"Please advise countries concerned how to cope with this and how to prevent the slash-and-burn techniques used to clear land for agriculture," he said to the applause of the audience, who realised how dear the subject was to him.



**Rapt attention:** Najib listening to Philippine Department of Science and Technology Undersecretary Rowena Christina L. Guevara at the Apec meeting in Kuala Lumpur.

He was then earlier presented with a token of appreciation in the form of framed photographs and was about to leave the venue when he stopped, turned around and

walked back to the microphone, leaving the other dignitaries on stage as well as his audience stunned.

The Prime Minister expressed his hope that the scientists could also

deliberate during their meeting on how to prevent fires on peat soil, be they deliberate or due to climate change.

"I will be very interested to know

your findings and look forward to your advice, which I can raise during the upcoming Apec Summit and Asean Summit," said Najib, referring to the two meetings which will be held next month.

He said the country also required scientific advice following floods in the east coast of peninsular Malaysia last year as well as the Sabah earthquakes which resulted in a number of fatalities.

Under Malaysia's National Science to Action initiative, Najib said, he has instructed his Science Adviser to form a task force to look into the Scientific and Technological response to large flooding events and other natural disasters.

Najib said the task force has so far identified immediate, medium and long-term measures to address flood risk reduction.

The two-day meeting which ends today is an informal gathering of scientists from 11 countries including Malaysia.

The meeting is co-chaired by the Science Adviser to the Prime Minister of Malaysia Prof Tan Sri Zakri Abdul Hamid and the Chief Science Adviser to the Prime Minister of New Zealand Sir Peter Gluckman.

Watch the video  
[thestar.com.my/Videos/](http://thestar.com.my/Videos/)





# Haze in S.E. Asia

- ▶ THE great peatlands of Southeast Asia are incalculably valuable, both within the region and to all humanity.
- ▶ Not only are they highly biodiverse, they play a crucial role in world climate regulation, storing an estimated 120 billion tonnes of carbon — roughly five per cent of all the carbon in Earth's near-surface.
- ▶ Covering about eight per cent of Malaysia, peatlands have enormous local economic, ecological and hydrological value as well, providing timber and non-timber forest products, regulating and purifying water supplies, controlling floods and offering many other benefits on which our well-being depends.

# Haze in S.E. Asia

- ▶ In efforts to improve socio-economic conditions, Malaysia and many other neighbours have converted peatlands and other types of forest to plantations, sometimes burning biomass to clear or prepare the land.
- ▶ Alarmingly, these fires now cause up to 90 per cent of the haze that plagues health at a regional level, releasing three to six times more unhealthy airborne particulate matter than fires on other types of soil.
- ▶ Since the early 1980s, haze has reached menacing levels many times, the 1997 episode remembered as one of the worst ever, prolonged by dry weather and aggravated by emissions from vehicles, industries and the open burning of waste.

# Malaysia most obese in the region



- ▶ MALAYSIA has the dubious honour of having the highest obesity prevalence in Southeast Asia.
- ▶ This was based on Economist Intelligence Unit's "Tackling Obesity in Asean" report, which covered Malaysia, Singapore, Indonesia, Thailand, the Philippines and Vietnam.
- ▶ The report said in Malaysia, the prevalence of obesity was at 13.3 per cent, while overweight was at 38.5 per cent.



# Malaysia most obese in the region

- ▶ The Asia Roundtable on Food Innovation for Improved Nutrition (Arofiin) secretariat Bruno Kistner, who presented the report yesterday, said last year, the condition had cost the country between RM4.26 billion and RM8.53 billion.
- ▶ “That is equivalent to 10 to 19 per cent of Malaysia’s healthcare spending.”
- ▶ Malaysia had the largest number of productive years lost because of obesity among females, which was between seven and 12 years, and the second highest among males at between six and 11 years.
- ▶ “The report showed that only a third of Malaysian adults had ever exercised, while only 14 per cent exercised adequately.
- ▶ “There are factors like Malaysians’ love for food and their strong culture of entertaining guests with food that contributed to the obesity problem.”

# Scientists must link up with political leaders

- ▶ WHILE climate change concerns have been expressed at several G20 meetings in the past, the most recent G20 meeting in Osaka, Japan marked the first time that the issue of biodiversity loss shared the centre stage.
- ▶ A final communique from the leaders' forum of 19 countries and the European Union included the following: "Noting the important work of the International Panel on Climate Change (IPCC) and Intergovernmental Science-policy Platform on Biodiversity and Ecosystem Services (IPBES), and in the light of recent extreme weather events and disasters, we recognise the urgent need for addressing complex and pressing global issues and challenges."

# Scientists must link up with political leaders

- ▶ The reference to IPBES is the result of a stark report it released on May 6 in Paris that warned that, without “transformative change”, one million of the world’s eight million plant and animal species are being pushed to extinction, many of them within the next few decades, with serious consequences for the rest of life on Earth — humanity included.
- ▶ The report is based on a review of more than 15,000 scientific and government sources, compiled by hundreds of expert authors from 50 countries, with inputs from another 310 contributing authors — the first comprehensive look at the state of the planet’s biodiversity since 2005.
- ▶ It also systematically incorporated, for the first time, indigenous and local knowledge.

# Scientists must link up with political leaders





# Scientists must link up with political leaders

- ▶ It is interesting to consider how the IPBES report achieved such prominent traction in the world's top political echelons.
- ▶ And, as cliché as it sounds, it's always good to have friends in high places.
- ▶ After the report launch in Paris, a delegation of IPBES leaders met at the Élysée Palace with French President Emmanuel Macron, who promised to advance their cause.
- ▶ “What is at stake is the very possibility of having a habitable Earth,” Macron said at the time.
- ▶ “Biodiversity is as important a subject as climate change and we can't win this battle without working all the levers,” he stressed.
- ▶ And indeed, biodiversity will be further stressed next month when Macron hosts the G7 in a French resort town, Biarritz.

# Scientists must link up with political leaders

- ▶ One take-home lesson for the scientific community is to note that although we could be excellent knowledge generators and gatherers, in today's complex world, we need to link up with our political leaders for our voices to be amplified and heard.
- ▶ This could be no better exemplified than the collaboration between former US vice-president Al Gore and the IPCC on climate change.
- ▶ The panel reports its findings every six years. But it was the charismatic Gore who truly drove home and galvanised world attention on the dangers of global warming.
- ▶ Sharing the 2007 Nobel Peace Prize with the IPCC, Gore was recognised by the Nobel Committee as “one of the world's leading environmentalist politicians” and “probably the single individual who has done most to create greater worldwide understanding of the measures that need to be adopted”.

# Scientists must link up with political leaders

- ▶ The need for a strong connection between science and policy is never lost within the scientific community.
- ▶ The IPCC and IPBES are two highly successful mechanisms for achieving that, and others are in the works.
- ▶ At the World Economic Forum last January, the Sweden-based Future Earth organisation and partners announced their intent to launch an “Earth Commission”.
- ▶ Envisioned is a group of top scientists who assess existing research to provide the science needed to define targets for sustaining the resilience of our planet’s life support systems.

# Working with politicians





# WORKING WITH POLITICIANS



# Working with politicians

- ▶ “Getting re-elected has always been their #1 priority”
- ▶ Economy will always be their main concern (wealth generation and job creation)
- ▶ Social wellbeing (poverty alleviation and adequate healthcare)
- ▶ Environment (important but almost always, an afterthought)
- ▶ Science, Technology and Innovation is reluctantly recognised as an underpinning to Sustainable Development





## “Maliau decision farsighted”

Sabah ‘s Chief Minister announced no coal mining in Maliau Basin – “Sabah’s Lost World – a 58,840 ha of pristine tropical forest



# Ultimate aspiration

Let us hope that the International Network for Government Science Advice will become another successful stage on which science and public policy can convene and intertwine

# Three prerequisites of convincing policymakers

- **CREDIBILITY**
- **RELEVANCE**
- **LEGITIMACY**





**Thank You**