Office of the Science Advisor
Prime Minister's Office

International Science Advice

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Science – Policy Nexus

- We will explore 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.

- We will highlight the variety in modes of interaction between these two worlds.

- The focus is on science advice at the international level

Science – Policy Nexus

- In the past number of years, there has been considerable and growing interest in the processes and principles that underpin science advice to governments.

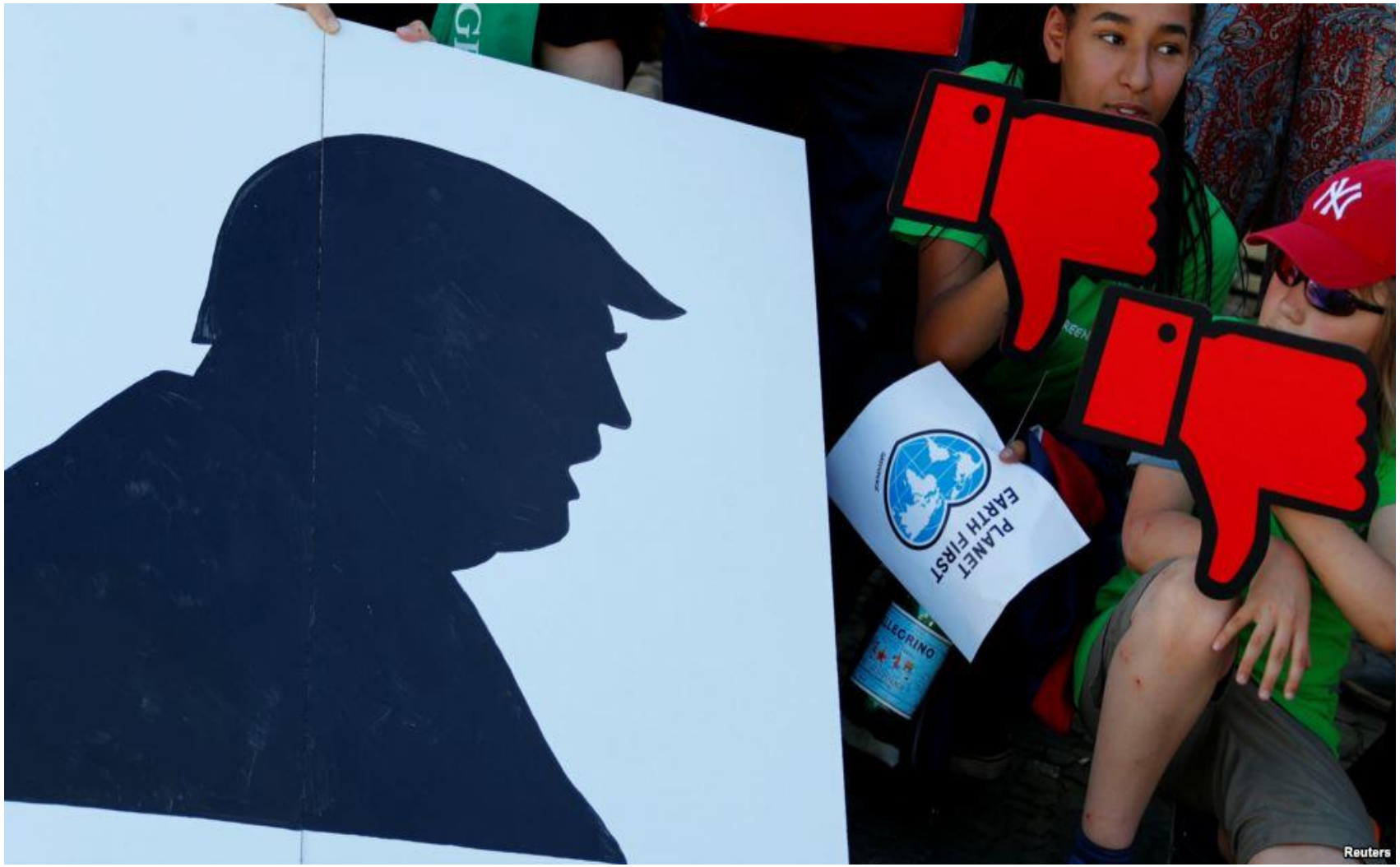
- This discussion is reflected in the recent report of the OECD Global Science Forum, the synthesis document of the 2014 International Conference on Science Advice to Governments, commentary in Nature and in the work of the recently established International Network for Government Science Advice (INGSA).

- The scientific community had always been asking for a seat at the table

Some recent international developments

- **Intergovernmental Panel on Climate Change (IPCC)**
- **Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)**
- **UN Secretary-General's Scientific Advisory Board (SAB)**
- **International Network for Government Science Advice (INGSA)**
- **Chief Science Advisors and Equivalents Group, Asia-Pacific Economic Cooperation (APEC)**

Scientists Say Evidence Clearly Shows Climate Changing



Science – Policy Nexus

Keeping ASEAN Haze-free

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.

Haze in S.E Asia

- The three-month episode of 1997 caused huge direct regional economic losses, conservatively estimated at US$9 billion (RM39.6 billion). And, the cost to human health and biodiversity, if they could be quantified, would likely represent even more staggering sums.

- In response, Malaysia introduced many local reforms, including regulatory measures to prevent open burning, with high penalties for noncompliance.

- The 1997 haze also served as a wake-up call for the region, with countries teaming up through Asean to create an **Agreement on Transboundary Haze Pollution**, adopted in 2002, and since ratified by 10 countries, most recently Indonesia in January 2015.

- However, the region continues to endure serious haze episodes, the latest lasting from June to October 2015.

- Reports suggest that the 2015 haze cost Indonesia alone around US$16 billion in losses — double the damage and losses inflicted by the 2004 tsunami.

Haze in S.E Asia

- **Enhanced** collaborative research and development is needed covering all aspects of the haze issue — from soil science, ecology, atmospheric science, climate change to alternative biomass uses. We need to better understand the effects of haze on human, animal and plant health and diversity, as well as its socioeconomic impact; and,

- **Improving** communication, education and public awareness can bring about the attitude change needed for people to act responsibly and live in harmony with nature, and to facilitate both top-down and bottom-up actions, translating polices and laws into 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

IPBES: Science-Policy Nexus

- IPBES' initial deliverables included a policy-support tool based on the economic values of biodiversity, a fast-track assessment on pollination services and food production, insights into the sustainable use and conservation of biodiversity, and a global assessment of the overall state of biodiversity and ecosystem services.

- IPBES also aims to integrate indigenous and local knowledge systems in its work

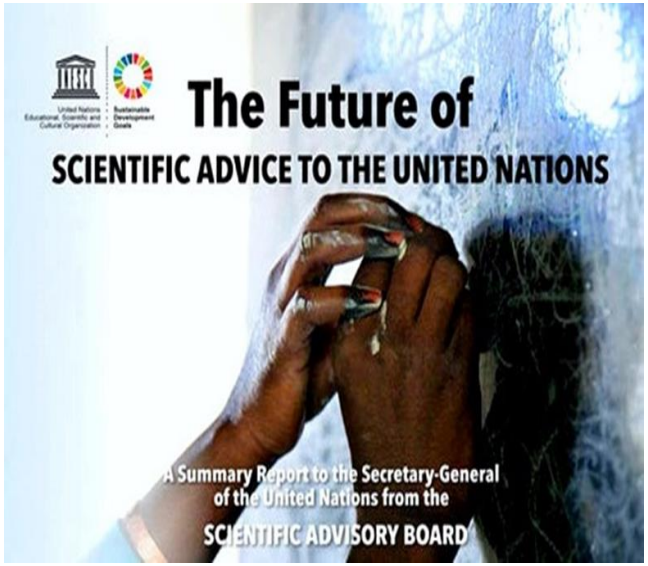
How could governments around the world protect bees

- **U.N. report warns 40% of pollinators face extinction**
- “Pollinators are important to many of the foods that are key sources of the vitamins and minerals in our diets, such as fruits, vegetables, nuts, and seeds.
- Nutritionally, the pollinator declines will likely have the biggest impact on the poorest people of the world.
- 75% of the world’s food crops depend on pollination by at least one of the 20,000 species of pollinators
- Many crops also represent an important source of income in developing countries, such as coffee and cocoa.
- The report found that the annual total value of global crops directly affected by pollinators is between $235 billion and $577 billion.

UN Scientific Advisory Board

- Humanity faces many challenges. Some are our own creations. Many require an international response. All must be met with policies that are clear, agreed-upon, and powerful. This is the reason that science is an essential component -- in many cases the bedrock -- of an effective strategy for policy and decision-making. Science makes policy out of brick, not straw.

- The SAB of the UNSG was created on the recommendation of the UN High-level Panel on Global Sustainability in its 2012 report *Resilient People, Resilient Planet: A future worth choosing*. And it was launched in January 2014 in Berlin by SG Ban Ki-moon who stressed the importance of science ***"to advance sustainable development, reduce inequality and eradicate extreme poverty."***



The Structure of SAB

- The SAB is unique. It is the only science board to operate at such a high level of international governance, and with a mandate to provide advice on such a broad array of the most pressing challenges for the planet and its people in the era of the Anthropocene, when humanity has become a planetary force.

- The SAB is chaired by UNESCO Director-General, Irina Bokova and comprised of 26 members (13 women and 13 men) from a broad range of fields and disciplines. Much of the work of this diverse Board has indeed been pioneering, as anticipated by the process that created it.

- The central function of the Board is to provide advice on science, technology and innovation (STI) for sustainable development to the UN Secretary-General and to executive heads of UN organizations. The Board has brought together in a coherent manner the collective capacity of all relevant scientific fields, with due regard to social and ethical dimensions of sustainable development.

Major Findings and Recommendations of the Board

Science is a public good, and deserves to be valued more highly, employed more widely, and used effectively by decision makers at all levels.

01

Science can be a game-changer in dealing with even the most pressing global challenges if it is used to its full potential at all three crucial phases: understanding the problems, formulating policies, and assuring that those policies are implemented effectively.

02

Science should be integral – not an add-on – to all policy discussions. It should play a key role in the achievement of the 17 Sustainable Development Goals adopted by all UN member states in 2015.

03

The burgeoning flow of scientific data – the data revolution – has great potential for good, if its availability, management, use, and growth are handled effectively.

04

Major Findings and Recommendations of the Board

Basic research is the foundation for innovation; applied research creates products and technologies. All nations should embrace them both. Developing countries will increase their prospects for sustainable development if they fund research at a minimum of one percent of GDP. More advanced nations should invest three percent or more.

05

To ensure a continuing flow of creative scientists, countries should strongly promote education in science, technology, engineering, and mathematics for all children beginning at an early age.

06

Scientists, policy-makers, and society at large need to understand each other's perspectives; they by nature operate from different priorities and are subject to different forms of accountability. They should therefore jointly contribute to an enhanced science-policy-society interface.

07

Major Findings and Recommendations of the Board

Science can help narrow economic and opportunity gaps. Bringing together science with indigenous and local knowledge will be critical for providing the most appropriate solutions for sustainable development, particularly when it comes to implementing the Sustainable Development Goals at the local level.

08

Science has value beyond issues that are essentially “scientific.” When tensions arise among nations, their leaders can respond far better if they understand and agree upon the scientific evidence for the root causes of those tensions.

09

In addressing the world’s grand challenges, the United Nations should promote greater global collaboration, encourage the use of international science networks, and provide avenues for science to inform and implement policies.

10

REDUCING INEQUALITIES: A Global Imperative

- Since the Scientific Advisory Board's inception, helping the United Nations to reduce inequalities has been a core goal.

- Large disparities persist in access to health care, to education that is effective enough to lift children out of poverty, and to other assets.

- Strategic investments in science, technology, and innovation should focus on sustainable solutions that are co-designed and co-owned by all. This strategy should include investments in science education; novel alternative energy solutions; new robust building materials from locally available materials; nanotechnology for health and agriculture; and biological approaches.

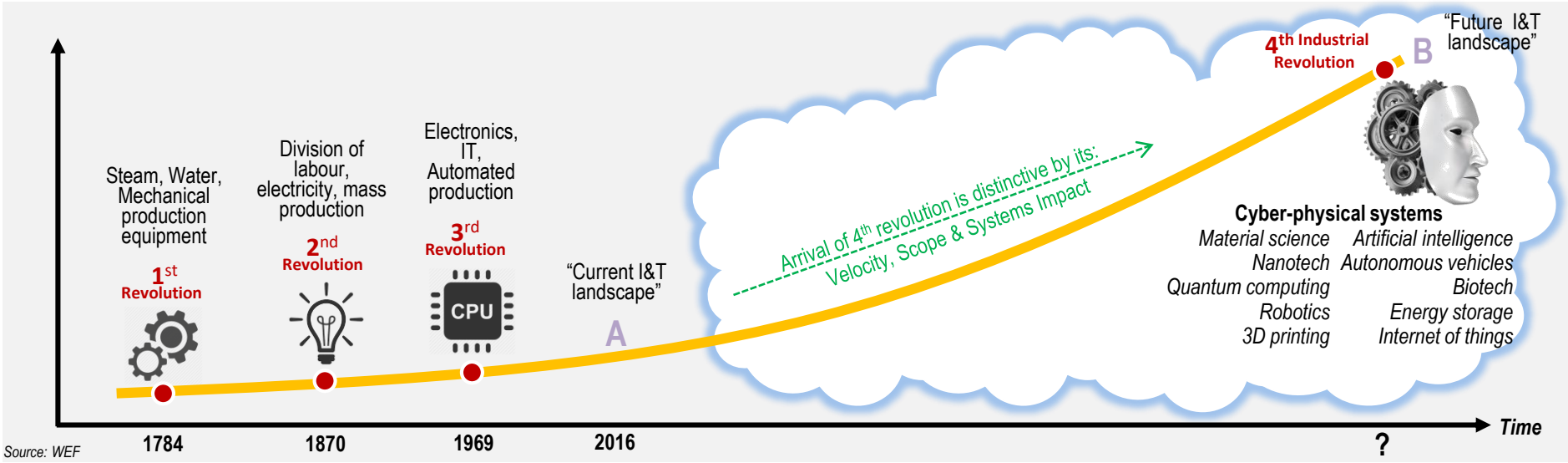
Moving Forward

- Sustainable development is now the core of the United Nations' mandate. Science will be critical to the implementation of the new global goals, and scientists will be necessary partners.

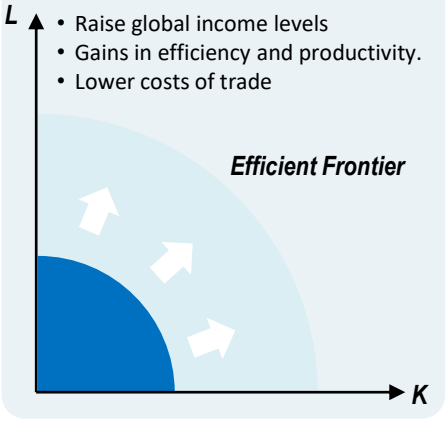
- The Scientific Advisory Board hopes and believes it has provided and is providing valuable service to the Secretary-General, to the United Nations, and to the world community.

- Given the number and complexity of global challenges today, the Board recommends that the next Secretary-General retain this institutional innovation in the United Nations, and strengthen its role and its collaborations with other UN organizations.

Future Challenges: 4th Industrial Revolution



Pushing the Efficient Frontier

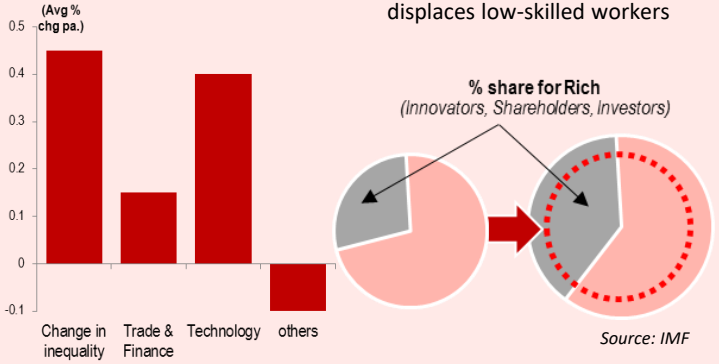


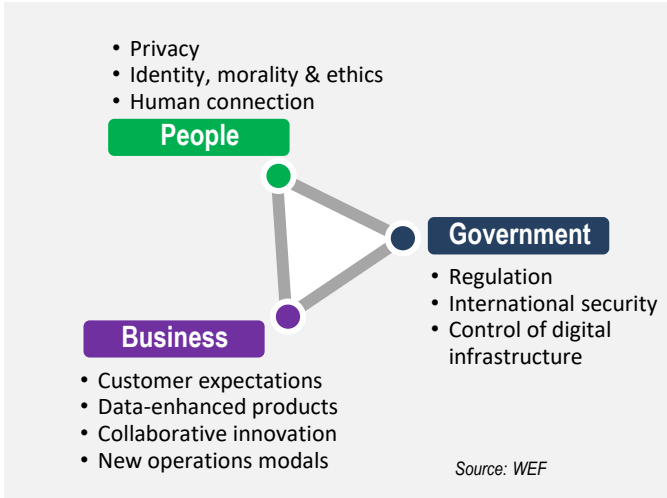
- Raise global income levels
- Gains in efficiency and productivity.
- Lower costs of trade

Tech's pitfalls – job displacement, rising inequality

Technology is the biggest contributor to global inequality…

…it may enlarge the pie, but it increases high-skilled payoffs and displaces low-skilled workers





Three prerequisites of convincing policymakers

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

Thank You