17 November 2017
Science Center World Summit

United Nations Sustainable Development Goals(SDGs), Science Community and Society

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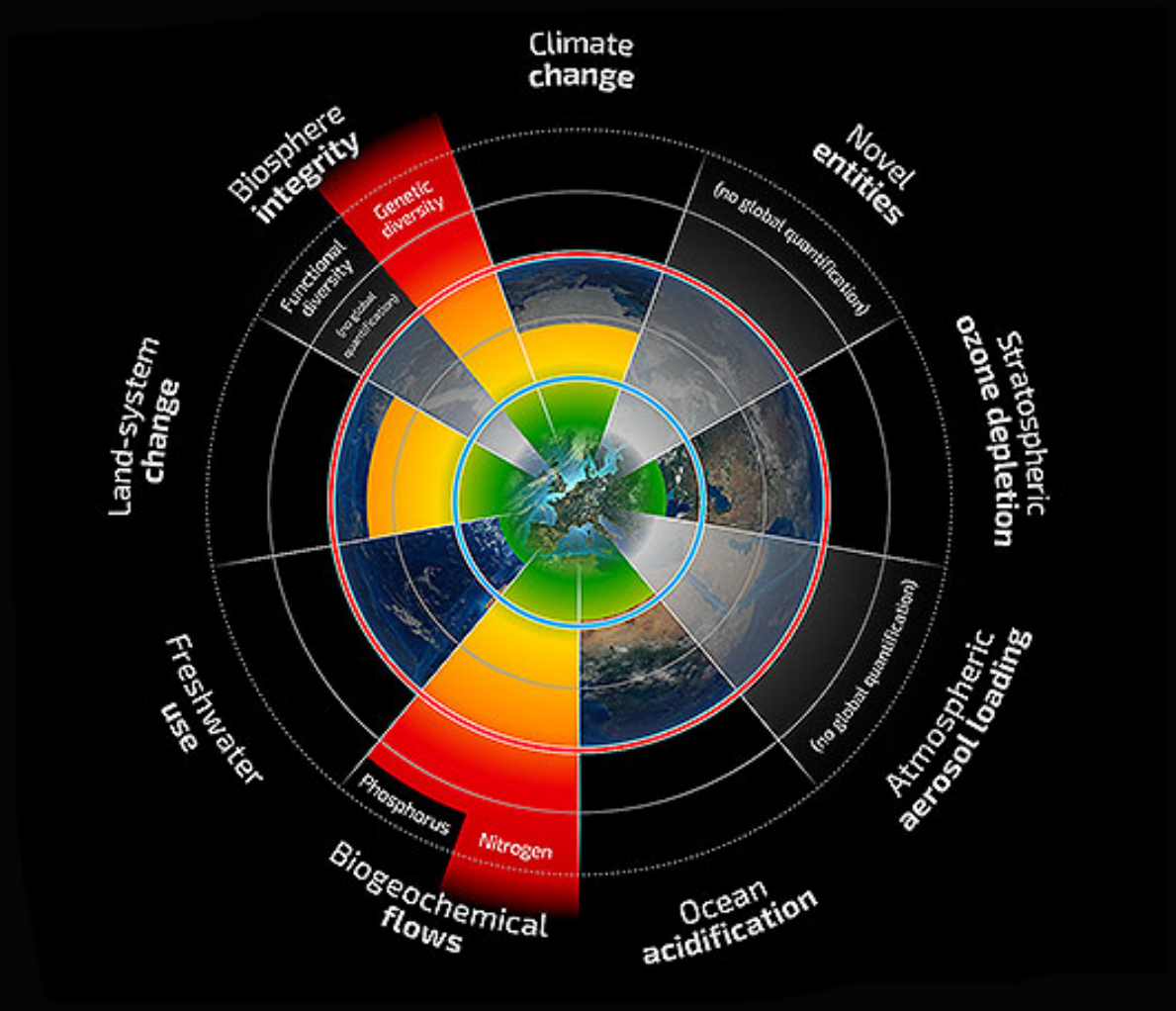
Japan Science and Technology Agency

Planetary boundary



Stockholm Resilience Centre, Stockholm University

Global Issues toward 2030

- Globally, three major frameworks will continue to guide the world toward 2030
  - The Paris Agreement within the United Nations Framework Convention on Climate Change (UNFCCC)
  - United Nation's the 2030 Agenda for Sustainable Development(SDGs)
  - Sendai Framework for Disaster Risk Reduction 2015–2030
- Also Science, no doubt, interacts with these three framework in the coming years.

All the goals require the contribution of science, technology and innovation.

Sustainable Development Goals

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts*

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

2030 AGENDA FOR SUSTAINABLE DEVELOPMENT (SDGS)

- Consists of 17 SDGs and 169 targets (with 232 indicators) to be achieved by 2030
- Unanimously adopted by UN General Assembly in 2015
- The SDGs were set up as a universal commitments which apply to all countries including developed countries
- All the goals and targets are emerging and important to all the human beings.
- The key phrase is “Leaving no one left behind”.

United Nation System on STI for SDGs

United Nations

Economic and Social Council

|

High-Level Political Forum (HLPF)

UN Conference on Trade and Development (UNCTAD)

- UN Forum on Sustainability Standards (UNFSS)

TFM (Technical Facilitation Mechanism)

- UN Inter-Agency Task Team on STI for SDGs(IATT) (UNESCO, World Bank, etc) ; 10-Member Group
- Online Platform
- Multiatakeholder Forum for STI on SDGs

STI Forum: Held annually since 2016. The next Forum will be held on 5-6 June 2018

The HLPF: Held annually since 2013. The next Forum will be held on 9-18 July 2018, on "Transformation towards sustainable and resilient societies"

Issues related to SDGs

- Toward realizing SDGs, there is no doubt that science will play an important role.
- Many the scientists are not fully aware of SDGs, believe SDGs are none of their business them and think SDGs are mere global environmental problems.
- Also SDGs are not be award well by general public.
- Increasing awareness of SDGs by both scientists and general public is urgent issue.

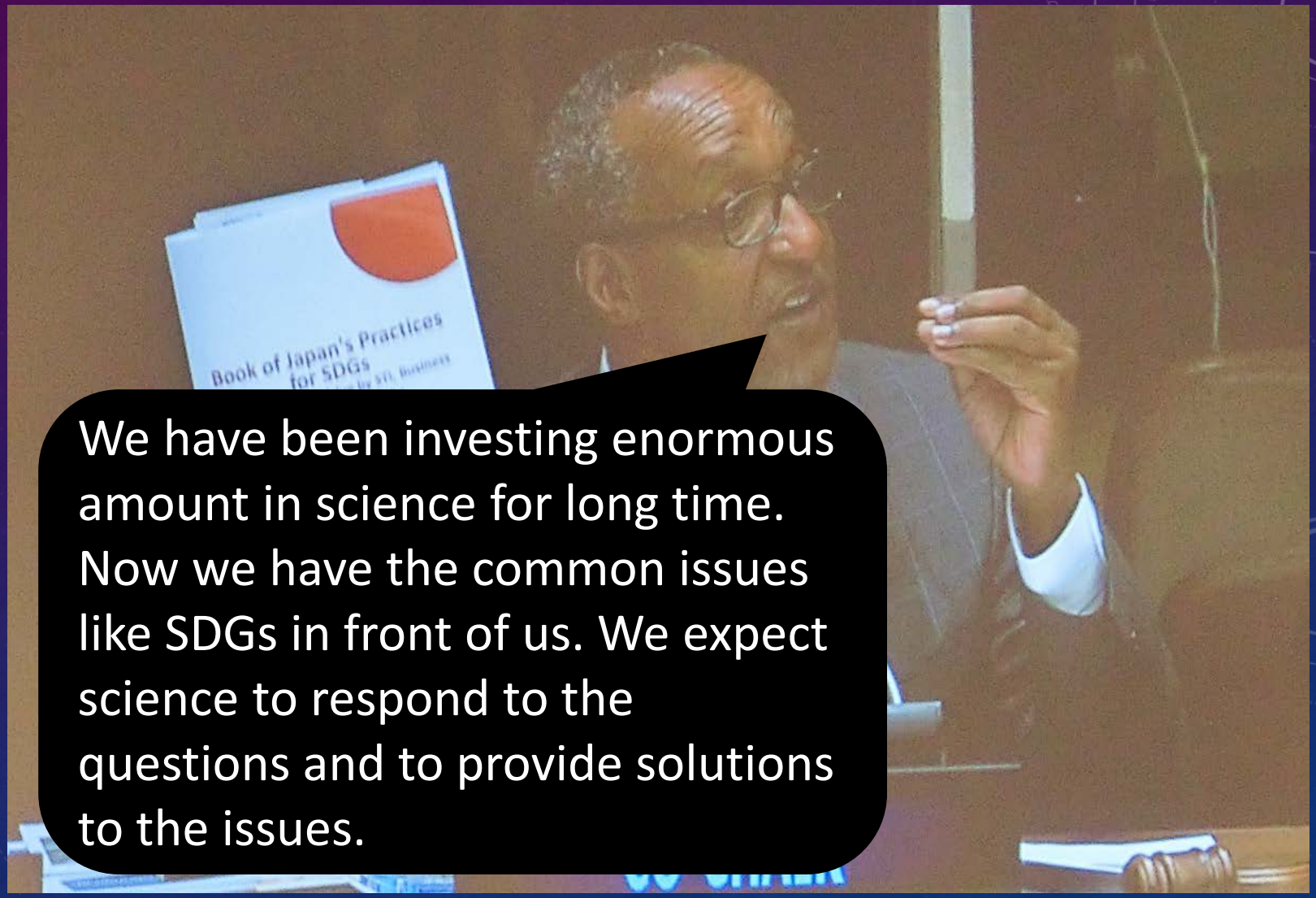
United Nations Multistakeholder Forum on STI for SDGs in 2017

- Held on 15th and 16th May 2017 at UN Headquarter in New York
- About 700 participants from governments, business sector, universities, NGO etc. of 100 countries
- Co-Chair:

  Macharia Kamau, Permanent Representative of Kenya to the UN

  Vaughan Turekian, Science and Technology Adviser to the US Secretary of State

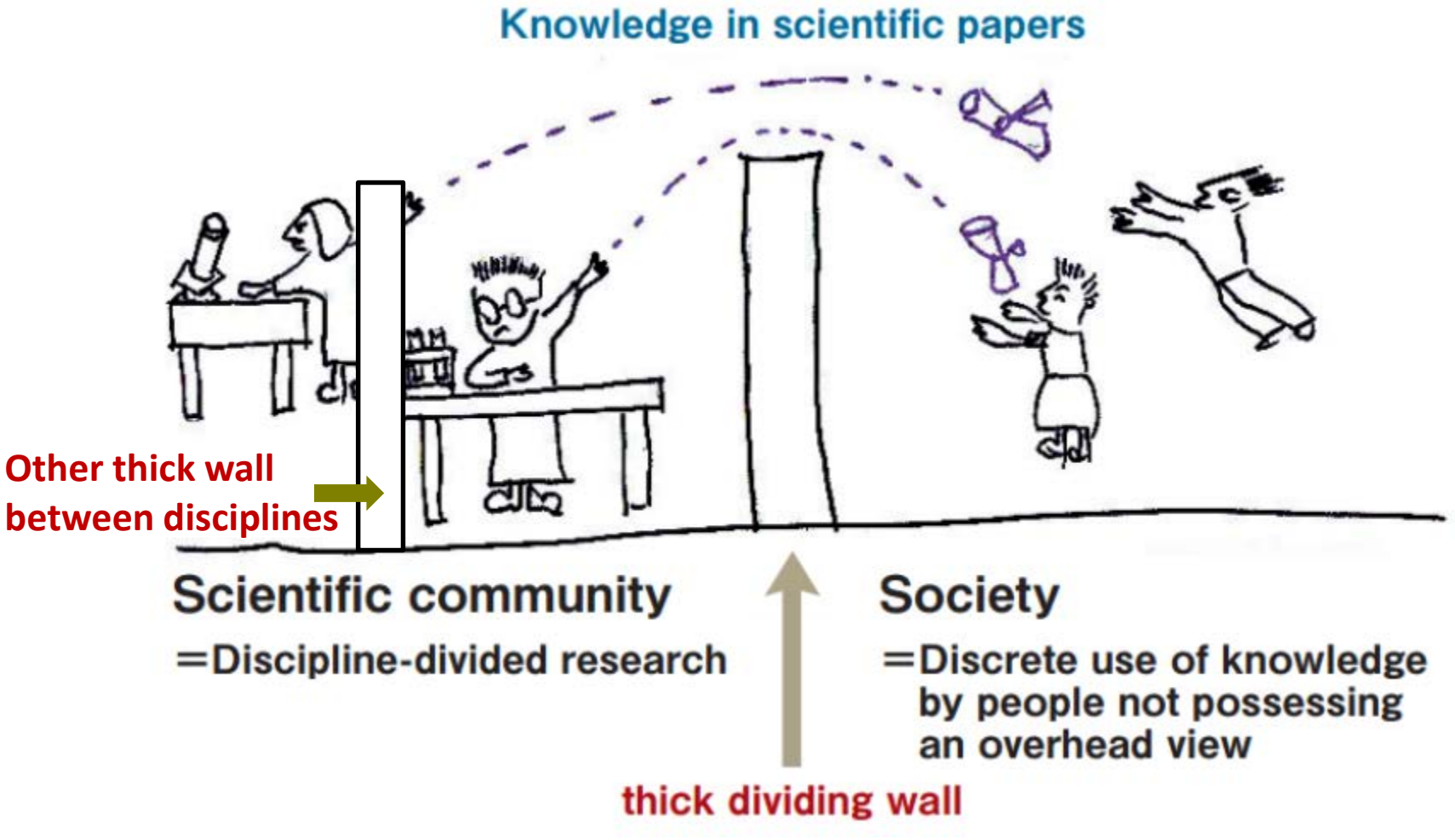
Ambassador Macharia Kamau (Co-chair)



SDGs and Science 1

- Individual discipline of science has been achieving variety of products with full of scientific value. Some of the results seems to be close to achievement of SDGs.
- Science as a whole is invested well and plenty of resources are provided.
- However, it is not equal among disciplines and also most of scientists claim that enough resources are provided to them. They are in silos of disciplines.

Traditional Relation between Science and Society in Japan (One way and separated)



Hiroyuki Yoshikawa, Design Methodology for Research and Development Strategy (English edition published in February 2012)
http://www.jst.go.jp/crds/pdf/methodology/CRDS-FY2010-XR-25E.pdf

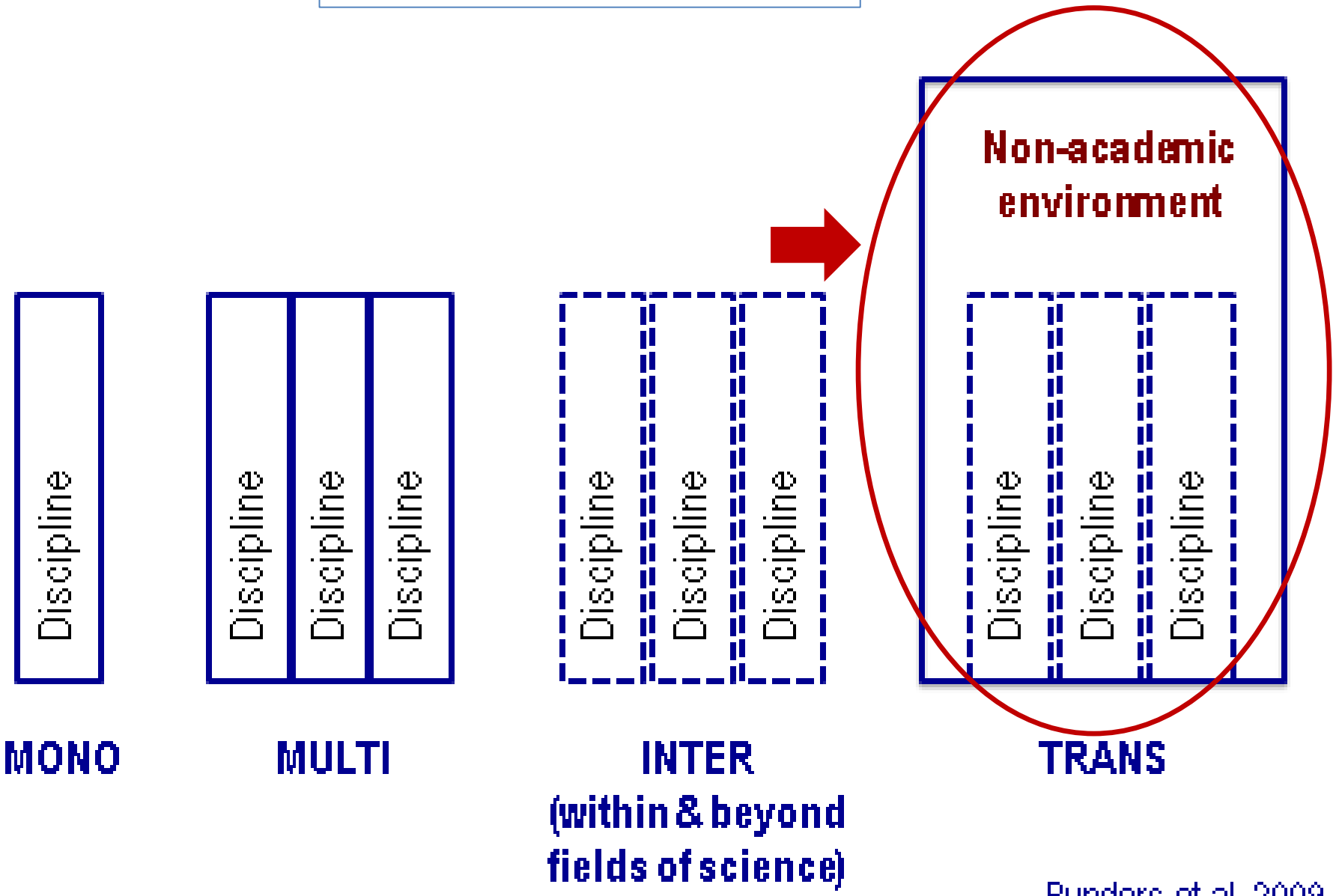
SDGs and Science 1

- Individual discipline of science has been achieving variety of products with full of scientific value. Some of the results seems to be close to achievement of SDGs.
- Science as a whole is invested well and plenty of resources are provided.
- However, it is not equal among disciplines and also most of scientists claim that enough resources are provided to them. They are in silos of disciplines.
- It should be a matter of trust between science and society. Contract between society and science with trust is important.

SDGs and Science 2

- Global and societal issues like SDGs are interlinked each other. Single scientific discipline alone cannot provide sufficient output for solutions.
- Also natural sciences as a whole are not enough to tackle the societal issues. Collaboration with social science and humanities is required; Social aspects and ELSI.
- Coalition with other societal stakeholders, private sectors, communities or NGOs are necessary. Social values matter and they are dealing with people and society through their business.

Disciplinarity



Bunders et al, 2009

Conclusion of the STI forum

1. crosscutting potential of STI;
2. importance of capacity building;
3. importance of stakeholder engagement;
4. need to make the business case for private sector investment in innovation for the SDGs;
5. importance of roadmaps for tracking progress;
6. centrality of ICT infrastructure expansion to current development and STI efforts;
7. need to focus on match-making between existing problems and existing solutions; and
8. necessity for the STI Forum to conduct a "horizon-scanning" exercise on the changes happening in the STI field

Identified by Bill Colglazier, Co-Chair of the TFM 10-Member Group and will be reported to High Level Political Forum in July

Expected Roles of STI for SDGs

- Focus on match-making between existing problems and existing solutions, in order to prove the power of science to provide solutions and to build trust between science community and society.
- Discussing nexus between goals with setting various scales to mitigate the constraint of “Planetary Boundary”.
- Pursuing the disruptive STI to resolve the constraint: It need serendipity and may be unplannable; need continuous efforts.

Combination of LED, Solar Cell, Battery and Payment by cell phones formulates system under sustainable business model

Solar Kiosk Service for Off-grid Areas

"WASSHA"
provides a new experience for people in off-grid areas with affordable, accessible and safe electricity through Solar Kiosks based on Digitalgrid technologies developed in the University of Tokyo.

By indicating social system which utilize mobile money and local kiosks, "Wassha" has been broadly accepted up to 800 locations and over 240,000 people in 2016. This project is highly recognized for its contribution to the regional education and economy. WASSHA received invitation to summer Davos meeting Idea's lab in 2014.

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SDGs and Science 3

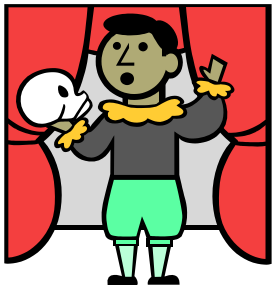
- Society expect science highly to contribute to provide solutions to global issues like SDGs.
- The major reason is the accumulation of the investment in science, more than its outcome and achievement.
- Two problems here:
  - Intrinsic problem of reliability of science by society

  →loss of reliability means loss of public support to science.
  - Which field of science has been invested?

  →Traditional disciplines are well invested and not new ones like sustainability science

Two Cultures: Policy and Science

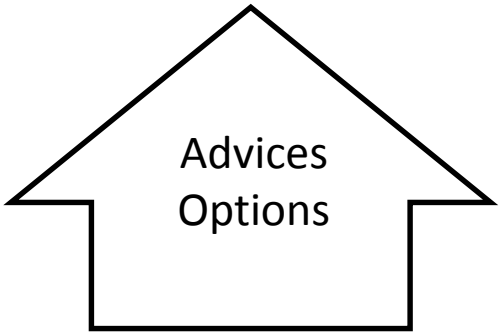
Policy makers: Decide, take action and achieve outcome in time, often within days, weeks, months or a year!



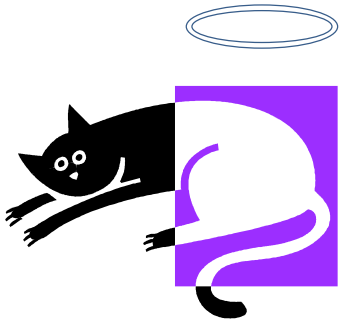
Hamlet's question
"To be or not to be"

＜World of Societal Reality＞
Societal values matter

SUSTAINABLE DEVELOPMENT GOALS



Scientists : Think deeply, make hypotheses, make models or experiments and proof the concept, often taking years.



Schrödinger's cat
"Half alive, half dead"

＜World of Scientific Accuracy＞
Rational discussions matter

Expected Role of Science Centers/Museums

- Science centers and museums are the places where variety of people and stakeholders of science gather; general public, curators, scientists, media, industry persons, policy makers, etc.
- Science centers/museums provide platform for communication and discussion on issues like SDGs with those public and stakeholders.
- “Tokyo Protocol” declares exactly expected role toward realization of SDGs.

Thank you very much for your attention