

On Technology, Ignorance and Responsibility

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Contribution to Conference „Integrity of Science“
Edinburgh
27 May 2023**

ΤΕΧΝΗ – τέχνη – Technology

In Ancient Greece ΤΕΧΝΗ was seen as a means to systematically and methodically achieve an aim - ΤΕΛΟΣ. Platon: ΤΕΧΝΗ is based on knowledge about the object and knowledge about the goals and purposes which it aims to achieve.

So, „technology“ demands a lot of knowledge about

- its many functions and the contexts into which it is going to be embedded,**
- and about the – not always clear and harmonious - aims, goals and purposes of the community and society it is meant to serve.**

Christine von Weizsäcker: Biodiversity: Extractive versus Cognostic Knowledge. In: Research for Development. SAREC 20 Years. pp. 91-103

Stockholm: Swedish Agency for Research Cooperation with Developing Countries, 1995

Obviously, that invites science to provide many inputs to many open questions.

One of my favourite books is titled „The Encyclopaedia of Ignorance. Everything you ever wanted to know about the unknown“. With the many technological advances since the publication of this book in the Seventies, my guess was that many further volumes would follow. This did not happen.

It is one of the irreplaceable tasks of science to pose questions to which there is not yet an answer. Many of the scientists about whom we learnt a lot, yesterday, pointed to open questions and invited the scientific community to diligently, systematically and methodically address them, including all the disciplines needed. The scientific community did not accept their invitations. Why? Let me invite you to five short reflections.

Ronald Duncan, Miranda Weston-Smith (eds.): The Encyclopaedia of Ignorance. Everything you ever wanted to know about the unknown. Oxford, New York, Pergamon Press, 1977.



- 1 -

**The express train is leaving
The challenge of the critical speed of innovation**

Sometimes people who rush to reach a train do not take the time to look up where it goes to.

In some areas of technology the introduction of the „next generation product“ and „consecutive generations products“ is much faster than the production of evidence of their impacts on the environment and human health and other concerns.

If a company is asked to stop the use of a washing powder ingredient that – after many years – caused an accumulation of damaging sludge in rivers they may laugh and say that they stopped using it a long time ago. But how about unpleasant surprises with the next ingredients.....

There is often a leadership by the fastest process. It leads to sloppy and narrow scientific assessments, disregard for wider contexts, and also disregard for „slowing down“ elements, such as citizens‘ information and participation in decision making, labour standards, human rights, and the precautionary principle.

Christine von Weizsäcker: Einführungsvortrag. In: Bericht der parlamentarischen Enquête-Kommission betreffend "Technikfolgenabschätzung am Beispiel der Gentechnologie" - Gutachten und Stellungnahmen, Band 3, S. 43 - 49. Wien: Österreichischer Nationalrat, 1993.

Christine von Weizsäcker: Missachtung der Zeitskalen. Abschied vom Prinzip Versuch-und-Irrtum In: Die Nonstop-Gesellschaft und ihr Preis. Barbara Adam, Karlheinz Geißler und Martin Held (Hrsg.) S. 171-184. Stuttgart: Hirzel, 1998.

Questions:

- **If the speed of innovation towards market approval outruns the knowledge about its impacts, is a steady pathway of learning still possible?**
- **Is science leaving its culture of „trial and error“ and reaching the realm of „hypotheticality“ where „adventures of the size of the history of humankind“ are being entered?**
- **How can „humankind“ and its „future generations“ be asked?**
- **How can a society with a gigantic well-funded innovation potential on the part of the „tool-makers“, combined with frightening gaps in technology horizon scanning, assessment and monitoring, and also weaknesses in establishing common ground as to societal ends move towards really earning the title „ high-tech society“ with suitable tools to serve its complex ends, based on well-discussed political and legal structures?**



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The Salad Dog
The challenge of going for
the unknown

Psychological literature describes the „salad dog complex“. Dogs usually do not eat salad. However, if there are other dogs competing for it, dogs will join the competition and strive to win, even if – at the end - they still do not really like salad. Once a scientific trend has achieved the status „key technology of the 21st century“ or „industrial revolution 4.0“ unbiased assessments may not be carried out any more.

Christine von Weizsäcker: Lacking Scientific Knowledge or Lacking the Wisdom and Culture of Not-Knowing. In: Ad van Dommelen (ed.): Coping with Deliberate Release. The Limits of Risk Assessment, pp. 195-206. Tilburg [etc.]: International Centre for Human and Public Affairs, 1996.

Questions:

- **Who has interests in the promoted „salad“?**
- **How many and which dogs dislike it or like it?**
- **Can dogs be influenced to like it?**
- **Unless they go for it, will dogs miss the chance to have the best innovative dog-compatible veggie food?**
- **Unless they do not go for it, will dogs miss the chance to find many other sources of good food?**



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The Fox as Guardian of the Chicken Coop
The challenge of narrow interest and expertise

Foxes, undoubtedly, have interest and special expertise in chickens. Still, wise farmers do not make them the guardians of their chicken coops.

In certain new fields the expertise is narrow. Private sector expertise and intermediary expertise often are the only expertise readily available.

How about universities? Even public sector expertise is not necessarily wide and independent, due to the increase in public private partnerships, patent applications and the increasing political perception of universities as priority factors in a country's global economic competitiveness.

This means that Conflict of Interest Policies and Strategies must be decided and implemented, especially for organisations tasked with research policy and technology assessment and organising „stakeholder roundtables“.

Questions:

- **By what procedures and structures can the expertocratic undermining of the separation of political powers be stopped, if legislation, administration and jurisdiction are all relying on the same narrow group of experts in a new field of technology?**
- **Is democracy already being undermined by expertocratic elements?**
- **Could we even face a worse situation when the present arbitrary rule by innovation turns into a despotic rule by innovation? Is innovation the new God to techno-fix all the multiple crises we are facing?**

A further question:

Would it not be wise to take the advice from the many recent UN reports calling for new approaches to address the multiple crises:

- **systemic**
- **multidimensional**
- **cross-sectoral**
- **interdisciplinary**
- **transdisciplinary, i.e. including knowledge available outside the academic sphere,**
- **and participatory**

<https://www.cbd.int/health/SOK-biodiversity-en.pdf>

<https://ipbes.net/document-library-catalogue/summary-policymakers-global-assessment-laid-out>

https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

<https://www.unep.org/resources/making-peace-nature>

<https://globalplatform.undrr.org/publication/co-chairs-summary-bali-agenda-resilience-risk-resilience-towards-sustainable>

<https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22overviewn.pdf>



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The Desert Mouse

The Challenge of Risk Distribution Conflicts

**Not all animals are equally afflicted by changes in climate.
Not all players consider a 6 on the dice a stroke of luck.**

**It is not only about risks to whom but also of
economic potential for whom – often unfairly distributed.**

**There often are direct, short-term benefits in innovative fields:
1. researcher profit from increased funding of their projects;
2. Companies increase their shareholder value with these new
promises.**

**So, there are early benefits for some, at a time when
neither benefits nor risks for all other constituencies and
concerns had the chance to be thoroughly investigated. Thus
we arrive at the language „unquestionable benefits“ and
„hypothetical risks“.**

Christine von Weizsäcker: Error-Friendliness and the Evolutionary Impact of Deliberate Release of
GMOs. In: Vandana Shiva, Ingunn Moser (ed.): Biopolitics. Feminist and Ecological Reader on
Biotechnology. pp. 112-120

London & New Jersey: ZED Books, 1995

It can be learned from recent Nobel Prize Laureates in Economics that there is no automatic „trickle down effect“ of benefits in „business as usual economics“. There are also severe financial and power asymmetries between different actors in societies that need to be addressed and common aims are not easy to define and defend.

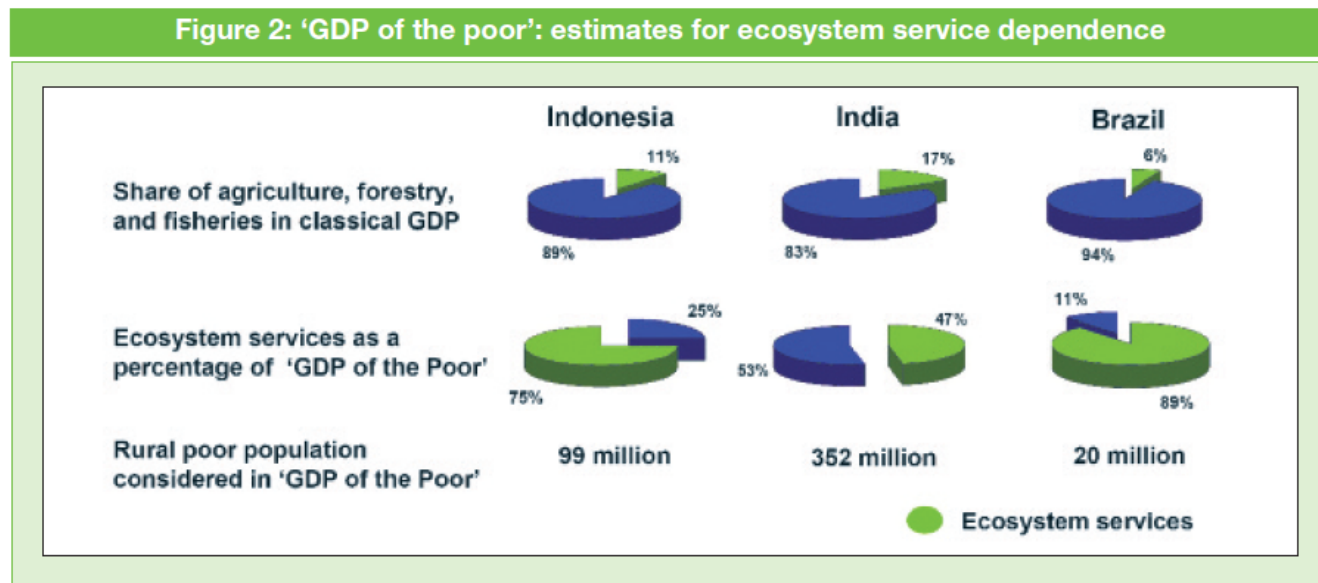
Amartya Sen, 1998, contribution to welfare economics

Joseph E. Stiglitz, 2001, analyses of markets with
asymmetries of information

Elinor Oström, 2009, analysis of economic governance,
especially of the commons.

The rich can discount the future, i.e. accumulate money now to pay out their way of damage later. The assumed discount rate is crucial for the elaboration of policies.

The poor cannot discount the future. The poor largely depend on non-market-mediated direct ecosystem services.



Source: TEEB for National Policy, Chapter 3 [N3]

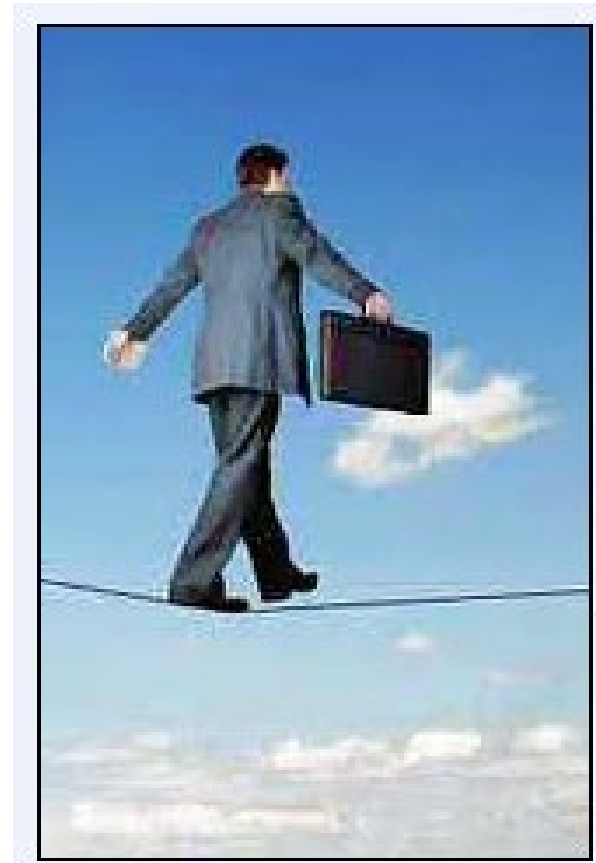
The Precautionary Principle is a Pro-Poor-Strategy and, as such, is linked to SDG 1 (poverty) and 2 (hunger).

Christine von Weizsäcker: SDG 15. Policy Choices for helping or hindering the poor.

In: Spotlight on Sustainable Development 2016. Report by the Reflection Group on the 2030 Agenda for Sustainable Development. pp 110-114. published by: Montevideo, Social Watch; New York, Bonn, Global Policy Forum; Suva, Development Alternatives with Women for a New Era; Penang, Third World Network; Beirut, Arab NGO Network for Development; July 2016

Questions:

- Will risks be expressed in generalized quantities or will they be specified according to different actors?
- Will the specifically afflicted groups be addressed and will their genuine voices be heard?
- Will not only risk distribution be addressed but also the threat of an expert monopoly on risk-taking?
- Will the science, technology and innovation discourse be technology-centred or problem-oriented?
- Will the broad range of research and development for a diversity of solutions be opened up?



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Hammock versus Tight Rope
The challenge of complexity

Complexity is often used as a political synonym for „too difficult for the public to understand“. On the other hand, systems analysis shows us that complex, well contextualized networks of many variables and concerns, can be very stable, more comfortable, allow for good company and are open for joint learning processes.

Christine und Ernst Ulrich von Weizsäcker: Fehlerfreundlichkeit. In: Offenheit-Zeitlichkeit-Komplexität: zur Theorie d. offenen Systeme / Klaus Kornwachs (Hg.) S. 167-201. Frankfurt; New York: Campus Verlag, 1984.

- The art of designing scientific experiments often consists in reducing the number of variables and neglect their interaction in order to arrive at demonstrable and quickly applicable results. Moreover, in technology discourses there is often a grey zone reaching from scientific prognosis to expert opinion, prophesy, wishful thinking and advertising.
- This may be good enough for the first round of research and development. Adequate technology assessment, however, often requires interdisciplinary and transdisciplinary approaches with more variables and longer time-frames This, unfortunately, often results in severe competitive disadvantages as to funding and publishing for the scientists having chosen these adequate more integrated approaches.

How many interlinkages and knots can you neglect, disrupt or delete from an existing, historically contextualized system before you fall out of the hammock?

The Preamble of the Rio Declaration in 1992 does not shy away from complexity and points to the „integral and interdependent nature of the Earth“ and to the „equitable partnership of states, key sectors of societies and people“.

(UN Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, Annex 1
Text: <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>)

Questions:

- What is the relationship between stakeholder involvement and „people“, i.e. citizens, the electorate, democratic institutions and their organs? Will „stakeholderism“ replace citizens‘ rights?**
- Who defines which sectors are key on given questions?**
- How will the asymmetries of power between different sectors be addressed which lead to an imbalance of power in the elaboration and promotion of inputs?**

The whole Rio-Process never shied away from scientific and political complexity. The Precautionary Principle has been internationally established in the Rio Declaration 1992 jointly with other relevant principles. These principles are not outdated. They were all reconfirmed at the Rio+20 Conference in 2012.

<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>

Christine von Weizsäcker: Precaution goes without saying, but comes with controversies. In: The Role of Precaution in GMO Policy.

Austrian Ministry for Health and Women, Section IV, Forschungsberichte der Section IV, Band 6, 2006, Vienna September 2006, pp 7-16

They are the basis of the elaboration and implementation of the Sustainable Development Goals. These are meant to be mutually supportive, but, unfortunately, they are organized all too closely along the lines of ministerial responsibilities. Presently, they are far from guaranteeing a „Whole of Government Approach“.

<https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2012-Survey/Chapter-3-Taking-a-whole-of-government-approach.pdf>

Principle 15: Precautionary Principle

„In cases of severe or irreversible damage, the absence of full scientific certainty shall not be taken as a reason to postpone measures to prevent environmental damage.“

It widens the possibilities of governance in cases of uncertain risks. Well proven risks require prevention. They do not need the application of the precautionary principle.

(explicit in EU Treaty, 191(1), also see: Fisher/Jones/Schomberg (eds.), *Implementing the precautionary principle*, 2006, the European Court of Justice not only applied it to environment but also to human health, ECJ, *Pfizer Animal Health/Council*, RS. T-13/99, SLG 2002, II-03305)

Principle 10: Environmental Democracy

„The right of citizens to Access to Information, Participation in Decision-Making and Access to Justice in Environmental Matters.“ **It has been turned into a legally-binding agreement in the UNECE Region, named Aarhus Convention.**

The EU and all its member states are Parties to this convention. <http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf>

In 2018 a corresponding convention, the Escazù Agreement, has been established for the Latin American and Caribbean Region.

https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-18&chapter=27&clang=_en

Principle 12: Polluter-Pays-Principle, see also Principle 16

„Liability of polluters and redress for victims, also at international level.“ **Victims pay the price for damage automatically and always. It takes regulation to make the polluters responsible and liable.**

Principle 18: Obligation to notify other states of events that are likely to produce harmful effects on their territories. (relevant in the context of new technologies, such as geo-engineering and gene drives)

Questions:

- **Will the complex interrelationships between these Rio-Principles be addressed?**
- **Will citizens' information and participation in decisions on public science and technology policies, including funding and subsidies, be enhanced,?**
- **How about access to justice?**
- **Will citizens involvement in processes of technology assessment be not only verbally claimed but also structurally ensured?**
- **Will adequate regulation on liability and redress give researchers and producers an incentive to apply precaution in their decisions on projects?**
- **Will the international supply chains be included in these deliberations?**
- **Will the enhanced Trade-Related Aspects of Intellectual Property (TRIPs) under the WTO also be included in these deliberations?**

http://www.wto.org/english/tratop_e/trips_e/t_agm3c_e.htm#5

Lead author: Hartmut Meyer. Co-authors: Joji Carino, Chee Yoke Ling, Michael Frein, Francois Meienberg, Christine von Weizsäcker: Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. Background and Analysis. Berne Declaration, Zürich;, Bread for the World, Berlin; Ecoropa, Emmendingen; Tebtebba. Baguio City, Philippines; Third World Network, Penang, Malaysia, 2013