

Remarks from Professor Gretchen Kalonji

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Contribution to Thematic Session 4 of STI4SDGs: “The Evolution of Science Systems as a Prerequisite for the Six Transitions”. October 9, 2024, Addis Ababa.

- **Science systems are complex systems of systems.** For the system as a whole to work well, not only do we need to optimize the design of individual sub-systems, but to optimize interactions amongst sub-systems
- Among the component sub-systems, and their various players, our higher education (HE) systems are perhaps the most important players for sustainable development, if they are well-designed.
- But they are also probably the most resistant to change.
- But change is essential **and urgent** if we are to do a better job serving our societies
- An effective HE system is NOT just a sum of individually excellent institutions – rather it requires a plan which combines **excellence in research and service** with **equity and access**.
- The California Master Plan for Higher Education provides an excellent example. https://en.wikipedia.org/wiki/California_Master_Plan_for_Higher_Education
- Funding models which reward collaborations amongst diverse institutions, and which incentivize them to come together around a common strategy, rather than simply awarding funds to individual institutions, can be powerful approaches, e.g. the experience with the US NSF Engineering Education Coalitions.

What about transformations in how we DO science, engineering and medicine in our U's?

- Our research methodologies are under rapid transformation with the evolution of big data and AI approaches, and with major geopolitical evolutions, both of which are foci of the work of the International Research Center for Big Data and the SDG's (CBAS).
- But a yet more critical central challenge for our universities is the bifurcation between our “research” agenda and our “education” agenda, and insufficient attention in both to service to society

A core strategic approach for our universities? Move to multinational, multidisciplinary, multisectoral research project-based approaches to **integrate** our contributions in research, education and service.

Students, professors and other partners work in multinational teams **on research projects of mutual interest and of practical importance to participating regions**, starting as early as freshman year.

Some characteristics of projects? How to unleash the potential of segments of our societies whose talents and energies are not sufficiently tapped?

- Focus on leadership roles for youth and youth organizations
- Collaborations with local communities, local governmental partners, and the private sector
- At the same time, focus on strengthening int'l collabs, particularly on transboundary issues
- Work more effectively with UN agencies and programs, for example the Intergovernmental Hydrological Program (IHP), headquartered at UNESCO (<https://www.unesco.org/en/ihp>)
- Linking our efforts with internationally agreed strategic initiatives, e.g. the Forum on China Africa Collaborations (FOCAC)
- Establishing mechanisms in which scientific experts, governmental leaders, heads of multi-national programs and representatives of civil society, actually work together on design and implementation of strategic initiatives. Example of the High Level Experts and Leaders Panel on Water and Disasters (HELP): <https://www.wateranddisaster.org/>
- Focusing on linking our technical collaborations to the broader goal of science and engineering for peace. An example is the recent “Bandung Spirit Water Summit”, held in conjunction with the World Water Forum in Bali in May, 2024:
<https://www.wateranddisaster.org/the-bandung-spirit-water-summit/>

Summary:

Our students have enormous creativity and passion. Our local communities have wisdom and experience. There are multiple existing powerful networks worldwide into which we can tap. To be more effective in serving society, however, our higher education systems need to be more creative in leveraging the latent potential of all of these communities. We also need to challenge and to transform our traditional models of “research” and “education”, if our university systems are to more effectively contribute to peace and sustainable development.