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Sustainable Development Goals

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Science and the Sustainable Development Goals

A discussion paper for CSAE4
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Background

The UNs 2030 agenda on Sustainable Development includes 17 interrelated and inter-dependent goals that, unlike the antecedent Millennium Development Goals (SDGs), are goals for both developed and developing economies – although the obvious challenge is addressing these goals with meaningful and manageable targets in LMICs. Most of the SDGs depend on both natural and social sciences. Some areas of research are well-established, but much remains to be done. All of the goals depend on evidence informed policy development at the local, jurisdictional and global levels. The importance of science, technology and innovation to achieving these goals is exemplified in the initial report of the advisory group to the UN's technology facilitation mechanism.[1]

Achieving the SDGs creates some extraordinary challenges and high expectations. The appropriate use of science will be necessary to design and implement strategies to achieve them. From the perspective of APEC's CSAE group, there are several important points to consider.

This paper, which represents the co-chair's own perspective, is provided to initiate the conversation at CSAE4.

1. **The need for effective science advisory mechanisms at the *domestic* level**.

The Sustainable Development Goals (SDGs) are challenges in which all economies must play a role, but those roles will always be mediated by individual domestic context. Science, especially social and environmental science, is critical to achieving many of the SDGs and, in many areas, new science and science-informed policy development is needed before meaningful and scalable strategies can be implemented. Some of the SDGs require global or regional action; all require action at the level of individual jurisdictions and all require a much closer link between science communities, policy communities and broader stakeholder groups including interest groups and the general public. Understanding the relationship between science, policy-making and community values will be vital.

In all of this, it is self-evident that effective science advisory mechanisms will be needed at the domestic level for the SDGs to be achievable. And that needs access to both deliberative advice (often prepared by academies) and to informal advice of the nature that trusted embedded advisors give to state leaders and other government officials.

Trusted evidence-based informal advice about how to use science is essential in a world of

[1] https://sustainabledevelopment.un.org/content/documents/21201STI%20for%20SDGs%2010%20member%20group%20STI%20Forum%20final%20clean.pdf

competing demands, complexity and urgency and where much of the science is ambiguous, uncertain and crosses the interface between the natural and the social sciences. A comprehensive science advisory ecosystem includes both the internal mechanisms of trusted advice direct to the executive arm of government and the external deliberative independent mechanism of respected scientific academies. However, few economies (whether developed or developing economies) have both these mutually reinforcing components.

Roadmapping exercises that strategically plan for filling important knowledge gaps will be needed in individual economies and for regional and global organisations. These must be appropriate to each economy's situation and priorities.

2. **The SDGs require collective action through the engagement of the major global agencies, which in turn depends on effective domestic science advisory mechanisms.**

Science diplomacy has two major dimensions. Firstly, there is science to advance the interests of individual economies; most evidently this is in the form of science to support economic interests, trade and resource management, to project influence and to promote bilateral relations. Secondly, there is science to advance global interests – for example governance of the Antarctic and other ungoverned spaces, and for addressing global challenges such as the SDGs themselves. These two perspectives need not align and this adds complexity to policy-making and creates challenges for effective scientific input.

Science to advance jurisdictional interests on the global stage is dependent on domestic science advisory systems to make it accessible to the non-scientists (i.e. diplomats and other jurisdictional representatives in global contexts) who represent the economies ' interests on the international stage. But with respect to science to advance broadly aligned global interests, the case is often being put by scientists themselves, scientific organisations and NGO advocates who are not necessarily engaged with a economy's official representatives and decision makers. Indeed, global agenda-setting organisations (UN, IPCC and others) often have their own science advisory processes often with less appreciation of the policy perspectives of individual governments. The question becomes how to ensure that science can best exert influence on policy development, while still understanding the rights of sovereign governments to make their own decisions. Thus while science to advance global interests may be the ambition of many scientists and NGOs, global interests are more likely to be achieved when individual economies support global or regional goals because of enlightened self-interest.

3. **The achievement of the SDGs will require close interaction between formal science and indigenous and local knowledge systems (ILK).**

Science is but one epistemology. We understand it as a set of internationally recognisable processes by which we can gain relative reliable knowledge about the world around us and within us. But what is considered 'knowledge' can be viewed differently by both politicians and the public. It highlights the need to be mindful of the place of societal worldviews and ndigenous and local knowledge (ILK) in particular. There are challenges in integrating those epistemologies that place societal values (including spiritual understanding and intergenerational concerns) quite differently to positivist science, but some form of reconciliation is necessary if we are to successfully address many global challenges.[2]

[2] see related discussion paper for CSAE4 on LINKS and social license within the context of the SDGs.

In science the processes are designed to identify and minimise implicit or explicit bias: in ILK,, beyond the obvious importance of trans-generational empirical observation, values, belief and knowledge are most often intimately intertwined. Thus the skills and teachings of what has been referred to as 'post- normal science' will become even more important to tackling so many needs identified in the SDGs.

4. **The private sector has a critical role to play**

It will be necessary to ensure policies that allow and encourage the private sector to play their critical role in addressing the SDGs. New forms of partnership may be needed. There is a need to ensure incentives for productive engagement are developed and ensuring that local industry is also able to engage.

5. **Integrating sciences**

The need to marry social sciences, humanities and the natural sciences is urgent, particularly if we are to gain necessary insight into the human dimensions of complex problems. It is not only technical knowledge that is needed. The hubris of contemporary science needs to be tempered and we need to work at understanding that local tradition, community priorities, conditionalities and world-views matter as much as the science that is employed. When these clash with what science can offer, the dialogue needs to be patient and a true dialogue. These issues are particularly cogent for economies within the APEC region.

6. **Sharing knowledge**

It will be essential that as knowledge gaps are filled and as programs are developed and implemented, that knowledge is shared so that the science community and the policy community can identify best and effective practice in local contexts. The major form of technology transfer will not be in the form of hardware but rather the skills and know-how to build local institutions and innovation systems appropriate to an economy's state of development.