Orienting National and International Research to the SDGs[*]

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Keynote Lecture Dedicated to the Memory of the Late Professor Dr Charan Chantalakhana
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Summary: *The Sustainable Development Goals (SDGs) are a ground-breaking attempt at coordinating international collaboration in pursuit of specified and agreed ideals for a 15-year period from 2015. Presented as ambitious goals and targets, divergences in cultural interpretations and priorities are accommodated as nations and institutions adapt the goals for their own strategies. Conceiving the SDGs in this embracing manner avoids many of the less important criticisms of the UN's approach and allows a global vision of progress at this half-way point towards 2030. Progress is evident despite the inevitable setbacks of unforeseen circumstances that have included pandemics, wars and major policy changes. This keynote lecture discusses these matters by introducing the SDGs in general, by discussing general critiques of the UN approach, and by briefly citing an example of SDG implementation at each of national, regional and international levels.*

Introduction

I begin by stating that the Sustainable Development Goals (SDGs) are best conceived as Ideals rather than as absolute targets, despite the inclusion of such specific terminology. Understood in this way much of the confusion that can surround their interpretation across different cultures is dissolved. Research that it is oriented to SDGs supports coordination at national, regional and international levels. That is the spirit of the SDGs, represented in Figure 1.

In this presentation I will briefly introduce the SDGs before discussing their practicality and then introduce an example of research oriented to the SDGs at each of national, regional and international levels. To set the context, as for all practical intellectual pursuits, an understanding of history is essential. Developed in 2015 and soon adopted by all nations

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present at the UN General Assembly, the SDGs are an agenda of 17 goals that have 169 targets and are monitored through 232 or more indicators for global sustainable development. The 17 goals are well known in their graphical depiction. The question I wish to discuss is, how can our research be oriented to the SDGs? As I have said, we must first understand the origins of the SDGs, which is the Millennium Development Goals (MDGs).

Figure 1. The 17 Sustainable Development Goals of the United Nations

From MDGs to SDGs

It is important to recall that the SDGs emerged from the Millennium Development Goals (MDGs), which were comprised of eight measurable goals that were developed in 2000 by 189 countries signing the Millennium Declaration, as represented in Figure 2. The Declaration aimed to halve extreme poverty and hunger, promote gender equality and reduce child mortality by 2015. This was ambitious - in two important ways. First, it brought disparate national perspectives on UN policies towards practical alignment, and second, it was an innovative means of communicating and monitoring progress.

I consider that analysts who criticized the MDGs as not having been attained miss the point that the overall approach promoted focus and collaboration while the targets were generally seen as aspirational. Progress made towards the MDGs was variable even and impacts even more so, but much was learned about the efficiency of international cooperation and communication.

Figure 2. The Millennium Development Goals of the United Nations

The role of research also became more evident as a critical means of remedying areas of insufficient knowledge, not only to produce new technologies but also to inform policy - the critical unifier of all development. Informed by the experience of the MDGs, emphasis was increased on the contextual areas of environmental sustainability, social inclusion and economic development as three equal components of integrated global development, which led to the SDGs.

The similarity between the MDGs and SDGs is evident in their graphic presentations. This is important because it highlights the natural progression based on experience and learning. The same underlying assumption applies, namely, that the world can act in concert to improve the overall wellbeing of people and the planet. We all think this is worthwhile. But if we remain isolated in our own research and/or development corners we may not always agree on how to improve wellbeing of people and the planet in fields that require concerted national, regional or international action. The SDGs are a means of bringing together our different cultural viewpoints and experience so that a common focus on the principal issues can improve life for everyone.

Those principal issues were compressed into the UN's 2030 Agenda for Sustainable Development, which was later published as the 17 SDGs to reach by 2030. Each goal has about eight to 12 targets, and each target has up to four progress indicators;[1] Goal 17 is different, it concerns the partnerships that are necessary for all SDGs to be realized.[2] The goals apply equally to each country and the people in it as they do internationally; they apply to Thailand and Thai people, for example, as much as to any other country. However, the detail is daunting; so many goals, targets and indicators presented in a format unfamiliar to most researchers can be confusing. As specialists who know our own fields intimately, we often have only a general understanding of the many other fields mentioned in the SDGs. We may not even realize that our work is contributing to many different SDG targets.

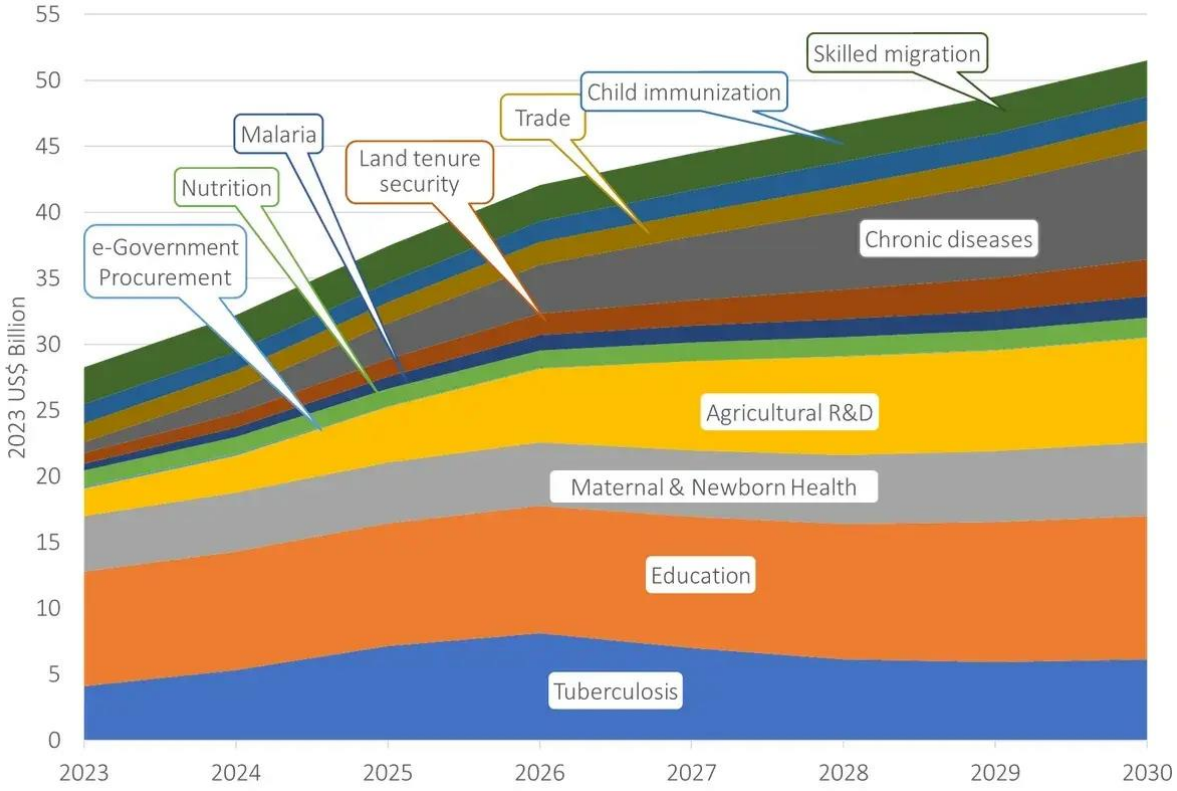
Achieving the outcomes within the timeframe (2030) was, in my opinion, neither a realistic or absolute objective. Rather, the objective was to coordinate effort towards agreed goals and to learn through the process how to efficiently build a more equitable and sustainable world. At this point I should explain my own understanding of the word 'sustainable', which is the subject of my earlier publications.[3] At the most basic level 'sustainable' implies an ability to maintain things as they are, which of course is contrary to natural cycles of change and adaptation. Again, rather than reject the terminology, my conclusion is that we should accept the aspiration - in fact, we do this in our life science research when we seek to understand and manipulate natural changes in the name of sustainability.

For example, my own field of agricultural research is essentially a search for means to maintain production of the desired products in the face of constant external changes by such means as adding nutrients, water and intimately managing an artificial environment. Viewed in this manner, agricultural science and its practice is the attempt to maintain an unnatural managed ecosystem. Done well, that is 'sustainable agriculture'. Our current knowledge would not allow us to provide today's food and lifestyles without such management - we have created a need to 'sustain' this artificial situation by sustained research. Much research may be seen in the same way. In being realistic I may be offending some sensitivities, but I emphasize that as scientists we must deal in reality. Can the diverse SDGs and their targets accommodate such an approach? I think they can; however, there are others who argue differently.

Criticism of the SDGs

Critics of the SDGs correctly observe that our resources are limited and that the SDGs are all given equal weight. They then argue that the focus should be on SDGs that will have the highest return on investment rather than on all SDGs at the same time. They calculate that to satisfy the 169 targets would take until 2078 rather than the publicized 2030 target date. Their solution, especially at national level, is for governments to prioritize goals that focus on the most promising policies, an approach that emphasizes only 19 of the 169 targets, as indicated in the Figure 3.[4]

Figure 3. Suggested Priority Foci for the SDGs by the Copenhagen Consensus



While this is the result of this economic analysis and appears to make sense, some commentators view it as criticism of the SDGs. I would rather see it as constructive criticism. It can be argued that food and education make bigger differences to more people than does a nebulous goal to produce harmonious lifestyles. Similarly, we know more about reducing hunger and improving education than we do about ending all violence, crime, and corruption. Added to hunger and education are health interventions; for example, each year treatable tuberculosis leads to more than 1.5 million deaths, and additionally some two million children and about 300,000 women die around the time of childbirth. Focussed attention to reduce such unnecessary deaths would provide rapid progress towards important SDG goals.

Key areas arising from the analysis include: agricultural research and development; tuberculosis; education; maternal and newborn health; malaria; e-procurement; nutrition; land tenure security; chronic diseases; trade; child immunization and skilled migration. It is claimed that this could save 4.2 million lives and provide $1.1 trillion of economic benefits each year for the combined developing nations at a cost of only $35 billion. This might be theoretically possible if all nations and all decision-makers act consistently, but of course

there is more to life than rationality, and the long-term actions required imply unheard of levels of economic husbandry across multiple electoral cycles. For those reasons I find the conclusions of the analysis to be a useful example of the benefits of prioritization in national planning, but not a prescription for uniform global action. I shall return to this approach later.

Expressed differently by others, it has been suggested that by 2030 no goals will have been met and only 12 percent of targets will have been achieved.[5] While this sounds like failure, let's look a little closer. It appears that while some SDGs complement each other, others can be conflicting. For example: SDG 7 (affordable and clean energy) complements SDG 13 (addressing climate change) yet can locally or regionally conflict with SDGs 14 and 15 (biodiversity) in the construction of wind and solar farms; similarly, SDG 8 (work and economic growth) may be increased by financing coal-fired power development yet negatively affect SDG 3 (health and environment). The interactions of development priorities are policy issues and to an extent are accommodated in SDG 17 (partnerships); however, we should also note that decision-making is more commonly based on national and sectoral policies.

The 2023 Sustainable Development Report and Index has ranked performance to date. It indicates that European countries are the top ten in terms of progress towards targets while countries such as Lebanon, Yemen, Papua New Guinea, Venezuela and Myanmar show the least or even negative progress.[6] Such findings are hardly surprising and can be misleading. A more realistic measure might be progress of countries towards SDGs that they have deemed relevant to their situation. Such quantification is more likely to be accurate because it aligns with national policies. It is also worth remembering that the existing SDG indices do not capture the externalities of the consumption, production or policies of wealthy nations. This UN progress report may in fact be a means of highlighting such anomalies in order to focus activity more closely on the ideals expressed in the SDGs, and as such can again be seen as a constructive criticism.

It is easy to take all criticism as negative, but when it helps improve something as interactive and nebulous as the SDGs, I prefer to see such examples as introduced above as lessons learned through implementation. This can inform an update on the SDGs when leaders next meet in September this year. It is expected that six priorities will arise from that meeting, namely: human well-being; sustainable economies; sustainable healthy nutrition; energy decarbonization; urban development, and global environmental perspectives. Similarly, criticisms that a World Bank report suggests that poverty may be increasing if measured differently may be understood as a positive outcome that can improve monitoring data collection, which in fact is the recommendation of the Bank.[7]

The reason I have included critiques of the SDGs is to show where we are up to translating ideals into practice. I would next like to mention the approaches taken in national, regional and international research to inform institutional decisions. I can illustrate this by briefly mentioning three approaches, two of which I am quite familiar with, that relate to agriculture and thus to many of the SDGs and their targets. The three examples span national, regional and international levels, and show that we are already prioritizing SDG targets based on our expertise and research activities. The examples are: the Australian government's approach that is built on national expertise in agricultural research; the ASEAN approach and recent progress report against SDGs, and the international agricultural research network made up by the 14 global centres of the CGIAR.

National: Australian International Research

The Australian Centre for International Agricultural Research (ACIAR) actively contributes to 70 percent of the SDGs, not by acting individually but through brokering and funding research partnerships between scientists in Australia and scientists in developing countries. Such partnerships are active in some 350 projects across 36 countries in the Indo-Pacific region, many of which are challenged by nutritional insecurity and poverty that is complicated by land and water constraints and expectations to reduce carbon emissions. While I will focus on the agricultural research example, I should also emphasise that national governments also set policies that encourage the corporate sector to support the SDGs. Government's strategic policy research is the means to ensure that corporate incentives in one sector do not conflict with those in other sectors. Multinational corporates support the process through their environment, social and governance approaches (ESG), sometimes assisted by multinational consultancies.[8]

Returning to the agricultural example, ACIAR investment is guided by a Ten-Year Strategy, recently confirmed, that is based around six objectives that are consistent with Australia's overall international development assistance policy.[9] As depicted in Figure 4, these objectives address:

- Smallholder and rural food security and poverty
- Adaption to and mitigation of climate change impacts
- Human nutrition and health risks
- Gender equity and empowerment of women and girls
- Agrifood and forestry market chains including the private sector
- Scientific and policy capability within partner countries

Through these six objectives ACIAR projects contribute to 12 of the 17 SDGs.

Figure 4. The Six Objectives of ACIAR in Relation to the SDGs

Progress towards the SDGs is monitored by Australia as is done in various forms by each nation through Voluntary National Reviews. In the case of Australia this necessarily spans wider sectors than just ACIAR's work. This includes not only actions of government but also

those of business, civil society and academia, an illustration of which is presented publicly on a Sustainable Development Goals website.[10] These actions are presented in a manner to communicate with the general public about the ubiquity of the SDG ideals.

For those aspects related to agricultural research through ACIAR, groups of researchers design their projects to align with the ACIAR strategy and funding. It is an efficient means of orienting research effort to the SDGs and at the same time encouraging scientists to work with research partners in developing countries to do the same. Benefits accrue from efficiency of effort and voluntary inputs, particularly from Australian researchers.

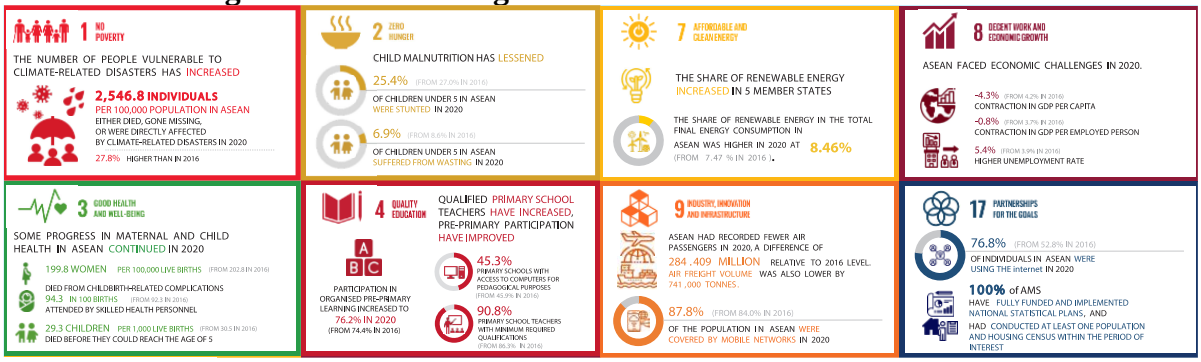
ACIAR is also Australia's vehicle for contributions to the CGIAR as one of its significant funders. In this way it influences the international agricultural research of the CGIAR, which I will mention shortly. Before continuing to that international level, I will first mention the regional level relevant to this conference, ASEAN.

Regional: ASEAN and SDGs

ASEAN provides a particularly useful example of selecting SDGs and targets that are consistent with common policies across member nations. Leaders at the recent ASEAN Conference re-confirmed their commitment to meeting all SDGs - according to their own criteria.[11] This is significant insofar as progress in these sectors using start of the MDGs as a baseline (2000) was assessed in 2015 as being only half-way towards what would be needed to meet the 2030 SDGs, according to UNESCAP.[12] Since that time, major disruptions have occurred, including COVID.

Recognizing the impact of COVID, ASEAN has presented its 2022 progress report against SDGs in terms of its member countries' priorities. This example of prioritizing shows a responsible approach to what are regionally agreed as the principal progress indicators, which they group in a 'snapshot' shown in Figure 5.[13] This approach is not attempting to suggest that other targets are not important, but rather that the impact of COVID on those indicators selected has made them a priority at this time. Prioritization was accomplished by referring to 2016 and 2020 benchmarks and progress, and then accepting 56 of a possible 276 (not 232) indicators for which the majority of ASEAN member states had conforming methodologies and statistics.

Figure 5. ASEAN Progress Towards Selected SDGs in 2022



The targets selected by ASEAN related to SDGs 1,2,3,4,7,8,9 and 17. To take one example; SDG 2.2.1 progress is compared across countries for the indicator of child stunting. This monitoring report thereby informs policy development. It also provides information for

research program planning by each nation - not only for a priori planning that is already undertaken by each government, but also for cooperative regional research that can benefit by researcher interaction across the region. Such inputs are part of the national strategies that define the priorities for research funds available within each country. They also provide a basis for international research allocations, much of which in the agricultural and related sectors is channelled through the CGIAR.

International: CGIAR & ILRI

Recently reorganised under the brand of One CGIAR, the organisation has a coordinated strategy for research in service to the developing world. Integrating its some 9,000 staff across all regions of the developing world with major research institutes in tens of countries, the CGIAR's own strategy also seeks to align with SDG targets.

The CGIAR vision is of "a world with sustainable and resilient food, land, and water systems that deliver diverse, healthy, safe, sufficient, and affordable diets, and ensure improved livelihoods and greater social equality, within planetary and regional environmental boundaries". This is addressed through innovations that advance the transformation of food, land, and water systems under changing climate conditions. While this can sound like generic UN language I accept it as a genuine attempt to summarize detailed and integrated research programs spanning global regions within a billion-dollar program. CGIAR research alignments with the SDGs are presented somewhat differently but alignments can be readily discerned.

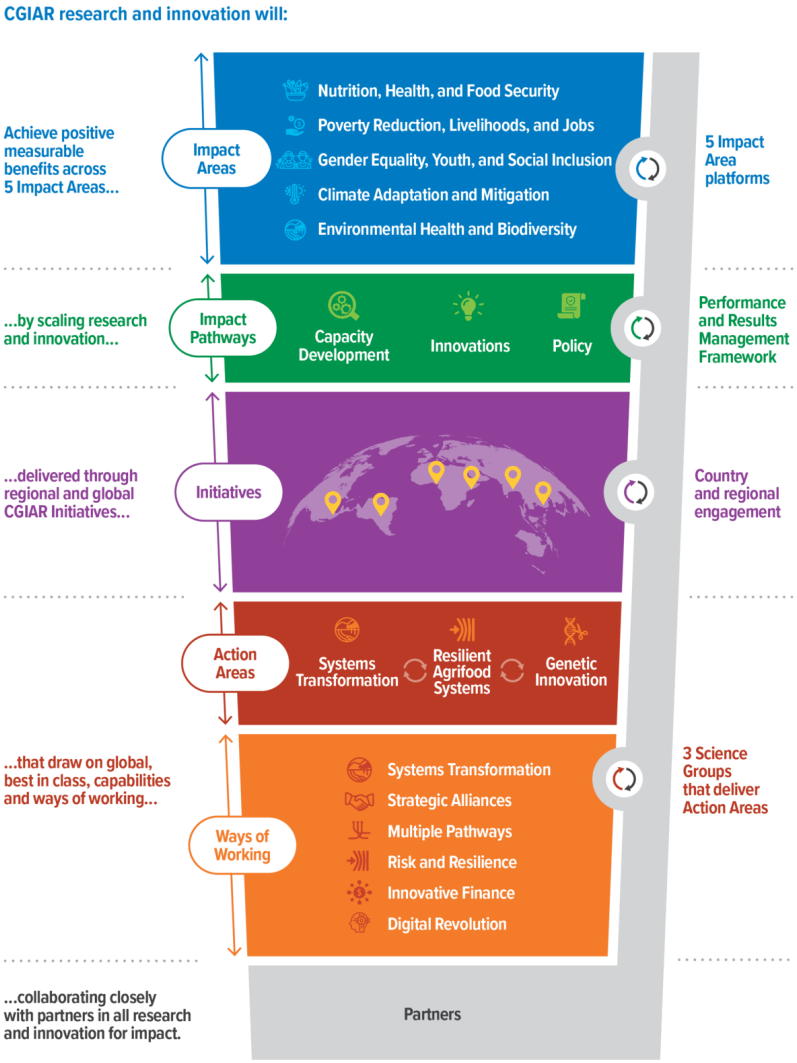
The impact of CGIAR occurs through five areas as illustrated in Figure 6. While the symbols differ from those used by the SDGs, alignment can be seen with 10 to 12 of the SDGs. Its 2030 targets across the five areas are essentially the same as those of ACIAR, and once again illustrate that what some might consider to be one sector of research, in this case agricultural research, actually spans the majority of the development knowledge necessary for the global wellbeing that the SDG consensus strives for.

The CGIAR foci can be elaborated in the following ways:

- End hunger for all and enable affordable healthy diets for three billion people
- Reduce cases of foodborne illness and zoonotic disease by one third
- Lift at least 500 million people living in rural areas above the extreme poverty line
- Reduce by at least half the proportion of all ages living in poverty
- Close the economic and resource control gender-gap for over 500 million women
- Offer employment, education, or training to 267 million young people
- Equip 500 million small-scale producers to be more resilient to climate shocks
- Turn agriculture and forest systems into a net sink for carbon by 2050
- Stay within planetary and regional environmental boundaries
- Maintain the genetic diversity of seeds, cultivated plants and domesticated animals

This ambitious approach is consistent with the aspirations of the SDGs. Recalling that the SDGs may be seen as an ideal that can orient research and development, it can be seen that the process is working. In the case of CGIAR, its activities are channelled through science-based innovation, targeted capacity development and advice on policy across the six regions of Central and West Asia and North Africa, Latin America and the Caribbean, West and Central Africa, East and Southern Africa, South Asia, Southeast Asia and Pacific.

Figure 6. CGIAR Impacts and Actions



It is through such mechanisms that research avoids the disparate approaches that can otherwise arise from individual decision-making. Let me offer one more example based on experience in the area of livestock research. While the CGIAR foci may seem general and ambitious, they are translatable to the major research institutes such as the International Livestock Research Institute (ILRI). ILRI contributes to this global effort through livestock research, for sometimes misunderstood but critically important reasons, including: animal-sourced foods are essential to supply micronutrients otherwise unavailable in many development situations; livestock are fundamental to livelihoods for 20 percent of all people; benefits from livestock are spread across most persons in development situations; livestock offer great opportunities to reduce GHG emissions, and domestic livestock in developing countries represent wide biodiversity.

Conclusion

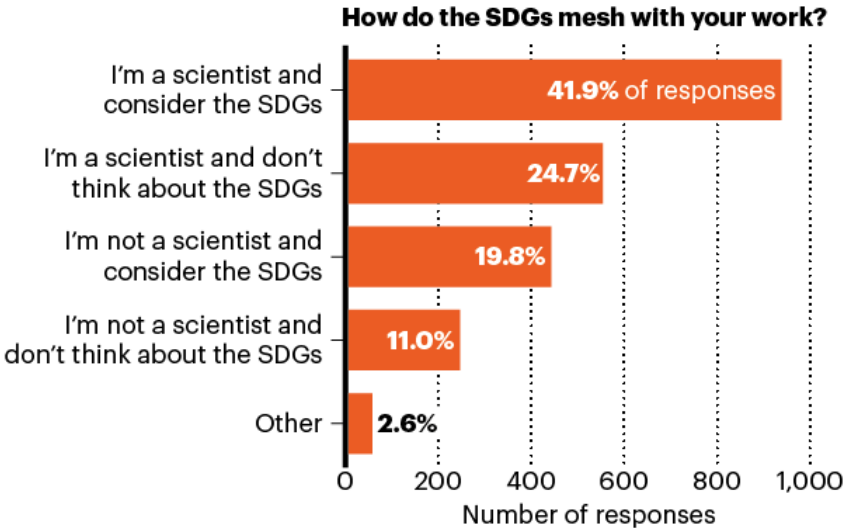
I have presented these examples to illustrate that national research supports regional research which in turn supports international research, and that all support the SDGs. Where do we, as individual researchers fit in? Increasingly the research that we conduct is determined by the research funding that we can access, much of which is from national, philanthropic or international funders. Where such funders have strategies that conform with the SDGs, which

is mostly the case, our research supports this global effort. It is a grand thought and worth remembering; we might think we are addressing a small component of some local problem in our research, but in many cases we are contributing to the SDGs. We are doing it already, as we will no doubt hear in this conference.

We might also hear of a need to change "how science itself is done" and that "a sustainable path must be rooted in science that is multidisciplinary, equitable and inclusive, openly shared and widely trusted, and socially robust".[14] This is equally true. However in Southeast Asia, a 2021 UN study suggested that this may already be the case;[15] it found that "science in LMICs is already much more aligned with the SDGs than is science in high-income countries".[16] Politics can be variable in their direct support for research, but the general alignment with SDGs seems evident across time, and where apparently conflicting with national interest, scientists can have a voice, such as in a current Mexican example reported in Nature.[17]

The scientific journal Nature is also providing a series of fora for specialists to inform the further refinements of the SDGs.[18] Another means of investigating alignment of research with the SDGs was the subject of a quick voluntary poll of scientist and non-scientist readers of Nature Briefing, as shown in Figure 8.[19] While this is only a subjective indication, I do not see it as conflicting with the conclusion that we are, in most cases, supporting the SDGs. My conclusion is based on the arguments I have presented that as individuals we may not be aware of how our work supports the SDGs because we often work on small components of the larger picture.

Figure 8. Nature Briefing Reader Poll About SDGs



Nevertheless, it must be acknowledged that even if most research supports the SDGs, aberrant policies do arise, such as in times of war, but overall the world is oriented towards the SDGs. Less dramatically, we may find that the priorities of our national governments do not conspicuously mention all SDGs, such as for those nations that reject the target of free trade in food while some other nations insist is an essential target under SDG 17. However, when we begin with knowledge of the context in which we are working, we can resolve such anomalies. To amplify this example, let me simply say, as I have argued elsewhere,[20] that economic analyses do well to separate non-essential foodstuffs from food providing essential

nutrients to people in nutrition-deficient nations. If analyses do not make that separation and instead treat all food on a similar basis to say fashion goods, then they can increase hardship rather than wellbeing. Properly explicated national priorities will include such nuances - and as diligent researchers we will support the priorities by efficiently conducting research in our specialities. In doing so, we are not working against the SDGs; rather, in most cases we are supporting an informed interpretation of the ideals that are behind the SDGs.

I conclude by recapitulating. The SDGs are a major step in international collaboration and planning based on the ideal of an equitable and sustainable world. Ideals in such cases are aspirational goals and targets that encourage focussed interaction across nations. It is overly simplistic to claim that they cannot or have not been achieved - it is convergence of actions and progress towards the goals and targets that are the essence. This is the basis of most foreign assistance and development grants and loans that flow from wealthy nations and international institutions to less developed nations. National governments and international bodies that base their strategies, policies and business plans on the agreed goals and targets insofar as they support national security and development are how we as researchers are supporting the SDGs.

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