

Future Earth Young Scientist Networking Conference on Integrated Science

Future Sustainability—the role of science and the
SDGs

May 24-30 2015, Villa Vigoni, Italy

#SciAdvice #SDGs #VillaVigoni2015

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research for global sustainability



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2015 is the year when sustainability is at the forefront of international attention – with a series of major new initiatives on disasters, climate change, and sustainable development goals. Each one of these signal transformative changes in policy, action, and research. Knowledge, evidence, and science will play central roles in each of these arenas.

What new knowledge is needed? What is the role of research and researchers in these processes? How should knowledge be produced to inform, support, and guide them?

There is now a broad appreciation that the production of socially-robust knowledge requires new forms of engagement between science, the community that undertakes it, and society. Science itself is being transformed by new expectations from arenas, like the SDGs, for new ways of connecting and communicating what we know to what we do.

The SDGs are set to begin in 2016 with a timeline to 2030, and achieving the targets laid out requires the best available evidence-base from both the natural and social sciences. The research community is charged with making key global sustainability targets measurable, quantifiable, and evidence-based.

Integrated targets for sustainability require integrated science that cuts across disciplinary boundaries to bring together the various dimensions of sustainability. How science and the changing role of the scientist fits into global targets and goals on sustainability is an important issue.

The International Social Science Council (ISSC) and the International Council for Science (ICSU) assembled a global cohort of early career researchers with diverse backgrounds and research perspectives to reflect on Future Sustainability and the role of Science, and debate relevant issues as part of a series of conferences on Integrated Science that are funded by the German Research Foundation (DFG).

Bringing together creative multidimensional, interdisciplinary and trans-disciplinary perspectives as a way to address the complex topic will consolidate new knowledge on the subject. Early Career Scientists reflected on the changing role of science and the

role of science in transforming to a more sustainable world – questioned key assumptions, theories and models underlying the current research.

As a result of that new knowledge and perspectives, the next generation of research questions looking for solutions that help the transformations to reach global sustainability, and help science work for the benefit of society.

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The Science and Art of Scientific Advice by Sir Peter Gluckman

Conference convener James Wilsdon opened the first session with a brief overview of science advice -- what are its limitations and strengths.

There is no one model for doing science advice. From Japan's reflection on "how to structure science advice after Fukushima" to the European Union in Brussels "from science advisor, to no science advisor, to a new committee/science panel" different regions and countries approach science advice in a different way. One that best suits their cultural and scientific contexts.

As a leadup to ICSU's General Assembly in Auckland a meeting on science advice was held. The meeting saw the inception and creation of the International Network for Government Science Advice (globalscienceadvice.org), bringing together other noted science advisors and policy actors in the space.

James Wilsdon made the point that science advisors are not superheroes, setting up the chance for a more personal look at science advice from the individual point of view. One that scientists, and increasingly early career scientists, are called upon to do.

James Wilsdon discussed questions of how to engage non-expert publics, and how as a scientific community do we move beyond more technical aspects of risk into more unquantifiable uncertainty, ignorance and ambiguity?

"Stuck between old model and the new model..."

As the Chief Science Advisor to the Prime Minister of New Zealand, and Chair of the International Network for Government Science Advice, Sir Peter Gluckman has set the benchmark for advisors and advisory bodies around the world.

Sir Peter Gluckman emphasised the fact that we don't know everything, we will never know everything, and when decisions have to be made in the face of uncertainty, the scientist cannot be dogmatic. They have to work out how to produce and transmit their knowledge to the policy makers in a way that doesn't induce scepticism or lead to rejection of the advice.

While people have been claiming to do evidence-based policy making for a long time, it is actually quite recent. Science and policy making are actually two different distinct cultures. The nature of the interaction is influenced by context, culture, and history. And it differs from country to country and region to region.

And there is Increasing recognition for science advice.

However, just because science thinks it knows something doesn't mean that will form policy. That is the crux of the situation that science must understand. Science itself is not values-free. Science is based in values. The difference in what science tries to do is restrict the values in the interpretation and use of the data. The entire scientific process is about taking values out. The distinction is very important as policy is inherently values-rich.

Last thing a government wants to hear is “more research needed”

The biggest challenge in post-normal science is the “inferential gap”. Always a gap between what we know and what the science can prove. What are the consequences of getting it wrong? Everything we do in life involves some risk. Science and policy makers have very different perceptions of risk.

In the practice of science advice one aspect is data. What scientists want from data is different from what policymakers want from that same data, which is in turn different from what politicians want from data. The science community is very weak in understanding these differences. Politicians and policymakers can be drowned in data and as a result can be turned off. Effective science advice brings the underlying data to the policymaker in a way that is measured.

Scepticism about science seems to be growing, made easier in the world of social media. It is unfortunately inevitable, as science moves into more and more values-laden domains (from relatively reductionist and simple questions to engaging with complex issues like climate change, human biology and how the mind works). By definition science and values will eventually come to a collision.

“The debate about climate change is not about the science, it is about the economics of it all”

Textbooks about science policy paint a simplified picture, when the reality is nothing like that. Lobbyist input, political input, public opinion, fiscal objectives, along with other types of input can occur in repeated points in the process. Because science is only but one input into policy, there is the notion that it should never be the place of science to tell government what to do. Its job is to elucidate options.

The question that leads to is does science have any privilege in the policy process? Why should the policymaker listen to the scientist any more than the lobby group down the road?

It does, only when science restricts itself to being science. Science is a process, an iterative process, that tries to understand the world around us and within us in a

relatively reliable way. That makes it different from the other epistemologies because it tries to be value-free in what it concludes (not value-free in how it operates).

How science is undertaken and presented will impact on how it is perceived and trusted. And if it is not trusted it can have no claim to privilege within the policy process.

Sir Peter Gluckman finished the session by underscoring the fact that it is never science's role or place to tell governments what it should do. It is science's place to say what we know and the limits on what we know, the consequence that might have on the way they think.

A group exercise for the session saw participants break up into groups to work through a classic science advice problematique.

Evidence Research and the Sustainable Development Goals by Asuncion Lera St Clair

In February of 2015, the ISSC along with ICSU published the report "Review of Targets for the Sustainable Development Goals – the Science Perspective," which assesses the draft of the UN Goals from a scientific perspective. The report attracted significant media attention, including an article in the journal *Science*, in Thomson Reuters AlertNet and in SciDev.Net.

Asuncion Lera St Clair was a key contributor to that report and in her session she spoke around the report from a critical perspective, engaging in a discussion with not only the participants, but also the topic, as there are multiple angles and topics to engage with the process from the viewpoint of being a scientist. It is not only about science advice, but also there is a lot of basic science that needs to be developed in order to make the SDGs happen.

Why global goals? We don't have a global mechanism in order to address what are complex challenges that require concerted efforts for global public goods. We don't have the laws and the legal frameworks, so these are about voluntary frameworks. There is a need to align multiple visions -- where do we want to be in 2030 and how are we going to get there?

The indicators and targets have to do with not only accountability but also with the logic of measuring everything. "How do we deal with goals that are not measurable?" is a critical question. They are going to have to work across scales -- at the global level and at the local level. And in the end they may enable an open space for accountability mechanisms.

There have been a lot of lessons learnt during the process of the Millennium Development Goals. The MDGs emerged from a far more interesting document (the Millennium Declaration) which had a normative view of what the Millennium had to deliver. The SDGs differ in the fact that there is no declaration to start the process -- just the goals. The MDGs helped in the emergence of indicators and debates around multi-dimensional indicators.

SDGs are so much more complicated and more broad. It is certainly a different view of sustainable development (the inclusion of consumption and production is unique). A major shift was the consideration of climate change to be a major block to the concept of growth. Sustainable development calls for integrated science. The SDGs are putting on the agenda that requirement and vision.

The goals, targets, and indicators of the SDGs are three very different things. They represent three very different logics between what is an aspiration and a directionality versus the actual capacity to measure progress.

How are we going to monitor progress?

The ISSC and ICSU gathered scientists to respond to the released SDGs in 2014. Questioning just the targets and asking if those are measurable and implementable.

The report finds that of the 169 targets beneath the 17 draft goals, just 29% are well defined and based on the latest scientific evidence, while 54% need more work and 17% are weak or nonessential. The assessment of the targets — which are intended to operationalise the 17 goals set to be approved by governments later this year — is the first of its kind to be carried out by the scientific community, and represents the work of over 40 leading researchers covering a range of fields across the natural and social sciences.

The SDGs must also find some consistency with other international agreements and processes. The report also analysed the linkages and interdependencies of all the other goals. The report found there to be a significant improvement over the MDGs, as well as the improved nuance given to some goals and targets.

A key gap going forward, according to Asuncion Lera St Clair, and a challenge for the ISSC and ICSU to produce, would be to look more deeply into each target and analyse the trade offs occurring. Essentially, mapping a pathway forward for those governments and actors that want to engage with the SDGs and want to know how best to move into tackling these goals.

Feeding Science into the Sendai Framework, Sustainable Development Goals & Climate Policy by Emma Woods

Emma Woods, a Senior Policy Advisor at the Royal Society, presented the Royal Society's work to embed science into the narrative of the Sendai process. The Royal Society, as a British institution, is a Fellowship of the world's most distinguished scientists, which promotes the advancement of science and its use for the benefit of humanity and the good of the planet.

Work at the Royal Society revolves around investing, invigorating, increasing, inspiring, and influencing science. From in-depth reports, short statements, conferences and seminars, consultation responses, briefings for policymakers, and events, their work is essential for speaking truth to power.

Emma Woods' session focused on a much more mechanistic view of exactly what it means to launch into influencing a major UN process and how science and scientific institutions develop a programme of activities to influence such processes.

In order to feed science into UN frameworks, they work around asking questions of what science? What frameworks?

The Sendai Framework for Disaster Risk Reduction takes place in March 2015, the Sustainable Development Goals scheduled for adoption in September 2015, and the UNFCCC climate change agreement in December 2015 represent the three major frameworks they seek to influence.

Each framework has its own process and thematics. Sendai focuses on climate-related disasters, the SDGs go beyond climate change to cover poverty, food, water, infrastructure, cities, oceans, land, implementation. And the UNFCCC framework crosses adaptation, loss and damage. For each framework it is important to understand the process and break down the structure. For example; the UNFCCC has the Cancun Adaptation Framework, the Adaptation Committee, the Warsaw International Mechanism on Loss and Damage, the Nairobi Work Programme, the Green Climate Fund, and the Subsidiary Body for Scientific and Technological Advice.

The Royal Society's focus within UN disaster frameworks is on the science of extreme weather events. With a focus on extreme weather, the impact on societies and economies around the world. The time is right as 2015 offers a unique opportunity to build resilience. Scientific evidence is vital, as the impact of extreme weather, how impact might change in future, and how best to build resilience, all require a strong basis in science for its mitigation.

Over the course of 18 months, working groups were formed, chaired by a Royal Society Fellow, looking at evidence, gathering, and analysis -- from expert consultations, to literature (academic and policy) reviews and site visits; the working group formed a set of recommendations.

Recommendations covering the role of national governments; international funds for disaster resilience; purpose, design and implementation of international frameworks; physical defences to protect people and assets; reporting financial exposure to extreme weather; and user-friendly information.

It is important that the purpose, design and implementation of policy frameworks covering climate change, disaster risk reduction and development are aligned and consistent regarding extreme weather.

There is an opportunity to do this in 2015 at the international level. In particular, efforts should be made to emphasise the importance of the natural environment in the successor to the Hyogo Framework for Action, Sustainable Development Goals and future climate agreement; for example by highlighting its role in building resilience rather than just its role in driving risk; develop and use identical or comparable metrics in these policy frameworks to incentivise co-ordinated action and allow the effectiveness of different resilience-building measures to be compared; measure progress in implementing resilience-building strategies as well as the impacts of extreme weather; align the timeframes and reporting protocols for the successor to the Hyogo Framework for Action and Sustainable Development Goals; and ensure international oversight to strengthen national and local monitoring capacity, particularly in the developing world, and to co-ordinate data collection.

For getting detailed science into these frameworks the Royal Society works through identified routes of influences such as national governments, UN bodies, environment/development NGOs, other advocacy groups, as well as the scientific community.

Informing the implementation of UN frameworks requires negotiation, agreement and action. Implementation starts well before the agreement is made, usually running alongside the negotiations. The Royal Society is working to inform implementation.

For this they decided to convene key players within the framework, not try and address the larger topic of implementation, but to focus on one thing that is essential to implementing the framework. What does the Sendai framework mean for science? What science do we need in order to achieve that framework? In analysis of the text they work to understand if there is a common understanding to what science means in

the text and what institutional arrangements need to be in place to allow that science to develop and for it to be used.

Shaping the SDGs – Technology and People by Teddy Ruge

Teddy Ruge has over a decade of experience helping African and international organizations, including the World Bank, use design, social media and technology to engage with the public, maintain a competitive edge and foster a global presence. Ruge is the founder and CEO of Raintree Farms, an agricultural business in his hometown of Masindi, Uganda, as well as the co-founder of remit.ug, a money transfer platform, and Hive Colab, Uganda's first technology incubator.

Passionate about innovation, Teddy presented a more focused civil-society-oriented view of development, and how the local level will be where the battle for sustainability is to be lost or won.

Born in Uganda and raised in East Africa and the US, Ruge believes in a connected and socially conscious global community. As a member of the diaspora his talk centred on issues central to his life. The intersection of youth, technology and development has been a space he has been interested in during recent years.

His talk touched on complex issues of race and development, expanding on the view of the continent from outside -- the "single story of Africa" is the only story known within the development space. He was seeing something different -- a continent being connected. Africa wasn't connected to the undersea cable system, most of the internet came in through satellite, was extremely expensive and hard to access. There wasn't the opportunity to engage, contribute our intelligence to the human cloud.

"Stories were written about us, but we weren't the ones writing our stories and engaging and speaking for ourselves"

There is a realisation that it is possible to change the narrative about what's happening on the continent. With 27% now connected to the internet, it is interesting to see how African's are engaging on social media platforms like facebook, as they come of age in this digitally connected world. They can now connect beyond their village, beyond their classroom, beyond their city, town, country, and continent.

So what are they talking about?

The same cat videos and internet memes are watched by the continent. It puts us on an equal level as humans. We can all universally laugh at cats. On the more serious social networks there are debates and engagements on twitter. From Nigeria to Zambia, people are engaging and having a conversation on development.

Uganda's tax office makes a real point to engage with citizens on twitter, they will answer any questions. This might not sound as much but it has been a way to get people engaged with joining the formal economy (by signing up for business licenses etc). City council in Kampala, water and utilities are also very visible online.

Using Justine Sacco's tweet as an example of not only the false stereotypical view of the continent, but also as an example as to how Africa mobilises and is quick to engage in conversations about itself. And, more and more, is able to assert its agency. This is driven by youth who are globally connected, who have something to say, who monitor what is being said about themselves. We no longer need agents to speak for us, we are now reachable, we can speak for ourselves.

Teddy Ruge presented some of the projects he has worked on, mainly digital platforms that give people a way to launch their ideas into businesses. Hivecolab is Uganda's first technology incubator. In its inception, youth who were not able to get formal jobs became hackers. And from there was the start of several success stories, with one of the startups is having its first six figure investment. A substantial investment into an African startup, staffed and run by Africans.

His work in this space revolves around questions of what can we do to solving africa's problems from a digital perspective? And what can we do to engage the rest of the world with our solutions.

The example of motorcycle taxis in kampala, whose problem was of theft. The motorcycle taxis once stolen can end up, within 24 hours, across the border in Kenya, Rwanda, and as far south as Zambia to be resold.

The solution was a chip that riders can embed in their motorcycles and is trackable across the continent, and has been instrumental in the recovery of many motorcycle (even before they get across the border). These are the sort of solutions that are being developed for african problems -- we don't have to import solutions.

Now with 30 hubs across the continent, all linked through an organisation called Afrilabs, he has built an open platform for anyone with a project looking at solutions for African problems.

In 2010, on the ten-year anniversary of the Millennium Development Goals, he observed something unique. While the conversation around the MDGs was focused on the celebrities and technocrats, with various expert panels in New York etc, very little of that conversation came from those at the "last mile".

He decided to take the conversation to them to ask how have the MDGs impacted their lives; and what is their role in achieving them. Villagers and various members of the

community got together, prepared food, and had a discussion on everything from health issues in the village, entrepreneurship issues, women's issues in the village, education etc. They discussed development through their own eyes. How their everyday journey to being more sustainable more successful fed directly into the MDGs. Reflecting on how much more impactful that conversation would have been if that conversation had started ten years ago with the community as the base -- to say to them that they are a part of this global process to improve everyone's lives -- everything that you are doing is improving on this goal or that goal. A melding of culture and development.

Simply the extension of the microphone to the last mile can have its global repercussions.

Future Earth and Early Career Researchers by Eri Aoki

Future Earth is a major international research platform providing the knowledge and support to accelerate our transformations to a sustainable world.

Bringing together and in partnership with existing programmes on global environmental change*, Future Earth will be an international hub to coordinate new, interdisciplinary approaches to research on three themes: Dynamic Planet, Global Sustainable Development and Transformations towards Sustainability. It will also be a platform for international engagement to ensure that knowledge is generated in partnership with society and users of science. It is open to scientists of all disciplines, natural and social, as well as engineering, the humanities and law.

Paul Shrivastava is the Executive Director, and the Science Committee is chaired by Dr Mark Stafford Smith, with Vice-Chairs Professor Melissa Leach and Dr Belinda Reyers. The Engagement Committee is chaired by Jairam Ramesh, with Vice-Chair Amy Luers.

It is sponsored by the Science and Technology Alliance for Global Sustainability comprising the International Council for Science (ICSU), the International Social Science Council (ISSC), the Belmont Forum of funding agencies, the Sustainable Development Solutions Network (SDSN), the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP), the United Nations University (UNU), and the World Meteorological Organization.

Future Earth aims to involve and integrate early career scientists and young people in global environmental change research and activities. The strategy presented here describes a framework for supporting and developing a new generation of innovative and influential “young and early career scientists” (YECs) to undertake inter- and transdisciplinary research addressing the physical, biogeochemical and human, legal and governance dimensions of global environmental change. The strategy describes activities that will inspire and prepare young and early career scientists to engage with the global environmental change research community. More specifically the purpose of this strategy is to establish a Youth Platform to enable young and early career scientists to become involved in the inter-disciplinary and co-design framework that is required in order to address societal challenges related to global environmental change.

Discussion on Future Earth’s proposal focused on recommendations from early career researchers at the conference, highlighting several key recommendations for creating an effective early career engagement strategy. From naming, representation within Future Earth, engagement, and mechanisms.

The discussion has so far been turned into a working document and sent to Future Earth.

Science communication – from evidence to policy & publics by Ehsan Masood

Ehsan Masood is a science writer, journalist, broadcaster and is the editor of Research Professional. As a science journalist, a minority within the community of journalists, his special focus is within an even smaller subset of science journalists who look at science policy. His interest for the last twenty years has been the relationship between science and money, and science and people, science and institutions, and science and governments.

The realm of science policy journalism covers the relationship between ideas and policy. How ideas become policy drives those who work in science policy communication as opposed to science communication more broadly.

Research professional, the nearest thing the research community has to the financial times, provides news and various information on research funding and research policy and politics, started in the UK and is now read across different countries.

Ehsan Masood's session covered various aspects of the media landscape, and highlighted how it has changed with the advent of digital. The shift in the landscape of paying to read news versus free news is creating a segmentation of the audience base. Unlike before where many more people were willing to pay, the business model is changing. That, in large part, is because the advertising model has collapsed. Print advertising was very comfortable and since most advertising has moved online, where it is only about a tenth of the price, the revenues are decreasing.

There is now a mixed economy of some paying and others not -- and that is impacting quality. The general standard of reporting was higher because publishers had more money to invest in a story. Particularly to invest in specialist correspondents that might cover a particular region. Now with the collapse of that model, that type of specialist coverage in a generalist publication is rare.

The internet changed the game as most publishers saw it as a one great online bulletin board that would eventually go away. So they put all their content on there for free, and still expected to sell papers in the usual way. When something is offered for free it is much more difficult to start charging for it. The Economist, as an example, kept all their content behind a paywall, where most other publications had to try and roll back and implement a paywall and payment subscription scheme.

“Boundaries are changing, audiences are changing”

Specialist media in the science policy space are less interested in outcomes, compared to generalist media, but are more interested in process. Process is a truer reflection of the story of science and policy. Another reason to talk about process is because for our readers it is an opportunity to become involved in that process. Publications covering that process are allowing their audience, either directly or indirectly, to contribute to that process, to influence it, to know what's happening, to voice an opinion.

Ehsan Masood broke down the anatomy of a good science story. What the writer and audience will be looking for within each. As audiences, we have an unhealthy interest in conflict. A lot of the news we see is about conflict. To qualify as news there has to be some conflict to the story. That still happens in science writing.

What do we look for in the stories that we are covering? There is first and foremost the controlling idea or narrative. The idea of narrative is very vital in terms of communicating and often underdeveloped. We look for people and those involved. The writer uses someone else to reflect that central idea of the story (ie interviewing). We look for the heroes and villains. This is also something that encapsulates people, narrative, and the conflict idea. We look for change. The definition of news is that something has changed. Something innovative. The idea is not enough. How does that idea stand against the body of knowledge?

As science communicators, the things we don't ask often enough is that we don't often seek the consensus opinion. Climate change is the classic example (the amount of space given to climate sceptics etc). And as science communicators we don't often ask where the money comes from.

Early Career Researcher Projects

Network in support of transformative knowledge-exchange

Our objective is the orchestration of collaborative and responsive networks in support of transformative knowledge-exchange.

Our vision is a dynamic global network of passionate early career researchers engaged in critical transitions towards sustainability.

Early Career Researchers (ECRs) came together at Villa Vigoni (May 2015) to discuss the challenges of science-policy dialogues worldwide and seek ways to engage with the post 2015 Sustainable Development agenda. A key issue discussed was the widely recognized knowledge exchange gaps, that often hinders problem-solving amongst societal actors. One way of addressing this problem is by promoting collaborative networks among researchers and with the wider society. Together, ECRs can play a pivotal role as a dynamic and responsive knowledge network; orchestrating knowledge-exchange through identification of synergistic opportunities for engagement. But what does it take to pursue such a challenging mid/long-term goal? We suggest a step-wise process that enables us to navigate a critical pathway leading to better exchange of knowledge amongst societal actors relating to the emerging Future Earth community: a global network of honest brokers!

Exploring SDG Interrelationships: Co-benefits, Tradeoffs, and Strategies for Effective Public Policy

The Sustainable Development Goals (SDGs) are intended to guide decision and policy makers towards a secure and healthy society and environment into the foreseeable future. The seventeen distinct goals are deeply interrelated, and a review by the International Council for Science (ICSU) concluded that the goals are presented too much like “silos”, failing to account for the links, co-benefits, and trade-offs inherent in the goals. This presents a challenge in how to implement policies that seek to address the SDGs. Understanding interrelationships among the SDGs is key to finding effective ways to progress their implementation and address their challenges. In this research we explore the ways that resolving each SDG individually may result in changes to other SDGs. Specifically, we identify the relationship of SDGs according to their a) clear co-benefit, b) trade-off for part of goal, c) clear trade-off, d) having no relationship, and e) potentially having both trade-offs and co-benefits. These relationships provide insightful discussions and benefit the development of strategies for public policy implementation at different levels of governance.

Proposal for a vision statement

(Simultaneously) Ensure healthy, secure lives and communities with access to opportunities, enhance the resilience of ecosystems, (conserve) bio and cultural diversity and achieve equality for all

The SDGs build on the MDGs with a larger number of goals, higher level of detail and more tangible measurements which is important but has the unintended consequence of making them more intimidating to engage with. The problem with having no clearly defined overarching vision is that there is a lack of direction/motivation to engage with the broader society. We came with such different backgrounds, agendas, values, perspectives that we struggled to collectively engage with the SDGs without a great deal of deep reflection.

We took an existing proposed vision of the SDGs and debated/discussed whether this vision reflected our views. From here we began to develop an alternative that better resonated with us as a group.

Undertaking this process, we recognised how value-laden terms are and the difficulty in representing our collective consensus, while embodying the full scope of the SDGs. We grappled with this, which illustrated the complicated processes that occur at much higher levels to come to agreement on the end goals and targets in a democratic fashion. In order to produce an outcome that we could agree on we had to accept that there was no perfect solution but rather a living declaration that captured our deep desire to create a better future

The Scientific Citizens

We lack an approach for reaching our sustainable development goal as a process and end point (getting from A our status quo to Bour desired end goal).

Our standpoint is that of engaged and concerned scientific citizens (to turn the citizen scientist notion around). Rather than appealing for a role for science (in itself, as only knowledge base), we want to broaden the knowledge base (and knowledge creation process) in dealing with the approach deficit.

We see three key issues that are not currently taken into account in dealing with the approach deficit:

1. Community/citizen voices in knowledge production
2. Genuinely valuing diverse forms of knowledge (including coproduction with the arts and traditional knowledge) as legitimate forms of evidence focusing on not just what we can measure, but what we should or want to measure)
3. Innovation: learning from the experiences in development community and what communities already do to enact on the visions they have of sustainable development.

We plan to draw on our expertise/backgrounds in open science, evidence-informed policy; and grassroots development, to write an opinion piece for a journal and put the idea/topic on the agenda. We also seek to and aspire to step outside of the confines of what we know and feel comfortable with, and look beyond our epistemic communities, eventually to conduct research on addressing the approach deficit.

Science-based policy making and enforcement

There is a growing need to link science and policy making for achieving the sustainable development goals (SDGs). During the last few decades, there were formal structures established with various models or designs for translating science to policy making. One of these is the Inter-governmental Panel on Climate Change (IPCC). This international scientific body reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide that are relevant to the understanding of climate change. Under this structure, governments participate in the review process and the plenary sessions, where main decisions about the IPCC work programme are taken, and reports are accepted, adopted and approved.

This working group explores the following questions:

1. What existing modes or structural designs are available/ existing for translating, negotiating and transferring science to policy (across scales, etc.)?
2. How effective (e.g., uptake) are these examples? At what scales are they effective? What are the pros and cons of these models/ designs?
3. What are the points of intervention to enhance the science and policy interlinkages?
4. What lessons learnt and new/emerging issues and opportunities to enhance science-based policy making?
5. How can practicable and enforceable policies be made and monitored?
6. What are the modes of implementation need to be considered from the outset?

Objectives:

1. Compile and describe the different existing modes, structures and designs for conveying, negotiating and transmitting science to policy making across scales
2. Assess the pros and cons (uptake and efficiency) of these modes/structures according to themes and scales
3. Identify points of intervention appropriate for each scale or across scales; and (SDGs) themes to enhance science-based policy making
4. Evaluate new initiative/program on advancing science to policy in Southeast Asian context as an innovative platform for science based-policy making
5. Evaluate the structural basis for policy development, and the trade-offs between different parties affected with a view to developing enforceable policies which best address regional issues
6. Multimodal evaluation to evaluate the outcomes of different science informed policies, and if they are not leading to desired outcomes identifying where in the process-chain the problem is (policy level, enforcement, implementation, etc.)

An integrated conceptual framework for assessment of SDGs and their trade-offs

Out of the 169 targets within the 17 draft Sustainable Development Goals, only 29% are well defined and based on the latest scientific evidence, while 54% need more work and 17% are weak or non-essential (ICSU, 2015). The major concerns with the targets and draft goals flagged by past research include a lack of integration, repetitions of concepts and reliance on vague, qualitative language rather than measurable, time-bound, quantitative targets. These concerns highlight merely quantitative aspects (SDGs measurement). However, we argue that the overall SDGs evaluation framework needs a broader reflection from the methodological side. For instance, we notice that building the capacities of stakeholders involved in the implementation of SDGs (e.g. through policy, projects, investments etc.) is crucial in achieving the SDGs. The broader stakeholder group needs to reflect about sustainability in addition to simultaneously assessing the outcomes in order to reach the SDGs. In case of MDGs, such an integrated approach towards evaluation efforts of MDGs was lacking. This may have contributed to the non-attainment of some of the MDGs. Herein, we suggest a more bottom-up vision towards evaluation of SDGs.

Objectives

1. Undertake a review of the evaluation approaches to SDGs (and former MDGs)
2. Enhance this perspective, which is predominantly focused on measurement, with both quantitative and qualitative assessment approaches
3. Promote integration of the formal SDGs evaluation framework with sustainability assessments
4. Develop a model for assessment of trade-offs between SDGs and identifying optimal solutions for a given system at a given spatial-temporal scale

5. Promote broadening of stakeholder net involved into SDGs assessment
6. Foster capacity building in sustainability assessment among various stakeholders
7. Advocate for improvements of the regulatory frameworks

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