

Science for the people: the climate justice approach

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I am pleased to be taking part in this Agriculture and Rural Development Day (ARDD). It doesn't seem long since some of us were together for another ARDD in Durban during COP17 of the climate change negotiations. On that occasion, as today, I was given a very warm welcome from Lindiwe Sibanda – a powerful woman leader and advocate for food security and the rights of small holder farmers in Africa.

Now, I am not a scientist and I am confessing this upfront. But I do recognise the critical role science and technology play in informing and improving our lives.

From understanding the complexities of the climate system to creating the newest renewable energy technologies – science is key. Science informs our understanding of the climate, crop production, animal husbandry and good nutrition. Science explains things we always knew to be true but for a long time couldn't explain. Yet science isn't infallible – it is constantly evolving, improving and learning from its mistakes.

I would like to explore the extent to which science serves the people and suggest some ways in which we can maximise the benefits of science to society.

Some science is done for the sake of scientific endeavour and academic exploration – many would claim this to be the ‘purest’ science.

But science also finds solutions to real world problems – how to increase soil fertility, how to cure a disease or how to create energy without fossil fuels?

Clearly science plays a vital role in informing sustainable development. Twenty years ago scientists were amongst those informing the commitments taken by world leaders in the Rio Declaration and Agenda 21. Science inspired action and spurred ambition.

The Earth Summit in 1992 highlighted how science can serve people and the planet. It set out to protect the planet and its resources while aspiring for a world without poverty and social exclusion. But 20 years on we have yet to demonstrate the full potential of science in this role as a driver of sustainable development.

Science is often at its most powerful when it responds to people’s needs. Unfortunately people’s needs don’t fall into neat boxes – health, nutrition, water, forestry, agriculture, jobs – they are linked and often inseparable. Yet we usually seek to address people’s needs in categories or disciplines and perhaps this is one of the reasons why we are yet to achieve our sustainable development objectives.

To find effective solutions science needs to respond to the complex and interlinked causes of poverty, climate change and social exclusion. These issues are as much social as they are technical, economic or scientific and we respond most effectively when we consider them in an integrated manner.

A new way of doing things requires us to listen to and understand people's needs – there is no one size fits all approach – people are not the same and their needs are not the same. But there are common threads and we need to identify these and find more effective and innovative ways of responding.

One way of doing this is through a climate justice approach. As sustainable development is based on balance between the three pillars of social, environment and economic development; climate justice is based on a linked approach to human rights, climate change and development.

Climate justice is informed by science and grounded in human rights. It has a human-centred approach – where the experience of people on the ground reinforces and corroborates scientific evidence. It responds to science while respecting and protecting established rights and striving for greater equity.

Science can make lives better – new strains of rice allow farmers in Bangladesh to cultivate in brackish water and innovations in agro-forestry influenced by traditional practices allow food to be produced while soils are conserved and fertilised. But science can also miss the point – for example a cook stove that

isn't suitable for cooking a staple food or a water pump unsuited to women's needs.

There are also fantastic examples of science meeting people's needs – farmer led research for example where farmers identify the problems to be solved and actively participate in the research – and farmer to farmer mentoring where proven practices in one community can be shared with another, through an equitable peer to peer relationship.

The challenge facing the research community is to understand the issues facing rural and food insecure people around the world and to work across disciplines to find appropriate solutions.

The most innovative technology in the world won't improve a farmer's ability to earn a living and feed her family unless she has access to and control over resources such as land and water, access to extension services and credit and an active role in decision making.

Purely technical approaches don't work – I have seen this in the health sector and it applies equally in the context of agriculture, food and nutrition security and climate change.

If I take the example of nutrition - we know that under-nutrition remains of the world's most serious but least addressed socio-economic and health problems, hitting the poorest the hardest, especially women and children. In developing

countries nearly one-third of children are underweight or stunted and under nutrition is the cause of more than one-third of under-five child mortality.

In order to address under and malnutrition it is clear that we need to find ways to produce more food and improve access to a range of nutritious foods. So work developing new crop varieties, improving soil fertility and creating new irrigation technologies is critical – especially in light of the impacts of climate change.

However, we also know that women and children are more susceptible to under-nutrition due to lack of access to land, to clean water and to sanitation. In addition, cultural norms affect nutrition with women and children eating after men in many cultures, thereby missing out on the most nutritious components of the meal. We also know that as women's workloads increase they have less time for preparing nutritious meals for their family – sadly as the impacts of climate change are felt, women work longer and harder to collect firewood and water and to produce food – leaving less time for meal preparation.

I say all of this to demonstrate the complexity of the issues we are trying to solve and to illustrate the need for multidisciplinary approaches. We simply won't have the impact we hope for on nutrition if we don't empower women, combat climate change and achieve greater equity in the global food system. The SUN movement, which I am very honoured to be involved with, can play

an important role in maximising the impacts of our collective efforts to scale up nutrition and save lives.

Research my Foundation, the Mary Robison Foundation – Climate Justice, carried out recently in Malawi demonstrated the value improved access to sustainable energy can have on nutrition by making best use of women's time. Some improved stoves have the ability to store heat which allows women to keep food warm for children so that they can eat at intervals during the day with benefits to their nutritional status. Likewise – sustainable energy can power water pumps and irrigation systems which reduce the time women spend collecting water and free them up to prepare meals or tend a kitchen garden.

It is estimated that by 2050, there will be 24 million additional malnourished children, 21% more than today – almost half of them in sub-Saharan Africa. We need to improve the ways in which we are addressing nutrition now so that we are equipped to tackle the additional pressures that will come about due to climate change and a growing population.

One of the Principles of Climate Justice that informs the work of my Foundation is harnessing the transformative power of education and research. Education is indispensable to the just society – and education that breaks down barriers between disciplines and facilitates inter-disciplinary research and learning lends itself well to sustainable development. A climate justice

approach provides a platform for linking the humanities and science, human rights and technological innovation.

In 2009 the AAAS - American Association for the Advancement of Science - launched a coalition to foster communication and partnerships on human rights among scientific associations and between the scientific and human rights communities. The Coalition works to ensure that all people can share the benefits of innovation and technology at home and around the world, as required by the human right to the benefits of scientific progress (Article 15, International Covenant on Economic, Social and Cultural Rights).

When I assisted at the launch of the coalition I was encouraged by its commitment to address the little-known human right to the benefits of scientific progress and reflected on the vital role science plays in realising many other human rights. What I said then is still relevant today – “From ensuring access to clean water, to securing vital vaccines and medicines, to climate justice through adaptation and mitigation to a changing climate, science plays an integral role in protecting rights everywhere.”

The AAAS coalition is a concrete example of how the scientific research community can reach out to those working on human rights and social development to make sure that science delivers for the people.

The challenge facing us all here in Rio in the coming days is to adopt cross-sectoral and inter-disciplinary approaches in a text made up of distinct thematic sections. We need to maintain the balance between social, economic and environmental issues as established 20 years ago and ensure that science informs our deliberations and that we act to protect and respect human rights.

A successful outcome from Rio+20 will respond to the needs of poor men, women and children rather than to the needs of governments, NGOs and multilateral organisations. Likewise, it should set us on a path to inclusive and equitable sustainable development, grounded in human rights and true to the Rio Principles.

Those of you participating in ARDD today can ensure that science and technology deliver to their full potential – by responding to people’s needs and collaborating with those working to protect human rights and empower vulnerable communities. In this way, we can meet the challenges of today and tomorrow - by delivering truly sustainable development.