



# VOICES OF GLOBAL SCIENCE

*In a series of film interviews, members of the United Nations Scientific Advisory Board stressed the importance of dialogue with the policymakers and the public.*

Photo provided



**Abdallah Daar**

*Professor of Clinical Public Health and Global Health at the Dalla Lana School of Public Health in Toronto, Canada. TWAS Fellow since 2007.*

**CLIMATE CHANGE AND PUBLIC HEALTH**

There is a huge number of ways in which climate change and big disasters – weather events – are going to impact on health. You always see refugees of climate change – to be a refugee means leaving your home, losing your income, not having health care facilities. And when you get sick, you die as a refugee in most cases, unless you’re lucky enough to be in a camp where somebody’s helping.

Another is the changing ecosystem for parasites like malaria ... Now, with global warming, you find malaria at higher level, and so more people are exposed to that. There is also environmental air pollution, which

gets worse with climate change, and that kills millions of people every year. Waterborne diseases are another category that is going to get worse. But there is also an indirect thing: There is going to be an impact on food production, because of droughts. When there is less food, there is less health.

The Secretary-General [Ban Ki-moon] obviously is very aware of the link between health, climate change and the environment, which is affected by climate change. But the value of the kind of report we are producing is that this report is not necessarily for reading only by technical experts. At the same time that we’re giving high-level advice, it’s also readable by the public.

Photo provided



**Joji Cariño**

*Senior policy adviser and former director of the Forest Peoples Programme in the Philippines, her native country.*

**INDIGENOUS KNOWLEDGE FOR SCIENCE AND POLICY**

Historically science and indigenous knowledge have worked together, for example, in early taxonomies and understanding about variety of plants. But in more recent times... there was a separation between what is called scientific knowledge and being contrasted with traditional knowledge. But of course today we understand that modern science needs to take into account and go back to its linkages with traditional knowledge. We now have a strong base for community-based monitoring of what is actually happening on sustainable development or climate.

I have to say it’s sad that

governments have not yet fully given attention to indigenous and local knowledge.... Understanding [whether] are we really making progress in terms of sustainable development, are we really leaving no one behind – we cannot know that, and that’s the communities themselves that are part of the process and part of the decision-making.

Therefore this is also a message for those in cities: modern life continues to need the interrelations and understanding that are expressed into indigenous and local knowledge.... This is an enrichment for all people. They need to renew this relationship with the Earth if they are going to address the current crisis of modernization.

It is a remarkable assembly of elite science talent: 26 researchers from 25 countries, leaders in fields such as agriculture, biodiversity, climate change and indigenous knowledge. And for the past three years, as members of the United Nations Scientific Advisory Board (UNSAB), they have met and worked together to understand how scientists and policymakers can cooperate to find a strong response to these and other challenges.

The Board, appointed by United Nations Secretary-General Ban Ki-moon, met for the fifth time from 24–25 May 2016 in Trieste, Italy, the headquarters city of TWAS and several other international and Italian science bodies. During the meeting, Italian filmmaker Nicole Leghissa interviewed a number of scientists who serve on the panel. These excerpts were assembled by TWAS staff writer Cristina Serra.

Photo: Luiz Roberto Moreira



### Carlos Nobre

National secretary for R&D policies at the ministry of science, technology & innovation of Brazil. He was elected to TWAS in 2006 and was a member

of the Nobel Peace Prize-winning Intergovernmental Panel on Climate Change when it won the Nobel Peace Prize in 2007.

#### CLIMATE NEEDS TO TAKE CENTRE STAGE

Let's do the most to get it [the global increase in temperature] to 1.5 C°, because 1.5 degrees of global warming is the level of warming which would present the least risk and damage to people living in islands, to biodiversity, to food production, to health.

It's not that you can adapt to any level of global warming. For instance, for 2-3 degrees of global warming of the oceans, it's almost certain that ice sheets in Greenland and Western

Antarctica will collapse, will melt away. Over several hundreds of years, perhaps a thousand, but it will just lift the sea level by several meters – in 2,000 years, up to 10 metres.

We should avoid, should avert risks and there is only one way, which is reducing emissions to really zero within the next 20-30 years. If we do not reduce emissions significantly before the end of this century, then we are on a trajectory that's unstoppable. People say: "Well, don't worry, we're going to find a solution." So it's very interesting, different perspectives on risk: for human health, risk is a very serious issue.

Photo: © Kim Gordon EPA



### Rosie Cooney

Born in Australia. Chair of the Sustainable Use and Livelihoods Specialist Group of the International Union for Conservation of Nature (IUCN).

#### HOLISTIC POLICIES FOR BIODIVERSITY

Biodiversity means diversity of life, diversity within species – genetic diversity – diversity between species, like all the different species of fungi or moth, and diversity among ecosystems: from forests, to marine and aquatic ecosystems....

What we're seeing at the moment globally is a huge reduction in biodiversity. Just during my lifetime, for instance, since the 1970s, global wildlife populations have been cut in half.

Human enterprise, human endeavours, human life depend on biodiversity. Either directly – it's what we eat, it helps create clean air,

clean water – or indirectly though supporting, for instance, pollination, a key agricultural service. If we lose biodiversity, we lose the repositories of knowledge for our future...

A lot of countries are struggling with basic governance approaches to conserving biodiversity, ensuring that using and managing this resource actually conserves it, while at the same time supplying the goods and services that people depend upon. So...we need to strengthen science for sustainable development, but it needs necessarily to be a kind of integrated, joined-up science that looks at sustainable development challenges in an integrated fashion.



Photo: Roberto Barmaba - ICTP



**Gebisa Ejeta**

*Born in Ethiopia. Distinguished Professor of Agronomy at Purdue University. Winner of the 2009 World Food Prize.*

**EVIDENCE-BASED POLICY FOR FOOD SYSTEMS**

Evidence-based policy-making is essential for governance and development. For example, in my field, in global food security, food is very foundational, very fundamental for development. Unfortunately, we still have some 800 million people going hungry and a lot of children threatened with stunting and developmental problems. Therefore, if we expand that to the various issues of food security that are emerging, meaning over-nutrition and under-nutrition and micronutrient deficiency...that expands it to a larger agenda of food security called food systems.

We have been producing food to keep pace with population development in the last several decades. In developing countries, we have tried to keep pace with population growth by bringing more land to agriculture. Both of these practices have had significant footprint in the GHG [greenhouse gas] emissions and contributing to climate change.

If we really want to continue to feed humanity sustainably in perpetuity, we need to increase our efficiencies and our protection of the environment so that moving forward we have an opportunity of feeding a growing world population without wasting and losing more natural resources.

“ We need to strengthen science for sustainable development, but it needs necessarily to be a kind of integrated, joined-up science that looks at sustainable development challenges in an integrated fashion. ” Rosie Cooney

Photo: David Ausserhofer for the Leopoldina



**Jörg Hacker**

*President of the German National Academy of Sciences Leopoldina – National Academy of Sciences, Germany.*

**BRING CAPACITIES TOGETHER**

Before the final report, we worked on a more specific report on the sustainability goals [UN Sustainable Development Goals] and how science can help to make these goals a success. On the one hand, it is important to gain scientific information: many of the goals and the targets are related to science and that is what we also felt, especially necessary measurements indicators, and here not only natural sciences but also social sciences can play an important role.

The important point is also to bring scientific excellence and also capacities into the respective developing countries.... There are institutes

worldwide, also in Africa, and they played a big role in the fight against Ebola. So there are capacities worldwide and it is necessary to bring them together and to act globally together....

The European Commission and the European Parliament also have realized that there is the need for scientific advice...in the context of the European Union. We have to react globally, on different issues, and infectious diseases are a very good example, because microbes, they do not know any borders.... Therefore they have to act together, therefore the microbes act globally, they are clever. And we are human beings and we have to do the same.

*To view each interview in full on film, plus a film report on the UN Scientific Advisory Board meeting, visit: [www.bit.do/UNSABFilms](http://www.bit.do/UNSABFilms).*