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Knowledge: its role in hunger, nutrition and climate justice

Climate change will change conditions for food and farming beyond all previous human experience. We need a new era of innovation, in which farmers and communities participate in learning networks, drawing on science and on others' experiences to complement their local knowledge.

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How is knowledge on hunger, nutrition and climate justice relevant to the post-2015 development framework?

The Millennium Development Goals have driven good progress in key areas such as reducing poverty enrolling and girls in schools, but we have fallen short of the mark for child mortality, for which malnutrition is a partial cause. Despite huge effort at all levels from global to household, hunger remains a 21st century reality for many millions of people. This is because malnutrition – like climate change – is a complex issue for which there is no easy definition of either the problems or solutions; in which many interacting factors are at play; and on which society holds widely divergent attitudes and opinions.

The post-2015 development agenda seeks to go

beyond international aid to a more holistic agenda that might include universal human rights, more workable systems of global governance, fairer regimes for taxes and trade, and provisions for both social protection and environmental wellbeing. Already, efforts are underway to ensure an inclusive and bottom-up process. Dynamic and widely shared knowledge in all its forms – information, awareness, methods, understanding, communication, education – will be crucial for defining and achieving a post-2015 development framework for everyone, particularly in a world of rapid climatic, demographic and economic change.

How does knowledge improve hunger and nutrition, and increase climate justice?

Hunger and climate change may have global causes (for example trade agreements, fossil fuel

Box I. Why knowledge?

Within the next century, climate change will change many natural habitats and farming systems beyond all previous human experience. The scale of change will surpass the limits of local knowledge. Scientific tools, such as techniques for forecasting, scenario building and modelling, will be increasingly important as knowledge bases for planning and action that works in tandem with local observations and judgements. Special attention needs to be paid to 'whose knowledge counts': making sure that science works with local knowledge rather than overriding it, and that farmers and poor families who are most affected by climate change are able to access knowledge, shape how knowledge is developed, and be involved as decision makers when knowledge is used to change the future.

Box 2. Zai and half-moons as water harvesting mechanisms in West Africa

In Kagpessogo, in the north of Burkina Faso, zai and half-moons beautify the eroded landscape of Boureima Ouedraogo's farm. Zai and half-moons are micro-catchments dug to restore and rehabilitate crusted and degraded soils. Although labour intensive, these practices are extensively used by small-scale farmers like Boureima across the Sahel region (Burkina Faso, Mali and Niger), as adaptation measures to secure agricultural outputs in an unpredictable climate. These indigenous practices have been revived and updated since the early 1980s and are now often combined with agroforestry, soil erosion control technologies (for example stone lines) and crop diversification to increase small-scale farmers' adaptive capacity.

More information at: <http://ccafs.cgiar.org/node/279>

emissions), but they are experienced locally by people in highly specific cultures and habitats. Thus local knowledge, local values and local actions are at the heart of how we achieve future nutrition despite unpredictable and rapid changes in climate. The limited coverage and capacity of extension services and other sources of knowledge in many places makes local knowledge even more crucial.

Rural households have managed the vagaries of local climates and environments for millennia. Local knowledge is rich, relevant – and largely reliable. It is also dynamic and adaptive, not just 'traditional' (see Box 2). Many types of local knowledge are relevant to keeping hunger at bay: technical information and

learning on weather, hydrology, crops, livestock, wild foods, nutrition, health and cooking, as well as institutional know-how, such as active systems for spreading out the risk over time (for example, communal grain storage, or trees as savings) and over space (for example, local markets, and in-kind sharing of food among relatives and friends). Conversely, lack of knowledge prevents people from claiming their rights, adapting to rapid environmental and social changes, and taking advantage of economic opportunities.

How can better knowledge systems support hunger, nutrition and climate justice?

For societies, hunger and climate change are highly complex problems for which there is no clear agreement on the solutions, or even the causes. This complexity, combined with continual change, means that we need informal and formal knowledge systems that allow people to learn, share information and make joint decisions. Knowledge is as much a dynamic process as it is a static asset. For knowledge to lead to social change it needs to be shared widely and pluralistically, in diverse conversations.

One-way knowledge systems in which experts develop technologies and then 'disseminate' these to beneficiaries have often failed. Farmer-led research to find ways to reduce exposure to climate risks often provides a better alternative. Innovation systems in which many people participate in a social learning process have a greater chance of success. For example, improvements in the nutritional qualities of crops, whether via traditional breeding or biofortification, work best where farmers, research organisations,

Box 3. Farms of the future: social learning that helps imagine your farm in a future climate

Rosalia Shemdoe, a single mother to six and grandmother to five, has been having a difficult time providing food and income for her family – a problem she attributes to unpredictable weather patterns and her land's reduced productivity. Her problem is urgent, but she knows that thinking long-term is important too if her farm is to continue to support her and her family in the coming decades. Imagining such a future is no easy task. So Rosalia took part in the Farms of the Future project, and made a 1,000km journey to Mbinga, a 'climate analogue' showing how Rosalia's village of Yambamay may be in 20 or 30 years from now. The 'climate analogue' approach connects sites with statistically similar climates, across space (between locations) and/or time (with past or future climates), allowing farmers and scientists to learn together about plausible farming futures, adaptation options and ways to overcome barriers and constraints.

More information at: <http://ccafs.cgiar.org/blog/one-mans-future-another-mans-present-farms-future-hits-tanzania>



Anton Eitzinger, CIAT / CCAFS

Group work in Ethiopia

government policymakers and private companies come together. Despite the high costs of working collectively, participatory knowledge systems can innovate faster, and share innovations more widely and equitably.

At the centre of any knowledge system is education that equips people to ask the right questions and to consider information and concepts critically. The practical value of education is immense; for example past research shows that successes in improving households' nutritional status have been much more strongly associated with women's education than with other key factors like household income.

Lifelong access to education, for example farmers' field schools, can have powerful benefits when managed well. Scientific researchers can contribute by finding imaginative ways to provide learning opportunities for farmers and rural people at the sharp edge of climate change (for example see Box 3).

What are the implications for the post-2015 development framework?

Youth, education and innovation offer a path to a more resilient and creative future. Over the coming decades, climate change may alter many places around the world where people live and farm radically, affecting: diets and food

cultures, agriculture (different crops and animals, different ways of keeping them), land and water management, energy generation and use, healthcare and sanitation. Current knowledge on how to adapt to climate change is limited, and an era of accelerating innovation is needed. The best knowledge systems will provide for social learning among multiple partners, including consumers, farmers, the private sector (small and large, informal and formal) and scientists. To achieve a post-2015 development agenda in a time of rapid change will require as much emphasis on the process of knowledge and learning as on its specific content. In particular, this calls for a focus now on education and resources for young people, whom we are asking to be responsible for a very different future.

Collective knowledge systems in an ever-changing climate. Local knowledge systems need to be firmly at the centre of actions on hunger and nutrition under climate change. The key roles for higher-level policy and science are to provide enabling frameworks for local solutions, rather than dictating blueprints. Like partnerships (MDG8), knowledge is an enabler and connector that helps achieve positive outcomes and human wellbeing – so it is perhaps not a target in itself, but an area in which clever investments can enable major widespread progress and rewards. As experience with innovation systems, social learning and similar models has shown, investing in institutions to help them manage and share

Box 4. Access to knowledge: voice message agro-advisories in India

Several parts of the 'breadbaskets' of the Indus and Ganges rivers have pronounced climate variability. Poor infrastructure, irregular electricity supply and illiteracy leave many farmers isolated from outside information. There is now very high access to mobile phones in states like Bihar, even among the poorest households, but low literacy rates have meant that early efforts to send text-based agro-advisories did not benefit farmers. A voice-based short message service (SMS), initiated by the Climate Change, Agriculture and Food Security Program (CCAFS) in partnership with a private company and the state meteorological department, has changed that in Vaishali, Bihar. Farmers receive voice messages containing expert advice, focused on crop and livestock management, weather forecasts and market information. Devender Singh, an early adopter of the innovation, says: "Weather forecasts and related agro-advisories helped villagers to know if rainfall is predicted in coming days and hence they can plan agricultural activity accordingly."

More information at: <http://ccaafs.cgiar.org/blog/help-through-participatory-videos-documenting-farmers-experiences-real-time>

knowledge among diverse stakeholders can speed up learning and uptake, while cutting costs. The people at the centre of action on climate change adaptation, often smallholder farmers and rural residents, need to be at the centre of knowledge systems too.

Access to knowledge. We need to work hard on more equitable and fairer access to knowledge and technologies. For example, the ICT revolution has reached poor and remote people – but there are still dangers of further marginalising people who cannot afford to get access, or are excluded on account of literacy or other issues. We can

do much more to make sure that the benefits reach everyone who needs knowledge on climate change issues (see Box4). Often older modes of communication – radio, print media or simply word of mouth – work better than new technologies. Knowledge systems need to speak the language of users and break down the barriers between people's living experiences of climate change and technocratic policy discussions. Legal controls over knowledge (intellectual property rights) can either protect or marginalise poor people, so we need agreements that make technologies and information cheaply or freely available for the benefit of poor consumers and producers.

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