DEALING WITH UNCERTAINTY IN CLIMATE CHANGE

It is important to stress that uncertainty, or simply the lack of data or information, should not be a reason for inaction. Investments are already needed to better cope with ongoing climate variability and changes. Such investments, in hardware (infrastructure) or software(human capacity), are critical adaptation measures under current levels of uncertainty about the future. If adequately implemented on a ‘no regrets’ basis, they have the potential to make society better prepared for and less vulnerable to future climate change.

The need for more precise understanding of biophysical and social processes remains just as pressing, climate change or not. There are observational needs, needs to better understand what the climate projections are really depicting and what the impacts would be and, not least, what the appropriate adaptation and mitigation options are. There is also a range of other complex changes and inter relationships that must be further addressed. How will sea-surface temperatures change due to climate change? How will the content of aerosols change? What are the effects of changing albedo due to land use changes, changes in snow and ice cover etc.

What are the feed-back effects of such changes? All such factors will have a substantial effect on our capability to project changes in precipitation, among other factors. Results from current climate models, which are often contradictory in relation to rainfall changes, serve as a clear example. In addition, there are still knowledge gaps related to CO2 and climate responses for many crops, including many that are important for the rural poor. For water resources or agricultural planners operating at the local or even national level, the global climate models will still need further refinements: "There is a scale mismatch between the large-scale climatic models and the catchment scale, which needs further resolution" . Projected temperature shifts are still mainly provided as regional or global averages and regional differences will continue to be substantial. For a farmer, such global averages are not very helpful and the challenge to make projections on a more regional and even local scale will remain and need to be improved. To strengthen the capacity to 'translate' shifts in global circulation to regional and local weather conditions is therefore essential.

Another example of knowledge gaps is the lack of information about development impacts in other sectors. In the case of Energy, for example, the future impacts from bio-energy production more or less remain as uncertain as climate change impacts.

A few years ago, bio-energy was, at most, a parenthen discussions, regardless of whether the focus was on energy development or land, water and food issues. Due to the necessity for climate change mitigation strategies, the whole situation has shifted in just a few years. A dramatic production increase of bio-energy could drastically alter future water and land requirements – and thereby have a substantially greater impact on food production capacities than climate change itself. With some estimating that as much additional water is needed to meet bio-energy needs in a few decades (under current projections) as to meet our food needs, this issue will only grow in importance.

As such developments are more market driven, they are likely to progress much faster than our ability to conduct necessary research based assessments on potential impacts. To make informed, longterm decisions, more knowledge is clearly required in these areas – but can we get it fast enough?

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