CHAPTER 4

WHAT TO DO AT THE NATIONAL LEVEL

TODAY'S "BEST PRACTICES" MAY NOT BE ENOUGH

There is a great deal of interest in – and perhaps reliance on – the concept of "best practices," which can provide a useful starting point for brainstorming to develop new climate change related-strategies. The UN Habitat website highlights its best practices database on improving the living environment and provides the following brief overview of the purpose of best practices (UN Habitat, 2007):

> *This searchable database contains over 3 800 proven solutions from more than 140 countries to the common social, economic and environmental problems of an urbanizing world. It demonstrates the practical ways in which public, private and civil society sectors are working together to improve governance, eradicate poverty, provide access to shelter, land and basic services, protect the environment and support economic development. (www.bestpractices.org)*

FAO's initiative on Technology for Agriculture (TECA) provides proven technologies (which are also relevant to climate change adaptation and mitigation) for smallholders and aims at improving access to information and knowledge about available proven technologies in order to enhance their adoption in agriculture, livestock, fisheries and forestry thereby contributing to food security, poverty alleviation and sustainable development. (http://www.fao.org/teca/)

In regard to climate change and the likelihood that future characteristics of global, regional or local climate will change in unknown ways, however, existing best practices should be viewed as providing a source of tactical responses (short-term) to a changing environment as opposed to an acceptance of untested strategic responses (longer term). The reason for this is because climate impacts and response mechanisms to them in the near-term future are likely to be similar to those of the recent past, barring any abrupt changes in the atmosphere's local to global climate characteristics. The characteristics of change and impacts in the future, on the other hand, are more uncertain.

Both short-term and long-term policy options, therefore, are the way ahead for the FAO and its partners. "Best practices" could provide a pathway to the near term future, given the high level of uncertainty that surrounds climate change impacts on societies and both managed and unmanaged ecosystems. For the long term, though different means by which to approach adaptation will be required, because of increasing uncertainties about the future and the absence of the not-yet-identified benefits of ongoing research and its usable findings.

"ORDINARY" KNOWLEDGE ABOUT FOOD SECURITY

Farmers and herders worldwide have relied on best practices for millennia as they came to understand them for growing food for consumption or barter or for raising livestock for the same reasons. They did so through trial and error, with one generation passing its success and failure stories on by word of mouth or by demonstration to successive generations. They did not go to school for their education on how to work the land or to manage its resources, nor did they calculate probabilities in a quantitative way. They watched the environment and developed intuition in reading cues about when, what, and where to plant, when to water different crops and when to harvest. They learned how to store and carry food over from one season to the next. Such education has similarities to a person in modern society who knows what to do when crossing a busy street. They are guided by rules such as "look both ways" that were taught to them, often informally, when they were children. Both experience and intuition reinforced those rules until they became second nature, enabling that person (and most people most of the time) to cross streets safely with little or no quantitative skills, information or calculations about velocity or laws of motion in hand. Such a scenario for street crossing in a big city is as likely true for people who have had formal education as for those who have not.

Policy-makers are drawn from civil society and are likely to rely on their own ordinary knowledge as well. Similarly, agricultural researchers have a responsibility to listen to the public and its views as reliable input based on ordinary knowledge for decisions about food security. But scientists have a further responsibility – to make clear the results of their research, correct misinterpretations of environmental cues and foster proper use of scientific indicators in ways that reinforce or calibrate "ordinary" knowledge (Lindblom and Cohen, 1979).

Regrettably, communication between scientists and the public has apparently been inadequate for a very long time. As H.G. Wells wrote over one hundred years ago (1904), "many of those scientific people understand the meaning of their own papers quite well. It is simply a defect of expression that raises the obstacle between us." (Wells, 1904). Today, given the relatively rapid changes underway in the climate system, ordinary knowledge will need to be supplemented by scientific knowledge in ways that laypeople understand. Fortunately, innovations such as wireless communication technologies are constantly being developed and becoming economically feasible for large sections of society. These technologies must be exploited to enhance, for example, communications among climate scientists, policy-makers and farmers/herders that would enable a social discourse that would surpass the top-down strategies of the past in favor of the more equitable possibilities for action and understanding that emerge when voices from all stakeholders are heard. Increased communications would also enable meaningful lateral interactions between, for instance, illiterate successful farmers and herders who are empowered to teach other illiterate farmers and herders who are less successful.

"ONCE IS NOT ENOUGH"

Adaptation is an ongoing process, and developing an initial set of strategic adaptation responses to the potential impacts of climate change on food security is only the beginning of that process. The climate will continue to vary and change as will its impacts on ecosystems and the human activities that are dependent on them. Many of both the obvious and subtle changes witnessed so far have been similar to those of the relatively recent past. Because the scientific community does not yet know with a reliable degree of confidence how high global and local temperatures will rise throughout the twenty-first century, decision makers must maintain a degree of flexibility in the application of their adaptation strategies and tactics. The reality of this unknown suggests that considerable precaution must be taken in policy making for food security under global warming projections. Resilient adaptation as a response provides the necessary flexibility to cope over time with a changing climate.

A STEP BEYOND: MITIGATING THE IMPACTS OF ADAPTATION

In present discussions of climate change, adaptation rules the day. The general belief is that little can be done to prevent the coming impacts, so societies have no choice but to prepare for those impacts by developing adaptation measures. However, the societies have to look beyond reacting to climate change to the downstream impacts of their proposed adaptive policies and practices, as they too will generate their own impacts. Many examples illustrate how a lack of foresight when it comes to coping with hazards and disasters has led to other challenging dilemmas.

As an example, the fact that people will flee cities as the frequency and intensity of urban heat waves increase is expected; such migrations are foreseeable adaptation strategies. Predicting what will happen at the next step, when those people arrive at new locations, is a challenge to current planners. The fact is that it is possible to prepare for this influx of climate-related displaced persons into new regions so that they do not have to start their new lives unprepared or in poverty or subjected to deprivation or discrimination. The bottom line of a strategic adaptive strategy would be to plan to provide a "soft landing" to those who have no choice but to migrate in order to adapt to the impacts of global warming on society and on environment. Thus, a need exists *now* to identify future soft landings for those who are most vulnerable to changes in climate and the environment and who will be displaced from their normal activities, forced to adapt to the new conditions of wherever they are forced to move.

Another concern is how the various mitigation and adaptation measures that exist in the crop and livestock, forestry, fisheries, bioenergy and other areas outside the "agricultural" sectors, such as biodiversity, might affect the food security of vulnerable people, both positively (win-win situations) and negatively (trade-offs and conflict situations). In other words, how adaptation in one sector might affect the possibility of adaptation in other non-food related sectors must be considered. As noted earlier, governments will not have the resources to address all at once all of the potential impacts of climate change that are likely to affect their territories or citizens. They must, therefore, prioritize their responses. This necessity requires an "adaptation in parts" approach; that is, governments must choose to focus their assistance on the most at-risk segments of their populations and regions with respect to improving their overall food security. The challenge with

"adaptation in parts" is identifying reliable indicators that define successes, weaknesses, opportunities and constraints caused by the interdependencies and controversies that exist among various sectors' adaptation and mitigation measures. Specifically, governments must draw on dependable tools to assess who is most at-risk, where they are, how to deliver services to them, etc. In this regard, a SWOC/T assessment would be very informative.

In line with the "Four Laws of Ecology," governments have to realize that whatever adaptive strategies or tactics they ultimately pursue, those strategies and tactics will, as noted earlier, generate their own impacts in other sectors. Mechanisms, processes or secondary assessments must be undertaken to identify second-order (ripple or downstream) impacts.

THE MARINE ENVIRONMENT AND GLOBAL WARMING: IMPLICATIONS

The ocean is a major repository (or sink) for carbon dioxide. Researchers are trying to determine how global warming will influence the behavior of ocean currents and air-sea interactions such as those associated with El Niño events. This knowledge will help us to understand the future impacts of global warming on the living marine resources contribution to food security.

An international symposium on "Effects of Climate Change on the World's Oceans, held in the summer of 2008 underlined that researchers only "have a rudimentary understanding of the sensitivity and adaptability of natural and managed ecosystems to climate change." It noted that:

> *An assessment of the consequences of climate change on the World's Oceans has a high scientific and social relevance and is urgently needed. Although we are beginning to document the local effects and consequences of climate change on the functioning of marine ecosystems, there is no comprehensive vision at the global scale, and only limited ability to forecast the effects of climate change.*
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> *To close this gap … the symposium brought together results from observations, analyses and model simulations, at a global scale, and included discussion of the climate change scenarios and the possibilities for mitigating and protecting the marine environment and living marine resources.*
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> *[http://www.pices.int/meetings/international_symposia/2008_symposia/Climate_change/climate_publications.aspx]*

In summer 2009, the World Ocean Conference and Coral Triangle Initiative (WOC-CTI) summit recognized the importance and interactions of "Climate Change Impacts to Oceans and The Role of Oceans to Climate Change". The overall goal of the World Ocean Conference (WOC) was to provide a forum for the international community to discuss current issues in the marine field which are related to climate change, and how the world can wisely utilize the ocean to weather crises. Furthermore, conference organizers expected to create more commitments from participating governments and institutions to work together to improve marine resource management. Inline with the expectations, representatives from 76 countries at the inaugural World Ocean Conference adopted the Manado Ocean Declaration (MOD) and reiterated the importance of achieving an effective outcome at the COP15 (Conference of Parties) of the UNFCCC in Copenhagen, and invited parties at COP15 to consider how the coastal and ocean dimensions could be appropriately reflected in their decisions. The Manado Ocean Declaration further recognized the role of ocean resources to enhance global food security and, concerned about environmental degradation and increased risks to global food security, the declaration read:

> *Recognizing that oceans and coasts provide valuable resources and services to support human populations, particularly coastal communities that depend heavily on them, and that the sustainable use of marine living resources will enhance global food security and contribute towards poverty reduction for present and future generations,..*
> *Equally concerned over marine ecosystems and living resources being affected by sea level rise, increased water temperature, ocean acidification, changing weather patterns, and other variations that may result from climate change, and how these alterations may aggravate the existing pressures of marine environmental degradation and increase risks to global food security, economic prosperity, and the well-being of human populations. [http://www.woc2009.org/MANADO_OCEAN_DECLARATION.pdf]*

In addition to actual international commitments by nations, notions such as "best practices" and "forecasting by analogy" can provide guidance at least in the near to midterm future fisheries management techniques at the local scale. Regarding food security, means must be found to reduce losses

that result from both the discard of by-catches and the various fish capture and processing techniques that are known to be inefficient and wasteful. The oceans are an important component in the food security equation of many societies, as suggested by the discussion of "ghost acres" above.

IGNORANCE VS. "IGNORE-ANCE"

Many decision makers are ignorant about climate change, that is, they still do not really know much about climate change, despite all the media coverage about it over the past three decades. Of those who do know, their perceptions of the severity and urgency of the problem vary from strong believers to nominal believers in the ability of human societies to change the global climate. Even though they are going to have to make difficult and sometimes unpopular decisions, they lack the information and training they need to better understand and evaluate the science of the crisis as well as the potential severity of its impacts on food security, energy, and the food/energy nexus.

A lack of understanding of global warming is in many ways understandable, but such a lack can be readily overcome with additional knowledge transfer.

Ignore-ance, however, presents a very different problem. What ignore-ance means is that there are decision makers who understand the basic science of global warming and its projected consequences for society and for the ecosystems on which they depend, but they simply ignore it, caring more about re-election concerns or issues that are of immediate concern to their constituents who often do not themselves understand the gravity of the climate crisis. Some of these leaders may also believe that the impacts of climate change will not play out as a "worst case" scenario, and that societies will be able to keep up with incremental changes in the temperature and the environment. Often, the conflict such policy-makers face is between near-term benefits (their own) and longer-term costs (to the policy-makers who follow them).

RAINFED FARMERS IN SUB-SAHARAN AFRICA

Climate change affects everyone. Hardest hit will be rainfed farmers who cover 96 percent of all cultivated land in sub-Saharan Africa, 87 percent in South America and 61 percent in Asia.