

# **Agricultural Innovation for Food Security and Poverty Reduction in the 21st Century: Issues for Africa and the World**

Issues Paper for *State of the World 2011: Innovations that Nourish the Planet*

—Guidance for Authors—

## **BACKGROUND**

The Worldwatch Institute's *State of the World 2011* (SOW11) report, "Innovations that Nourish the Planet," seeks to highlight innovations that can address the pressing agricultural challenges facing the world. These include innovations that will reduce hunger, improve environmental and agricultural sustainability, improve the lives of women and girls, and be scalable and economically feasible for both farmers and the donor/investment community.

Worldwatch hopes this report will:

- Encourage increased investment in agriculture from donor agencies, governments, private investors, and new potential donor communities;
- Increase awareness about how investing in agriculture is the single most effective way of reducing hunger and poverty around the world;
- Encourage policymakers, agribusiness, farmers, and donors to include environmental sustainability criteria in their decision-making and lending practices; and
- Bring greater exposure to effective projects and innovations that currently enjoy little exposure, generating a wider audience for consideration.

As such, this document aims to provide guidance to SOW11 authors in addressing three main goals of the report, as discussed below.

### **Goal #1: Implementing Action Agendas at the International and Community Levels**

A great deal of progress has been made in reducing hunger and increasing food insecurity over the past 50 years. But this has been uneven, and there are now more hungry people today than were even alive a century ago.

There is remarkable similarity between the action agendas proposed in the new millennium and those proposed since the 1970s. The United Nations Millennium Development Goal (MDG) on Hunger, despite being called ambitious, aims to only halve the number of hungry people by 2020.

The MDG Task Force on Hunger has highlighted seven actions that can be taken at the national and state/district (community) levels:

#### **National-Level Actions**

1. Move from political commitment to action

## 2. Reform policies and create an enabling environment

Much has been learned about policies to reduce hunger and increase food insecurity, and there have been significant “innovations” in policy process and content. Examples include:

- Decentralization of many policies to the district level to enable locally tailored policies
- Systematic stakeholder consultations to determine policy priorities to facilitate regional smallholder agricultural market developments
- Civic mobilization to advocate for policy action
- Establishing a “right to food”
- Public-private partnerships to mobilize and finance food security initiatives

### Community-Level Actions

#### **3. Increase the agricultural productivity of food-insecure farmers**

4. Improve nutrition for the chronically hungry and vulnerable
5. Reduce the vulnerability of the acutely hungry through productive safety nets
- 6. Increase incomes and make markets work for the poor**
- 7. Restore and conserve the natural resources essential for food security**

Non-agricultural interventions (4 & 5) are absolutely critical and include such initiatives as maternal and infant feeding centers, clean water to avoid diarrhea and disease, food-for-work programs, nutrition education, micronutrient supplementation, and food subsidies. But these will not be addressed in the SOW11 report. Rather, *the report will focus on the three recommendations in the area of agricultural production and resource management (3, 6 & 7)*, which are especially important for smallholder farmers, rural landless, and resource-dependent people.

Technical and institutional innovations over the years have included:

#### *Smallholder Productivity (#3):*

- Improved germplasm for an ever-broader group of crops, grasses, trees, etc.
- Improved soil management, with more effective fertilizers and organic management
- Development of agroforestry systems
- Improved water management, including rainwater harvesting at the field, farm, and landscape scales
- Farm diversification to supply micronutrients through gardens, fruit trees, domestication of wild foods and medicines
- Horticulture

#### *Market Access (#6):*

- Capacity-building for smallholder farmer groups to access and get higher value from markets and link to supply chains into exports and national systems
- Mobile phones and other electronic communications applied to agricultural markets
- New agricultural input distribution channels to facilitate smallholder access

#### *Natural Resource Restoration and Access (#7):*

- Micro-watershed development, practice, and organization
- Low-cost methods of land/resource health assessment for targeting interventions
- Tools to facilitate community-based natural resource management
- Rotational grazing management for rangeland restoration
- Zero-grazing, fallow banks, and fallow reserves
- Rainwater harvest at plot, field, and sub-catchment scales

### Guidance for Authors

Authors of SOW11 will be expected to highlight the above innovations, assess the conditions under which they have and have not been successfully adopted/adapted (e.g., agroecological zones, farming systems, social organization, policy and market environments), and discuss what has been learned about bringing them to scale.

**But it will also be critical for SOW11 authors to step beyond assessments of the experience with these innovations, and to consider some of the hard questions about whether the innovations we have “on the shelf” and in “local knowledge” are sufficient to address the big challenges for hunger and food security that are now emerging.**

In particular, we would like authors to highlight three of these challenges, which are important globally as well as in Africa:

1. **Aligning innovations with the policy discourse.** The choice of policies typically reflects underlying “mental models” about how and why hunger and food insecurity happens, and how they can be overcome. These have been highly contentious, and sharp differences in policy positions have frequently paralyzed the political process. Thus, we may want to ask: How do these innovations relate to the policy paradigm under which they are implemented? There are numerous conflicting “hunger narratives” that suggest different directions and priorities for action. To what extent is the success of these innovations driven by, dependent upon, or undermined by the dominant national or international policy paradigms?
2. **Integrating the food security agenda with the agendas for climate action and ecosystem restoration.** The greatest driver of land use and management change in the coming decades will almost certainly be climate response. Agriculture and land use are not only major contributors to greenhouse gas emissions (31 percent) and especially vulnerable to climate change, but also the only near-term option for large-scale GHG sequestration. Are the innovations being highlighted in SOW11 appropriate in a world wrestling with climate change? If so, are they sufficient? If not, what needs to be re-thought?
3. **Empowering farmers and communities.** One profound shift over the past four decades in many developing countries has been democratization. This is reflected in national politics and culture, by legitimizing smallholder farmer and community organizations and their growing participation in program design and policy dialogue. It is also increasingly reflected in the culture of development agencies, which have begun to talk about smallholder farmers and low-income rural and urban communities as “actors,” “decision-makers,” and “stakeholders,” rather than as “beneficiaries” or “targets.” In considering agricultural

innovations—both technical and institutional—to what extent are they consistent with, dependent on, or undermining “empowered” farmers and at-risk communities? How are “top-down” and “bottom-up” strategies effectively linked to achieve transformation at scale? To what extent can different policy strategies, and the juggernauts of climate action and global food market development, support or undermine empowerment?

## **Goal #2: Focusing on Win-Win-Win-Win Solutions**

Historically, there has been a major disconnect between policymakers who are concerned about “nourishing the world” (both generally and to reduce acute and chronic hunger) and newer voices seeking to mobilize action in the land use sector for ecosystem conservation and climate mitigation and adaptation. The various models for agricultural, food security, climate, and ecosystem conservation, and the policies to promote them, are in serious conflict, which threatens to cancel out progress on production, food security, climate, or environmental goals.

While some part of the conflict is due to disagreements over values, much is due to incomplete knowledge of the facts or the broader picture. Much is also due to the perception that sectoral conflicts are unavoidable, and that in a zero sum, trade-off scenario, one’s own top priority (food supply, food security, ecosystem health, climate action) must take precedence.

**Yet in the midst of all this conflict, a rapidly growing set of individuals and institutions has been exploring, defining, evaluating and testing diverse strategies and innovations for reconciling these objectives—for developing landscape mosaics that *increase agricultural production, ensure food security, mitigate climate change, and conserve other ecosystem services.***

Innovative leaders and thinkers are found in all of the schools of thought, promoting innovation within their broad communities. These include strategies to achieve cross-sectoral goals through innovations in agricultural production technologies and practices, conservation strategies, landscape planning, institutional arrangements, markets, and policies. Some of these are still in the research phase, but many others have been successfully scaling up and could be replicated or adapted elsewhere with the right policy support.

Examples of potential win-win-win-win solutions include:

- Strategies for climate change adaptation that not only enhance resilience and farmer adaptation capacity, but also achieve climate mitigation and protection of other ecosystem services;
- Tree crop development (cocoa in west Africa, tea in East Africa, etc.) through high-biodiversity, high-carbon agroforests, now working with tens of thousands of farmers;
- Concern by the food industry for sustainable sources of supply (e.g., Unilever, Mars);
- Rise of consumer and institutional interest in eco-certification of foods (e.g., RSPO, Starbucks);
- Information technology enabling decentralized knowledge-sharing, innovation systems, and local control over knowledge systems (Community Knowledge Service);
- Payments for ecosystem services that pursue biodiversity, livelihood, climate, production objectives (e.g., Agricultural Carbon Facility for Africa, Bio-Carbon Fund);

- Platforms for stakeholder planning and investment in multi-functional landscapes (e.g., TerrAfrica national platforms for SLM); \$1 billion recently invested in sustainable land management programs in Africa that link agricultural productivity, food security, ecosystem services, and beginning climate change;
- Private sector R&D in eco-friendly inputs (e.g., Syngenta improved seed, short-lived pesticides, precision farm machinery);
- Agroforestry systems that integrate fruit trees for year-round nutrition and child nutrition, fuel, etc. with crops.;

### Guidance for Authors

Authors of SOW11 might consider their set of agricultural innovations in terms of how well they fit into, and contribute to, strategies to achieve “win-win-win-win” solutions—that is, agricultural production and productivity/food security outcomes as well as climate adaptation/mitigation and ecosystem services, at the field, farm, and landscape scales.

### **Goal #3: Addressing Challenges Related to “Scaling Up” and “Measuring Success”**

Food-insecure regions of the developing world have experienced many “success” stories for agricultural innovation, but they are not scaling up (or out) sufficiently to eliminate hunger and food insecurity, even among producers or those served by rural markets.

Why? There is a notable fragmentation of effort, with poor coordination among farmer groups, NGOs, private businesses, and government agencies. Inputs and investment resources required for implementing innovations are simply unaffordable or inaccessible for the majority of farmers. There are no resources available in most farming communities for systematic location-specific research and testing of alternative approaches. “Scaling up” has too often been approached by increasing the number of people involved in a particular program, rather than mobilizing similar successful, smaller-scale initiatives more broadly.

It is also true that the enormous innovation occurring in many regions is invisible because the gains are overwhelmed by even faster rates of population growth and food demand, and by new challenges generated by climate and market changes and ecosystem degradation. In many places, even the definition of “success” is changing.

### Guidance for Authors

To address these challenges, SOW authors might evaluate an agricultural innovation according to a variety of factors, including:

- How does it increase productivity, and under what conditions, and what are the impacts in the short, medium, and long-term?
- What do farmers like and not like about the innovation?
- Does it increase resilience of farming systems and farming households and communities to climate change and other environment and economic disturbances?
- Does it protect or restore ecosystem services and biodiversity (at the field, farm, landscape scales)?

- How dependent are the innovations on external inputs, knowledge, or services that may not be reliably accessible to low-income farmers and their organizations, or to women?

### **Other Recommendations**

In addition, we hope authors will explicitly consider **how agricultural innovations relate to the policy paradigms**. Do these innovations contribute to integrated solutions for food security, climate change, livelihoods, and ecosystem restoration? What types of innovation systems and networks created and mobilized these innovations, and how accessible are they to food-insecure groups and individuals?

We can learn a lot from the variation in experience with innovations across different contexts. The SOW11 report might benefit from a **greater focus on “place”: on considering the impact of a variety of innovations in places with particular ecological and socioeconomic conditions, rather than starting from the innovation and looking at its use**. The report can consider the diverse policy paradigms and evaluate and compare the approaches to find areas of broad consensus for action and research, as well as to define contradictions that merit further examination. The report could potentially be framed to improve understanding and communication among the different communities of discourse.