

SDSN TG7 Issue Brief: Planning and Implementing Action

Prepared by the Thematic Group 7

Sustainable Agriculture and Food Systems

In the coming decades, we have a unique opportunity to eradicate poverty and hunger and to make agriculture and food systems more sustainable. This opportunity must not be missed. For global agriculture systems to produce enough food to feed nine or ten billion people by 2050, there will have to be a shift in consumer and producer behavior and a structural change toward leveraging more sophisticated technologies, information and knowledge management systems, and policies that promote market-based incentives for growth.

The 2015 to 2030 period must become a period of serious transition toward food systems that operate on the principle of Sustainable Agricultural Intensification (SAI). Concerted, coordinated action is needed to make the path toward greater food and nutrition security the new global standard, rather than the exception.

Structured assessments for local solutions

While the high-level Sustainable Development Goals for the post-2015 era will galvanize the global community to work towards shared goals, each country and locality must choose its own agricultural transformation path that is scalable and measurable at all levels. National and local governments need to take the lead in designing and implementing “roadmaps and business plans for development” that are goal-oriented and appropriately account for priorities, feasibility, and costs.

A structured assessment to develop such a plan typically includes five steps: background analysis of past trends and future projections; definition of key problems and opportunities; assessment of different technology and policy options; estimation of outcomes and effects; and modeling of impacts on development goals and targets, including the costs and benefits across sectors.

Such an assessment should be used to devise strategies for both large farms that produce substantial surpluses and small farms that support the livelihoods of millions of rural people. Two primary factors that will shape tailored solutions for future agricultural development are resource endowment and access to markets (see Figure 1). Generally, countries need to move away from basing agricultural planning on subjective and theoretically important factors, instead basing decisions on a thorough understanding of the socioeconomic and biophysical factors that drive the needs of farmers, agribusinesses, small entrepreneurs, consumers, and many other actors.

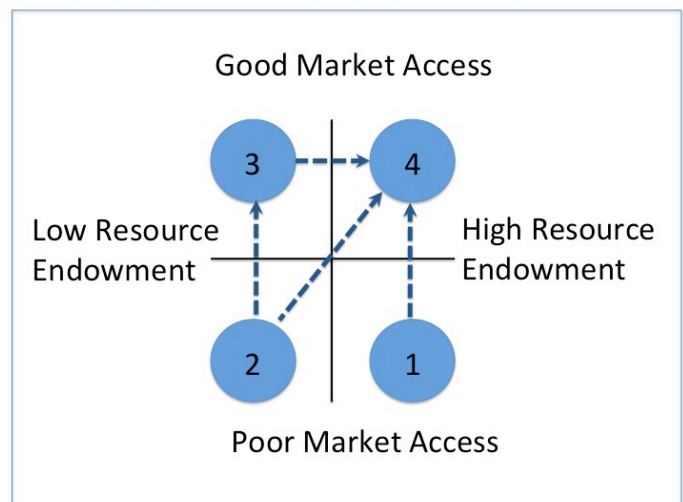


Figure 1. Different solutions will be required for large and small farms with varying access to resources and markets.

Guiding principles for implementing SAI

Although the pathways toward achieving more sustainable agriculture and food systems will vary around the world, there are several guiding principles for moving forward with SAI that policymakers should consider. Most importantly, governments and international agencies must make

the sustainable development of agriculture a policy and investment priority. Moreover, though there will be tradeoffs between viable options for SAI, agricultural productivity growth in staple food crops cannot be compromised, as it is essential to eradicate poverty and hunger.

SAI is an ongoing, iterative process that requires the increasing engagement of civil society, as well as public and private sector stakeholders. All stakeholders must be willing to take many small steps and continue learning and changing their behavior. Countries should expect to constantly adjust policies to take advantage of new technologies and create incentives for farmers, technology developers, and the investment community to develop new tools and solutions for SAI. While all opportunities for information and technology sharing among countries and regions should be encouraged, ultimately these tools and solutions must be locally tailored and context-specific.

In particular, the domestic private sector, composed of millions of farmers and other local businesses, is by far the largest investor in agriculture. Programs and policies should encourage business development and public-private partnerships so that farming and agribusinesses can provide even more social and economic development opportunities for rural communities. There must also be greater equity in access to land, inputs, and markets, especially for women and youth, who are key drivers of change.

Multi-faceted approaches are needed to appropriately and successfully respond to the diversity of farmers' environments, objectives, constraints, and incentives. Integrating agriculture with other sectors such as health, natural resource management, disaster risk reduction, gender, education, and energy will also bring greater impact.

In addition, accelerated progress on SAI will require better support systems on the ground, including more professional extension systems and greater access to mobile phone technology. It will also necessitate higher coverage and quality of data on soils and weather, as well as sharing of reference research and crop information. Biophysical, economic, social, and environmental metrics must be collected in a comprehensive, reliable manner to assess different policy and technology options and evaluate the performance of policies and programs

over time. Countries should adopt open data policies to generate more opportunities to share lessons learned.

Countries must also invest in increasing the resilience of crop and livestock systems to potential shocks, adapting agriculture systems to climate changes, reducing water usage, improving nutrient management and animal health, and preventing further expansion of agriculture into natural ecosystems.

Perhaps most important is that small-scale food production offers a direct route to ending hunger and malnutrition and reducing poverty. Food producers – especially those with land tenure – are an army of potential environmental stewards who can protect natural resources and ecosystem services better than any government or large company.¹ Ultimately, people are the primary agents of change. Farmers, service providers, processors, marketers, and other local entrepreneurs must be central to the planning of any new solution.²

Designing solutions for concrete action

Practical solutions for transforming global agricultural systems must address innovation, markets, people, and political leadership.³ These solutions should enable concrete action that works toward meeting one or more of the targets enumerated under the Sustainable Development Goals.

Some solutions for early action will involve new technologies, business models, institutional mechanisms, and policies that can take place in any country and can be modeled elsewhere. Other solutions will be designed for a very specific context in response to local challenges. In either case, countries must be committed to implementing solutions themselves, with the support of other countries and international agencies, and to engaging in information and technology sharing.

Early solutions should focus on critical areas where improvements in crop, livestock, and fish productivity and natural resource management can be made relatively quickly. For example, significant gains can be realized by providing better seeds, incentivizing more efficient irrigation practices, and improving nutrient management. Equal weight should be given to solutions at the farm level and to

those that improve post-harvest food chains through to the consumer.

Examples of solutions for early action include: increasing access to new, stress-tolerant crop varieties and diversifying into more nutritious staple crop foods; implementing new models of agricultural extension; promoting better nutrient management, environmental stewardship, and integrated landscape management; increasing access to micro-irrigation for smallholder farmers; strengthening livestock markets, promoting vaccinations, and doubling animal productivity; implementing climate-smart agriculture; increasing resilience to pests and diseases; bringing innovative technologies to smallholder farmers to increase crop value, reduce post-harvest losses, and improve food safety; designing new business models for smallholder farming and marketing; and developing digital technologies for agricultural data collection and monitoring.

Policy requirements for successful SAI

While new technologies are important, policy and institutional reforms are equally necessary to align the incentives of producers and consumers and thereby drive the transformation of agriculture and food systems toward greater sustainability. Transparency, inclusiveness of all stakeholders, rigorous monitoring, regular review, and continuous adaptation to changing contexts will be key to the success of policies and of operational targets. Sharing policy experiences and aligning relevant policies across countries and regions will also help overcome barriers to developing and adopting new technologies.

Critical policy areas to address include: agricultural trade and market access, agricultural financing, food processing and safety, consumer behavior, agriculture inputs and subsidies, land tenure, water rights and use, access to knowledge and technology, rural infrastructure and labor, agricultural research and extension systems, protection and use of ecosystems, gender equity, rural education, and health. Where the poorest households spend a large share of their income on food, additional attention should be paid to stabilizing food prices and establishing or reinforcing social safety nets. Some countries will require substantial reforms in many areas.

Regulation is another important part of good governance, but it should be focused on specific areas such as protecting the poor, ensuring food safety, or protecting vulnerable natural resources like forests, water, and fish stocks.

Investing in long-term change: science, technology, people

Accelerating the rate of progress in achieving SAI will require large, sustained investments in two major areas: agricultural research (with potentially high payoffs) and capacity building of National Agricultural Research Systems.⁴

The rates of return on investments in agricultural research and development are high in both developed and developing countries; spillover of innovations across countries is substantial, and such investments often have large, long-lasting cross-sectoral growth benefits.⁵ Therefore, investments in public agricultural research should be doubled within the next ten years, and decisions should be made based on long-term and strategic thinking.⁶ Although private sector funding for R&D has been rising substantially, public sector funding must not be compromised, as it allows for increases in both basic and applied research and ensures wide, equal access to intellectual property.⁷ While international donors should be encouraged to invest more in both international and national agricultural R&D systems, most low- to middle-income countries should aim to spend at least one percent of their agricultural GDP on public agricultural R&D.

Private sector engagement in R&D can also be stimulated through results-based financial incentives that reward the creation and adoption of successful agricultural innovations. Another important piece is removing barriers to innovation – such as a lack of recognition of intellectual property rights – that slow down the time or increase the cost of bringing a new technology to the market.⁸

Another essential piece is investing in creating and retaining a new generation of agricultural scientists and professionals – especially women – to develop new technologies, make sure they meet farmers' and business' needs, and turn them into applied tools.

Strong role of private sector and governments

Strong political will is needed to implement a more coordinated and business approach to SAI. One major challenge will be the alignment of many different actors to ensure that strategic planning translates into real outputs to improve food security and nutrition for the rural and urban poor. Currently, while there are many stakeholders across sectors with common goals for agricultural development, there is relatively little coordination among them in most developing countries.

Innovation Platforms have shown some success in fostering linkages between many actors to contribute to local innovation and stronger value chains. The range of actors with whom to coordinate includes national and local governments, agricultural research and extension systems, universities, civil society organizations, businesses and industry associations, United Nations organizations, global and regional food and nutrition initiatives, business-led development initiatives, donors, international agricultural research centers, and other global and regional organizations. Partner mapping will be essential to leverage potential coordination and reduce duplication of services.

Countries and international donors can also encourage and enable private sector investment in farming and food systems by strengthening infrastructure, providing security, reducing corruption, protecting human rights, and promoting education. In the right environment, public-private investments can flourish as a means to implement solutions.

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Related SDSN Reports:

Solutions for sustainable agriculture and food systems. Technical report for the post-2015 development agenda. 2013.

An action agenda for sustainable development. Report for the UN Secretary General. 2013.

These reports and more at unsdsn.org/resources.

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