



Agriculture for a Green Economy: improved rural livelihood, reduced footprint, secure food supply



The transition to a green economy is fundamental for addressing the social, environmental, and economic pillars of sustainable development.

As a sector, agriculture is essential to the green economy. With a predicted 9 billion people by 2050, agricultural production will have to increase to meet new demands, for food, feed, fuel and fibre. Agriculture must not only meet demand – it must also do so while minimising its environmental footprint and creating sustainable livelihoods for farmers and others along the supply chain.

In a time of food insecurity and with the largest share of its population in developing countries living in rural areas, the world cannot afford to ignore the potential of agriculture to achieve the triple goals of a secure food supply, poverty reduction through improved rural livelihoods, and environmental sustainability through reduced footprint of production and climate change adaptation.

Agriculture by nature represents a mosaic of solutions and practices, focused on farmer needs and knowledge sharing. Sustainability is a moving target towards which farmers in different geographies and farming systems are already moving and they will need support to continuously improve.

Agriculture in a green economy means a broad-based, knowledge-centred approach to agricultural development. Key to achieving this goal is a focus on:

- Addressing implementation gaps through support for knowledge sharing; and advisory and training services;
- Ensuring agricultural policies are based on science;
- Supporting productivity through innovation and best practices.

The Farming First coalition supports the implementation of the outcomes of CSD17 on agriculture as the basis for any outcome on agriculture for Rio+20.

1. Reducing Poverty

Agriculture can be a potent driver for poverty reduction. The World Bank estimates that GDP growth from agriculture generates at least twice as much poverty reduction than any other sector. Currently 65 percent of people in developing countries are involved in agriculture. 1.3 billion of them are small farmers, with limited access to inputs, infrastructure and markets¹. In countries where agriculture represents one of the primary livelihoods, concerted efforts to improve productivity through sustainable practices could change the lives of millions.

A dynamic and productive agriculture sector is also essential for the urban sector. In 2010, for the first time ever, more people lived in urban areas than in rural areas globally. Urban populations are dependent on the agricultural sector for most of their consumption, so improving local production and trade is crucial; but it also means a world of opportunities for farmers who can reach the urban market.

Making agriculture a dynamic sector will require the adoption of supportive frameworks and investment in infrastructure and markets. Farmers need to be able to access markets at the local, regional and global level in order to sustain a livelihood from their activities. In some areas, this means improving access to transport, storage and market facilities.

In Tanzania, US\$2.4 billion of investment is being directed towards tripling the area's agricultural output and maximising the trade potential of the Dar es Salaam port for Tanzania's neighbouring landlocked countries. Through the Southern Agricultural Growth Corridor of Tanzania project (SAGCOT), both public and private sector organisations are supporting 20,000 smallholders to become commercial farmers to bring in annual revenues of an estimated US\$1.4 billion into the country.

Access to weather and price information and improved seeds also helps farmers grow better crops and sell at better prices.

For instance, in India, a late December harvest of mustard seeds was causing up to 30 percent of crop to be lost to frost, so breeders worked on a seed with a shorter duration period. This enabled farmers to harvest in early December, avoiding the issue of frost. Farmers also benefited from better prices as they were able to bring their seeds to the market before the usual excess occurred in January.

2. Enhancing sustainable productivity

Improving the footprint of agriculture while increasing production needs a concerted effort in two areas: first closing the uptake gap of existing best practices and technologies by focusing on knowledge sharing and creating supportive extension services networks; and second investing in innovation and research to provide the solutions for tomorrow and ensure agricultural policies are science-based.

Enhancing sustainable productivity must be the centre of efforts to make agriculture both environmentally sound and economically dynamic – we need to achieve more crops per drop of water, per acre of land, per measure of inputs. This is essential to ensure the surface of land under cultivation does not expand, in order to preserve biodiversity and natural carbon sinks. Producers need to be integrated in value chains and new activities need to be developed in processing and other sectors to improve rural incomes and ensure that growth in productivity translates into better livelihoods.

The 2009 Keystone 'Field to Market' research found that gains in yield per acre in the past 20 years in the USA had also been accompanied by significant improvements in the overall efficiency of resource use. The project looked at key crops such as soybean and maize and found reduced use of irrigated water, reduced soil loss, habitat loss, energy use, and lower carbon emissions. The Field to Market study clearly showed that progress has been made by farmers in the path to increased sustainability while enhancing their productivity.

Additionally, efforts should be increased to promote sustainable agri-food systems throughout the lifecycle. In 2010, FAO estimated that poorly developed systems for handling, storage, packaging, transportation, and marketing of agricultural products in developing countries results in post-harvest losses ranging from 15% to a staggering 50%. Investment in food infrastructure and handling could reduce losses and improve food safety. Developed countries also face losses due to food waste from harvest, through delivery to food services, and in households. Waste is worst in fresh produce which delivers vital nutrients to humans around the globe.

3. Innovation, Research and Extension services

Agriculture is a knowledge-intensive sector. Farmers need to have access to training, extension services, and sharing of traditional knowledge that can encourage the production of abundant and nutritious crops and mixed diets. Knowledge helps

farmers adopt practices that maximise the efficiency of the inputs they use and help protect the natural resources they depend on. Training programmes should specifically involve women farmers in developing countries as essential 'gatekeepers' for household nutrition and welfare.

Providing this education to rural communities in a systematic, participatory manner is essential to improving their production, income and quality of life. Extension services disseminate practical information related to agriculture, including correct use of improved seeds, fertilisers, tools, tillage practices, water management, livestock management and welfare, marketing techniques, and basic business skills to address poverty. Extension is also an essential pillar for rural community progress including support for the organisational capacity of farmers' groups and the formation of co-operatives.

Modern extension services must increase their capacity for two-way information sharing – between experts in research and farmers themselves who have essential information on farming. Research and extension should be functionally linked and there should be pluralism in the approaches to implementing this form of education. Mobilisation of the scientific, donor, business, NGO, and farmer communities are needed to improve knowledge sharing, as well as local, reliable SME's such as agro-dealers to be able to adopt new practices and technologies.

The Empowering Smallholder Farmers in Markets (ESFIM) programme promotes this collaborative approach to research. Working in eleven developing countries, the initiative both partners farmers' organisations with local researchers to voice their requirements more effectively, and provides farmers' organisations with information and knowledge that will strengthen their ability to collect, organise and exchange experiences and knowledge.

Farmers must constantly adapt, and the challenge of climate change is making that need ever more acute. Investing in research and development, in both public and private sector, is essential to ensure farmers have the tools they need in the future and that the gains obtained in productivity and footprint are not undermined.

Targeted investment in research, combined with supportive frameworks for the roll out, diffusion and uptake of the products of research are essential to support continuous improvements in agricultural sustainability. In particular, research on the needs, aspirations and knowledge of smallholders in the developing world can help ensure agricultural solutions are appropriate for local conditions. Interdisciplinary research into agricultural production, supply chains and consumption needs to be supported to ensure a holistic approach to agricultural development.

The Farming First coalition supports prioritising the following areas of research:

- Conduct agronomic research related to water availability, soil fertility and post-harvest losses, as well as climate change challenges
- Conduct research into crop varieties needed by the poorest and most vulnerable regions
- Promote farmer-centred research in accordance with their needs
- Explore alternative and efficient uses for agriculture products and by-products along the value chain
- Support research on the nutritional quality of foods.

Recommendations to Policymakers

As global leaders prepare to meet at the Rio+20 (UNCSD) summit in 2012, they should not neglect the central role of agriculture in delivering a green economy and to the role of farmers as drivers of these changes.

Comprehensive solutions are needed for sustainable agriculture, and the Farming First Principles offer a comprehensive view of how this may be achieved. In the context of discussions on the Green Economy, Farming First supporters offer the following recommendations for incorporating agriculture into their agenda focusing on the "green economy in the context of sustainable development and poverty eradication".

1. **Poverty reduction:** Make agriculture a driver for poverty reduction by ensuring policies link producers to markets and enable value to be created throughout the supply chain to help create income opportunities and diversify rural activities.
2. **Focus on enhancing sustainable production and productivity:** the world will need to produce more with less to meet demand and reduce its environmental footprint. Increasing production and productivity should be a priority to protect habitat.
3. **Invest in training, knowledge sharing, extension services, as well research and development** to close the uptake gap for existing tools and ensure new solutions are available for tomorrow.

Farming First Principles

A Call for Action

Farming First provides a call-to-action for policy-makers and practitioners to develop a locally sustainable value chain for global agriculture. It emphasises the need for knowledge networks and policies centred on helping subsistence farmers to become small-scale entrepreneurs. The framework highlights six interlinked imperatives for sustainable development.

1. Safeguard natural resources. Land management should be improved through the widespread adoption of sustainable practices of land use.

- Conservation agriculture can be used to prevent soil erosion and land degradation.
- Manage watersheds and water use more efficiently.
- Protect wildlife habitat and biodiversity through an integrated ecosystems approach.
- Provide incentives for improving ecosystem services.
- Promote a sound management of chemical substances, including through the improvement of health and safety conditions for agricultural workers.

2. Share knowledge. While much of the knowledge needed to improve global agriculture already exists, including within remote indigenous communities, it often does not reach those farmers that could benefit most.

- Increase the level of education on crop and natural resource management for farmers and agricultural workers, including women.
- Take substantive measures to eliminate child labour and make sure children benefit from decent work conditions and access to education.
- Promote the development of village-based knowledge centres.
- Provide access to scalable information technologies for farmers, including women and young farmers, to receive weather, crop, and market alerts, as well as other early warning systems to help them make the right decisions for sustainability and productivity.
- Establish open and transparent two-way exchanges that capture the 'voice of the farmer' in the process of policy formulation and implementation.

3. Build local access and capacity. Fundamental resources should be available to farmers, including women and young farmers, to help them manage their production process more reliably and at less cost.

- Secure access to land and water resources, especially for women farmers.
- Provide rural access to microfinance services, especially to microcredit.
- Build infrastructure – particularly roads and ports - to make supplies available to farmers.
- Establish training programmes in infrastructure management, operations and maintenance for local and regional settings.
- Improve access to agricultural inputs and services, including

mechanical tools, seeds, fertilisers, and crop protection materials.

- Encourage and co-ordinate multiple local actors to ensure information and supplies get into farmers' hands.
- Invest in bioenergy to achieve energy security and rural development through sustainable, local production.

4. Protect harvests. In many of the poorest countries, 20-40% of crop yields are lost because of inadequate pre- and post-harvest support. Likewise, vast quantities of food are squandered during the production and consumption phases of the food chain.

- Build local storage facilities and transportation mechanisms, including cold chain storage for food preservation.
- Localise the application of agronomic knowledge, pest-identification and meteorological information.
- Educate the public on sustainable consumption and production needs and behaviours, including the need to reduce food waste.
- Provide risk management tools to support farmers in managing weather and market variations.

5. Enable access to markets. Farmers need to be able to get their products to market and receive equitable price treatment when they do.

- Provide remote access to up-to-date market pricing information.
- Develop well functioning markets through transparent information, fair prices, sound infrastructure and reduced speculation.
- Encourage co-operative approaches to marketing for smallholders.
- Improve smallholder farmers' marketing skills through entrepreneurship training.
- Reduce market distortions to improve opportunities for all strata of agriculture worldwide.

6. Prioritise research imperatives. Achieving sustainable agriculture requires intensified, continuous research, prioritising locally relevant crops, stewardship techniques, and adaptation to climate change.

- Conduct agronomic research related to water availability, soil fertility and post-harvest losses, as well as climate change challenges.
- Conduct research into crop varieties needed by the poorest and most vulnerable regions.
- Promote farmer-centred research in accordance with their needs.
- Improve productivity through the responsible use of science and technology.
- Establish public-private research collaboration around integrated solutions.
- Increase investments from governments and business towards relevant R&D.
- Explore alternative uses for agriculture-based by-products along the value chain.

About Farming First

Farming First is a global coalition calling for a broad-based, knowledge-centred approach to increase agricultural output in a sustainable and socially responsible manner. The coalition includes scientists, farmers, engineers, business, and NGOs. For more information on Farming First's work on the green economy, please visit our website at

www.farmingfirst.org/green-economy