



## GREENING THE ECONOMY WITH AGRICULTURE (GEA) Taking stock of potential, options and prospective challenges

### Concept Note

#### Definitions

**FAO's mandate for the food and agriculture** sector includes agriculture, forestry, fisheries, aquaculture and all food and non-food products (e.g. fibers, bioenergy, forest products) derived from these sub-sectors, that is the whole supply chain.

“**Sustainable Development** is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry, and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable.”(FAO, 1989)

**Food security** is achieved “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life” (World Food Summit, 1996). The multi-dimensional nature of food security includes food availability, access, stability and utilization defined as:

- **Food Availability:** The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports.
- **Food Access:** Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economics and social arrangements of the community in which they live (including traditional rights such as access to common resources).
- **Food Stability:** To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.
- **Food Utilization:** Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs to food security.

**The Ecosystem Approach** is defined by 12 principles and five operational guidelines by the Convention on Biological Diversity (CBD) for ecosystems. The CBD considers that a general application of the “ecosystem approach” will help achieve a balance of three objectives: conservation, sustainable use, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The Reykjavik FAO Expert Consultation agreed that the “purpose of an ecosystem approach to fisheries is to plan, develop and manage fisheries in a manner that addresses the multiplicity of societal needs and desires, without jeopardizing the options for future generations to benefit from a full range of goods and services provided by marine ecosystems”. Therefore, “an ecosystem approach to fisheries strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries” (FAO, 2003). The need for an ecosystem approach applies to the whole food and agricultural sector (including also fisheries and forestry).

**The Green Economy** concept has no internationally agreed definition and existing (and evolving) definitions defer according to specific objectives of different institutions. However, all stakeholders concur to the fact that the green economy implies “doing more/better with less”, and that its application must be based on the principle of “common but differentiated responsibility”. UN member countries agree that the green economy concept does not substitute sustainable development but is a mean to achieve sustainability, not only ecologically and economically, but also socially. It is to be noted that, as “green economy” *stricto sensu* refers to a “state” of affairs, it would be more accurate to use the term “greening the economy”, with a view to reflect the dynamic “process” of continuous improvement of supply chain performance (in terms of implications on resources), according to different levels of development, technological innovations and capital investment. As the implementation of an ecosystem approach requires striving to reconcile the often conflicting requirements for human well-being and ecosystem well-being to ensure sustainable use of ecosystems, it provides an essential platform upon which to build a green economy. The concepts of an ecosystem approach and a green economy are not identical but a truly green economy is only possible within the framework of an ecosystem approach.

**Greening the Economy with Agriculture (GEA).** Awaiting for FAO member countries discussions and agreement on definitions related to the green economy, the following definition of GEA is proposed:

*“Greening the economy with agriculture refers to increasing food security (in terms of availability, access, stability and utilization) while using less natural resources, through improved efficiencies throughout the food value chain. This can be achieved by applying an ecosystem approach to agriculture, forestry, fisheries management in a manner that addresses the multiplicity of societal needs and desires, without jeopardizing the options for future generations to benefit from a full range of goods and services provided by terrestrial and marine ecosystems. Therefore, GEA strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to agriculture, forestry, fisheries and food chains within ecologically meaningful boundaries”(FAO/NRD, 2011).*

## Why GEA?

The world is being confronted with a multitude of crises, from food and fuel crises to climate and financial crisis. In the last few decades, 60 percent of world's ecosystems have been degraded<sup>1</sup>, global carbon emissions have risen by 40 percent, significant water and oil scarcity may be less than a decade away, one billion people are going hungry, another one billion people suffer from over-nutrition and related diseases, one in four people in developing countries live in absolute poverty, two billion people live on less than \$2 a day, inequality within OECD nations has increased and the financial crisis of 2008 brought questions on the sustainability of the dominant economic model. In fact, the green economy concept was revived and expanded immediately after that financial crisis. With rising incomes and a global population growing to 9.2 billion by 2050, the rising resource demand is bound to be constrained by ecological limits<sup>2</sup>.

Besides being activities necessary for everybody's life and wellbeing, farming, animal husbandry, forestry and fisheries provide livelihoods for approximately 2.6 billion people (some 40 percent of global population). For example, about 350 million of the world's poorest people, including 60 million indigenous people, depend almost entirely on forests for their daily subsistence. Mountains cover 24 percent of the Earth's land surface and are home to 12 percent of the world's population with a further 14 percent living in their immediate vicinity<sup>3</sup>

Many mountain communities are plagued by shortages of food and periods of hunger, partly due to abandoning traditional farming practices in favour of methods that are unsustainable on fragile mountain terrain. One way to reduce the number of hungry people living in mountain areas is to empower them to protect mountain ecosystems and to promote stability in mountain regions. It has been estimated that agricultural growth has greater poverty-reducing effects than any non-agriculture sector. However, as such activities heavily draw upon natural resources, they have direct impacts on most natural resources. In fact, agriculture and forests occupy over 60 percent of Earth surface, fishery activities can be found on virtually any marine and terrestrial water body and farming uses 70 percent of water withdrawals<sup>4</sup>

The sound or careless management of these sectors varies from enormous opportunities to serious concerns, such as the attribution of about one third of global greenhouse gas emissions to agriculture and forestry. In turn, the impact of climate change on agricultural production by 2080 could result in 600 million additional people at risk of hunger!<sup>5</sup> "Reducing the negative environmental impacts of farming systems, enhancing existing agricultural systems that have been shown to be environmentally sustainable, and developing new agricultural systems [... which ...] focus on providing ecosystem services<sup>6</sup>". Because the food and agriculture sector

<sup>1</sup> MEA. 2005. Millennium ecosystem assessment. Our human planet: Summary for decision-makers. Island Press.

<sup>2</sup> United Nations, 2009. World Population Prospects: The 2008 Revision, Highlights. Department of Economic and Social Affairs, Population Division, Working Paper No. ESA/P/WP.210

<sup>3</sup> FAO, 2011. Meeting of the Mountain Partnership Consortium group 7-8 March 2011, Rome, Italy.

<sup>4</sup> FAO 2007: Agriculture and Water Scarcity: a Programmatic Approach to Water Use Efficiency and Agricultural Productivity. COAG/2007/7 at <ftp://ftp.fao.org/docrep/fao/meeting/011/j9206e.pdf>

<sup>5</sup> Warren, R., Arnell N., Nicholls R., Levy P., & Price, J. 2006. Understanding the regional impacts of climate change, Research report prepared for the Stern Review, Tyndall Centre Working Paper 90, Norwich: Tyndall Centre, available from [http://www.tyndall.ac.uk/publications/working\\_papers/twp90.pdf](http://www.tyndall.ac.uk/publications/working_papers/twp90.pdf)

<sup>6</sup> IAASTD, 2009. Summary for Decision Makers of the Global Report. Available at: [http://www.agassessment.org/docs/IAASTD\\_GLOBAL\\_SDM\\_JAN\\_2008.pdf](http://www.agassessment.org/docs/IAASTD_GLOBAL_SDM_JAN_2008.pdf)

heavily depend on natural resources (land, water, biodiversity and carbon and nitrogen cycles) in the production process, it can cause both environmental harm and provide environmental benefits..Should agriculture, forestry and fisheries be sustainably managed, the sector could deliver environmental goods and services more than any other economic activity - while providing food and livelihoods - and thus, provide a tangible transition towards a green economy. As an example, each year 12 million hectares (an area approximately the size of Greece or Nepal) are lost due to desertification, An area of this size would be able to produce 20 million tons of grain and annually feed over six million people<sup>7</sup>.

Although achieving food and nutrition security through sustainable rural livelihoods and environmental stewardship is a priority, the question arises on how this could actually be achieved. In fact, one sixth of the world population goes hungry today and population and income growth entail expanded production and consumption within the regenerative and assimilative capacities of our world. An economy respectful of our Earth boundaries requires rethinking the nature of progress and providing instruments that safeguard ecological systems, stabilize the economy and secure people’s livelihoods. This is what a green economy must be able to achieve through improved resource use efficiency and decreased global carbon, thus through substantial investments and innovations. The emerging concept of “green economy within the context of sustainable development and poverty eradication” poses not only challenges for a transition to a sustainable economy, but also of distributional equity. If resolving social inequities is a precondition for the effective resolution of the ecological crises, it is also true that healthy ecosystems are a precondition for food security and sustainable rural livelihoods.

Since the Earth Summit of 1992, the international community and practitioners have been struggling for implementing the concept of sustainability through related policies, instruments and initiatives, from both governmental and market actors. The collective failure to effectively integrate the different dimensions of sustainability, and to establish operational and practical ways to deliver sustainability, relates to the lack of practical tools that address the environmental, economic and social dimensions as a coherent whole. Key factors of sustainable development are governance structures and trans-sectoral institutional capacity, both at country level and all kind of inter-governmental, civil society and private sector institutions. Sustainability requires work at the interface of sectoral mandates, in order to avoid unintended leakage effects and build positive synergies. To this end, there is need for coherent agricultural and non-agricultural policies, as well as a universally agreed tool to assess progress towards sustainability, including ecological integrity, economic resilience, social well-being and good governance, and visualise where trade-offs and synergies lie within a functional unit.

Food system interactions (from production through to consumption) include outcomes such as food security, ecosystem services and social welfare. Any analysis of food systems with global environmental change will unavoidably identify key processes and determinants of food security in a given place or time with feedback loops and trade-offs between different scales or levels of decision-making, so solutions to manage them will be context-specific and dependant on the analytical purpose or development objective.

Considering the importance of agriculture, forestry and fisheries in alleviating poverty and the great impact of its management on natural resources, this sector cannot be but an essential

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<sup>7</sup> WBCSD & IUCN. 2008. Agricultural ecosystems – Facts and trends (available at <http://www.wbcsd.org/DocRoot/hecbd2TCBtPqRBOGXoi2/AgriculturalEcosystems.pdf>)

part of any green economy strategy. The cost-effectiveness of greening agriculture is likely to be far higher than a similar effort in other sectors and could, at the same time, help alleviate poverty and hunger, improve human health and nutrition and lower adverse ecological impacts and greenhouse gas emissions. Greening the economy with agriculture requires a dual effort in increasing food and agriculture productivity, while improving both ecological and economic efficiency in the use of resources throughout the food chain: from the resources used and recycled during production, through waste minimization during post-harvest handling, processing, retailing and consumption, to distributional equity and fair trading.




**Key message**

*As the single largest sector using 60 percent of world's ecosystems and providing livelihoods for 40 percent of today's global population, the food and agriculture sector is critical to greening the economy.  
There will be no green economy without agriculture.*

**Objectives of the GEA Initiative**

The overall objective of the Greening the Economy with Agriculture (GEA) Initiative is to contribute to the definition and implementation of the green economy in the context of sustainable development, food security and poverty alleviation through the mobilization of the food and agriculture sector. As the UNCSD will most likely produce a “Green Economy Roadmap for 2050”, FAO seeks to contribute to this process by providing elements pertaining to its mandate, articulated through a “GEA Roadmap for 2050”.

More specifically, action at technical, policy and civil society levels will seek to:

-  Analyze the interactions between the green economy and the food and agriculture sector, including opportunities and constraints;
-  Promote a dialogue with FAO member countries, as well as dialogue between the agriculture, forestry and fisheries constituency and other national partners, on GEA strategies for 2050;
-  Promote food and agriculture stakeholders' participation into the Rio+20 process and beyond, with a view to facilitate their access to the resources and institutional arrangements that will be put in place in order to effectively move towards sustainable development.

By taking a proactive role in international, regional and national debates for Rio+20 and beyond, the GEA Initiative would create bridges among different types of stakeholders and between constituencies, notably between agriculture and environment, while strengthening the overall resilience of countries to exogenous shocks, either macroeconomic or ecological.

## FAO Preparatory Process

FAO is preparing for Rio+20 through an **Inter-Departmental Working Group (IDWG) for Rio+20**, composed of focal points from each Headquarters' Department and FAO Regional Offices. The IDWG, established in July 2010, is chaired by the Deputy-Director General. Knowledge and Secretariat services are ensured by the Assistant Director-General of the Natural Resources Management and Environment Department. Through this arrangement, FAO's cross-cutting expertise can be mobilized.

In fact, the IDWG-Rio+20 is preparing a number of **GEA Studies** for the consideration of peer-reviewers and external experts. In this undertaking, it is collaborating with partners in analyzing existing information and developing possible GEA scenarios, including evaluation of sustainability progress and gaps in the food supply chain to projection of food supply and demand towards 2050.

A joint **FAO/OECD Expert Meeting on GEA will be held in Paris, 5-7 September 2011**, for that review purpose. OECD will host the meeting in its Headquarters and FAO will support the participation to this meeting of selected experts and chiefly, those from developing countries. Attendance to the Expert Meeting is by invitation only. Agenda items include issues such as: low footprint and productive food and agriculture systems; decent rural livelihoods, green jobs and land tenure; resilience to shocks of low carbon food systems; quality and health of green food; policy coherence for GEA.

A **GEA Roadmap towards 2050**, based on synthesis of the findings of the FAO/OECD Expert Meeting on GEA, will be prepared for the consideration of FAO member countries. This document will offer development scenarios and policy recommendations for informed decision-making. Policy options for GEA strategies will include technology, employment and trade according to different investment costs and institutional structures. The outcome of member countries' discussions will constitute the formal food and agriculture sector contribution to Rio+20.

**GEA Policy Briefs and Brochures**, derived from the GEA Roadmap towards 2050, will be presented/disseminated as the food and agriculture sector contribution to Rio+20 events. In the process leading towards Rio, every opportunity will be taken to encourage the participation of stakeholders, including governments and major groups (e.g. NGOs and private sector), through satellite events and electronic discussions.