



# Food security policies:

making the ecosystem connections



Published by: IUCN, Gland, Switzerland

Copyright: © 2013 International Union for Conservation of Nature and Natural Resources  
Reproduction of this publication for educational or other non-commercial purposes is authorized without prior written permission from the copyright holder provided the source is fully acknowledged.  
Reproduction of this publication for resale or other commercial purposes is prohibited without prior written permission of the copyright holder.

Citation: IUCN (2013). Food Security Policies: Making the Ecosystem Connections. Gland, Switzerland: IUCN.

ISBN: 978-2-8317-1215-4

Acknowledgements: This document is based on an original paper by Jennifer Mohamed-Katerere (IUCN Commission on Environmental, Economic and Social Policy) and Dr Mark Smith (IUCN Global Water Programme), edited by Jennifer Rietbergen-McCracken with additional support from Chris Buss (IUCN Forest Conservation Programme) and Claire Warmenbol (IUCN Global Water Programme).

This paper was presented at the FAO International Conference on Forests for Food Security and Nutrition, 13-15 May 2013. [www.fao.org/forestry/food-security](http://www.fao.org/forestry/food-security)

Photographs: © WFP/James Giambone, © WFP/Shehzad Noorani.

Graphic design: MH Design / Maro Haas

Printed by: UNI Print, Nyon

Available from: IUCN (International Union  
for Conservation of Nature)  
Publications Services  
Rue Mauverney 28  
1196 Gland  
Switzerland  
Tel +41 22 999 0000  
Fax +41 22 999 0020  
[books@iucn.org](mailto:books@iucn.org)  
[www.iucn.org/publications](http://www.iucn.org/publications)

A catalogue of IUCN publications is also available.

# Food security policies: making the ecosystem connections

## Key points

Ecosystem goods and services make critical contributions to food security by supporting the availability, access and use of foods – both farmed and wild – and by strengthening the stability of food systems. For example, ecosystems underpin agricultural production by providing everything from water and soil resources to pollination and pest control services.

Ecosystem degradation and weak ecosystem governance not only compromise the ability of developing country populations to farm, access and use food effectively, but also undermine the effectiveness of food security policies. At the same time, inappropriate policies can damage ecosystems and their ability to support food security. The rural poor and vulnerable groups including women and children are most at risk from any erosion of food security.

An ecosystem-aware approach to food security policy-making goes beyond the conventional focus – on productivity, trade and macro-economic issues – to take a big-picture view to the development of sustainable food systems. Such an approach aims for more than just alleviating hunger and embraces the goal of building long-term food resilience – i.e. the capacity of ecosystems to support food production and the ability of people to produce, harvest or buy food in the face of environmental, economic and social shocks and stresses. This focus on resilience is critical if food security objectives are to be achieved and sustained over the long term.

Food security policy-makers in developing countries therefore have much to gain from integrating ecosystem management and good ecosystem governance into their policy measures, and collaborating with other sectoral policy-making initiatives to ensure they consistently support food security. Effective policies will also address the social aspects of the ecosystem connections to food security by strengthening, for example, land tenure, access rights to natural resources, local organizations, and gender equality in the access to agricultural inputs such as support services and credit.

## BACKGROUND

Food security – the availability of food that is accessible to all, safe and locally appropriate, and reliable through time and across space – is one of the major issues facing developing countries today.

Progress on global targets for food security has been slow and uneven. While the Millennium Development Goal (MDG) to halve the proportion of people suffering from chronic hunger by 2015 is within reach, progress on this goal has slowed down and leveled off over the last five years. Currently almost 15 percent of the world's population is undernourished (compared to the MDG target of about 12 percent).

At the same time, efforts to achieve a food-secure future are facing a growing set of challenges. High population growth rates, increasing competition for land and natural resources, heavy disease burdens, economic crises and widespread conflicts are among the many factors holding back progress on food security. While these and other issues have been widely recognized by food security policy-makers around the world, one important factor has received much less attention: that of ecosystem degradation.

## Table of Contents

### P.2

FOOD SECURITY: WHERE ARE THE ECOSYSTEM CONNECTIONS?

### P.6

FOOD SECURITY POLICIES: WHAT'S MISSING?

### P.8

FOOD SECURITY POLICY-MAKING: HOW TO MAKE IT MORE EFFECTIVE

### P.12

FOR MORE INFORMATION

# Food security:

where are the ecosystem connections?

## THE FOUR DIMENSIONS OF FOOD SECURITY

Food security can be thought of as comprising four dimensions:

➔ **AVAILABILITY:** the supply of sufficient quantities of food of appropriate quality, from both natural and cultivated systems;

➔ **ACCESS:** the ability of individuals to obtain food through their own production, markets, or other sources;

➔ **UTILIZATION:** the means by which individuals are able to gain energy and nutrition from food; and

➔ **STABILITY:** when sufficient and adequate food is available, accessible and utilizable on a reliable, sustainable basis.

Only when all four of these dimensions are fulfilled simultaneously can an individual, household, community or nation achieve food security.



## Ecosystem contributions to food security

Ecosystems and their goods and services contribute to all four of these dimensions, as illustrated in **Figure 1**. Here are a few examples of these contributions:

- soil processes and wild pollinators are critically important to agricultural productivity – and therefore food **availability**;
- forests provide **access** to food both directly (through the edible wild plants and animals found there) and indirectly (via forest-product income that can be used to buy food);
- medicinal plants contribute to people's health, making their **utilization** of food more efficient and beneficial for their bodies; and
- healthy wetlands and mangrove forests help protect coastal areas from flooding, thereby increasing the **stability** of food production from nearby fields and fish ponds.

FIGURE 1 ECOSYSTEM CONTRIBUTIONS TO THE FOUR DIMENSIONS OF FOOD SECURITY



## Why should food security policy-makers worry about ecosystems?

Given the important contributions that ecosystems make to food security, it follows that degradation or loss of these ecosystems and their functions will adversely affect food security. Climate change needs to be added to the equation too as these three major challenges – food insecurity, ecosystem degradation and climate change – are closely interlinked.

**This is the crux of the matter: ecosystem degradation and weak ecosystem governance can undermine the effectiveness and impacts of food security policies, while inappropriate policies can damage ecosystems and their ability to support food systems.** Some examples of these issues are outlined in the following three pages.

### AVAILABILITY OF FOOD

Food availability depends on the productivity of both cultivated and natural systems. The rural poor (the group most commonly affected by food insecurity) rely on subsistence agriculture for most of their food and are therefore heavily reliant on natural resources to maintain their livelihoods. Ecosystems underpin agricultural production by providing everything from water and soil resources to pollination and pest control services. Environmental degradation or climate-related impacts can therefore make the difference in poor rural communities between having food and going hungry. The harvesting of wild plants and animals for food also meets a significant proportion of the food needs of poor people around the world. Here again, ecosystem degradation and natural disasters that reduce the availability of these food sources will have a large impact on food security.

---

### WILD FOODS – A CRITICAL RESOURCE FOR THE POOR

Wild animal and plant foods provide vital calories as well as much-needed protein and micronutrients to more than a billion people around the world. Fish, for example, provide more than 1.5 billion people with 20 percent of their average per capita intake of animal protein. Bushmeat in the Congo Basin alone feeds nearly one hundred million people – both urban and rural dwellers – and is important in many other forested regions of the world. Some indigenous people (such as hunter-gatherer forest people) are entirely dependent on healthy, biodiverse ecosystems for their food needs.

---

### ACCESS TO FOOD

Globally, some one billion people earn income from the use of wild natural resources. Marine, freshwater and forest resources are particularly important here. According to FAO, fisheries and aquaculture support the livelihoods of about ten percent of the world's population. A large proportion of the rural poor relies on the sale of timber and non-timber forest products (such as bushmeat, honey and medicinal plants) to buy food, help cover costly events (e.g. school fees, festivals, and funerals) and deal with unexpected hardship such as unemployment, illness, and crop failure.

In general, ecosystem-based livelihoods (including agriculture, forestry, fisheries, tourism and mining) are a critically important source of income for the poor to be able to buy food. Threats to these income sources – from, for example, ecosystem degradation, natural disasters, conflict, or the collapse of commodity prices – will have severe knock-on effects on food security.



### POLICY POINTERS:

➤ Agricultural policies focused entirely on increasing production can backfire by undermining ecosystem contributions to productivity and food security objectives. For example, policies that encourage over-reliance on chemical inputs may lead to soil leaching, water pollution and the loss of natural predator populations, all of which can have long-term impacts on food production.

➤ Sustainable land-use and resource management policies can support food security objectives, by helping maintain the flow of ecosystem goods and services to agriculture. For example, policies that support forest restoration and agroforestry will enhance water storage, soil retention and soil fertility, all of which are necessary for productive agriculture.

➤ Policies that compromise ecosystem integrity can affect the quality and diversity of wild-sourced foods, thereby undermining the food security of poor populations dependent on these foods. For example, forest conversion or restricted access to forests can reduce access to forest fruits, a particularly important nutrient source for rural children in Africa's drylands.

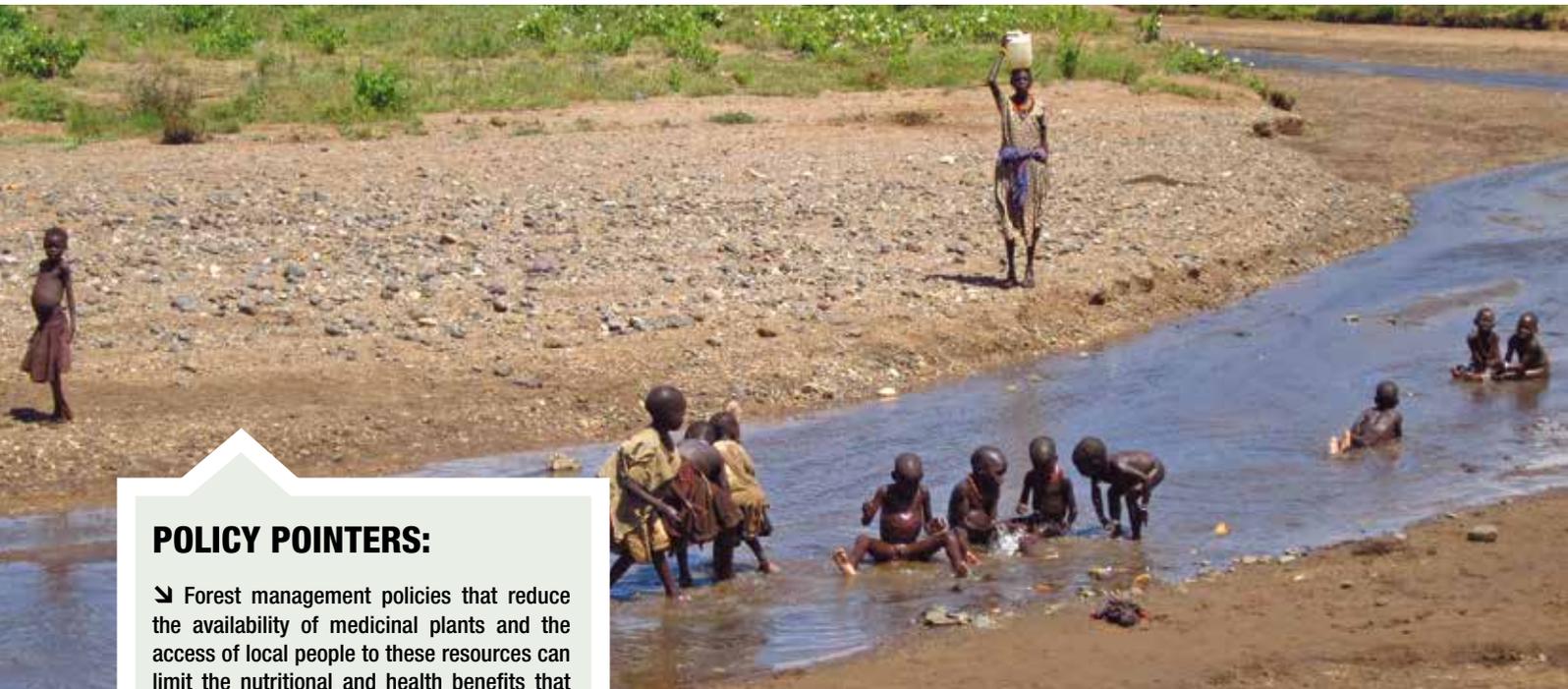
➤ Policies that invest in ecosystem restoration will not only stabilize the supply of wild-sourced food products from these ecosystems but will also help vulnerable groups to buy food, by maintaining their income-earning opportunities from the sale of natural products (e.g. non-timber forest products, fish).

PHOTO LEFT

Income from fishing and aquaculture can be vital in enabling people to buy food. Here a group of men harvest farmed carp in Bangladesh. © FAO Aquaculture photo library/M. Hasan.

PHOTO RIGHT

Soil: a critical ecosystem good for food crops. Here farmers create terraces in Burundi for better soil retention. © Cyriaque Nzujibwami.



## POLICY POINTERS:

➤ Forest management policies that reduce the availability of medicinal plants and the access of local people to these resources can limit the nutritional and health benefits that the poor obtain from their food sources.

➤ Policies that support investments in clean water supply and sustainable energy production from biomass can help boost food security by enabling the poor to prepare, cook and preserve nutritious foods. These policies can also free women from long hours spent collecting fuel and water and preparing food, allowing them to engage in other activities, such as income-generating labour or food production.

➤ Policies that drive deforestation or wetland drainage undermine the capacity of ecosystems to contribute to disaster risk reduction. Forest cover is important for maintaining water retention in watersheds and reducing flash flood risk, while wetlands in floodplains retain water and reduce flood peaks. By compromising these ecosystem services, such policies also have negative impacts on food security.

➤ Policies that promote good governance of natural resources produce positive results not just for equitable access to food, land and water resources, but also for conflict reduction and natural resource security.

➤ Conservation or development policies that weaken local governance of natural resources hinder the ability of local people – i.e. the resource custodians – to take long-term decisions about resource use and to protect the resources from outside pressures. Such policies can therefore reduce food security even if they contribute to gains in GDP. Examples of these kinds of policies would include the diversion of water for large-scale irrigation and urban development and restrictive forest access regimes such as REDD.

## UTILIZATION OF FOOD

As they contribute to wellbeing by providing a healthy living environment, diverse and nutritious foods and medicinal plants, ecosystems enable the poor to get the most out of the food they consume. Ecosystems are also the source of water and biomass for food preparation, cooking, and preservation.

## DEFORESTATION AFFECTS FOOD USE

The rural and urban poor in developing countries depend on natural biomass (particularly firewood and charcoal) for cooking as well as heating. Access to fuelwood expands the choice and range of foods that are used, including important protein sources such as beans and meat that require higher levels of energy for preparation. Loss of access to these fuels, through deforestation or resource-use restrictions, may therefore affect both the quantity and quality of foods that can be prepared and eaten. Reduced access to these biomass energy sources would also limit people's ability to preserve food for later use through drying and smoking. This is particularly important for animal proteins such as fish.

## STABILITY OF FOOD SECURITY

Stable food security requires food systems that provide sustainable food availability, access and use, resilient to the impacts of social, economic and environmental shocks and stresses. Achieving stable food security means addressing the risk of these shocks and stresses, through targeted policy interventions.

The food security risks related to ecosystem shocks and stresses include unsustainable development, climate change, inequitable tenure regimes and resource-related conflict. Some of these risks, and their policy implications, are outlined below.

### Unsustainable development

Economic development that privatizes resources and ecosystems (e.g. forests, coasts, water resources) and gives tighter control of these resources to the state tends to withhold these critical food security assets from the poor. Infrastructure development for coastal tourism, for example, increases effluent discharges, disturbs coastal ecosystems such as mangroves and reduces access to coastal flats that serve as mollusk-harvesting grounds for local people. Rapid urbanization can also lead to reduced access to food as the urban poor have less connection to wild foods and income-generating natural resources.

Unsustainable agricultural and industrial development is causing widespread damage to ecosystems through pollution of land and water resources. This has resulted in increased health risks, agricultural loss, and reduced availability of highly valued, wild-harvested foods. The downstream and coastal impacts of fertilizer runoff, for example, damages marine and freshwater ecosystems and diminishes the availability of fish and molluscs, critical protein sources for many. The impact of nitrogen pollution has been particularly severe, resulting in a 50 to 90 percent decline in mangroves in most regions over the last four decades.

### Climate change

Climate change can impact food availability through a whole range of biophysical changes (drier climates, higher or lower temperatures, rising sea-levels and more frequent floods and droughts). Beyond that, climate change may set in action cycles of decline, multiplying the impacts on food security. Hazardous weather events and climatic change may cause damage to food transportation and storage infrastructure, reduced state capacity, steep price fluctuations, uncertain yield levels, increases in poverty, and declines in social relations and cohesion. Such systemic impacts would severely hamper the ability of developing countries to produce and distribute food for their populations. It is estimated that climate change will cause a ten percent increase in the number of malnourished children worldwide by 2050. Vulnerable groups and indigenous people are most at risk from the impacts of climate change-related natural disasters. For example, poor rural women face losing title to their land in the aftermath of floods, as their rights are often



informal, and are less likely to be compensated for any such loss, compared to men. This has severe long-term implications for their capacity to produce food.

### Inequitable tenure

The lack of secure land and natural resource tenure is one of the major barriers to food security in many developing countries. Where land tenure is insecure or unclear, or where the state claims all legal title, agricultural development tends to favour large-scale production over investment in smallholder production. Insecure tenure also acts as a disincentive for local land-users to make long-term investments to maintain ecosystem functions and improve food production. These factors contribute directly to local food insecurity. Tenure over water, carbon and fishery resources is also commonly claimed by the state, over and above the rights of local communities. Here too, local livelihoods and food security are being put at risk.

Exclusionary resource policies and insecure land tenure create far-reaching impacts. Over time, resource-stressed communities are less and less able to move out of food insecurity or poverty – effectively widening social inequities.

One consequence of insecure, inequitable land tenure regimes is the proliferation of foreign investments in land. This expansion – estimated to account for up to 135 million hectares worldwide – reduces the availability and access of both wild and farmed food for large numbers of rural people. Many of these land investments are for biofuels, minerals, timber and food exports. Globally, the rapid expansion of biofuel production is expected to contribute to an increase of up to three million in the number of undernourished pre-school children in Africa and South Asia by 2050.

### Conflict

Weak environmental governance can heighten conflict and contribute to the primary causes of such conflict, by exacerbating injustice, inequity and poverty. Land and water-based conflicts are expected to increase as demand grows for these resources, due to climate change, increasing population pressures and restrictions on access. Conflicts can have huge impacts on food security as the institutional decline, worsening social relations and violence created by conflict contributes to increased costs and losses in food production. Conflict makes it more difficult for the affected populations to produce and access food and obtain the water and energy needed for food preparation. In the long term, impacts such as the destruction of rural infrastructure, loss of livestock, deforestation, the widespread use of land-mines, the poisoning of wells, and large-scale population movements compound the food security problems.

#### PHOTO LEFT

Access to clean water is important for food security as it supports health and the preparation of food. Here children play in a riverbed, Uganda. © IUCN/Claire Warmenbol.

#### PHOTO RIGHT

Wild-sourced forest food is an important resource for many rural communities. © IUCN/David Brazier.

# Food security policies: what's missing?

As the 'policy pointers' mentioned on pages 3 and 4 illustrate, development and conservation efforts have often contributed to, or worsened, food insecurity because they have not taken account of the strong connections between food security and ecosystems. High-levels of vulnerability to food insecurity among the poorest groups in society are generally linked to: (1) a heavy dependence on natural systems that are undergoing rapid degradation and change; and (2) the environmental governance systems in place and how they are implemented. When either or both of these factors reduce the availability or accessibility of key resources such as wild foods, crop resources and water, they undermine the livelihoods and the social relations that hold together communities. The resulting food insecurity is often accompanied by dysfunctional communities, conflict within and between communities, and neglect of the most vulnerable groups including women and children.

There have been some significant developments in food policy over the last decade, including increased acknowledgement of the right to adequate food and the importance of equitable and

secure tenure. However, food security policy-making continues to focus on the same three issues – agricultural productivity, trade and macro-economic policies – while neglecting the central role of ecosystem management.

In addition, there is a crisis of implementation: many of the developments at a global level have not been sufficiently incorporated into national policy and practice. While knowledge about the significance of ecosystems to the different dimensions of food security has grown, there continues to be insufficient investment in maintaining environmental quality, building positive social relationships around its use (institutions, organizations, learning) and developing linkages between different stakeholders and sectors.

**The idea that there is an inevitable trade-off between agricultural productivity and ecosystem conservation is now outdated, given our current understanding of the dependence of agriculture on wider ecosystems. There is no choice but to do both, otherwise food security will remain a pipe-dream.**



## Gaps in food security policy

⌚ **A multi-sectoral approach.** Food security issues are too often dealt with in 'policy silos', with the relevant institutions (agriculture, forestry, trade, environment, etc.) rarely collaborating to ensure their policies consistently support food security. This can lead to disconnected, sometimes contradictory policies and the neglect of inter-sectoral linkages and synergies (e.g. food-water-energy and food-health-nutrition).

⌚ **Integration of ecosystem factors.** As this paper has discussed, ecosystem factors are still missing from much of the thinking behind food security policy-making. This is resulting in ill-informed, ineffective policies and contributing to ecosystem mismanagement and degradation, which in turn undermines the food security objectives of these policies.



The list below identifies some key gaps and shortcomings in food policy and practice. These policy gaps are accompanied by weak institutional development. In particular food policy institutions lack the ability to respond creatively and flexibly to the uncertainties of climate change, and too rarely inform or consult with local communities, let alone actively engage with them in decision-making.

PHOTO LEFT

Food security policies need to better integrate ecosystem issues. Here a farmer in Guatemala sits by a hurricane-damaged maize crop. © WFP/Alejandro Chicheri.

PHOTO RIGHT

A discussion on land-use issues with women in Sudan. Such participatory processes are often absent from food security policy-making. © IUCN/Intu Boedihartono

## - making

➡ **Participatory decision-making.** Key actors are being left out of food security decision-making and consequently decisions do not always reflect the rights, culture and interests of local people. Even where some degree of local participation is sought, it is often limited to the men in the communities, with little effort taken to seek out the views and needs of women. It is the rural poor who are the custodians of many ecosystems and it the same group of people who are most often affected by food insecurity. Policies that ignore the voice of the poor, smallholders and other 'front-line' stakeholders are unlikely to find local support for their implementation.

➡ **Commitment to climate change action.** There has been little sign of commitment to redress the underlying drivers of climate change and in particular the consumption and production patterns that use energy unsustainably and

generate unmanageable amounts of pollution and waste. The understanding that there are planetary limits or boundaries, which have implications for food security, is largely absent from policy debate and development.

➡ **Recognition of wild resources.** Food security policies, and other natural resource-related policies, have still not incorporated the now clear fact that wild resources are key to the food security of a significant portion of the world's poor. Without this recognition, these policies risk cutting off access to wild foods such as bushmeat and fish, thereby depriving many rural populations of vital sources of protein.

# Food security policy-making:

## how to make it more effective

### Focus on food resilience

**Ecosystem-aware food security policy-making aims for more than just alleviating hunger and embraces the goal of building long-term food resilience. This focus on resilience is critical if food security objectives are to be achieved and sustained over the long term.**

The term food resilience refers to the capacity of ecosystems to support food production and the ability of people to produce, harvest or buy food in the face of environmental, economic and social shocks and stresses. Ecosystem-aware food security policies strengthen both:

- the resilience of food-insecure populations to manage uncertainties and stresses such as food price hikes and climate change; and

- the resilience of ecosystems to withstand shocks such as hazardous weather events and stresses such as pollution, to maintain their support for the production of both wild and farmed foods.

Policy-making can best support food resilience by addressing three key issues: diversity, natural infrastructure and social justice. These issues are outlined below.

#### DIVERSITY

The term diversity is used here to refer to ecosystem, biological and livelihood diversity. Diversity in the types of ecosystems present in a landscape and the biological resources within these ecosystems can reduce local communities' risks and sensitivity to shocks (including price volatility) by providing a base for diverse livelihood and adaptive activities (e.g. agriculture and livestock farming, fisheries, forestry, tourism and hunting). Together, these different aspects of diversity can strengthen food security by reinforcing the resilience of local food systems. Policies that maintain or boost diversity will therefore support achievement of food security objectives. For example, policies that promote diversity within the cropping system (crop biodiversity, soil biodiversity and pollinator diversity) can increase the adaptive capacity of agriculture against fluctuations in growing conditions.

#### NATURAL INFRASTRUCTURE

Natural infrastructure is a term that reflects the ability of ecosystems to deliver some of the same services as those provided by engineered infrastructure. Thus for example:

- Forests help provide clean drinking water, similarly to water filtration facilities;
- Mangroves help protect shorelines from storm damage, similarly to sea walls;
- Natural floodplains help prevent flooding, similarly to dikes and canals;
- Wetlands help clean effluent from sewers or industry, similarly to water treatment facilities.

Natural infrastructure services contribute to the food resilience of communities, for example by protecting farmland against storm surges and protecting communities from the dangers of contaminated drinking water. To help maintain these ecosystem services, food security policies will need to be better integrated with those of other sectors, including for example environment, tourism and energy.





## SOCIAL JUSTICE

Food security policy-making needs to address not just the technical issues behind ecosystem management and food production – but also issues of social justice. Social justice embodies the ideas of good governance, economic fairness, human rights, solidarity, equality and equity. Social justice issues are of central importance to food security as they play a large part in determining access to food within households, communities, societies and nations. Where social justice is weak, there is a high risk of food insecurity among vulnerable and marginalized groups.

By addressing social justice, food security policies can strengthen food resilience. One key area here is support for local governance systems, particularly locally-managed resource use and locally-controlled production. For example,

### PHOTO LEFT

Policies should aim to strengthen the long-term resilience of communities and ecosystems – i.e. their ability to manage and bounce back from shocks and stresses. Here a boy in Guyana uses an old refrigerator as a boat after floods cut off homes from the main road. © WFP/Alejandro Chicheri.

### PHOTO ABOVE

Here floods in Mozambique inundate farmland and displace populations, with serious impacts for food security. © WFP/Michael Huggins.

policies that strengthen smallholder producers' organizations build local resilience by increasing the farmers' ability to set shared priorities, negotiate fair prices and make the redistributive choices necessary for enhancing food production.

Another key area for food security is building good social relations and tackling inequalities, including the widespread discrimination against women. Policies can help remove this discrimination by formally recognizing gender equality and implementing specific changes to improve women's food security and productivity.

**Social justice cannot be ignored by food security policy-makers. It is morally and ethically unacceptable that so many lack the opportunity to live free from hunger.**



## What do effective food security policies look like?

We have seen that, to be effective, food security policies need to be ecosystem-aware and supportive of food resilience by addressing issues of diversity, natural infrastructure and social justice. What then would these policies look like? The following examples show the kinds of characteristics these food security policies would have.

➤ **Effective policies recognize that the services provided by ecosystems are not limitless.** This includes their capacity to absorb waste. Policies need to tackle land, water and air pollution to help support ecosystem health, wild food supplies (such as fish) and human health. For example, treating municipal and industrial wastewater is achievable with existing technology, but requires better regulatory oversight, infrastructure investment and capacity building, especially in developing countries.

➤ **Effective policies link across sectors.** Food security policy-making needs to be based on better integration between different economic and development sectors. In particular, environmental matters need to be more integrated into other sectors' policies that impact on the ecosystem services underpinning food security; this includes sectors such as trade, energy, water, health and tourism. This will require giving environmental agencies a more central role in defining strategies for achieving food security.

➤ **Effective policies see agricultural systems as agro-ecosystems.** Agro-ecosystems provide a wide variety of services and are linked to other ecosystems. Taking this broader view of how agricultural systems fit within the landscape enables policies to identify and act on opportunities for synergies between crop and livestock production, fisheries and forestry in securing food.

➤ **Effective policies value ecosystems as productive assets.** Food security policies recognize the need to maintain these natural assets on the grounds that they provide important safety nets for the food-insecure and the basis for diversified livelihoods. This does not mean abandoning the protection of particularly fragile or threatened ecosystems, but it does mean looking at protection as one tool in recovering and maintaining ecosystem services, and considering interactions between protected areas, neighbouring agro-ecosystems and other sustainably managed ecosystems.

➤ **Effective policies support increased investment in off-farm environmental assets.** The rationale for this is that off-farm assets can help strengthen the resilience of smallholder farmers and pastoralists and support diversified livelihood options including non-agricultural income sources. This will reduce the vulnerability of the rural poor to extreme weather events and price shocks. Ensuring local people are able to use these off-farm opportunities requires financial and technical support for knowledge exchange and learning, and for robust local organization.

➤ **Effective policies strengthen local organization and enhance the voice of rural communities.** As these communities are the natural custodians of ecosystems and the managers of food production from both wild and farmed resources, they are critical actors in sustaining these resources and managing resource-based conflict. Supporting the inclusion of both men and women in local communities – farmers, pastoralists, forest people, shifting cultivators, fisher folk and other food harvesters and producers – in decision-making about food security can help ensure more appropriate decisions and policies. Food security policies need to help rural communities engage with other stakeholders in defining solutions, and support the recognition of their rights to information, transparency, accountability, participation and recourse.

➤ **Effective policies respect and protect people's rights to food and water.** Food security policies can include these rights as thresholds for decision-making. This would involve consideration of these rights in any decisions that would affect the provision of ecosystem services, and support for local people's claims on these rights – except in cases where such actions could lead to the disruption of ecosystem services and negative impacts on the food security of other groups.

➤ **Effective policies help secure land tenure and natural resource access.** Food security policies can help recognize and secure local tenure rights, including those of indigenous people and women, in national policy and legislative frameworks. This can help ensure that land-use changes (e.g. for biofuel or agricultural production, conservation or development) are subject to rights assessments (especially for food and water) and encourage long-term investments in essential livelihood resources including biological diversity. A first step in this direction would be to implement the *Guidelines on Tenure* to protect local livelihoods and food security (see box below).

---

#### GUIDELINES FOR GOOD TENURE GOVERNANCE

Policy-makers responsible for food security, as well as tenure and other environmental governance issues, can benefit from the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests* produced by the UN Committee on World Food Security. The guidelines are based on a set of general principles that seek to ensure that states recognize and respect all “legitimate” existing tenure rights. This includes safeguarding such rights, promoting and facilitating enjoyment of these rights, and access to justice to resolve infringements or disputes over these rights.

---

PHOTO LEFT

Food security policies can make better use of synergies between crop, livestock, fisheries and forestry by considering agricultural systems as agro-ecosystems, interconnected with other ecosystems in the landscape. Here children in Nepal search for fish and crabs in rice paddy fields. © WFP/James Giambrone.

PHOTO RIGHT

Food security policies should help ensure equitable access to food resources. Tackling inequalities includes for example ensuring that women farmers have access to resources such as land, water and agricultural credit. Here a young mother harvests maize in Malawi. © WFP/Charles Hatch Barnwell.

➤ **Effective policies improve equality and tackle discrimination.** By addressing issues of inequality and discrimination, food security policies can set the basis for reducing conflict and ensuring equitable access to food sources as well as information and decision-making related to food security. Confronting the widespread problem of gender inequality and discrimination would involve, for example, adopting measures to recognize and protect the rights of women to own or utilize land and natural resources, and improving their access to agricultural support services and credit.





© IUCN/Carla Vaucher

## For more information

**Arnold, M., Powell, B., Shanley, P. and Sunderland, T.C.H.** 2011. Editorial: Forests, biodiversity and food security. *International Forestry Review* 13 (3): 259-264.  
[www.cifor.org/online-library/browse/view-publication/publication/3576.html](http://www.cifor.org/online-library/browse/view-publication/publication/3576.html)

**Boelee E., Chiramba T. & Khaka E.** (eds) 2011. An ecosystem services approach to water and food security. Nairobi: United Nations Environment Programme; Colombo: International Water Management Institute.  
[www.iwmi.cgiar.org/topics/ecosystems/PDF/Synthesis\\_Report-An\\_Ecosystem\\_Services\\_Approach\\_to\\_Water\\_and\\_Food\\_Security\\_2011\\_UNEP-IWMI.pdf](http://www.iwmi.cgiar.org/topics/ecosystems/PDF/Synthesis_Report-An_Ecosystem_Services_Approach_to_Water_and_Food_Security_2011_UNEP-IWMI.pdf)

**FAO.** 2012. Guidance Note: *Integrating the Right to Adequate Food into Food and Nutrition Security Programmes*. Rome.  
[www.fao.org/docrep/017/i3154e/i3154e.pdf](http://www.fao.org/docrep/017/i3154e/i3154e.pdf)

**FAO, WFP and IFAD.** 2012. *The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition*. Rome.  
[www.fao.org/docrep/016/i3027e/i3027e.pdf](http://www.fao.org/docrep/016/i3027e/i3027e.pdf)

**FAO.** 2012. *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*. Rome.  
[www.fao.org/nr/tenure/voluntary-guidelines/en/](http://www.fao.org/nr/tenure/voluntary-guidelines/en/)

**IFAD** 2012. Sustainable smallholder agriculture: feeding the world, protecting the planet. Proceedings of the Governing Council Events in conjunction with the Thirty-fifth Session of IFAD's Governing Council, February 2012.  
[www.ifad.org/events/gc/35/doc/proceeding.pdf](http://www.ifad.org/events/gc/35/doc/proceeding.pdf)

**IFPRI.** Threats to security related to food, agriculture, and natural resources – What to do?  
[www.ifpri.org/publication/threats-security-related-food-agriculture-and-natural-resources-what-do](http://www.ifpri.org/publication/threats-security-related-food-agriculture-and-natural-resources-what-do)

**McClain-Nhlapo, C.** 2004. Implementing a human right to food. IFPRI 2020 Africa Conference Brief.  
[www.ifpri.org/sites/default/files/pubs/pubs/ib/ib29.pdf](http://www.ifpri.org/sites/default/files/pubs/pubs/ib/ib29.pdf)

IUCN Forest Programme: [www.iucn.org/forest](http://www.iucn.org/forest)  
IUCN Global Water Programme: [www.iucn.org/water](http://www.iucn.org/water)





**INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE**

WORLD HEADQUARTERS  
Rue Mauverney 28  
1196 Gland, Switzerland  
mail@iucn.org  
Tel +41 22 999 0000  
Fax +41 22 999 0002  
[www.iucn.org](http://www.iucn.org)

