At the request of the CFS, the HLPE has undertaken this analysis of the relationship between biofuels and food security, an especially challenging issue.
As we explore in the Report, biofuels production and biofuels policies can relate both positively and negatively with each of the four dimensions of food security.

In addition, as shown in Fig 1 in the Report, the links between biofuels and food security require assessments at both global and local levels and at short term and long terms, and at various issues: food, land, energy, water, development…
Biofuel policies

Public policies have played a central role in the rise of biofuels production.

Two countries created a biofuels ethanol market and a biofuels production sector in the 70s: Brazil using sugar cane and the United States of America, using corn. In both cases, they took advantage of existing agricultural production capacities when low commodity prices encouraged the search for alternative outlets. Broader strategic goals were also central, such as reducing levels of dependence on energy imports.

The policies of these two countries consolidated a biofuels demand, a biofuels market and a biofuels industry. The Brazilian sugar/ethanol sector is now able to operate in response to movements in relative prices, and analysis suggests that US ethanol production, given continuing high oil prices and the ban on the methyl tertiary butyl ether (MTBE) oxygenate, could also survive without mandates.
In the European Union (EU), biodiesel is more central to biofuel policy. This has involved giving greater weight to oil crops (over cereals and sugar beet) for the production of biofuels.

EU targets cannot be fully met using only EU domestic biomass and uses imported soy and palm (here in red and yellow).

The EU biofuel policy, therefore, has triggered the creation of an increasingly globalized biofuels and biofuels feedstock market, involving a key role for developing country agriculture.
Many more countries (over 50 at the time of writing) have now adopted biofuels policies. In emerging countries, food security has quickly become a central conditioning criterion, with explicit policies in China, India and South Africa not to base biofuels on food crops or on lands used for food.
Biofuels and the technology frontier
The degree to which the promotion of biofuels enters into competition with food production, raising questions of food security, depends on a variety of factors:

• choice of feedstock;
• natural resources (especially land and water) involved;
• relative efficiencies (GHG emissions, yields, costs) of different feedstocks;
• processing technologies adopted.

Concern over competition between biofuels and food production has been particularly acute given the overwhelming use of food- and feedcrops for both ethanol and biodiesel.
The timeline for the deployment of 2nd generation biofuels, as reflected in particular in the Renewable Fuels Standard of the US, has proved overly optimistic, and this translates into still much higher costs of production for 2G biofuels (here in red) than for first generation biofuels (in green), and for fossil fuels (in black).

However the first commercial-scale plants to produce cellulosic biofuels are now coming online.

The experiences with Jatropha (in Yellow) have not yet delivered on promises and has shown that any new biomass production for biofuels will induce some form of competition for land and water, which could have an impact on food security.
Biofuels, food prices, hunger and poverty

In less than one decade, world biofuel production has increased five times, from less than 20 billion litres/year in 2001 to over 100 billion litres/year in 2011.

The biofuel and food price debate is a long-standing, controversial one in the literature, with wide-ranging views.

Many factors influence the world supply and demand for food. What matters most for the present report and analysis is the isolated effect of biofuels on food prices, *everything else being equal.*
Basing itself on the analysis of the results of the different bodies of literature the Report concludes that:

Everything else being equal, the introduction of a rigid biofuel demand does affect food commodity prices.

In the last few years of short-term commodity food price increases, biofuels have played an important role:

Food commodity markets becoming tighter with supply needing to keep up with the rapid growth in total food, feed and fuel demand;
At the same time, different biofuels (biodiesel, ethanol from corn or ethanol sugarcane, represented in this Slide) have very different impacts.
Nevertheless, in all cases biofuels provide a link between the food and energy markets.

Biofuels facilitate the transmission of the rise in oil prices to food prices since they provide an “oil price driven” opportunity gain for key foodcrops (corn, oilseeds, sugar).

As shown in this graphic, there is now a closer relationship and correlation between the price of corn and the price of fuels.

In the present context, oil prices can play a central role. Given a continued trend of rising oil prices, corn- and sugar-cane ethanol will be increasingly competitive with respect to fossil gasoline, even without incentives or tariff protection. This could open up an important market worldwide for corn- and sugar-cane ethanol. Biodiesel, on the other hand, competes economically only in situations of very high oil prices, and it will, therefore, remain driven by government policies.

This leads to oil prices ultimately defining an “opportunity floor” on crop prices, and opens a space for transmission of volatility and speculative behaviour from the petroleum market to food markets.
Biofuels and land

Except when relying on crop residues and waste, biofuel production requires land. It thus competes for land (and water) with other agricultural and non-agricultural activities. To what extent is land availability a constraint to biofuel development and to ensuring world food security?

The debate is very much oriented by prospective considerations on what would be the land needed to produce a certain quantity of biofuels versus the land “available” globally, given the need to increase food production to satisfy a growing demand. The different positions also depend on the assumptions made with regard to crop yields, dietary changes, and trends on livestock production.

Many authors point to the need for a clearer picture of what “available land” or “underutilized land” mean, as most, if not all, land is already used, in various ways. Calculations must also take into account Green House Gas restraints on land-use change.
In particular many have questioned the role of biofuels as a driver of domestic and foreign large-scale investments in land, often called “land grabbing”. Analysis has reduced the weight originally attributed to biofuels, but there is ample documentation that large-scale biofuel investments are playing an important role in transforming land use in many developing countries.
For many, biofuels provide important new opportunities for income and employment generation, in addition to bringing much needed capital, technology and knowledge to developing country agriculture. Other analyses have identified negative impacts of biofuels on poor farmers and their communities, either directly in the form of land expropriations or indirectly through the concentration of resources on large-scale farming operations.

Developing countries are still in the process of putting policies together on biofuels, with many investments and initiatives still in various stages of implementation. An appreciation of impacts over time and on a macro or regional scale is, therefore, still largely speculative.

An exception here is the Brazilian case, which has a longer history and a decade if we consider its ambitious biodiesel programme. Although the evidence is mixed, in the case of ethanol in the State of São Paulo, a number of studies point to the relatively favourable effects of ethanol investments at municipal level. The Brazilian biodiesel programme was designed with the objective of rural development based on the family-farming sector and its typical regional oil crops. After ten years it is soybeans and the already best-organized sections of family farmers who have benefitted most. The programme confirms that if small farmers have inadequate access to basic resources of land and water, little can be done to consolidate their income on a productive basis.
A growing number of studies have tried to bring to the attention of policy-makers the importance of taking gender into account in biofuels development. These studies highlight security of access to and ownership of land as a key factor determining whether the expansion of biofuel feedstocks could potentially benefit the rural poor, women in particular.

The most positive use of biofuels in highly rural developing countries where the majority of the rural poor live without access to energy is in the development of bioenergy initiatives for cooking, heating and local power generation. Hundreds of initiatives in this direction are currently being supported in developing countries.
**POLICY RECOMMENDATIONS**

**Recommendations**

Food security policies and biofuel policies cannot be separated because they mutually interact.

Food security and the right to food should be priority concerns in the design of any biofuel policy.

Governments should adopt the principle: biofuels shall not compromise food security.

Trend to the emergence of a global biofuels market, and the shift from policy-driven to market-driven biofuels:

- Urgent need for close and pro-active coordination of food security, biofuel/bioenergy policies and energy policies, at national and international levels,
- As well as rapid response mechanisms if crisis.

The HLPE recommends that governments adopt a coordinated food security and energy security strategy, which would require articulation around the following five axes/dimensions.
Adapt to the change to global, market-driven dynamics

Adjust biofuel policies and devise mechanisms to prevent (market-driven) biofuel demands posing a threat to food security.

Promote the international coordination of such policies and mechanisms.

Ensure short-term, coordinated responses in times of crisis, and for this invite the Global Bioenergy Partnership (GBEP), the Committee on Commodity Problems and its Intergovernmental Group on Grains to make proposals.

Governments could regularly communicate their biofuels policies and targets to the Agricultural Market Information System (AMIS).
2. **Address the land, water and resource implications of biofuel policies**

Implement the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* and ensure as a precondition for deals respect for the principles of free, prior and informed consent and full participation of all concerned.

The same should apply in the case of the principles for responsible investment in agriculture currently being elaborated by the CFS.

Policies must integrate land and water impact assessment.

Non-food/feedcrops should be assessed with the same rigour as food/feedcrops for their direct and indirect food security impacts.
Foster the transition from biofuels to comprehensive food-energy policies

Governments should adopt a comprehensive bioenergy policy approach, to provide high-value products, electricity and alternative power for cooking, power for water management and local productive facilities, in addition to transport fuel.

Governments should support smallholder participation in biofuels and bioenergy value chains on the basis of fair and equitable conditions of market access and contractual arrangements.

Governments need to explore alternative policy measures order to reduce fossil-energy-based transport.
Promote Research and Development

Research and development (R&D) must devise solutions adapted to the needs of the least developed countries and of smallholders who are most in need of access to energy.

Research should examine if and how both first- and second-generation biofuels could contribute to restoring degraded land and to the better management of watersheds.

R&D resources should be dedicated to accelerating the commercial feasibility of more advanced renewable energy pathways.

Parties should promote and facilitate exchange of information and cooperation for food security and biofuels assessments and projections.
Develop methods and guidelines for coordinated food, biofuels, bio-energy policies at national and international levels

Encourage FAO and relevant stakeholders to elaborate toolkits to support decision-making: methodologies for assessing national biofuel potential in relation to food security.

Invite GBEP to launch an inclusive process to ensure that certification schemes used for biofuels are multi-stakeholder, participative and transparent and limit transaction costs to avoid excluding smallholders.

CFS could launch, with support of FAO and GBEP, the development of guidelines to evaluate the impact and viability of biofuels policies.
Biofuels and food security

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Thank you

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