

# Biofuels: Fuelling Poverty and Environmental Degradation

## Key Points

Knowledge of negative social and environmental impacts, particularly in developing countries, demands a rethink of Ireland's, the EU's and other major economies biofuels policies. Urgent action is needed to halt the expansion of land based biofuels<sup>5</sup> which bring few or no climate benefits, while putting additional pressure on scarce natural resources, affecting peoples right to food.

## List of Acronyms

BOS	Biofuel Obligation Scheme
EC	European Commission
EU	European Union
FAO	Food and Agricultural Organisation
FQD	Fuel Quality Directive
GHG	Greenhouse Gas
IEA	International Energy Agency
ILUC	Indirect Land Use Change
IPCC	Intergovernmental Panel on Climate Change
MOTR	Mineral Oil Tax Relief
NORA	National Oil Reserve Authority
NREAP	National Renewable Energy Action Plan
RED	Renewable Energy Directive
UNDP	United Nations Development Programme

## Introduction

Bioethanol, biodiesel, unleaded plus with added ethanol, are increasingly familiar terms. Fuel technology driven by environmental concerns and the search for lower cost alternatives to fossil based fuels has reached the consumer. The 'bio' element in our fuel tanks is very much linked to recent European directives promoting biofuels.

Transport is a fast growth sector - higher levels of private car ownership, more affordable air travel - makes it a core part of life. Transport is also responsible for a quarter of global energy related carbon emissions<sup>1</sup> that contribute to damaging greenhouse gases (GHG) and climate change. Decarbonising transport fuels by reducing our dependence on fossil fuels and promoting 'cleaner' biofuels would supposedly improve our environmental footprint. In addition to the environmental benefits, for net oil importing countries, such as Ireland, biofuels also seem to present a route to becoming more energy secure in a way that would support rural development.

Alongside Ireland, more than fifty countries have adopted biofuel targets/transport mandates.<sup>2</sup> While policies have been elaborated at national or in the EU case at regional level, these policies have led to trade and investment in biofuels on a global scale. In less than a single 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.<sup>3</sup>

**'The steepest rise in biofuel production occurred in 2007/2008, concomitantly with a sharp rise in food commodity prices.'**<sup>4</sup>

Now that biofuels have become a feature of the global economy, evidence and understanding of their impacts is growing. The impacts are very much influenced by the characteristics of the country and the type of production activities undertaken. Knowledge of negative social and environmental impacts, particularly in developing countries, demands a rethink of Ireland's, the EU's and other major economies biofuels policies. Urgent action is needed to halt the expansion of land based biofuels<sup>5</sup> which bring few or no climate benefits, while putting additional pressure on scarce natural resources, affecting peoples right to food.

- 1 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report on Climate Change (2007) noted that in 2004, transport was responsible for 23% of world energy-related GHG emissions with about three quarters coming from road vehicles. It also noted that in the previous decade, GHG emissions from transport have increased at a faster rate than any other energy using sector and that transport activity will continue to increase in the future as economic growth fuels transport demand and the availability of transport drives development.  
[http://www.ipcc.ch/publications\\_and\\_data/ar4/wg3/en/ch5s5-es.html](http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch5s5-es.html)
- 2 Committee on World Food Security, High Level Panel of Experts on Food Security and Nutrition, zero draft consultation paper on Biofuels and Food Security (9 January 2013)  
[http://www.fao.org/fsnforum/sites/default/files/files/86\\_Biofuels\\_v0/HLPE%20V0%20draft%20Biofuels%20and%20food%20security%20-%202009%20Jan%202013.pdf](http://www.fao.org/fsnforum/sites/default/files/files/86_Biofuels_v0/HLPE%20V0%20draft%20Biofuels%20and%20food%20security%20-%202009%20Jan%202013.pdf)
- 3 High Level Panel of Experts on Food Security and Nutrition, 24 May 2013- Biofuels and Food Security, Extract from the report: Summary and Recommendations
- 4 ibid
- 5 i.e. biofuels (or agrofuels) made from food crops or dedicated energy crops (See Box 1, Types of Biofuels)

### The Policy Mix

The EU has two policies which generate demand for biofuels. A 2020 10% target for renewable energy (mainly biofuels) in transport was established in 2009 under the Renewable Energy Directive (RED) and a 6% target for decarbonisation through the Fuel Quality Directive (FQD).<sup>6</sup> Subsidies and tax breaks have incentivised the industry, particularly the biodiesel sector, making the EU the largest producer of biodiesel in the world. Outside of Europe, bioethanol plays a much larger role (Box 1, Types of Biofuels).

Ireland’s National Renewable Energy Action Plan (NREAP) sets out our strategy for meeting the EU targets.<sup>7</sup> This Action Plan includes details of the mineral oil tax relief scheme (MOTR), which included tax reliefs designed to encourage production of pure plant oil from oilseed rape and biofuel blends complying with EU diesel standards. The MOTR expired in 2010. Now, under the national Biofuel Obligation Scheme (BOS, 2010) administered by the National Oil Reserves Agency

(NORA), all road transport fuel suppliers are obliged to use biofuels in the fuel mix.<sup>8</sup> The initial penetration rate was set at 4% with a provision for increasing it over time. It has since been raised to 6%.<sup>9</sup> The impact of the BOS has been to increase our dependency on imported biofuels.

With the majority of the EU’s vegetable oil converted into biofuels, the EU has ceased being a net exporter of vegetable oils and in terms of knock on impacts needs to import increased amounts of palm oil to meet domestic demand.

**‘If you look at the land now there is acres of sugarcane or African palm. Who is going to eat that?’**

**Juana Ical, Rio Frio, Polochic, Guatemala**

(Box 2: Juana Laj Ical)

Meeting the 2020 biofuels targets is only possible then through the outsourcing of biofuels production to developing countries. Anything between 4.7 to 7.9 million hectares of new land – an area roughly equivalent to the size of Ireland - needs to be

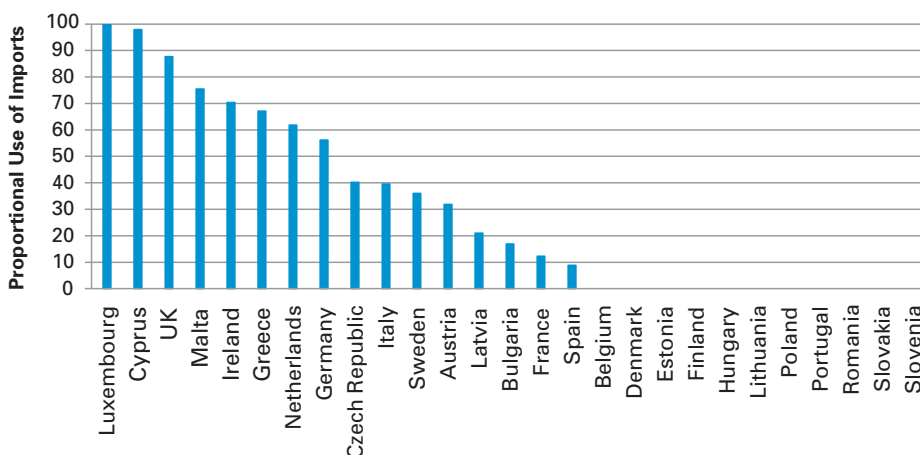
### Box 1: Types of Biofuels

There is considerable debate on how to classify biofuels. The International Energy Agency (IEA) divides all biofuels into conventional and advanced categories.

Conventional biofuels are often referred to as first generation. These biofuels are mainly derived from land based crops. Included in this category is bioethanol produced through the fermentation and distillation of plants containing sugar or starch (e.g. sugarcane, sugar beet, wheat or corn) and oil crop based biodiesel produced from oilseeds (e.g. sunflower, soybean, rapeseed, castor, jatropha and palm).

Advanced biofuels are often referred to as second or third generation technologies. These biofuel technologies are still in research and development. They include the use of inedible waste products and algae to produce biofuels. IEA projections show conventional biofuels to be predominant up to 2050. Conventional biofuels are expected to comprise virtually all of Ireland’s biofuel use by 2020.

**FIGURE 1 Reported level of reliance of Members States on imports of biofuels to meet demand in 2020<sup>10</sup>**



6 DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:en:PDF>

7 National Renewable Energy Action Plan <http://www.dcenr.gov.ie/NR/rdonlyres/C71495BB-DB3C-4FE9-A725-0C094FE19BCA/0/2010NREAP.pdf>

8 Details of the Biofuel Obligation Scheme are to be found on the National Oil Reserves Agency website at: <http://www.nora.ie/regulationslegislation/biofuels-obligation-scheme.152.html>

9 See Statutory Instrument S.I. No. 562 of 2012 NATIONAL OIL RESERVES AGENCY ACT 2007 (BIOFUELOBLIGATION RATE) ORDER 2012 at: <http://www.dcenr.gov.ie/NR/rdonlyres/DC3F11A0-A1DF-48FB-ABFC-D6C1DEC68E34/0/B296264dilly.pdf>

10 Anticipated Indirect Land Use Change Associated with Expanded Use of Biofuels and Bioliquids in the EU – An Analysis of the National Renewable Energy Action Plans (March 2011), Institute for European Environmental Policy [http://www.ieep.eu/assets/786/Analysis\\_of\\_ILUC\\_Based\\_on\\_the\\_National\\_Renewable\\_Energy\\_Action\\_Plans.pdf](http://www.ieep.eu/assets/786/Analysis_of_ILUC_Based_on_the_National_Renewable_Energy_Action_Plans.pdf)

found and be converted for biofuels in order to meet EU demand.<sup>11</sup> When land previously used for food, feed or fibre is diverted to biofuels production, and agriculture has to expand elsewhere to meet the existing (and future) demand for food and feed, this affect is referred to as Indirect Land Use Change (ILUC). The ILUC impacts of Europe’s biofuel policies are of such a magnitude<sup>12</sup> that fundamental reform is now necessary.

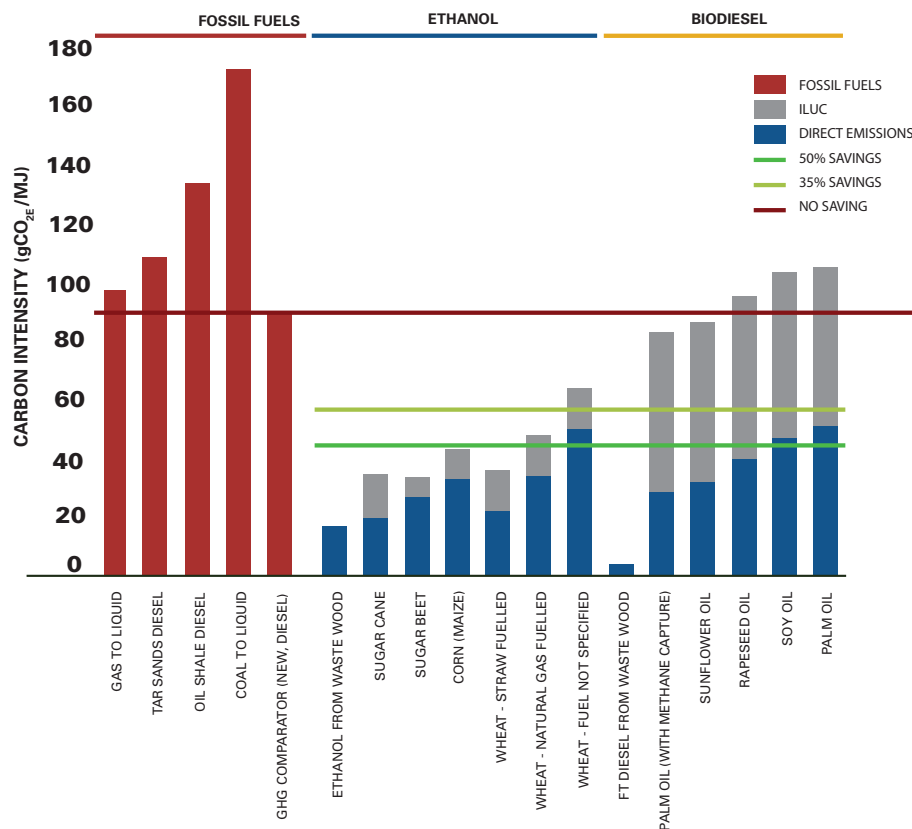
**ILUC’s Environmental Impacts**

As the EU’s primary objective in promoting biofuels is to reduce carbon emissions,<sup>13</sup> the ILUC dimension is of critical importance.

When ILUC factors are taken into account, palm, soybean and rapeseed oil achieve no real emissions savings and actually generate more emissions than fossil diesel from conventional oil.

Compounding ILUC’s impact is environmental degradation linked to large scale agricultural production systems favoured by biofuels. These systems are reliant on heavily mechanised and petrochemical inputs which advance soil erosion and water pollution.<sup>15</sup> Their monoculture composition further impacts negatively on biodiversity and ecological resilience.

FIGURE 2: Real CO2 Emissions from Biofuels, with ILUC <sup>14</sup>



**Box 2: Juana Laj Ical**

Juana Laj Ical is surrounded by healthy crops, yet she goes hungry. It is the great contradiction of Guatemala: a green country that has the ability to provide food for all of its people, yet boasts the fourth highest malnutrition rate in the world.

Juana and her family were evicted off land in the Polochic Valley region of Guatemala in March 2011. The eviction was carried out in order to expand a sugarcane plantation. Since then, the family, along with 20 others, have lived in emergency accommodation provided by Trócaire.

Without any land of their own, these families rely on day labour on nearby farms, but the work is irregular and the money is low. The result is hunger.

More and more of Guatemala’s land is being used to grow sugarcane and African palm, destined for rich countries markets. Food crops are being sacrificed to make way for fuel crops. With less food being produced, the cost of the food that is available has rocketed.

“Life was wonderful before the eviction,” she says. “We only grew what we needed to survive. If you look at the land now there is acres of sugarcane or African palm. Who is going to eat that? Not only did they take our land but now they are making us suffer hunger. When I was a child my life was different because we had everything. Now when I look at my daughters, they are suffering, they don’t have enough food. I feel sorry to see what my children have to go through.”

11 Drivers and Impacts of Europe’s Biofuel Policy (Transport & Environment, Friends of the Earth Europe, European Environmental Bureau and Birdlife Europe) See briefing at: <http://www.transportenvironment.org/publications/drivers-and-impacts-europes-biofuels-policy>  
 12 Anticipated Indirect Land Use Change Associated with Expanded Use of Biofuels and Bioliqids in the EU – An Analysis of the National Renewable Energy Action Plans (March 2011), Institute for European Environmental Policy [http://www.ieep.eu/assets/786/Analysis\\_of\\_ILUC\\_Based\\_on\\_the\\_National\\_Renewable\\_Energy\\_Action\\_Plans.pdf](http://www.ieep.eu/assets/786/Analysis_of_ILUC_Based_on_the_National_Renewable_Energy_Action_Plans.pdf)  
 13 Committee on World Food Security, High Level Panel of Experts on Food Security and Nutrition, zero draft consultation paper on Biofuels and Food Security (9 January 2013)  
 14 Drivers and Impacts of Europe’s Biofuel Policy (Transport & Environment, Friends of the Earth Europe, European Environmental Bureau and Birdlife Europe)  
 15 Oxfam Briefing Paper 161, 17 September 2012 ‘The Hunger Grains’ <http://www.oxfam.org/sites/www.oxfam.org/files/bp161-the-hunger-grains-170912-en.pdf>

## ILUC's Rural Development Impacts

Policies which drive greater demand for biofuels create incentives to reallocate resources, notably land and water from food to fuel production. Production systems have altered in response to policy incentives within the EU but also beyond the EU through the outsourcing of food/fuel. As demand for food is inelastic, in that it changes very little in response to either availability or price, production displaced in one place must be compensated for by production in another location. To meet the heightened demand for food/fuel, forested areas, peatlands and grasslands are being converted into crop fields. Apart from the additional large amounts of GHG emissions released, such natural resources may have provided complementary food and water sources which are no longer available to local communities.<sup>16</sup>

**'People are not looking for food deliveries, they need land so they can grow their own food so they can survive.'**

**Jorge Macias,  
Fundacion Guillermo Toriello**

The UNDP's Africa Human Development Report (2012),<sup>17</sup> drew attention to how biofuels policies are leading to resource expropriation. Competition for natural resources favours richer investors, leading to greater concentration in ownership and alienation for vulnerable groups from traditional means of survival. Where weaker enforcement of regulatory frameworks apply, new land investments pose a greater threat to local peoples land tenure rights. Women's land rights are particularly vulnerable as they may not be explicitly recognised in the first place.

In tandem with fostering greater competition for finite resources, the redesignation of food crops as fuel crops, linking food prices with oil prices,<sup>18</sup> has had dramatic effects on prices for food crops. Modelling the impact of the EU's mandates on food prices suggests that by 2020 EU biofuels policies could be responsible for increases in oilseed prices of up to 20%, in vegetable oil prices up to 36%, maize prices by as much as 22% , sugar prices by a possible 21% and wheat prices by as much as 13%.<sup>19</sup> The resulting price volatility and upward trend in food prices leaves poor people having to spend more of their modest incomes on food leading to less expenditure on other necessities or reduced consumption and declining nutrition security.<sup>20</sup> In either case poverty and hunger is exacerbated.

## Energy Security

The potential energy generation from conventional biofuels also has clear limits.

At present, were the totality of the world's crops directed to produce biofuels, this at most would constitute between 9% and 13% of the world's primary energy. By 2050 this would only correspond to 4-6% of the world's energy while mobilising 85% of the world's fresh water resources.<sup>21</sup> These estimates highlight a gross imbalance between resource utilisation and energy generation. When social and environmental costs such as insufficient food to feed a growing global population, greater degradation of our ecosystems and higher emissions are taken into account, the case for revising the EU's biofuels policies is compelling.

## Meaningful reform

Under the RED, the European Commission (EC), was mandated to report on the effects of ILUC and how to minimise same by 31 December 2010. Only in October 2012 did the Commission publish a proposal to address the ILUC impacts of biofuels. The proposal does not require governments or fuel suppliers to account for indirect emissions from biofuels. Instead, it proposes a 5% cap on the amount of biofuels made from agricultural crops. Such a measure does not limit the consumption of biofuels but merely limits the quantity that member states can count towards the 2020 RED transport target. If adopted this would mean that in 2020 more than 5% of energy in the transport sector could come from land based biofuels without any guarantee that they reduce carbon emissions. Furthermore, there is no effort to distinguish between the varying emissions arising from biodiesel and bioethanol. The proposal also means that the EU's biofuels policies would continue to impact on food prices and access to/control over land and water resources in ways which aggravate poverty for vulnerable groups in developing countries. In conclusion, the EC's ILUC proposal is welcome in so far as it acknowledges there is a problem. However, having recognised the problem it proposes to go only half way towards addressing it.

The fate of the EC proposal will be significantly influenced by political decisions made by our representatives in the European Parliament and the European Council of Ministers. Despite studies showing how the EU's renewable energy targets can be met without or with significantly less land

<sup>16</sup> Committee on World Food Security, High Level Panel of Experts on Food Security and Nutrition, zero draft consultation paper on Biofuels and Food Security (9 January 2013).

<sup>17</sup> Africa Human Development Report 2012 Towards a Food Secure Future, UNDP <http://www.undp.org/content/undp/en/home/librarypage/hdr/africa-human-development-report-2012/>

<sup>18</sup> Committee on World Food Security, High Level Panel of Experts on Food Security and Nutrition, zero draft consultation paper on Biofuels and Food Security (9 January 2013)

<sup>19</sup> Oxfam Briefing Paper 161, 17 September 2012 'The Hunger Grains' <http://www.oxfam.org/sites/www.oxfam.org/files/bp161-the-hunger-grains-170912-en.pdf>

<sup>20</sup> Committee on World Food Security, High Level Panel of Experts on Food Security and Nutrition, zero draft consultation paper on Biofuels and Food Security (9 January 2013)

<sup>21</sup> Ibid

based biofuels than currently in use,<sup>22</sup> support for a robust cap on conventional biofuels is proving elusive. At best the EC proposal represents a small step in the right direction. However, member states are working to further weaken what is a weak proposal in the first place. Public incentives for the production of food crop based biofuels must be reduced and eventually removed, with only those advanced biofuels that do not compete with food production for land or other resources and which deliver real emissions savings being incentivised.

### Ireland's Contradictory Position

*One World, One Future* Ireland's Policy for International Development (2013)<sup>23</sup> restates Irish Aid's 'top priority continues to be reducing hunger'. The government's fight against hunger and under-nutrition will build further on the 2008 Hunger Task Force Report.<sup>24</sup> The Hunger Task Force policy shaping report identifies increasing smallholder agricultural productivity, with a particular focus on women in Sub-Saharan Africa, targeting maternal and infant under nutrition and focussing on governance and leadership priorities as the three key areas Irish Aid funding would be directed towards. In April 2013, the UN Special Rapporteur on the Right to Food wrote to the Irish government to highlight the impacts of the EU biofuels policy on the right to food.<sup>25</sup> Among the main concerns highlighted in this communication were:

- the increased competition for natural resources and the negative implications of farmland speculation particularly for poor people in Sub-Saharan Africa;
- the designation of more and more land either to energy crops or to food export crops for the EU with potentially detrimental consequences for food crops production that feed local communities;
- high food prices putting food out of reach for people living in poverty;
- the bias in biofuels production towards large-scale and heavily mechanised monocultures leaving many of the former land users both jobless and landless;
- the failure of biofuels to deliver on climate change and environmental objectives.

Based on these considerations, the Rapporteur concludes 'that the biofuels policy pursued by the EU is in contradiction with the objectives of its own development cooperation'. At a time when Ireland's aid programme has been significantly reduced it is critical that we optimise the impact of remaining investments through the pursuit of a coherent approach to development across government. It is imperative that we address the contradictions and build synergies therefore between our biofuels and development policies.

<sup>22</sup> See Sustainable Alternatives for Land-based Biofuels in the European Union report (December 2012) at [http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2013/CE\\_Delft\\_Sustainable\\_alternatives\\_land\\_based\\_biofuels.pdf](http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2013/CE_Delft_Sustainable_alternatives_land_based_biofuels.pdf)

<sup>23</sup> One World, One Future Ireland's Policy for International Development (Government of Ireland, 2013) <http://www.dci.gov.ie/news-publications/publications/publicationsarchive/2013/may/one-world-one-future-irelands-policy/>

<sup>24</sup> Hunger Task Force Report (2008) <http://www.irishaid.gov.ie/media/irishaid/allwebsitesmedia/20newsandpublications/publicationpdfsenglish/hunger-task-force.pdf>

<sup>25</sup> [http://www.srfood.org/images/stories/pdf/otherdocuments/20130423\\_biofuelsstatement\\_en.pdf?utm\\_source=SRFood+Newsletter&utm\\_campaign=db06c30eac-2013\\_0521\\_Global\\_Governance5\\_22\\_2013&utm\\_medium=email&utm\\_term=0\\_302e2e7b80-db06c30eac-283476605](http://www.srfood.org/images/stories/pdf/otherdocuments/20130423_biofuelsstatement_en.pdf?utm_source=SRFood+Newsletter&utm_campaign=db06c30eac-2013_0521_Global_Governance5_22_2013&utm_medium=email&utm_term=0_302e2e7b80-db06c30eac-283476605)



## Recommendations

**'Food security policies and biofuels policies cannot be separated because they mutually interact'<sup>26</sup>**

There is compelling evidence to support the view that land based biofuels do not represent a solution to addressing energy problems associated with tackling climate change. Moreover, the introduction of public incentives to support land based biofuels production is already having detrimental impacts both on the environment and poverty eradication. It is time to phase out financial incentives for fuels with questionable environmental benefits and serious impacts on people. Ireland must adopt a coordinated approach to energy and food security issues making food security and the right to food a priority concern in the design of any biofuel policy. Specifically:

- Ireland should endorse a genuine and robust cap to limit the use of land based biofuels and join other proactive member states endeavouring to take Europe off a transport pathway that is reliant on such biofuels.
- In tandem with such a cap on land based biofuels, Ireland with other member states should agree a trajectory to gradually and constantly reduce the amount of land based biofuels under the cap as energy efficiency, renewable electricity and sustainable biofuels technologies develop.
- Deliver on the whole of government approach identified in *One World, One Future* Ireland's policy for international development by prioritising the issue of policy coherence between Ireland's development and biofuels policies at the Inter-Departmental Committee on Development. This Committee should develop indicators to track progress and compile a bi-annual report to Government.
- To properly account for the full carbon footprint of biofuels, Ireland should support mandatory ILUC emission factors being applied to both the RED and FQD.
- Ireland should prioritise support for measures designed to protect poor peoples access to natural resources. Specifically we should show leadership in supporting the implementation of the FAO voluntary guidelines on Land, Fisheries and Forests and the African Land Policy Guidelines.
- Upon agreement of the broadly owned Responsible Agricultural Investment principles within the Committee on World Food Security, Ireland should identify how these principles can be adopted to support best practice in partnership initiatives, including private sector pilot projects.

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<sup>26</sup> High Level Panel of Experts on Food Security and Nutrition, 24 May 2013- Biofuels and Food Security, Extract from the report: Summary and Recommendations)