



WORLD GROWTH

# **Conversion: The Immutable Link Between Forestry and Development**

A World Growth Report

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## The Immutable Link Between Forestry and Development

A case has been steadily built since the negotiations on a new global compact on Climate Change began in December 2007 that an essential element must be cessation of conversion of land in tropical forest areas.

This is an anti-development strategy. It would reduce economic growth. It ignores the obligation of parties to the UN Framework Convention on Climate Change not to hinder the development interests of developing countries.

Conversion of forest land to other, more productive agricultural purposes is an immutable part of the process of economic development. Stopping that retards development.

## Gross Mistake of World Bank and Its Donors

The damage it does to growth is fully recognized by the World Bank and development agencies. That is why they have a compensatory strategy – provide aid and promote carbon farming instead of forestry to generate carbon credits. But it cannot work. This plan is fundamentally flawed.

The UK Government estimates that between US\$100 and 160 billion is required annually to support restructuring of developing country economies. Forty to 50 billion is the estimate to compensate for economic loss of ceasing development of forest land.

This money will not be raised.

Annual aid is already around US\$100 million. The US Congress would not fund the extra and other donors would not cover the shortfall. This is also bad aid policy. The strategy also undermines the golden rule that aid must make economies self sustaining. This strategy would replace a productive activity – economic utilization of land – with welfare payments.

All donors also know large cash payments are bad aid. They cause inflation and unbalance delivery of government services.

A supporting claim is that conversion of forest land undermines protection of biodiversity. That is also wrong. Forested developing countries have already set aside more land to protect biodiversity than the 10 per cent required under the UN Convention on Biodiversity.

## Dulled Promise of Carbon Credit ‘Silver Bullet’

The ‘silver bullet’ solution initially promoted by the World Bank - farm carbon in standing forest instead of harvesting the timber and generate substitute income to developing countries by selling carbon credits in global trades – has, like most silver bullets, a fatal flaw. There will be no globally regulated system of emissions trading in the foreseeable future.

## Green Hypocrisy

The call by the EU and the environmental NGOs for developing countries to cease land conversion is also morally questionable. Developing countries are being asked to give up the opportunity industrialized economies used to the full: the ability to develop a valuable resource -- namely, forests -- to raise living standards.

Furthermore, having converted carbon sinks (forests) into carbon emitters (agriculture), industrialized countries have decided to exempt their farmers from obligations to reduce emissions. Eight per cent of emissions from OECD countries are from agriculture. Yet the EU is brazenly calling on forested, developing countries to cease conversion. And Western politicians are even aiming to deny them the chance to create more productive sinks, such as plantation forestry and palm oil. The emissions attributed to land conversion would not be much greater than those generated from farms in rich countries.

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The justification for this is the finding in the Stern report that forest land conversion generates 17 per cent of emissions. This number does not stand scrutiny. Actions to reduce emissions have been taken in Brazil and Indonesia the two largest emitters. The real level will be between four and eight per cent.

This is ‘Green Hypocrisy,’ and it’s breath-taking. Agricultural protectionism already harms poorer developing countries by restricting trade and depressing world prices. Not only that, the intensive farming which EU policies foster also damages the environment.

In their own self interest to reduce poverty and raise living standards, developing countries should say ‘no’ to no conversion.

## Getting REDD Right

When dealing with forestry issues in the negotiations – such as REDD – developing countries should also reject any principle that aid provided by industrialized countries should be conditional on developing countries ceasing to convert forest land for any purpose.

Developing countries should also insist industrialized economies liberalize their agricultural sectors. This would reduce emissions from the EU farm sector and shift agricultural production to developing countries, where, with less intensive agricultural practices, agriculture would produce fewer emissions than in Europe.

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# ACRONYMS AND ABBREVIATIONS

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## Acronyms and Abbreviations

<b>CAP</b>	COMMON AGRICULTURAL POLICY
<b>CDM</b>	CLEAN DEVELOPMENT MECHANISM
<b>CIFOR</b>	CENTER FOR INTERNATIONAL FOREST RESEARCH
<b>COP</b>	CONFERENCE OF THE PARTIES
<b>DFID</b>	DEPARTMENT FOR INTERNATIONAL DEVELOPMENT
<b>EU</b>	EUROPEAN UNION
<b>FAO</b>	FOOD AND AGRICULTURE ORGANISATION FOR THE UNITED NATIONS
<b>FIP</b>	FOREST INVESTMENT PROGRAM
<b>FLEGT</b>	FOREST LAW ENFORCEMENT, GOVERNANCE AND TRADE
<b>FSC</b>	FOREST STEWARDSHIP COUNCIL
<b>GDP</b>	GROSS DOMESTIC PRODUCT
<b>IPCC</b>	INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
<b>MDGS</b>	MILLENNIUM DEVELOPMENT GOALS
<b>NGO</b>	NON-GOVERNMENT ORGANIZATIONS
<b>ODA</b>	OVERSEAS DEVELOPMENT ASSISTANCE
<b>OECD</b>	ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT
<b>OED</b>	OPERATIONS EVALUATION DEPARTMENT
<b>PNG</b>	PAPUA NEW GUINEA
<b>REDD</b>	REDUCED EMISSIONS FROM DEFORESTATION AND FOREST DEGRADATION
<b>RIL</b>	REDUCED IMPACT LOGGING
<b>SFP</b>	SINGLE FARM PAYMENT
<b>UK</b>	UNITED KINGDOM
<b>UNFCCC</b>	UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE
<b>US</b>	UNITED STATES
<b>USAID</b>	UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
<b>VER</b>	'VOLUNTARY' EXPORT RESTRAINT
<b>VPA</b>	VOLUNTARY PARTNERSHIP AGREEMENT
<b>WFCSD</b>	WORLD COMMISSION ON FORESTS AND SUSTAINABLE DEVELOPMENT
<b>WWF</b>	WORLD WIDE FUND FOR NATURE

# INTRODUCTION: DEVELOPMENT AND PROTECTIONISM

While developing countries continue to insist their development interests must be uppermost in any strategy to tackle climate change, most of the 'development' debate has focused on how much financial support will be provided to developing countries.

There is another issue which poses serious risks to the development capacity of developing countries, although it has not featured in the 'development' debate in the United Nations Framework Convention on Climate Change (UNFCCC). That is the insistence by the European Union (EU) and environmental campaigners that 'No Conversion' of forest land must be key element in any future global program to reduce emission of greenhouse gases.

The case for 'No Conversion' is that deforestation is a leading source of emissions and a 'No Conversion' principle will curb that.

It is increasingly recognized that the presumption advanced by many environmental groups that large scale forestry and plantation industries were the leading drivers of deforestation is wrong. It is now accepted that roughly 50 per cent of clearance of forest land is by poor people and smallholders.

Implementing 'No Conversion' would have two results. One, it would halt the most economically productive results of conversion – establishing industries like timber and palm oil plantations which raise living standards and reduce poverty. Two, it would have no impact on the pressure from the poor for access to land.

Yet that is not accepted in policy capitals in Europe. Leading European Union (EU) members are pressing either for agreement to a 'No Conversion' principle, or for endorsement of the idea that no financial assistance should be provided to developing countries unless they apply a 'No Conversion' policy.

These are policies that would increase, not reduce, poverty (nor have a meaningful environmental impact – most developing countries have already reserved large areas of forest to protect biodiversity).

Furthermore, based on the same erroneous assumption about what drives deforestation, the EU is introducing trade measures to enable it to coerce large exporters of forest products to adopt 'No Conversion' policies and to restrict large scale and commercial forestry.

These policies, advanced as measures to protect the environment, will have only one certain effect: they will increase poverty. This report aims to explain why.



## 2. LAND USE AND GLOBAL CLIMATE POLICY

*The debate over land-use and deforestation in the developing world is at the centre of the global climate change debate. Yet the relationship between deforestation in poor countries and agriculture is poorly understood.*

### The Focus on Forests

It is accepted by most within the climate change community that deforestation in developing countries is responsible for 18 per cent of global emissions. Often this figure is rounded up to 20 per cent in public statements.

Recently there have been a number of studies that have cast doubt on this figure, stating that 12 per cent is a more likely number.<sup>1</sup> The common presumption is that most of these emissions are generated in the tropical regions which are conventionally thought to hold the most forest carbon; yet it is estimated that temperate and boreal forests contain more than twice as much carbon as tropical forests.<sup>2</sup>

The environmental movement has pressed without success for a global convention to constrain forestry in tropical countries since the 1980s.<sup>3</sup> Over the last decade,

it has succeeded in raising concerns about forestry, first over illegal logging, and second, its impact on emissions of greenhouse gases.

This has had two effects. First, it has made deforestation a 'global' problem. Second, it has enabled significant political pressure to be exerted on developing countries to curb emissions in the context of international climate change negotiations.

The forest industry, particularly the consumer pulp and paper sector, and more recently the palm oil industry, has borne the brunt of the pressure in the public debate. The facts have played little role to date. Eighty per cent of deforestation is driven by both subsistence and commercial agriculture; and 53 per cent of deforestation supports subsistence livelihoods (see Table 1.1). In the developing world, deforestation is part of the process of development out of subsistence agriculture. Stopping deforestation stops this development path.

**Table 2.1: Drivers of deforestation and degradation in developing countries**

MAIN DIRECT DRIVERS	SHARE OF DEFORESTATION/ DEGRADATION (%)	AREA OF DEFORESTATION/ DEGRADATION (MILLION HA/YEAR)
<b>COMMERCIAL AGRICULTURE</b>		
Commercial Crops	20	2.6
Cattle ranching (large-scale)	12	1.6
<b>SUBSISTENCE FARMING</b>		
Small scale agriculture/ shifting cultivation	42	5.5
Fuel-wood and NTFP	6	0.75
<b>WOOD EXTRACTION</b>		
Commercial (legal and illegal)	14	1.8
Fuel-wood / charcoal (traded)	5	0.7
<b>TOTAL</b>	<b>100</b>	<b>12.9</b>

Source: UNFCCC, 2007. *Investment and financial flows to address climate change. United Nations Framework Convention on Climate Change.*

1. G. R. van der Werf, D. C. Morton, R. S. DeFries, J. G. J. Olivier, P. S. Kasibhatla, R. B. Jackson, G. J. Collatz & J. T. Randerson. CO<sub>2</sub> emissions from forest loss. *Nature Geoscience* 2, 737 - 738 (2009)

2. Carlson, M., Wells, J., Roberts, D. 2009. *The Carbon the World Forgot: Conserving the Capacity of Canada's Boreal Forest Region to Mitigate and Adapt to Climate Change.* Boreal Songbird Initiative and Canadian Boreal Initiative, Seattle, WA, and Ottawa. 33 pp.

3. Humphreys, D. Redefining the Issues: NGO Influence on International Forest Negotiations *Global Environmental Politics* - Volume 4, Number 2, May 2004, pp. 51-74

In the developed world, agriculture is also a significant emissions source. Points of emission vary, including soil disturbance and enteric fermentation (from livestock). For many developed countries they make up a significant proportion of emissions.

**Table 2.2 Percentage of total emissions from agriculture (2007) selected countries**

COUNTRY	PERCENTAGE OF TOTAL EMISSIONS FROM AGRICULTURE (2007)
Australia	17.5
France	17
Denmark	14
EU - 15	10
Spain	11

Source: : OECD. *Environmental Performance of Agriculture in OECD Countries since 1990*.

Despite the significance of these emissions, developed countries – notably the EU, US and Australia – have excluded agricultural emissions from domestic emissions trading systems to cut greenhouse emissions.

At the same time, these nations are pressing poor countries to cut agricultural emissions from land-use change. This pressure was instrumental in the evolution of the concept of REDD (reduced emissions from deforestation and forest degradation) as a key element in the climate change negotiations.

## From REDD to REDD-plus

The roles of land use and forestry in generating and sequestering greenhouse gas emissions have historically been contentious in UNFCCC negotiations. As the Intergovernmental Panel on Climate Change (IPCC) has noted, expanding sustainable forestry is the most cost-effective way to reduce emissions.<sup>4</sup> But this has only ever been partially or begrudgingly acknowledged in the UNFCCC.<sup>5</sup>

The extent to which activities to increase sinks might be recognized by Annex I parties was strictly limited. No activity prior to 1990 could be counted. Stored carbon (in wood products and paper) was not counted. Credits under the Clean Development Mechanism (CDM) could only be generated in developing countries for afforestation and reforestation, and under limited terms.

The effect of these arrangements restricted proper incorporation of forestry into emission reduction strategies mandated in the Kyoto Protocol. This was the conscious aim of the EU in particular. Developing countries who were prospectively disadvantaged because of their significant forest reserves did not object. They considered their interests were protected because they were not obliged to regulate emissions by the Kyoto Protocol.

The contribution of forest management to emissions was returned to the UNFCCC negotiations through the REDD concept. It was introduced at the 11th Conference of the Parties (COP 11) to the UNFCCC in 2005 by Papua New Guinea (PNG), as head of the Rainforest Coalition. The concept presented was payment to cease deforestation, receipt of credits for global trading and acceptance by developing countries of formal commitments to reduce emissions.<sup>6</sup>

The specific concept has not been agreed. The references to forestry in the ‘Bali Action Plan’,<sup>7</sup> reflected the conventional position on forestry and the environment in United Nations (UN) declarations. It called for ‘policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stock in developing countries’.

The World Bank strongly endorses REDD, but with qualifications that reflect its long-standing policy of not supporting commercial forestry, but supporting forest conservation. Tropical forest economies in Africa have

4. IPCC, 2007a, *Climate Change 2007: Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report of the IPCC*, Metz, B, Davidson, OR, Bosch, PR, Dave, R, and Meyer, LA, (eds), Cambridge University Press, Cambridge, UK and New York, NY, p 543, accessed at: <http://www.ipcc.ch/ipccreports/ar4-wg3.htm>

5. COP 7 (October/November 2001) adopted a decision on LULUCF and related issues as part of the Marrakesh Accords (Decision 11/CP.7). This decision by COP 7 recommended that the COP/MOP, at its first session, adopt a decision on land use, land-use change and forestry. This decision has now been adopted by the COP/MOP, at its first session, as decision 16/CMP.1.

Decision 16/CMP.1 consists of three main elements: A set of principles to govern the treatment of LULUCF activities; A common definition for ‘Forest,’ plus definitions for activities under Article 3.3 and agreed activities under Article 3.4; and modalities, rules and guidelines relating to the accounting of activities under Articles 3.3 and 3.4.

6. UNFCCC, 2005, Reducing emissions from deforestation in developing countries: approaches to stimulate action, Submission by the Governments of Papua New Guinea & Costa Rica, Conference of the Parties, Eleventh Session, 28 November – 9 October 2005, accessed at: <http://unfccc.int/resource/docs/2005/cop11/eng/misc01.pdf>; and PNG Government, Presentation by Papua New Guinea at the Workshop on Reducing Emissions from Deforestation in Developing Countries, Rome, Italy

7. UNFCCC, Decisions of the Conference of the Parties – Thirteenth Session, United Nations Framework Convention on Climate Change, accessed at: <http://unfccc.int/documentation/decisions/items/3597.php?such=j&volltext=/CP.13#beg8>. The COP is the governing body of the Convention, and advances implementation of the Convention through its decisions.

responded to REDD by demanding that it encompass the clear recognition of the role of commercial forestry in development and conservation – as recognized in the Bali Action Plan. The net result was ‘REDD-plus’, i.e. REDD plus sustainable management of forests, conservation and enhancement of carbon stocks.

Consistent with this approach, African nations oppose inclusion of elements in the current UNFCCC negotiating text that would preclude conversion of land to more economically productive purposes.<sup>8</sup>

## Forestry and the Climate

In terms of climate change mitigation, the expansion of forest sinks is among the most cost-effective ways of meeting long-term emissions targets.<sup>9</sup> The Fourth Assessment Report by IPCC has summarized the research on this question as concluding that ‘forestry can make a very significant contribution to a low-cost global mitigation portfolio’.<sup>10</sup>

The best estimate of the mitigation potential for the forestry sector ranges between 2.7 and 13.8 Gt per year in 2030. For the expansion of plantations, mitigation potential ranges from between 50.9 to 113.2 Gt C by 2100.<sup>11</sup>

Forestry in natural forest concessions – when undertaken using sustainable forest management – also provides an economic and environmental dual benefit. For example, reduced impact logging (RIL) in Papua New Guinea disturbs roughly 25 per cent of above-ground biomass within a forest concession.<sup>12</sup> RIL operations do not create significant soil biomass disturbance. The timber removed is generally used for long-lived harvested wood products that store carbon well after harvesting.

Additionally, such forestry operations provide employment, development opportunities and economic returns that exceed the current market value of carbon emissions.

## Forestry, Agriculture and Deforestation

The relationship between deforestation and both forestry and agriculture is often poorly understood within the public debate. Forestry – and even sustainable forest management – has been heavily criticised by environmental campaigners.<sup>13</sup> This has drawn a rebuke from the FAO and is outside of the consensus on the economic and environmental benefits of sustainable forestry.

On the other hand, discussions of the impact of REDD upon agriculture and food security has received only scant attention in discussions in the lead-up to Copenhagen.<sup>14</sup> Simply put, the very basics have not been considered. For example, while increased yields have been proposed as a means for reducing emissions from land-use change, the fact that increased yields will drive up REDD opportunity costs has not. Greater and more detailed work needs to be undertaken before any commitments are made by developing countries on land conversion and forestry.

8. Third World Network. Differences over indigenous peoples’ rights and forest conversion in REDD-plus. October 9, 2009

9. Amano, M, and Sedjo, R, 2006

10. IPCC, 2007a

11. Sathaye, J, Makundi, W, Dale, L, and Chan, P, 2005, GHG Mitigation Potential, Costs and Benefits in Global Forests: A Dynamic Partial Equilibrium Approach, LBNL-58291,

Lawrence Berkeley National Laboratory, Berkeley, CA, 22 March, accessed at: <http://ies.lbl.gov/iespubs/58291.pdf>

12. Colin Hunt (2002). ‘Local and global benefits of subsidizing tropical forest conservation.’ *Environment and Development Economics* 7: 325–340

13. Cf. Greenpeace (2009). The Fallacy of GHG Emissions Reductions from so-called ‘Sustainable Forest Management’ (SFM) or Reduced Impact Logging (RIL) of Natural Forests. By Grant Rosoman, Janet Cotter and Maik Marahrens. Greenpeace Research Laboratories Technical Note 07/2009, October 2009. Global Witness (2009). *Vested Interests: Industrial logging and carbon in tropical forests*. Global Witness, London.

14. UNFCCC (2009). Non-paper No. 39. Ad Hoc Working Group On Long-Term Cooperative Action Under The Convention. Resumed seventh session. Barcelona, 2.6 November 2009

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## Deforestation and Emissions: Overstating the Case

In 2006, the Stern Review on the Economics of Climate Change stated that 18 per cent of global carbon emissions came from deforestation. This 2007 Intergovernmental Panel on Climate Change (IPCC) Report stated that 17.3 per cent of carbon dioxide emissions were caused by deforestation and decay of biomass and that 20 per cent of emissions were due to “land use change flux”. Both these claims are based on calculations from the Woods Hole Research Centre. This research contained a margin of error for the rate of tropical deforestation of fl 50 per cent.

A number of scientific experts have since stated that these figures are based on ‘poor science’ and ‘inaccurate data’ and as a consequence, have been grossly overstated.

The director of Brazil’s National Institute for Space Research (INPE), Gilberto Camara, stated that the figure was far more likely to be just half that figure at 10 per cent of global emissions. INPE collect annual data on deforestation in Brazil via detailed satellite imaging. The Stern Review relied on FAO data stating that 31,000 sq km had been cleared between 2000 and 2005. Data collected by INPE in the same period concluded that 21,500 sq km of forest had been cleared – a decrease of more than 30 per cent. INPE also found that land clearing data from the FAO for 2005-2009 was more than twice the real figure.

On this basis, INPE has concluded that the real contribution of deforestation to global carbon emissions is more likely to be 10 per cent. Even then, INPE’s conclusion did not account for the increase in emissions from fossil fuels since the Stern Review and IPCC Report. The percentage contribution of deforestation to emissions could therefore be even lower.

Researchers from the University of Amsterdam recently considered the contribution of deforestation to global emissions and found that claims that deforestation causes 20 per cent of global emissions were based on out-of-date information and that the rate of tropical deforestation had been overstated. The researchers found that, because of increases in fossil fuel consumption, it is more likely that deforestation contributes to 12 per cent of total carbon dioxide emissions, and that the figure could be as low as 6 per cent.

The Dutch research stated that global fossil fuel emissions has now increased to 8.5 Gt C per year. However, the research only assessed new data on deforestation , not total global emissions. In which case, using a global extrapolation of the INPE assessment that FAO deforestation data is overstated by a factor of two combined with increases in global carbon emissions, it is not unreasonable to assume that the range of deforestation emissions falls between 4 and 8 per cent – roughly half of the IPCC estimates.

The EU has pledged to cut emissions by 20 per cent from 1990 levels by 2020. The United States will commit to cutting greenhouse gas emissions by 17 per cent from 2005 levels by 2020. These pledges amount to reductions of 0.1 Gt CO<sub>2</sub>-e per year each.

Yet developed nations – particularly the EU – are calling for reduction of deforestation to zero. On current trends and using a low estimate (5.5 per cent) of the contribution of deforestation to global emissions, this amounts to an annual emissions reductions of 2.93 Gt CO<sub>2</sub>-e from the developing world.

*Sources: Van der Weft, D. C., Morton, D. C., DeFries, R. S., Olivier, J. G. J., Kasibhatla, P. S., Jackson, R. B., Collatz, G. J., & Randerspm, J. T. (2009). 'CO<sub>2</sub> missions from forest loss'. *Nature Geoscience* 2, 737-738; Agence France Presse, 'Brazil stems loss of Amazon rainforest', AFP, 13 November 2009.*





## 3. LAND USE AND DEVELOPMENT

*There is no economic growth in developing countries without change in land-use. Economies would not develop beyond subsistence economies or industrialize. Protection of the environment would be retarded. While advanced environmental stewardship has come only at a later stage of economic development in the industrialized world there is more regard for it today among developing economies than at comparable stages of development in the past.*

### The Role of Forest Conversion in Development

Use of forest resources is historically linked to stages of economic development. The FAO<sup>15</sup> has identified five 'phases' (see Table 3.1).

Forest conversion provides lands for settlements and farms, food, employment, incomes and fuel wood for rapidly growing populations with few alternatives. Developing countries are a long way from the final phase where the society is largely urbanized and environmental concerns are paramount.

In developing regions around 25 per cent of the population, or 1.4 billion people, live on less than US\$1 per day (1990 prices).<sup>16</sup> Undernourishment

affects nearly one in five people. Moreover, populations continue to grow. The total population of less developed regions is forecast to increase from 5.7 billion people to 7.1 billion in 2030 and 7.9 billion in 2050. For example, Indonesia's population has grown by 70 million people since 1980 and is now the world's fifth most populous country with a population of more than 220 million. Its population is expected to increase by another 50 million people by 2025.<sup>17</sup>

Consequently agriculture plays a significant role in forest change in developing regions. Agriculture is the largest contributor to forest change in tropical Asia and the Pacific and Latin America and the Caribbean. In Africa the expansion of small-scale agriculture is relatively more important than commercial-scale operations but this may change in the future.<sup>18</sup>

**Table 3.1: Development and the state of the forests**

STAGES	FORESTRY CYCLE IDENTIFIED BY FAO	DEVELOPMENT ASPECTS
Phase 1	Destruction of forests for farming and fuel wood	Period of growing population pressure
Phase 2	First sets of forestry regulations for forest management	Shortages of forest resources for environment, fuel wood and industry
Phase 3	Forestry legislation becomes effective, but industrialisation a new source of pressure on the forest	Wood is imported, transition to fossil fuels, industrialisation, an end to rural isolation, rural migration, and improvements in agricultural productivity
Phase 4	Expanding forests	Includes official reforestation policies
Phase 5	Environmental concerns growing in importance	Urbanised society

Source: FAO 'Long-Term Historical Changes in the Forest Resource', Geneva Timber and Forest Study Papers, No. 10, 1996

15. The countries include: Finland, France, Great Britain, Greece, Hungary, the Netherlands, Sweden and the United States of America.

16. United Nations (2009). The Millennium Development Goals Report 2009. United Nations, New York, New York.

17. BPS Statistics Indonesia, Selected Socio-Economic Indicators of Indonesia, March 2007

18. FAO (2009). State of the World's Forests 2009. United Nations Food and Agriculture Organization. Rome, Italy

**Table3.2: Contribution to forest change, 1990 to 2000, share**

	CONVERSION TO PERMANENT AGRICULTURE		CONVERSION TO SHIFTING CULTIVATION		FOREST AREA	OTHER
	Small Scale	Large Scale	Intensification	Expansion	Gain	
Tropical Africa	59	15	8	4	8	9
Tropical Asia	13	29	23	9	6	20
Latin America and Caribbean	13	47	4	2	6	28

Source: FAO 'Long-Term Historical Changes in the Forest Resource', Geneva Timber and Forest Study Papers, No. 10, 1996

Extra land for crops and settlements in coming decades will have to come from forest clearance. Over the next 30 years it is estimated that an additional 120 million ha will be needed for crops (3.75 million ha annually) and 100 million ha for housing and infrastructure.<sup>19</sup> Much of the expansion of croplands will need to come from sub-Saharan Africa and Latin America which are estimated to only be farming around 20 per cent of their suitable land.<sup>20</sup> More than half of the unused suitable cropland is concentrated in just a few countries in these two regions. Pressure for this land will increase. The international community now recognizes that fostering productive agriculture has slipped badly as a development objective over the last two decades. Group-of-Eight (G8) leaders recognized this at the L'Aquila Summit in 2009 and pledged to increase support for greater production from agriculture.

## Deforestation in the West

Throughout history there have been periods of rapid deforestation associated with the conversion of forest land to other uses. During the Middle Ages roughly 75 per cent of central Europe's forests were cleared as the population boomed.<sup>21</sup> This clearing of the forests increased incomes and reduced dependence upon subsistence agriculture for millions of Europeans.

The abundance of land and wood were important foundations in the rise of the US. It is estimated that one-half of the forests in the US were cleared by 1900.<sup>22</sup>

This includes 142 million hectares of forests cleared for agriculture and another 8 million hectares cleared for industry and towns – an area roughly the size of Indonesia.

Forest areas in France have undergone periods of deforestation and regrowth in line with population pressures. Forest areas were halved in the Middle Ages as populations grew. Covering 30 million hectares in the 800s – over half of France's total land area – forest areas were estimated to have fallen to 13 million hectares by 1300 as the population more than doubled over the period from 10 to 20 million people.<sup>23</sup>

This was followed by a period of forest regrowth as the population in France was almost halved as a result of war and plague. Forest areas in France regenerated to over 20 million hectares by 1450. Forest areas again began their downward trajectory halving again between 1750s and 1850. The doubling of France's population in the mid 17-18th centuries again coincided with a halving of forest area to less than 10 million hectares as forests were cleared to grow food for the rural-based population. In addition timber from the cleared lands fed an increasing industrial base in Paris.

In developed economies, the clearance of forests played a significant role in economic growth, employment and the expansion of agriculture, supporting population growth and exports, the development of secondary industries and the expansion of geopolitical power.

19. FAO. 2002. World Agriculture: Towards 2015/2030. Summary Report.

20. Despite this 80 per cent of increased crop production in developing countries will have to come from intensification (higher yields, increased multiple cropping and shorter fallow periods), as there are no opportunities for further expansion. For example, in South Asia it is estimated that 94 per cent of suitable land is already being farmed. FAO. 2002. World Agriculture: Towards 2015/2030. Summary Report

21. Williams (2006: 106)19. 2 (2005): 432-445.

22. Williams (2006: 308)

23. Sources: Williams, Deforesting the Earth, University of Chicago Press, Chicago, 2006 and FAO, Long-Term Historical Changes in the Forest Resource, ECE/TIM/SP/10, 1996

## Case study: Forests and Development in Western Europe and Indonesia

A comparison on land-use, population and economic development in Western Europe and Indonesia provides a useful case study of how land-use from forestry and agriculture contributes to development outcomes, including incomes, employment and nutrition.

Indonesia has large forest resources and the forestry sector is an important source of energy, employment and growth. Western Europe<sup>24</sup> is twice the size of Indonesia and has almost double the population. Both population densities are similar. Western Europe has around 112 people per square km while Indonesia has a slightly higher 126 people per km<sup>2</sup>. Similarities end here.

Western Europe is far more affluent. The per capita GDP (PPP) of many countries in Western Europe is around US\$30,000, compared to just US\$3,454 in Indonesia. Half the population of Indonesia live in rural areas, compared with a quarter in Western Europe.

Agricultural areas dominate in Western Europe; forests are the dominant landscape in Indonesia. Agricultural areas cover 40 per cent of land area in Western Europe, compared to just 27 per cent in Indonesia. Forest areas cover around 50 per cent of Indonesia's land, compared to just over 35 per cent of Western Europe.

Indonesia and Western Europe both produce and consume a similar amount of woodfuel – making Indonesia with its lower population and lower energy usage is far more reliant on this source of fuel.

Western Europe's production and consumption of wood products are many times greater than that of Indonesia; however, the forestry sector makes a greater contribution to the economy in Indonesia. While the total gross value added by the forestry sector is considerably larger in Western Europe, it contributes 2.5 per cent of GDP in Indonesia compared with just 0.9 per cent Western Europe's production and consumption of wood products are many times greater than that in Indonesia; however, the forestry sector makes a greater contribution to the economy in Indonesia. While the total gross value added by the forestry sector is considerably larger in Western Europe, it contributes 2.5 per cent of GDP in Indonesia compared with just 0.9 per cent in Western Europe. In Western Europe there are many more people formally employed in the forestry sector than Indonesia. However, not included are the many people informally employed in the forestry sector in Indonesia – suggesting that it is a more important employer than statistics suggest.

24. Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland

**A comparison of Western Europe and Indonesia's land, people, forest areas, wood product production and agriculture, 2005**

	WESTERN EUROPE	INDONESIA
<b>Land</b>		
Land area, m ha	358	181
Forest land, m ha	132	88
Forest cover, (%)	36.8	48.8
Agricultural area, m ha	144	48
Agricultural land, (%)	40.2	26.7
<b>People</b>		
Population, m	402	229
Population density, population per km <sup>2</sup>	112	126
GDP per capita, US\$ (PPP)	30000	3454
Rural population, (%)	23.4	50.8
<b>Wood production (and consumption)</b>		
Woodfuel, m m <sup>3</sup>	71 (73)	71 (71)
Industrial roundwood, m m <sup>3</sup>	258 (288)	28 (28)
Sawnwood, m m <sup>3</sup>	92 (93)	4 (2)
Woodbased panels, m m <sup>3</sup>	53 (50)	5 (2)
Pulp for paper, m m <sup>3</sup>	42 (47)	5 (5)
Paper and paperboard, m m <sup>3</sup>	98 (84)	5 (7)
<b>Formal forestry sector</b>		
Employment, '000 persons	1709	321
Share of the labour force, (%)	0.9	0.3
Gross value added, US\$ m	119249	9564
Contribution to GDP, (%)	0.9	2.5
<b>Food production and consumption</b>		
Calories (kcal/capita/day)	3536	2890
Protein consumption (g/day)	108	63
Agricultural Food production (FAO index I\$ b value)	178.05	36.96

Notes: m = millions; ha = hectares; m<sup>3</sup> = cubic meters; PPP = purchasing power parity.

Source: FAO. State of the World's Forests 2009 and FAO Statistical Division, FAOSTAT database

## Environmental Stewardship Higher Today

Despite their development imperatives, developing countries have not disregarded environmental concerns. Governments have set aside areas for conservation and introduced policies to maintain their valuable forest resources. The FAO reports that the area designated for conservation increased by 96 million hectares, or 32 per cent, between 1990 and 2005 (see Table 3.3). More than 11 per cent of total forest area is now designated primarily for conservation of biological diversity globally, with increases in all regions.

In Indonesia around 60 per cent of the total land area is designated as permanent forest (110 million hectares).<sup>25</sup> Around half of this is for conservation purposes and half for continued forestry. Malaysia pledged at the Rio Earth Summit to maintain a minimum land allocation of 50 per cent under permanent forest.

A comparison between conservation forest areas in South East Asia and Europe demonstrates that more than 20 per cent of forests in South East Asia are designated for conservation; in Europe it is less than 4 per cent.<sup>26</sup>

**Table 3.3: Forest area designation for conservation**

REGION	AREA '000 HA	ANNUAL CHANGE, '000 HA	
	2005	1990-2000	2000-05
Latin America and Caribbean	128777	3948	2268
North America	79741	64	1871
Asia and the Pacific	79478	796	1199
Africa	69528	-89	723
Europe	36760	1548	576
<b>Total World</b>	<b>394283</b>	<b>6267</b>	<b>6638</b>

Source: FAO. *State of the World's Forests 2009*

Rates of global deforestation have fallen from 0.21 per cent annual average between 1990 and 2000 to 0.16 per cent between 2000 and 2005.<sup>27</sup> At the same time, conservation areas expanded at an annual rate of 32 per cent between 1990 and 2005. Planted forests are also growing in importance globally. They are estimated to cover 271 million hectares globally (7 per cent of the global forest area).<sup>28</sup>

Close to half the planted forests are in Asia, where growth has been fastest. Planted forests include forest plantations and semi-natural planted forests. There was a reported 131 million hectares in Asia in 2005, including 65 million hectares of plantations forest and 67 million hectares of planted semi-natural forests.

Global plantation areas have been increasing by around 2.5 million ha per year since 2000. Significant areas have been planted in many countries in South-East Asia, notably Indonesia, Vietnam and China. In terms of environmental stewardship, plantations offer three major environmental benefits.

First, despite claims to the contrary, plantations do harbor biodiversity values. Studies in Latin America have indicated that they are particularly amenable to some species that are threatened or endangered.<sup>29</sup>

Second, plantations are able to act as a buffer zone for forests that protect typical forest functions, and also inhibit encroachment by illegal loggers.<sup>30</sup>

25. Ministry of Forestry (2006). *Forestry Statistics 2006*, Table I.1.1. Extent of Forest Area, Inland Water, Coastal and Marine Ecosystem Based on Forestry Ministerial Decree on the Designation of Provincial Forest Area, Inland Water, Coastal and Marine Ecosystem and Forest Land Use by Consensus

26. FAO. *Forest Resources Assessment 2005*

27. FAO. *State of the World's Forests 2009*

28. FAO. 2006. 'Global planted forests thematic study: results and analysis', by A. Del Lungo, J. Ball, and J. Carle, FAO forestry department, *Planted forests and trees working papers* 38

29. Daniel Piotto, Florencia Montagnini, Luis Ugaldea and Markku Kanninen. 'Performance of forest plantations in small and medium-sized farms in the Atlantic lowlands of Costa Rica'. *Forest Ecology and Management*. Volume 175, Issues 1-3, 3 March 2003, Pages 195-204

30. Brockerhoff, Eckehard, Hervé Jactel, John Parrotta, Christopher Quine, and Jeffrey Sayer. 'Plantation Forests and Biodiversity: Oxymoron or Opportunity?' *Biodiversity and Conservation*. 17. 5 (2008): 925-951. Royal Society B 360, 457-470.

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Third, the capacity of plantations to provide feedstock takes pressure off using natural forests for the supply of timber. Providing a new supply of timber for industry and requiring development of forestry management techniques, plantations are an important component of sustainable forestry. They also assist in the balance economic and environmental needs. It is estimated that in 2000 plantation forests supplied around 35 per cent of industrial roundwood and that this could rise to 44 per cent by 2020.<sup>31</sup>

Simply, while levels of deforestation in poor and tropical countries have been described as a crisis, the developing world is undertaking its development path with an increased awareness of environmental values exceeding that taken by the West during its equivalent period of development.

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31. ABARE & Jaakko Pöyry 1999. Global outlook for plantations. ABARE research report 99.9, Canberra, Australia, 107 pp



## 4. WHY DEFOREST?

***Conversion of forests to other productive uses provides significant economic gains. The simple fact is that the opportunity cost of not converting forests is exceedingly high. The commodities produced on these lands provide significant export revenues to developing countries. Some REDD proposals aim to replace this revenue with 'Green welfare'.***

### The Economic Gains in Land Use Change

The returns from some high-value plantation and commercially grown agricultural crops, especially oil crops such as oil palm and soybeans, are very high. These returns provide incomes, employment opportunities and export earnings for producing countries. A report for the UNFCCC estimates the returns from commercial agriculture at US\$2,247 a hectare.<sup>32</sup> Both FAO and World Growth research estimates that returns from tropical teak plantations are around US\$3500/ha.<sup>33</sup>

Agricultural plantations also provide food for growing populations. For example, there have been large increases in the production of oil crops in recent decades, particularly in developing countries. Around half the increase in production has been used to meet the growing demand for food in developing countries.<sup>34</sup> In Brazil returns from soybeans exceed US\$3,000 per hectare and in Indonesia returns from oil palm are as high as US\$9,000.<sup>35</sup>

Economic returns can be even higher when the proceeds from timber harvesting are included. The report for the UNFCCC estimates the returns from commercial timber extraction at US\$1,751 a hectare. Similarly the report for the Stern review includes estimates for one-off timber harvesting of US\$1,100.<sup>36</sup>

Around 55 per cent of the population of less developed regions lives in rural areas, including three quarters of those in extreme poverty.<sup>37</sup> Many in rural areas are reliant on subsistence farming for their livelihoods. Labour productivity is very low reflecting a shortage of decent employment opportunities.

The returns from subsistence farming are low but critical for the livelihoods of many of the rural poor. They are also the major source of deforestation. Subsistence farming contributes 48 per cent to annual deforestation, however, the returns from land conversion for this type of farming are less than 20 per cent of the total.<sup>38</sup> In Brazil the returns to cassava and rice are estimated to be US\$3 per hectare, but are thought to contribute three times more to deforestation than soybeans. In Indonesia returns for cassava, rice and smallholder rubber are US\$19, US\$28 and US\$72 per hectare, but combined these three crops are thought to contribute more than double the amount of deforestation as oil palm.

Wood remains a dominant source of fuel for cooking and heating in developing countries. Fuelwood accounts for around 40 per cent of all wood removals globally and a much higher proportion in developing regions.<sup>39</sup> In Africa 90 per cent of wood removals are for fuelwood.

32. UNFCCC, 2007. Investment and financial flows to address climate change. United Nations Framework Convention on Climate Change.

33. FAO (2002). Case study of tropical forest plantations in Malaysia by D.B.A Krishnapillay. Forest Plantations Working Paper 23. Forest Resources Development Service, Forest Resources Division. FAO, Rome (unpublished).

34. FAO. 2002. World Agriculture: Towards 2015/2030

35. Net present value, US\$/hectare. Various as updated and cited in Grieg-Gran, M. 'The Cost of Avoiding Deforestation: Update of the Report prepared for the Stern Review of the Economics of Climate Change', International Institute for Environment and Development, May 2008. Rhett A. Butler, Lian Pin Koh, & Jaboury Ghazoul (2009). REDD in the red: palm oil could undermine carbon payment schemes. Conservation Letters 2 (2009) 67-73.

36. The estimate for Indonesia is applied to many other countries in the report.

37. United Nations. 2007. World Urbanization Prospects: The 2007 Database. International Fund for Agricultural Development (2001) Rural Poverty Report 2001 - The Challenge of Ending Rural Poverty and Ravallion 2000 as cited in IFAD (2001)

38. The returns are US\$392 for small scale agriculture and US\$263 for fuelwood and non-wood forest products.

39. FAO. 2009. State of the World's Forests 2007

**Table 4.1: returns for land use: Brazil and Indonesia (excluding timber harvesting)**

COUNTRY	LAND USES	US\$ (HA)
<b>Brazil</b>		
	Soyabeans	3275
	Tree plantations	2550
	Beef cattle medium/large scale	413
	Dairy	172
	Beef cattle small scale	3
	Manioc/rice	3
	Bananas, sugarcane, pineapples	3
<b>Indonesia</b>		
	Oil palm large scale	3340
	Oil palm supported growers	2100
	Oil palm high yield independent	2340
	Oil palm low yield independent	960
	Timber plantation	3736
	Smallholder rubber	72
	Rice fallow	28
	Cassava monoculture	19

*Note: Returns are NPV in \$US 2007 assuming a discount rate of 10 per cent over 30 years unless otherwise stated. a) rubber, rice and cassava estimates are social prices and based on 20 per cent discount rate. Source: Various as updated and cited in Grieg-Gran, M. (2008), The Cost of Avoiding Deforestation: Update of the Report prepared for the Stern Review of the Economics of Climate Change, International Institute for Environment and Development, May 2008*

**Table 4.1: Forestry product exports: selected countries, 2007**

REGION	\$US MILLION	SHARE OF TOTAL EXPORTS (%)			
		FORESTRY	WOOD	PULP & PAPER	TOTAL
<i>Central African Republic</i>	59	22.9	7.1	0.1	30.1
<i>Lao Peoples Democratic Republic</i>	212	3.1	18.4	0.2	21.3
<i>Gabon</i>	983	11.8	4.7	0	16.5
<i>Cameroon</i>	450	1.7	10.3	0	12
<i>Papua New Guinea</i>	549	11	0.8	0.1	11.9
<i>Guyana</i>	60	1.1	6.7	1	8.8
<i>Chile</i>	4910	0.1	2.9	4.2	7.2
<i>Indonesia</i>	8178	0.1	3.1	3.7	6.9
<i>Uruguay</i>	299	2.5	3	1.2	6.7
<i>Brazil</i>	8105	0.1	2	2.9	5

Source: FAO (2008) *Forest finance: Contribution of the forestry sector to national economies, 1990 to 2006*

## Land use and Trade

The sale of forestry and agricultural products generates foreign exchange. In 2007 China exported over US\$18 billion of forestry products. Indonesia and Brazil exported over \$US 8 billion, accounting for 6.9 and 5.0 per cent of their total exports. Other countries also had large forestry exports. Gabon's forestry exports comprised 16.5 per cent of total exports. The Solomon Islands' forestry exports comprised 74.9 per cent of total exports. Table 2.1 shows forestry exports in size and also as a proportion of exports for select countries.

Land-intensive agriculture also makes a significant contribution to developing country exports. Yet most developing countries are net importers of land-intensive agricultural products, i.e. oil seeds and grains. The balance of trade between developed and developing countries for land-intensive agricultural products is approximately US\$13.5 billion annually.<sup>40</sup> This is the only agricultural grouping in which the terms of trade for developed countries outweigh those of developing countries. In all other groupings, e.g. labor-intensive agriculture, processed agriculture, the terms of trade weighs heavily in favor of developing countries.

40. Betina V. Dimaranan and Robert A. McDougall, eds., *Global Trade, Assistance, and Production: The GTAP 6.0 Data Base* (West Lafayette, Ind.: Center for Global Trade Analysis, Purdue University, 2006)



## 5. PROMOTING FOREST POVERTY

*There are clear economic gains for the world's poor from both forest products and land use. Despite this, environmental campaigners, the EU and aid donors are proposing a system of 'climate welfare' for developing nations in place of forestry and agriculture. They are also redirecting aid to promote, not reduce, subsistence poverty in forested developing countries.*

### Indenturing the Poor

The economic and environmental benefits of forestry are threatened by opposition from the EU and environmental campaigners.

The EU does not accept forest-based carbon credits as a means of reducing emissions. It does not allow forestry or land use sinks credits to be accepted to acquit obligations in its emissions trading scheme. The EU has said publicly that it is concerned that allowing entities to buy avoided deforestation credits would “result in serious imbalances between demand and supply” and “could lead to forest credits swamping the carbon market and undermining the price of carbon”. It does not envisage such credits being included until the medium to long term.<sup>41</sup> The EU has adopted the same anti-development position as Greenpeace. It has simultaneously proposed restrictions on the use of forests for economic purposes through the implementation of a number of import restrictions.

Environmental campaigners are stridently opposed to the economic use of forests. They want a moratorium on ‘industrial activity’ in forests, by which they mean commercial forestry. Greenpeace simultaneously has expressed wholesale opposition to the original concept of REDD, stating that allowing developing countries to generate a large number of credits would prompt a collapse in global carbon prices and reduce pressure on developed economies to cut emissions.<sup>42</sup>

In place of forestry activity, environmental campaigners – predominantly the World Wide Fund for Nature (WWF) and Greenpeace – are proposing in an ‘NGO Treaty’ that a fund be created in order to compensate

developing countries for lost economic activity.<sup>43</sup> The European Commission has a similar idea.

Under the NGO Treaty, credits to emit carbon equivalent to 10 per cent of the emissions reductions to be made by rich countries should be auctioned. The proceeds, US\$-160 billion annually, should be given to a UN committee which would disburse it to developing countries every year for five years.

Of these funds, 25 per cent would go to forested developing countries that agree to stop deforestation and to stop converting forest land to other purposes, such as plantation forests, agricultural production and commercial commodity crops, e.g. rubber, tapioca and palm oil. Developing countries would receive no disbursements unless the UN committee, which would include environmental campaigning organisations, approve their climate change reduction plans.

While this is clearly impractical, the net result of this position is one that would indenture developing countries in a state of ‘green welfare’. They would be unable to develop agriculture and forest-based industries. It is direct development assistance – in this case, cash payments – in the name of climate change.

### Directing Aid Away From Growth

Oxfam, which is member of the NGO Coalition on Climate Change has warned that redirecting aid money away from conventional development assistance to environmental aid, will have a devastating impact upon the world's poor.<sup>44</sup>

Unfortunately the de-emphasis on growth in aid programs has been a trend for a number of years.

41. EU at the United Nations, EU Council Conclusions on EU position for the Copenhagen Climate Conference, at <http://www.eu-un.europa/ev/home/index.htm>.

42. Greenpeace's analysis of how REDD would result in a collapse of the global carbon market is defective. It is unclear how its data and methodology can justify its conclusions. Link at <http://www.greenpeace.org/raw/content/usa/press-center/reports4/redd-and-the-effort-to-limit-g.pdf>.

43. World Wide Fund for Nature (2009). A Copenhagen Climate Treaty: Version 1.0. A proposal for an amended Kyoto Protocol and a new Copenhagen Protocol by members of the NGO community. WWF, Gland, Switzerland. 49. Nunes P.A.L.D. & van den Bergh J.C.J.M (2001) 'Economic Valuation of Biodiversity: Sense or Nonsense?' *Ecological Economics*, 39, 203-22.

44. <http://www.oxfam.org/en/pressroom/pressreleases?page=2>

The share of overseas development assistance (ODA) that directly supports economic growth (specifically, spending on economic infrastructure and services) has fallen by more than half over the last decade: from 28 per cent of aid programs in 1997 to 12 per cent in 2007.

This stemmed from a decision by donors through the OECD Development Assistance Committee to adopt a 'New Development Strategy' in 1996. The declared intent was for aid programs to concentrate on social, environmental and political problems rather than

economic issues. Funding was therefore directed towards strategies to achieve social, governance and environmental goals and away from strategies to support economic growth.

The share of aid supporting agriculture has fallen even further. This was recognized at the 2009 G8 Summit when leaders realized agricultural production and productivity was not strong enough to meet the rapidly increasing worldwide demand for food.<sup>45</sup>

## Redefining Forest Poverty

Much of the rationale for redirecting aid money away from policies focusing upon economic growth and towards conservation programs is that it supports 'forest dependent peoples'.

In 1999 the World Commission on Forests and Sustainable Development (WFCSD) made the claim that roughly 1.3 billion people are 'dependent upon forests for their livelihood'.<sup>46</sup> A revised figure of 1.6 billion has since been used as the basis for World Bank Forest Policy,<sup>47</sup> and NGOs<sup>48</sup> use it to argue the case for subsistence-based and indigenous communities living within forests.

The effect is that the 'anti-poverty' role of aid in the forest sector is focused on the subsistence forest dwellers rather than the poor in the real economy. Some of the assistance even appears directed to supporting the subsistence societies rather than reducing the subsistence economy,

There is no basis for the WFCSD numbers. They are not sourced; and neither a methodology nor definition for the term 'forest dependent' is provided. In 2000, a study commissioned by UK Department for International Development concluded there was 'no reliable regional or global sources of data on forest-dependent peoples.' The WFCSD did not respond to requests for the basis of its data.<sup>49</sup> High-profile World Bank reports still refer to these numbers.<sup>50</sup>

Numerous studies published by CIFOR agree with the DFID findings that criteria for 'dependence' are too varied, including indigenous peoples, those relying on forests as a dominant source of subsistence, and a broad category of people may rely on forests for supplementary income for varying periods of time, such as fuelwood traders and urban-based craftspeople.<sup>51</sup> One CIFOR study notes the first category includes people 'for whom forest dependency is a livelihood of last resort – a symptom of their limited options and/or poverty – which they will abandon as soon as any plausible option emerges.'<sup>52</sup>

The development community is increasingly mounting programs to support subsistence living instead of or assisting forest-based communities move out of poverty.

45. G8 Secretariat (2009). 'LAquila' Joint Statement on Global Food Security: LAquila Food Security Initiative (AFSI). Accessed at: [http://www.g8italia2009.it/static/G8\\_Allegato/LAquila\\_Joint\\_Statement\\_on\\_Global\\_Food\\_Security%5B1%5D,0.pdf](http://www.g8italia2009.it/static/G8_Allegato/LAquila_Joint_Statement_on_Global_Food_Security%5B1%5D,0.pdf)

46. World Commission on Forests and Sustainable Development (1999). Our forests – Our future. World Commission on Forests and Sustainable Development, WFCSD, Winnipeg, Canada

47. World Bank (2004) Sustaining Forests: A Development Strategy

48. Greenpeace (2008) 'Greenpeace briefing on Commission forest package', accessed at <http://www.greenpeace.org/raw/content/sweden/rapporteur-och-dokument/greenpeace-briefing-on-commiss.pdf>

49. DFID (2000) Numbers of Forest Dependent People - a Feasibility Study. Calibre Consultants and University of Reading SSC. It should also be noted that while the World Bank acknowledged the DFID feasibility study in a 2005 document, it used the study to reinforce its revised estimate rather than indicating that the study was in fact a critique of both the estimate and the definition. Cf World Bank (2005). Development Policy Lending and Forest Outcomes: Influences, Interactions, and Due Diligence. June 2005. The World Bank Agriculture and Rural Development Department

50. World Bank (2008). Forests sourcebook : practical guidance for sustaining forests in development cooperation World Bank, Washington DC.

51. Angelsen, A and Wunder, S. Exploring the Forest—Poverty Link: Key Concepts, Issues and Research Implications. CIFOR Occasional Paper 40. CIFOR, Bogor, Indonesia

52. N Byron and M Arnold (1997). What Futures for the People of the Tropical Forests? CIFOR Working Paper 19. CIFOR, Bogor, Indonesia



*Developed countries want developing countries to restrict forestry, a key growth agro industry to them, to reduce greenhouse gas emissions. Yet they are excluding their own agricultural sectors from commitments to reduce emissions. The highly protectionist agricultural policies of the EU already impede economic growth in poor countries and are causing a serious decline in biodiversity in Europe. Not only is there no inclination to take on European farmers to reverse this damage, the EU is pushing international forestry climate change policies which would further impoverish developing countries.*

### The Cost of European Agricultural Policy

The EU Common Agricultural Policy (CAP) subsidizes EU agriculture and protects it from external competition. It is expensive, taking up close to half of the European Union budget. In 2006, the size of the CAP was €49.8 billion. Details of programs are in Annex I.

EU agriculture is insulated from world markets by tariff quotas and excess production is exported with sizeable, albeit declining, export subsidies. Liberalization of agriculture has barely begun; the most recent reforms have not changed this significantly.<sup>53</sup> Tariffs of over 70 per cent are still common.

The EU accounts for nearly half of all OECD farm subsidies.<sup>54</sup> The rate of agricultural subsidization in the EU in 2008 is higher than other OECD countries with large agriculture sectors, such as the US and Canada.<sup>55</sup> EU consumers and taxpayers have been heavily taxed to support EU farmers.

Farmers in developing countries have had their access to the EU market significantly cut and have suffered from lower prices on world markets. The subsidies depress world prices by denying access to its domestic market and subsidising competition in foreign markets. Many developing countries are therefore excluded from markets in which they would be able to compete under a less-distorted trading system.

Developing countries suffer substantially since agriculture accounts for 40 per cent of their GDP, 35 per cent of their exports, and 50 to 70 per cent of their employment. Three-quarters of the world's poorest people are either wholly or partly dependent on agriculture.<sup>56</sup>

One empirical study of the economic impact of agricultural liberalization in developed countries found that well over half of the economic benefits for developing countries from the liberalisation of agriculture in industrialized economies would come from the EU.<sup>57</sup> Abolition of CAP protections would generate additional income of US\$12.9 billion<sup>58</sup> a year for producers in developing countries.

Additionally, the impact of agricultural assistance in the EU and other industrialized countries is significant. It has distorted world commodity markets such that agricultural trade is growing much more slowly than trade in manufactures. The export share of world agriculture increased from 11 per cent in the 1960s and 1970s to 16 per cent for the period from 1990 to 2004 but, when intra-EU trade is excluded, it dropped to 8 per cent in 2004. This may be compared to 31 per cent for other primary products and 25 per cent for manufactures.<sup>59</sup>

Despite the many policy changes to the CAP, there has been no real increase in imports. Instead EU trade barriers against developing countries are increasing, and in forestry and plantation products.

53. HM Treasury and DEFRA [Department for Environment, Food and Rural Affairs], 2005, A Vision for the Common Agricultural Policy, HMSO, London, December

54. OECD [Organisation for Economic Co-operation and Development], 2008, Producer Support Database 1986-2008, OECD, Paris (accessed at [www.oecd.org](http://www.oecd.org))

55. OECD [Organisation for Economic Co-operation and Development], 2005, 'Tackling Trade in Agriculture', Policy Brief, OECD, Paris November

56. HM Treasury and DEFRA 2005

57. Xinshen Diao, Eugenio Diaz-Bonilla, and Sherman Robinson, 2003, How much does it hurt? — The Impact of Agricultural Trade Policies on Developing Countries, International Food Policy Research Institute, Washington, DC, August

58. This is a conservative estimate as it does not account for the dynamic efficiency gains.

59. The estimates are based on a sample of 75 countries accounting for over 90 per cent of global agricultural output (see Anderson and Associates, 2009, Distortions to Agricultural Incentives: A Global Perspective, 1955-2007, Palgrave Macmillan and The World Bank, London and Washington DC [forthcoming]).

## Protection is Increasing

The EU has implemented the 'Renewable Energy Directive' which requires EU Members to source 20 per cent of energy from renewables by 2020.<sup>60</sup> The measure restricts imports of biofuels such as palm oil from developing countries. Criteria for restriction include no conversion of forest land and compliance with forestry standards stipulated by the EU. It constitutes a straightforward extension of trade barriers to protect EU agricultural producers.<sup>61</sup> It has been contested by several developing country exporters of biofuels.

This is not the first use by the EU of trade barriers which are justified as protecting forests. The EU has established a Forest Law Enforcement, Governance and Trade (FLEGT) regime for timber imports.<sup>62</sup> It purports to contain illegal logging and to ensure imported timber is legally harvested by establishing a licensing regime to guarantee the provenance of imported timber. The EU seeks a right to impose trade controls through 'Voluntary Partnership Agreements' (VPA) to regulate compliance by exporting countries of national measures to verify that Provenance.<sup>63</sup> VPA negotiations are underway with Malaysia, Indonesia and Ghana.<sup>64</sup>

As well, 'due diligence' legislation as been introduced in the European Parliament which would require sellers of timber or timber products within the EU to demonstrate action had been taken to confirm that the products were legally harvested. Most timber products in the EU are legally procured, so the measure clearly is evidently designed to erect a trade control on imports.<sup>65</sup>

## The Impact of EU Agricultural Protection on the Environment

EU farm subsidies have induced profound structural changes in the EU agricultural sector. While the area devoted to agriculture has expanded and farmland has generally become much more consolidated,<sup>66</sup> usage of farm inputs, such as fertilizer, has greatly increased. Empirical studies have confirmed that high rates of subsidization encourage environmentally damaging farm practices.<sup>67</sup> This evidence has finally been accepted at the political level in the EU.<sup>68</sup> Details are provided in Annex II.

In 2007 agriculture accounted for 9 per cent of total greenhouse gas emissions by the EU-15.<sup>69 70</sup> As the sector only generates 2 per cent of gross domestic product (GDP),<sup>71</sup> it is one of the most greenhouse intensive sectors of the EU economy. Measured by the weight of carbon emissions per euro of value-added, its greenhouse intensity is 4.5 times that for the EU economy as a whole. Although its carbon dioxide emissions are relatively low, agriculture is a major source of methane and nitrous oxides.

Between 1990 and 2007, gross greenhouse gas emissions from agriculture in the EU-15 fell by 11 per cent.<sup>72</sup> The decline largely reflects a reduction in the number of cattle and sheep — in the case of dairy cows, a consequence of CAP milk quotas — together with a decline in the waste from livestock.

Overall, land-use, land-use change and forestry represent a carbon sink for the EU-15.<sup>73</sup> Forests are a relatively large sink, croplands a source of emissions,

60. 'Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009', Official Journal of the European Communities, English edition, Brussels, 5 June 2009, p. L140/18). Imported or domestically produced biofuels contributing to the renewable targets have to meet 'sustainability criteria', including on biodiversity. The criteria preclude biofuels originating from 'primary forest' as defined in the FAO Global Forest Resource Assessment.

61. Mitchell, Andrew & Tran, Christopher, 2009, The Consistency of the EU Renewable Energy Directive with the WTO Agreements. Georgetown Law School Faculty Working Paper.

62. European Council Regulation No. 2173/2005 of 20 December 2005, Official Journal of the European Communities, English edition, Brussels, 30 December 2005, p. L347/1-6

63. The EU has stated that unless developing countries enter 'Voluntary Partnership Arrangements' it will consider use of trade sanctions. The measure is similar to the 'Voluntary Export Restraints' required of Japanese exports to the US in the seventies and eighties and which were specifically outlawed in the WTO Agreement on Safeguards which was developed in the Uruguay Round.

64. European Commission, 2008, 'FLEGT/FLEG', European Commission Website, 21 November (accessed at <http://ec.europa.eu/environment/forests/flegt.htm>)

65. The declared reason is to halt illegal logging. Yet the incidence is unknown and is likely to be much lower than conventional estimates that 9 – 15 per cent of global trade is illegal. Only a handful of studies have been produced and none rely on empirical analysis. They depend heavily on assessments by environmental NGOs. It is conventionally accepted that the incidence of illegal logging has been highest in Brazil, Indonesia and Russia. In recent years all have taken significant action to curtail illegal logging.

66. European Environment Agency, 2005, The European Environment: State and Outlook 2005, Copenhagen

67. Philip Lowe and Martin Whitby, 1997, 'The CAP and the European Environment', in Christopher Ritson and David R Harvey (eds), 1997, The Common Agricultural Policy, 2nd Edition, CAB International, Oxford; and Arie Oskam and Spiro E Stefanou (1997), 'The CAP and Technological Change' in Ritson and Harvey 1997

68. UK House of Commons, 2003, The Fourth Report of the Select Committee on Environment, Food and Rural Affairs: The Water Framework Directive, HMSO, London

69. The EU-15 group consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK.

70. European Environmental Agency, 2009, Annual European Community greenhouse gas inventory 1990–2007 and inventory report 2009: Submission to the UNFCCC Secretariat, Technical Report No. 04/2009, Copenhagen, 27 May, p.16. Gross emissions exclude those from land-use, land-use change and forestry (LULUCF).

71. HM Treasury and DEFRA 2005

72. European Environmental Agency 2009

73. European Environmental Agency 2009

and grasslands a small sink. The area deforested each year is small but is more than offset by afforestation of land previously used for other purposes. Moreover only part of the growth in forest biomass is harvested each year. These changes have not materially affected the composition of net greenhouse gas emissions over time; the trends in net and gross emissions are virtually the same from 1990 to 2007.<sup>74</sup>

The intensification of agriculture has had profound impacts on traditional landscapes and the species that rely on them. Arable land and permanent grassland remains the dominant land use, accounting for more than 45 per cent of the land area of the EU-25. As 50 per cent of all European species depend on agricultural habitats, the most critical impacts are from changing traditional farming methods.<sup>75</sup> The more intensive use of fertilisers, pesticides and water has reduced biodiversity.<sup>76</sup>

Farmland birds are regarded as a good indicator of the general state of biodiversity in agricultural habitats. The populations of these species have been in steep decline in the EU and on a Pan-European level. Between 1977 and 2003 the UK's farmland bird population declined by almost 50 per cent.<sup>77</sup> Roughly two-thirds of the currently endangered bird species in the EU depend on agricultural habitats.<sup>78</sup>

## The Hypocrisy

The cost of protection of EU farmers and poor countries is well documented. Summary details are provided in Annex II.

The EU is now insisting that parties to the UNFCCC agree that developing countries be required to cease converting forest land to any other purpose. As shown in this report, 'Conversion' is an essential activity for building prosperity in poor developing countries. If the EU position is adopted, developing countries will be impoverished.

In contrast, the EU has exempted its heavily protected farm sector which, as is shown from the foregoing, imposes a significant environmental cost on the EU, from its domestic strategies to reduce greenhouse gases.

Finally, the EU, like Greenpeace and WWF, is opposed to allowing the carbon cycle in forestry to be fully accounted for when calculating greenhouse gas emissions, because it doesn't want to see the forest sinks which are created by commercial forestry and plantation forestry to be recognized as contributors to measures to reduce greenhouse gas emissions.

## Double Standards on Economic Development and the Environment

The EU is adopting a double standard on the questions of economic development and environmental protection. It extols the virtue of environmental protection but refuses to acknowledge that the European environment has been decisively shaped by man and is not 'natural' in any meaningful sense.

It insists that developing countries should protect the environment to a far greater degree than Europeans did at the same stage of development but refuses to recognize the high opportunity cost from doing so, in terms of foregone development.

If developing countries fail to conform to European standards of environmental protection, the EU then denies them access to the EU market. On the other hand the EU is quite happy to subsidize their farms to harm the environment then to allow their taxpayers foot the bill for the clean-up.

EU farm policy has encouraged EU farmers to expand and intensify their farm operations and this has wrecked enormous damage on the natural environment. In a very real sense, European consumers and taxpayers are paying farmers to ruin the European environment but they then have to pay again to clean up much of the damage that the farmers have caused.

Despite more than 15 years of attempts to 'decouple' the linkage between these farm policies and environmental damage, little progress has been made. In 2008, the European Court of Auditors has concluded that the most recent changes are also ineffective in reducing the adverse environmental consequences of the CAP.<sup>79</sup>

74. European Environmental Agency 2009

75. European Environment Agency 2005, p. 185

76. European Environment Agency 2005, p. 224

77. HM Treasury and DEFRA 2005, p. 30

78. European Environment Agency 2005, p. 224

79. European Court of Auditors 2008, p. 6



## 7. CONCLUSION: SAY 'NO' TO NO CONVERSION

The purpose of this report has been to demonstrate that there is a fundamental double standard being applied to developing countries in the context of the climate debate.

Land-use change is essential for developing countries to develop industries such as agriculture and forestry to bring growing populations out of poverty. Underlying that, exports of forest and agricultural products are vital if developing countries are to experience sustained economic growth. This is a development path that has been followed by most developed nations.

Yet the current climate debate has many developed nations pushing for curbs on forestry and agricultural activities in the name of climate change, while at the same time seeking to have their own forestry and agricultural industries excluded from any limits on emissions.

At the same time, developed nations – particularly the EU – are protecting their forestry and agricultural sectors in such a way that harms development in poor countries and hinders market access. Moreover, these protections encourage farming practices that are uneconomic and have a negative impact upon the environment.

### Against this frame, World Growth makes the following recommendations for Parties at the UNFCCC:

- Ensure that any REDD initiatives are voluntary and respect private property rights;
- Ensure that all REDD projects are subject to social and economic impact assessments;
- Ensure that disbursement of REDD funds is not impeded by safeguard provisions that impact upon forest areas outside of REDD project areas;
- Ensure that any REDD regime is underpinned by free-market principles and that all decision-making processes are transparent and accountable;
- Apply one standard to the treatment of agricultural and land-use change emissions within any climate agreement.

### World Growth makes the following recommendations to the delegation of the European Union and to international donor agencies:

- Dismantle the CAP and redirect funds towards forestry and agricultural development assistance that prioritises economic development and poverty alleviation;
- Ensure that development assistance undergo economic impact assessments prior to implementation, and that monitoring and evaluation processes subject donor agencies to accountability processes;
- Ensure that development assistance, as a minimum, promotes rather than restricts international trade.



# ANNEX I: EU AGRICULTURAL PROTECTIONISM

EU domestic agricultural policy has and continues to protect its agricultural sector from developing markets. It is seeking to impose further restrictions on forest imports. Agricultural protections already have a significant impact on developing countries. Restrictions on forestry imports will add to that.

The EU Common Agricultural Policy (CAP) subsidizes EU agriculture and protects it from external competition. It is expensive, taking up close to half of the European Union budget. In 2006, the size of the CAP was €49.8 billion.

The CAP uses a range of policy mechanisms to keep agricultural prices in the EU market within a politically determined range and pay cash subsidies to EU farmers. Not all of these measures are used for every commodity.

- *Variable import levies:* These levies are applied to most agricultural imports.<sup>80</sup> They are the difference between the world price and a target price set by the EU Council of Ministers. The target price is a maximum price considered politically desirable by the Council.
- *Intervention prices:* The Council also sets a politically desirable minimum internal price. If an internal price falls below the intervention price, the EU buys and stores the commodity for subsequent resale when the internal price rises above the intervention price. In the meantime, the EU meets storage costs.
- *Export restitution and production quotas:* As intervention stocks accumulate, they are disposed of on world markets. The export subsidy is the difference between the world and intervention prices. Production quotas limit the accumulation of intervention stocks.

- *Direct subsidies:* CAP direct subsidies vary by commodity. They are being progressively consolidated into a single farm payment (SFP) by 2011. The SFP is based on area under cultivation, and is not directly linked to particular outputs or inputs. Payment of the SFP is subject to compliance with management and environmental standards<sup>81</sup> relating to soil erosion, soil organic matter, soil structure and a minimum level of maintenance of farmland.<sup>82</sup> Afforestation of marginal farmland is also covered by the CAP.<sup>83</sup>

## The Cost

In Europe, the CAP is costly for both EU consumers and taxpayers. Together they are forced to pay EU farmers a staggering €109 billion a year in subsidies: €57 billion in higher food prices and €51 billion in taxpayer hand-outs. They represent nearly all the agricultural sector's contribution to GDP (in other words, they account for nearly all its value-added) and are equal to €950 a year for a family of four.<sup>84</sup>

The CAP does not simply transfer money from one person to another but changes their behaviour in the process. Higher food prices mean households consume less of other goods and services. Higher income taxes means they work less. Both reduce the output of the non-farm sectors of the economy, the result of which is a loss of EU GDP estimated at between 0.1 per cent and 2.7 per cent<sup>85</sup> — or between €50 billion and €270 billion per year in absolute terms. This implies that every Euro transferred to a farmer under the CAP reduces EU GDP by between €0.50 and €2.70.

These estimates understate the welfare costs of the CAP, however, as they do not take account of its accumulated impacts over time on capital accumulation and productivity in the EU. Such dynamic losses could increase the welfare costs of the CAP by 20 per cent or more.<sup>86</sup> This implies that the overall cost of the CAP is between €0.60 and €3.25 for every Euro paid to farmers, if not more.

80. The EU allocates import quotas to developing countries to allow them to export to the EU free of tariffs. Such access is granted to those developing countries that have previously been a colony of an EU member country.

81. Cross compliance links the subsidy to compliance with SMRs on environmental, public, animal and plant health, and animal welfare, and with GAEC standards on maintenance of farmland in good agricultural and environmental condition. If a farmer does not comply the subsidy may be cut or, in extreme cases, cancelled (European Court of Auditors, 2008, *Is Cross Compliance an Effective Policy?*, Special Report No.8/2008, English edition, Luxembourg).

82. Organisation for Economic Co-operation and Development [OECD], 2008, *Environmental Performance of Agriculture in OECD countries since 1990*, OECD, Paris, France, p. 546

83. Council Regulation EEC No. 2080/92 subsidises the conversion of farmland to forest and by 2000 had afforested 700,000 ha (European Court of Auditors, 2000, 'Greening the CAP', Special Report No. 14/2000, Official Journal of the European Communities, English edition, 43, Brussels, 8 December, pp. C353/13-14)

84. HM Treasury and DEFRA 2005

85. The published general equilibrium modelling estimates of the welfare costs of the CAP for the EU include the following: 0.1% of GDP (Glen W Harrison, Thomas F Rutherford and Ian Wooton, 1995, 'Liberalising Agriculture in the European Union', *Journal of Policy Modelling*, 17(3), pp. 223-25); 2.7% of GDP (Jean-Marc Burniaux and Jean Waelbroeck, 1985, 'Preliminary Results of Two Experimental Models of General Equilibrium with Imperfect Competition', *Journal of Policy Modelling*, 14(1), pp. 65-92); 0.9% of GDP (Brent Borrell and Lionel Hubbard 2000, 'Global Economic Effects of the EU Common Agricultural Policy', *Economic Affairs*, 20(2), pp. 18-26); and 0.2% of EU DDP and 0.5% of UK GDP (G Philippidis and LJ Hubbard, 2001, 'The Economic Cost of the CAP Revisited', *Agricultural Economics*, 25(2-3), pp. 375-385).

86. Andrew B Stoeckel and Breckling (1989) Stoeckel and Breckling (1989), 'Some Economy Wide Effects of Agricultural Policies in the European Community: a General Equilibrium Study', in Andrew B Stoeckel, David Vincent and Sandy Cuthbertson (eds.), *Macroeconomic Consequences of Farm Support Policies*, Duke University Press, Durham



# ANNEX II: THE ENVIRONMENTAL IMPACT OF PROTECTION OF EU AGRICULTURE

EU farm subsidies have induced profound structural changes in the EU agricultural sector. While the area devoted to agriculture has expanded and farmland has generally become much more consolidated,<sup>87</sup> usage of farm inputs, such as fertilizer, has greatly increased. Empirical studies have confirmed that high rates of subsidization encourage environmentally damaging farm practices.<sup>88</sup> This evidence has finally been accepted at the political level in the EU.<sup>89</sup>

## Greenhouse Impacts

In 2007 agriculture accounted for 9 per cent of gross greenhouse gas emissions by the EU-15.<sup>90 91</sup> As the sector only generates 2 per cent of GDP,<sup>92</sup> it is one of the most greenhouse intensive sectors of the EU economy. Measured by the weight of carbon emissions per Euro of value-added, its greenhouse intensity is 4.5 times that for the EU economy as a whole. Although its carbon dioxide emissions are relatively low, agriculture is a major source of methane and nitrous oxides.

Enteric fermentation in farm animals accounts for 71 per cent of all agricultural methane emissions in the EU, of which 72 per cent comes from the dairy herd.<sup>93</sup> Animal manure is responsible for virtually the remainder as methane emissions from rice are only 1 per cent of the total by EU agriculture.<sup>94</sup>

The sources of nitrous oxide emissions from agriculture are more diffuse. Most of them come from farmland and are caused by the application of manufactured fertilizers.

Between 1990 and 2007, gross greenhouse gas emissions from agriculture in the EU-15 fell by 11 per cent.<sup>95</sup> The decline largely reflects a reduction in the number of cattle and sheep — in the case of dairy cows, a consequence of CAP milk quotas — together with a decline in the waste from livestock.

Overall, land-use, land-use change and forestry represent a carbon sink for the EU-15.<sup>96</sup> Forests are a relatively large sink, croplands a source of emissions, and grasslands a small sink. The area deforested each year is small but is more than offset by afforestation of land previously used for other purposes. Moreover only part of the growth in forest biomass is harvested each year.

These changes have not materially affected the composition of net greenhouse gas emissions over time; the trends in net and gross emissions are virtually the same from 1990 to 2007.<sup>97</sup>

## *Nitrates in surface and ground water*

Agricultural fertilizers are the main source of nitrates in surface and ground water in the EU. EU rivers with more than half the catchment under cultivation have nitrate levels three times higher than where it accounts for less than 10 per cent. Nitrate pollution is higher in the EU-15 than in the newer Member States, largely reflecting their higher historical rates of agricultural subsidization.

## *Ammonia emissions*

Animal slurry in livestock yards and the application of animal manure to farmland are the main sources of ammonia emissions in the EU. Ammonia is major source of acid rain, eutrophication of freshwater and terrestrial ecosystems, and eutrophication of marine ecosystems.

Agriculture accounted for 25 per cent of all acid emissions in the EU in 2002. Ammonia emissions from agriculture have been stabilised by the stabilisation in livestock numbers in the wake of milk quotas. Due to cuts in emissions from other sources, agriculture's contribution to acid emissions has risen dramatically. In absolute terms, they are projected to fall by only 6 per cent to 2030.<sup>99</sup>

87. European Environment Agency, 2005, *The European Environment: State and Outlook 2005*, Copenhagen

88. Philip Lowe and Martin Whitby, 1997, 'The CAP and the European Environment', in Christopher Ritson and David R Harvey (eds), 1997, *The Common Agricultural Policy*, 2nd Edition, CAB International, Oxford; and Arie Oskam and Spiro E Stefanou (1997), 'The CAP and Technological Change' in Ritson and Harvey 1997

89. UK House of Commons, 2003, *The Fourth Report of the Select Committee on Environment, Food and Rural Affairs: The Water Framework Directive*, HMSO, London

90. The EU-15 group consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the UK.

91. European Environmental Agency, 2009, *Annual European Community greenhouse gas inventory 1990–2007 and inventory report 2009: Submission to the UNFCCC Secretariat*, Technical Report No. 04/2009, Copenhagen, 27 May, p.16. Gross emissions exclude those from land-use, land-use change and forestry (LULUCF).

92. HM Treasury and DEFRA 2005

93. Keith R Lassey, 2007, 'Livestock methane emission: From the individual grazing animal through national inventories to the global methane cycle', *Agricultural & Forest Meteorology*, 142 (2–4), pp. 120–132.

94. XPC Vergé, C de Kimpe and RL Desjardins, 2007, 'Agricultural production, greenhouse gas emissions and mitigation potential', *Agricultural and Forest Meteorology*, 142, Table 1, p. 259

95. European Environmental Agency 2009

96. European Environmental Agency 2009

97. European Environmental Agency 2009

98. European Environment Agency 2005, p. 126

99. European Environment Agency 2005, pp. 93–98

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## Soils

The EU agriculture sector has contributed to a wide variety of adverse impacts on soils in the region.

- Soil erosion is widespread and is primarily caused by the action of water, including for agricultural irrigation.
- The organic carbon content of soil in many areas cultivated for long periods is low or very low. Even modest changes can cause rapid declines in soil quality and biodiversity.
- In Belgium, Denmark, the Netherlands and France, soil contamination from aerial spraying of farm chemicals is a problem, particularly where the residues can migrate to groundwater.
- Salinization affects up to 16 million hectares or 25 per cent of irrigated cropland in the Mediterranean.<sup>100</sup>

## Biodiversity

Europe's biodiversity has been strongly shaped by its agricultural sector. Most European land has been used to provide food, timber or living space and less than a fifth of it is unmanaged. There are remarkably few areas that are truly natural, even those that embody the highest conservation values. Moreover, the continuation of the traditional methods of land and farm management is considered to be essential to the survival of the species which are endemic to these areas.<sup>101</sup>

The intensification of agriculture has had profound impacts on traditional landscapes and the species that rely on them. Arable land and permanent grassland remains the dominant land use, accounting for more than 45 per cent of the land area of the EU-25. As 50 per cent of all European species depend on agricultural habitats, the most critical impacts are from changing traditional farming methods.<sup>102</sup> The more intensive use of fertilisers, pesticides and water has reduced biodiversity.<sup>103</sup>

Farmland birds are regarded as a good indicator of the general state of biodiversity in agricultural habitats. The populations of these species have been in steep decline in the EU and on a Pan-European level. Between 1977 and 2003 the UK's farmland bird population declined by almost 50 per cent.<sup>104</sup> Roughly two-thirds of the currently endangered bird species in the EU depend on agricultural habitats.<sup>105</sup>

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100. European Environment Agency 2005, pp. 168-178

101. European Environment Agency 2005, pp. 183

102. European Environment Agency 2005, p. 185

103. European Environment Agency 2005, p. 224

104. HM Treasury and DEFRA 2005, p. 30

105. European Environment Agency 2005, p. 224



# REFERENCES

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- ABARE & Jaakko Pöyry (1999). Global outlook for plantations. ABARE research report 99.9 (p. 107), Canberra, Australia.
- Amano, M., and Sedjo, R. (2006) Forest Sequestration: Performance in Selected Countries in the Kyoto Period and the Potential Role of Sequestration in Post-Kyoto Agreements. RFF Report May 2006. Resources for the Future, Washington DC
- Anderson, K., & Associates (2009). Distortions to Agricultural Incentives: A Global Perspective, 1955-2007, London, UK: Palgrave Macmillan and Washington DC, USA: The World Bank (forthcoming 2009).
- Angelsen, A & Wunder, S. (2003). Exploring the Forest—Poverty Link: Key Concepts, Issues and Research Implications. CIFOR Occasional Paper 40, Bogor, Indonesia: CIFOR.
- Borrell, B., & Hubbard, L. J. (2000). Global Economic Effects of the EU Common Agricultural Policy. *Economic Affairs*, 20(2), 18-26.
- BPS Statistics Indonesia (2007). Selected Socio-Economic Indicators of Indonesia.
- Brockerhoff, Eckehard, Jactel, H., Parrotta, J., Quine, C., & Sayer, J. (2008). Plantation Forests and Biodiversity: Oxymoron or Opportunity? *Biodiversity and Conservation*, 17 (5), 925-951.
- Burniaux, J., & Waelbroeck, J.(1985). Preliminary Results of Two Experimental Models of General Equilibrium with Imperfect Competition. *Journal of Policy Modelling*, 14(1), 65-92.
- Byron, N., & Arnold, N. (1997). What Futures for the People of the Tropical Forests? CIFOR Working Paper 19, Bogor, Indonesia: CIFOR.
- Carlson, M., Wells, J., Roberts, D. (2009). The Carbon the World Forgot: Conserving the Capacity of Canada's Boreal Forest Region to Mitigate and Adapt to Climate Change. Boreal Songbird Initiative and Canadian Boreal Initiative (pp.33), Seattle, USA and Ottawa, Canada.
- Del Lungo, A., Ball, J., & Carle, J. (2006). Global planted forests thematic study: results and analysis, FAO forestry department. *Planted Forests and Trees Working Papers* 38.
- DFID (2000) Numbers of Forest Dependent People - a Feasibility Study. Calibre Consultants and University of Reading SSC.
- Diao, X., Diaz-Bonilla, E., & Robinson, S. (2003). How much does it hurt? — The Impact of Agricultural Trade Policies on Developing Countries. International Food Policy Research Institute, Washington, DC, USA.
- Dimaranan, B. V., & McDougall, R. A. (2005). Global Trade, Assistance, and Production: The GTAP 6.0 Data Base (chap 20). Center for Global Trade Analysis, Purdue University, West Lafayette, USA.
- European Commission (2008). FLEGT/FLEG. European Commission Website. Retrieved November 21, 2009, from <http://ec.europa.eu/environment/forests/flegt.htm>
- European Council (2005). European Council Regulation No. 2173/2005 of 20 December 2005, Official Journal of the European Communities, English edition, p.L347/1-6.
- European Court of Auditors (2000). Greening the CAP, Special Report No. 14/2000. Official Journal of the European Communities, English edition, 43, p.C353/13-14.

- European Court of Auditors (2008). Is Cross Compliance an Effective Policy?, Special Report No.8/2008. Official Journal of the European Communities, English edition.
- European Environment Agency (2005). The European Environment: State and Outlook 2005, Copenhagen, Denmark.
- European Environmental Agency (2009). Annual European Community greenhouse gas inventory 1990–2007 and inventory report 2009: Submission to the UNFCCC Secretariat, Technical Report No. 04/2009 (p.16), Copenhagen, Denmark.
- European Parliament (2009). 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
- European Union (2009). Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009. Official Journal of the European Communities, English edition, p. L140/18.
- Food and Agriculture Organisation for United Nations [FAO] (2002). Case study of tropical forest plantations in Malaysia by D.B.A Krishnapillay, Forest Plantations Working Paper 23. Forest Resources Development Service, Forest Resources Division. FAO, Rome, Italy (unpublished).
- Food and Agriculture Organisation of the United Nations [FAO] (2002) World Agriculture: Towards 2015/2030
- Food and Agriculture Organisation of the United Nations [FAO] (2005) Forest Resources Assessment
- Food and Agriculture Organisation of the United Nations [FAO] (2005) Global Forest Resource Assessment, Rome, Italy: FAO.
- Food and Agriculture Organisation of the United Nations [FAO] (2009) State of the World's Forests 2007
- Global Donor Platform For Rural Development (2009). Agriculture and Climate Change: Issues for Barcelona. No. 7, October 2009. Global Donor Platform, Bonn, Germany.
- Greenpeace (2008). Greenpeace briefing on Commission forest package. Retrieved from <http://www.greenpeace.org/raw/content/sweden/rapporter-och-dokument/greenpeace-briefing-on-commiss.pdf>
- Grieg-Gran, M. (2008). The Cost of Avoiding Deforestation: Update of the Report prepared for the Stern Review of the Economics of Climate Change. International Institute for Environment and Development [IIED], London, UK.
- Harrison, G. W., Rutherford, T. F., & Wooton, I. (1995). Liberalising Agriculture in the European Union. *Journal of Policy Modelling*, 17(3), 223-25.
- HM Treasury and Department for Environment, Food and Rural Affairs [DEFRA] (2005). A Vision for the Common Agricultural Policy. London, UK: HMSO.
- Humphreys, D. (2004). Redefining the Issues: NGO Influence on International Forest Negotiations. *Global Environmental Politics*, 4 (2), 51-74.
- Iamo, Wari (2009). 'Reducing Emissions from Deforestation in Developing Countries'. Presentation to the UNFCCC Subsidiary Body on Scientific and Technical Assistance, June 30, Bonn, Germany.

# REFERENCES

---

- International Fund for Agricultural Development (2001) Rural Poverty Report 2001: The Challenge of Ending Rural Poverty. IFAD and Oxford University Press.
- IPCC, 2007a, Climate Change 2007: Mitigation of Climate Change, Contribution of Working Group III to the Fourth Assessment Report of the IPCC, Metz, B, Davidson, OR, Bosch, PR, Dave, R, and Meyer, LA, (eds), Cambridge University Press, Cambridge, UK and New York, NY
- Keith, R. L. (2007). Livestock methane emission: From the individual grazing animal through national inventories to the global methane cycle. *Agricultural & Forest Meteorology*, 142 (2-4), 120-132.
- Livengood, E., & Dixon, A. (2009, March 30). REDD and the effort to limit global warming to 2°C: Implications for including REDD credits in the international carbon market. Retrieved from <http://www.greenpeace.org/raw/content/usa/press-center/reports4/redd-and-the-effort-to-limit-g.pdf>
- Lowe, P., & Whitby, M. (1997). The CAP and the European Environment. In C. Ritson & D. R. Harvey (Eds.), *The Common Agricultural Policy*, 2nd ed., Oxford, UK: CAB International.
- Ministry of Forestry (2006) Forestry Statistics 2006
- North American Regional Consultation for the Forest Policy Implementation Review and Strategy (FRIPS) (2000). *The World Bank Forest Policy Implementation Review and Strategy: Report of the North American Regional Consultation, FRIPS*, Washington, DC, USA. Retrieved July 21, 2006, from [http://wbln0018.worldbank.org/essd/forestpol-e.nsf/a084cb073737b7e385256621005b2179/cb2b405ee61945b6852568dd005b2fbf/\\$FILE/NA%20Consultation%203-00.pdf](http://wbln0018.worldbank.org/essd/forestpol-e.nsf/a084cb073737b7e385256621005b2179/cb2b405ee61945b6852568dd005b2fbf/$FILE/NA%20Consultation%203-00.pdf)
- Organisation for Economic Co-operation and Development [OECD] (2005) *Tackling Trade in Agriculture. Policy Brief*, Paris, France: OECD.
- Organisation for Economic Co-operation and Development [OECD] (2008) *Environmental Performance of Agriculture in OECD countries since 1990* (p.546), Paris, France: OECD.
- Organisation for Economic Co-operation and Development [OECD] (2008) *Producer Support Database 1986-2008*, Paris, France: OECD. Retrieved from <http://www.oecd.org>
- Oskam, A., & Stefanou, S. E. (1997). The CAP and Technological Change. In C. Ritson and D. R. Harvey (Eds.), *The Common Agricultural Policy*, 2nd ed., Oxford, UK: CAB International.
- Philippidis, G., & Hubbard, L. J. (2001). The Economic Cost of the CAP Revisited. *Agricultural Economics*, 25(2-3), 375-385.
- Piottoa, D., Montagnini, F., Ugaldea, L., & Kanninen, M. (2003). Performance of forest plantations in small and medium-sized farms in the Atlantic lowlands of Costa Rica. *Forest Ecology and Management*, 175 (1-3), 195-204.
- Ravallion, M. (2000). On the urbanisation of poverty. Mimeo. World Bank: Washington DC.
- Sathaye, J., Makundi, W., Dale, L., & Chan, P. (2005, March 22) GHG Mitigation Potential, Costs and Benefits in Global Forests: A Dynamic Partial Equilibrium Approach, LBNL-58291, Lawrence Berkeley National Laboratory, Berkeley, CA, USA. Retrieved from <http://ies.lbl.gov/iespubs/58291.pdf>
- Stoeckel, A. B., & Breckling, J. (1989). Some Economy Wide Effects of Agricultural Policies in the European Community: a General Equilibrium Study. In A. B. Stoeckel, D. Vincent & S. Cuthbertson (Eds.), *Macroeconomic Consequences of Farm Support Policies*, Durham, USA: Duke University Press.

- UK House of Commons (2003) The Fourth Report of the Select Committee on Environment, Food and Rural Affairs: The Water Framework Directive. London, UK: HMSO.
- UNFCCC (2005). Reducing emissions from deforestation in developing countries: approaches to stimulate action. Submission by the Governments of Papua New Guinea & Costa Rica. Paper presented at the Conference of the Parties, Eleventh Session, 28 November – 9 October 2005. Retrieved from <http://unfccc.int/resource/docs/2005/cop11/eng/misc01.pdf>
- UNFCCC (2007). Investment and financial flows to address climate change, United Nations Framework Convention on Climate Change.
- UNFCCC (n.d.) Decisions of the Conference of the Parties – Thirteenth Session, United Nations Framework Convention on Climate Change. Retrieved from <http://unfccc.int/documentation/decisions/items/3597.php?such=j&volltext=/CP.13#beg>
- United Nations (2007) World Urbanization Prospects: The 2007 Database.
- United Nations (2009) The Millennium Development Goals Report 2009. Retrieved from [http://www.un.org/millenniumgoals/pdf/MDG\\_Report\\_2009\\_ENG.pdf](http://www.un.org/millenniumgoals/pdf/MDG_Report_2009_ENG.pdf)
- Van der Weft, D. C., Morton, D. C., DeFries, R. S., Olivier, J. G. J., Kasibhatla, P. S., Jackson, R. B., Collatz, G. J., & Randerspm, J. T. (2009). CO2 emissions from forest loss. *Nature Geoscience* 2, 737-738.
- Vergé, X. P. C., De Kimpe, C. R., & Desjardins, R. J. (2007). Agricultural production, greenhouse gas emissions and mitigation potential. *Agricultural and Forest Meteorology*, 142 (2-4), Table 1, p. 259.
- Williams (2006). *Deforesting the Earth*, Chicago, USA: University of Chicago Press.
- World Bank (2004) *Sustaining Forests: A Development Strategy*.
- World Bank (2005). *Development Policy Lending and Forest Outcomes: Influences, Interactions, and Due Diligence*. The World Bank Agriculture and Rural Development Department.
- World Commission on Forests and Sustainable Development (1999) *Our forests – Our future*. World Commission on Forests and Sustainable Development. Winnipeg, Canada.



### **About World Growth**

World Growth is a non-profit, non-governmental organization established with an educational and charitable mission to expand the education, information and other resources available to disadvantaged populations to improve their health and economic welfare. At World Growth, we embrace and celebrate the new age of globalization and the power of free trade to eradicate poverty and improve living conditions for people in the developing world.

### **Our Philosophy**

World Growth believes that helping the developing world realize its full potential is one of the great moral aims for those of us fortunate to live in the wealthy developed world. We also believe that a misdiagnosis of what ails the underdeveloped world has yielded policy prescriptions that have been useless or even harmful to the world's 'bottom billion.'

World Growth believes that there is enormous untapped human and economic potential around the world. In order to unlock that potential, and allow the poorest of the world's poor a better life, it is necessary to realize changes in institutions and policies that permit growth and human flourishing.

Instead of aid and handouts, what the populations of developing countries need are social and political situations and infrastructure that foster productive economic activity and generate robust economic growth. These include, but are not limited to, property rights and protections, the rule of law, free markets, open trade, government accountability and transparency.

For too long, well-meaning governments, aid agencies and others have promoted policies that fail to address the true problems that afflict poor societies. As a result, too many people around the globe remained locked in pre-modern conditions where their talents and inherent capacities are shackled.

The people of the developing world are fully capable of helping themselves to ensure a more prosperous existence. The path to prosperity does not begin with handouts from the West. Instead it requires identifying the genuine obstacles to growth and highlighting paths to reform that will yield sustainable and lasting change.

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