A change for the worse:
The campaign to re-dredge ‘Indirect Land Use Change’
A World Growth Report
July 2013
The campaign to re-dredge 'Indirect Land Use Change' – A change for the worse

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ALLEVIATING POVERTY THROUGH WEALTH CREATION
Palm oil provides developing nations and the poor a path out of poverty. Expanding efficient and sustainable agriculture such as palm oil plantations provides small and large plantation owners and their workers with a means to improve their standard of living.

SUSTAINABLE DEVELOPMENT
Sustainable development of palm oil plantations and growth of the palm oil industry in developing nations can and will be achieved through consultation and collaboration with industry, growers, lobby groups and the wider community.

CLIMATE AND THE ENVIRONMENT
Palm oil is a highly efficient, high yielding source of food and fuel. Palm oil plantations are an efficient way of producing fossil fuel alternatives and capturing carbon from the atmosphere.

OPPORTUNITY AND PROSPERITY
Developing nations must be allowed the chance to grow and develop without political intervention by environmental groups or developed nations. It is crucial that developing nations be given the same opportunities which developed nations have benefited from.

PROPERTY RIGHTS
Efficient palm oil plantations and the growing demand for palm oil give smaller land holders greater opportunities to make a living off their land, maintain their ownership and support their rights to property and prosperity.
The European Commission has proposed additional regulatory intervention into biofuel use in Europe. The proposed policy is intended to introduce new environmental criteria in addition to those existing in the original Renewable Energy Directive (RED). These environmental criteria will then be used to favour some biofuels over others, depending on the source feedstocks. The proposal is based on flawed assumptions and political - rather than scientific - considerations.

The proposal moves towards introducing Indirect Land Use Change (ILUC) factors, by demanding that suppliers report emissions savings from ILUC associated with a particular energy crop. Adding these new burdensome reporting requirements is an attempt to raise the obstacles in place for non-European biofuel producers to export to Europe. The European Parliament has now taken a step further. French Member of the European Parliament (MEP) Corinne Lepage, the lead MEP rapporteur on the dossier, has gone so far as to condition market access based on ILUC factors. This approach goes even further than the European Commission's original proposal and underlines the discrimination in EU policy against imports of biofuels from a number of developing countries.

There is a major problem with both the proposal from the Commission, and the additions from MEP Lepage. It is simply impossible to make reliable global assessments on ILUC emissions for a particular crop. ILUC is a complex phenomenon that is extremely difficult to model accurately. Arriving at the correct ILUC emissions impact depends on many dynamic factors. Using the “best available scientific evidence” will still result in incorrect ILUC reporting.

This was one of the reasons that ILUC was effectively shelved by the Commission after initial development of the Renewable Energy Directive (RED). The Commission is now being pressured to reconsider the position following successful lobbying by international environmental campaigners and Green MEPs. They claim that current EU biofuel policy is driving environmental destruction and food insecurity in the developing world. Although the contention cannot be substantiated, the NGOs have pressed over several years for the EU to introduce this new proposal.

The justification is based on the assumption that Europe’s consumption of biofuels has a noticeable impact on prices by encouraging farmers globally to shift from producing food crops to biofuel feedstocks. The assumption is false. Rising food prices have little to do with production of energy crops over food staples. Energy crops represent only a marginal proportion of total agricultural production, with estimates of less than 3% of global cropland. Even the modelling undertaken on behalf of the Commission demonstrates that at current levels of production and European demand, ILUC impacts from biofuels are too small to have a significant global impact.

The policy will harm the poor because biofuel production serves to promote economic development, and as a result, food security in the long term. In South East Asia - where there is modest production of biofuel feedstock - European demand for biofuels provides growers with the opportunity to increase their livelihoods by undertaking value-added commodity production.

Despite wide acknowledgement by policy makers and economists that the work to date which informs ILUC reporting is based on flawed and unreliable assumptions, methodology, and data sources, the NGOs continue to contend that ILUC reporting is necessary to stem deforestation in Asia. They have led the European Parliament to support a strategy that, if successful, will only result in restrictions on agricultural production, especially palm oil, in tropical forested countries. Such course will only create food insecurity.

1.1 ILUC and the EU Renewable Energy Directive

In 2009, the European Union adopted the Renewable Energy Directive (RED), which included a 10 percent target for the use of renewable energy in road transport fuels by 2020.²

RED also established environmental sustainability criteria that biofuels consumed in the EU have to comply with in order to be counted towards this target. The revised Fuel Quality Directive (FQD), adopted at the same time as the RED, includes identical sustainability criteria and targets a reduction in lifecycle greenhouse gas emissions from transport fuels consumed in the EU.⁴

These sustainability criteria include a minimum rate of direct GHG emission savings (35 percent in 2009, increasing to 50 percent in 2017) and restrictions on the types of land that may be converted to production of biofuels feedstock crops.

Trade law experts and several governments contend that the RED Directive puts the EU in contravention of WTO rules.¹¹

The latter criterion covers ‘Direct Land Use Change’ (DLUC) only. DLUC relates to emissions caused from conversion of land not previously used for crop production, into pasture for feed stock. Emissions accrued during this conversion can be directly linked to the production of these biofuels, and is given a specific emissions calculation.

RED as currently implemented does not require calculations of ‘Indirect Land Use Change’ (ILUC). Indirect Land use change seeks to quantify the land use change driven by market demand for biofuels or other commodities. That is, even if no forests were directly cleared to grow biofuel feedstock, when biofuels replaced food crops in one place, land elsewhere would be converted to satisfy food demand.

Calculating emissions from numerous and dynamic “indirect” factors is difficult. In the absence of a reliable methodology, RED avoided requirements to calculate ILUC impacts. However, a clause within RED required that the Commission further examine the question of ILUC and "develop a concrete methodology to minimise greenhouse gas emissions caused by indirect land-use changes" on the "basis of best available scientific evidence".

The Commission was required to report back on this issue by the end of 2010. To inform its report, the Commission launched four studies examining ILUC issues, including a number of modelling studies that aimed to analyse the impact of the EU biofuels mandate, on global agricultural production and environmental performance of EU biofuel policy.¹² ¹³ ¹⁴

The Commission’s final report found that concerns regarding ILUC may have some validity, but that the “a number of deficiencies and uncertainties associated with the modelling - which is required to estimate the impacts - are yet to be addressed, which could significantly impact on the results of the analytical work carried out to date.”¹⁵

1.2 ILUC in revised EU proposal

Despite their own reservations, the European Commission has faced continued pressure from environmental campaigners and Green MEPs to revisit ILUC. In 2012, the Commission proposed a revised Directive, which will, if adopted, incorporate ILUC into EU policy.¹⁶ The Commission’s new proposal includes several new requirements:

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⁷ Energy Directorate-General [of the European Commission], 2010b, ‘Indirect Land Use Change From Increased Biofuels Demand: Comparison of models and results for major oilseed biodiesel production from different biofuels’, European Commission, Luxembourg
⁸ Energy Directorate-General [of the European Commission], 2008a, ‘The Impact of Land Use Change on Biofuels Emissions from Biofuels and Biogas’, ECIPE Occasional Review
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The proposed amendment will limit food crop-based biofuels to 5% of energy consumption in transport in 2020. This is a stark reversal from the 2009 Renewable Energy Directive which set a target of 10% energy consumption in transport from biofuels. The revised proposal also includes a commitment stating that post-2020 biofuels produced from food crops will no longer receive public financial support.

The cap on 5% must be viewed in light of current biofuel use in EU Member States – most EU countries are already at or near the 5% level in terms of use of crop-based biofuels. The proposal from the Commission is therefore not a cap – but in reality is a moratorium, freezing the use of crop-based biofuels at the current level. The impact of such a sudden and fundamental shift in EU policy would undermine years of investment and business planning made by energy operators in Europe and around the world.

The proposed amendment requires companies and member states to report emissions from ILUC to the Commission. ILUC emissions are not currently included in the carbon accounting methodology as mandatory for reporting ILUC has been heavily criticised on ILUC emissions, and the “best available scientific evidence” for reporting ILUC emissions are not currently included in the carbon accounting methodology as mandatory for reporting.

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The result of MEP Lepage’s proposals would be to allow uncertain and unproven calculations on ILUC to discriminate against non-EU biofuels, and therefore effectively kill market access for those biofuels.

In order to estimate the impact of ILUC, robust methodology must be established. A number of reports were commissioned to help inform a methodology, including modelling analyses of the greenhouse impacts of ILUC. None have succeeded in providing any degree of certainty to measure ILUC emission impacts. Emissions from ILUC simply cannot be reported on with any accuracy.

Cap on Food crop-based biofuel

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ILUC reporting requirements

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1.4 ILUC in MEP Lepage report

The proposal from MEP Lepage goes substantially further than the European Commission. MEP Lepage plans to introduce full-scale ILUC factors into the RED. This would insert ILUC calculations directly into the criteria that are used to determine qualification for the GHG savings targets under RED. These are, in effect, the criteria used to determine market access to European Union for biofuels.

World Growth has previously highlighted a number of issues with the modelling analyses of ILUC11. This work demonstrates that the analytical work undertaken on the issue of biofuel demand and ILUC at the global level does not provide a sound basis for the regulation of biofuel consumption.12

2. IlUC AND UNRelIABle ModellINg

Modelling of ILUC relies on existing datasets of global land use. There are a variety of datasets of global land use, but each give contradictory results. For example, some datasets have difference of up to 70% for the global area of land under cultivation - somewhere between 1,180 and 2,000 million hectares in year 2000. One of the datasets suggests the area under cultivation increased by 80 million hectares between 2000 and 2007, while another showed an increase of only 20 million hectares over the same period.13 It is difficult to confirm the accuracy of the models given such wide discrepancies between datasets.

Some of the commissioned modelling relies on FAO databases such as FAOSTAT — and GAEZ, which recompiles the ResourceSTAT data. The accuracy of the FAOSTAT databases is questionable. They contain a significant number of values that have been estimated by FAO staff, which could result in unreliability or bias. Recent new satellite data suggests FAO statistics have overestimated the rate deforestation by around 30%.14

2.2 Assessing land use change is inherently difficult

Rural land use change is a complex phenomenon, particularly in developing countries. It reflects a wide range of economic, social, legal, and biophysical factors.

As a result of such complexities, assessment of the proximate direct factors driving a particular land use change is inherently difficult. It stands to reason that the assessment of the prior causal factors is even more challenging.

These indirect causal factors are, by their nature, rarely observed as they are occurring. Even when identified, it can be difficult or impossible to demonstrate that they necessarily led to the subsequent change in land use that was observed.

It is therefore impossible to say that the introduction of a particular biofuel policy was essential to a particular parcel of land to be converted, regardless as to whether the causal connection between the two events was direct or indirect. An assessment can only provide the probability that a given change contributed to the direction of the subsequent land use change, rather than to its extent.

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12. A number of other critiques of the ILUC modelling exercises have been published, including a report by the Kiel Institute on behalf of the European Biodiesel Board, which states that the IPCC modelling study cannot serve as a basis for policy-making. Dr Burkhard, Prof. Gertzen Aigner Ph.D., Dipl.-Kffr. Markus Lange. ‘Review of IPCC study ‘Assessing the Land Use Change Consequences of European Biofuel Policies and its uncertainties’’. Kiel Institute for the World Economy. Study on behalf of the European Biodiesel Board.

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2.3 Modelling has not addressed all determinants of land use change.

To date most of the formal modelling studies that have been published on the issue of ILUC and biofuels have focussed on the commercial agricultural production and trade components of the issue. In doing so they have not sought to comprehensively address all the factors that influence land use change.

The EU modelling studies of ILUC are based on both partial equilibrium and general equilibrium modelling approaches. A partial equilibrium model is a simplified quantitative representation of a single market (or a small group of highly inter-related markets). On the other hand, a general equilibrium model seeks to capture all the key markets in an economy and all their significant inter-relationships. In practice, the scope for applying either approach is severely limited by the poor and incomplete data, and weak empirical understanding of the relevant behavioural relationships.

Any analysis of land use change needs to address all influences on rural land use, not just competition between cash crops within the agricultural sector. Accurate model should therefore incorporate the relevant behavioural parameters and assumptions regarding each of the different types of rural land use. These should encompass the full range of factors that influence overall land use decisions, including:

- land tenure arrangements;
- proximity of economic infrastructure
- nature and extent of the regulation of land use;
- proximity of economic infrastructure
- availability of rural labour
- nature and extent of the regulation of land use;
- taxation of land, land-use, and/or transfers of land titles; and
- availability of rural labour

It is important because the scientific literature indicates that deforestation is due to a multiplicity of causal factors, rather than any single one, such as expansion of commercial agriculture as assumed by models. The most comprehensive meta-study undertaken to date identifies a number of proximate causes—or direct drivers—of deforestation at the local level other than agricultural expansion.

Overall there is little evidence that biofuel demand causes significant deforestation, directly or indirectly. In fact the key events that lead to the conversion of primary forest have often been underway for many decades before they were even officially identified, let alone properly measured and analysed.

For these reasons, deforestation has to be addressed as a complex context-specific phenomenon. The mechanistic approach employed by current models of ILUC impacts is not sufficient for rigorous analysis, and is therefore a poor and unreliable basis for policymaking.

2.4 Parliament ignores ILUC uncertainty

Despite attempts by modellers, these complex challenges make it impossible to ascertain a causal linkage of a single driver of biofuels to a particular indirect land use change.

As a result, European policy makers have dismissed efforts to incorporate ILUC impacts into EU policy. The Directorate-General for Energy objected to ILUC, most recently when the head of the Commission’s Regulatory Policy and Promotion of Renewable Energy Unit reportedly opposed ILUC factors for undermining support for investment in the sector.

In 2011 the Commissioners for the Directorate-General for Energy and the Directorate-General for Climate agreed to delay incorporating crop-specific ILUC penalties by up to seven years. Meanwhile, scientists and academics have publically warned about the strong uncertainty surrounding economic modelling of ILUC impacts, highlighting a broad consensus in the scientific community that the current ILUC estimations are inadequate.

These objections have been ignored by some Members of European Parliament, where Green MEPs have pushed ahead with efforts to incorporate ILUC. MEP Corinne Lepage, the Rapporteur for the Parliament’s Committee on the Environment, Public Health and Food Safety, recently claimed that the base on which “ILUC impact calculations are based is sufficiently robust to be incorporated into EU legislation”, despite widespread acknowledgment of the high level of uncertainty of the available methodologies.

The approach from MEP Lepage is irresponsible, and economically unsound. Any action to address the greenhouse gas emissions from land use change should only be undertaken where the global economic benefits from the action can reasonably be expected to exceed its global economic cost.

The errors of the draft report published by MEP Lepage have been identified by MEPs on her own Committee, and by senior MEPs across the European Parliament. European Parliament Vice-President Alejo Vidal-Quadras wrote a dissenting opinion document, outlining the fact that the scientific consensus is that ILUC is unworkable and impossible to calculate. MEP Vidal-Quadras recommended that ILUC factors and reporting requirements should not be considered, for these reasons.

Even the modellers – having concluded that ILUC effects do off-set part of the emission benefits – acknowledge that at current levels of production, biofuels have little to no ILUC impact, and any ILUC impact under the current RED directive “does not threaten the environmental viability of biofuels.”

They argue that biofuel consumption targets mandated under RED raises demand for feed-crops at the expense of food crops. Their ‘solution’ is to develop policy that incorporates ILUC as part of sustainability criteria, which would have the effect of restricting imports of food-crop feedstocks. Campaigners argue that trade restrictions would tilt production towards food crops for edible consumption, thus resolving what they consider a conflict between production of either ‘food or fuel’.

The campaign is flawed. Food insecurity does not increase when farmers make an informed and rational decision to grow biofuel feedstock or non-food crops. The core cause of food insecurity is lack of income to purchase food.22

Agriculture - including production of cash crops - is widely recognised as the most efficient and effective industry for promoting economic growth in developing nations, which is the only long-term solution to the global food security crisis. Increasing agricultural production - be it for food crops or feedstock - fosters development through job creation and income, so that low income rural populations are able to afford and access food staples.

3.1 Biofuel production and food security

Recent economic analysis has shown that the likelihood of biofuels being the core driver of increased food prices is extremely low. Increased food prices were driven by a range of factors, most prominently the demand for food, and the price of other key commodities, in particular the price of crude oil.23

Campaigners have intentionally conflated issues of ‘food security’ with ‘food self-sufficiency’. High food prices may make it difficult for vulnerable populations to afford food, but the solution is to improve access to food by raising income, rather than encourage vulnerable populations to become ‘self-sufficient’.

In 1996, the World Food Summit defined Food Security as a situation “when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.” The FAO have since identified four main dimension of food security:24

- Physical AVAILABILITY of food
- Economic and physical ACCESS to food
- Food UTILIZATION
- STABILITY of the other three dimensions over time

The FAO promote an approach to food security which involves addressing all these issues in a comprehensive manner by encouraging rural development and enhanced productivity, especially in the agricultural sector.25 26 Some of their key strategies include:

- Increasing availability of food by enhancing income, investing in rural infrastructure and improving rural food production especially by small scale farmers;

Civil society and Green MEPs have pressured the Commission to integrate ILUC into a new policy proposal, based on false claims that biofuels are driving up food prices, which increases global food insecurity and creates conditions for “land grabs”.

### 4. ILUC Harming South East Asian Farmers

There is no evidence to support campaign allegations that biofuels are driving food insecurity in the region. A recent study by the Center for International Forestry Research (CIFOR) highlighted that “the expansion of biofuel in Southeast Asia created a perception among civil society groups – and to an extent among policy makers as well – that the production of biofuels may threaten national food security. In most countries in the region, such fears turned out to be unfounded.”

South East Asian biofuel industries are small and appear to be struggling somewhat. As a result, the minimal expansion of agricultural land used to grow feedstock for biofuel production in Southeast Asia has become the target of criticism by international civil society groups.

Despite its small size, the industry offers “clear economic benefits to be gained, employment opportunities to be developed, national energy security strengthened and greater economic efficiencies to be realised”. However these potential benefits are undermined by campaigns accusing biofuel production of diverting land resources away from food crops towards non-edible commodity production.

Concerns that pasture previously used to grow food crops has been diverted to growing biofuel feedstocks have also been exaggerated. The biofuel sector has developed relatively slowly from 2006 and the projections through 2011. In aggregate terms, less than 5% of total CPO production in Indonesia is being used for biodiesel. Biofuels are unlikely to pose a threat to the production of food from CPO in the foreseeable future.

Biofuels production in South East Asia is simply too small to justify disproportionate policy responses such as incorporating unreliable ILUC emissions calculations. The policy proposed by the Commission would directly harm biofuel feedstock growers who participate in a small emerging industry, contrary to the picture painted by environmental campaigners who claim large tracks of lands have been ‘grabbed’ by investors seeking to produce biofuels for an insatiable European market.

#### Table: Production of first generation biofuels in South East Asian countries

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<thead>
<tr>
<th></th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Thailand</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Bioethanol</td>
<td>24</td>
<td>650</td>
<td>325</td>
<td>13</td>
<td>353</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>200</td>
<td>326</td>
<td>196</td>
<td>144</td>
<td>1487</td>
</tr>
</tbody>
</table>


30. Main feedstock for biodiesel production in Indonesia, Malaysia and Thailand is palm oil. In the Philippines, the major feedstock for biodiesel production is Coconut methyl ester (CME).
31. Main feedstock for bioethanol production in Indonesia, Malaysia and Thailand is sugar cane; in Thailand the major feedstocks are sugar cane, cassava and molasses.
32. Indonesia has not produced any first generation bioethanol in a significant scale.
The FAO agrees that “biofuel production in many developing countries is projected to remain below expressed target as the cultivation of non-edible crops to produce biofuels remains, in most cases, on a project or small-scale level and high prices of agricultural commodities do not encourage their use as biofuel feedstock.”

With such small low production, small exports quantities and slack demand, campaign allegations that biofuels are a leading driver of food security and deforestation are erroneous.

Nonetheless Green groups and MEPs - whose agenda is to restrict growth of agricultural sectors in tropical forested countries regardless of their development needs - have pushed forward and lobbied the Commission to amend the Directive, despite widespread acknowledgement that ILUC impacts cannot be reported accurately.

They have argued that demand for biofuel is driving up food prices, and having an adverse effect on food security for low-income populations in developing countries. However the Greens’ attempt to frame biofuel production within a ‘food versus fuel’ debate belies reality.

Food security is a complex issue, but cultivation of feedstock for biofuel production is unlikely to decrease food security for rural populations. Depending on the market conditions, it may increase it. Economic development is the best means for improving food security. If growing biofuel feedstock allows low-income farmers to maximise their profits, then biofuel production can ultimately drive economic development, and increase food security.

Detailed analysis undertaken for the European Commissions has shown that ILUC impacts cannot be accurately calculated, and attempts to do so fail to meet rigorous scientific standards. Efforts to incorporate ILUC into European policy are therefore unlikely to achieve their intended goal, given the flawed nature of the ILUC impact modelling which underpins the proposal. In its current nascent state, the “best available scientific evidence” is simply unable to accurately quantify emissions impacts from ILUC.

The facts are contrary to an aggressive Green campaign attacking biofuels production. Accusations that European demand for biofuel has created a massive and sudden jump in biofuel production in South East Asia, which could trigger high food prices or drive vast environmental degradation, cannot be substantiated.

Southeast Asian countries, despite producing over 80% of global palm oil, produce only around 6% of global biodiesel.

The Greens have little environmental or economic justification for incorporating ILUC impacts into EU policy. However Green MEPs, led by Lepage, continue to promote policy that harms industry and reduces competitiveness of Asian small farmers and biofuel producers. These efforts, in particular MEP Lepage’s proposal, further discriminate against environmentally-friendly biofuels derived from feedstock grown in developing countries, and hamper economic development in emerging economies.

34. Ahmad Dermawan, Krystof Obidzinski, Heru Komarudin, 2012
35. Ahmad Dermawan, Krystof Obidzinski, Heru Komarudin, 2012
36. OECD/FAO, 2012

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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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