***Supplementary Material***

***S1: REDD+ market context***

In the 2000s, private sector finance for REDD+ was expected to be predominantly generated from entities regulated under emissions trading schemes, with mandated emissions reductions partially met via the purchase of ‘offset’ credits from REDD+ projects (Clements 2010; Agrawal et al 2011; Phelps *et al.* 2011). For example, firms facing obligations under the European Union’s Emissions Trading Scheme (EU ETS) can use credits from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects. The peak of private sector interest in REDD+ as a potential new investable asset class was just prior to 2009 (Forest Trends 2014), when the demand from regulatory markets was projected to rise in the near future. Investors saw opportunities to profit by selling on REDD+ credits to entities with potential future compliance needs under regulated emissions trading schemes, despite continued uncertainty over the future eligibility of REDD+ in the EU ETS.

At present, only credits from the Clean Development Mechanism (CDM) and Joint Implementation (JI) are eligible for use by EU ETS installations and although there has been some discussion regarding the inclusion of REDD+ in the CDM, this is unlikely to occur in the short-term. A general scepticism regarding future REDD+ compliance demand in Europe (communicated to the authors by a carbon market expert), and a move away from offsetting in the EU ETS, has been compounded by a lack of new carbon trading schemes to emerge since the EU ETS. Perhaps most significantly, the Waxman-Markey Bill in the USA proposed a national level cap-and-trade scheme that would have allowed between 500 million to 1 billion tonnes of REDD+ credit purchases by participating firms per year (Open Congress 2009). Credits would have been sourced from eligible projects and countries, with a gradual movement towards a fully national-level approach, with purchases made directly from governments. The failure of the passage of the bill in the US Senate in 2009 reduced short-term expectations of the return from REDD+ investments, and removed the immediate prospects of national-level demand for REDD+ from the US.

Further damage to potential compliance demand for REDD+ came with the repeal of the Australian Carbon Pricing Mechanism in 2014. Although the Australian scheme had not yet granted eligibility to REDD+ credits it did represent a potential future source of demand, especially given close relations between Australia and Indonesia on REDD+, through the Indonesia-Australia Forest Carbon partnership that ran between 2009 and 2014.

California is the only jurisdiction that has made concrete moves towards the inclusion of REDD+ offsets in a jurisdiction-scale climate policy framework. It implemented a state-level cap-and-trade scheme in the absence of US national policy in January 2013, initially only allowing domestic offsets. Each regulated entity can use such offset credits to meet 8% of their annual emissions, with the use of international credits initially capped at 2%, before rising to 4%. Eligible REDD+ credits are likely to come initially from two jurisdictions, also States: Chiapas in Mexico and Acre in Brazil. Given that REDD+ is yet to enter into the Californian scheme, the future potential scale of investment remains speculative. GCP estimate that up to 80 million tonnes of REDD+ credits could be purchased by Californian regulated entities by 2020, about 70% of the proposed emission reductions in Acre, between 2015 and 2020 (GCP *et al.* 2014).

Beyond the regulatory market, a market for those looking to voluntarily purchase REDD+ credits has emerged. This market is relatively small, especially in comparison to the potential REDD+ supply pipeline with an estimated 28 million tonnes ­of REDD+ credits purchased by a variety of different types of companies for voluntary reasons in 2012, for a total value of US$216 million, slightly less than the previous year (GCP *et al*. 2014). This demand is exceeded by the supply of credits generated by all current projects (GCP *et al*. 2014). In 2012 30 million tonnes of REDD+ credits from existing projects remained unsold, over 50% of the total supply in the pipeline for that year (Forest Trends 2012). The implication of this unsold surplus can be seen in the reported prices for REDD+ credits, down from US$7.4/tCO2 in 2012 to an average of US$4.2/tCO2 in 2013 (Forest Trends 2014).

Agrawal, A., Nepstad, D., and Chhatre, A. (2011) Reducing Emissions from Deforestation and Forest Degradation. *Annual Review of Environment and Resources* **36**: 373-396

Clements, T. (2010) Reduced Expectations: the political and institutional challenges of REDD+. *Oryx* **44**(3), 309-310

Open Congress. (2009) American Clean Energy And Security Act of 2009 [www document]. URL <https://www.opencongress.org/bill/hr2454-111/text>

Phelps, J., Webb, E. & Koh, L. (2011) Risky business; an uncertain future for biodiversity conservation finance through REDD+. *Conservation Letters* **4**(2): 88-94

**S2: Interview Guides**

***Questions for entities focused on offsetting for compliance***

* What are the prospects of REDD+ playing a role in compliance markets?
  + Do you think there is potential interest from compliance buyers for REDD+ options?
  + On what time horizon do you sense that compliance purchasers are making decision regarding offset purchases?
  + What have been the main reasons why compliance entities have made decisions between different offsets?
    - How large a role has price vs other factors played in decision-making?
  + Who have been the key people in the organization regarding compliance purchases?

***Questions for existing REDD+ purchasers***

* What have been the motivations of existing REDD+ purchasers?
  + What have been the key lessons from the experience of these existing purchasers?
  + Would jurisdictional REDD+ be as attractive to existing purchasers as project-based credits?
  + How important has price considerations been in non-compliance offset purchasers decision-making?
* Who have been the key people in the organization regarding REDD+/offset purchases?
* What are the main barriers to engaging private sector finance in REDD+?
* What are the prospects for increasing non-compliance REDD+ demand?
  + What tools could be used to boost demand?

***Questions for Exchanges involved in carbon trading***

* What would be required to catalyse interest in the major exchanges in designing a REDD+ option market?
* What would be the steps required to establish a REDD+ options market place? How does this mirror (or differ) the establishment of any other carbon offset market? How would this be different for an options approach?

**S3: Workshop materia**l

***Developing an Options Market and Complementary Financial Structures to Mobilize Private Capital for REDD+ and Manage Climate Policy Risks (Options Market and Risk-Reduction Tools for REDD+) - LSE – CMIA/IETA workshop – April 3, 2014***

***Overall project background***

REDD+ is at a crossroads - discussions have advanced in the UNFCCC negotiations and readiness efforts are progressing with public financingbutprivate capital is largely on the sidelines. A lack of demand is coupled with uncertainty and risks that hinder the implementation and development of supply. On the other hand regulated companies potentially face large carbon price uncertainty, generating significant risk. Options on REDD+ could provide a mechanism to mobilize private capital in the near and medium terms while offering business and governments a tangible hedging tool in today’s uncertain policy environment. NORAD is funding the Environmental Defense Fund, in collaboration with the LSE, IIASA and the Mercator Research Institute on Global Commons and Climate Change to undertake a project to develop an Options Market and Complementary Financial Structures to Mobilize Private Capital for REDD+ and Manage Climate Policy Risks.

***Project Outcomes***

The project aims to produce research papers and modeling tools to support REDD+ options transactions and other risk-management mechanisms, along with communications and policy advocacy documents for non-technical audiences. The ultimate aim of the project is to facilitate at least one pilot transaction that demonstrates the options approach to REDD+ financing between private investors (possibly along with a public institution) and a REDD+ jurisdiction.

***Workshop Objectives***

LSE’s role in the project is to help to understand the current REDD+ demand context, and the future prospects for any REDD+ market. To facilitate this understanding LSE is engaging with a number of different actors involved in REDD+ and carbon markets. As part of this engagement LSE approached both CMIA and IETA for their assistance. The result has been the proposal for a workshop to be held with members of both CMIA’s REDD+ Working Group and IETA’s Land/Use Forestry Working Group at LSE on Thursday April 3, from 12:30pm until 3:30pm.

The workshop has two main objectives: the first is to canvass the expertise and experience of the members of the groups in answering the following questions:

* What are the prospects of REDD+ playing a role in compliance markets?
* What are the prospects for increasing non-compliance REDD+ demand?
* What have been the motivations of existing REDD+ purchasers?
* What have been the key lessons from the experiences of these existing purchasers?
* What are the main barriers to engaging private sector finance in REDD+?
* What are the main buyer, supplier and intermediary risks facing REDD+ today?

The second objective is to present initial thinking from LSE and the wider project regarding the use of options and other financial tools to reduce risks to both REDD+ sellers and REDD+ buyers and how they may increase demand and/or mitigate risk. It is our hope that the workshop can build relationships that can provide avenues for dissemination of findings from the work of LSE and the wider project.

***Follow-ups and outputs***

The aim of the work being undertaken by the LSE is to produce a report outlining the current state of REDD+ demand, the perceptions of private sector operators as to the outlook given the current policy conditions and the interest, if any, in risk reduction tools such as options. The report from LSE will be complemented by a similar report from EDF focusing on perceptions in the United States. These reports will be accompanied by a programme of stakeholder engagement focusing on communicating the key messages to policy-makers, and also testing and refining the findings and messages from the study through further engagement with private sector stakeholders.

***Agenda***

The workshop will be built around three separate sessions. In each an LSE staff member will very briefly outline the topics of interest and our initial findings and thoughts on each topic before starting an open discussion focusing on the key questions within each topic.

**12:30pm – 1:00pm *Buffet Lunch and Greetings***

**1pm – 1:15pm** ***Introduction***

**1:15pm – 2:00pm** ***Where does REDD+ stand today?***

5 minute presentation followed by open discussion on:

* + - * + Prospects for Compliance/Non-compliance
        + Motivations for current purchasers
        + Lessons from previous experience
        + Jurisdictional v Project based approaches

**2:00pm – 2:45pm** ***Barriers and Risks to REDD+***

5 minute presentation followed by open discussion on:

* + - * + Main barriers to engaging private sector
        + Main risks facing buyers, suppliers and intermediaries

**2:45pm – 3:30pm** ***The Future for REDD+***

5 minute presentation followed by open discussion on:

* + - * + Options and other tools to reduce risk
        + Actions to enable interim financing
        + California possibilities
        + Post 2020 Prospects

Session 1 presentation:







Session 2 presentation:



***S4: Kering and REDD+***

Kering is a French multinational clothing and accessories company controlling global brands such as Puma and Gucci. The firm has a strong commitment to sustainability dating back to an original ethics charter issued in 1996. One of its subsidiaries, Puma, moved to Environmental Profit and Loss Accounting in 2011.

As part of its sustainability strategy, Kering has committed to a number of environmental targets with direct or indirect relevance to forests. These include a commitment to offset all its emissions from Scope 1 and 2 activities – using offset programmes that contribute to the welfare of the community and the conservation of biodiversity in its regions of operations.. In order to help achieve this objective in 2012 Kering procured a 5% stake in Wildlife Works, a leading REDD+ project development and management company. This allowed Kering to take a place on the management committee of the company through which it procures the REDD+ credits that it uses to offset all its emissions.

Kering’s engagement with REDD+, despite its relatively higher price than otherwise offset opportunities, fits within the overall target of its sustainability arm to:‘invest in for-profit businesses that incorporate biodiversity conservation and social concerns into their business model, resulting in net-positive social and environmental impacts.’

The multiple benefits that REDD+ offers to Kering may well lie behind the companies large commitment to the asset class. Further REDD+ investments may also prove useful to meet other sustainability targets that Kering has set itself. The company has committed that 100% of the leather used in its products will be from sources that do not result in converting ecosystems into grazing or agricultural lands. REDD+’s potential role in providing green supply chains, along with offsetting carbon emissions may therefore offer strong motivations for companies with multiple sustainability objectives to invest in the asset.

***S5: Ulu Masen REDD+ demonstration project***

The Ulu Masen REDD+ demonstration project, covering around 750,000 hectares in Aceh (Indonesia), was designed by Aceh’s Government in combination with the private company ‘Carbon Conservation’, and with some initial guidance from Flora and Fauna International (Institute for Global Environmental Strategies 2007). Merrill Lynch was reported to have invested US$9 million into the project in an arrangement that committed the bank to purchase US$9 million worth of credits with an option to buy further credits (Business Green 2008). The project was validated by the in 2008 but the validation subsequently expired and the project stalled, with no credits issued. Part of the land planned for the project has since been sold to a Canadian mining company (Sydney Morning Herald 2012).

Business Green, (2008). Merrill Lynch throws weight behind avoided deforestation credits [www document]. URL <http://www.businessgreen.com/bg/news/1806676/merrill-lynch-throws-weight-avoided-deforestation-credits>

Institute for Global Environmental Strategies. (2007) Reducing carbon emissions from deforestation in the Ulu Masen Ecosystem, Aceh, Indonesia. Project design note for CCBA Audit (December 29, 2007) [www document]. URL <http://redd-database.iges.or.jp/redd/download/project;jsessionid=F5414B40A100A330B258A615F97995C8?id=87>

Sydney Morning Herald. (2012) Credits lost in tangle of Aceh’s forests [www document]. URL <http://www.smh.com.au/environment/conservation/credits-lost-in-tangle-of-acehs-forest-20120608-201gl.html>