

CDM & Future Demand The Opportunity & the Challenge

UNFCCC Roundtable

Dirk Forrister, President & CEO, IETA
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A photograph of a woman and a young child in a traditional Cambodian kitchen. The woman, wearing a white and pink striped shirt and a tiger-print sarong, is smiling and holding the child. The child, wearing a yellow and white shirt and blue pants, is waving. In the foreground, a large metal pot sits on a traditional brick stove. The background shows shelves with various items and a thatched wall.

UNLOCKING THE HIDDEN VALUE OF CARBON OFFSETTING

Imperial College
London



Cookstove project, Cambodia

Background

Imperial College London University partnered with the ICROA to conduct a socio-economic impact evaluation into the voluntary carbon market.

- Information from 59 emission reduction projects from voluntary carbon market (est. 32% of the market).
- Surveyed 75 businesses to gather quantified benefits carbon offset projects bring to businesses and local communities around the globe.
- Indication of value & types of benefits the voluntary market delivers – to buyers and local project hosts

THE RESULTS

Total benefits per tonne from 59 surveyed projects



Economic

The projects are estimated to contribute around US\$110.4 million to local economy during development stage and a further US\$78.7 million per year of operation through local employment and sourcing local services and material: US\$2,600 per 1,000 tonnes of CO₂ to the local economy.



Social

To-date, the projects contributed around US\$725,000 to local infrastructure and services, such as education, healthcare, transport systems and micro-financing local projects: Per tonne of CO₂, US\$0.007 is spent on local infrastructure development.

The projects collectively train around 211,310 local people in administration, with technical skills, or in health & safety or environmental/community issues: Around 2 people are trained per 1000 tonnes of CO₂.



Economic

Assuming the household device distribution projects meet their targeted number of households (1.9 million), they are estimated to generate around US\$2.8 billion of household savings: around US\$52 per tonne of CO₂.



Environmental

Projects that conserve natural ecosystems are estimated to generate around US\$16 billion of ecosystem benefits per year. Whilst the lands are conserved for carbon sequestration, they also deliver other ecosystem services such as soil protection, water regulation, and biodiversity conservation: every tonne of CO₂ generates around US\$609 of ecosystem benefits.









Total

Using this research as a base, we determined that offsetting 1 tonne of CO₂ delivers benefits totalling \$664

Table 2: Breaking down the quantified co-benefits² delivered from Carbon Offset Projects

The table below summarises the co-benefits of the studied projects.

Quantification of co-benefits³

Co-benefits	Quantification	Valuation	Per tCO ₂ l	Method
 Employment creation (48)				Based on the number of jobs generated multiplied by the country's minimum wage. Normalised by total tonnes CO ₂ for development stage and annual tonnes CO ₂ for operational stage. Project development was assumed to take a year
 Development	1,467 jobs created	US\$*2.6 million	US\$0.003	
 Operation (per year)	8,042 jobs created	US\$*17.9 million	US\$0.559	
 Sourcing local material and services (13)				Total spending on local material and services, normalised by the total tonnes of CO ₂ for development stage and annual tonnes of CO ₂ for operational stage
 Development	US\$58,327,800	US\$*107.8 million	US\$0.129	
 Operation (per year)	US\$38,230,000	US\$*60.8 million	US\$1.895	

²We refer to the additional benefits a project delivers beyond carbon reduction as "co-benefits"

³The response rate differs across questions as some are irrelevant to the specific project or due to limited information available to respondents at the time of the survey. The sample size is indicated in the findings by stating the number of projects in parentheses. US\$ are the values as reported by survey respondents, and US\$* are adjusted values according to Purchasing Power Parity (PPP).

N.B, this is a sample of the voluntary market projects and by no means represents the full value of the market. We hope in due course to evaluate the broader market but in the meantime aim to demonstrate the further value being delivered through carbon offset projects our members are retailing.

Figure 1: Motivations to offset

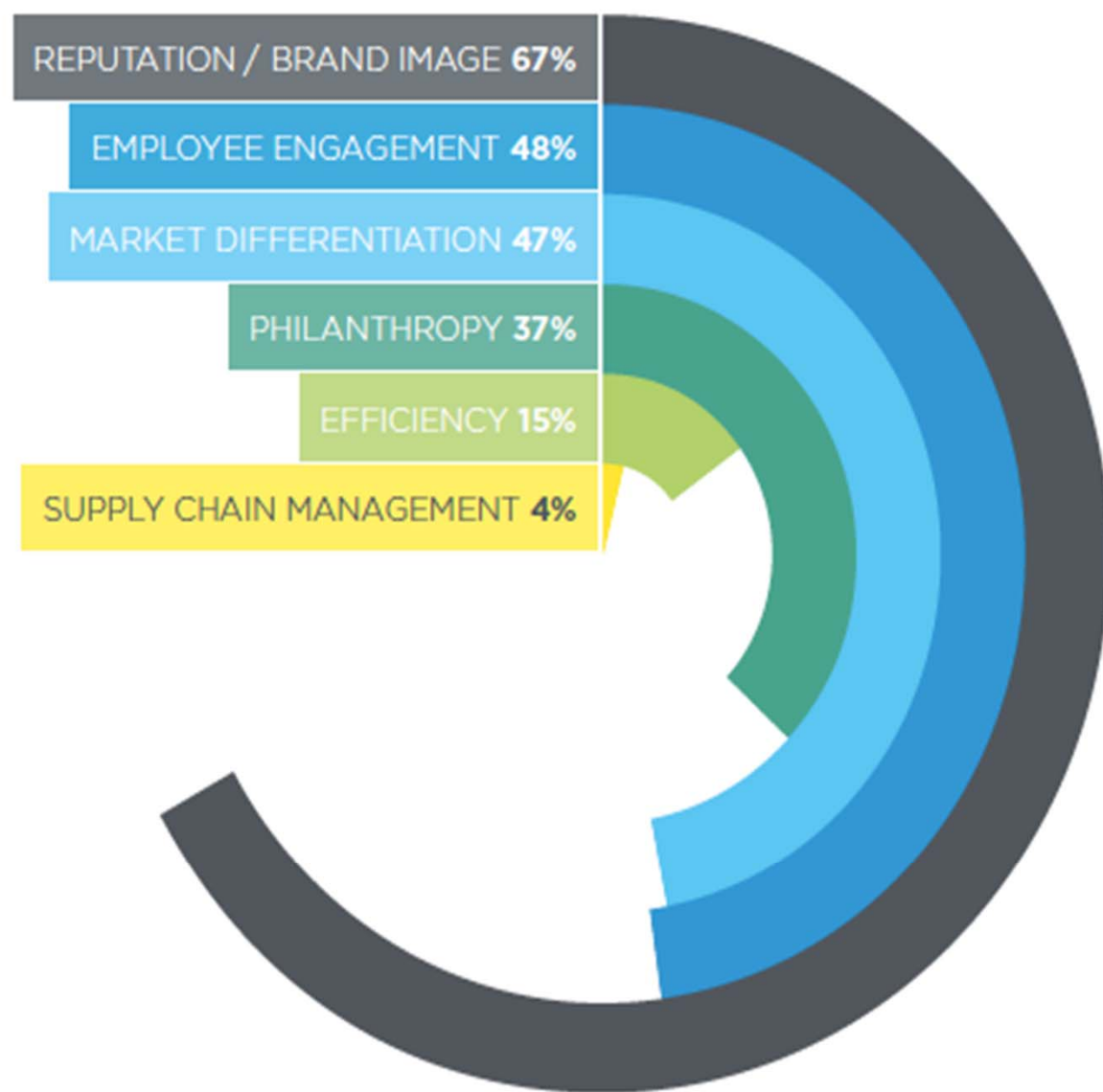








Table 1: Offsetting Benefits Ranked by Offset Buyers

	Benefits	Potential quantification/indicators
<p>Most tangible</p>  <p>Least tangible</p>	 <p>Energy/cost reduction</p>	<p>Tax credits</p> <p>Reduction in energy consumption</p> <p>Cheaper than in-house abatement or purchasing green energy certificates</p>
	 <p>Winning/answering tender</p>	<p>Number and value of tenders that ask about commitment to emission reduction</p> <p>Number and value of contracts that state the requirement of carbon offsetting</p>
	 <p>Market differentiation</p>	<p>Customer's preference</p> <p>Price premium</p> <p>Volume of green products sold</p>
	 <p>Employee engagement</p>	<p>Employee survey</p> <p>Number of events hosted and turnout</p> <p>Number of visits to the company's intranet site</p>
	 <p>Brand recognition</p>	<p>Sustainability related reputation indices and rankings</p> <p>News coverage</p>

For the full report visit:

<http://www.icroa.org/42/icroa-research/>

Further questions?

Dr Ioannis Kountouris: i.kountouris@imperial.ac.uk

Sophy Greenhalgh: greenhalgh@ieta.org

The Challenge in Two Scenarios

- Scenario 1: No change in demand structure
 - National purchasing
 - Green Climate Fund
 - Voluntary Offsetting + Aviation
 - Developing country demand (in-jurisdiction only)
 - Modest growth – remains a niche market
- Scenario 2: Bold reform to support compliance markets
 - Simplify and grow broader to sectoral crediting
 - Aggressive performance benchmarks
 - Additionality through a performance reserve
 - Possible merger with NMM?

About ICROA & Imperial College University

- The **International Carbon Reduction and Offset Alliance (ICROA)** is a professional business association for voluntary carbon markets. ICROA provides an expert voice in carbon markets and advises governments and business in the design and roll out of carbon offset schemes. ICROA is housed and managed by the International Emissions Trading Association (IETA) Secretariat.
- Imperial College London is a research university located in London, United Kingdom, which houses The Centre for Environmental Policy (CEP). The Centre produces internationally-recognised research and teaching that addresses key environmental and global policy challenges through the interdisciplinary study of science, technology and innovation. The centre has a longstanding background in economic environmental valuation – the process of placing monetary values on environmental impacts. **The team that conducted the research was led by Dr Zen Makuck, Dr Ioannis Kountouris and Ms E Feng Tan Loh.**

Methodology

- A survey instrument was developed to elicit information on projects' co-benefits directly from project developers for information. The survey design was informed by a comprehensive academic literature review, internationally recognised sustainability standards and industry experts through extensive consultation with 13 organisations.
- Following the survey, data was collated and analysed for each co-benefit. Where possible and where quantitative data was available, Imperial monetised the co-benefits using market and non-market valuation techniques.
 - For example, local employment was monetised using the number of local jobs created by the project and the local minimum wage. The methods for valuing each co-benefits are presented in Table 2. The monetary values estimated for the co-benefits were then aggregated across the portfolio and normalised by the (annual or total) tCO₂ generation to arrive at the co-benefit generated per tCO₂.
 - We used simplified approaches for monetisation of co-benefits to provide a high-level estimation of the co-benefits generated from the portfolio and we recognised the limitations, which are detailed in the report. Monetisation of some co-benefits, such as the benefits derived from stakeholder participation and technology transfer, was beyond the scope of this study, thus these co-benefits were assessed qualitatively and reported.
- *N.B the total value is an indication of the types of values offset projects can deliver, for exact figures analysis per project would need to*