Carbon Market Finance (CMF) Programme

Business Case and Intervention Summary

Intervention Summary

What support will the UK provide?

1. **The UK will provide £50m from 2013 to 2025** to increase the flow of international carbon finance to Least Developed Countries (LDCs)[1] – with a focus on Africa – to support climate change mitigation and poor peoples' access to clean energy and other poverty reducing technologies. In the short to medium term, this programme will deliver direct climate and poverty reduction benefits on the ground in LDCs through clean energy projects such as household solar, biogas and micro-hydro systems. By channelling this support through the carbon market, the programme will increase the ability of LDCs to access and benefit from carbon finance in the medium to long term, if and when the market recovers. The direct benefits of the programme represent value for money even in the absence of carbon market recovery, but the potential for this intervention to be transformational rests on market recovery around 2020.

2. **The CMF is a joint DFID and DECC programme**, with both Departments providing funding from their share of the UK Government's International Climate Fund (ICF). DFID will provide £15 million and DECC £35 million. All UK ICF funds are classified as Official Development Assistance (ODA)[2]. These funds[3] will be used to:

   a) **Develop innovative business models** (£11.3 million) that enable the international carbon market to finance projects with high development benefits in Least Developed Countries, as well as reduce carbon emissions. These models will be for low carbon technologies that deliver community and household level results, such as, but not restricted to, biogas, household solar and micro-hydro power; the three technologies that are used in the illustrative portfolio from which results for this programme have been derived[4].

   Models will reduce the red tape and transaction costs for these types of projects to gain carbon finance. Carbon market finance will signal a long term revenue stream that will allow up front capital to be raised, making these technologies more affordable to poor people and improve their take up. Business models will be demonstrated through projects that are supported through the design, validation and registration processes under the carbon market Clean Development Mechanism (CDM), and in setting up the institutions[5] required to coordinate emission accounting across communities. Monitoring of these projects will demonstrate the viability of the business models and share lessons for replication.

   b) **Use Results-Based Finance (RBF)[6] to support projects to test these models in practice**. (£33.2 million) RBF will purchase emission reductions credits from projects that install low carbon energy with community and household level results. Five potential RBF mechanisms were considered as options for use within CMF. An agreement to pay a fixed price, set at an appropriate level for each project supported, was selected as the preferred option (details in the Appraisal Case and Annex 3).

   Paying a fixed price de-risks a project sufficiently to attract project developers without risking the UK having to pay more than expected for project results. Paying a fixed price also prevents the UK from co-financing other buyers who are using credits for compliance, or providing project developers with windfall profits. It increases the

likelihood that projects deliver results, and guarantees that UK funds are spent and that any results generated are attributed to the UK spend. By paying a fixed price the RBF mechanism fits with the ICF Principles for Carbon Market Interaction.

Price setting for credits purchased using this RBF mechanism will be undertaken through an open book negotiation between the programme's implementation partner and project developers. Open book negotiation was one of three price setting approaches considered, but determined to be the best approach to ensure the value for money of this programme, given that the programme will consider a wide range of technologies across a wide range of countries. As discussed in detail in paragraph 31 below, open book negotiation does risk that the UK over subsidizes projects, but a number of approaches will be followed to limit this risk.

Because ICF funds are classified as ODA, all credits purchased by the UK through CMF must be cancelled and not used for compliance with UK GHG targets and the UK must confirm that it does not find this spend to be a diversion of ODA, which will be clarified in legal agreements with the implementation partner for CMF.

c) **Influence the future carbon market** (£2 million) so that less developed countries, especially in Sub-Saharan Africa, receive a greater and fairer share of carbon finance that results in both high development benefits and reduced carbon emissions. This will be accomplished through disseminating the new methodologies[7] and models that reduce the red tape and the results of their practical application. Replication of the programme's innovative models through the carbon market, if the market recovers, would transform the access of poor people to carbon finance.

d) **Evaluate the potential of these innovations** (£1m) to enable the carbon market to (i) deliver direct development benefits at the same time as emissions reductions; (ii) reach poor households in LDCs – and deliver appropriate technologies cost effectively and (iii) attract finance and innovation from the private sector in distributing the technologies through replicable business models.

These components add up to £47.5 million of the total £50 million allocated for the initiative. The remaining £2.5 million (5% of the total value of the programme[8]) accounts for management and administration costs surrounding the implementation of CMF.

3. ***So what are Carbon Markets?*** Carbon markets are a tool for cost effectively reducing the greenhouse gas (GHG) emissions that cause climate change. They work by countries committing to reduce emissions and then placing ambitious limits (or caps) on emissions from different businesses. These countries and their businesses then reduce their own emissions to stay within the cap or, where it is more economical, purchase equivalent reductions (tonnes of carbon credits) from other countries. The carbon price is therefore driven by the amount of demand from buyers, as a result of their emission caps, and the supply of carbon credits available for purchase. The international source of carbon credits is the Clean Development Mechanism (CDM), the UN regulated system for selling "certified emissions reductions" – generated from emissions reducing projects in developing countries – to buyers in other countries to meet their international mitigation commitments. The CDM also links national and regional carbon markets, for example connecting the EU's European Trading Scheme (EU ETS), the largest scheme worldwide and to date the main source of demand for CDM credits, with the international carbon market.

Why is UK support required?

What need are we trying to address?

4. **International carbon finance would have to reach an annual size of $200-700 billion (£120-440 billion) by 2030 to achieve a 2°C world[9].** International carbon market mechanisms will remain a key tool for delivering global emissions reductions on the scale required (see para 8 (i) below for further details). This finance could transform the lives for poor people in the LDCs – whilst also reducing emissions. The UK has helped develop some new approaches to make this easier through the CDM; these now need testing and further developing, and others need to also be developed.

5. **The International Energy Agency (IEA) estimates that around 950TWh of additional electricity generation will be required in developing countries by 2030 to achieve universal energy access.** They foresee around 60% of this additional generation coming from mini-grid (42%) and isolated off-grid (18%) systems, rather than grid extension[10]. Decentralised solutions have an important role to play where grid extension is too expensive and are likely to provide the bulk of additional connections up to 2030.

6. **Carbon finance could make clean energy and other low carbon technologies more affordable for poor people in LDCs.** This would help set LDCs on a low carbon development pathway and expand energy access to the 80% of the world's population without electricity – through community and household based off-grid renewable technologies (like solar, biogas and micro hydro). This will be particularly important given the challenges of increasing grid connection in sub-Saharan Africa – where distances are large and energy demand already exceeds supply. These technologies have excellent benefits for poor households, but have received almost no carbon market support in LDCs to date. Using new CDM approaches will mean small-scale energy solutions can be aggregated to allow implementation and support at scale, in line with the ICF investment strategy.

7. **Carbon finance flows for these poverty reducing technologies remain minimal** – particularly to the LDCs that need them most. This is because: (i) the cost to demonstrate carbon reductions for carbon market finance is currently particularly prohibitive for small scale projects; (ii) uncertain returns from the technologies discourages investment; (iii) a gap in skills and experience in poorer countries; and (iv) the uncertainty in the carbon market, due to the global economic crisis and lack of mitigation ambition, is causing very low prices. This programme will test new methods and approaches specifically designed to help LDCs access carbon finance, ensuring they are well placed to participate in the future carbon market and develop along a low emissions pathway.

8. **Carbon finance can help reduce risks faced by project developers.** As CDM credits are UN backed project developer's face less sovereign risk than if they relied on domestic subsidies and policies to fund work, which may be withdrawn by the host country.

How does the Intervention fit with the ICF investment strategy?

9. **CMF delivers on the strategic objectives for poverty reduction and emission reductions of the ICF.** The initiative also fits with the ICF Carbon Market Principles, as

described in the Appraisal Case and Annex 2. It will deliver the ICF's Low Carbon Development investment strategy by :

- **Demonstrating viability of low carbon development;** LDCs have long been seeking to benefit from the CDM and demonstration of successful project models will both deliver immediate low carbon benefits and open up a future source of finance, at scale, for low carbon projects. Delivering this support through the CDM demonstrates our willingness to make UNFCCC mechanisms work for LDCs, potentially increasing their support within the international climate negotiations.
- **Improving architecture and delivery of finance,** by piloting new innovative mechanisms, working to improve the CDM and improving effectiveness of Multilateral Development Banks management of climate finance;
- **Fostering greater private sector investment** in low carbon infrastructure and service delivery; the programme will be designed to help bring in private sector developers through the projects directly supported and help scale up the flow of carbon finance to LDCs in the longer term;
- **Enhancing the capacity of developing countries,** through building experience and skills in establishing clean energy projects under the CDM;
- **Delivering results at scale;** in many parts of Africa, and other LDCs, small scale clean energy solutions, used off-grid or as part of mini-grids are more viable than extending access to the grid. This project will test and demonstrate approaches for these technologies to be aggregated and financed at scale
- **Focussing on our priority countries.**

10. The CMF programme is also in line with the ICF Private sector strategy in particular:
    i. It will help show how carbon finance as a financial instrument could have transformative development potential;
    ii. It will test innovative approaches to mobilising private climate finance, informing other international initiatives and climate spending.

    CMF complements the range of other programme approaches that have been developed under the ICF to increase low carbon development in Africa, as set out in the Strategic Case.

Why reform the carbon market now?

11. **The market price for carbon is currently very low,** due to a lack of international ambition to reduce global emissions, in light of slow progress in UN climate change negotiations, and the global economic downturn. Primary CDM transfers in the international carbon market peaked at an annual finance flow of $7 billion (£4.4 billion) in 2007[11]. But in 2011, the value of the CER market was only $1 billion (£0.9 billion)[12]. A future healthy carbon market depends on the outcome of international climate change negotiations, and setting stringent caps on emissions. International negotiations aim for a new global agreement in 2015, with emission reductions coming into effect thereafter, and at the latest from 2020[13]. There is clearly significant uncertainty around the outcome of these negotiations and the future state of the market.

12. **The CDM has supported more than $200 billion (£125 billion) of investment in clean technology in under 10 years[14] - but poorer countries have missed out** to more advanced developing countries (e.g. China, India, Brazil, South Korea) where large scale low cost abatement opportunities (such as in industrial processes) were readily available. Recent reform of the EU Carbon Market – the largest buyer of international emission reductions to date – means that from 2013 to 2020 the EU will

only buy newly registered emission reduction credits from LDCs. This could incentivise project developers' to invest in LDCs. However, an oversupply in the market due to low targets and the recent economic downturn means that alone this shift in legislations will not increase the carbon finance flowing to LDCs[15]. Additionally the barriers to supporting small household technologies are still significant. In January 2012, Africa was home to just 2.6% of projects registered in the CDM.

13. **The carbon market is anticipated to continue** because:
    i. International carbon market mechanisms will remain a key tool for the required global emission reductions[16]. Carbon markets provide cost effective emissions reductions and the cost of achieving emissions reductions increases substantially if global action on mitigation is delayed[17]. Just as the carbon markets need an ambitious global deal, so does a global deal need the carbon markets. Additionally maintaining the carbon market makes it easier to achieve global climate change targets in the long term. There is widespread agreement in the UNFCCC that carbon markets in some form will continue.
    ii. Even without a global agreement, the EU remains committed to its' regional trading scheme and many other countries are setting up their own trading schemes to incentivise long term low carbon investment: these should lead to a stabilisation in prices[18].
    iii. Emissions are likely to grow in the future as the global economy recovers leading to increased demand for credits and a higher carbon price.

14. **Already work is underway to reform the CDM and support carbon prices.** Over the next two years the CDM Executive Board (EB) aims to (i) increase simplicity and predictability in the mechanism, (ii) facilitate more countries to host CDM projects, (iii) safeguard the reputation of the CDM, and (iv) make sure the sustainable benefits of projects are better communicated[19]. By beginning CMF now the initiative will have the chance to feed into and strengthen these reforms. Work is being led by the European Commission, which has so far received the support of seven EU Member States, to prop up carbon prices in the EU ETS, which demonstrates a commitment to this carbon market mechanism[20].

15. **Future demand for emissions reduction credits is difficult to predict at the present time.** While many new markets for emissions trading are beginning to emerge, current levels of mitigation ambition will not greatly increase the demand for international carbon credits. Successful negotiations ending in 2015 could increase that ambition, with countries taking on new, stronger emissions targets, which could increase demand for emissions reductions pre and post 2020.

16. **But developing capacity, demonstrations and reforming the CDM takes time.** Developing, demonstrating and disseminating new methodologies can easily take 5 years. This means the demonstration benefits of CMF won't begin to be felt before 2018, just in time to influence project developers thinking ahead as to how they will meet potential post 2020 market demand.

17. **So, now is the right time to prepare LDCs to access future markets and influence their shape** – with the objective of increasing the share of financing for poverty reducing clean technologies. In addition, the programme will implement projects with high quality development benefits that will deliver direct benefits worthwhile in their own right.

18. **Breakpoints and evaluations for the CMF programme, in 2016, 2019 and 2022, will consider progress towards a recovered carbon market.** Break points will allow the programme to be adjusted, or even stopped, if necessary. Following UNFCCC 2015

negotiations, we will have a stronger understanding of the future for carbon markets. By the time of the first 2016 breakpoint, £17m in funding would have been committed to the initiative, at least £11 million of which would be to implement initial demonstration projects delivering direct results. At this point the structure of CMF will be reviewed to determine if continued work through the CDM remains the best avenue to achieve transformational change. If work through the CDM no longer appears likely to deliver good value for money the UK can chose to discontinue further all work, or cut out the CDM component of the initiative. Alternatively, if the likelihood of carbon market recovery increases the project may decide to shift the focus of its work towards higher cost, higher risk technologies. However, regardless of the future carbon market, technologies to be supported through CMF will deliver significant direct benefits, and replication of demonstrations by the private sector is not required for the programme to be good value for money.

Who will be implementing the support we provide?

19. **CMF will be implemented by the Carbon Finance Unit (CFU) of the World Bank through the new Carbon Initiative for Development (Ci-Dev)**. The Unit has a strong track record of supporting developing countries to access carbon markets and carbon funds. It is well placed to influence the shape of a future carbon market through the UN climate negotiations. With over 12 years of experience acting as a practitioner in the carbon markets, and expertise in results based financing, the Carbon Finance Unit is the best implementation partner to deliver the aims of CMF. The World Bank is a trusted partner with strong financial management skills.

20. **The Carbon Initiative for Development (Ci-Dev):** Ci-Dev was selected as the appropriate implementation fund within the World Bank given its close alignment with CMF goals. Ci-Dev aims at utilizing carbon market finance to play an important role in transforming quality of life for poor people in least developed countries, as well as reducing greenhouse gas emissions to improve environmental conditions. It will do this by supporting the development of projects with high development benefits, such as making clean energy and other low carbon technologies more affordable for poor people, and by using the robust verification of the carbon market to deliver results based financing for the distribution of poverty reducing technologies. The CMF programme would contribute to two Trust Funds (TFs) within Ci-Dev, the Readiness Fund and the Carbon Fund, or 'Buyer's Fund'.

21. **The Readiness Fund:** The Readiness Fund is a Multi-Donor Trust Fund (MDTF), which will: (i) develop and gain approval for new methodologies so that community and household projects can receive carbon market finance; (ii) improve the capability and skills of communities, private sector and government to develop carbon market projects using these new methodologies, and access the necessary funding for their implementation; (iii) develop and demonstrate business models for the practical use of new methodologies, to reduce perceptions of project risk.

22. **The Carbon Fund:** The Carbon Fund is designed to comprise multiple single donor 'Buyer's Funds'. The Carbon Fund is intended to support actions undertaken through the Readiness Fund and will use Results Based Financing to purchase carbon credits through the CDM for projects with high development benefits that use the new methodologies.

23. **Governance:** Administrative Agreements and Letters of Intent exchanged between the World Bank and the UK will specify the role the UK will play in the governance of Ci-Dev. To ensure that the aims of CMF and the ICF are accomplished the UK seeks to

have a voice in all project selection decisions, and to have a veto on any projects which don't meet the criteria we have agreed. The UK will also closely monitor work undertaken through Ci-Dev to ensure that the private sector is crowded in through an open call for proposals, relevant stakeholders are regularly consulted, and that bank operations are sufficiently transparent.

24. Sufficient interest from private sector developers to develop projects for CMF is expected. Consultations with stakeholders, including the Carbon Markets & Investors Association (CMIA) and the International Emissions Trading Association (IETA) have indicated a willingness to bring forward new projects in LDCs if a carbon price is offered that is higher than the current market price. The World Bank also has one project in their current pipeline that aligns with the aims of CMF; a small scale renewable energy project in Tanzania. And three biogas projects in LDCs in Asia are under development, and could potentially be supported or expanded through CMF[21].

What are the expected results?

25. **Results delivered by** the programme and attributable to UK support are estimated as[22]:
    - 3.4 $MtCO_2e$ emissions reduced (of which 2.6 $MtCO_2e$ reduced by 2025);
    - 2.9 million people with improved access to clean energy;
    - 165 MW of installed capacity of clean energy generated;
    - £40 million of public finance mobilised for clean technologies;
    - £550 million of private finance mobilised for clean technologies.

    These results are based on an illustrative portfolio of projects comprised of household biogas, household solar home systems and community scale hydro power. These three technologies will likely be prioritized, due to the potential for low carbon electricity generation to offer substantial emissions reductions and the importance of setting LDCs on low carbon development pathways. However, these will not be the only project types eligible for support through CMF. Actual results will depend on the demonstration projects chosen.

26. Programme reviews would adjust these results as necessary. Above results are based on a price per emission reduction purchased which ranges between £5.3 and £8.2/tCO_2. Note that in some instances, we anticipate additional financial support (e.g. from other donors such as IDA) implying a higher overall unit cost of emission reductions. The estimated results are attributed to UK funding, and take account of other donor support.

27. **Additional results by influencing international carbon markets** could be delivered, if the carbon market recovers. These include an increase in the proportion of finance for investments with high development benefits in Sub-Saharan Africa, as well as Least Developed Countries in other regions. Although clearly speculative, this wider influence is estimated to deliver an additional:
    - 31 million people with increased access to clean energy;
    - 800 million tonnes of greenhouse gas emissions reduced.

28. **The programme offers excellent value for money** even without influencing the future carbon market. The direct results are estimated to offer a cost benefit ratio of 1:7 and an NPV of +205 million. The majority (£150m PV) of benefits accrue to the household, through reduced fuel savings, avoided expenditure on battery charging and time savings. The remaining benefits (£89m PV) are an estimate of the social value of reduced emissions. This latter value accrues as a global public good rather than to the locations of the interventions. This is based on the illustrative portfolio of projects. But if

the carbon market recovers the potential transformation will make it even more cost effective, so this is a conservative estimate.

How will we determine whether the expected results have been achieved?

29. **Progress will be closely monitored** with the World Bank reporting regularly against the agreed LogFrame. There will be three substantive programme reviews which will ensure the approach remains relevant given progress in UN negotiations and prospects for the future carbon market. Independent formative evaluations would inform each review and further investment by the programme could be stopped or altered at any of these break points if the review judged that the carbon market would not recover and the direct results being delivered were insufficient to justify further investment. Details on how breakpoints would be evaluated and the potential actions to be taken at these points can be found in the Management Case. The impact of the programme will also be evaluated in the final year[23].

What are the main risks?

30. **The carbon market does not recover.** This is a significant risk. Lack of progress in international climate negotiations and subsequent continued lack of mitigation ambition could increase uncertainty in the value of carbon. If there is no recovery in the carbon market, the programme's influence would be small, and replication of demonstration projects is unlikely to occur. But in this case it would still deliver direct benefits and results through a portfolio of demonstration projects and as noted above, the illustrative portfolio of projects is estimated to represent excellent value for money (NPV of +£205m, and cost benefit ratio of 1:7). Also, the approach to using verified carbon market finance as a results-based financing mechanism for delivering development outcomes could be of wider interest for international climate and development financing and the lessons learned could be applied to future climate change financing.
    - *Mitigation*: Projects will be selected for funding on the basis they generate benefits that justify them in their own right. In addition, break points and the formative evaluations will review the health of the carbon markets and allow the programme to be adjusted or even stopped if necessary. Of the total programme budget, at most 20% of UK funds are devoted to influencing the future carbon market and the CDM[24]. Remaining funds account for the direct delivery, monitoring, dissemination and evaluation of the low carbon projects through the initiative.

31. **Development and GHG benefits are not fully delivered.** Technologies selected for their emissions reductions potential may differ from those used for illustrative purposes in this business case, and also not deliver the expected development benefits for poor communities and people. The CER price for actual projects proposed may need to be higher than the average used for the appraisal case, resulting in CMF achieving fewer GHG reductions than anticipated.
    - *Mitigation:* Project selection criteria (set out in Annex 6) will seek to maximise development benefits and favour projects that are viable at lower CER prices; prices most similar to the range estimated for the illustrative portfolio of £5 - £8 per tonne. The development benefits of the projects will be monitored closely.

32. **It proves more difficult or slow to generate a pipeline of projects than anticipated.** Other barriers to implementation of these clean energy technologies or to participation of the private sector may slow down the development of a project pipeline that meets our criteria.
    - *Mitigation:* The World Bank will work closely with project developers and local stakeholders to ensure demonstration projects can overcome any barriers that may be found. CER Price setting will also entail a close examination of project financials,

which should highlight areas of potential weakness in each demonstration. Additionally, by consulting with local governments and communities from the start CMF hopes to prevent delays to project development.

33. **Price setting through open book negotiations over-subsidizes projects.** Project developers attempt to game the system and open book negotiations for price setting is unable to prevent the UK from over-subsidizing projects.
    - *Mitigation:* We will ensure key figures around the capital costs, additional revenues and an acceptable rate of return are benchmarked against wider evidence including;
      - Known projects delivered through CDM or other means;
      - Other DFID/ donor/ WB programmes such as RBF for energy access;
      - Robust sources of independent data.

34. **Emission reductions are not accredited in the CDM.** The novel scope of CMF could lead to delays in CDM project accreditation as the EB considers projects using new methodologies. Project developers have previously sought supplementary support to prevent projects from failing whist waiting for projects to be accredited with the CDM.
    - *Mitigation:* The CMF programme will provide support to project developers during the registration and accreditation process[25] through milestone payments and technical support. Contracts will be explicit that emissions are only sold to the programme through the compliance market.

35. **Methodologies not applied in practice.** New methods[26] developed through CMF do not get applied in practice and do not increase the access of LDCs to the CDM for programme technologies.
    - *Mitigation:* There will be consultation in the selection of technologies for standardised baselines and in identifying other areas for innovation. The programme will test and modify methods to ensure they are relevant and useful.

36. **Uncertainty around DECC payment mechanism.** We are still investigating the possible payment arrangements for making DECC contributions to Ci-Dev, and there is a risk that the majority of spend would fall outside of the current SR period (i.e. after March 2015).
    - *Mitigation:* We are investigating all viable options, but this project may need to be covered by our arrangements for end of SR flexibility with HMT for us to commit DECC funding beyond 2015.

[1] As defined by the United Nations.
[2] As Official Development Assistance (ODA) and in line with the Marrakesh Accords, no International Climate Fund (ICF) spend goes contributes towards UK Government purchase of CDM credits for compliance in meeting UK climate targets. For this reason all credits purchased through CMF will be cancelled by the implementing partner upon receipt. Also see Paragraphs 233 to 237 for further details on UK compiliance.
[3] The costs described add up to approximately £47.5 million. The remaining funds, approximately £2.5 million, will be used for World Bank administrative costs. Administrative and management costs for this initiative are 5% of the total funding provided to the World Bank, which is a standard fee.
[4] Technologies supported through CMF will be in line with the ICF investment strategy to deliver low carbon energy access technologies that provide household level impacts.
[5] Such as the “coordinating entity” required for Programme of Activity (PoA) projects
[6] Results-Based Financing (RBF) ‘commonly refers to a range of mechanisms designed to enhance delivery of services or operations, through the use of performance-based incentives, rewards, or subsidies.’ Payments, or awards, are provided dependent on ‘the achievement of pre-agreed and independently verified results.’ Loenine Esther and Luis Tineo, 2012. Independent Verification in Results-Based Financing. OBApproches: Note 43. The Global Partnership on Output-Based Aid.

[7] The UK has already supported the development of new methods such as standardised baselines for three technologies. These have been approved in principle by the CDM. So these will be tested, other methodologies developed, and further innovation to streamline the process of registering emission reductions for poverty reducing technologies with carbon markets explored.
[8] A 5% administrative and management fee is standard for work undertaken with our preferred implementation partner, the World Bank.
[9] This is the value that needs to be reached from the primary purchase of credits, and not from overall investment in CDM work (DECC GLOCAF Analysis).
[10] World Energy Outlook, 2010
[11] State and Trends of the Carbon Market 2011
[12] State and Trends of the Carbon Market 2012
[13] Mitigation is a central element of these discussions is mitigation, COP 18 agreed that in 2014 there will be a review of country targets under the Kyoto Protocol (KP) with the aim of raising ambition. The UN Secretary General has also called a leaders summit on climate change for 2014, of which mitigation will be a central theme.
[14] "Since the first U.N. carbon credits were issued in 2005, the Clean Development Mechanism (CDM) and Joint Implementation (JI) markets have leveraged over $215 billion of investment in clean technology. They have also cut greenhouse gas emissions by 1.5 billion tonnes of carbon dioxide equivalent – volume similar in size to Russia's annual CO_2 output."
Twidale, Susanna, and Marton Kruppa. "Crunch time for $215-bln CO_2 markets at Doha climate talks." Carbon Point. 20 Nov. 2012. http://www.pointcarbon.com/news/1.2067740
[15] As discussed in Box 2 of the Strategic Case, while new EU-ETS legislation is aimed at increasing the flow of carbon finance to LDCs, the current oversupply of credits to the market and additional supply being introduced by existing CDM projects means that sufficient credits exist to meet EU-ETS demand up to 2020. This will likely prevent new legislation from effectively increasing carbon finance flows to LDCs.
[16] While carbon markets currently face insufficient demand, we are observing a decline in the number of institutions which interact with these markets. However, maintaining the foundations for an ambitious global climate change deal are important.
The skills and capacities developed through this programme are not exclusive to the CDM. They will be highly transferable to other carbon markets, such as New Market Mechanisms. In particular the promotion of standardised baselines is likely to be a key building block of New Market Mechanisms. The frameworks which will regulate NMMs are still under development.
[17] Stern Review. With a greater cost for emissions reductions there will be increasing pressure to use cost effective reduction solutions.
[18] Emerging carbon markets which are likely to impact international carbon credit demand are detailed in Box 2 of the Strategic Case and in Endnote 28 below. While not all emerging markets accept CDM credits, we are beginning to see linking across systems which could ultimately create one global carbon market in which it would be difficult, to limit the types of credit eligible for use.
[19] Point Carbon, 2013. U.N. panel meets to shape the future of the CDM. http://www.pointcarbon.com/news/1.2157027. Accessed Jan. 29, 2013.
[20]Italy, Spain, the Netherlands, Austria, Belgium, Finland and Lithuania have all said they support the European Commission's plan to delay sales of CO2 permits this year as a method of reducing the oversupply in the market. However, the proposal still needs to gain greater backing before the measure can be approved. Point Carbon, 2013. Four more govts pledge support for EU CO2 market fix plan. http://www.pointcarbon.com/news/1.2156944. Accessed Jan. 29, 2013.
[21] CDM Pipeline
[22] Figures presented in the log-frame have taken a more conservative approach, assuming an under-delivery of 24% of certified emission reductions by 2025 (i.e. only 2.6 $MtCO_2e$ by 2025). In the event that projects which have signed emission reduction purchase agreements fail to fully deliver emission reductions, then funds will be used for additional projects, although it is anticipated that these are unlikely deliver results by 2025, with the signing of ERPAs in 2020.
[23] Programme evaluations will be directly contracted and paid for by DFID – with DECC and the WB on the evaluation steering committee.
[24] Based on an analysis of the programme budget, only skills building, CDM methodology development and demonstration project development funds can be considered to be financing programme work directly through the CDM.
[25] CMF programme "costs" (money spent in readiness in relation to money spent on CERs) is relatively high, reflecting in part the high level of "hand holding" that we expect will be needed, based

on WB experience, for project developers in LDCs. WB's CFU staff will continuously assist project developers in the CDM registration process – supporting the preparation of high quality documents and answering all questions from DOEs).

[26] By methodologies, we mean (1) new methodologies for calculating the emission reductions for different technologies, (2) standardized baselines, and (3) proposals for improvement in CDM regulations for project registration and ER verification – all three for EB consideration and approval. The term "methodologies" throughout the document refers to these 3 dimensions.

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Abbreviations

CDEL	Capital Departmental Expenditure Limit
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CER	Certified Emissions Reduction
CFU	World Bank's Carbon Finance Unit
Ci-Dev	Carbon Initiative for Development
CMF	Carbon Market Finance
CMIA	Carbon Markets Industry Association
COP	Conference of Parties
DECC	Department of Energy and Climate Change, UK
DFID	Department for International Development, UK
DNA	Designated National Authority
EEP-S&EA	Energy and Environment Partnership with Southern and East Africa
ETS	Emissions Trading Scheme
GAP	Green Africa Power
GHG	Greenhouse Gas
ICF	International Climate Fund (UK Government)
IDA	International Development Association (Part of the World Bank Group)
KWh	Kilowatt hours
LDC	Least Developed Country
MW	Megawatt
$MtCO_2e$	Metric tonnes of Carbon Dioxide equivalents
MDB	Multilateral Development Bank
NMM	New Market Mechanism
NPV	Net Present Value
ODA	Official Development Assistance
PMR	Partnership for Market Readiness
PoA	Programme of Activities
RBF	Results-Based Financing
RDEL	Resource Departmental Expenditure Limit
REACT	Renewable Energy and Adaptation to Climate Technologies
SBSTA	UNFCCC's Subsidiary Body for Scientific and Technical Advice
SREP	Scaling Up Renewable Energy Program
TOR	Terms of Reference
UK	United Kingdom
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VfM	Value for Money
WB	World Bank
WEO	World Energy Outlook

Strategic Case

Context and need for ICF intervention

Developing along lower carbon pathways

1. *Historically development has led to large increases in greenhouse gas emissions.* Economic growth has lifted unprecedented numbers of poor people out of poverty in recent decades around the world. But along with this growth has come increasing emissions of greenhouse gases, which in turn has led to changes in the climate that threaten to undermine this success.

2. *All countries must seek to make reductions in order to achieve 2°C.* In 2010, all countries participating in the UN climate change negotiations (UNFCCC) agreed that cuts in global emissions are essential to hold the increase in average global temperature below 2°C. To accomplish this, a number of countries (covering more than 80% of global emissions) made pledges to reduce emissions by 2020. There is good evidence that worldwide action is required – with countries achieving the high end of their emissions reductions offer– if a 2°C trajectory is to be achieved[27].

3. *Poor countries will be hit hardest.* Whilst climate change is a global problem, its impacts will be felt disproportionately by the world's poorest people, reversing the development gains that have been so hard won. Poor countries will need funds to adapt and for low carbon development, avoiding locking in to high emissions as they grow[28].

4. *Developed countries are committed to provide funding to developing countries* to assist them in adapting to climate change and developing with lower greenhouse gas emissions. It is essential therefore that international climate finance is delivered effectively to enable developing countries to avoid emissions where they can. The international carbon market is one source of finance (Box 1).

5. *Least Developed Countries (LDCs) in particular have faced disproportionate barriers* to private sector investment (see paragraph 10 below) – including the flows of carbon finance, where those who cannot reduce their emissions or offset them themselves pay others for emission reductions[29].

6. *Low carbon growth can be competitive growth...* While there can be trade-offs between low carbon development and faster development, there are also some win wins, and helping LDCs transition onto low carbon development pathways can increase their competitiveness[30]. Small-scale, off-grid renewable solutions can be a flexible and easy-to-use option to increase electrification rates in rural areas[31]. One study in Rwanda showed that community based small scale hydro could be lower cost than diesel generation at $1.1 (£0.7) per KWh compared with $6 (£3.8) per KWh[32].

7. The International Energy Agency (IEA) estimates that around 950TWh of additional electricity generation will be required in developing countries by 2030 to achieve universal energy access. They foresee around 60% of this additional generation coming from mini-grid (42%) and isolated off-grid (18%) systems, rather than grid extension[33]. Decentralised solutions have an important role to

play where grid extension is too expensive and are likely to provide the bulk of additional connections up to 2030.

8. *And Low carbon growth can increase energy security.* As global energy prices continue to rise, investments in renewables and energy efficiency can help insulate developing economies from high energy costs and improve their energy security. It is when countries are making large investments into their infrastructure, that the big opportunity exists to choose low carbon approaches to transport systems, urban design and energy. Whilst there are potentially higher initial investment costs associated with these technologies, the long term running costs and exposure to oil price shocks are lower.

Box 1: What is the International Carbon Market?

Carbon trading is a tool for reducing the emissions that cause climate change. Driven by internationally agreed caps on carbon emissions (set by developed countries), the international carbon market emerged as an instrument for governments and large private sector emitters to cost-effectively meet their caps. Through the international carbon market, emitters can buy offsets to cover a proportion of their emissions, and so help meet the overall cap on emissions. This creates a price for carbon based on market demand and incentivising emission reductions at the lowest possible cost[34]. The carbon market does not pick technologies or approaches, but rewards delivery, so fostering innovation appropriate to disparate market conditions. Selling emission offsets can also facilitate technology transfer, sustainable development and provide substantial carbon finance flows to developing and Least Developed Countries.

Projects in developing countries that deliver emission reductions can have significant development benefits. Such benefits include increasing poor people's access to energy from low carbon renewables, improving the reliability of supply to businesses or managing forests and soil more sustainably.

The Clean Development Mechanism (CDM) is currently the main game in town. The CDM is the United Nations (UN) system for developed countries to purchase carbon offsets from developing countries, known as Certified Emissions Reductions (CERs). The CDM was established as part of the Kyoto Protocol where developed countries agreed to reduce emissions. The European Union (EU), through its Emissions Trading System (ETS), is the largest purchaser of CERs, accounting for 75% of transactions. And it is mainly the private sector that purchase emission offsets from developing countries through the EU-ETS (although countries can also buy credits to comply with their targets under the Kyoto Protocol).

The CDM has facilitated more than $200 billion (£130 billion) investment in clean technology in less than 10 years[35]. Since it was established, the CDM has been a general success in facilitating trade in carbon emissions. There have been around 1.3 billion tonnes of credits issued for emission reductions, roughly equivalent to all UK emissions over a two year period. Almost five thousand projects have been registered with the CDM as of November 2012. Annual CDM transfers peaked at around $7 billion (£4.4 billion) in 2007. However, CDM transfer has not benefited all countries evenly around the globe. The CDM has also pioneered links between national and regional carbon markets, creating a global economic incentive to reduce emissions and internationally recognised currency for greenhouse gas emission reductions.

What is the UK doing to help poor countries develop with lower carbon emissions?

9. *Testing a range of approaches.* Low carbon development is a relatively new area for action in developing countries, especially for transformational action at pace and scale, and there is limited evidence of what works – compared to say a health or education programme. The UK's International Climate Fund (ICF) has therefore stressed the need to demonstrate a range of approaches to low carbon development in different geographical and economic contexts, with a rigorous focus on lesson learning and learning by doing. The UK is currently supporting or exploring a number of initiatives promoting the uptake of low carbon technologies in less developed countries, detailed in Table 1 below. This programme will complement existing projects by using carbon market finance.

Table 1: A snapshot of UK supported projects promoting low carbon technologies

	Initiative	Description of Initiative
LARGE SCALE ENERGY PROJECTS	Green Africa Power (GAP) (£98 million)	The aim of GAP is to stimulate private sector investment in large-scale renewable energy generation in Africa. The high up-front costs and long constructions times for renewable energy projects (in comparison with many types of fossil fuelled generating plants) mean that, at present, despite being a lower cost option over the longer term, projects are unable to attract financing because of uncertainty in the returns for both debt and equity investors. GAP invests in grid connected renewable energy projects in Africa by providing capital (quasi-equity) and lines of credit to cover specific risks.
	GETFiT (Uganda) (£20 million)	The aim of GETFiT is to facilitate private sector investment into Uganda's energy sector to ensure a substantial renewable energy percentage and diversifying supply to meet Uganda's growing energy needs. It focuses on medium scale renewable energy that is cost effective in the long term, for example as an alternative to more expensive emergency fossil fuel generation. GETFiT provides a top-up to the Ugandan government's renewable energy feed-in tariff to support medium scale, grid connected power; and support the Ugandan Energy Regulatory Authority on Power Purchase Agreements (PPAs), and permitting and licensing procedures.
SMALL SCALE ENERGY PROJECTS	Renewable Energy and Adaptation to Climate Technologies (REACT) (£10m)	The aim of REACT is to stimulate private sector investment in developing and delivering low cost, clean energy and climate change technologies, such as solar power, biogas, irrigation and water efficiency measures. REACT focuses on Kenya, Tanzania, Rwanda, Uganda and Burundi. It is a challenge fund, providing match funding as venture capital to businesses with innovative ideas that help communities to cope with climate change and increase access to low cost clean energy. Projects demonstrate a positive impact on the rural poor through increased incomes, employment and productivity or reduced energy costs.

	Energy and Environment Partnership with Southern and Eastern Africa (EEP-SA) (£27.6 million)	The aim of EEP-SA is to promote investment by the private and public sector in low carbon on-grid and off-grid energy. EEP-SA provides co-financing (in the form of support for project preparation and feasibility studies) to viable projects focusing on improving energy access for poor people, improving energy supply, and improving energy efficiency by demonstrating new technologies.
	Results Based Financing (RBF) for Low Carbon Access (£30 million)	The aim of the programme is to stimulate decentralised low carbon energy markets leveraging private investment to increase sustainable energy access. This programme will make payments on delivery of new low carbon installations. "Payment by results" replaces more traditional forms of 'up-front' payments, for example through part grant funding. It could include payments for electricity connections, per unit of energy delivered or for services provided. It aims to support 10-15 clustered RBF instruments in at least five countries, including some in Africa, allocating funding through a challenge fund process. A focus would be on off-grid or mini-grid systems.
	Scaling Up Renewable Energy Program (SREP) (£125 million)	The UK contributes towards SREP that is part of the international Climate Investment Funds. The aim of SREP is to scale up the deployment of renewable energy solutions and expand renewable markets in the world's poorest countries. SREP provides grants and near-zero interest credit through multilateral development banks, and is a country-led initiative which builds on national policies and the activities of existing energy initiatives.

10. *To explore if the carbon market can deliver better for the poor:* The CMF programme (for details on the program see paragraph 55) will complement the rest of the UK's portfolio on off-grid, small scale energy. It will test if international carbon markets are an effective way to incentivise greater private investment in low carbon technologies that can also reduce poverty in LDCs. CMF aims to show that aggregating together small scale interventions can achieve emissions reductions and development benefits at scale and to demonstrate to LDCs that they can benefit from global climate action. CMF is a necessary programme to undertake because:

    - There is limited evidence for how carbon market financing can deliver development benefits, in particular how it can deliver the type of projects that directly provide benefits at a community and household level.
    - Advanced developing countries - such as India, China, Brazil and South Korea - have dominated the CDM to date, and the barriers for poorer countries to access finance need to be tackled to ensure a more equitable distribution of global carbon finance.
    - There is strong political demand by Least Developed Countries to access carbon financing[36].

- Current carbon prices and market demand will not bring carbon finance to LDCs without public sector intervention.
- Carbon financing is highly rigorous results based financing that leverages significant private sector funding.

Why Carbon Market Finance?

11. As detailed in Box 2, despite short term uncertainty in carbon markets, now is the right time to develop and test new approaches in LDCs that will enable them to gain increased access to finance through carbon markets. Developing and demonstrating new approaches to influence the carbon market can easily take 5 years. Starting now means influencing benefits won't begin to be realised before 2018, just in time to affect post 2020 market demand.

12. Some reported project examples show that CDM finance can help the poor and that CDM projects can produce high development benefits, but evidence is limited. In India a solar lamp manufacturer, D.Light, plans to sell solar systems at a reduced price by using the revenue from CDM credits[37]. In Rwanda Electrogaz intends to provide free energy efficient lights to households, paid for with carbon credit revenues. In Nepal carbon revenues have subsidised the installation of biogas as a replacement for wood fuel and kerosene[38]. Community involvement in project design might further increase the direct benefits available to poor people and ensure longer term sustainability of projects[39]. The CDM project cycle already requires public consultation, but CMF would prioritize such involvement and increase the evidence base proving that the CDM can deliver both emissions reductions and development benefits. By developing proven models that deliver this CMF has the potential to influence both public and private sector investors.

The Challenge: Barriers to accessing the carbon market

13. *Poorest countries have not accessed carbon finance*. In spite of past global CDM success, poorer countries in Africa and other less developed regions have so far attracted little carbon market finance. For example, in January 2012 Africa was home to just 2.6% of CDM projects worldwide and only accounted for 7% of Certified Emissions Reduction (CER) sales in 2009[40]. Carbon finance has so far been skewed towards more advanced developing countries (China and India), which have large scale cheap emission reduction opportunities, greater CDM capacity and lower risk investment frameworks for the private sector.

14. *To tackle this imbalance the barriers to CDM uptake in LDCs must be addressed.* Literature reviews and consultations with the main players in the carbon markets have highlighted key barriers[41] to implementing CDM projects[42] and increasing the access of poor countries to carbon financing as:
    - uncertainty in the carbon market causing very low prices,
    - bureaucratic red tape,
    - lack of patient capital, and
    - a gap in skills and experience.

Box 2: Uncertainty in the International Carbon Market

A market in free fall: The CDM market peaked at around $7 billion (£4.4 billion) of emission credits transferred in 2007[43]. But in 2011, the value of the CER market was only $1 billion (£0.9 billion). To date CDM emission credits are trading at an all-time low of around €0.32/tCO_2 (£0.28/tCO_2)[44], compared with €23.20/tCO_2 (£18.65tCO_2) in 2008.

Uncertainty in ambition and in growth: This drastic drop in carbon price is indicative of the uncertainty surrounding the existing carbon market attributed to:

- lack of mitigation ambition internationally and within the EU, leading to uncertainty over future emission limits that drive demand for credits;
- the economic downturn in the Eurozone reducing demand for credits through the ETS, because of reduced emissions;[45]
- the EU-ETS having contracted enough CERs to meet current offset requirements until 2020[46].

Market certainty emerging? Internationally there are moves to agree to global emission reductions, and develop future international carbon market mechanisms to help achieve this – through UN negotiations, Europe's trading system and other emerging schemes.

Global market: In 2011, the UN climate change negotiations agreed:

- A second commitment period for the Kyoto Protocol, where Annex I countries (mainly the EU) make emission reduction commitments from 2013 until 2020.
- A process towards a global agreement on climate change in 2015 that is applicable "to all parties". This would include emissions reductions that would come into effect from 2020.
- To define a New Market Mechanism to ensure a net decrease and avoidance of emissions, that could include new ways of crediting and trading emission reductions and avoidance on a greater scale than the CDM.

European market: The third phase of the EU-ETS (2013-2020) restricts eligibility of newly generated credits to those from projects in Least Developed Countries (LDCs) alone. Contingent upon market conditions, LDCs would have a stronger incentive for generating and selling credits to the EU-ETS, in the second commitment period.

National markets: Beyond the EU-ETS, new sources of demand for international carbon credits are expected as New Zealand, Australia and South Korea all implement national emissions trading schemes[47]. A New Zealand trading scheme is already active, and Australia has passed a bill establishing a trading scheme from July 2012. Furthermore, through the World Bank's Partnership for Market Readiness (PMR) programme, an additional 16 countries are receiving support to implement market-based instruments nationally, which could lead to the development of a number of new domestic emissions trading systems[48]. It is too early to speculate on how or if these systems might interact with the CDM, or if they will prioritize credits from less developed countries. However, efforts to develop new markets highlight the political will to continue and expand the global carbon market in the future.

The barriers to poor countries accessing carbon financing are expanded below along with details on how CMF will operate to address these barriers:

Barrier 1: Uncertainty over the International Carbon Market

15. *Low confidence in the market.* The current state of the carbon market presents significant uncertainty for investors. CER prices are at an all-time low and are

expected to remain low until there is greater certainty about the rules of future carbon markets and until countries' make more ambitious commitments to reduce emissions that in turn create demand for carbon credits.

Achieving the highest transformational impact of this programme relies on a recovery of the carbon markets.

16. Progress in international negotiations on mitigation ambition over the next few years would provide a signal for greater confidence that carbon markets are here to stay, and that future income from the sale of emission credits is secure. There is widespread agreement in the UNFCCC that carbon markets in some form will continue. Just as the carbon markets need an ambitious global deal, so does a global deal need the carbon markets. However, in advance of any international signal, the UK assumes that global carbon markets will remain a key feature of climate change mitigation.

17. *Carbon markets could be worth $200-700 billion (£120-440 billion) by 2030.* Although the CER carbon price is currently less than €1 per tonne, carbon markets will be an essential tool to significantly reduce global emissions cost effectively[49]. If the world is to limit climate change to 2°C, international carbon market flows would have to exceed £9 billion in 2020 and approach an annual value of $200-$700 billion (£120-400 billion) by 2030[50]. Even a marginal increase in the Least Developed Countries' share of this market could have a significant development benefit and lead to substantial emissions reductions[51]. Increasing carbon finance and CDM understanding in LDCs is also likely to impact their understanding of global climate negotiations and build further support for a robust, ambitious international agreement.

18. *Preparing poor countries to benefit from carbon finance:* Developing capacity, demonstrations and reforming the CDM takes time. To initiate and implement demonstration projects, and disseminate lessons learnt, can easily take 5 years. Thus despite short term uncertainty, now is the right time to develop and test approaches which will enable the full participation of poorer countries in the future CDM and other carbon markets[52]. This will help the world's poorest countries attract a larger share of future carbon market flows. Unless new approaches are proven over the next few years, poorer countries will continue to be under-represented.

19. *Short term stimulus to demonstrate:* Short term finance could purchase emission reductions through the CDM and stimulate project development in poorer countries. This would generate confidence in the viability of carbon finance to deliver CDM projects with strong development benefits, if the carbon price recovers. It would demonstrate the ability of the carbon market to deliver in less developed countries. And it would preserve and build upon current CDM capacity in less developed nations, enabling them to attract private investment in future on an independent basis.

Barrier 2: High Transaction Costs of Traditional CDM Methodologies

20. *The barriers of bureaucracy:* Current CDM projects each need to provide a burdensome amount of information for approval, accreditation and monitoring – impacting both the project developer and the host country government. This imposes high transaction costs, which are difficult for poorer countries to meet[53]. The cost to accredit a CDM project is typically £100,000[54]. They can be even higher in less developed countries. For example, the World Bank have reported up to £187,000 to develop an, as yet to be accredited, waste composting project in Uganda. These costs are especially problematic for the small projects that make up much of Africa's (and other poor countries) potential, will be critical to achieving universal energy access, and have the capacity to deliver emissions reductions and high development benefits at a community and household level.

21. *Cutting the red tape:* In response, the UN and CDM Executive Boards have recently agreed new methods that in principle simplify the CDM processes (lowering transaction costs) for the types of clean technologies that are appropriate to poorer countries. These methods include:

    - Standardised Baselines – replacing an individual project-by-project approach by standardising emission reductions for sectors or technologies.[55]
    - Programme of Activities (PoAs) – bundling many small projects into packages that can sell emission reductions at greater scale.

22. The Executive Board has also approved other measures that complement and strengthen Standardised Baselines and PoAs. This includes: guidelines that simplify processes for demonstrating how off-grid renewable energy would be additional to business as usual and lead to emissions reductions; and guidelines for how avoided future emissions as a result of growth in energy demand can be counted in emission reduction credits (guidelines on "suppressed demand").

23. However, these new techniques remain largely untested. For example a DFID funded study, undertaken in 2011[56] in cooperation with the World Bank, developed standardised baseline methodologies for charcoal production, rural electrification and water purification. But none of these three methodologies have yet been deployed in practical CDM projects. This is due in part to current low carbon prices, but also because the practical use of these methodologies has yet to be proven[57]. For this reason and to further reduce transaction costs additional work on CDM methodologies and procedures is required. Such work would likely include simplifying the procedures for setting baselines and verifying emission reductions, which could increase the cost competitiveness of small scale projects and projects in LDCs. Many of the potential small scale projects appropriate for support through the carbon market offer good development benefits - making the case all the stronger for the need to get carbon markets working in the poorest countries[65].

24. *New methods for the carbon markets help expand energy access:* The DFID funded study[56] showed in theory how new CDM approaches can be used to get carbon financing into small scale, community and household level initiatives, such as rural electrification (mini hydro-power, solar home lighting, and biomass

conversion for heat and power). Beyond energy access projects, other small scale technologies that could access carbon financing include improved construction, soil and forest management and water filtration.

25. *And energy access helps development:* The development benefits from these types of technologies are many. For example, there are no fuel costs for renewable energy. Rural people without access to grid connected power mainly rely on kerosene or candles for lighting, batteries charged in commercial premises, and sometimes diesel for decentralised power systems. Across Kenya, Ghana, Ethiopia, Tanzania and Zambia users spend on average ~$57 (£ 35.6) annually on current lighting from kerosene lamps, candles, and battery torches[58]. These costs could be avoided completely using solar power. Households would also have less exposure to fluctuating kerosene and diesel prices, and would not have to rely on others to charge batteries. A household biogas system in Tanzania as an alternative to kerosene and wood could avoid fuel costs of $190-260 (£ 119-163) per year[59]. A DFID funded systematic review found that increased access to energy can also increase a household's opportunities to process and store food, allows children to study after dark and allows families and entrepreneurs to develop new businesses[60].

26. *Through aggregation, small scale projects can have significant scale impacts.* Although the greatest potential for CDM projects in LDCs lies in small scale projects, the aggregated impact of these types of interventions can lead to large emissions reductions and substantial development impacts.

27. *Off-grid power will play an important role in energy access*. This is particularly the case in Sub-Saharan Africa where the distances to cover to connect villages and towns to the grid are so large. And the scale of the challenge is massive - 850 million people in LDCs and 1.3 billion people around the world are without access to electricity, 84% of who are in rural areas[61]. So there is real potential for carbon financing to help address the challenge of expanding access to energy.

Barrier 3: High Capital Cost and Unproven Returns on Investment

28. *The financing gap:* A systematic review of the major barriers to energy use amongst the world's poorest populations[62] identified (with the evidence considered "consistent" and "strong") that high upfront costs are a significant barrier to the deployment of new electricity generation. It also found consistent evidence on inadequate cost recovery and mixed evidence on operational and maintenance costs as barriers to investing in infrastructure. The capital required for renewable energy projects, such as household solar electricity, household biogas or small scale community hydropower, is usually greater than traditional, high carbon, alternatives, such as diesel generation. The high capital costs coupled with financiers' unfamiliarity with renewable energy, makes it difficult to secure investment for such projects. For example, a Global Village Energy Partnership report on the off-grid lighting market in Rwanda[63] identified high up-front costs and unproven returns as a significant barrier to the poor accessing modern energy services.

29. *Carbon markets can unlock up front capital:* While not in itself sufficient to overcome all of the failures in local capital markets, by providing a clear long term revenue stream, carbon finance – through the signing of an Emissions Reduction Purchase Agreement (ERPA) – can enable the raising of capital, which can cover many of the upfront costs. Because CERs are backed by the UN, there are less prone to sovereign risk associated with the removal of domestic government subsidies and supporting policies.

30. *Technical barriers*: The systematic review[64] also noted consistent evidence of operation and maintenance barriers – regarding both hardware and software (skills) for the provision of energy infrastructure. With traditional subsidies and grants to cover up front costs, there is a risk that equipment is less durable or poorly maintained after installation. The requirement for on-going monitoring, reporting and verification (MRV), in order for carbon credits to be issued, means that financing through the carbon market can help reduce these risks.

***Box 3*: *The development opportunities of a solar scheme*[65]**

Solar energy remains beyond reach for most rural households in Africa, as the initial cost is too expensive for most families. But there have been some solutions. In 2010, a Ugandan and Tanzanian "social enterprise" piloted a succesful hire purchase scheme. The enterprise offers a PayPlan, reducing the initial investment barrier and so making solar affordable to a wide range of rural households. As a result of being able to switch to solar energy, households have been able to reduce their energy costs by a third. In addition a quarter of the systems are used for productive purposes, allowing rural entrepreneurs to increase incomes. If such applications were able to sell emissions reductions from replacing kerosene lamps with zero emission solar, this annual income would reduce costs, making it more affordable to a wider number of lower income people.

31. *Building confidence in commercial viability.* To date there have not been enough practical demonstrations of carbon market finance for community and household based projects with high development benefits; so project financiers are unfamiliar with the overall returns that such projects can generate. There does not appear to have been systematic reviews of past CDM experience of community and household scale projects, but there are some project examples[41]. This unfamiliarity with carbon finance coupled with unfamiliarity of the renewable energy business models make it difficult to secure capital finance. A report by the IFC and World Bank "Lighting Africa Programme" identified lack of information on which potential investors can base their decisions as a key barrier[66]. More practical experience is needed to quantify the scale of all benefits (development and CERs) for a range of technologies and circumstances to encourage increased private investment.

32. *Proving a sustainable model of investment.* By developing proven models, private investment in small scale clean technologies with carbon market finance, such as renewable energy projects, could be expected to increase, if the carbon market recovers. Piloting and demonstration of innovative approaches is a key element of an "innovation chain" and provides "market push"[67]. This would lead to a significant increase in energy access – with all the development benefits associated with this. But developing replicable models could easily take 5 years,

making now the right time to take action to prevent LDCs from missing out again in the future, if the carbon market recovers. If the carbon market recovers it could provide long term and sustainable financing, increasing the potential for transformation in the energy systems of the poor.

Barrier 4: Lack of skills and experience in CDM Methodologies

33. *The skills gap.* Lack of skills and experience in the governments, project developers and financial institutions of poorer countries has limited the use of the CDM in general and even more so for new standardised baseline and programmatic approaches. A World Bank study identified that Sub-Saharan Africa's lack of knowledge and information on CDM and carbon finance opportunities and processes presents a key obstacle to CDM project identification[68]. For example, of the currently 85 registered CDM Programme of Activities (PoAs), only nine are in LDCs. The private sector and community based developers who have the networks to distribute clean technologies are unfamiliar with the process by which to sell emission reduction credits. They are even less familiar, if at all, with the new approaches, and associated business models.

34. Governments and their Designated National Authority (DNA) need capabilities to evaluate and approve proposed CDM projects[69], including those using the new approaches, before these approaches can be considered by the CDM Executive Board. But these governments are not familiar with the requirements or their roles. Similarly, local banks and other financiers do not understand business models for these new approaches, and how finance can be structured for attractive returns on investment. Insufficient staffing, knowledge and skills all limit the capacity of CDM actors in LDCs.

35. *Learning by doing.* This barrier could be addressed by building the skills and capabilities of project developers, government units responsible for processing CDM applications and project financiers. These stakeholders would be coached through the process - "learning by doing" – to implement the initial projects that demonstrate the new approaches. Tailored skills building, that includes pilots for shared learning, has been identified as one success factor in donor assistance[70]. Workshops would then enable the lessons learned and the results of the programme to be disseminated more widely.

What others are doing?

36. *Other donors' initiatives to specifically assist carbon market finance for community and household level are small or nascent.* Few other donors are known to be piloting and promoting standardised baselines and programmatic approaches for widespread replication in LDCs. The Belgian Federal Ministry of Environment has recently released the terms of reference for a clean charcoal project in Mozambique to be delivered using a programmatic approach. The US has informally expressed interest in funding a price guarantee for methane emission reductions. Germany has supported a Programmes of Activity Support Centre to advise on PoA development, including the preparation of CDM approvals. But it has not supported their practical implementation. The African

Development Bank is completing an African Carbon Support Programme to advise on the potential carbon finance in pipeline AfDB loan projects, but these do not focus on community or household scale projects.

37. *The UN will provide some support* to strengthen the ability of LDCs to benefit from the EU-ETS decision to only buy newly registered credits from these countries in the next phase[71]. UNDP and UNEP have also provided training to governments on accessing the CDM[72]. However, these initiatives concerned the CDM in general; they have not been focused on practical demonstrations and not included a carbon financing mechanism. The UN has supported CDM pipeline development in Africa through the German supported Africa Carbon Asset Development Initiative (ACAD)[73]. This has mostly resulted in larger scale CDM prospects, rather than community or household scale projects. ACAD also only provides grant funding to CDM projects within its portfolio and does not address the currently low carbon price, which has caused many existing CDM projects to stall; this project was initiated when carbon prices were stronger.

38. The UN and CDM Executive Board also established a loan scheme, which was launched in April 2012, which will further support the development of CDM projects in LDCs[74]. The CDM Loan Scheme will provide interest-free loans for CDM projects in LDCs or in countries with fewer than 10 registered CDM projects. The loans are designed to finance project design, validation, registration and monitoring, costs that are considered prohibitive to CDM project development
However, this loan scheme will not address the issue of low carbon prices, nor provide project developers with any support to guide them through the CDM registration process.

39. *Wider programmes have some relevance:* such as DFID's wider energy programmes, set out in Table 1. REACT and EEP include some activities where projects can apply for CDM accreditation and so have an element of carbon financing. However, given the current low carbon price few projects are likely to seek accreditation. These projects are also not focused on stimulating scaled up approaches for carbon finance to support household and community level off grid technologies

40. *The Carbon Initiative for Development (Ci-Dev), a new initiative to increase carbon finance to LDCs.* Recognizing the need to increase carbon finance flows to LDCs and develop new models that can operate during a time of market uncertainty, the WB's Carbon Finance Unit (CFU) has developed the Ci-Dev initiative. Ci-Dev aims at utilizing carbon market finance to transform the quality of life for poor people in least developed countries, as well as reducing greenhouse gas emissions to improve environmental conditions. It will do this by supporting the development of projects with high development benefits, such as making clean energy and other low carbon technologies more affordable for poor people, and by using the robust verification of the carbon market to deliver results based financing for the distribution of poverty reducing technologies. The WB CFU has substantial experience developing CDM projects, and has developed CDM projects in LDCs for other bank funds and facilities. But through Ci-Dev the WB plans to increase the scope of its work on applied new methods for scaling up

community and household level CDM projects, and how a results-based financing approach could support this work while market prices are low.

Why should the ICF support this initiative?

41. *Fit with ICF objectives:* The proposed initiative delivers on the strategic objectives for poverty reduction and emission reductions of the ICF. The initiative also fits with the ICF Carbon Market Principles, as described in the Appraisal Case and Annex 3. It will deliver the ICF's Low Carbon Development strategy (LCD) by:
    i. Demonstrating viability of low carbon development; LDCs have long been seeking to benefit from the CDM and demonstration of successful project models will both deliver immediate low carbon benefits and open up a future source of finance, at scale, for low carbon projects. Delivering this support through the CDM demonstrates our willingness to make UNFCCC mechanisms work for LDCs, potentially increasing their support within the international climate negotiations.
    ii. Improving architecture and delivery of finance, by piloting new innovative mechanisms, working to improve the CDM and improving effectiveness of Multilateral Development Banks management of climate finance;
    iii. Fostering greater private sector investment in low carbon infrastructure and service delivery; the programme will be designed to help bring in private sector developers through the projects directly supported and help scale up the flow of carbon finance to LDCs in the longer term;
    iv. Enhancing the capacity of developing countries, through building experience and skills in establishing clean energy projects under the CDM;
    v. Delivering results at scale; in many parts of Africa, and other LDCs, small scale clean energy solutions, used off-grid or as part of mini-grids are more viable than extending access to the grid. This project will test and demonstrate approaches for these technologies to be aggregated and financed at scale
    vi. Focussing on our priority countries.

42. The CMF programme is in line with the ICF Private sector strategy, in particular:
    i. It will help show how carbon finance as a financial instrument could have transformative development potential;
    ii. It will test innovative approaches to mobilising private climate finance, informing other international initiatives and climate spending.

    CMF complements the range of other programme approaches that have been developed under the ICF as set out in paragraph 9.

43. *The UK is a leader in CDM investment* and climate change action. As of September 2012 the UK was the leading investor in CDM projects, having purchased 29% of all CDM projects worldwide[75]. The UK is also a leading donor in the climate change response[76] and is innovating in results based finance mechanisms. The carbon market is based on results based payments, but work is limited on how to ensure the results bought - emission reductions – come with high development benefits for poor people in the LDCs.

The Potential for a Sustainable and Transformational Impact

44. Increased carbon financing for LDCs could deliver significant long term benefits once private sector confidence is developed and if the carbon market recovers. LDCs could see substantial investment in priority development issues such as access to energy. Creating a relationship between growth of the CDM and investment in projects that improve social, economic, climate and wider environmental conditions could be truly transformational – and sustainable into the long term. This fits with the ICF priority to demonstrate that building low carbon, climate resilient growth at scale is feasible and desirable. Proving the economic viability of the new CDM methodologies increases the likelihood of creating this transformation.

45. The chances of bringing about sustainable change are increased by the current political demand from the leaders of poor countries to access the CDM (and other future carbon markets); building country level capabilities to develop and implement CDM projects; and the initiative being a learning exercise, to test what works and feedback the results of the programme to the CDM reform process and to other countries struggling to access the CDM. Stakeholder consultations throughout the process will also ensure that work undertaken continues to have local support and continues to provide benefits beyond the lifetime of this intervention.

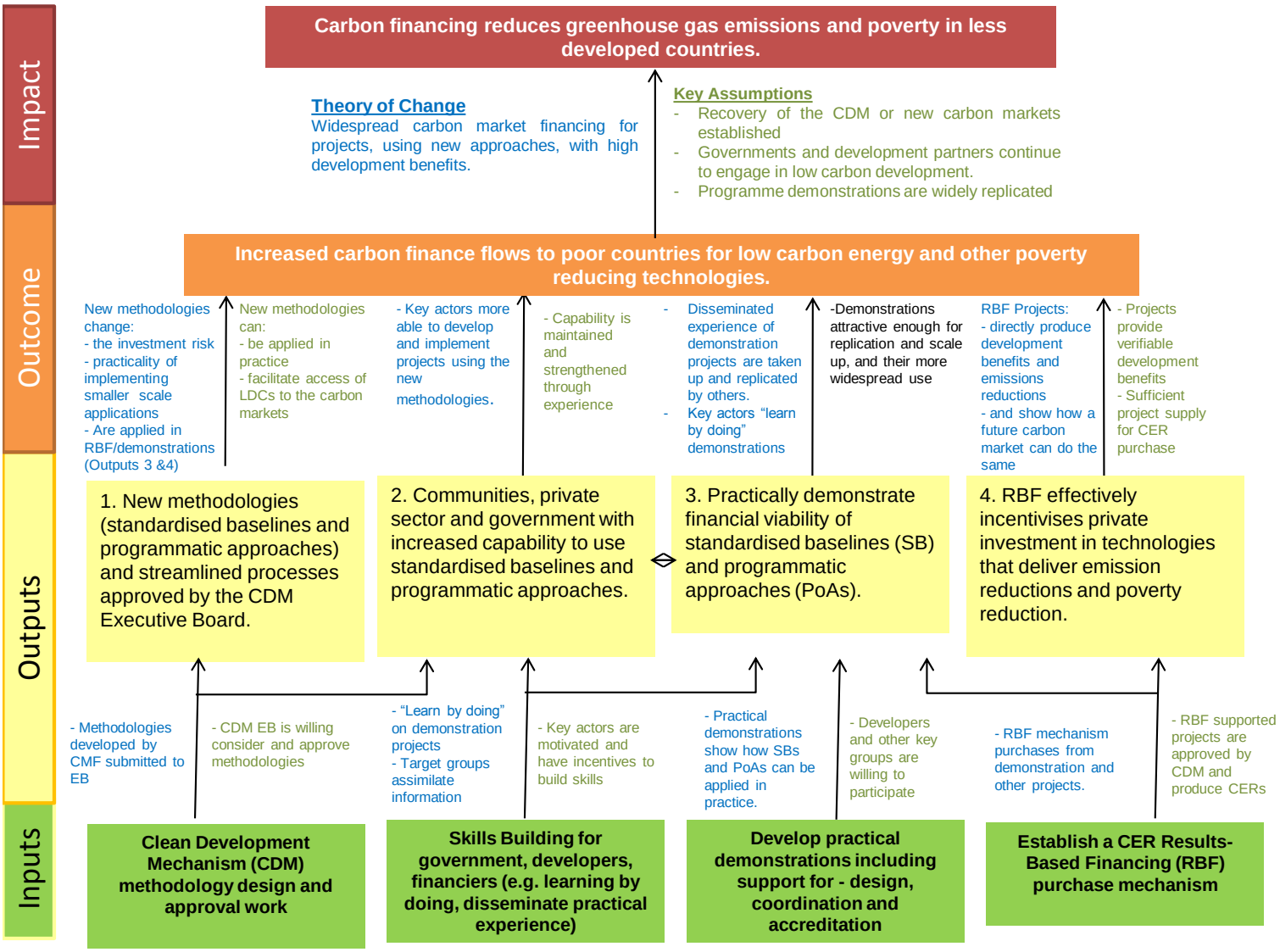
46. The CMF programme is consistent with the ICF classification of transformational:

- Scale & Replicable: CMF's demonstrations will be designed for private sector replication and by aggregating together small projects CMF can achieve scale.
- Innovative: CMF will develop and apply new and innovative CDM methodologies that have been unproven in LDCs. The RBF mechanism is also a highly innovative financing approach.
- Leverage: CMF will leverage private finance during the intervention and, if the carbon market recovers, after, extending impact beyond the immediate programme.

Impact and Outcome that We Expect to Achieve

47. The Theory of Change (ToC) for the programme addresses the barriers described above. It is shown schematically below and in Annex 2.

Figure 1: Theory of Change



48. The **impact** that the programme will deliver is "carbon financing reduces greenhouse gas emissions and poverty in less developed countries".

49. **The underlying premise** for the CMF programme is that carbon market finance can play an important role in transforming quality of life for poor people in less developed countries and reducing carbon emissions to improve environmental conditions. It can do this by funding projects with high development benefits, such as making clean energy and other low carbon technologies more affordable for poor people. And use the robust verification procedures of the carbon market to deliver results based financing for the distribution of poverty reducing technologies.

50. So the **Outcome** is “increased carbon finance to poor countries for low carbon energy and other poverty reducing technologies”.

51. **But there are challenges**. So far only a small number of carbon market projects have been located in less developed countries; and very few of these are of the community and household type with the highest development benefits. Additionally, the current lack of market demand for CDM carbon credits will prevent any development of new projects, particularly in LDCs, where developers have little experience operating. The barriers are presented in paragraphs 13 – 35 above.

52. **How can these challenges be overcome?** The CMF programme will use the following potential routes to address the challenges:

- Helping the LDCs tackle the barriers to carbon financing to increase the **access of poorer countries to CDM** (or a future carbon market mechanism) for projects with high development benefits[77].
- Testing and developing new approaches to improve the **carbon market’s ability to deliver finance to small-scale applications** with high development benefits – such as standardised baselines and programmatic approaches.
- Demonstrating business models to **encourage private sector development of viable projects** that use carbon financing – independent of public funding.
- Providing **evidence of what works in LDCs to influence the future carbon market.**

53. Evidence supporting this approach is limited. For example there does not appear to have been systematic reviews of the past CDM experience of carbon finance for community and household level projects, although there are some project examples. However, the evidence described for the earlier barriers, although sparse, would suggest these actions could bring about the desired Outcome and Impact. Given the scarce evidence, this programme would need to invest seriously in evaluation to fill this gap, and test assumptions. A formative evaluation early in the programme could inform potential adjustments in implementation.

54. Given the potential risks in the longer term carbon market, the programme should deliver sufficient direct emission reductions and development benefits to justify the investment even without increasing longer term carbon finance flows. So whilst it seeks to demonstrate how the carbon market can work, it will also deliver direct programme benefits so that it is **worth doing whether or not the carbon price recovers**.

55. The programme could achieve the Outcome through **four potential outputs,** which either together or separately would be expected to increase the success of governments, financial institutions, private sector and civil society organisations in accessing carbon finance. These are:

i. New Methodologies[78] (£2 million) that enable the international carbon market to finance projects with high development benefits in LDCs. They will focus

on community and household projects. To achieve the Outcome this Output will:

- Change the system to reduce investment risk and attract greater interest in and uptake of carbon finance for these types of projects;
- Support learning, reflection and comparative analysis by stakeholders for active learning from each other and to feed back into method innovation.

ii. Capability and skills (£1 million) of communities, private sector and government to develop carbon market projects using these new methodologies, and access the necessary funding for their implementation. To achieve the Outcome this Output will:

- Enable stakeholders to develop and implement projects that apply the new methodologies;
- Develop capabilities and interest to act – working with regional and national stakeholders to build their expertise and so build sustainability from the start;
- Build knowledge management systems – for sharing insights on how to develop and implement CDM projects.

iii. Develop and demonstrate business models (£11.3 million) for the practical use of new methodologies, so reducing perceptions of project risk. As these methodologies are untested they are considered riskier by project developers. Local financiers are unused to the business models or the technologies and so doubt the reliability of returns for such projects. In addition, less developed countries lack the experience of getting projects registered in the carbon market, and are understandably nervous to try to use these new methodologies. To achieve the Outcome this Output will:

- Demonstrate untested methodologies through their practical application – supporting project development and CDM accreditation, and drawing our lessons and experiences;
- Disseminate those lessons and experience for future use and their replication independent of the programme;
- Provide hands on learning by doing support – for project developers, communities and government.

iv. Use Results Based Financing to purchase carbon credits (£33.2 million) through the CDM for projects with high development benefits that use the new methodologies. This will:

- Result in direct development benefits and emissions reductions;
- Demonstrate the ability of carbon market finance to deliver greenhouse gas emissions reductions and development benefits effectively – and that this is value for money;
- Attract additional finance from the private sector by ensuring the technologies are ones they see as commercially viable;
- Help decrease overall global emissions, as the emission reductions paid for would be cancelled and not used for compliance.

56. Options for achieving the Outcome through these potential Outputs are assessed in the Appraisal Case.

57. Based on illustrative portfolio of projects the estimated results that could be directly delivered by the programme, and attributable to UK spend, are:
    - 3.4 $MtCO_2e$ emissions reduced (of which 2.6 $MtCO_2e$ reduced by 2025);
    - 2.9 million people with improved access to clean energy;
    - 165 MW of installed capacity of clean energy generated;
    - £40 million of public finance mobilised for clean technologies;
    - £550 million of private finance mobilised for clean technologies.

    These all meet ICF Key Performance Indicators (KPIs).

58. These results would be achieved directly by the CMF programme, even without recovery in the carbon market. With a recovered carbon market, additional indirect results would also be achieved, through the replication of the approaches developed and proven by the programme financed through the carbon market. By way of illustration, this could lead to impacts of as much as 31 million households benefiting from clean technologies, 7.6 million tonnes of carbon emissions reduced and 800 MW of clean energy capacity installed, assuming that every project delivered is replicated 3 times by the market These estimates are highly speculative and are based on assumptions about the future carbon price and the size of the demonstration effect.

59. **The most important assumptions** in this theory of change, and how they should be mitigated, are:

60. **Maximum transformational change requires a recovered carbon market (Outcome to Impact)**. Wider transformational impact relies on a recovered global carbon market. This mainly depends on the outcome of international climate change negotiations and a global economic recovery. A recovered carbon market is a key risk, and is outside the programme's control. However, market mechanisms will need to remain a key part of the international architecture for achieving the global emission reductions needed to keep a global temperature increase below 2°C. A key indicator of such prospects will be the result of UN climate change negotiations in 2015. Even without influencing the future carbon market the programme will produce direct benefits and be worth doing in itself.

61. Carbon market prospects must be closely monitored in CMF programme annual reviews and through regular independent formative evaluations, especially in early 2016. Following break points in 2016, 2019 and 2022, some elements of the programme, or even the whole programme, could be stopped if this risk makes it not worth continuing.

62. **Verifiable development benefits result from projects receiving Results-Based Finance (RBF) for emissions reductions (Output to Outcome)**. Purchasing certified emissions reductions from the right type of project should also produce high development benefits. There is limited systematic evidence from past CDM experience on how carbon finance can deliver development benefits, but there are some project examples. The new methodologies developed and implemented through the programme will be designed for community and household level projects with high development benefits. Some

such methodologies, e.g. for rural electrification, have been shown to be effective through case studies[56]. The project will test such methods in practice.

63. **Practical demonstrations are financially attractive for future replication and scale up (Output to Outcome).** A transformational change in carbon markets providing finance for projects with high development benefits requires the practical demonstrations of new methodologies to be attractive to future developers. Demonstrations will need to be selected in consultation with the private sector so that they are likely to be attractive. Monitoring and targeted dissemination of project experience and their results, including the financial aspects, must be central to the programme.

64. **The key actors (communities, developers and government) are motivated to sustainably improve understanding and skills** in applying and investing in projects using new methodologies (Input to Output, and Output to Outcome). The programme will help build skills of actors directly associated with RBF financed projects. But more widespread change requires understanding by a broader number of actors so that they are motivated to independently replicate projects. Targeted dissemination and promotion of programme experiences should stimulate this broader understanding. Consultation with the Carbon Markets and Investors Association (CMIA) has indicated that developers would be keen to learn from programme experience and implement other similar projects in future.

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[27] Potsdam Institute for Climate Impact Research and Climate Analytics, 2012. Turn Down the Heat, Why a 4°C Warmer World Must be Avoided. Report for the World Bank. http://climatechange.worldbank.org/sites/default/files/Turn_Down_the_heat_Why_a_4_degree_centrigrade_warmer_world_must_be_avoided.pdf. Acessed Feb 1, 2013.

[28] "carbon finance can be provided on predictable and legally enforceable terms. In particular, its independence from the fickle aid budgets and conditionalities that are often imposed by donors on African governments make carbon finance an attractive revenue source to complement domestic resource mobilization and other external finance." Africa Progress Panel. *Kick-Starting Africa's Carbon Markets: The potential for programmatic CDM.* Information Note. December 2009.

[29] http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf

[30] de Gouvello, Christophe, Dayo Felix B., and Massamba Thioye. Low-carbon Energy Projects for Development in Sub-Saharan Africa: Unveiling the Potential, Addressing the Barriers. The International Bank for Reconstruction and Development / The World Bank. 2008.

[31] Energy systems in a low carbon economy – report for DFID, AEA Technology, 2010

[32] Assessment of the Pico and Micro-Hydropower Market in Rwanda – Global Village Energy Partnership, December 2011.

[33] World Energy Outlook, 2010

[34] Global Carbon Trading: A framework for reducing emissions – Lazarowicz et al

[35] CDM Policy Dialogue: ASSESSING THE IMPACT OF THE CLEAN DEVELOPMENT MECHANISM

[36] Based on feedback from national stakeholders at a World Bank Workshop in Dakar Senegal held from October 2nd-3rd 2012.

[37] D.Light project PDD at http://cdm.unfccc.int/Projects/DB/TUEV-SUED1245158196.62/view

[38] Communication form the World Bank Carbon Finance Unit

[39] One example of this is in a Bangladesh solar home system CDM project in which it is reported that households in are free to purchase a system or not.

[40] World Bank - State and Trends of the Carbon Market 2010.

[41] Review of available information on how the CDN can produce benefits for poor people – 2013, commissioned from the DFID supported Professional Evidence and Applied Knowledge Services (PEAKS) for Climate, Environment, Infrastructure and Livelihoods.

[42] CDM Barriers Analysis Study: Programmatic CDM Activities Initiated – UNEP third meeting of the Southeast Asia network of climate change focal points, 2010

[43] State and Trends of the Carbon Market 2011

[44] Source: PointCarbon - Spot Price Feb 1, 2013
[45] McKenzie, Duncan. *Carbon Markets.* Briefing. The City UK. October 2012.
[46] State and Trends of the Carbon Market 2012, Carbon Finance at the World Bank
[47] Future demand – the emerging national markets:
Beyond the EU-ETS a number of other ETSs exist or are under development. However, not all of these systems do or will allow CDM credits for compliance. For national ETS systems that do allow CDM inclusion, more information is provided on the level of mitigation commitment for these countries and the percentage of CERs applicable for compliance. It is important to note though that only the EU-ETS restricts the use of CERs to encourage CDM development in LDCs at this time.
New Zealand: New Zealand emissions trading scheme: *Launched:* 2010. Electricity generators, manufacturers and the transport sector hand over to the government a carbon permit for every second tonne of greenhouse gases they emit. A bill last month postponed indefinitely plans to phase-out free handouts of permits and include agriculture in the scheme. *Target:* New Zealand's original Kyoto Protocol target was to maintain its emissions at 1990 levels over the 2008-2012 period. For KP 2 New Zealand was anticipated to commit to cutting GHG emissions 10-20% below 1990 levels by 2020. Since pulling out of the Kyoto Protocol this new target is not legally binding. *International Carbon Credits:* 100% of emissions reductions obligations can be met through the use of Kyoto Protocol eligible units.
Australia: domestic emissions reduction scheme. *Launched:* July 2012. 300 of the biggest polluters, from coal plants to smelters, initially pay A$23($23) per tonne of CO_2 emitted. They are banned from using U.N. carbon offsets until the system is replaced by a nationwide carbon trading scheme in July 2015 but can use a limited number of domestic credits. The EU has agreed to link its ETS with Australia's scheme by 2018. *Target:* Australia committed to reduce its emissions by 5% below 2000 levels by 2020, which in 2000 would have meant a reduction of 160 million tonnes carbon. *International Carbon Credits:* International credits are edible to cover up to 50% of total liability within the Australian scheme up to 2020. However not all of the 50% can be Kyoto Protocol eligible units, in total only 12.5% liability can be from Kyoto Protocol eligible international units (such as CERs).
South Korea: emissions trading scheme. *Launched:* 2015. Covers: Around 500 companies, collectively responsible for 60 percent of the country's annual emissions. *Target:* Government has set a 2020 emissions reduction target of 30 percent below forecast "business as usual" levels. South Koreas is the 8th largest greenhouse gas emitter. Forecasted 2020 level is 740m tons meaning they aim to be at 518m tons in 2020. Current emissions level is roughly 640m tons. *International Carbon Credits:* Companies will not be allowed to use international carbon credits to meet their targets until 2021, at which point international units can be used to cover just 10% of emissions. However, the total volume of international carbon credits used cannot exceed the number of domestic offsets used. This may be subject to change given that legislation is not yet finalized.
By 2020 it is expected that there will be at least 1bn surplus of CER credits.
[48] http://www.thepmr.org/content/participants
[49] The cost of achieving emissions reductions increases substantially if global action on mitigation is delayed. With a greater cost for emissions reductions there will be increasing pressure to use cost effective reduction solutions. Stern Review.
[50] DECC estimates using their Global Carbon Finance Model
[51] Low carbon projects can provide both direct emissions reductions and avoided emissions savings.
[52] In COP 18 it was agreed that in 2014 there will be a review of country targets under the KP with the aim of raising ambition. The UN Secretary General has also called a leaders summit on climate change for 2014, of which mitigations will be a central theme. This means countries will be expected to take on new, stronger emissions targets by 2015, which could increase demand for emissions reductions pre and post 2020, increasing the carbon price.
[53] The potential to help increase Sub-Saharan African access to the CDM – DewPoint study for DFID, April 2009
[54] The typical CDM project accreditation costs £100,000. BIS – based on assessment from the Climate Change Project Office in 2008. A. Michaelowa and F. Jotzo also estimated CDM transaction costs to be €150,000 per project in their 2005 article. CDM project transaction costs include typically include the cost of: finding partners for projects; project design; project documentation; host country DNA approval; project registration; monitoring and verification; and credit certification.
[55] Standardised baselines are uniform procedures that can help simplify the processes of calculating emission reductions and demonstrating that a potential CDM project is additional (i.e. it wouldn't have happened anyway). This can help reduce complexity and transaction costs for project developers.

[56] Piloting greater use of standardised approaches in the Clean Development Mechanism – Perspective Climate Change led consortium (Commissioned by DFID), September 2011
[57] Accroding to project developers and industry experts consulted.
[58]"The off-grid lighting market in Sub-Saharan Africa: market research synthesis report 2011" – Lighting Africa Programme
[59] Proposal to the Renewable Energy and Adaptation to Climate Technologies (REACT) Programme – 2011.
[60] Watson, J., Byrne, R., Morgan Jones, M., Tsang, F., Opazo, J., Fry, C. & Castle-Clarke, S, 2012, What are the major barriers to increased use of modern energy services among the world's poorest people and are interventions to overcome these effective? CEE Review 11 Environmental Evidence: www.environmentalevidence.org/ SR11004.html
[61] World Energy Outlook 2011 – International Energy Agency
[62] Watson, J. et al. *Op Cit.*
[63] An analysis of the off-grid lighting market in Rwanda: sales, distribution and marketing – Global Village Energy Partnership, July 2012
[64] Ibid.
[65] Africa Progress Panel. *Kick-Starting Africa's Carbon Markets: The potential for programmatic CDM*. Information Note. December 2009.
[66] The off-grid lighting market in Sub-Saharan Africa – Lighting Africa Programme of the IFC and World Bank, February 2011
[67] Technology innovation and climate change policy: an overview of issues and options – Grubb, M, Keio Economic Studies, 2004
[68] "Low carbon energy projects for development in Sub-Saharan Africa; unveiling the potential, addressing the barriers" World Bank, 2008
[69] Readiness for Climate Finance – UNDP, 2012
[70] Carbon markets for Sub-Saharan Africa: capacity building scoping project – EcoSecurities for DECC, November 2009
[71] http://www.pointcarbon.com/news/1.2023792?date=20121016&sdtc=1
[72] Capacity Development for the CDM (CD4CDM) - http://www.acp-cd4cdm.org/about.aspx
[73] Africa Carbon Asset Development Initiative (ACAD) http://www.acadfacility.org/

[75] McKenzie, Duncan. "Carbon Markets Briefing." TheCityUK. October 2012.
[76] IIED fast-start finance addendum, 28 November 2012. Climate Finance: Assessing new commitments of United States and United Kingdom. In: The Eight Unmet Promises of Fast Start Finance http://pubs.iied.org/pdfs/17141IIED.pdf
[77] And this increase should be over and above what is likely to happen due to EU ETS restrictions – where the EU has said it will only buy emission reductions from the least developed countries from 2013.
[78] Standardised baselines, programmatic approaches and streamlining procedures are all understood as being methodologies in this business case for ease.

Appraisal Case

What are the feasible options that address the need set out in the Strategic Case?

65. Three feasible options were short-listed to deliver the Outcome, and address the challenges and overcome the barriers identified in the Strategic Case. Other potential options were considered, but excluded as not being able to deliver the Outcome or full results required by the Strategic Case. A fourth counterfactual "do nothing" option considers what would happen without a UK funded programme.

    The feasible options are:

66. *Option 1: Building Skills.* This option would mainly address Barrier 4 - Lack of skills and experience in CDM Methodologies in LDCs. It could also partially address Barrier 2 - High transaction costs of CDM methodologies, by developing new methodologies that would reduce the costs of registering emission reductions project in the CDM for community and household scale work, i.e. through using standardised baseline and programmatic approaches.

67. *Option 2: Purchase CERs through a Results-Based Financing (RBF) Mechanism*. This option would address Barrier 1 - Uncertainty over the international carbon market. It would also provide a return on investment by purchasing CERs, helping to address Barrier 3 – High capital cost and unproven returns on investment. As it would only support projects that used new methodologies, it would also partly address Barrier 2, building skills through learning by doing.

68. *Option 3. A Combination: Building Skills and a RBF Mechanism.* Combine the elements of options 1 and 2. But in this instance skills and capacity building would also include elements that facilitate good quality projects to make use of the RBF mechanism, including through addressing Barrier 3.

69. *Option 4: Do Nothing*. Analysis of the impact of having no UK funded programme.

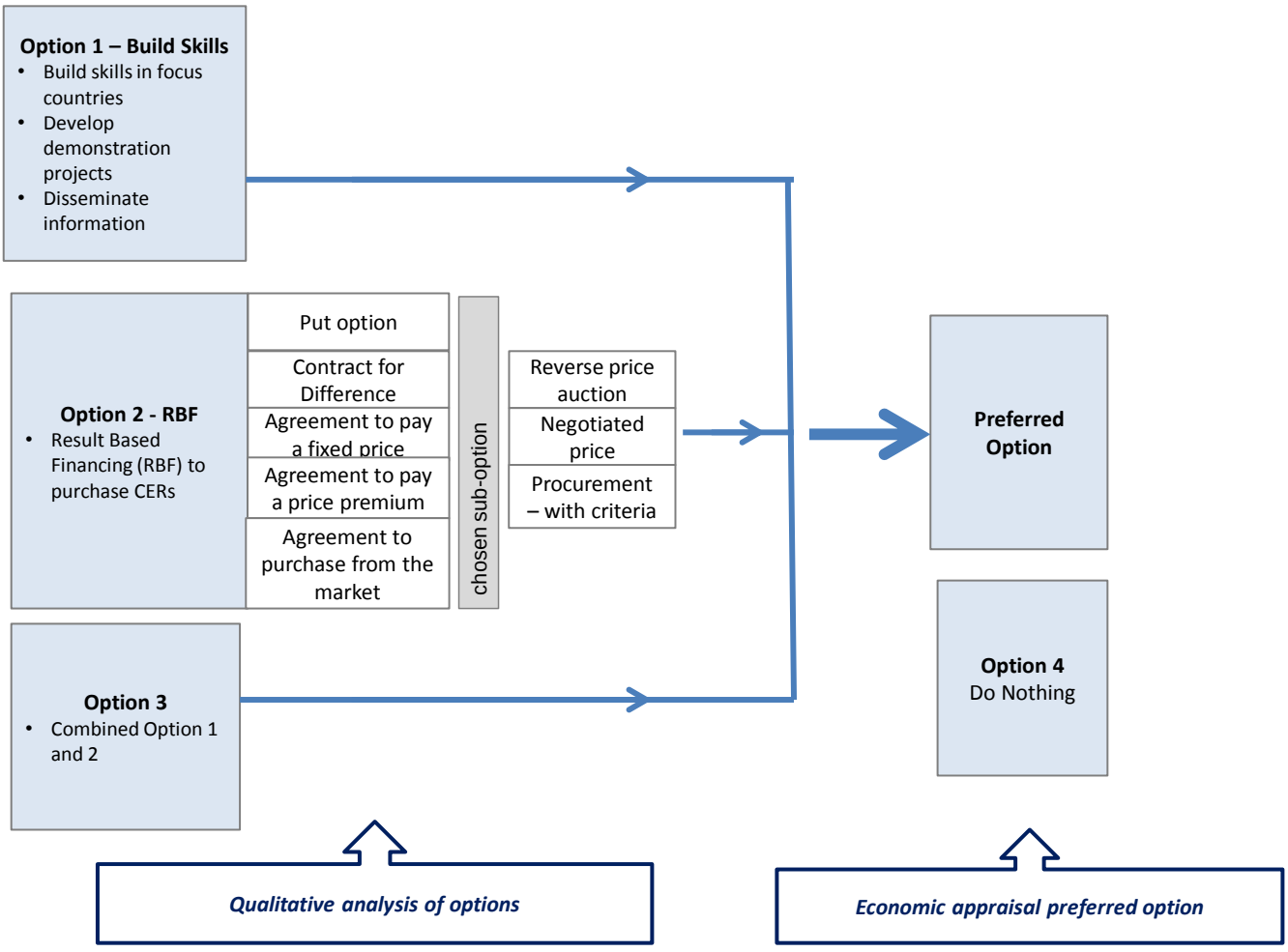
70. *Excluded option*: The potential to channel support through other existing ICF programmes (Table 1) to deliver the CMF results identified in the CMF Theory of Change (paragraph 57) was also considered. While some of the direct results might be achieved through these other programmes, they are all still at very early stages and not ready to take on new components. This approach would also detract from their current focus and limit effectiveness. It was also decided that influencing a future carbon market to reach community and household scale projects with high development benefits, as in the Theory of Change, would not be possible through the existing ICF programmes without major additions. So a new separate programme that focuses specifically on the Outcome and results in the Strategic Case should make up the feasible options.

71. The structure of the appraisal: The first step in the appraisal asks whether option 1 or 2 by themselves can deliver the outcome, or whether a combination of both is needed. This is assessed qualitatively. There are a number of sub-options for purchasing CERs under option 2 and these are qualitatively appraised against

criteria. The second step of the appraisal considers the options against climate and environment risks and opportunities, and identifies the preferred option. The third step in the appraisal considers whether there is sufficient benefit in making an investment in the preferred option – which is quantitatively appraised and tested for sensitivity against assumptions. And the final step of appraisal considers the social, political and institutional implications of the preferred option. See Figure 2 below.

72. Focus countries: These options would be implemented in 4-5 Least Developed Countries that are also DFID footprint countries. In Africa they will be selected from Uganda, Rwanda, Zambia, Malawi, Tanzania, Ethiopia, DRC and Sierra Leone. Specific countries will be identified during implementation. Selection criteria will include: government and private sector potential to develop and implement relevant projects; potential to offer projects that act as good demonstrations and provide direct development benefits to poorer communities; and willingness by stakeholders to engage in the programme. One or two LDCs in Asia would also be considered, given the interest to have globally relevant demonstrations – and these are likely to be Nepal or Bangladesh.

Figure 2: Summary of options and approach to appraisal



Appraisal Step 1:
Can the outcome be delivered with just option 1, just option 2, or are both needed?

Option 1: Building Skills

73. Option 1 would involve four components to improve the efficiency of the carbon market to deliver: (i) emissions reductions through projects that have historically attracted little carbon finance; (ii) projects in Least Developed Countries (LDCs); and (iii) small-scale (household or community level) technologies with high development benefits. The four components are:

    a. Develop and obtain approval for CDM methodologies. This tackles Barrier 2 – High transaction costs of CDM methodologies. Some methodologies for the use of standardised baselines and programmatic approaches have been developed and approved to varying degrees by the CDM Executive Board. But mostly their use is limited. As noted in paragraph 23, the development of these methodologies will lower the accreditation and implementation costs, of small-scale projects. The UK supported study[56] that developed standardised baselines for rural electrification also looked at how they could be applied through case studies. It showed that the approach should be appropriate to CDM projects providing community and household level results, such as increasing access to communities without power. One of these case studies was rural electrification through off-grid solar energy in Tanzania. Likewise, a study by the Africa Progress Panel (APP)[65] showed that the Programme of Activities approach could increase carbon market finance for small scale renewable energy, such as household solar and micro-hydro.

    b. Build skills in focus countries. To accredit and register CDM projects using standardised baselines and programmatic approaches. skills need to be developed – tackling Barrier 4 – by the following:
        i. Government units responsible for processing CDM applications[69] (the "Designated National Authorities") need to be confident in the new approaches.
        ii. Developers (e.g. that deliver off-grid electrification to communities and households) need to understand how to structure their project for approval, and develop viable projects with good returns.
        iii. Potential financiers need to have confidence in the technologies and CDM registration, and understand how finance can be structured for attractive returns on investment.

    c. Support the development of "demonstration" projects. Early projects that use new standardised baseline and programmatic approaches, can act as demonstrations – to build experience and tackle Barrier 4. Piloting and demonstration of innovative approaches is a key element of an "innovation chain" and provides "market push"[67]. The component would include:
        i. Project design – working with developers on the scope and content of a project, including its technical and institutional arrangements.

ii. Supporting institutions for their first time implementation of a project – to get procedures in place. This could include developing a "coordinating entity" for a Programmes of Activity project.
iii. Engaging communities to participate in project design and implementation, ensuring the sustainability of work undertaken.
iv. Processing a project for CDM registration and accreditation.

d. Disseminate information. The Option would disseminate information on the use of standardised baselines and programmatic approaches to address the lack of knowledge (again addressing Barrier 4) that prevents access to carbon markets in LDCs, particularly in Africa. It also includes disseminating information resulting from the demonstrations, to make sure they can maximise "demand push". Dissemination would be focused, for example, on developers in countries with immediate potential to use the new approaches.

Assessment of Option 1

74. Unlikely to succeed alone: If such a skills building programme was to be delivered on its own, the outcome and all of the intended benefits are unlikely to be fully realised. To date, no projects have been implemented using standardised baselines, and only two programmes of activities have been implemented[79]. Project developers indicate that they are reluctant to take on the risk associated with gaining accreditation using a first-of-a-kind methodology[80].

75. While a UK programme could provide the funding for skills building, consultations with the private sector show it is unlikely project developers would take on the wider carbon market risks (notably price and off take risk) given current carbon prices. Whilst limited and largely anecdotal, evidence suggests that to date results[81] from the investment in CDM training alone has not had a big impact on development of practical CDM projects.

76. Therefore, with Option 1 there is a risk that the skills developed are purely theoretical and not put into practice. There is likely to be limited opportunity for "learning-by-doing" with carbon prices being so low. And the fewer demonstrations likely to result may be insufficient to inform good practice.

Option 2: Purchase emission reductions through a Results Based Financing (RBF) mechanism

77. A guaranteed payment - for development results and emission reductions: This Option would purchase CDM certified emission reductions (CERs) from a selection of projects which use innovative methodologies (i.e. standardised baselines and programmatic approaches) for distributing technologies that (i) have attracted little climate finance, and (ii) have strong development co-benefits (see Annex 6 for criteria to be used in project selection). The mechanism would, in effect, show how CDM can be used to verify the delivery and use of poverty reducing technologies – whilst reducing Greenhouse Gas (GHG) emissions.

78. Tackling uncertainty: Purchasing CERs would tackle the immediate uncertainty in the carbon market – Barrier 1. Purchasing CERs would also provide an income for projects, increasing the return, and so help address the financing gap – Barrier 3 – where there is limited confidence in the technologies and business models for off-grid energy, such as in Rwanda for off-grid lighting[63].

79. Preventing market distortion: DECC and DFID have developed guiding principles for how ICF financed programmes should interact with the carbon market, to avoid distortions. In summary these principles are:
    A. Transparency from project developers on if and how a project interacts with carbon markets.
    B. Avoid co-financing typically funded CDM projects, except projects which are:
        (i) Supporting new technologies (within the relevant country), or
        (ii) Deploying technologies at new scales (within the relevant country).
    C. Minimize co-financing to the point where a project is financially viable to limit the risks of market distortions and over-subsidising.
    D. Demonstrate that minimum co-financing options have been considered and other sources of finance are not available to support the project.

80. The CMF programme is consistent with those principles; a detailed description on the programme's fit with the ICF principles is laid out in Annex 3. Given the RBF mechanism would focus on technologies not yet widely used in LDCs in the CDM, we would ensure we are not subsidising the carbon market – but rather extending the reach of the carbon market into countries and technologies it has not previously supported (see Annex 6: Draft Criteria for Project Selection for further details on this). We would also ensure the price for the CERs paid under the RBF was matched by any compliance (i.e. non ODA) buyer – so preventing any cross subsidy. We predict compliance buyers would not be interested in the demonstration projects as prices are likely to be above the current market price – but would keep this under close scrutiny (see Box 4: Negative Market Distortions – Fit with ICF Carbon Market Principles and Annex 3). The CERs purchased would also be cancelled, so would not undermine the carbon price further through increasing supply without improving demand.

Box 4: Negative Market Distortions – Fit with ICF Carbon Market Principles

The UK's International Climate Fund (ICF) initiatives Carbon Market Principles were designed to provide guidance on how programmes should interact with the carbon market. The rationale is to:
(i) Reduce global emissions through the ICF
(ii) Avoid depressing the carbon market, and
(iii) Reduce the risk that projects are over-subsidised with windfall profits from CER sales.

Reduce emissions: The UK could reduce the cost of some ICF initiatives by selling the carbon credits generated to compliance buyers in the carbon market. However, then the UK would not be reducing overall emissions, since the credits would offset someone else's emissions.

Price distortion: As demand for credits is largely fixed (a function of the emission targets set by developed countries), any increase in supply without a corresponding increase in demand risks dampening the carbon price. While the impact from one programme is unlikely to be

significant, across all of the ICF investments and wider international climate finance, the impact could be significant[82].

Increasing long term supply: If the CMF programme is successful, the costs of gaining accreditation (of fees associated with developing a CDM project, for project design, registration, verification and accreditation) for all, and particularly small-scale projects, would reduce. This would potentially bring forward further supply and indirectly lower the carbon price. However, we think such an intervention is justified and in keeping with ICF carbon market principles because:

- Any direct increase in supply from this programme will be matched by a corresponding increase in demand– as the UK will purchase and cancel the credits it generates.
- To avoid the UK part-subsidising the purchase of allowances for the compliance market, emissions purchase agreements will be structured to ensure that all emissions purchased from UK supported projects are entirely for non-compliance use and all buyers will pay the same price for carbon credits for every year of the agreement.
- Where an "open-book" approach to CER purchases is used, we will require that the profit of any project developer is appropriate to the risks they are taking.
- Any long term reduction in the cost of accreditation is viewed as a public good – improving the efficiency in the carbon market through reducing administrative costs and increasing the reach of the market – rather than a long-term subsidy of credits.

81. The right financing mechanism for the RBF to purchase emissions: There are a number of possible sub-options for how the CERs could be purchased using the RBF Mechanism. These are:
    A. Put Options: set a minimum price for emission reductions, so if the market price is below it, producers can sell CERs to the mechanism and if market above it, producers can sell CERs to the market.
    B. Contract for Difference (CfD): set a strike price and pay difference between market price and strike price to producers, who would sell emissions to market.
    C. Agreement to Pay a Fixed Price: mechanism buys emissions at fixed price, giving certainty.
    D. Agreement to Pay a Price Premium: mechanism buys emission reductions at market price with a premium for the high development benefits.
    E. Agreement to Purchase from the Market: an Advanced Market Commitment (AMC) to buy so many emissions with strong development co-benefits at a fixed time.

82. Table 2 below summarises the advantages and disadvantages of each of these sub-options. A full assessment of the sub-options is provided in Annex 4.

Table 2: Summary of assessment of delivery options

Option	Emissions Reduced	Market Distortion (see Box 4)	Risk of paying more than expected	Ability to de-risk projects for developers	Risk funding not used	Opportunity to reduce fund if market recovers
A – Put Option	Some	Yes	No	Yes	Yes	Yes
B – CfD	No	Yes	No	Partly – off take risk remains	Yes	Yes
C – Fixed Price	Yes	No	No	Yes	No	No
D – Premium Price	Yes	No	Yes	Partly – some exposure to price risk, but this can be hedged	No	No
E – AMC	Yes	No	No	No – significant off take risk	Yes	No

83. Option C - agreement to pay a fixed price - is the preferred option as it:
    - Delivers emission reductions (unlike Option B and potentially Option A);
    - De-risks a project appropriately from the project developers' perspective without exposing the UK to the risk of having to pay more than expected for the same results[83] (unlike Options B and E);
    - Increases the likelihood that projects are forthcoming and results are delivered (unlike Option E).
    - Represents value for money by paying no more than is necessary or expected to deliver the results (unlike Option D)
    - Avoids exposing the government to a contingent liability associated with having to set aside funds that may or may not be used (unlike Options A, B, D & E)

84. The other options reviewed (as highlighted in Table 2), were ruled out due. By issuing a put option (Option A) CMF does have the ability to leverage a greater amount of private finance, but risks UK funds remaining unspent and does not encourage the development of new projects. Even though funds may not be utilised, a put option has the potential to place downward pressure on the carbon market by de-risking a number of projects without increasing demand. Additionally, through Option A the UK may be financing the compliance of others. Option B, contracts for difference, delivers no emissions reductions, could lead to market distortion, and does not fit with DECCs guidelines for its ICF contribution. Option D, paying a price premium, could result in the UK providing project developers with substantial profits, if the carbon market recovers. And Option E, advance market commitments, would not sufficiently de-risk development, meaning project developers would be unlikely to develop projects and CMF funds could go unspent.

85. Under different market conditions, and with a consideration of the need to deliver the objectives, some of the alternative approaches, such as a put option may be more preferable than the fixed price purchases. On reviewing the programme at the break points, it is recommended that the above delivery options are reviewed for future projects.

86. *Determining the Price.* In all of the options above, a process is still required to determine the set price paid for the CERs purchased. There are a number of ways this can be done:
    i. Hold a reverse auction, with developers bidding for the right to sell credits, and the lowest price per tonne of "poverty reducing" carbon winning.
    ii. Publish a call for proposals, with projects being selected through a multi-criteria analysis of the development benefits to be delivered. Either with:
        a. The call for proposals including a "firm price" offer.
        b. Proposals including an "indicative price", with the exact price paid determined by open-book negotiation (i.e. developers justify the price, providing evidence of the key cost assumptions including their expected profit margin).

87. A detailed assessment of these options is provided in Annex 4.

88. A reverse auction is not considered an appropriate route as strong and guaranteed demand is necessary to generate a competitive price (unlikely in an undeveloped, risky market) and the method is unlikely to produce a diverse portfolio of projects. Project developers are likely to offer one or two technologies that can be delivered at the least cost, rather than a portfolio of technologies which maximise the demonstration and development benefits.

89. A call for proposals is therefore preferred, as is the use of an open book negotiation to determine the carbon price to be paid per project. Further details on a price setting approach which could be used for the CMF programme, are laid out in Annex 4.

90. Preventing over-subsidizing projects: In order to ensure the value for money of this programme, and reduce the risk of over subsidizing projects through price negotiations we will ensure key figures around the capital costs, additional revenues and an acceptable rate of return are benchmarked against wider evidence including;
    - Known projects delivered through CDM or other means;
    - Other DFID/ donor/ WB programmes such as RBF for energy access;
    - Robust sources of independent data.

Assessment of Option 2

91. The advantage with Option 2 – results based financing through a call for proposals with an agreement to pay a fixed price is that the risk in implementing a project would be transferred to the project developer.

92. Learning by doing: In this option stakeholders gain practical experience of project delivery. This option will increase the confidence of government Designated National Authorities (DNAs), thus helping future projects gain accreditation. Project financiers (banks and carbon funds) would also gain experience, whereas they may have been reluctant to engage in the skills building under Option 1 without an obvious use of financial return for such skills. However, Option 2 may

not result in high development benefits without action to ensure projects using the new methodologies incorporate relevant features.

93. Sustainability and risk of accreditation: However, the sustainability of the skills and experience may be in doubt if the market does not recover, as it relies on the programme finance to overcome this initial barrier in the accreditation system. This option also means a reliance on the private sector to disseminate best practice and any lessons learned. Project developers may be unwilling to take on the risk of project accreditation using first of a kind methodologies, or may charge too high a premium to do so, which could represent a risk to the programme if option 2 is implemented.

94. A number of project developers consulted during programme design have indicated that they would be unwilling to take on all of the accreditation risk. There is no precedent to show that developers would or would not come forward if an appropriate premium were paid. A close comparison is the voluntary market, where the Gold Standard seeks to encourage emission reductions with strong development co-benefits. However in the voluntary market the risks of accreditation are lower and significant support is available from brokers in the project development process. So if this option was pursued, robust evaluation would be needed to build the evidence base.

Option 3: A Combination: Building skills and capacity and a RBF mechanism

95. By combining Option 1 and 2, the programme would provide both skills building and the purchasing of credits from projects through the RBF mechanism. The RBF Mechanism as described for Option 2 would be the same. Additional elements would be added to those described in Option 1. These include:

96. Build skills in focus countries. This would specifically build skills of relevant groups to deliver projects where the RBF mechanism purchases CERs. This would improve the quality of the project, make for faster implementation of demonstrations, and enhance skills building through “learning by doing”. Enhanced skills developed through “learning by doing” will address some past failings of training that have been more theoretical, rather than grounded in practical application[81]. It would also maximise development benefits of new methodologies, for example, so that carbon finance makes technology more affordable, and the participation of communities in design and implementation.

97. Support the development of “demonstration” projects. Projects supported through the RBF mechanism may require some support in their development, including for capital costs given financiers concerns about risks (Barrier 3 – Unproven Returns) to demonstrate the viability of the business models and prove the new methods do deliver projects that the CDM will register. A proportion of the capital costs could be covered by the project – for example, as milestone payments. The extent to which this will be needed for specific demonstration projects will be determined on a case by case basis during implementation.

98. Capture the impact of "demonstration" projects. Projects funded by the programme would demonstrate the practical implementation of standardised baselines and programmatic approaches. Monitoring as well as robust independent evaluation will capture the impacts and identify lessons from the demonstrations.

99. Disseminate information. The programme could disseminate experiences of projects supported by the RBF mechanism, showing the potential of standardised baselines and programmatic approaches to be commercially viable and capable of delivering emissions reductions and development benefits.

Assessment of Option 3

100. Under this Option the advantages would be the same as those identified for Option 1 (which focused on reducing Barrier 2 – High transaction costs, and Barrier 4 – Lack of skills and experience) and Option 2 (which focused on reducing Barrier 1 – Uncertainty over the international carbon market). However, the disadvantages of each would be addressed, with greater potential for demonstration benefits to be realised leading to wider use of the new approaches and a greater transformational effect. And this option also offers an approach to tackle Barrier 3 – High capital cost and unproven returns on investment, which is not well addressed in the other two options.

101. This option therefore leaves the project developers with just the delivery risks – as the programme addresses price risks (Barrier 1), accreditation risks (Barrier 2), supports the stakeholders through the project development process and so builds skills (Barrier 4) and, on a case by case, offers some support to address the lack of confidence by financiers (Barrier 3).

102. However, by increasing the degree to which we intervene, the risk of providing unnecessary subsidies is increased; with the possibility that the private sector would have been willing to take on some of the risks of project accreditation or finding a buyer for any credits produced. This risk would have to be managed either through extensive competition for the provision of UK support or through careful negotiation with developers around the appropriate level of support.

103. The evidence supporting this option, like those of option 1 and 2, is thin. There is anecdotal evidence that training on its own is insufficient to stimulate project development. The WB's experience through its Carbon Finance Unit has shown that providing hand holding support through the process of registration with the CDM can develop some projects with strong development benefits – but this was at a time when the price for carbon was stronger so no financing for credits was required. This option if pursued should be robustly evaluated to build the evidence base.

Option 4: Do-Nothing

104. For comparison, options are compared to the counterfactual 'do-nothing scenario' in which it is likely that:

- The majority of new CDM projects are likely to be focussed in Least Developed Countries due to compliance restrictions of the EU ETS. However for compliance markets without restrictions, it is likely that the majority of supply will come from Middle Income Countries such as China, India and Brazil which have historically provided the majority of credits.
- Even in LDCs there will be minimal accreditation of projects using standardised baselines - no projects have yet been implemented using standardised baselines[79].
- Some Programme of Activities (PoAs) are developed but these are less likely to be projects providing services at a household level - only nine (of 85) PoAs are registered with the CDM in Least Developed Countries[79].
- The future carbon market will continue to heavily favour large scale projects, given the high administrative costs and is therefore less likely to benefit poor.
- Projects to distribute poverty reducing technologies are unlikely to be developed given significant barriers around local capital markets and the current cost of the technologies. In the longer term, some of the more advanced technologies are likely to be taken up.

105. The evidence for this option is strong as this is business as usual – and describes accurately the current picture [84].

Assessing the strength of the evidence base for each feasible option

106. Table 3 assesses the overall quality of evidence for each option. This draws on the description of barriers in the Strategic Case, and the evidence of how they could be overcome. As noted in the appraisal of the four options, overall there is limited evidence for the approaches being suggested. Option 1 has some anecdotal and descriptive evidence suggesting this approach on its own is insufficient to address the barriers to improving carbon finance flows to poverty reducing technologies. Option 2 would be seeking to address a relatively new barrier – with the collapse of the carbon price – and therefore there are no comparators for this work – except from the voluntary carbon market, where the risks are quite different. Option 3, as a combination of the two shares the same limits in evidence. Option 4 has strong evidence given it is business as usual and well described in current literature.

Table 3: Evidence assessment of options

Option	*Evidence Rating*
1	**Limited**
2	**Limited**
3	**Limited**
4	**Strong**

Appraisal Step 2:
What are the likely risks and opportunities on climate change and environment for each feasible option?

Risks

Will the success of the intervention be affected by climate change or environmental degradation?

107. Some low carbon technologies, such as micro-hydro or biomass, are vulnerable to climate and environment impacts such as reduced rainfall or changes in agricultural productivity. It is important to ensure each project is screened against possible climate impacts. Where possible, guidance should be provided to developers to enable them to factor such risks into project appraisal decisions and to take mitigating actions. Overall the impact under this consideration is deemed as medium/manageable (B) for Options 2 and 3, and low/ no risk (C) for option 1, where there is no direct intervention funded by the UK.

Will the intervention contribute to climate change or environmental degradation?

108. This intervention is not expected to contribute to climate change or environmental degradation as the technologies supported are low carbon and renewable. There are small risks relating to waste but this will be mitigated by management measures put in place during project design. There is also a risk that energy access stimulates demand for energy services that is not entirely met through low-carbon energy, although a counterfactual of initial energy demand being met from fossil fuel generation is considered a greater risk. Overall, the intervention is categorised as representing low/no risk (C) for all options.

Opportunities

Could the intervention help tackle climate change or build resilience to it; could it help improve the environment or its management?

109. The emphasis on low carbon energy means that this intervention is intended to make a positive contribution to efforts to tackle climate change by avoiding or reducing emissions. Furthermore, the use of renewable energy and improved energy efficiency can, in many cases, reduce pressure on local environmental assets such as forests. This intervention is therefore categorised as having a high potential opportunity (A) for all options.

Could the proposed intervention reduce the vulnerability of communities to climate change, environmental degradation and shocks?

110. Decentralised provision of modern energy services also has the potential to reduce the vulnerability of households and communities to the impacts of climate change – for example, by enabling diversification and improvement of livelihoods returns via application of energy services such as for pumped irrigation or agricultural processing. Use of decentralised renewables can also protect people from systemic failures (drought or natural disasters disrupting centralised grid systems) and insulate people from fossil fuel price volatility. This intervention is therefore categorised as having a high potential opportunity (A) for Options 2 and 3, and medium opportunity (B) for Option 1, where there is no direct intervention funded by the UK.

Categorise as A: high potential risk / opportunity, B: medium / manageable potential risk / opportunity; C: low / no risk / opportunity; or D core contribution to a multilateral organisation.

Table 4: Risk assessment of options

Option	*Climate change and environment risks and impacts, Category*	*Climate change and environment opportunities, Category*
1	C	B
2	B	A
3	B	A

Overall Assessment of the Options

111. Given the issues identified above, Option 3 is the preferred option. It can produce a balanced programme with synergies between capacity-building and purchasing CERs from projects.

What are the costs and benefits of the preferred option

Appraisal Step 3:
Do the costs and benefits of the preferred option make the investment worthwhile?

112. The costs and benefits of the preferred Option 3 and of Option 4 "do nothing" have been assessed. Key assumptions in the economic appraisal are given in Annex 5.

113. The estimated total costs of the programme are £50 million (nominal, £48.5m in 2013 prices). These are given in more detail in Table 13 in the Financial Case – and can be broadly broken down as:

Table 5: Budget elements

Element	Cost £m
Skills Building	13.3
CER Purchases	33.2
Evaluation	1
Admin & Management	2.5
TOTAL SPEND	**50**

114. It is not possible to identify all the costs and benefits of the proposed intervention. At this stage it is not known which projects will be taken forward or the carbon price that will be paid. We have therefore put together a dummy portfolio of the types of interventions likely to be supported, where there is sufficient evidence to quantify some of the benefits. This portfolio illustrates the size of benefits we may expect from the programme.

115. Direct benefits. The preferred Option 3 would produce direct benefits from projects supported through the purchase of CERs within the RBF mechanism, facilitated by the skills building work. These benefits have been assessed.

116. Wider benefits are not included in the cost benefit analysis. In our cost benefit analysis, we have made no attempt to quantify the likely wider benefits of the programme resulting from the skills built and the demonstration of viable business models. If the programme is successful, and there is an improvement in the carbon market (or other donors start to use the CDM to deliver results), then the wider benefits of the programme will be:

- Significant replication of projects by the carbon market, with extensive use of standardised baselines and programmatic approaches.
- A reduction in the long term cost of delivering such projects through the carbon market.

117. Illustrative portfolio: For the purpose of this analysis, we have used the following technologies as the portfolio that could be supported by the programme:

1. Household biogas;
2. Household solar home systems;
3. Community scale hydro power.

118. Technologies appropriate for LDCs: The technologies selected for our dummy portfolio were chosen as they have the potential for widespread use in Sub-Saharan Africa[65] or indeed Asia. The IEA estimate that decentralised systems are projected to make up 60% of the estimated additional 952 TWh of annual generation which would be required for universal electricity access by 2030[85]. As developing low carbon electricity generation can offer substantial emission reductions compared to fossil fuel generation, the promotion of these technologies has the potential to facilitate both poverty reduction and emission reductions. One study estimated that 16 Sub-Saharan Africa countries have the potential to generate 144 MW of electricity and reduce emissions by 439,000 tCO_2 per year by implementing small scale household solar**Error! Bookmark not defined.**. Solar home systems have been shown to be adaptable to a number of local situations, providing benefits such as household fuel savings[66]. Mini-hydro is more location specific, but has good potential to replace community diesel generation[32]. DFID funded case studies in Tanzania and Benin showed that community scale off-grid rural electrification using solar and mini-hydro was suited to using standardised baselines[56]. Household biogas replaces wood fuel and reduces methane emissions from animal, household and agricultural waste[65].

119. Balance of portfolio: For the purpose of this analysis, we have assumed that the programme would support each of the technologies equally. This is a simplifying assumption to reflect the available data. The actual portfolio delivered is likely to be significantly more diverse; supporting a greater number of technologies in a more diverse set of locations. As the aim is to demonstrate that carbon markets can replicate these projects, we also anticipate that there will be a greater role for the private sector than in the illustrative portfolio. The estimated costs and benefits of the illustrative projects are given below in Table 6. These are based on information provided by the World Bank drawn from similar

projects. And it is cross referenced against other case studies of these technologies. All key assumptions are listed in Annex 5.

Table 6: Estimated costs and benefits of illustrative projects

	Cost per credit (£/tCO$_2$) Undiscounted			Benefit associated with each credit issued			
Technology	**Just direct cost of CERs**	**Considering^ all UK programme costs**	**Equivalent cost adjusting for total public finance leveraged ¥**	**Households supported**	**Household fuel savings***	**Other benefits**	**Net household benefits**
Unit					*£ undiscounted*		
Biogas	5.3	8.0	5.3	0.2	£40	£11	£51
Solar Home System	8.2	12.3	30.1	1.4	£91	£367	£458
Mini-Hydro	5.6	8.4	11.1	0.2	£24	£21	£45
AVERAGE†	**6.1**	**9.2**	**10.4**	0.3	**£47**	**£103**	**£150**

^ Including cost of skills building and administrative costs. Only includes finance attributable to UK Government. As noted below, there may be public finance investments from other sources.
¥ These have been calculated as if the CER revenues covered the entire subsidy costs, including non-UK public sector leveraged funding. This is a simplification purely for illustrative purposes; in some instances other finance is provided up front and thus provides a greater share of capital than could be provided by an equivalent CER revenue stream. Similarly, the finance may be aiming to tackle other objectives and barriers and if delivering purely through the carbon market, it may be decided that these other objectives were not needed.
†Average is weighted by spend (assuming equal spend on technologies), so there are a greater number of credits from low cost projects.
* Indicates number of households with increased access to energy. For the purposes of economic analysis, mini-hydro generation is estimated to supply 0.4 households per credit

120. Across the entire indicative spend for the technologies we estimate the following outputs:

Table 7: Estimated benefits of illustrative technologies

Technology	**CERs purchased / Emission reductions**	**Households supported**	**Household Fuel savings**	**Wider household benefits**	**Carbon benefits**	**Total Benefits**
Unit	*MtCO$_2$*	*#*	*£m discounted*	*£m Discounted*	*£m discounted*	*£m discounted*
Biogas	2.1	160,000	39	11	49	110
Solar Home System	1.4	1,350,000	26	264	40	331
Mini-Hydro	2.0	160,000	24	20	59	102
TOTAL	5.4	1,670,000	88	295	159	542
Total by 2025	4.1	1,670,000		N/A[86]		

Monetisation of Benefits

121. The benefits of this programme that have been monetised are those attributable to households and carbon savings, as outlined below and in further detail, including all key assumptions in Annex 5. The time profile of spend and results to estimate discounted costs and benefits is outlined in paragraphs 138-140.

122. Household Fuel Savings. These are net of the costs households' face in purchasing the relevant equipment (e.g. contribution towards solar home system). Such savings arise from avoiding purchase of kerosene and fuel wood which are used for heating, cooking and lighting by those without electricity.

123. Carbon savings: the estimated direct carbon savings is equal to the number of CERs purchased through the buyers' fund. The social value of these savings have been monetised using the DECC/ DFID appraisal price series, which reflects the marginal global cost of abatement associated with limiting climate change to 2°C. Note that carbon benefits represent a global public good rather than benefits accruing at the location of the interventions.

124. Other monetised household benefits include:

- Reduced costs from avoided battery charging (solar home systems);
- Time savings from not having to empty latrines or collect firewood (biogas);
- Reduced expenditure on diesel generation;
- Improved lighting and welfare benefits from use of electricity (e.g. TV).

125. Other quantified and non-monetised benefits include:

- Improved health benefits (notably to women and children) from reduced exposure to indoor pollution;
- Emission savings beyond the 7-10 year period for which credits are generated. Savings are estimated to be in line with the number of CERs issued. In practice some projects may generate more emission savings than CERs issued, particularly with the use of the conservative standardised baselines, and for technologies lasting more than the 7 years they are credited for. This is particularly the case for mini-hydro;
- Any benefits associated with replication or improvement in the future efficiency of the carbon market through capacity building.

126. The technologies represent good value for money, even without the benefit of emission reductions or of replication. The value of savings is significantly greater than the cost of achieving such outputs. As noted above, the figures presented are illustrative and based on a dummy portfolio of technologies.

127. Risk of delivery failure or delays: the results above assume that all projects deliver emission reductions and associated benefits in line with similar historic projects. In practice, projects may suffer delays in commencing, fail to be implemented after some costs have been spent on design, or fail to fully deliver all of the expected emission reductions. As payment will be linked to Certified Emission Reductions, funding through the buyers fund will be protected from any delivery failure, and can be used to fund additional projects. However delivery failure on individual projects and time delays will mean that the overall programme will deliver results at a later date than expected. Therefore, a conservative approach has been taken for the log-frame, with the assumption that a number of Emission Reduction Purchase Agreements are not signed until 2020, resulting in 24% of the associated emission reductions being delivered after 2025. Thus only 4.1 $MtCO_2e$ of the estimated 5.4 $MtCO_2e$ of emission savings will be delivered by 2025. As the projects are assumed to have all

commenced by 2025, it is anticipated that the number of households supported will remain at the original estimate of 1.67 million.

128. Leverage. Where feasible, we will look to involve the private sector as much as possible in the delivery of the outputs, given the need to demonstrate that these projects are viable in a future carbon market for project developers. However, there may be times when public sector or donor finance (notably loans from the World Bank's International Development Association) is used to facilitate the delivery of projects. This is particularly the case for the delivery of initial projects, where greater involvement from a local public body (e.g. national energy department) will increase the speed at which demonstration projects can be implemented and results can be delivered. Based on the historic experience of World Bank Carbon Finance Unit funded projects, we have assumed the following levels of funding from alternative sources to make the projects viable. We think this is a worst case scenario in terms of the extent to which results are attributable to the UK and the level of private finance, given that the preference for private sector rather than public sector delivery partners.

Table 8: Other funding for illustrative portfolio

Technology	CER Revenues	Public Sector Capital and Grants	Private Sector Capital	Total Finance	Private Sector Leverage	Public Sector Leverage	Results Attributable to UK*
Biogas	30%	0%	70%	100%	2	0	100%
Solar Home System	3%	8%	89%	100%	30	3	27%
Mini-Hydro	5%	5%	90%	100%	18	1	50%
TOTAL	13%	4%	83%	100%	17	1	59%

* In line with ICF guidance, results are attributed to the UK in proportion to the UK's share of public and donor funding.

129. Attribution. In order to avoid double-counting results being delivered by multiple sources of donor finance, it is important that clear rules are applied as to what results can be attributed to the UK's intervention. If the portfolio of future investments were to involve similar public/ IDA finance to the example portfolio, the following results would be attributable to the UK's intervention.

Table 9: Benefits attributable to the UK

Technology	Emission reductions	Households supported	Household Fuel savings	Wider household benefits	Carbon benefits	Total Benefits
Unit	*$MtCO_2$*	*#*	*£m discounted*	*£m discounted*	*£m discounted*	*£m discounted*
Biogas	2.1	160,000	39	11	49	61
Solar Home System	0.4	370,000	7	72	11	90
Mini-Hydro	1.0	80,000	12	10	29	51
TOTAL	3.4	610,000	57	93	89	202
Total by 2025	2.6	610,000		N/A[87]		

130. Cost-effectiveness. The illustrative example projects could be delivered at a lower cost through using a more bespoke system of results based payments directly for the outputs produced (e.g. number of solar home systems installed), without the need to invest in skills building and the costs to support CER accreditation. However, the benefits of linking a results based payment to the production of emission credits are:

- Robustness of verification process. It is unlikely in the timeframe and budget that we would be able to set up a verification process as robust as the CDM to confirm outputs have been delivered given the time and investment that has already gone into establishing the CDM architecture.
- Demonstration effects, replication by the market and long-term sustainability. Funding through a results based framework linked to other (non-CO_2) outputs would mean that any projects which looked to replicate this programme would be reliant on donor finance. Demonstrating that such projects can be funded through the carbon markets provides the long term economic sustainability for these projects, providing the carbon price improves.

131. Skills building component is not value for money in the absence of a carbon market. This supports the qualitative assessment of Option 1 alone, that just skills building would not be sufficient. It should be noted that for most technologies, we do not foresee that they will become commercially viable in the near term without support, and thus the longer term replication of such projects are reliant on a carbon price of more than £5 per tonne of carbon, with sufficient demand to match supply. As described in the Strategic Case, there is uncertainty in the global carbon market, and current prices are at an all-time of low of below £1 per tonne. A longer term increase in price and demand depends largely on the outcome of international climate change negotiations and a global economic recovery. The first indications of prospects for such a deal will be the result of negotiations in 2015. If a global climate change deal is agreed, demand and prices should pick up from 2016 onwards, although this could be earlier with the December 2012 negotiations having agreed a 2014 review of international climate mitigation ambition. This would result in scope for the carbon market to replicate such projects. If there is no significant increase in demand, then the expenditure on all skills building and methodology development is unlikely to be value for money. As set out in the Management Case (paragraph 277), there will be a review point in 2015/16 and subsequently every three years that will assess progress and enable DECC and DFID to stop or change investments.

132. **The programme offers a benefit cost ratio of 7:1, with a net present value of £205m**. Table 10 provides the summary of costs and benefits. The estimated Internal Rate of Return for costs and benefits excluding carbon is around 30%. But this figure should be treated with caution, as it is estimated based on the timetable for the UK to disburse funds to the World Bank, rather than the timetable for payment by results. An IRR based on the latter is not possible to estimate, as the net cash flow is never negative.

Table 10: Monetised costs and benefits

Costs (£m)	Costs	Household Benefits	CO_2 Savings	NPV	Benefit Cost Ratio
Discounted TOTAL	33.2	£383	£121	£471	15:1
Discounted Attributable to UK	33.2	£150	£89	£206	7:1

Sensitivity and Break Even Analysis

133. The monetised benefits of the programme are spread between benefits from emission reductions, savings from reduced fossil fuel use and welfare benefits to users of new energy technologies. The benefits to the household are estimated to be substantially greater than the carbon savings.

134. The above illustrates that the programme clearly represents value for money. Table 11 below provides details of a number of sensitivity tests and key assumptions to demonstrate the robustness of this assessment. The findings are:

i. The programme still represents value for money, providing either the emission reductions or development benefits are realised; both elements are not required to achieve value for money;

ii. As noted above, the benefits from the capacity building have not been monetised. If the costs of the capacity building are excluded from the cost benefit analysis (i.e. assuming that the benefits that they produce make such spend worthwhile), then the value for money of the project improves (the Benefit Cost ratio improves from 15:1 to 17:1);

iii. The programme as a whole represents value for money, regardless of the portfolio mix for the representative projects examined.

Table 11: Sensitivity Analysis

	NPV (£m)	Benefit Cost Ratio
Capacity building costs excluded	215	10
CO_2 benefits excluded	117	5
Low CO_2 values	159	6
High CO_2 Values	202	7
Fuel Saving benefits excluded	148	5
All household benefits excluded	56	3
All Biogas projects	56	3
All solar home system projects	959	30
All Mini-hydro projects	120	5

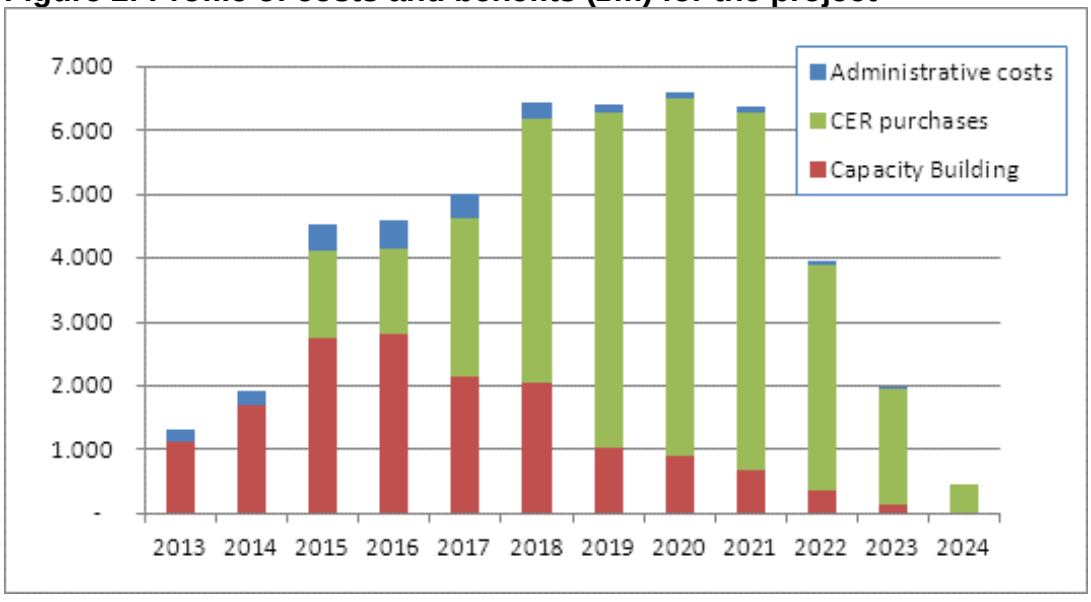
135. In addition, we have assessed the break-even points of the programme. These show that the project still represents value for money (BCR = 1.0, NPV=0) providing the price paid for CERs is no more than £54/tCO_2.

136. It is however worth noting that while the price paid for CERs at such a high carbon price can still be justified from a pure value for money perspective for the programme, the overall Strategic Case will be undermined. Such a high price would be more than could be expected in a future carbon market. Therefore the wider transformational effect will be limited, since demonstrations would not be replicated within the carbon market, even if the market substantially recovers.

137. **Selling carbon credits:** although the current guidance states that selling carbon credits to the market is not appropriate, the impact of doing so on value for money has been assessed. At current prices (€0.34/tCO_2, £0.29/t[88], selling credits is estimated to generate £1.6m, which could be used to reduce the required UK Government subsidy. Clearly higher prices would result in greater revenues; if prices recover to levels that make the projects funded commercially viable (estimated at an average of £6.13/tCO_2), then revenues would increase to £33.2m. In both instances, this would mean that emission savings would not be attributable to the project, and thus the benefits would fall by £160m. Prices would have to rise to around £30/tCO_2 (i.e. in line with the social value of carbon used in appraisals) for it to be worthwhile (in NPV terms) for the project to sell the carbon credits. As noted in box 4, there may be other reasons why selling carbon credits may not be appropriate, even at these higher prices.

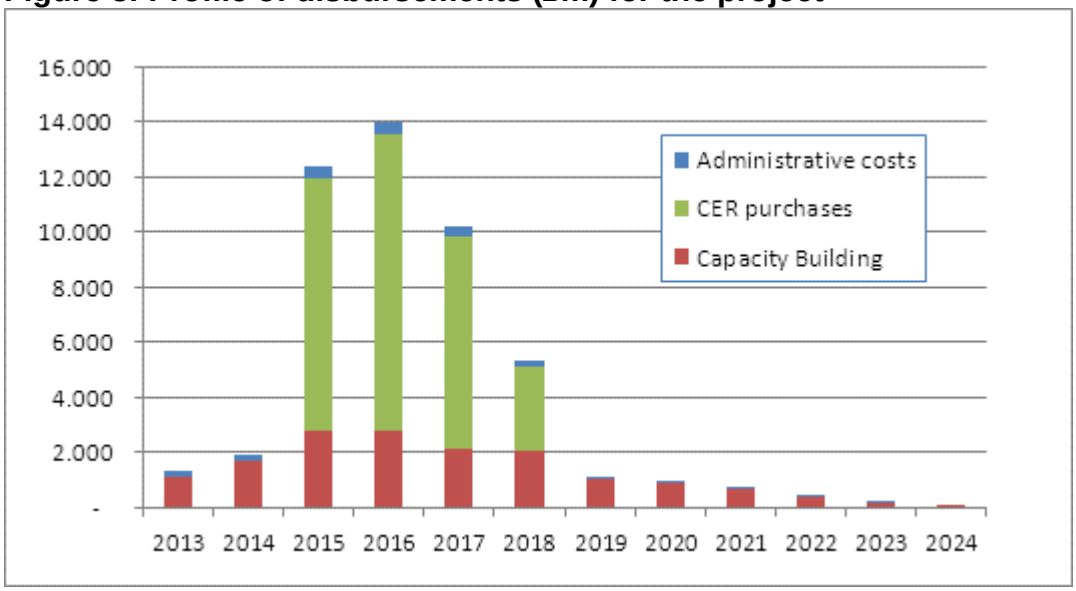
138. In order to estimate the Net Present Value and Benefit Cost Ratio of the programme, we have needed to assume a profile of when projects deliver outputs. The chart below shows an indicative profile of spend. As spend is in line with results, we broadly expect to see direct benefits delivered at the same time as spend.

Figure 2: Profile of costs and benefits (£m) for the project



139. However for accounting reasons, we would distribute funds to the World Bank for the purpose of CER purchases when they sign an agreement with a project developer to purchase their future emission reductions (the "Emission Reduction Purchase Agreements" or ERPAs). Thus the actual profile of spend to the UK would be the following:

Figure 3: Profile of disbursements (£m) for the project



140. For the analysis above, costs have been discounted according to when the UK would distribute funds. Discounting only in line with final disbursement would lower the NPV of the costs and thus increase the overall NPV of the programme.

Appraisal Step 4:
What are the social, institutional and political risks and opportunities of the programme?

Social appraisal

Does the intervention sufficiently target poor people?

141. The CMF intervention expects to deliver low carbon technologies to households that will provide strong development benefits for poor people. These technologies are likely to largely provide off grid access to renewable energy. The expected benefits are significant – with an average benefit for households being around £165 and a cost benefit ratio of 15:1 for the programme as a whole.

142. The types of technologies which will be targeted by the intervention are those shown to have high development benefits and work in countries and communities that have not previously been able to access carbon financing. The groups that will benefit the most are likely to be the transient poor – moving in and out of poverty, rather than the very poorest. Selling the carbon credits will help reduce the costs of these groups accessing energy and other technologies which they would be unable to afford if paying out-right.

143. The CMF initiative will monitor the benefit flows to the beneficiaries and actively address any issues that prevent the poor or excluded participating in the intervention.

Does the intervention take into consideration gender and social inclusion elements?

144. Women and children are particularly affected by the absence of modern energy services, mainly measured as an increase in their work burden. For example, women and children are often responsible for firewood collection and a time commitment of up to 8 hours per day in fuel scarce areas. This cuts into education and income generation opportunities[89].

145. The activities supported through CMF have the potential to provide significant benefits to women and children through provision of improved household lighting (creating opportunities for productive activities and education), clean cooking technologies (e.g. biogas) reducing indoor pollution, and new economic opportunities (e.g. women's participation in installing and maintaining distributed energy systems).

Political and institutional appraisal

Does the intervention respond sufficiently to political demand?

146. As outlined in the Strategic Case, in spite of past global CDM success, poorer countries in Africa and the LDCs more widely have attracted little carbon market finance. African and LDC leaders have been calling for carbon financing to be directed to their countries and pressing for CDM reform to ensure that procedures are more suited to their needs.

147. Some progress has been made to address this issue and to ensure that African and other LDC countries are better positioned to access future carbon financing flows. For example, the EU has made a commitment to ensure that from 2013, the purchase of CERs through the EU-ETS from new CDM project will be restricted to those from LDCs. In addition, new methodologies and approaches have been developed and approved by the CDM, which should facilitate future access of LDCs to the CDM.

148. This programme is therefore directly responding to political demand from leaders. The demonstrations will ensure that recent CDM reforms are tested, skills and experience are developed and that the learning feeds into on-going negotiations on the CDM and future international market mechanisms.

149. The CMF intervention also responds to the international commitment to maintain the global average temperature increases to below 2°C. Despite current uncertainty in the carbon market, the CDM has been proven as an efficient tool for delivering cost effective, verifiable emissions reductions[90].

150. Work undertaken through CMF will demonstrate the ability of carbon markets to effectively deliver emissions reductions in LDCs by providing proven business models for the distribution of small scale technologies. As discussed in the Strategic Case, small scale technologies are most suitable for widespread use in LDCs, but have struggled to access finance due to the barriers discussed above.

By demonstrating the ability of the carbon market to deliver emissions reductions in LDCs – whilst also providing development benefits – CMF will increase the geographic scope in which the CDM functions, increasing the ability of carbon markets to mitigate climate change.

Does the intervention sufficiently respond to the institutional context?

151. In addition to the onerous CDM procedures themselves, the CDM also relies heavily on the Designated National Authorities (DNA) in each country to approve all CDM projects. These DNAs are usually housed in the Ministry of Environment and in many African and LDC countries they have weak capacity. Not least because of having few staff with many responsibilities – e.g. for all EIAs, climate negotiations etc.

152. The CMF intervention addresses this issue through providing support to the DNAs. Hand holding through the demonstration projects will give the DNAs the experience and skills evaluate and approve projects involving the new CDM methodologies.

153. This intervention will also help businesses and financiers that have developed capabilities in the carbon market to retain their trained staff and build new skills necessary to use the new methods.

154. We recognise that the new methodologies may lead to unexpected new barriers and the programme's implementation partners will be asked to invest in rapid learning to overcome these barriers as they arise. Implementation partners will feedback lessons learned and evidence into CDM negotiations to improve procedures and to develop new standardised baselines as needed.

What measures can be used to assess Value for Money for the intervention?

155. The following value for money indicators are identified now. Others may also be identified during early stages of implementation, and the Input to Impact measures would need to be considered further. Economy, efficiency and effectiveness measures will be monitored regularly, especially through annual programme reviews. The programme approach will be adjusted through this monitoring.

156. Effectiveness (Input to Impact) is a longer term measure. It will not be monitored during the first two years of programme implementation, but its prospects will be reviewed after three years.

Economy (Input) Measures

157. Project design costs, including CDM validation and registration. The programme will track the costs of supporting demonstration projects (in addition to purchase of CERs through RBF). These are currently estimated at £250,000 per project.

158. Cost of monitoring and evaluating experience of demonstration projects. The CDM verification process will already include monitoring. But to prove the value of the demonstration projects, monitoring of the development benefits will be required in addition to the CDM process since this only monitors emission reductions. This is currently estimated at £100,000 per project. There will also be significant investment in evaluation to build the evidence base – with £1m currently set aside for formative and impact evaluations.

159. Cost of developing new methodologies. This will cover developing standardised baselines, programmatic approaches and new regulatory concepts. World Bank Carbon Market Finance Unit experience suggests that this should be £0.5 million for each standardised baseline and £0.1 million for each other new methodology.

Efficiency (Input to Outcome) Measures

160. Ratio of skills building costs to volume of CERs generated ("cost per tonne"). This is a recognized measure of efficiency in carbon finance (including in the private sector) and would be measured in "cost per tonne" of CERs generated. The cost per tonne of the UK funded programme could be compared with current and historic values of other carbon funds as reference.

161. This indicator will be assessed in two ways. (1) to compare with private sector carbon fund measures, it will be calculated looking at the costs directly associated with project development (i.e. not including public good costs of developing new methodologies and influencing the CDM Executive Board). (2) to assess the additional costs for the more transformational impacts, the programme will also report the cost per tonne with the full costs included. The cost ratios will be tracked through the programme implementation. But, based on the target total 4.1 million CERS generated by 2025 (without UK attribution, since it is not relevant to this VfM indicator) the VfM measures would be (1) £1.60 per CER, and (2) £2.8 per CER.

Effectiveness (Output to Outcome) Measures

162. Carbon price paid for projects through the RBF mechanism. The programme will support projects that require a carbon price that is within the likely prospects for the future carbon market. This has a bearing on how well the programme can demonstrate that projects using standardised baselines and programmatic approaches are financially attractive at a price realistic of a future carbon market.

163. The prices to be paid under the RBF will be established within the first two years and compared with other abatement measures delivered through the ICF as well as the UK's appraisal values for emission reductions. Based on World Bank Carbon Finance Unit experience of their past carbon funds, an estimated RBF mechanism price of £5.5 per tonne for biogas and micro-hydro, and £8.2 per tonne for solar home systems have been identified. The programme will review the price set regularly as prospects for a future carbon market become clearer and with experience from the early projects. And how the price compares with

current and realistic future prices of the carbon market will also be considered in the formative evaluations.

164. Delivery of development benefits: One or more indicators will be developed to consider the cost effectiveness of the development benefits delivered. Further work is needed to finalise this. But consistent with UK International Climate Fund (ICF) metrics this is likely to include the new indicator for the "cost of giving a person improved access to clean energy".

165. The NPV and Benefit Cost Ratio. These are identified above (paragraph 132) and will be tracked in each project supported to assess their value for money.

Cost-Effectiveness (Input to Impact) Measures

166. The ratio of carbon market finance flow to LDCs for projects with high development benefits to total CMF programme costs. This will help compare the cost of the programme with the volume of carbon market finance influenced by the programme. It will help show how far the programme influences use of international carbon market finance for cost effective emission reductions that also have high development benefits. This would be tracked at impact level. But a direct indicator would be difficult, because the value of individual carbon transactions is often confidential. The market price, multiplied by numbers of relevant CERs could be a proxy. The best type of indicator will be determined during programme implementation.

167. Cost per tonne for replicated projects, i.e. development costs for future carbon market projects by others, outside the programme RBF mechanism. This could also be a measure of how the programme influences the future carbon market. There is no existing information to measure such an indicator, so an approach to determining this indicator would need to be identified in implementation (e.g. surveys of project developers).

Summary Value for Money Statement for the preferred option

168. The Benefit:Cost ratio of 7:1 and NPV of +205 million demonstrates good value for money of the preferred Option. This is based on the direct results and benefits alone, and does not include its wider transformational impact.

169. Aiming for transformational impact does have cost implications. For example, if the programme costs purely for emissions reduction are considered it is £6.1 per tonne CO_2 equivalent. But when all other programme costs (i.e. of developing, testing, monitoring and promoting innovative approaches for the carbon market to reach poor people with appropriate technologies) are included the cost increases to £9.2 per tonne CO_2equivalent. Value for Money (VfM) of these elements will be tracked through relevant VfM indicators identified in paragraphs 155-167.

[79] UNEP Risoe CDM/JI Pipeline Analysis and Database – December 2012

[80] Consultation with the Carbon Market Industries Association (CMIA) and Climate Care. Developers are more likely to explore new methods for the non-compliance market outside CDM.
[81] Whilst there is limited evidence of this from the published literature, consultations with the private sector (CMIA including individually with Ned Bank, Standard Bank and Carbon Climate) give examples of projects struggling to get through national processes for registration – despite training and indeed the absence of the government staff due to their attendance of trainings being an issue. Reviews of the impact of training programmes, such as the UNEP CD4CDM programme, are not readily available.
[82] For example, the estimated lifetime savings from Phase I Investment Plans of the Clean Technology Fund (CTF) is 1.4 GtCO2. If an equivalent amount of CERs were generated and sold, this would represent around a third of all CERs issued to date.
[83] Consultation with ClimateCare
[84] State and Trends of the Carbon Market 2012, Carbon Finance at the World Bank
[85] IEA (2010), *World Energy Outlook 2010*
[86] There is an anomaly caused by the fact that the carbon price for appraisal (social carbon price) rises faster than the discount rate, suggesting a delay in delivery may increase the NPV of a project. As such a price series is driven by the underlying assumption about the profile of global emissions, rather than reflecting the imperative to cut emissions earlier rather than later, it is not considered appropriate to illustrate the impact of time delays on the Net Present Value.
[87] See endnote 78
[88] As of 25/1/2013. Source: PointCarbon
[89] Practical Action, 2010
[90] World Bank State and Trends report.

Commercial Case

Indirect procurement

Outline of the indirect procurement approach

170. Implementing partner options: Indirect procurement will be the main funding instrument to deliver the CMF programme. This was decided by the choice of implementation options that DECC and DFID explored in design. The preferred option involves providing funding to a third party organisation to implement:

171. Four options were considered for program delivery (a) the World Bank Carbon Finance Unit (WB) through its new Carbon Initiative for Development (Ci-Dev); (b) open competition for a private sector delivery agent with experience in carbon financing through the CDM; (c) the UNEP Energy and Industry Division as implementing agency, and; (d) delivery through an existing programme, such as the Scaling up Energy and Environment Partnership with Southern and East Africa (EEP), which is being implemented by the Development Bank of Southern Africa.

172. Excluded option: The DECC and DFID design team also considered the Private Infrastructure Development Group (PIDG) as a possible delivery partner. PIDG is an umbrella for a number of infrastructure development facilities. Consideration included its new Green Africa Power (GAP) facility. These options were discounted for the following reasons. PIDG focuses on developing large infrastructure investments and helping them reach financial closure, rather than the distribution of small scale technologies. And its new programme, GAP, focuses on large grid connected or utility scale renewable energy. PIDG does not have any particular skills in carbon financing. Some GAP projects might apply for certified emission reduction credits under the CDM; but this is a minor aspect, and the focus is not on improving the carbon markets' ability to deliver small scale technologies with high development benefits. GAP is also yet to be fully established, and so also implementing the CMF programme would mean additional objectives in the very early days of delivery – which is not advisable given it could reduce their immediate ability to deliver their original objectives effectively.

173. Appraisal criteria: Each option was appraised against the following criteria:

i. Experience and ability to influence the reform of the CDM and future carbon markets under UNFCCC;
ii. Proven track record in developing CDM projects in LDCs;
iii. Ability to develop CDM projects using new methodologies (i.e. standardized baselines and programmatic approaches);
iv. Proven track record in delivering a results-based financing mechanism;
v. Proven track record in building skills for carbon market finance;
vi. Strong experience in monitoring and evaluation in order to learn lessons from demonstrations, and disseminate for future uptake;
vii. A focus on the private sector and ability to deal with public-private partnerships;
viii. Offers value for money;
ix. Can deliver relatively quickly.

174. The summary in the table below describes the appraisal findings for each option.

Table 12: Appraisal of institutional options

Organisation	Advantages	Disadvantages
Carbon Finance Unit of the WB	• Well placed to influence CDM and future carbon markets under the UNFCCC with good track record • High level of technical competence • Experience of developing similar projects (in Africa and other LDCs) • Expertise to deliver the RBF mechanism; already consulting on how to do so • Planning to test innovative approaches • Track record in implementing demonstration projects, lesson learning and building skills • Ci-Dev Initiative and its Trust Fund 'ready to go' - so could deliver relatively quickly • Trusted partner with strong financial management skills (good performance in Multilateral Aid Review) • Trust fund arrangements allow restructuring of programme during delivery in light of early lessons	• Carbon Finance Unit's original plan for Ci-Dev was to work with IDA programmes to reduce delivery risk of emission reductions (although Carbon Finance Unit has significant experience of working with private sector[91]) • May have less flexibility on what and how work should be accomplished • Potentially less creative than private sector in innovating approaches • High admin costs associated with trust fund management • Insufficient staff time dedicated to delivery of trust fund, given IDA volumes
Private Sector	• Private sector expertise and focus • Very good understanding of CDM project development and financing • Project and fund development experience might be adapted for a RBF mechanism • Potential to specify exactly requirements in the ToR • Provide opportunity to test the market and how it would deliver. • Potential to introduce innovation • Potential for strong programme sustainability	• Not seen as independent, so less influence over the CDM and future carbon market policies under the UNFCCC – given many private sector bodies lobby • Unknown ability to develop new CDM methodologies • Unknown expertise in monitoring and evaluation and lesson learning • Unknown experience with skills building • Risk of small number of bidders, meaning insufficient competition • Limited HMG expertise to get the tender correct - may need to contract additional external expertise • Requires high level of HMG administration effort on an ongoing basis to ensure aims are being delivered • Procurement process would be lengthen time to delivery of results • Limited flexibility to adapt programme over time due to procurement process
UNEP Energy and Industry Division	• Wide experience of promoting CDM • Experience in training on CDM • Risoe Centre within the division has some experience of practical CDM projects • Has scoped out potential for a CDM programmatic approach in Africa	• No track record in delivering a results-based financing mechanism • Limited experience in implementation of CDM projects

Energy and Environmental Partnership for Southern and Eastern Africa	• Experience in implementing projects on low carbon energy in Africa	• Limits programme scope to Africa only • Would require developing additional components in an existing initiative – which has only just started. So, which • Newness of programme suggests would take time to agree changes, and so increase time to delivery of results. • Limited experience of the CDM, and in particular of standardised baselines and programmatic approaches. • No track record in results- based financing

Option A: The World Bank

175. DFID and DECC have considerable experience of funding through the World Bank and have confidence in their financial and programme management systems and controls. DFID's multilateral aid review gave the WB the top rating for value for money through their IDA delivery and good rating for their delivery of the Climate Investment Funds. The Carbon Finance Unit (CFU) was not rated, but could be expected to be equivalent to the Climate Investment Funds. The administrative costs of the WB would be capped at 5%.

176. Through Ci-Dev the WB aims to drive CDM reform and plan to develop and demonstrate new methodologies to increase CDM's ability to support small scale projects in LDCs. The WB, through their Carbon Finance Unit, has a strong track record in building carbon market capacity in developing and Least Developed Countries. One potential concern is whether the World Bank generally is sufficiently focused on working with the private sector, and whether the IFC of the World Bank Group would be better suited. However the CFU does have significant experience of working with the private sector. The World Bank Group set up the Carbon Finance Unit within the WB, rather than the IFC, to develop carbon market expertise, including cooperation with the private sector.

177. The WB has been consulting with stakeholders to gather views on carbon market finance in LDCs in order to maximise the value of this new initiative while avoiding duplication with other initiatives (e.g. Global Environment Facility, UNEP, Clean Development Mechanism capacity building programmes and private sector[92]). The proposal is tailored to the specific capacity needs identified by LDCs as well as to broader international objectives of expanding carbon markets and carbon finance flows. As set out in the Strategic Case (in paragraphs 36-40), there are currently few programmes looking to build carbon market readiness in LDCs and none using RBF to stimulate private sector to build skills in the new methodologies.

Option B: Private sector

178. A private sector delivery agent would be one of the many private sector organisations lobbying on the future of carbon markets. There is no evidence to suggest that UK funding would give them a perception of independence. As this influence is critical to achieving transformational impact, poor assessment against this criteria was considered highly significant.

179. The appraisal suggested that there was no single private sector organisation that would have all the skills required to deliver the CMF objectives and so a consortium would be required. This in turn would suggest a longer time to delivery, as the consortium would need to develop its internal governing and management procedures. There was also concern that the use of multiple agencies for implementation would dilute the ability for lesson sharing across the various actions of this initiative. To develop new CDM methodologies appropriate for use in LDCs it will be important that this work is informed by current CDM development efforts. Likewise work to streamline existing CDM procedures should be guided by findings from CMF demonstration projects.

180. Direct procurement for the initiative would have a high administrative burden to monitor all aspects and ensure delivery of results and VFM. A lack of administrative capacity in DFID and DECC to ensure sufficient cohesion of work and adequately oversee the project was an additional concern.

181. A private sector delivery partner would however potentially have stronger innovative capacity, would be incentivised to work through the private sector in the LDCs increasing the likelihood of long term sustainability.

Options C & D

182. The final two options considered, the UNEP and EEP, both were appraised to have limited ability to successfully implement the results based financing mechanism at the heart of the CMF initiative and in addition had limited or no experience in implementing CDM projects.

183. Whilst we recognised both organisations could build the skills to deliver RBF, there is still no guarantee of the quality of that expertise acquired. Additionally, contracting in experience would increase the time to operation for the initiative. Private sector project developers that we consulted in the design of CMF expressed concern over their own internal loss of capacity for CDM development in LDCs due to the current condition of the carbon market. The longer it takes until funds are available to support CDM projects, the more developers are likely to lose their capabilities in this area and the greater the risks to successful implementation of CMF.

184. In addition, working through UNEP would incur high administration costs (13%), typical for UN implemented programmes but significantly above those associated with the other implementation options considered. Higher administration costs reduce the level of funding available for CMF actions, reducing the value for money of the initiative. The multilateral aid review rated UNEP at the lower level of *adequate value for money*.

185. Working through the Energy and Environmental Partnership for Southern and Eastern Africa would limit the initiative's geographic scope to Africa (DECC's funding seeks to support LDCs in Asia also). It would require establishing a new programme within the organisation or expanding an existing EEP initiative to accomplish this work. Establishing a new component in EEP would require more time than selecting an implementation partner with an established framework for CMF activities. As for the time to develop RBF capabilities, this would risk

stakeholders losing skills prior to programme operation. Given that the EEP programme is relatively new and still establishing its ability to deliver, asking more of the programme at this stage was felt to be higher risk.

Appraisal findings:

186. Based on the appraisal criteria, and particularly because managing a RBF mechanism and influencing the UNFCCC are both considered essential attributes to achieve transformational impacts, *Option A - delivering through the WB's Carbon Finance Unit's programme, Ci-Dev - is the preferred option.*

187. UNEP and EEP's limited experience of implementing carbon funds combined with their lack of core capacity and track record in RBF suggested they would be higher risk partners to achieve CMF's objectives.

188. The option of tendering for a consortium of private sector players has a number of strengths, but ultimately concerns that they would struggle to use the experience developed under CMF to influence the UNFCCC negotiations and the future carbon market mechanisms was seen to be too high a drawback.

189. The procurement approach will therefore be an administrative agreement with the WB for implementation through the Carbon Finance Unit's Ci-Dev programme, with financing flowing through associated multi-donor trust funds.

Why is the proposed funding mechanism/form of arrangement the right one for this intervention, with this development partner?

Preferred Option: *Ci-Dev Multi-Donor Trust Fund with the World Bank Carbon Market Finance Unit as Implementing Agency*

190. The WB was able to address many of the concerns from the appraisal. **Work with the private sector:** they have agreed they will maximise funding to be delivered through the private sector directly, minimise the use of IDA programmes – or indeed the existing pipeline – to maximise the additionality and sustainability of the programmes benefits[93]. **Staff time:** The Unit is totally financed from trust funds – and staff do not work on IDA lending, so will be dedicated to delivering the trust fund results. **Alignment with other programmes:** The Bank will cooperate with other relevant initiatives such as the UNEP managed ACAD initiative and the KfW PoA Support Centre.

191. The Carbon Finance Unit's Carbon Initiative for Development (Ci-Dev): DECC and DFID funds would be administered through the World Bank's new Carbon Initiative for Development (Ci-Dev). Ci-Dev was selected as the appropriate implementation fund within the World Bank given its close alignment with CMF goals. Ci-Dev aims at utilizing carbon market finance to play an important role in transforming quality of life for poor people in least developed countries, as well as reducing greenhouse gas emissions to improve environmental conditions. It will do this by supporting the development of projects with high development benefits, such as making clean energy and other low carbon technologies more affordable for poor people, and by using the robust verification of the carbon market to deliver results based financing for the distribution of poverty reducing

technologies. The CMF programme would contribute to two Trust Funds (TFs) within Ci-Dev, the Readiness Fund and the Carbon Fund, or 'Buyer's Fund'.

192. The Readiness Fund: The Readiness Fund is a Multi-Donor Trust Fund (MDTF), which will: (i) develop and gain approval for new methodologies so that community and household projects can receive carbon market finance; (ii) improve the capability and skills of communities, private sector and government to develop carbon market projects using these new methodologies, and access the necessary funding for their implementation; (iii) develop and demonstrate business models for the practical use of new methodologies, to reduce perceptions of project risk.

193. As a MDTF donors' resources are commingled and used for the eligible purposes of the trust fund in accordance with the Administrative Agreement. According to the World Bank, in the event there are competing goals that the trustee of the fund cannot resolve to the satisfaction of the donors, the trustee will seek guidance from the donors in accordance with the governance arrangements of the fund.

194. Additionally any donor interested in joining after UK's contribution will be fully aware of the specific goals of UK's contribution to Ci-Dev, and should their goals not align with UK's goals, the World Bank would explore the possibility of opening a distinct tranche of Ci-Dev to receive new contributions from donors pursuing different goals.

195. The Readiness Fund is a hybrid multi-donor trust fund – with largely Bank executed operations, but some recipient executed elements. The Readiness Fund is able to receive funding now.

196. The Carbon Fund: The Carbon Fund is intended to support actions undertaken through the Readiness Fund and will use Results-Based Financing to purchase carbon credits through the CDM for projects with high development benefits that use the new methodologies.

197. The Carbon Fund is designed to comprise multiple single donor 'Buyer's Funds'. As single donor funds, donors will not face conflicts of interest with other Carbon Fund contributors. However, the possibility exists to transform a single donor 'Buyer's Fund' into a MDTF if donor interests are aligned. The Carbon Fund is not currently ready to receive funds, but could be ready by end of 2013.

198. The Carbon Fund is a recipient executed trust fund.

199. All DFID contributions will flow into the Ci-Dev Readiness Fund. DECC funds will contribute to the Carbon Fund. In order to transfer the money from DECC and DFID to the WB Readiness Fund each department must enter into an Administration Agreement. DECC must also enter into a participation agreement to transfer money to the WB 'Carbon' Fund. DECC and DFID would also be required to sign an Expression of Interest document.

200. Fund Management: The World Bank will be responsible for all aspects of fund management and administration, providing the services and activities described in its project document, and ensuring effective monitoring and reporting to donors. It will involve DFID and DECC, any other donors, and stakeholders as described in the Management Case, paragraph 273. Procurement of any services will be administered by the World Bank in line with its procedures and regulations and will be based on a proposal, work-plan and budget to be agreed with DFID and DECC.

201. Due Diligence: The World Bank has strong due diligence procedures and every project funded under Ci-Dev would need to undergo these according to their guidelines[94]. These procedures include assessing the viability of the project, identifying key risks and identifying adequate mitigation measures to address such risks. The assessment addresses the technical, institutional, and financial risks including the capacity of the project partner in these areas. In addition, the project partner's commitment to the sustainability of the emission reductions is assessed. Environmental and social safeguards are applied, including appropriate stakeholder consultations, and preparation of an environmental management plan. All projects are also subject to an Integrity Due Diligence aiming at identifying and documenting the potential risks associated with unethical and illegal activities which include environmental, social, governance and financial crime issues such as child labour, corruption, fraud, and money laundering.

202. Results will be monitored, measured and reported by the WB in line with the ICF M&E strategy. DFID and DECC will commission an independent evaluation (see Direct Procurement).

203. WB Ci-Dev fees and administration expenses are capped at 5%. These are broken down into Central Unit Fees and Managing Unit expenses. Central Unit Fees cover the expenses of the corporate functions (accounting, legal, trust fund management etc.) whereas Managing Unit expenses are to cover the Carbon Finance Units costs. The Central unit fees are (i) a $35,000 one-time set up costs for each trust fund plus (ii) 2% of contributions. Managing Unit expenses are charged on reimbursement of actuals and capped at 3% of contributions.

204. Time to operation: Time for project preparation within Ci-Dev is estimated to be 3-6 months; however some resources would need to be transferred prior to this to enable the WB to initiate work.

Value for money through procurement

205. The World Bank Group's Corporate Procurement Unit works with the Bank Group clients to ensure the Bank Group receives the best value for money in terms of price, fitness for use, environmental efficiency, maintenance provisions, operating costs, guarantees, delivery and installation, and payment terms. These activities are accomplished applying the highest level of ethical standards for fair and equitable treatment of suppliers providing goods, works and services to the Bank Group.

206. The Trust Fund procurement activities will follow the World Bank Group's procurement guidelines. These procedures ensure competitive selection where necessary and measure each procurement option on technical and financial capabilities. This process will be overseen by the World Bank's Carbon Finance Unit core team who will also be responsible for operational, procurement and financial management, ensuring proper execution of trust fund activities, appropriate fiduciary responsibility and value for money.

207. Performance management of contracts through the MDTF will be through World Bank systems. The Fund Management Team will manage the consultants and oversee the technical quality and unit costs of the work.

208. Transparency: The World Bank's new Access to Information Policy shifts the Bank to a position of full disclosure for most documents and is a significant step forward in Bank transparency.

Direct procurement

Outline of direct procurement approach

209. Procurement guidelines will be followed: Where DFID undertakes direct procurement it will be done in accordance with DFID's procurement guidelines and in consultation with DFID's Procurement Group experts.

210. Direct procurement will be used for lesson learning and evaluation: Over the course of the intervention, DFID will directly procure experts for capturing lessons for wider sharing and for an independent evaluation of the programme. For this purpose, DFID will retain a budget of £1m from its' full £ 15m commitment to contract services and for UK supervision visits to monitor and capture lessons.

211. Phased evaluation: It is expected that an evaluation would be conducted for this intervention, with 3 formative evaluations taking place at milestones and an impact evaluation at the end of the programme (see paragraphs 281 - 286 setting out the approach to evaluation). The first formative evaluation will take place in 2016. This will also be a break point, allowing the programme to review what the negotiations on carbon markets delivered. The subsequent formative evaluations will happen in years 2019 and 2022 – again, allowing consideration of how the carbon market is recovering and how fit for purpose the programme is in light of these changes. Procurement is expected to be through the Global Evaluation Framework Agreement (GEFA). Procurement and QA of the evaluation will be supported by the Core Evaluation and Monitoring Specialist Services ("CEMSS") helpdesk

212. Handling risk of a long contract: An evaluation team will be appointed in year 1 to design an overall evaluation approach, arrange for collection of any baseline data necessary to inform the approach, and to undertake the initial formative evaluations in 2016 and 2019. A second procurement process would be undertaken for an evaluation team to undertake the evaluations in 2022 and 2025, with TORs requiring adherence to the already designed evaluation approach. Before proceeding with procurement in year 1, we will seek procurement advice to ensure appropriate language is included in the first TORs

as to whether the evaluation team would be eligible to reapply for the evaluation in year 12, but we expect they would be, subject to good performance.

213. Flexible support for strategic learning: Should any stakeholders approach DFID to support additional lesson learning or analysis of blockages to the carbon markets that fit with DECC and DFID's interest in lesson learning, support would be provided through accountable grants.

How does the intervention design use competition to drive commercial advantage for DFID/DECC?

214. Pre-negotiated suppliers: The Global Evaluation Framework Agreement has been established to ensure the provision of efficient and effective services for the design and implementation of evaluations across DFID and extends to programmes funded through the International Climate Fund (ICF), jointly managed by DFID, DECC and the Department for Environment, Food and Rural Affairs (DEFRA).

215. A panel of 27 suppliers has been appointed to undertake detailed design and implementation of quantitative (including rigorous impact evaluation), qualitative and mixed-method evaluations across DFID's and the ICF's range of programmes.

216. Mini competition: For evaluations like this one, that are above the EU threshold of £113k, DFID Procurement Group (PrG) will run a mini-competition from the Framework. Each call-down will be competed between suppliers who match the thematic sectors and evaluation type identified in the Terms of Reference.

How do we expect the market place will respond to this opportunity?

217. Strong response likely: We expect our CMF evaluation contract will fit within the scope of the framework agreements, both for climate and environment services and for evaluation. Given the interest in carbon markets and in innovative financial mechanisms in recent years, we expect a good range of experts to choose from under the framework agreements and strong competition if contracts are put out to tender.

What are the key cost elements that affect overall price? How is value added and how will we measure and improve this?

218. The cost drivers of direct procurement for CMF are expertise, travel and workshops for monitoring, evaluation and lesson learning. DFID will negotiate and supervise direct contracts to ensure excellent value for money.

219. Mini competition with negotiation of costs: When commissioning the evaluation through the framework agreement, PrG and the ARD programme manager will ensure that costs are critically looked at in evaluating proposals and subsequent to selection, measures taken to reduce costs of travel and workshops as far as possible. DFID and DECC advisers will also ensure the number and

level of experience of personnel is appropriate to meet requirements and in line with the terms of reference.

What is the intended Procurement Process to support contract award?

220. Framework agreement with a mini competition: DFID will undertake procurement according to PrG's guidelines for the evaluation component and this will be led by PrG itself as the contract will be for up to £1,000,000.

221. If DFID and DECC are approached by stakeholders with a proposal to undertake relevant lessons learning, and the DFID and DECC CMF team consider this to meet their objectives, DFID would use accountable grants to support it. The composition of the DFID and DECC team is set out in the Management Case (paragraph 254).

How will contract & supplier performance be managed through the life of the intervention?

222. Supervision: The DFID and DECC CMF team will maintain close supervision of contracts in terms of the quality of deliverables and unit costs to ensure value for money.

[91] Of WB Carbon Finance Unit past projects on carbon finance, 20% have involved some WB co-finance, and 80% have been "stand alone", with no WB co-finance. Of all contracts 65% have been with the private sector, 5% with NGOs, and 30% with a "state entity".
[92] WB has consulted with large financial institutions (e.g. Deutsche Bank, Credit Agricole, etc.), large utilities with strong in-house presence in the carbon market (e.g. RWE, EON, Endesa, Enel, GDF Suez, etc.), industrials (Lafarge, etc.)
[93] The Carbon Markets Industry Association (CMIA) has said that small scale projects are currently less attractive to the private sector, because of the risks – and this Programme will work with private sector to address such risk by developing and applying new methodologies.
[94] All Emission Reduction Purchase Agreements are managed by the Carbon Finance Unit. In all cases, the operation will have to go through WB due diligence guidelines. Relevant documents include "Integrity Due Diligence Procedure" Nov 1 2012; "Application of Bank Safeguard Policies to Carbon Finance Transactions" March 14, 2006; "Guidelines on Due Diligence Aspects of Carbon Finance Operations" November 2007; "Carbon Finance - Operational Processing and Review Guidelines" November 2007.
The Country Teams (in the World Bank Regions) are also systematically involved for the due diligence and regular supervision of the operation. Each CF operation has a TTL (in the Region) and a Deal Manager (in the CFU) who work jointly to appraise and supervise.

Financial Case

What are the costs, how are they profiled and how will you ensure accurate forecasting?

223. ICF commitment: The International Climate Fund (ICF) will provide up to £50 million for the project to run over 12 years, April 2013 – April 2025. Of this total up to £15m will be contributed from DFID (RDEL expenditure) and £35m from DECC (CDEL expenditure). This funds will flow through:

a) Trust funds of the Carbon Finance Unit's Ci-Dev programme managed by the World Bank (£49m);
b) Contract of independent evaluations – formative and impact – commissioned by DFID for DFID, DECC and WB (£1m).

224. WB administrative costs in total are capped at £2.479m or 5% as explained in paragraph 203 of the Commercial Case. The 2% central fee will be taken off each disbursement. The management unit's administration costs are reimbursed from each fund and will be based on actuals, capped at 3% of fund contributions for each fund. A separate window will be maintained under each fund specifically for managing unit administration expenses to ensure transparency.

225. To ensure accurate forecasting throughout each year, the following steps will be taken:

a. A payment schedule will be agreed with WB and CMF for phased draw down of funds according to estimated funding needs;
b. An annual projection of spend will be obtained from WB, six months in advance of each financial year, based on its pipeline and funding needs with outer year forecasts being used to update the payment schedule;
c. The actual spend against the forecast will be monitored and updated regularly by the WB – with quarterly updates to DFID and DECC. Programme officers will arrange access to the World Bank Trust Fund donor centre on the secure World Bank Client. Programme officers will check financial details for each Trust Fund quarterly;
d. DFID and DECC programme officers are responsible for analysing and comparing reports on the implementation of agreed activities with financial reports. The timing and content of implementation and of financial reports is specified in the annex to the Administration Arrangement.

Table 13: Budget (resource accounting)

Fiscal Year	13/14	14/15	15/16		16/17	17/18	18/19		19/20	20/21	21/22		22/23	23/24	24/25	Total	% Spend
GBP millions																	
Readiness Fund																	
Build Skills	0.127	0.138	0.181		0.181	0.131	0.085		0.085	0.085	0.042		-	-	-	1.054	**8%**
Demonstration Activities	0.793	1.139	1.061		0.788	0.722	0.866		0.789	0.700	0.657		0.659	0.480	0.211	8.866	**63%**
Monitor Impact	-	0.038	0.038		0.038	0.061	0.061		0.103	0.103	0.116		0.102	0.042	-	0.702	**5%**
CDM Methodology	0.385	0.517	0.496		0.322	0.190	0.085		0.085	-	-		-	-	-	2.080	**15%**
Lesson Learning	-	0.061	0.061		0.061	0.061	0.061		0.061	0.061	0.065		0.042	0.042	-	0.575	**4%**
Subtotal - Readiness Fund	1.305	1.893	1.836	Break point review	1.389	1.166	1.157	Break point review	1.122	0.949	0.881	Break point review	0.804	0.564	0.211	13.277	**95%**
WB Admin & Fees	0.094	0.082	0.100		0.094	0.086	0.079		0.044	0.043	0.040		0.027	0.022	0.011	0.723	**5%**
Total - Readiness Fund	1.399	1.975	1.936		1.483	1.252	1.236		1.166	0.992	0.921		0.831	0.586	0.223	14.000	**100%**
Carbon Fund																	
ERPA Payments	-	-	1.424		1.424	2.611	4.355		5.518	5.900	5.883		3.729	1.884	0.498	33.227	**95%**
WB Admin & Fees	0.150	0.134	0.168		0.147	0.175	0.196		0.177	0.187	0.189		0.126	0.085	0.039	1.773	**5%**
Total - Carbon Fund	0.150	0.134	1.592		1.571	2.786	4.551		5.695	6.087	6.072		3.854	1.970	0.538	35.000	**100%**
Summary																	
Readiness Fund	1.399	1.975	1.936		1.483	1.252	1.236		1.166	0.992	0.921		0.831	0.586	0.223	14.000	**28%**
Carbon Fund	0.150	0.134	1.592		1.571	2.786	4.551		5.695	6.087	6.072		3.854	1.970	0.538	35.000	**70%**
Subtotal - Managed by WB	1.549	2.109	3.528		3.054	4.038	5.787		6.861	7.080	6.993		4.685	2.555	0.760	49.000	**98%**
Evaluation			0.200				0.200				0.200				0.400	1.000	**2%**
Total Program	1.549	2.109	3.728		3.054	4.038	5.987		6.861	7.080	7.193		4.685	2.555	1.160	50.000	**100%**

226. Payments will not be made in advance of need: Before a payment is made to the World Bank, the Bank will provide a financial update showing funds available to the programme in their account, amounts committed for contracts and grants, amount needed for the coming two quarters for contracts and grants and other donors plans for disbursements. DFID and DECC will then be able to ensure no payments are in advance of need, with two exceptions:
    i. As the Readiness Fund will be a hybrid trust fund, DFID and DECC accept that the full value of Bank executed contracts need to be available in the account before a commitment can be made. The WB will need to make this case to DFID and DECC prior to each quarterly payment.
    ii. Due to exchange rate risks for the long emission reduction contracts under the Carbon Fund, DECC agrees to transfer funds for the full cost of the contracts in the year they are signed. The WB will ensure any interest accrued is used for additional emission reductions where possible, and then used to pay the admin costs of the 'Buyer's Fund' with any in excess of this returned to DECC/HMT through a Balance Account system (see paragraph 243).

227. Managing donors contributions: The World Bank will close the first tranche of Ci-Dev to other donors in December 2013 to ensure early donors can disburse in a timely way and claim results without other donors displacing UK's and others' funds by providing theirs' in advance of need. This will enable the WB to develop payment schedules with any new donors to the trust funds that reflect the time taken from pledges being made to a pipeline of work being developed, disbursements made and results delivered.

228. Burden share: Other donors considering contributing to Ci-Dev include Norway, Sweden and the Walloon region of Belgium. It is not clear what levels of funding they may provide currently – but the WB has undertaken to ensure any donors expecting to buy emission reductions will also support the development of the projects through the Readiness fund. Most other donors would not be contributing ODA but rather using the fund to achieve compliance with their international commitments to emission reductions.

How will it be funded: capital/programme/admin?

229. Type of funds: The expenditure under this programme is classified as ODA, with £35m capital funds (CDEL) and £15m being programme funds (RDEL). The concept note for this programme was fully approved (green rating) by the ICF Board and so will count as ICF funding for both Departments.

230. From DFID: The DFID funding (£15m) is through Africa Regional Department's Programme Resource allocation (RDEL).

231. From DECC: The DECC funding (£35m) is Capital (CDEL) funds from the ICF.

232. As Official Development Assistance (ODA) and in line with the Marrakesh Accords, no International Climate Fund (ICF) spend contributes towards UK Government purchase of CDM credits for compliance in meeting UK climate targets[95].

233. The DAC of the OECD stated in 2004 that '*the value of any CERs received in connection with an ODA financed CDM project should lead to a deduction of the equivalent value from ODA. The DAC should also rule out the possibility of counting as ODA funds used to purchase CERs[96].'*

234. This part of the DAC statement was made in the context of ensuring that ODA measures donor effort net of any returns to the donor from ODA expenditure. In line with this principle, the DAC statement also provides that CERs resulting from ODA-financed CDM projects should be considered as a return to the donor and give rise to a deduction from ODA flows. It goes on to state that "if, instead of receiving CERS, a donor has agreed with the host country not to receive any of the generated CERs, or if the project does not generate CERs (e.g. a capacity development activity), no deduction would be necessary". This indicates that the intention of the DAC statement is to prevent the environmental and developmental benefits of ODA flows from being undermined or double counted. When the statement was made, it did not take account of future innovative methods of using ODA in the carbon market to meet the challenge of achieving emission reductions.

235. In this project, any CERs that are purchased using funding provided from the UK's ODA will be cancelled, therefore ensuring that the funds can be used to count towards the UK's ODA flows. The cancellation of the CERs also means that they cannot be used for compliance purposes by the UK or by others. CMF is therefore considered to be consistent with the intention of the 2004 DAC statement.

236. The 2001 Marrakesh Accords state '*that public funding for clean development mechanism projects from parties in Annex 1 is not to result in the diversion of official development assistance and is to be separate from and not counted towards the financial obligations of Parties included in Annex I[97]'.*

237. When the Marrakesh Accords were agreed they did not consider the innovative use of ODA through the CDM to deliver development benefits separately. However, given the UK's intention to confirm that the use of ODA in individual CDM projects supported by CMF is not considered to be a diversion of funds, it is intended that CMF will be operated in accordance with the Marrakech Accords. This confirmation on behalf of the UK will be set out in the legal agreements drawn-up between the UK and the World Bank. Through this agreement and due to the UK's agreement with the World Bank to **cancel all CERs,** CMF is also considered to be in line with the provision of the Marrakesh Accords to prevent double counting.

How will funds be paid out?

238. Instruments: HMG will enter into two funding instruments with the WB:

i. An Administrative Agreement for £14m with the WB (DFID),
ii. An Administrative Agreement and Promissory Note for £35m with the WB (DECC),
iii. Contracts or accountable grants for up to £1m for evaluation and lesson learning (DFID).

239. Each funding instrument will have an estimated disbursement schedule, conditions for disbursement, reporting requirements, bank account details and period of the funding instrument, amongst others set out in an annex to the Administrative Agreement.

240. DFID will disburse funds to the World Bank's Ci-Dev multi-donor Readiness Fund on a six monthly basis against an agreed payment schedule, as set out in the Administration Agreement. The WB will demonstrate that payments are not in advance of need as set out above (paragraph 226).

241. DECC will disburse funds to the World Bank's Ci-Dev 'Buyer's Fund' through the issuance of a Promissory Note, if the UK 'Buyer's Fund' is converted into a multi-donor fund[98]. In this case with the UK's funds would be drawn down against the Promissory Note on an annual basis against an agreed encashment schedule, as set out in the Administration Agreement. The World Bank will use the funds to implement the objectives as set out in their concept note and this business case. Payments will likely be made annually against a request for funds and an agreed work plan, and subject to annual reviews of progress against outputs. However, if the fund remains a single donor trust fund then DECC will aim to provide funds through staged payments based on a schedule agreed in the Administrative Agreement, similar to DFID[99]. With either payment method, the World Bank will provide an annual statement of expenditure detailing actual expenditure to date (committed and spent).

Table 14: Budget (cash) – disbursement schedule

Fiscal Year	**12/13**	**13/14**	**14/15**	**15/16**	**Breakpoint Review**	**16/17**	**17/18**	**18/19**	**Breakpoint Review**
GBP millions									
DFID Readiness Fund (RDEL)	0.621	1.519	1.802	1.619		1.335	1.250	1.241	
DECC Carbon Fund (CDEL)	0.150	0.134	0.168	10.115		11.805	8.502	3.500	
DFID Direct Procurement	-	-	-	0.200		-	-	0.200	
Total Program	0.771	1.653	1.970	11.934		13.140	9.752	4.941	
WB Admin & Fees	-	0.244	0.216	0.268		0.241	0.261	0.274	

Fiscal Year	**19/20**	**20/21**	**21/22**	**Breakpoint Review**	**22/23**	**23/24**	**24/25**	**Total**
GBP millions								
DFID Readiness Fund (RDEL)	1.147	1.046	0.986		0.820	0.479	0.135	14.000
DECC Carbon Fund (CDEL)	0.187	0.189	0.126		0.085	0.039	-	35.000
DFID Direct Procurement	-	-	0.200		-	-	0.400	1.000
Total Program	1.334	1.235	1.312		0.905	0.518	0.535	50.000
WB Admin & Fees	0.222	0.231	0.229		0.153	0.107	0.051	2.497

242. Currency risk will be significant in the Carbon Fund – as contracts for emission reductions are made in Dollars or Euros and the UK will make our contributions in sterling. Contracts for emission reductions are made for a number of years for an agreed number of reductions at an agreed price. Currency rate changes can therefore significantly impact on the WB's ability to make these payments if donors provide funds for contracts for emission reductions without adjusting for currency fluctuations. The UK has agreed with the WB, the risk will be managed through DECC paying for the full cost on an emission purchase agreement in the year it is signed. The WB will use these funds to purchase the required amount of funds in the ERPA currency – likely to be Dollars or Euros.

243. Interest accrued: The WB will ensure any interest accrued due to the upfront payments to the Carbon Fund is recycled within the fund to purchase additional emission reductions where possible (such as in the early years of the programme), or alternatively to offset against administration funding needs within the 'Buyer's Fund' (more likely in the later years of the programme when new ERPAs are not being signed and additional credits are not available). Should interest be unable to be fully spent on either of these things DECC reserves the right to have the accrued interest returned to DECC/HMT through the Balance Account system.

What is the assessment of financial risk and fraud?

244. Transparency: The World Bank has taken a leading role in promoting greater transparency in its operations. It was the first multilateral development bank and third international organisation (after DFID and the Hewlett Foundation) to sign up to the International Aid Transparency Initiative. This places it in the vanguard of transparency, publishing all financial transfers in a common, easily usable format.

245. Reporting: The World Bank will present DFID and DECC with full annual reports on progress in delivery of results and finances and quarterly updates. The following section and the Management Case (paragraph 271) provide more detail.

246. Due diligence: All grants financed by Trust Funds are subject to the Bank's operational policies and procedures that apply to IBRD and IDA financing, including the Bank's framework on governance and anti-corruption. In particular, World Bank policies on Financial Management and Procurement all apply to Grants financed by Trust Funds[100].

247. Risk assessment: We assess the financial risk and risk of fraud as being low. There have been some past cases of fraud within the CDM, but these have primarily concerned VAT fraud and registry theft, issues which would not directly affect this programme. However, issues of CDM fraud could undermine general confidence in the market. An assessment of low risk assessment for DFID and DECC funds is deemed appropriate due to the due diligence procedures of the WB, the close scrutiny through the evaluation process and the likely profile of the projects with stakeholders in country.

How will expenditure be monitored, reported, and accounted for?

248. Financial reporting and audits: The World Bank will administer and account for the fund resources in accordance with its financial regulations and keep clear records and accounts. The Bank will make available annual statements of expenditure for DFID/DECC funds audited annually in accordance with its Single Audit for Trust Funds program. In addition, the Bank will provide quarterly unaudited reporting on their online E-donor portal. An additional audit is possible if requested and this would be charged for.

249. An annex to the Administrative Agreement will clarify technical and financial reporting against the LogFrame and Results Framework.

250. Residual funds: There is a risk that residual funds may be left over if WB is unable to manage the programme to the point that all emission reduction payments are taken up. At the end of the contracted duration of the program, the contract between DFID/DECC and WB will stipulate that unused funds may be reclaimed or reallocated by DFID/DECC unless DFID/DECC approve an extension of these funds on the basis of an application by WB for that extension. This decision would be taken in conjunction with the WB, but would be ultimately held by DFID/DECC.

251. Oversight: The DFID and DECC programme officers will be responsible for ensuring that all procedures for financial reporting, accounting and audit are fully complied with. DFID and DECC have reserved the right to appoint their own auditors, if deemed necessary for any part of this Grant. The DECC Director of International Climate Change will be the senior reporting officer for this programme within the UK govt.

[95] The principles used to guide ICF spend relate to maximising environmental integrity and value for money - in some instances this will be to prevent carbon market credits being sold and used for compliance by third parties, whilst in others, like CMF, UK ICF funds may be used to incentivise the development of carbon markets in new technologies and regions - in all cases ICF funding is part of the UK's overseas aid; no ICF funding is used by UK Government for compliance. For this reason all carbon credits purchased through CMF will be cancelled by our implementing partner, the WB.
[96] http://www.oecd.org/environment/environment-development/33657913.pdf
[97] http://www.oecd.org/environment/environment-development/33657913.pdf
[98] This is dependent on other donors wishing to join Ci-Dev and purchase CERs for non-compliance use, i.e. primarily to support the expansion of the CDM into LDCs and/or drive CDM reform through the development of new CDM projects.
[99] Providing staged payments would require DECC to fund CMF into the next SR period and would be dependent on approval from HMT's. In this case DECC funds would count for ODA when they were disbursed to the World Bank, rather than being counted up front at the time the Promissory note was issued.
[100] Including OP/BP 10.02, OP 11.00, AMS 15.01 and 15.10

Management Case

What are the Management Arrangements for implementing the intervention?

Overview of institutions and agreements

252. The project's implementing agency will be the WB Carbon Finance Unit, which will provide technical supervision. Administration Agreements and Expression of Interest statements will be signed by, or exchanged between, both DFID and DECC with the WB. The WB will be in charge of technical supervision, fund management and operations, as well as performance monitoring such as oversight of procurement. Standard WB procurement, risk management, screening and competitive procedures will be followed. And the WB will ensure the effective implementation of the project. DFID and/or DECC will conduct annual monitoring of Ci-Dev and its' projects, coinciding with WB supervision missions where possible.

Project structures and procedures

253. WB Carbon Finance Unit Ci-Dev: A core team within the World Bank Carbon Finance Unit will be responsible for the day-to-day administration of Ci-Dev. The overall programme will be supervised by the Bank's Ci-Dev Program Manager, assisted by Ci-Dev core team members. The Ci-Dev Program Manager will ensure the team is effectively structured to deliver the programme in a timely and efficient manner.

254. The WB Ci-Dev core team will be made up of 12-19 FTE staff – with more investment in the initial years. Of these, the staff working more substantially (more than 40%) on Ci-Dev will include:

Table 15: WB Ci-Dev Core Team

	Early Years	Middle Years	Later Years
Fund Manager	1.00	1.00	1.00
Methodology Specialist	2.00	1.00	-
Operations Team	2.00	1.00	1.00
KM Specialist	1.00	1.00	-

255. There are no precise time boundaries for the time phases provided in Table 15. But these phases broadly map to (i) initial readiness work and pipeline development, (ii) project implementation and the (iii) delivery phase (after all projects / programs are registered, and the initial methodology development and capacity building work is completed). The World Bank's experience has been with other similar trust funds that decisions on transitioning between these phases will be taken over time, based on a dialogue with the donors.

256. Donor meetings: The Bank will hold an annual donors meeting to formally review progress and finances and set priorities for the coming year. They will also hold quarterly teleconferences with donors to provide further updates and get donors' guidance on direction.

257. Decision making structures: Governance structures and donor participation agreements for Ci-Dev are still under development. The Bank as trustee will

select the projects for funding. Donors of the Readiness Fund and participants in the Carbon Fund shall take decisions in annual meetings regarding some of the following issues: (i) progress towards meeting the program's objectives, including the types of demonstration projects supported for example against the agreed criteria (Annex 6) and their location, (ii) providing operational guidance, and (iii) setting priorities for the upcoming year. Similarly donors to shall be consulted quarterly regarding: (i) project pipeline development, and (ii) the progress of signed ERPAs. The UK also seeks to have additional say in project selection to ensure that projects developed fit the CMF's objectives and project criteria, as well as the UK's ICF investment strategy. All decisions made by the Donors shall be decided by consensus. If consensus cannot be reached, then decisions will be taken by a simple majority of votes. Participants in this fund will receive credits from each ERPA signed proportional to their total contribution to the fund.

258. A results framework will be agreed between the WB and DFID and DECC – as well as other donors if they join. This framework will set out how progress will be monitored against the outputs and outcome of the programme and to evaluate its wider impact. The results framework will be harmonised with other donors' reporting requirements as much as possible to improve reporting efficiency – but will need to meet the requirements of funding from the ICF through reporting against ICF Key Performance Indicators. The WB will provide annual reports of progress against the results framework and quarterly updates. The impact evaluation of the programme will be conducted by independent suppliers procured directly by DFID and DECC.

259. HMG team: DFID and DECC staff who will oversee the CMF programme over its life will include (in full time equivalents):

0.10 DFID ARD Project Officer
0.20 DFID ARD Climate Adviser – DFID Lead Adviser
0.10 DFID CED Global Carbon Market Adviser
0.3 DECC Global Carbon Market Adviser (HEO)
0.05 DECC Head of Global Carbon Market Team (G7)
0.1 DECC ICF Project developer (G7)
0.05 DECC ICF Monitoring and Evaluation lead (G7)

Full time equivalent time estimations are averages for the programme. It is expected that during the early years of the programme more time may be required of involved staff as the programme is implemented and initial projects are selected, while later years are likely to require significantly less of a time commitment.

260. The DECC Director of International Climate Change will be the senior reporting officer for the programme and senior UK Government contact with the World Bank. If necessary, the Director will chair a cross UK Government process to reach agreement on programme progress. The DFID Head of Africa Regional Department will have senior responsibility in DFID.

261. The DFID Project Officer and Lead Adviser will be responsible for DFID management of the CMF programme. The DECC Global Carbon Market Adviser

will be responsible for DECC programme management. These DFID and DECC management teams will jointly represent UK Government in programme reviews with the World Bank Carbon Finance Unit, with DECC taking overall lead, for example in coordinating an agreed DFID and DECC annual review.

262. Transparency: DFID and DECC will follow standard guidelines under the UK's transparency initiative in making data and programme documentation publicly available. This includes working with our delivery partners to: make available detailed, timely and accurate information about the programmes on DFID & DECC's websites; ensure that key information is published in English and with summary information in major local languages, in a way that is accessible to citizens in the countries which the programme covers; and provide opportunities for those directly affected by the programme to provide feedback on performance.

Table 16: Management and Reporting Functions

Area	Lead Responsibility	Monitoring Function	Reporting
1. Programme Oversight	WB	Strategic oversight; progress against the trust fund	a. Annual donors meeting and report against results framework and finances; quarterly teleconference meetings; more regular email updates b. DFID & DECC regular monitoring and annual reviews.
2. Programme Evaluation	DFID and DECC	Understand impact of programme	a. Evaluation findings will be shared with WB and other donors, published on DFID and DECC's websites and shared at relevant forums.

What are the risks and how these will be managed?

The following risks have been identified and assessed. Mitigating actions have been developed to address these risks.

Table 17: Table of Risks and Mitigation Measures

Risk	Risk Prob-ability	Impact	Risk Description	Proposed Mitigation Measure Risk Owners
Carbon Market does not recover	High	Medium	▪ Lack of progress in international negotiations of emission caps leads to increasing uncertainty in value of carbon. ▪ Limited scope that the programme will be transformative.	▪ Demonstration projects selected for funding must generate benefits that justify them in their own right and not just because of their demonstration benefits for increasing the CDM in LDCs. ▪ Even without a recovered carbon market projects will produce direct results, reducing the impact of the risk. [***Owner: World Bank***]

Development and GHG benefits are not fully delivered	Medium	High	▪ Emissions Reductions do not deliver development benefits. ▪ Technologies selected for their emissions reductions or development potential may differ from those used for illustrative purposes in this business case.	▪ Project selection criteria (Annex 6) will be designed to maximize the development benefits. ▪ The development benefits of the projects will be monitored closely. ▪ Projects will be favoured that are viable at lower CER prices; prices most similar to the range estimated for the illustrative portfolio of £5 - £8 per tonne. [***Owner: World Bank***]
Emission reductions are not registered in CDM	Medium	High	▪ Projects supported experience long delays in registration and seek to sell reductions to voluntary market.	▪ Ci-Dev will provide support to project developers during registration process[101] through milestone payments and technical support; contracts are explicit emissions only sold to Ci-Dev through compliance market. [***Owner: World Bank***]
Methodologies not applied in practice	Medium	High	▪ Methodologies[102] do not get applied in practise and do not increase the access of LDCs to the CDM for programme technologies.	▪ Stringent approach to methodology design. Methodologies will be tested and modified as part of programme to ensure they are applicable. [***Owner: World Bank***]
Over-subsidizing projects: Setting the carbon price too high	Medium	Medium	▪ Incorrect carbon price set in purchase agreements resulting in poor VfM, reduced transformational impacts of initiative and reputational damage for UK by over-subsidising projects and potentially providing developers with high profits using taxpayer money. ▪ Reduces interest of project developers to sell to private carbon funds – so distorting the market.	▪ Stringent approach to setting price, which can be revised for subsequent rounds of project selection (Annex 7). ▪ Strong communication with developers to help determine a correct price in the programme. ▪ Review of project financials by UK – comparing with other initiatives; regular consultation with private carbon funds to get feedback; formative evaluations will check effect of programme prices.[103] ▪ If carbon markets recover while the CMF programme is in the process of signing emission reduction purchase agreements, prices will be aligned to market prices. ▪ [***Owner: World Bank, UK***]

Market distortion	Medium	Medium	▪ If CMF supported projects deliver CERs, but cannot buy and cancel all the credits, possible supply increased without demand, further suppressing market. ▪ If CMF co-finances with compliance buyers, possible UK funds cross-subsidise the compliance buyers' emission reductions.	▪ Expected volumes to be generated by CMF (maximum 10 million tonnes) are about 1% of CER oversupply as estimated at end 2012 (order of magnitude: 1 billion tons). ▪ Vigilance by the WB and DFID/DECC and good feedback systems with private sector should ensure CMF stimulates supply of development CERs without flooding market. ▪ The increase in supply of CERs from projects developed will be matched by demand by purchasing CERs from the RBF. The programme will ensure there is a balance. [***Owner: World Bank, UK***]
Private investment not leveraged	Medium	Medium	▪ Public investments not well targeted to achieve sustainable interest by private sector. ▪ Low interest to invest by private sector. ▪ Projects using these technologies to deliver development benefits are not commercially viable.	▪ Project selection criteria will be designed to maximize private investment input. ▪ Private sector consulted regularly to ensure selection criteria and business model viable. **[*Owner: World Bank*]**
Fraud & Corruption	Low	High	▪ Mismanagement of funds by project developers contracted by the World Bank. ▪ Emissions reductions not genuine. ▪ There have been some past cases of fraud within the CDM, such as VAT fraud and registry theft.	▪ The MDTF will adhere to well established World Bank procurement Guidelines, and will absorb fiduciary risk. Annual financial reports will be independently audited. ▪ Close supervision by WB of emission reduction activities. ▪ Financial management and technical progress will be closely supervised by DFID/DECC, and DFID/DECC funds will only be disbursed on basis of good progress and need for additional funds. ▪ All payments for emission reductions will be disbursed after CERs are certified by the UNFCCC, through an independent audit. ▪ DFID has set aside (£1m) for an independent evaluation, which could fund an additional audit. ▪ The type of past CDM fraud would not directly affect this programme. [***Owner: World Bank, UK***]

Country Regulatory Uncertainty	Low	High	▪ Domestic regulation of emission trading not conducive to private sector generating credits (rights to carbon unclear); political support for CDM projects weakens.	▪ Projects funded through Ci-Dev will only be accepted if designed to operate in countries where there is political will and acceptance of carbon markets. [***Owner: World Bank***]
Leakage	Low	Medium	▪ Displacement of emitting activities from project area to another.	▪ Mitigation of leakage is part of all CDM projects and will be considered in the project design and approval. ▪ Leakage will not affect the delivery of development benefits. [***Owner: World Bank***]
Engagement of Stakeholders	Low	Medium	▪ Reluctance of governments, project developers, and financiers, to engage in CDM. ▪ Reluctance of implementation partner to engage with a wide range of stakeholders. ▪ Skills aren't maintained (limited staff turnover and sustained interest throughout programme).	▪ Project selection process to look for strong support by all players and skills building work to seek to build buy in. ▪ UK to consult with stakeholders regularly and monitor the World Banks interactions to ensure strong engagement. [***Owner: World Bank]***
Project Development Delays	Low	Medium	▪ Other barriers to implementation of these clean energy technologies or to participation of the private sector may slow down the development of a project pipeline that meets our criteria.	▪ World Bank will work closely with project developers and local stakeholders to ensure demonstration projects can overcome any barriers that may be found. ▪ CER Price setting will entail a close examination of project financials, which should highlight areas of potential weakness in each demonstration. ▪ Consultations with local governments and communities from the start will prevent delays to project development. [***Owner: World Bank]***
Adverse Impacts	Low	Medium	▪ Technologies supported have adverse environmental or social impacts.	▪ Projects selected will adhere to the WBs environmental and social standards. [***Owner: World Bank]***
Implementer Capacity Constraints	Low	Low	▪ Inadequate Bank staffing and financial resources for successful implementation of activities. ▪ Inadequate staffing of project developer groups throughout CMF due to market slump.	▪ A dedicated Bank core team will be established with staff funded from the trust fund. ▪ The World Bank will monitor projects closely to ensure the project developers are able to deliver projects throughout CMF. ▪ The CDM incentivizes developers to deliver credits otherwise they do not receive funding. [***Owner: World Bank***]

Performance	Low	Low	▪ World Bank does not adequately monitor projects against agreed performance results.	▪ World Bank will consult donors regularly and report progress against the agreed results framework. ▪ The DFID/DECC will monitor progress to ensure milestones met before DFID invests further. [***Owner: WB/DFID/DECC***]

Table 18: **Risk Matrix Summary**

		IMPACT		
		HIGH	***MEDIUM***	***LOW***
PROBABILITY	***HIGH***		Carbon market recovery.	
	MEDIUM	ERs do not deliver development benefits. CDM registration fails. Methodologies not applied in practice.	Over-subsidizing projects. Investments leveraged. Market distortion.	
	LOW	Regulatory uncertainty. Fraud.	Leakage. Stakeholder engagement. Project development delays.	Performance. Implementer's capacity.

Risk Appetite Statement

263. Risk is an inherent part of the ICF. Climate finance is a relatively new area of expenditure. The evidence base to inform investment decisions is of variable quality, and the results chains to demonstrate impact and value for money are still relatively weak. As a result, it is important that we are clear about our appetite for risk and have robust procedures in place for minimising our exposure wherever possible.

264. The ICF Board has a medium to high risk appetite for investment risk and political risk where projects have the potential to deliver sustainable and transformative change, providing that risks can be managed appropriately. This is consistent with the strategic ambitions of the ICF and acknowledges the political climate of countries in which we will invest and the rate of failure inherent in these types of project.

265. The ICF Board has a medium risk appetite for operational risk. We will develop robust management and governance arrangements, carry out regular monitoring and reviews to manage these risks.

266. The ICF Board has a medium to low risk appetite for reputational risk, recognising the potential for UK public criticism on international climate spend while positively communicating our expenditure internationally through climate negotiations and wider international fora.

267. The ICF Board has a low risk appetite for financial risk, information risk, legal and compliance risk. We will not invest in organisations where fraud is suspected. WB will follow their due diligence procedures and DFID and DECC will keep close oversight of these. In addition stakeholder feedback mechanisms will ensure there are ways stakeholders can raise any concerns. The DECC and DFID ICF project leads have undertaken counter-fraud training.

What conditions apply (for financial aid only)?

268. N/A

How will progress and results be monitored, measured and evaluated?

269. A results framework (equivalent to a DFID LogFrame) has been agreed between the WB and the UK. This will provide the framework for programme monitoring and the WB will undertake to develop baselines and monitoring systems for this framework within 6 months of approval. Estimated milestones for indicators in years 1 (2014), 2 (2015), 3 (2016), 6 (2019), 8 (2022) and the Target (2025) will be confirmed or adjusted within 6 months of programme start-up. Framework Indicators will be reviewed, and if necessary adjusted, annually. Annual reviews will set the milestones from year 4 (2016) onwards on a rolling basis. DFID and DECC will also develop an evaluation approach – in close consultation with the World Bank and other donors, but as an independent process. Both for monitoring and for the evaluation, additional baseline information is likely to be collected as projects are selected. The results framework will harmonise DFID and DECC requirements as much as possible to improve reporting efficiency – as well as any other donors that should join - and will be agreed to by the WB and appended to all Administrative Agreements between DFID, DECC and the WB.

270. The current version of the results framework can be found in Annex 9. As for relevant indicators in the LogFrame, CMF will report against 5 ICF Key Performance Indicators (KPIs):

i. Tonnes of CO2 equivalent reduced or avoided;
ii. Number of people with improved access to clean energy as a result of ICF programmes;
iii. Level of installed capacity of clean energy;
iv. Volume of public finance mobilised for climate change purposes as a result of ICF funding;
v. Volume of private finance mobilised for climate change purposes as a result of ICF funding.

CMF will also qualitatively assess other KPI indicators related to the transformational impact and institutional awareness and knowledge building in annual reviews.

271. Progress will be monitored against the results framework and annual work plans, looking at delivery of outputs and how well the outputs are delivering the outcome. The World Bank will provide annual reports summarising progress against the results framework and annual work plan – drawing any lessons for

improving delivery and setting out the priority for the coming year. They will also provide quarterly updates to donors through teleconferences and short briefs – which will provide DECC and DFID sufficient information for the biannual report to the UK's International Climate Fund.

272. To ensure wider buy in, beyond the donors, the WB will report and disseminate the experience of the programme to influence the future carbon market. This could be for example through policy influencing and case studies to communicate more widely how effectively the carbon market can deliver development benefits at community level.

273. Stakeholder feedback from communities and households involved in demonstration projects will inform their monitoring of progress. More general stakeholder feedback for progress of the programme overall will be elicited, for example annually through a multi-stakeholder platform by the WB with project development partners and the private carbon funds. This could be through the process to produce the influential World Bank annual "State and Trends of the Caron Market" report, and through the periodic "Africa Carbon Forum" events hosted in Africa, or similar events. This is essential to ensure the programme continually improves and engages with the range of carbon market stakeholders who will have perspectives on how to deliver transformational change. DECC and DFID will also get regular feedback independently from CMIA to inform annual reviews.

274. Annual reviews, involving all Ci-Dev partners (DFID, DECC and other donors as they join), will take stock of overall progress against planned results, agree forward strategic priorities and work plans, identify key lessons and risks, and consider what changes are needed to maximize the likelihood that long term outcome indicators are achieved. Annual reviews will keep a close eye on the staff capacity to manage this programme in the WB and within DFID/DECC itself. Annual reviews will be completed using the DECC annual review form.

275. Six-monthly reviews will also be undertaken by DECC, using the DECC six-monthly review form. Information for these six-monthly reviews will be drawn from the quarterly updates from the WB.

276. Formative evaluations are proposed for years 4, 6, and 9 (more details in paragraph 281 - 286). These will be carried out independently and in addition to annual reviews. They will assess progress towards outcome and impact, test the theory of change and determine any mid-course amendments. The principal evaluation questions together with appropriate evaluation design and methods will be defined at the inception phase of the evaluation. Initial thoughts on questions and design are provided at paragraphs 287 - 290. These formative evaluations will feed into breakpoint reviews.

277. Three **breakpoints** in the programme (years 2016, 2019 and 2022) will allow DFID and DECC to review the overall health and direction of the carbon market and to consider whether the programme is still relevant. These milestone reviews will consider criteria including the current carbon price, confidence by market in future recovery and the findings of the process evaluation (see paragraphs 287 to

290 and particularly paragraph 287 that set out evaluation questions) to decide whether to a. stop future investment rounds, b, change the criteria or approach for future rounds or c. delay future rounds to allow greater clarity in the future market. In particular, in early 2016, if an international agreement on emissions reductions has not been agreed and if the carbon market has shown no sign of recovery, the UK will consider if continued investment is sufficiently good value for money on the basis of the development benefits and the reduction in carbon emissions alone. The WB requires three month notice of any decision not to continue financing or to change the terms.

278. Programme completion review will be carried out to assess overall performance, sustainability and impact. This will be undertaken at the completion of the programme, in year 12.

279. Attribution of results: the theory of change requires both the market readiness work and the results based financing to deliver transformational impact. The UK will attribute the UK's share of Ci-Dev results in proportion to total donor financing. DFID and DECC will report together to the ICF and externally on the UK's results from the programme.

280. Internally, within DFID and DECC, as each department is most interested in different results areas, DFID will report on the full development results of the programme – such as numbers of people with increased access to energy; whereas DECC will report on the full emission reductions delivered by the programme.

Evaluation

281. An independent evaluation will be undertaken for this programme. Our evaluation approach will be guided by the Development Assistance Committee (DAC) Quality Standards for Development Evaluation which DFID adheres to, and by DFID's Embedding Evaluation approach, Evaluation Policy and ethics principles. The procurement process is outlined in paragraphs 211 - 213.

282. Why a priority for evaluation? This programme is seen as a priority for evaluation due to its innovative nature and the significant risk. As outlined in the previous cases, this programme is highly innovative and there is therefore a weak evidence base. A key objective of the programme is to test (and build the evidence base for) whether carbon markets are an effective way to incentivise greater investment in the low carbon technologies that also reduce poverty. A robust evaluation will ensure the lessons from the programme are credible. The programme is also considered contentious with significant risk. So the evidence delivered through the formative evaluations during the programme will be particularly valuable to assess areas of doubt, learn lessons, adapt the programme as necessary and manage the carbon market recovery risk. The decision to evaluate this programme is consistent with the criteria set out in Africa Regional Programme's Monitoring and Evaluation strategy.

283. Users of the evaluation: The primary stakeholders expected to use the evaluation findings are the UNFCCC bodies that determine the rules of the international carbon market (SBSTA negotiation track, CDM Executive Board); the carbon industry bodies (CMIA, Africa Carbon Forum) and recipient representatives (CDM watch, LDC negotiating group, pilot country governments).

284. Evaluation management: DFID and DECC will explore the feasibility of securing technical support from the World Bank Development Impact Evaluation Initiative (DIME) at the World Bank. DIME has significant capability in providing technical expertise to impact evaluation. Working through DIME would therefore aid successful impact evaluation and increase World Bank involvement, including for broader lesson learning. If possible, DIME would assume lead responsibility for the evaluation's development and delivery. If the support of DIME is judged by the World Bank not to be feasible, DFID and DECC will take responsibility for developing and delivering the evaluation – with close involvement by the World Bank and seeking to consult with other donors. In either case (DIME and DFID & DECC) the evaluation will be delivered by a team that is independent from the implementation.

285. When to evaluate? There will be four stages to the evaluation of the initiative. The first three stages will be formative evaluations at the end of years 4, 6, and 9. The final stage to the evaluation will be in year 12, to evaluate the impact at the end of the programme. The formative evaluations are timed to coincide with when there should be good insights from the UNFCCC negotiations over the future shape of the carbon market.

286. The purpose of the evaluation is to establish whether, as a result of the programme addressing the barriers to the carbon market, clean technology will be delivered to poor people in LDCs by the private sector when the carbon price recovers. The formative evaluations will establish whether the approach addresses the barriers to the carbon market. They will establish the value and effectiveness of the financing mechanism, skills being built and the viability of the new methodologies and business models. The state of the carbon markets will also be assessed and the programme approach adjusted to ensure its relevance to future market mechanisms.

Methodology

287. Questions: The evaluation will explore the following questions:
   a. Impact: Is the carbon market an effective way to deliver development benefits as well as emission reductions? How did the intervention impact different groups of stakeholders – and in particular did the poor, women and girls benefit? Did the programme influence the carbon markets so they will deliver development benefits for poor people in LDCs? What are the intended and unintended impacts of the programme?
   b. Relevance: Did the communities benefiting want and use the technologies? Did the LDCs consider the programme addressed the barriers to carbon markets? Do the carbon brokers consider they would deliver poverty reducing technologies in LDCs as a result of the

programme? Did the CDM EB find the programme offered relevant and useful evidence to inform the design of future carbon markets? Are the technologies distributed being taken up anyway?

c. Effectiveness: Were the expected outcome and impact achieved? What were the reasons for this? Were the development benefits of the projects sufficient to make this investment worth doing whether or not the carbon market recovers?
d. Efficiency: Does the carbon market deliver benefits to the poor efficiently? Did the programme deliver value for money (see paragraph 155 - 167 for indicators)? Was the carbon price set at the right level? Did the RBF mechanism distort the market?
e. Sustainability: Are the business models replicable – i.e. are the projects using these technologies to deliver development benefits commercially viable? Will the skills and capabilities built through the programme be sustained? To what extent has carbon market finance increased for poverty reducing clean technologies in LDCs?

288. The evaluation design: The LogFrame and theory of change will act as the reference point and guide the development of the evaluation questions. The evaluation will use robust quantitative and qualitative methodologies and will consider the counterfactual of what would happen without the programme. This will ensure the credibility of the evidence generated, ensuring it achieves the purpose of creating a strong evidence base for the future. The approach will:

f. Unpack the **results chain**, and assess the **theory of change**, considering how the technologies distributed have led to impacts for people in the region (social, environmental, economic); how sustainable these impacts will be;
g. Rigorously assess whether CMF achieved **transformational change**, the resulting benefits and how – looking particularly at the replicability of the methods and business models without programme support;
h. Provide a realistic chain of **attribution** and capture factors entirely independent of the programme;
i. Assess **VfM** - whether funds have been used effectively and efficiently to deliver results;
j. Assess, compare and contrast **innovation** in delivery: the different business models, technologies and financing approaches (e.g. the use of advance purchase agreements vs. milestone payments);
k. Identify **lessons** of what works, what doesn't and why; and what were the most effective elements of the programme. Draw lessons on influencing the behaviour and building the skills of project developers, financiers, government regulators and future market mechanisms.

289. Sources of data: New surveys of the beneficiaries and an equivalent group not being targeted are likely to be needed as well as key informant interviews and focus group discussions with stakeholders will be essential. In addition, useful sources of information to understand how well the barriers to the carbon market are addressed by the programme are likely to be the UNFCCC's CDM data base, the carbon barometer, citations in industry and academic journals.

290. Engagement and communication strategy: A full strategy will be developed as part of the evaluation design. As required by the DFID evaluation policy, the evaluation will be published on DFID (and DECC)'s websites. The evaluation team will be asked to summarise results for different stakeholders and submit these insights into carbon industry and academic journals. Events with the industry – in collaboration with CMIA (in the City of London, WEF) – will ensure the private sector understand the effectiveness of the programme innovation. Working with CDM Watch, the lessons will also be shared through stakeholder forums in LDCs and through social media. And the UNFCCC bodies will also be targeted through side events at COPs.

LogFrame

291. Please see Annex 9 for the CMF LogFrame.

292. Baseline, data sources and milestones for the LogFrame will be finalised with 6 months of the start of the programme and further annual milestones will be agreed on a rolling basis with the World Bank.

293. The LogFrame is also in the annex to the Administrative Agreement with the WB.

[101] Ci-Dev "costs" (money spent in readiness in relation to money spent on CERs) is relatively high, reflecting in part the high level of "hand holding" that we expect will be needed, based on WB experience, for project developers in LDCs. WB's CFU staff will continuously assist project developers in the CDM registration process – supporting the preparation of high quality documents and answering all questions from DOEs).

[102] By methodologies, we mean (1) new methodologies for calculating the emission reductions for different technologies, (2) standardized baselines, and (3) proposals for improvement in CDM regulations for project registration and ER verification – all three for EB consideration and approval. The term "methodologies" throughout the document refers to these 3 dimensions.

[103] The CMF approach to prevent oversubsidizing projects differs from that used in the GET Fit programme. In GET FiT all projects received the same premium payment (for each kWh of energy produced) regardless of the technology used. For GET FiT this approach was deemed better than varying the premium payment across projects because: 1) it fit with the concept of a feed in tariffs; 2) minimized changes manipulation or gaming by project developers looking to make a larger profit; 3) was simplier to administer; and 4) incentivized project development at the best sites. However, for CMF this approach was deemed inappropriate as the CMF initiative will operate in muiltiple countries (GET FiT was only in Uganda) and support a wider range of project types/technologies, making it much more difficult to set a fixed pice for all projects that takes these varying risks into account and promotes innovative projects. In contrast the approach taken in the GAP initiative is rather similar to the one CMF plans to pursue. In GAP projects were supported with an interest rate, rather than a premium payment for work, and interest rates were continuously adjested in response to market and project needs. To determine adequate interst levels every project is to undergo financial analysis and due diligence, ensuring only appropriate returns accrue to the private sector.

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Annexes

Annex 1: Glossary of Terms

Climate Change:
Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes. See also Climate variability; Detection and Attribution.

Greenhouse Gas (GHG):
Greenhouse gases are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and ozone (O_3) are the primary greenhouse gases in the Earth's atmosphere. Moreover, there are a number of entirely human-made greenhouse gases in the atmosphere, such as the halocarbons and other chlorine and bromine containing substances, dealt with under the Montreal Protocol. Beside CO_2, N_2O and CH_4, the Kyoto Protocol deals with the greenhouse gases sulphur hexafluoride (SF_6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Adaptation:
Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned. Examples are raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc.

Mitigation:
Mitigation refers to technological change and substitution that reduce resource inputs and emissions per unit of output. Although several social, economic and technological policies would produce an emission reduction, with respect to Climate Change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks.

Carbon Emissions:
Greenhouse gases are the gases produced and released into the atmosphere that absorb and emit radiation within the thermal infrared range and contribute to climate change. They are measured as tonnes of Carbon Dioxide equivalents – i.e. in terms of the equivalent damage of Carbon Dioxide.

Kyoto Protocol (KP):
The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1997 in Kyoto, Japan, at the Third Session of the Conference of the Parties (COP) to the UNFCCC. It contains legally binding commitments, in addition to

those included in the UNFCCC. Countries included in Annex B of the Protocol (most Organization for Economic Cooperation and Development countries and countries with economies in transition) agreed to reduce their anthropogenic greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) by at least 5% below 1990 levels in the commitment period 2008 to 2012. The Kyoto Protocol entered into force on 16 February 2005.
For more information see: http://unfccc.int/kyoto_protocol/items/2830.php

Clean Development Mechanism (CDM):
One of the "flexibility" mechanisms defined in Article 12 of the Kyoto Protocol, which allows a country with an emissions reduction or limitation commitment to implement an emissions reduction project in developing countries. For more information see: http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

Designated Nation Authority (DNA):
The body (office, ministry or other official entity) granted responsibility by a Party to the Kyoto Protocol to authorise and approve participation in CDM projects. For more information see: http://cdm.unfccc.int/DNA/index.html

Registration Process:
Refers to the steps that must be followed by CDM projects wishing to issue certified emissions reductions (CERs). For more information see: http://cdm.unfccc.int/Projects/pac/index.html

Standardised Baselines (SBs):
Uniform procedures that can help simplify the process of calculating emissions reductions and demonstrating that a potential CDM project is additional. For more information see: http://cdmrulebook.org/83

Additional:
Something what wouldn't have happened anyways (i.e. without an intervention).

Programme of Activities (PoA):
A mechanism within the CDM that provides the organizational and methodological framework for component project actives with the same stated goal to operate within a singer registered CDM program activity. For more information see: http://cdmrulebook.org/452

Emissions Reduction Purchase Agreement (ERPA):
A type of transaction that has its standards set forth by the International Emissions Trading Association, whereby carbon credits are transferred between two parties under the Kyoto Protocol. Under an ERPA a buyer pays a seller cash in exchange for carbon credits, thereby allowing the purchaser to emit more carbon dioxide (or other greenhouse gas) into the atmosphere.

Certified Emissions Reductions (CERs):
An emissions reduction unit or carbon credit generated by CDM registered and approved projects, each equivalent to one tonne of CO2, which can be counted towards meeting Kyoto targets.

Verified (or Voluntary) Emissions Reductions (VERs):
VERs are an emissions reduction unit or carbon credit generated by projects and certified through a voluntary certification process, each equivalent to one tonne of CO2. VERs cannot be counted towards meeting Kyoto targets and are exchanged in a voluntary emissions

trading scheme and not the EU ETS.

Emissions Trading:
Emissions trading is a market-based approach to achieving environmental objectives. It allows those reducing greenhouse gas emissions below their emission cap to use or trade the excess reductions to offset emissions at another source inside or outside the country. In general, trading can occur at the intra-company, domestic, and international levels. The Second Assessment Report by the IPCC adopted the convention of using permits for domestic trading systems and quotas for international trading systems. Emissions trading under Article 17 of the Kyoto Protocol is a tradable quota system based on the assigned amounts calculated from the emission reduction and limitation commitments listed in Annex B of the Protocol.

European Union Emissions Trading Scheme (EU ETS):
The EU ETS is currently the largest multi-county, multi-sector greenhouse gas emissions trading system in the world. The EU-ETS is considered an integral part of the EU's policy to combat climate change in a cost-effective way. For more information see: http://ec.europa.eu/clima/policies/ets/index_en.htm

Least Developed Countries (LDCs):
Nations identified as such by the United Nations based on a country's gross national income per capita, its human assets index, and economic vulnerability index. LDCs exhibit low ratings or values for each of these criteria, and are generally considered to be some of the poorest nations in the world. For more information see: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_criteria.shtml

Low Carbon Development/Growth:
Low Carbon Development is development or growth with a minimal output of greenhouse gas emissions.

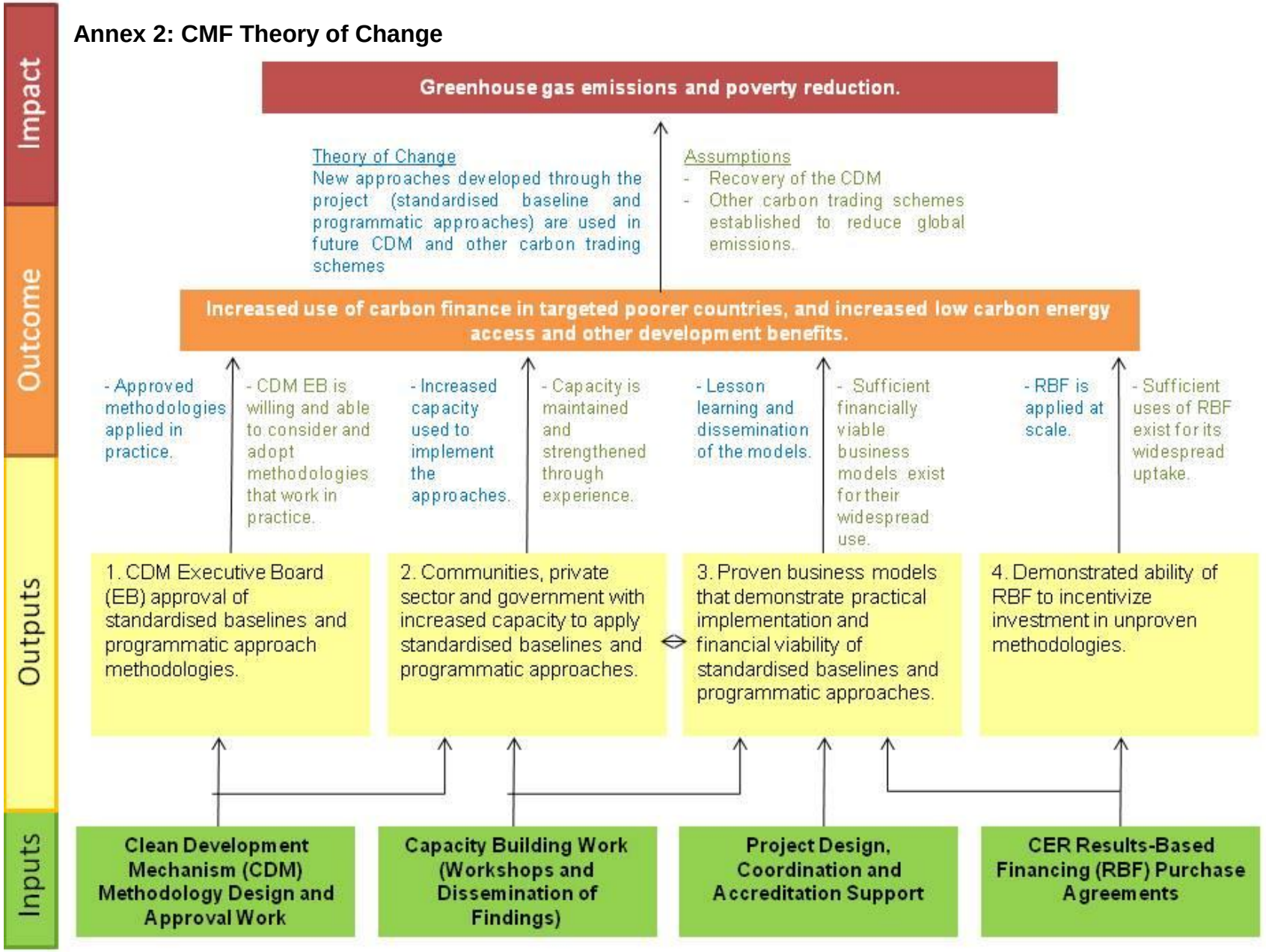
Learning by Doing:
As researchers and firms gain familiarity with a new technological process, or acquire experience through expanded production they can discover ways to improve processes and reduce cost. Learning by Doing is a type of experience-based technological change.

Results-Based Financing (RBF):
RBF refers to payments for measurable, pre-agreed actions that have been achieved and verified. RBF payments address the gap in funding between costs and revenues, the affordability or viability gap.

Strike Price:
The strike price is the fixed price at which a stock will be bought or sold, when the option is exercised.

Transformation:
Under the ICF, programmes classed as transformational should be replicable, innovative, and leverage others to increase the impact of the programme. Transformational projects are also ones that are sustainable (i.e. that have a lasting impact beyond the lifespan of the project), are supported by national actors (lending them political will and local ownership), and that increase capability to act of local actors. Transformational projects will provide multiple, high quality development benefits that can transform people's lives, and have capacity to be scaled up across many LDCs

Annex 2: CMF Theory of Change



Annex 3: CMF Fit with ICF Carbon Market Principles

DECC and DFID have developed principles for how the UK's International Climate Fund (ICF) initiatives should interact with the carbon market. In summary these principles are:

A. Transparency from project developers on if and how a project interacts with carbon markets.
B. Avoid co-financing typically funded CDM projects, except projects which are:
   (i) Supporting new technologies (within the relevant country), or
   (ii) Deploying technologies at new scales (within the relevant country).
C. Minimize co-financing to the point where a project is financially viable to limit the risks of market distortions and over-subsidising.
D. Demonstrate that minimum co-financing options have been considered and other sources of finance are not available to support the project.

The rationale behind these principles is to:
(i) Reduce global emissions through the ICF;
(ii) Avoid depressing the carbon market, and;
(iii) Reduce the risk that projects are over-subsidised with windfall profits from CER sales.

To be consistent with ICF principles CMF will include the following elements to address each principle:

Principle A – Transparency: Projects funded through CMF will inherently interact with carbon markets. However, to ensure clear ownership of CERs, CMF will enter into binding purchase agreements with each project developer specifying how and when credits will be provided and at what cost. Agreements will also be formalized with programme implementers to ensure that all credits purchased through CMF are retired and never enter the compliance market, ensuring overall emissions reductions.

Principle B – Avoiding co-financing typical CDM projects: Detailed criteria will be applied when selecting projects for funding through CMF, as laid out in draft form in Annex 6. These criteria narrow the project type CMF can fund to those that are not currently being developed through the CDM in LDCs. CMF will continue to monitor the CDM pipeline to ensure that the project types supported remain atypical as proposal are considered for selection.

Principle C – Minimize co-financing and limit market distortion and over-subsidising:

Co-financing: CMF aims to develop a new pipeline of projects to minimize the risk of co-financing and ensure that projects delivered represent new types. Written legal agreements will be drawn up between CMF and any programme implementers to ensure that the majority of projects brought forward come from new project proposals gathered through a call for proposals. However, CMF recognises that it takes additional time to develop a programme comprised entirely of new projects. For this reason CMF will consider funding one or two projects which are already under development but have stalled due to the current low carbon price, allowing the project to test its approach earlier and make refinements before substantial investments are made, and generate some results in the near term.

Over-subsidising projects: Projects funded through CMF will be required to submit a proposal outlining their costs and financing options. As discussed in the Appraisal Case, paragraph 89, it is expected that carbon prices will be determined through a call for proposals and an open book negotiation. Annex 7 outlines in greater detail the price setting approached proposed by the preferred implementation partner for CMF, the World Bank.

Price distortion: As demand for credits is largely fixed (a function of the emission targets set by developed countries), any increase in supply without a corresponding increase in demand risks dampening the carbon price. While the impact from one programme is unlikely to be significant, across all of the ICF investments and wider international climate finance, the impact could be greater.

Increasing long term supply: If the CMF programme is successful, the costs of gaining accreditation (of fees associated with developing a CDM project, for project design, registration, verification and accreditation) for all, and particularly small-scale projects, would reduce. This would potentially bring forward further supply and indirectly lower the carbon price should demand for credits not increase in future. However, we think such an intervention is justified and in keeping with ICF carbon market principles because:

- Any direct increase in supply from this programme will be matched by a corresponding increase in demand – as the UK will purchase and cancel the credits it generates.
- To avoid the UK part-subsidising the purchase of allowances for the compliance market, emissions purchase agreements will be structured to ensure that all emissions purchased from UK supported projects are entirely for non-compliance use and all buyers will pay the same price for carbon credits for every year of the agreement.
- Where an “open-book” approach to allowance purchases is used, we will require that the profit of any project developer is appropriate to the risks they are taking.
- Any long term reduction in the cost of accreditation is a public good - improving the efficiency in the carbon market through reducing administrative costs and increasing the reach of the market - rather than a long-term subsidy of credits.

Principle D – Demonstrate minimum co-financing options: As detailed above in how CMF addresses Principle C, CMF will aim to minimise co-financing for all projects it supports. Every project selected will undergo a financial and economic appraisal to determine an appropriate, fixed carbon price and all purchase agreements will aim to limit project developers interaction with the carbon market to one 7 or 10 year term, unless on-going carbon finance allows the project to deliver additional carbon savings through a subsequent purchase period, such as through increases in project scale.

Annex 4: Results-Based Financing Mechanisms Detailed

Below is a full outline of the advantages and disadvantages of the sub-options presented in paragraph 81 of the Appraisal Case for how the CERs could be purchased using the Results Based Financing (RBF) mechanism.

(A) Put Options

A put option provides a guaranteed, specified minimum price for CERs. If the carbon market price is below the minimum price, developers are able to sell CERs to the mechanism at the minimum price. Conversely, if the carbon market price is above the minimum price, developers are able to sell to the market. In this case, the put option will not be used.

The advantages and disadvantages of this approach are;

- The developer does not face price or off take risk, which they may be unable to control or effectively mitigate. This should lower the financing cost for the projects. The put option is likely to be a sufficient guarantee for many financiers to lend to project developers, thus enabling private sector finance to be attracted.
- When the put option is not used, and the CERs are sold onto the market, there will be no net emission reductions from the intervention. In such an instance funding will not be drawn down.

There are two potentially adverse impacts on the carbon market;

- Even if the option is not used, this approach will effectively subsidise certain CDM projects over and above others through removing price and off take risk. In the event that the option is not used, the CERs will be sold onto the market and will effectively displace other CER projects. Thus despite the finance not being drawn down, there will be an adverse effect on the wider carbon market, through increasing supply of credits without increasing demand.
- At today's prices, the strike price of any put option will need to be substantially above the prevailing market price to make projects viable. There is a risk that such a public statement of the UK's willingness to pay greater than the market price to acquire carbon credits will deter project developers from selling credits to other market participants. This could have an adverse impact on liquidity in the carbon market.

(B) Contract for Difference (CfD)

Contracts for Difference set a "strike price" for CERs. Developers would sell to the market, and the mechanism would pay the difference between the strike price and the market price, if the market price is lower. In the event that the market price was higher than the strike price, developers would have to pay the mechanism the difference.

- CERs would be purchased and used by private investors to meet their carbon reduction commitments, which means no contribution to net global emission reductions (because CERs are used as offsets).
- Unlike Option A, the mechanism is exposed to the upside price risk as well as the downside price risk.
- The developers will still need to find a buyer for their allowances and is incentivised to maximise the revenues they generate from such a sale, which should help improve their capacity to interact with the carbon market, However there is a risk that not only will be future prices be very low but liquidity may also be low, which will increase the cost and risks of having to find a purchaser for credits. Such a risk may reduce the ability of developers to obtain loans against any potential future revenue stream.
- As with Option A, this option has the disadvantage of effectively increasing the supply of credits without an equivalent increase in demand.

- As with Option A, there is an issue of contingent liability, in that the UK government will need to set aside more finance than is likely to be needed, which may be problematic for budgeting purposes.

(C) Obligation to purchase at a fixed price

Payment would be at a fixed price.

- This may be considered less efficient than options A and B, as if the carbon market price rises substantially, there may be little justification for the fund to purchase credits, when the market will purchase them at a level that still makes the projects financially viable.
- Acquiring of the credits will ensure that net emission reductions are realised, and the intervention will not alter the supply and demand dynamics of the market.
- As the mechanism will acquire credits, there will be less interaction for the developer with the carbon market and thus the improvement in local capacity and skills may be lower.
- The fixed price and guaranteed off take should make it easy (relative to other options) to obtain project finance and loans.

(D) Obligation to purchase at a variable price – a premium in addition to the market price

As with C, except instead of committing to purchase at a fixed price, there would be a commitment to pay a premium over and above the market price.

- This may be presentationally easier to sell as DFID could communicate that we were effectively paying a fixed premium to secure development benefits, in addition to paying the market price for emission reductions.
- The disadvantage of this approach is that DFID exposes itself to the risk of having to pay substantially more than the expected price. To manage such a risk may require DFID to substantially limit the number of projects it finances relative to what it is likely to be able to finance under central price estimates.
- While DFID will also have the potential of acquiring emission reductions at lower prices in the event that the market falls, and thus funding more projects, such lower prices represents a risk to project developers and thus reduces their ability to raise finance for projects.

(E) Agreement to Purchase from the Market (Advance Market Commitment)

This would be similar to option (C) and (D), except that instead of entering into forward contracts to purchase credits, DFID would provide an advance market commitment to purchase a given quantity of credits from particular types of projects at a given price.

- This may stimulate investment in more high quality projects than DFID actually needs to fund.
- The administrative costs of purchasing the credits would be very low, although substantial work would be required prior to the announcement of the advance market commitment, to ensure that the price being offered was one that would provide a sufficient demand pull for the market, whilst also avoiding excessive rents for project developers.
- The risk to project developers of not being able to sell to DFID would be significantly greater and thus it would be difficult for developers to obtain project finance.
- Given the lack of any assurances over a buyer for credits, there is a substantial risk that projects will not come forward and hence DFID finance remains unused, but cannot be utilised elsewhere due to the on-going liability. Unlike for the other options, this failure to fund projects will not be known until a much later date.

Annex 5: Key Assumptions and Methodology Associated with Estimated Costs and Direct Benefits of CMF

The following section outlines the key assumptions used to estimate the costs and direct benefits of the dummy portfolio. Unless specified otherwise, all sources are the World Bank's Carbon Finance unit, based on analysis of potential or historical CDM projects.

1. **The benefits have been monetised using the following methodology and assumptions;**
   - Household fuel savings have been valued by comparing the up-front capital costs and long-term financial savings. Such savings arise from a reduction in the costs of purchasing kerosene, wood fuel or electricity from diesel generation. Kerosene is assumed to cost $1 (£0.60) per litre[1].
   - Welfare benefits have been valued using estimates from the Ashden Awards[2]. These suggest benefits of around $1.20 (£0.75) a week from avoided battery charging costs for a Rwandan case study. This is in the range of $30-$70 (£19-44) per household per annum of benefits for rural electrification, as estimated by the WB[3].
   - To account for the timing of financial and welfare benefits, a discount rate of 10% has been applied[4].
   - Carbon savings have been valued using the carbon valuation series agreed between DECC and DFID[5]. These have been discounted at 3.5% in line with HMT's Green Book.

2. **To estimate costs and benefits for the provision of biogas generation;**
   - Two projects in Ethiopia and Nepal are used as representative projects
   - Each house is estimated to generate 2.8 – 3.0 CERs per year, over 7 years, through avoided use of firewood.
   - A project developer will build biogas plants for households in return for a payment of £4.7 – 6.8 per CER generated.
   - They in turn will provide a subsidy to households of c. £120 in order to incentivise households to purchase the technology.
   - Households will pay £150-£180 to purchase the equipment.
   - Households will save £150-£160 per year on avoided firewood purchase (2,600 kg of firewood), and £30 per year on time savings from less time spent cleaning latrines[6].

3. **To estimate costs and benefits for the provision of solar home systems;**
   - A project in Bangladesh was used as a representative project
   - Each house is estimated to generate 0.14 credits per year, over 7 years, through a reduction in the use of Kerosene.
   - A project developer will build solar home systems in return for a payment of £8.2 per CER generated.
   - In addition, households make a £35.44 down payment and borrow £201 for 3 years at 12% interest as a contribution to the cost of the technology.

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[1] Average from Lighting Africa Report – www.lightingafrica.org
[2] ToughStuff International Case Study – solar power products in Africa
[3] World Bank/IEG,2008
[4] Current DFID guidance advises that a discount rate relevant to the country of intervention is used. As we cannot know exactly which countries the programme will work in, 10% has been used which broadly reflects the average discount rate for Africa country offices who have examined this issue.
[5] £16/tCO_2 in 2013, rising to £29/t in 2020 and £52/t in 2025 (all 2012 prices)
[6] Source: DFID business case for Results Based Finance (RBF). A cross check with the business case for REACT (Renewable Energy and Adaption to Climate Technologies) and figures from the World Bank produce similar estimates.

- Households will save £46 per year on the avoided Kerosene purchase (57 litres per year).
- In addition, households will save £52 per year from avoided battery charging costs[7].

This is in the range of $30-$70 (£19-44) per household per annum of benefits for rural electrification, as estimated by the WB[8].

4. To estimate costs and benefits for the provision of Mini-hydro;

- A project in Tanzania has been used as a representative example
- Private firms would build mini-hydro in return for CERs.
- Each household supplied with energy would generate 2.5 CERs per year for 7 years.
- There would be no additional cost to households beyond the cost of electricity consumed.
- Estimates of the fuel savings (for the purposes of economic analysis to be consistent with other economic assumptions) have assumed that 80% of energy replaces existing on-grid energy supplied, with the remaining 20% providing new energy connections (and thus avoided cost of diesel generation).
- Grid electricity is assumed to have an emissions factor of 0.5 kgCO2/KWh[9], while new grid connections are assumed to displace diesel generation with an emissions factor of 0.8 KgCO2/KWh[10]. These are thought to be very conservative assumptions, given that the selection criteria will place an emphasis on projects with new grid connections.
- Each household would save £12 per household per year in avoided costs of diesel generation, assuming that electricity from mini-hydro is £0.12/KWh cheaper than the cost of diesel generation.

[7] Source: ToughStuff International Case Study – solar power products in Africa
[8] Source: World Bank/IEG,2008
[9] Conservative assumption based on historic emissions factor used in CDM methodologies in Africa.
[10] http://www.retscreen.net/ang/emission_factors_for_diesel_generator_image.php

Annex 6: Draft Criteria for Project Selection

The criteria will guide the selection of projects to receive CMF funding using RBF to purchase CERs. These draft criteria are subject to change, but will be finalized at the time the administrative agreement with the World Bank is signed.

- **Projects must be transformational.** Projects classed as transformational should be replicable, innovative, and leverage others to increase the impact of the programme. Transformational projects are also ones that are sustainable (i.e. that have a lasting impact beyond the lifespan of the project), are supported by national actors (lending them political will and local ownership), and that increase capacity and capability to act of local actors. Transformational projects will provide multiple, high quality development benefits that can transform people's lives, and have capacity to be scaled up across many LDCs[11].

- The extent to which projects could benefit from other public finance (such as World Bank IDA finance) will be determined in programme implementation. But **the project portfolio should maximise private sector participation.** The World Bank has indicated that their existing Carbon Finance Unit Carbon Fund portfolio shows 20% co-financing of projects, 80% stand alone. That portfolio also represents a distribution of work that is 65% private sector lead, 5% NGO lead, and 30% public entity lead.

Funds will be used for two focal areas.

1. The majority for low-carbon energy access projects (creating new energy connections)
2. Other underrepresented sectors (this area will be further refined.)

- Projects will be prioritized that require no additional public finance, beyond that provided by CMF.
- Projects must deliver development benefits alongside emissions reductions savings, and must be able to demonstrate direct financial or welfare savings at a household level.
- Projects must demonstrate how carbon finance will directly benefit the poor.
- Projects using new methodologies[12] (e.g. standardised baselines and programmatic approaches) will be prioritized.
- Projects must expect to generate CER credits eligible for use in the EU-ETS, as of January 1, 2013, at the time the ERPA is signed.
- All CERs purchased by the UK through CMF will be cancelled by the WB and not used for compliance proposes.
- Projects eligible for approval must represent project types which have not already had demonstrated success in other LDCs or the region[13] (i.e. have under 2/3 projects, which have issued CERs).

[11] The above definition of Transformational is based on International Climate Fund (ICF) guidelines. Based on these guidelines Cookstove and Energy Efficient Light Bulb projects will not be prioritized project types.

[12] By methodologies, we mean 1/ new methodologies for calculating the emission reductions for different technologies 2/ standardized baselines and 3/ proposals for improvement in CDM regulations for project registration and ER verification – all three for EB consideration and approval. The term "methodologies" throughout the document refers to these 3 dimensions.

- Each project will only be eligible to receive limited funding through the RBF purchase of CERs. This limit would be set in the initial stages of the programme, but is likely to be around £2-3 million per project. This limit is aimed to promote small to medium scale projects and ensure that a reasonable number of projects can be finances overall (aim of 10-15 projects). The number and range of projects should also be sufficient to have a demonstration effect and promote wider scale update of standardised baseline and programmatic approaches.
- CER price will be set based on an assessment of proposed project financials and set at a level which will make projects viable for development. See Annex 7 for further details on the World Bank's proposal for price setting in Ci-Dev. Additionally, to create replicable demonstrations, projects funded must be willing for the UK to share certain information regarding the projects finances.
- Project developers will be encouraged to sign 10 year Emissions Reduction Purchase Agreements (ERPAs)[14] with CMF's implementation partner, except where it is clear that access to 2 crediting periods would allow the project to be scaled up and deliver truly new emissions reduction.
- Projects should adhere to the World Bank's appropriate environmental and social safeguards.

[13] We recognize that project types which work in Asian LDCs may face significantly different challenges in African LDCs, but do not want to develop project types which have already been demonstrated to work in comparable regions.

[14] This would be in lui of a 7 year ERPA, which allows project developers to apply for a second 7 year crediting period following the first. Applying for a second crediting period does require paying the CDM registration fee again, and also requires project developers to prove that carbon finance is necessary to the continued operation of their project.

Annex 7: The World Bank Carbon Finance Unit Principles for a Pricing Approach for Ci-Dev/CMF (Draft)

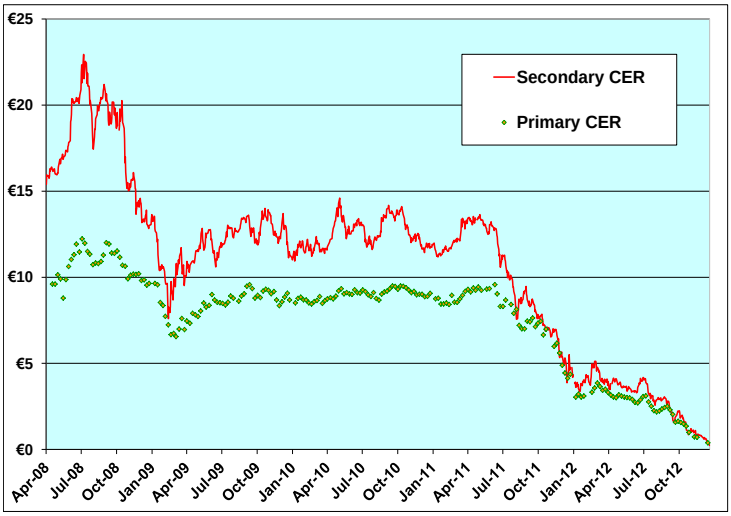
How to set a long-term pricing approach?

Until recently, the World Bank's pricing approach has aimed to safeguard the interests of buyers and sellers in its funds and facilities by – to the extent possible – mirroring its purchase prices to similar deals in the market.

Price discovery was based on information and data constantly pursued and obtained from periodic reports, articles and market briefs issued by reliable carbon market players, consultations with private and public compliance buyers (many of them are participants in the World Bank carbon funds), fund managers (compliance and investor funds), traders and brokers, intermediaries and aggregators, and sellers in developing countries.

In addition, as a large funds' administrator, the CFU also relied on almost daily information and commercial feedback provided by its own operations team based on their latest negotiations. The CFU used this feedback to proof pricing trends and perform a reality check on external data, allowing a constant fine-tuning of its pricing proposal.

However, with the accentuation of the oversupply of credits in the last two years and the consequent collapse of market prices, most market players have exited the carbon market leading to a severe demobilization of infrastructure.



To-date, buyers have no incentive to invest due to the oversupply of credits, and project developers (i.e., sellers) have no incentive to originate and to contract as price levels fell below threshold costs. Under the current scenario, sources of information in the market became scarce (almost inexistent), less transparent and no longer reliable.

In this scenario and unless market recovers, a new pricing approach can no longer be based on market references and has to aim at enabling the financial viability of new low-carbon origination activities.

Structure of the pricing approach for new programs and crediting mechanisms to be obtained from new investments

The pricing approach proposed is fundamentally driven by the financial needs of the projects which are seeking carbon finance revenues to help overcome investment barriers.

Given the relatively low number of projects to be pursued in a piloting program, it is feasible to consider a new pricing approach based on an open book negotiation between buyers and sellers. This negotiation will be based on a financial assessment of the project's financial needs to be prepared by the seller with the support of the World Bank. The price agreed as a result of this negotiation will be submitted to the buyer (i.e., a project-by-project evaluation can be undertaken for determining prices).

The proposal is to adopt a fixed price to be kept unchanged for the life of each purchase agreement. However, if significant change in the international climate arena leads to a material change in current market prices, this approach may be revisited, and the fixed price can be converted to a floating price with a floor and ceiling and buffer mechanisms.[15] This is suggested drawing on the lessons from the purchase contracts (ERPAs) signed in the first years of the carbon market, at a time where, as is the case now again, there was no market price reference. These ERPAs usually were signed at a fixed price that was significantly below the prices reached by the market before 2010, leading to a very strong pressure from sellers to share part of the later upside in prices by amending ERPAs.

It is important to note that the current approach may not be able to systemically address all projects' needs. Although the carbon revenues can potentially cover the entire capital expenditures in some projects, given the difficult business environment of the project's host countries targeted by the Ci-Dev (LDC's), financial sources might be limited and thus, for other projects only a portion of the investment needs may be covered.[16]

In that case, the pricing approach should aim at covering relevant costs and expenses intrinsically related to generation of the emission reductions. Also, financial engineering solutions should be considered where needed when aiming to overcome investment barriers, including advance payment commitments with pre-conditions for disbursements. These will be considered on a case-by-case basis and shall be made upon definition of concrete milestones, procurement contract terms and proof of prior payments when the advance payment is the final source of funding.

The Trustee proposes that fixed prices remain within an acceptable price range for both buyers and sellers. It is well known that the vast majority of to-date existing portfolio of CDM projects and programs was developed based on primary market prices between Euro 4 / ton and Euro 10 / ton. Those prices have proven sufficient to overcome investment barriers and build the current supply, and they should be considered as a guide for future transactions.

[15] Every time the market price reaches levels below the floor price at the time of delivery, the lump sum resulting from the number of tons to be purchased times the difference between market and floor prices will be calculated and accrued towards a buyers' credit (previous purchases made at fixed prices will also count towards the buyer's credit). This amount will first be exhausted before any contract price increase will be implemented. For illustration purposes, one payment of 100,000 tons times a Euro 1.0/ton price differential (i.e., a floor price under the contract higher than the prevailing market price at delivery by Euro 1.0/ton) results in Euro 100k in credit to the buyer. If, in the subsequent year, the same (100,000 tons) volume is delivered and the market price surpasses the floor price under the contract by Euro 1.5/ton, the adjusted contract price will be only Euro 0.5/ton higher (i.e., 100,000 tons x Euro 1.5/ton = Euro 150k – Euro 100k in buyer's accrued credit = Euro 50k / 100,000 tons = Euro 0.5/ton). The prevailing spot or daily future CER price in the secondary market at the time of delivery will be adopted as reference for the above calculation for the sake of transparency and to avoid the unnecessary exercise of market price discovery, which defeats the purpose of this approach (i.e., while secondary market prices are publicly available, primary market price references are scarce and less reliable, as previously explained). The exact opposite concept, including sellers' accrued premium will be considered in the approach (i.e., if market prices continue to rise to the extent that they surpass the fixed ceiling price under the contract at the time of delivery, sellers will have an accrued premium to be exhausted before the contract price reduces below the ceiling price in the case of a subsequent fall in market prices).

[16] High carbon prices can be achieved with increased ambition in emission reduction targets from a large number of countries. The current piloting program aims to showcase low-carbon mitigation activities that can be implemented with long-term carbon price signals.

Additional clarification

1. The World Bank's pricing expertise

With over 12 years of experience acting as a practitioner in the carbon markets, the Carbon Finance Unit of the World Bank is well positioned to administer a fund aiming at delivering results based finance via the purchase of certified emission reductions from projects in Least Developed Countries. With nominal purchases surpassing US$1.8 billion, the CFU estimates that the existing funds and facilities will deliver to its participants about 203 MtCO2e, generated from 158 projects located in 47 different countries, and under sectors that include RE, EE, waste management, industrial gas, and forest-related activities, among others. If projects are fully implemented, these contracts will have supported much larger additional investments of about US$10 billion in developing countries.

2. Calibrating prices to ensure project sponsors share risk

Since its inception more than a decade ago the World Bank Carbon Finance Unit through its pricing approach has aimed at equally safeguarding both buyers and sellers interests. When the carbon market were active, this would be obtained by – to the extent possible – mirroring prevailing market prices. With the absence of reliable market references, the approach will focus on the financial viability of the projects to be implemented. The World Bank's experience demonstrates that the payment-upon-delivery codified in the purchase agreements between project sponsors and the World Bank administered carbon funds provides a natural incentive for project developers to maximize efficiency and the delivery of credits. In cases where advance payments for expected emission reductions are provided, such payments should follow strict measurable milestones to avoid creating a perverse incentive for project developers to transfer the investment risk to the buyer.

3. The negotiation approach and methodology for revisiting assumptions

Due to the relatively small number of projects to be pursued in the Ci-Dev piloting program, it is feasible to consider a pricing approach based on an open book negotiation between buyers and sellers to determine the adequate price for the emission reductions to be generated from each project. This negotiation will be based on a financial assessment of the project's financial needs to be prepared by the seller with the support of the World Bank, before being submitted to the buyer. Thus, a project-by-project evaluation is proposed to be undertaken for determining prices. Through regular reporting and donor meetings with the Ci-Dev buyers, the World Bank will review the negotiation progress and address any complications that arise.

4. Determining appropriate rates of return

Instead of establishing pre-defined parameters of adequate IRR levels, the World Bank proposes to evaluate projects on a case-by-case basis. The main objective is to prevent: 1) under-estimation resulting from each project particularities (i.e., creditworthiness to access finance; robustness of financial statements; technical expertise to implement new investments), and 2) over subsidizing certain projects that may be ahead of the average curve in their sectors and countries, thus requiring lower levels of financial support.

Annex 8: The World Bank Delivery Partner Review Information Note for the UK Department of Energy and Climate Change

Prepared March 15th, 2012 by N. Kulichenko of The World Bank

Strategic Performance Management

Has a clear mandate, strategy and implementation plans to deliver it

- Since its inception in 1944, the World Bank has expanded from a single institution to a closely associated group of five development institutions. The mission evolved from post war reconstruction to the present-day mandate of worldwide poverty alleviation delivered in close coordination of several affiliate institutions including the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA) (these two institutions comprise the World Bank), International Finance Corporation (IFC), Multilateral Guarantee Agency (MIGA), and International Centre for the Settlement of Investment Disputes (ICSID). The group of these five organizations is known as the World Bank Group (WBG).
- Each of the World Bank Group organizations operates according to procedures established by its articles of agreement or an equivalent governing document. These documents outline the conditions of membership and the general principles of organization, management, and operations.
- The World Bank is a vital source of financial and technical assistance to developing countries around the world, by providing them with money and technical expertise they need for a wide range of projects.
- **Strategy**: Six strategic themes drive the Bank's work, focusing on the poorest countries, fragile and conflict-affected states, the Arab world, middle-income countries, global public goods issues, and delivery of knowledge and learning services. There are also strategies for the key areas in which the Bank works, like:
    - Thematic and sector strategies, which guide the Bank's work to reduce poverty in a specific sector or aspect of development. Each derives from a broad consultation with a wide array of stakeholders.
    - Country assistance strategies, which identify the key areas in which a country can be supported, in reducing poverty and achieving sustainable development.

More information is available at:

- http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:23063010~menuPK:8336848~pagePK:50004410~piPK:36602~theSitePK:29708,00.html
- **Articles of Agreement:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/BODEXT/0,,contentMDK:50004943~menuPK:64020045~pagePK:64020054~piPK:64020408~theSitePK:278036,00.html

Governing body is effective at holding management to account

- Member countries govern the World Bank Group through the Boards of Governors and the Boards of Executive Directors. These bodies make all major decisions for the organizations.
- All powers of the Bank are vested in the Boards of Governors, the Bank's senior decision-making body according to the Articles of Agreement. However, the Boards of Governors has delegated all powers to the Executive Directors except those mentioned in the Articles of Agreement.
- The Executive Directors have a dual responsibility, as representatives of the Bank's member country or countries that appointed or elected them, and as Bank officials who represent the interests and concerns of those countries. The Executive Directors are responsible for the

conduct of the general operations of the Bank and exercise all the powers delegated to them by the Boards of Governors under the Articles of Agreement.

More information is available at:

- **Senior Management at the World Bank :** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040913~menuPK:8336953~pagePK:51123644~piPK:329829~theSitePK:29708,00.html
- http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/BODEXT/0,,contentMDK:22421219~menuPK:6888902~pagePK:64020054~piPK:64020408~theSitePK:278036,00.html#Role_of_the_Executive_Directors

Annual Reports:

- **The World Bank Annual Report 2011:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTANNREP/EXTANNREP2011/0,,menuPK:8070643~pagePK:64168427~piPK:64168435~theSitePK:8070617,00.html
- **Previous Annual Reports available at:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20574164~menuPK:8336884~pagePK:51123644~piPK:329829~theSitePK:29708,00.html

Effective Leadership and Measurement of results

- A focus on results is at the heart of the World Bank Group's approach to delivering programs and policy advice with partners in low-income and middle-income countries alike. Through financial assistance and technical knowledge the World Bank Group helps people across the world build a better future for themselves, their families and their country.
- The World Bank Group's existing governance structure is comprised of the following:
    - Member Countries
    - Board of Governors
    - Boards of Directors
    - Senior Management
    - Development Committee
    - Articles of Agreement
- Managing for development results (MfDR) is a management strategy that focuses on using performance information to improve decision-making. MfDR involves using practical tools for strategic planning, risk management, progress monitoring, and outcome evaluation.

More information is available at:

- http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:22453640~menuPK:5122355~pagePK:41367~piPK:51533~theSitePK:40941,00.html
- http://www.worldbank.org/results/

World Bank as a Champion of Aid Effectiveness

- The World Bank has been playing a key role in shaping the international aid effectiveness agenda over the years, is a major champion of the PD (Paris Declaration) and AAA (Accra Agenda for Action), and has mainstreamed the aid effectiveness agenda at the country and corporate levels. Due to its mission, mandate, and country-driven business model, the Bank **demonstrates strong performance on the Paris Declaration monitoring survey**, the main tool for tracking progress globally on the aid effectiveness agenda. In 2011, the Bank's results on the PD survey were better than the overall development partner average, and the Bank has met or is close to meeting the majority of targets.

- **Development partnerships:** The Bank performed better than the overall development partner average on the three relevant PD indicators—performance-based approaches (PBAs), joint missions to the field, and joint country analytic work.
- **Recognition of Bank Support for Capacity Development: Some highlights**
    - **Supporting county ownership and alignment:** As a multilateral organization with a poverty reduction mission, and as a bank that is mandated to finance government expenditures as part of country projects and programs, the World Bank is set up to support partner countries' development in a politically neutral manner.
    - As a bank that is mandated to finance government expenditures as part of country projects and programs, the World Bank is also set up to support partner countries' development in a politically neutral manner.
    - This country-led business model ensures alignment of all Bank operations to support partner country priorities identified in national development strategies—the Country Assistance Strategy (CAS) is the central tool for aligning Bank support with a country's national priorities. Country ownership and alignment are further bolstered by using country systems. **For both financial management and procurement, the Bank met the AAA commitment to channel more than 50 percent of assistance through these country systems.**
    - The Bank has a country-led business model, which means that it aligns all operations in support of a partner country's priorities as spelled out in a Poverty Reduction Strategy Paper (PRSP) or similar national development strategy. The CAS is the central tool for aligning Bank assistance with a country's national priorities. The 2009 Multilateral Organisation Performance Assessment Network's (MOPAN) report on the World Bank states that the CAS results framework is consistent with national development strategies, and that, **"client respondents perceive the World Bank to be strong in its support for funding proposals designed and developed by the national government or clients/partners.''**
    - This country-led business model ensures alignment of all Bank operations to support partner country priorities identified in national development strategies—the **Country Partnership Strategy (CPS)** is the central tool for aligning Bank support with a country's national priorities. **Country ownership and alignment are further bolstered by using country systems. For both financial management and procurement, the Bank met the AAA commitment to channel more than 50 percent of assistance through these country systems.**
    - **The Bank has a country-led business model**, which means that it also aligns all operations in support of a partner country's priorities as spelled out in a Poverty Reduction Strategy Paper (PRSP) or a similar national development strategy. The CPS is the central tool for aligning Bank assistance with a country's national priorities. The 2009 Multilateral Organisation Performance Assessment Network's (MOPAN) report on the World Bank states that the CPS results framework is consistent with national development strategies, and that, "**client respondents perceive the World Bank to be strong in its support for funding proposals designed and developed by the national government or clients/partners.'**
    - Several of the country chapters of the 2011 Paris Declaration evaluation note the Bank's consistent support for country-level capacity development. **The 2011 Independent Evaluation Group 2011 report** on Bank progress in harmonization and alignment also noted that **the Bank's development partner coordination activities have generally been effective in reducing transaction costs to governments, building government capacity, and improving the quality of the policy dialogue.** The report notes that more than 70 percent of the government officials who responded gave above-average ratings to the Bank's technical assistance and capacity-strengthening components in projects in building project implementation capacity.
    - **Use of country systems:** The Bank's policy framework provides for the use of partner countries' PFM systems and institutions when the Bank has assessed these systems and found them adequate. The existence of widely accepted international standards of accounting and auditing facilitates such assessments. Regarding procurement, the Bank's Procurement Guidelines permit the use of national systems for national competitive bidding if they meet the

core tests of economy, efficiency, and transparency, and if they are broadly consistent with the requirements of the Bank's procurement rules.

- ✓ **Country Public Financial Management (PFM) Systems**: Joint Assessments. In the AAA, partner countries and development partners committed to conduct joint assessments of country systems and reform programs to improve those systems led by partner countries. In the area of PFM systems, the Bank has been a leading participant in the Public Expenditure and Financial Accountability (PEFA) program, a multi-donor partnership to promote an integrated and harmonized approach to the assessment of partner country PFM systems. The PEFA assessment has become an international standard tool for in-country dialogue to inform PFM reforms and improvement programs. PEFA reports are also used as an important source of information in assessing the fiduciary risk of PFM systems. More than 220 PEFA assessments in over 120 countries have been conducted (the Bank and European Union have taken the lead on 85 percent of these)
- ✓ **Country Environmental and Social Safeguard Systems:** While the PD indicators focus on the use of country fiduciary systems, the Bank has also been undertaking work to further the use of other country systems, including country environmental and social safeguard systems.

- **Capacity Development:** The Bank recognizes capacity development—not just in country PFM and procurement systems, but more widely—as one of the key factors contributing to sustainable development outcomes. The Bank has met the PD targets for indicator 4 (strengthen capacity by coordinated support), which measures the share of coordinated technical cooperation as a percentage of total technical cooperation, and indicator 6 (strengthen capacity by avoiding parallel PIUs), which measures the stock of parallel PIUs.
  - ✓ **Strengthening Partner Country Capacity for Results Monitoring.** In line with PD and AAA commitments, the Bank is supporting partner country efforts to improve MfDR, and is linking the results agenda to broader capacity development efforts. Bank operations increasingly rely on country monitoring systems for project results data, with 73 percent of the Bank's fiscal 2010 lending approvals using data from country monitoring systems in the lending project results frameworks. The Bank is also using different types of community scorecards to monitor on-the-ground results in about one-fifth of recent projects.
  - ✓ The Bank supports several initiatives aimed at strengthening country capacity for statistical capacity development, development of national monitoring systems, and intensifying collaboration for impact evaluations.

- **Situations of Fragility and Conflict.** Aid effectiveness in fragile and conflict-affected situations (FCS) is also a special area of focus. The international community's commitment to aid effectiveness in FCS is articulated in the PD and AAA. However, the Fragile States Principles and other declarations and agreements recognize that effective aid delivery and development outcomes need to be tailored for FCS circumstances. The Bank has developed a robust program to address the unique challenges of aid effectiveness in FCS. It includes
  - ✓ Supporting country leadership and ownership through the development of sustainable, effective institutions.
  - ✓ Furthering transparency, accountability, and results through demand-side governance.
  - ✓ Promoting knowledge and evidence-based development solutions.

More information is available at:

- **Aid Effectiveness Report 2011:**
  http://www1.worldbank.org/operations/aideffectiveness/documents/WorldBank&AidEffectiveness2011Final.pdf

- **World Bank Operations Manual:**

  http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:21790648~pagePK:64141683~piPK:64141620~theSitePK:502184,00.html

Improving Development Results through Excellence in Evaluation:

- The Independent Evaluation Group (IEG) is charged with evaluating the activities of IBRD and IDA (the World Bank), the work of IFC in private sector development, and MIGA's guarantee projects and services. IEG is an independent unit within the World Bank Group. It reports directly to the Board of Executive Directors, which oversees IEG's work through its Committee on Development Effectiveness.

- The purpose of IEG's evaluation system is to assess the performance of Bank Group policies, programs, projects, and processes (accountability) and to learn what works in what context (lessons). As the scope of Bank Group operations and its portfolio of products have grown, IEG has continued to develop and adapt its approach to evaluating development effectiveness.

- The goals of evaluation are
  - ✓ to provide an objective assessment of the results of the Bank Group's work and to identify and disseminate lessons learned from experience, and
  - ✓ To judge the Bank Group's performance and identify lessons for improving Bank Group operations.

- IEG conducts not only project-level evaluations, based on the review of self-evaluation reports prepared by Bank Group staff and supplemented by independent assessments, but also reviews of literature, analytical work, and project documentation; portfolio reviews; country case studies; structured interviews and surveys of staff and stakeholders; and impact evaluations.

  More information is available at: http://ieg.worldbankgroup.org/content/dam/ieg/ieg_brochure.pdf

2. The WBG Inspection Panel was established by identical Resolutions of the Boards of Executive Directors of the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) in 1993. In response to complaints from project-affected communities, the Inspection Panel is an independent, "bottom-up" accountability and recourse mechanism that investigates IBRD/IDA financed projects to determine whether the Bank has complied with its operational policies and procedures (including social and environmental safeguards), and to address related issues of harm.

   More information is available at:
http://web.worldbank.org/WBSITE/EXTERNAL/EXTINSPECTIONPANEL/0,,menuPK:64132057~pagePK:64130364~piPK:64132056~theSitePK:380794,00.html

Financial Resource Management

Allocates Financial Resources Transparently

- The **Concessional Finance and Global Partnerships (CFP)** Vice Presidency is the World Bank Group's unit responsible for mobilizing and managing concessional and grant financing. CFP acts as an intermediary in matching the needs of recipients with donor priorities through an array of concessional lending and grant instruments.

- In partnership with donors and other World Bank Group units, CFP pursues strategic alignment that helps insure that resources mobilized are channelled to priority areas. The Vice Presidency is organized as follows:

  1. **IDA Resource Mobilization.** This department manages the replenishment negotiations for the International Development Association, which take place every three years, to ensure adequate and growing resources for the needs of the world's poorest countries. In collaboration with other Bank Group units, it is also responsible for developing a robust operational and financial policy framework to support the effective use of IDA resources and the financial strength of IDA.

2. **Trust Fund Operations.** This department oversees the development and dissemination of policies and business processes for World Bank-administered trust funds. It provides centralized support and training to trust fund users and managers.
3. **Multilateral Trusteeship and Innovative Financing department.** This department is responsible for the development, implementation and management of the business, financial and operational frameworks for multi-donor and multilateral trust funds and initiatives, including the design and implementation of innovative financial initiatives. It provides trustee, fiscal agency and financial management services to multilateral initiatives including the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the Global Environment Facility (GEF), the International Finance Facility for Immunization (IFFIm) and the HIPC Debt Initiative. It also provides financial management for the Pilot Advance Market Commitment (AMC) on vaccines against pneumococcal diseases.
4. **Financial Management.** This department advises on the development of financial policy and reviews the management of financial and operational risks in CFP's business lines and related concessional Bank portfolios.

More information available at:

- **Trust Fund reports:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/CFPEXT/0,,contentMDK:23086163~pagePK:64060249~piPK:64060294~theSitePK:299948,00.html

Partnership Behaviour

Works effectively in partnership with others

- The World Bank works with other international institutions and donors, civil society and professional and academic associations to improve the coordination of aid policies.
- The World Bank seeks to prudently add value by expanding the variety of investment strategies and products available to cater to the varying requirements of its donors and enhance investment returns.
- The World Bank works with other international institutions and donors, civil society and professional and academic associations to improve the coordination of aid policies.
- Today, donors provide more than **$20 billion per year** to the different funding mechanisms administered by the World Bank.
    i. Partnerships at Work: the adoption of the Millennium Development Goals (MDGs) in 2000 solidified an historic global partnership to focus on reaching seven specific targets to reduce poverty, hunger, disease and illiteracy. The eighth goal, Develop a Global Partnership for Development by 2015, identifies the means to achieve the other seven.
    ii. Some of the global partnerships in which the World Bank participates in, includes Consultative Group for International Agricultural Research (CGIAR), Global Environment Facility (GEF), Consultative Group to Assist the Poorest (CGAP), Global Water Partnership (GWP), Global Development Learning Network (GDLN), The Carbon Fund, Infodev, Global Partnership on Output-Based Aid and many more.

More information available at:

- **List of all partnerships:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040606~menuPK:34639~pagePK:51123644~piPK:329829~theSitePK:29708,00.html

Partnerships with wider stakeholders

- **Building More Effective and Inclusive Partnerships for Development:** The AAA builds on the PD's concept of partnership between development partners and partner countries, and

broadens this concept to recognize that all development actors—bilateral and multilateral development partners, civil society, parliaments, global funds and programs, foundations, the private sector, and other stakeholders—need to be included in the partnership. **The Bank is a champion of bringing in diverse partners and approaches and continues to work with a wide range of development actors across countries and sectors and at the global, regional, and country levels.**

Trust fund management

- Trust funds play an increasingly important role in the international aid architecture. The World Bank has extensive experience in managing and investing donor funds. It has mobilized and managed donor contributions since 1960 when the International Development Association (IDA) was created to support the poorest countries through interest free and long maturity loans.

- Trust funds primarily provide financing support to various Bank and recipient executed activities and programs where donors and the Bank may collaborate by forming Partnerships. These programs and activities are generally supported through the following three mechanisms: investments (IL), development policy operations (DPO), and analytical & advisory services (AAA) and technical assistance (TA).

- Over the past 30 years, trust funds have been an important instrument for channelling donor funding to the World Bank (the Bank hereinafter) to:
  - ✓ Help leverage its funding for development programs and, in particular, post disaster and post-conflict situations;
  - ✓ Help the international community maximize coordinated action both globally and at the country level; and
  - ✓ Build capacity to work in innovative and unproven areas such as gender and governance.

- **As of June 30, 2011, the World Bank Group held US$29.1 billion of funds in trust**. Of this amount, US$10.4 billion corresponded to International Bank for Reconstruction and Development/International Development Association (IBRD/IDA) trust funds, US$18.0 billion to the Financial Intermediary Funds (FIFs) and US$0.7 billion to International Finance Corporation (IFC) trust funds. WBG Trust Funds provide a common funding vehicle for partnership programs, in which the Bank, donors, and country stakeholders' work together to tackle a specific development issue or find new ways to approach problems.

- **Basis of Committing Funds by the World Bank:** Once the trust fund has been established, and in the case of programmatic trust funds once allocation decisions have been made, the Bank starts implementing the activities and makes commitments.

- As part of Partnership Programs universe, the Bank also manages **global funds and innovative financing initiatives,** for which the Bank provides trustee, fiscal agency and financial management services to various multilateral initiatives such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the Global Environment Facility (GEF), the Climate Investment Funds (CIF), and others. The Bank also advises on and manages the design and implementation process for innovative financing initiative.

- **Development Grant Facility (DGF):** the Bank has its own Development Grant Facility (DGF), which is financed from its administrative budget. Over the past 12 years, DGF has supported more than 150 priority programs with a contribution of US$1.8 billion, catalyzing about US$1 billion annually from major Bank partners: www.worldbank.org/dgf

- A WBG trust fund may be Programmatic or Freestanding.

- ✓ **Programmatic Trust Funds** finance multiple grants under a two-stage mechanism. In the first stage, one or more donors agree to a broad thematic framework designed to support a program of activities over multiple years, and the donor(s) commit(s) funds. In the second stage, the grants are approved for specific activities, often following approval by the Bank, the donor(s), or a special committee, which may include representatives of the Bank, the donor(s) and other entities.
- ✓ **Freestanding Trust Funds** support only activities that are agreed with donors when the trust fund is established. Freestanding trust funds follow a single-stage allocation process under which the donor's commitment of funds and their allocation to activities is simultaneous. An example of a freestanding trust fund would be co-financing one or more components in a Bank financed project. **The Bank prefers multi donor programmatic trust funds as a way to promote harmonization and address growing problem in fragmentation in development activities.**

- The World Bank categorizes trust funds into following groups:
  - ✓ **Recipient-Executed Trust Funds/Grants** (**RETFs)** contain funds that the Bank passes on to a recipient while playing an operational role (i.e., appraising and supervising activities supported by the funds). **The Bank's operational policies and procedures apply**. **These cover preparation, appraisal, supervision, evaluation aspects and include fiduciary, safeguard and other applicable policies that apply as well to the Bank's lending instruments. Recipients may be governmental, non-governmental or other external entities. Typical recipients include government, NGOs, and UN agencies.**
  - ✓ **Bank-Executed Trust Funds/Grants (BETFs)** contain funds that support the Bank's work program (i.e., program activities for which the Bank has spending authority). They include analytical and advisory services. BETFs are administered in accordance with the provisions of the Bank's Administrative Manual, which also applies to the Bank's administrative budget.

- **Institutional oversight over donor funded programs is provided by the World Bank's Executive Directors (Board), Committees of the Board such as the Audit Committee, the President of the Institution as well as members of the senior management team.** The highest management group to oversee the financial management for IDA and Trust Funds is the Finance Committee, chaired by the Group Chief Financial Officer. A number of sub-committees of the Finance Committee review liquidity and risk management issues on a regular basis.

- The Bank-administered trust funds involve three levels: the Donor Contribution level (level at which funds are contributed), the Allocation level (level at which they are allocated to specific activities and programs), and the Disbursement level at which they are disbursed through grant accounts.
  - ✓ At the **Contribution Level**, the Bank performs the role of a Trustee. As **Trustee,** the Bank provides common core of **banking and financial services** to all trust funds at the contribution level, including receiving, holding, investing, disbursing, and reporting on funds.
  - ✓ At the **Allocation Level**, the Bank performs the role of a Trust Fund/Program Manager. As **Trust Fund/Program Manager,** the Bank is responsible for the following core tasks:

    Developing the concept note for the trust fund and/or partnership program; coordinating with relevant stakeholders including recipient, beneficiaries and donors; processing the establishment of the trust fund including securing the appropriate internal clearances on the Trust Fund proposal and underlying legal documents and issuing call of funds to donors; ensuring that all applicable rules and policies are followed including the provisions of the legal documents; monitoring and evaluating the grants financed under the trust fund and/or program vis-á-vis the trust fund results framework; and reporting to Bank management and donors.

- ✓ At the **disbursement level**, the Bank performs the role of **Grant Manager.** As the manager of grants financed under a Trust Fund/Program, the Bank provides operational services including activity identification, preparation, execution, appraisal and/or supervision of the activities financed under the grants. This task is performed through a team of staff led by a Task Team Leader (TTL) who must be accredited.

- **Implementing and Supervising Trust Funds:** The implementation of trust funded operations is subject to applicable Bank's operational and administrative policies and business procedures. This includes the Bank's framework on governance and anti-corruption.
  - ✓ **Environmental and Social Safeguards:** Trust fund-supported activities that involve feasibility studies or support investment activities are reviewed for the potential application of environmental and social safeguard policies. The Bank's safeguard policies are designed to prevent or mitigate harm to people and their environment in the development process.
  - ✓ **Financial Management**: In the case of Recipient Executed Trust Funds (RETFs), recipients are required to maintain adequate financial management systems, prepare annual financial statements in accordance with accounting standards acceptable to the Bank, and to have these statements audited by independent auditors acceptable to the Bank. The recipient is also required to submit interim financial reports acceptable to the Bank. Each RETF operation involves Financial Management Specialist who reviews financial management compliance of the recipient.
  - ✓ **Procurement:** For RETFs, a Bank Procurement Specialist or Procurement Accredited Staff must be engaged to prepare a capacity assessment of the grant recipient, prepare a procurement plan, design supervision arrangements, provide input on fiduciary aspects of the grant agreement, clear the actual procurement under the grant, and supervise procurement. For Bank executed work, all contracts for hiring consultants and firms are handled by the Bank's General Services Department, following internal procurement rules.
  - ✓ **Results, Monitoring and Reporting:** The Bank's fiduciary responsibility for Bank and recipient-executed trust funds includes monitoring and evaluation of activities, outputs, and outcomes. The process begins with a strong results-oriented design of the trust fund and continues with regular monitoring and evaluation to determine if the development objectives of the activity/project are being achieved and the funds are being used in conformity with the AAs and, if applicable, with any grant agreements.
  - ✓ **Financial Reporting and Audits:** The Bank provides donors with up-to-date trust fund financial information through its secure trust fund donor centre website – the "Donor Center"/"Client Connection". The Bank also provides donors within six months following the end of each Bank fiscal year an Annual Single Audit Report in respect of all cash based trust funds, comprising (1) a management assertion together with an attestation signed by the external auditors concerning the adequacy of internal control over cash-based financial reporting for trust funds as a whole; and (2) a combined financial statement together with the external auditor's opinion thereon. The cost of such an audit is paid by the Bank. The single audit is done at the trustee level.

- **The 2010 Trust Fund** Annual Report (complete report) provides details on the Trust Funds held by the WBG and their growing importance with the development aid architecture. Driven primarily by growth in Financial Intermediary Funds, contributions to the Trust Funds administered by the WBG have grown from US$2.7 billion in FY02 to over US$11 billion in FY10. The Report also discusses the results achieved using these funds and outlines progress made to ensure their effective and efficient management and steps being taken to mainstream this into the work of the WBG.

  More information available at:

- http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/CFPEXT/0,,contentMDK:23086163~pagePK:64060249~piPK:64060294~theSitePK:299948,00.html

- **Investment Management of Donor Funds:** http://intresources.worldbank.org/INTOPETRUFUN/Resources/Investment_Management_of_Donor_Funds_May_10_2011.pdf

- **Partnerships and trust funds:** http://intranet.worldbank.org/WBSITE/INTRANET/OPERATIONS/INTOPETRUFUN/0,,menuPK:1051810~pagePK:64168324~piPK:64168339~theSitePK:1051751,00.html

- **Trust Funds at the World Bank: A Guide for Donors and Partners** http://intresources.worldbank.org/INTOPETRUFUN/Resources/DonorGuide.pdf

- **TF Annual Report 2010:** http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/CFPEXT/0,,contentMDK:22867245~pagePK:64060249~piPK:64060294~theSitePK:299948,00.html

Transparency for Results

- **Breaking New Ground on Transparency:** The Bank has made great strides in the area of aid transparency with its Access to Information Policy and Open Data Initiative, both of which make more information on the Bank and its projects, programs, and development data publicly available and accessible than ever before. The Bank also launched the Mapping for Results platform, which geo-codes all Bank project locations in interactive, online maps.

- **The Bank is at the forefront globally in implementing the International Aid Transparency Initiative (IATI)**, which has established a common standard for all development partners to share aid data and make it available in a format, which can be used by diverse stakeholders. The Bank was one of the first development partners to publish its aid data in accordance with the IATI standard, and it continues to serve as a member of IATI's steering and technical committees to help shape policy and share its experience in this area. **Independent evaluations of development partner organizations' transparency practices confirm the Bank's good performance in this area**

- **Predictability of Bank Assistance:** The Bank's country dialogue, CAS products, and lending instruments provide a solid foundation for partner countries' short- and medium term programming. CASs provide a reasonably firm figure for the current year and indicative figures for the following three to five years for programs in IDA-eligible countries (as determined annually by IDA's performance-based allocation system).

- **International Efforts to Improve Predictability and Transparency:** The Bank has been leading international work on aid predictability and transparency of aid and all public resources. In addition to active participation in IATI, the Bank has co-chaired the OECD-DAC-affiliated Task Team on Aid Predictability and Transparency.

Climate Investment Funds

- In 2008, when a group of countries and multilateral development banks (MDBs) came up with the concept of the Climate Investment Funds (CIF), they chose the CIF's title deliberately. The CIF design mandates investment in two important and complementary ways.
  - ✓ First, financial investment on the part of developed countries, MDBs, and other partners including the private sector helps buy a substantial shift toward green policies, institutions, technologies, and, perhaps most important, markets. Helping create a world in which clean energy is more readily available and affordable goes a long way toward shifting global patterns toward sustainable, climate-friendly life on earth, with green jobs, green cities, and climate-resilient economies.
  - ✓ Second, CIF programs are mandated to invest in knowledge and to build and leverage learning across the board, North to South, South to North, and South to South. This investment is as critical as filling the financial coffers, because in the greenfield world of climate-smart development solutions, the global knowledge coffers are still empty.

However, knowledge solutions—technical, scientific, practical—are bubbling up, and the CIF pilot countries stand at the forefront of that knowledge, at local, regional, and global levels.

- The climate investment funds are a unique set of financing instruments that give developing countries an urgently needed jump-start toward achieving climate-smart development. The CIF provides funding to developing countries to help them mitigate and manage the challenges of climate change. The CIF is designed to deliver strong development outcomes as well as strong climate outcomes.

- Five MDBs—the African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IDB), and **World Bank Group (WBG)—**implement CIF-funded projects and programs. WB manages XXX billion of climate investment funds.

- **CIF Implementation in Full Swing:** The three-year-old CIF has moved rapidly from design to active implementation of pilot programs in 46 countries, with 35 projects underway in renewable energy, energy efficiency, clean transport, sustainable forest management, and climate resilience. CIF is a balanced partnership of recipient and contributor countries. The CIF governing structure remains a strong and unique model for effective multi-stakeholder management of the CIF portfolio. Fourteen countries now contribute to the CIF, and they work hand in hand with the 46 countries endorsed for CIF pilots.

- A flavour of WB projects: Just in Africa, the AfDB and the World Bank are channelling around 40% of all CIF funds ($2.6 billion), along with their own co-financing, to one regional and 13 national Investment Plans covering renewable energy and energy efficiency initiatives, as well as clean urban transport, climate-compatible development planning, and sustainable forest management

- **WBG in the energy sector:** The World Bank Group is a key player in a worldwide effort to address both challenges: provide the poor with access to modern energy services, while also supporting transitions to low-carbon renewable energy, and enhancing energy efficiency. Since 2003, the WBG has committed $41 billion to projects and programs in the energy sector. Its energy portfolio is multifaceted, including financing for power generation, transmission and distribution, as well as household fuels. The WBG also offers governments advice on energy reforms and regulation to develop renewable energy and enhance energy efficiency, as well as to improve governance and transparency in the energy sector.

More information is available at: http://www.climateinvestmentfunds.org/cif/

Annex 9: CMF LogFrame

PROJECT NAME	Carbon Market Finance (CMF)								
IMPACT	**Impact Indicator 1**		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**
Carbon financing reduces greenhouse gas emissions and poverty in less developed countries.	M tonnes CO2 reduced by all international carbon finance projects drawing on CMF developped methodologies. **KPI indicator**	**Planned**	0	0	0	0	0.1	1.7	7.6
		Achieved							
		Source	UNFCCC CDM database information on projects drawing on CMF programme replicated projects						
	Impact Indicator 2		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**
	Number of people with increased access to clean energy, as a result of international carbon financed projects drawing on CMF developped methodologies. **KPI Indicator**	**Planned**	0	0	0	0	280,000	23,000,000	31,000,000
		Achieved							
		Source	UNFCCC CDM database information on projects drawing on CMF programme replicated projects						
	Impact Indicator 3		**Baseline 2013**	**2014**	**2015**	**2015**	**2019**	**2022**	**2025**
	Level of installed capacity of clean energy (MW) from all international carbon finance projects drawing on the new methodologies. **KPI Indicator**	**Planned**	0	0	0	0	27	450	800
		Achieved							
		Source	UNFCCC CDM database information on projects drawing on CMF programme replicated projects						

OUTCOME	Outcome Indicator 1		Baseline 2013	2014	2015	2016	2019	2022	2025	Assumptions
Increased carbon finance flows to poor countries for low carbon energy and other poverty reducing technologies.	£x of private/public finance mobilised for investment in CDM projects that use the new methodologies directly supported by the CMF programme. **KPI Indicator**	**Planned (public)**	0	0	0	£ 13m	£ 40m	£ 40m	£ 40m	International carbon market recovers to replicate demonstrated CMF programme projects New methodologies can generate high development benefits for poor people. Governments and partners continue to engage in low carbon development .
		Planned (private)	0	£ 6m	£ 12m	£ 180m	£ 550m	£ 550m	£ 550m	
		Achieved								
		Achieved								
		Source								
		WB data and reporting - taken from finance mobilised for CMF programme projects								
	Outcome Indicator 2		**Baseline 2013**	**2014**	**2015***	**2016***	**2019**	**2022**	**2025**	
	M tons CO2 reduced through projects directly supported by the CMF programme. **KPI Indicator**	**Planned**	0	0	TBA	TBA	0.5	1.6	2.6	
		Achieved								
		Source								
		UNFCCC CDM database; WB data and reporting on number of CERs purchased from CMF programme projects								
	Outcome Indicator 3		**Baseline 2013**	**2014**	**2015***	**2016***	**2019**	**2022**	**2025**	
	Level of installed capacity of clean energy (MW) in CMF programme directly supported locations. **KPI Indicator**	**Planned**	0	0	TBA	TBA	55	130	165	
		Achieved								
		Source								
		WB data and reporting taken from monitoring of CMF programme projects								
	Outcome Indicator 4		**Baseline 2013**	**2014**	**2015***	**2016***	**2019**	**2022**	**2025**	
	Number of people with increased access to clean energy from all projects in CMF programme directly supported locations	**Planned**	0	0	TBA	TBA	1,700,000	3,700,000	4,300,000	
		Achieved								
		Source								
		WB data and reporting taken from monitoring of CMF programme projects								

	KPI Indicator				
INPUTS (£)	DFID £15m and DECC £35m	Other (£): Public £40m	Total (£): £90 m	DFID AND DECC SHARE 56%.	
INPUTS (HR)	DFID (FTEs) 0.4 total, advisers & project officer; DECC (FTEs) 0.5 total				

***Note: Some Outcome indicator milestones for 2015 and 2016 to be agreed (TBA) by March 2013**

OUTPUT 1	**Output Indicator 1.1**		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	**Assumptions**
New methodologies (standardised baselines and programmatic approaches) and streamlined processes approved by the CDM Executive Board.	Number of new methodologies submitted by the programme and approved by CDM Executive Board	**Planned**	0	0	2	2	5	5	5	New methodologies can be applied in practice; and facilitate access of increased LDCs to the carbon market
		Achieved								
		Source								
		UNFCCC CDM website and CDM EB reports								
	Output Indicator 1.2		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	
	Number of new methodologies and other reform measures developed.	**Planned**	2	4	5	5	6	6	6	
		Achieved								
		Source								**RISK RATING Low**
		WB reports								Medium
INPUTS (£)	DFID £2 million	Govt £0	Other £0			Total £2 million			DFID SHARE 100%	
INPUTS (HR)	**DFID & DECC (FTEs) TBA**									
IMPACT WEIGHTING	**15% (provisional)**									

OUTPUT 2	Output Indicator 2.1		Baseline 2013	2014	2015	2016	2019	2022	2025	Assumptions
Communities, private sector and government with increased capability to use standardised baselines and programmatic approaches.	Number of activities (e.g. workshops, key publications) to disseminate programme expereince.	**Planned**	0	3	5	6	8	10	10	Capability is maintained and strengthened through experience.
		Achieved								
		Source								
		WB CMF programme reports								
	Output Indicator 2.3		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	
	Number of Designated National Authorities (DNAs) submitting standardized baselines for approval by the EB in target countries.	**Planned**	0	0	1	2	3	3	3	
		Achieved								
		Source								**RISK RATING**
		WB CMF programme reports and UNFCCC CDM website								Low
INPUTS (£)	DFID £2 million	Govt £TBA (e.g. in kind, can be expected).				Other £0	Total £2 million		DFID SHARE % TBA	
INPUTS (HR)	**DFID & DECC (FTEs) TBA**									
IMPACT WEIGHTING	**20% (provisional)**									

OUTPUT 3	Output Indicator 3.1		Baseline 2013	2014	2015	2016	2019	2022	2025	Assumption
Practically demonstrate financial viability	Number of CDM projects registered with the CDM Exective Board in focus	**Planned**	0	0	1	1	8	10	10	Demonstrations are attractive enough for
		Achieved								
		Source								

of standardised baselines (SB) and programmatic approaches (PoAs).	countries that use the new CDM methodologies.	WB CMF programme reporting and UNFCCC CDM website							replication and scale up; and their more widespread use. Replicated projects can attract sufficient capital for their implementation.
	Output Indicator 3.2		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	
	Number of project models developed that apply new methdologies.	**Planned**	0	TBA	TBA	TBA	TBA	TBA	TBA	
		Achieved								
		Source								**RISK RATING**
		WB reporting								Low
INPUTS (£)	DFID £6 million	Govt: £0	Other: £0		Total: £6 million		DFID SHARE 100%			
INPUTS (HR)	**DFID & DECC (FTEs) TBA**									
IMPACT WEIGHTING	**25% (provisional)**									

OUTPUT 4	**Output Indicator 4.1**		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	**Assumptions**
RBF effectively incentivises private investment in technologies that deliver emission reductions and poverty reduction.	Value of CER credits contracted from projects supported through CMF using the RBF mechanism.	**Planned**	0	£ 2m	£ 5m	£ 12m	£ 33m	£ 33m	£ 33m	Projects provide verifiable development benefits: and sufficient project supply for CER purchase.
		Achieved								
		Source								
		WB CMF reporting and contracts for purchasing credits through CMF programme Emission Reduction Purchase Agreemens (ERPAs)								
	Output Indicator 4.2		**Baseline 2013**	**2014**	**2015**	**2016**	**2019**	**2022**	**2025**	
	Number of events to engage potential project developers for CER contracting.	**Planned**	0	2	4	6	7	7	7	
		Achieved								
		Source								**RISK RATING Low**
		WB reporting								Medium
INPUTS (£)	DFID £5 million, DECC £35 million	Govt (£)	Other £40million		Total £80million		DFID SHARE 6%, DECC SHARE 44%			
INPUTS (HR)	**DFID & DECC (FTEs) TBA**									

IMPACT WEIGHTING	**35% (provisional)**

Notes

Milestones based on an illustrative portfolio. To be refined in programme implementation
***Output indicators will be finalised by Septmber 2013**
All results are attributable to UK funding, caclulated on the basis of total results and attributed UK funding
Annual milestones from 2016 will be set in advance on a rolling basis, on the, drawing on annual reviews and progress
Impact weightings for Outputs are provisional and to be agreed by March 2013