



Project Document

DEA Energy Partnership Programme February
May 2016

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List of abbreviations and acronyms

CC	Climate Change
CCMEP	Climate Change Mitigation and Energy Programme (Mexican-Danish)
CENACE	National Energy Control Centre (Mexico's Independent System Operator)
CIFF	Children's Investment Foundation Fund
CNREC	China National Renewable Energy Centre
CONUEE	National Commission on Efficient Use of Energy (Mexico)
DEA	Danish Energy Agency
DoE	Department of Energy (South Africa)
EE	energy efficiency
EMS	Energy Management System
ESKOM	Electricity Supply Commission (South Africa)
GHG	Greenhouse Gas
GIF	Green Investment Facility (Vietnam)
GtG	Government-to-government
INDC	Intended Nationally Determined Contribution
INECC	National Institute on Climate Change and Ecology (Mexico)
LCEE	Low Carbon Transition in the Energy Efficiency Sector project
LCTU	Low Carbon Transition Unit (of the Danish Energy Agency)
MEUC	Ministry of Energy, Utilities and Climate (Denmark)
MFA	Ministry of Foreign Affairs (Denmark)
MOC	Ministry of Construction (Vietnam)
MOIT	Ministry of Industry and Trade (Vietnam)
MoU	Memorandum of Understanding
NEA	National Energy Administration (China)
NECC	National Energy Conservation Center (China)
RE	renewable energy
RED	Renewable Energy Development programme (Sino-Danish)
SANEDI	South African National Energy Development Institute
SC	Steering Committee
SEMARNAT	Ministry of Environment and Natural Resources (Mexico)
SENER	Ministry of Energy (Mexico)
SME	Small and Medium Enterprise
TA	Technical Assistance
ToR	Terms of Reference
TSO	Transmission System Operator
VNEEP	Vietnam Energy Efficiency Programme

1 Thematic Context

Climate change threatens to reverse progress towards sustainable development. Transformation of energy systems, particularly in rapidly growing economies, constitutes a major global challenge going forward. The transition to low-carbon, sustainable energy production is necessary, in order to meet both fundamental challenges of increasing global energy security and to keep global warming below irreversible damage levels. Therefore, steps are needed to assist countries in the transition to low carbon economies and in implementation of national climate change mitigation plans as put forward at the COP21 in Paris.

Danish experiences gained from the ongoing transformation from an economy reliant on fossil fuels to increasing utilization of renewable energy resources, and efficiency in supply and demand is recognized internationally and provides a valuable lesson to share. The recent external evaluation of the Climate Envelope confirms that the Danish energy sector transition is an extremely powerful example.

Established in 2008, the Climate Envelope is a mechanism for channelling climate funding to adaptation and mitigation activities in developing countries as per Denmark's commitment to contribute with international climate finance. DEA Energy Partnership Programme (LCTU II/China) is funded under the Climate Envelope and is anchored with the Danish Energy Agency (DEA) under the Ministry of Energy, Utilities and Climate (MEUC) with the aim to assist countries with emerging economies such as Mexico, South Africa, Vietnam and China with '*transition to low carbon economies and preparing to enter into a new global climate agreement*'. A common denominator for the selected countries is an expected increase in energy demand and consumption. Particularly China, as the world's greatest energy consumer and greenhouse gas (GHG) emitter, stands out, but also Mexico, South Africa and Vietnam and other have considerable projected GHG-emissions and unexploited mitigation opportunities.

DEA Energy Partnership Programme is well in line with the Guiding Principles of the Danish Climate Envelope and the related theory of change envisaging support to following outputs/activities in order to attain the targeted outcomes and goal set out for the Climate Envelope:

1. *Supporting more effective policy and planning (in particular related to the energy and water sectors)*
2. *Promote technologies through more effective markets and public investments*
3. *Building more robust international architecture*

Further, it follows from the Guiding Principles of the Climate Envelope that the activities supported should to the extent possible be in accordance with the following three key guiding principles:

- National strengths - where Denmark can add value in terms of strength, competence or interest, including commercially
- Leverage of private finance and willingness to take risk in order to create incentives for the private actors to make climate relevant investments and to test and promote new instruments and practices, and

- Transformation – where transformational change is possible though change in policy, markets or finance structures or innovation or test of new approaches.

Whereas DEA Energy Partnership Programme is not directly focused on leveraging private climate finance, the Programme is highly relevant for both the principle regarding applying Danish core strengths as well as the principle regarding facilitating transformational change. DEA Energy Partnership Programme is aligning Danish core strengths in the energy field with the needs of partner countries. Danish core strengths include holistic and long-term energy planning; integration of renewable energy with particular focus on wind and biomass; system flexibility and security of supply and district heating and; energy efficiency in buildings and industry. Danish governmental expertise in this area is housed within the DEA. Through the unique government-to-government (GtG) approach Danish public sector expertise in the energy sector can be transferred to the partner countries in demand in a very effective way. By working directly with governmental authorities, the Programme has a strong potential for bringing transformational change in sense of new policies and regulation inspired by the Danish energy model. The overall objective of the DEA Energy Partnership Programme is precisely to assist partner countries with transition to low carbon economies in the long run as well as to assist the partner countries in implementing their national mitigation plans (INDCs) intended to bring about a permanent transition to a low-carbon pathway.

The Climate Envelope is managed as an integrated part of Danish development assistance. All development engagements supported by the Climate Envelope are in line with the Danish development policy, including *A Right to a Better Life* (2012), and *A Greener World for all: Strategic Framework for National Resources, Energy and Climate Change* (2013), which defines priorities and instruments for the development assistance within green growth.

DEA is also engaged in similar partnerships with Ukraine, Indonesia and Turkey¹. This creates a valuable platform for exploiting synergies and common learning across the different programmes. The Ukraine engagement is funded under the Danish Neighbourhood Programme while the engagements with Indonesia and Turkey, which have just commenced, are funded under the Danish Strategic Sector Facility. These partnerships builds upon a similar GtG approach and lessons learned from the existing bilateral cooperation when it comes to focus areas and national strengths.

2 Presentation of the programme

2.1 Programme outline

DEA Energy Partnership Programme is supporting bilateral programmes in South Africa, Vietnam and Mexico funded under the 2012/2013-Climate Envelope. These programmes are administered by the Danish Ministry of Foreign Affairs (MFA), whereas DEA is tasked

¹ The “DEA Energy Partnership Programme” encompasses all DEAs bilateral cooperation. However, for the purpose of this Project Document it refers to the cooperation with China, Mexico, South Africa and Vietnam- and the proposed extension funding concerns solely the cooperation with these four countries. The current funding for the four countries is completely delineated from the funding of DEAs engagement in Turkey, Indonesia and Ukraine as extension funding will be.

with technical supervision of the programmes. DEA furthermore provides tangible technical advisory support to the programmes as well as to the cooperation with the China National Renewable Energy Centre (CNREC). Hence DEAs engagement in the countries should be seen in the context of these programmes as regards strategic orientation, implementation strategy and results.

Table 1 Related programmes

Country	Programme	Budget	Counterparts
Mexico	Climate Change Mitigation and Energy Programme (CCMEP)	DKK 45 million	<ul style="list-style-type: none"> • Ministry of Energy (SENER) • National Commission on Efficient Use of Energy (CONUEE) • Ministry of Environment and Natural Resources (SEMARNAT) • National Institute on Climate Change and Ecology (INECC) • National Energy Control Centre (the independent system operator in Mexico)
South Africa	South Africa Renewable Energy Programme	DKK 40 million	<ul style="list-style-type: none"> • Department of Energy (DoE) • National transmission company (ESKOM) • South African National Energy Development Institute (SANEDI)
Vietnam	Low Carbon Transition in the energy efficiency sector project (LCEE)	DKK 65 million of which half is budget support	<ul style="list-style-type: none"> • Ministry of Trade and Industry (MOIT) • Ministry of Construction (MOC)
China	Boosting Renewable Energy in China programme funded by the Children's Investment Fund Foundation (CIFF)	USD 16.6 million	<ul style="list-style-type: none"> • China National Renewable Energy Centre (CNREC)

DEA Partnership Programme received a grant at DKK 27.26 million² for the period Mid-2014 to Mid-2016 from the Climate Envelope. Previous appropriations from the Climate Envelope to DEA/MEUC comprise DKK 4.5 million in 2011 and DKK 20 million DDK in 2012, supporting DEAs assistance to various (other) engagements under the Climate Envelope including development of the three bilateral programmes in Mexico, South Africa and Vietnam.

For China, the cooperation with CNREC entered into the portfolio from January 2015, but DEAs engagement goes back to 2012, when the Centre was established under the Sino-Danish Renewable Energy Development programme (RED) which expired in 2014. DEAs current cooperation in China is not integrated with any Danish bilateral programme like the other three targeted countries. However, it feeds into a 5-year programme (2015-2019) of CNREC funded by CIFF. The current cooperation with China occupies DKK 7.4 million of the overall DKK 27.26 million allocated to DEAs engagement in the four countries.

As the three bilateral programmes expire by Mid-2017 following the recently approved no-cost extension of the programmes with Vietnam and South Africa, there is a call for prolonging DEA's support to the bilateral programmes, since the current funds for DEAs assistance ends Mid-2016. Accordingly, the MEUC is presenting a proposal of a DKK 13

² The amount includes additional funding at DDK 4.5. million from the 2015-Climate Envelope

million extension under the 2016-Climate Envelope for a one year prolongation, which would allow DEA to continue engage in China and in the three bilateral programmes until they expire by Mid-2017.

The bilateral programme funds in Vietnam are estimated to be fully disbursed by Mid-2017 and in Mexico the probability of full disbursement is currently estimated to be 90%, the main reason being a difficult start of the cooperation between CENACE and Energinet.dk and extension of one of the major activities – a Mexican Wind Atlas - beyond Mid-2017. The probability of full disbursement of programme funds in South Africa is as per the recent (April 2016) review estimated to be fully disbursed provided that excess funds that may remain from the DoE component in particular is redirected to further development of the South African Wind Atlas.

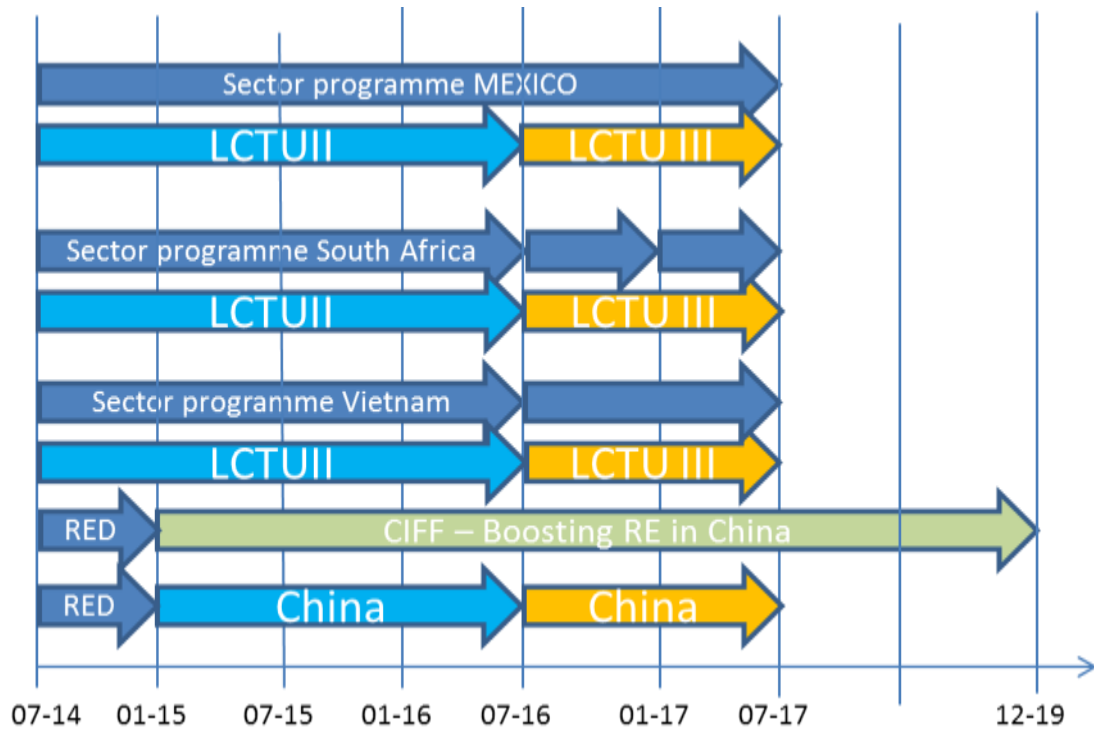


Figure 1 Proposed synchronization of underlying programs and DEAs engagement

The requested one-year extension will synchronize DEAs engagement with the implementation plans of the bilateral programmes. In the period until Mid-2017, DEA will continue to support the finalization of bilateral programme activities. The no-cost extension of the programmes with South Africa and Vietnam enables per se the initiation of new or postponed programme activities for undisbursed programme funds. Despite delays in the programmes, the DEA Partnership Programme has during the entire period provided technical advice and assistance and also to a far greater extent than expected provided support to the programme management to ensure progress in the programmes.

The requested extended funds for the DEA Energy Partnership Programme will enable DEA to provide extended support to either boost current activities or to implement additional

activities. This extended support will be directed to areas in high demand from partner institutions and where DEA has profound expertise.

In Vietnam, extended funds for DEA Energy Partnership Programme will be used to initiate new activities stemming from recent (agreed in 2015) and separate Memorandum of Understanding (MoU) with MOIT and MOC respectively, the exception being the Green Investment Facility (GIF) already established under the LCEE programme and to which DEA will continue to provide advisory support to ensure its financial sustainability. The new activities are centered on capacity building in long term planning and development of power sector scenarios on increased RE-integration.

In South Africa, extended funds for DEA Energy Partnership Programme will be used for largely supplementary programme activities targeting capacity building of DoE in long term energy planning and development of scenarios for RE-integration into the power system. Finally, extended funds will be used for boosting current technical advisory support in energy efficiency in buildings.

In Mexico, extended funds enable DEA to continue supporting the programme till its planned closure Mid-2017 with a level of effort largely equivalent to the period up to Mid-2016. The same applies to the China cooperation which, however, will be extended to cover cooperation with China's National Energy Conservation Centre (NECC).

Table 2 *Summary of results attained and priorities for the extension period*

Country	Key achievements so far	Focus of DEA during extension period
China	<ul style="list-style-type: none"> • DEA has contributed significantly to professionalize policy research in China and in advancing specific policy agendas on RE development and deployment • CNREC provides input to China’s next 5-year plan as regards RE • A broad spectrum of knowledge products related to the Chinese energy sector has been provided by DEA and Danish and European experience have been transferred and shared extensively 	<ul style="list-style-type: none"> • DEA continues supporting CNREC in relation to the CIFF-funded programme • DEA seeks to more directly contextualize ongoing long term planning research to China’s INDC • DEA provides substantial support to a new national RE-long term modelling publication, China Renewable Energy Outlook 2030/2050. • GtG cooperation is extended to cover EE through cooperation with NECC. With this, the cooperation moves into fields of development of heat plans/tangible mitigation projects • DEA to strengthen linkages between IEA and IRENA with Chinese partners (CNREC/NECC)
Mexico	<ul style="list-style-type: none"> • The Mexican-Danish cooperation is well established and recognized by all counterparts in Mexico • Partnership between Energinet.dk and Mexican equivalent CENACE established (facilitated by DEA) • The government’s endorsement of Mexico’s INDCs to which DEA provided distinct technical (modelling) support • Danish experience is shared in wind auctioning, energy and climate forecasts, mitigation policy evaluation, EE policy and regulatory measures in buildings and industries 	<ul style="list-style-type: none"> • Further builds capacity at INECC on long term mitigation forecast/modelling. From this, climate mitigation pathways for INDC are explored • SENER finalizes national EE strategy with assistance from CCMEP/DEA • Capacity is built in SENER on long term power sector modelling with increased RE-integration • Biomass road map for Mexico is finalized • Sugar industry NAMA prepared, ready to be taken forward for implementation finance
South Africa	<ul style="list-style-type: none"> • Danish experience with regulation of power market (DEA) and with technical market rules/grid codes (Energinet.dk) shared with ESKOM and DoE • Danish experience with EE has been extensively shared and input to the national EE strategy peer reviewed 	<ul style="list-style-type: none"> • Energy planning and scenario development • Policy mainstreaming advice and input to national EE strategy in particular in fields of building regulation and implementation
Vietnam	<ul style="list-style-type: none"> • GIF is operational • A broad spectrum of knowledge products on Vietnamese EE-sector has been provided and Danish experience have been transferred and shared extensively at central and provincial level as well as with private sector • Capacity is built broadly on understanding and implementation of the national regulation on EE in buildings and industries. • Awareness created on low carbon power sector planning • The cooperation has successfully reached central government and key-stakeholders beyond MOC and MOIT to mainstream efforts in long term energy planning 	<ul style="list-style-type: none"> • GIF is consolidated with funding from international donors • DEA supports a series of new activities in order to: • Build capacity on long term planning of power sector and integration of RE and a series of long term RE-scenarios developed. • Strengthen bilateral dialogue with MOC on building EE regulation • Strengthen inter-ministerial cooperation on energy and climate policies

During the extension period as well as beyond, the DEA Partnership Programme will be guided by key lessons learned from 2012 – 2016:

- *Developing clear and explicit capacity building strategy together with partners* to help strengthen the added value DEA brings into the cooperation.
- *Learnings with regard to distinct Danish competencies* in order to focus on Danish core (institutional) competencies. Thematically, focus will continue being on CC mitigation oriented development centred on RE and EE in supply and demand. In terms of analytical tools, focus will be on costs-of-energy, internalization of environmental costs and scenario for long term energy planning.
- *Transfer learnings and best practices across country cooperation* in order to utilize synergies, improve cost-efficiency at overall programme level and respond to partners request for expanded support. A notable example is the transfer of energy scenario capacity building experience from China to the cooperation in Vietnam.
- *Transfer best practice on administrative set-up and modalities* in order to short term address individual shortcomings in the present in-country set-up e.g. in regard to integrated planning and reporting of DEAs assistance and the bilateral programmes. On the longer term, there is a need to re-think and align between the individual countries.
- *Strengthen synergies between bilateral and multilateral cooperation* in order to maximize the impact of international cooperation for example synergies with IEA and IRENA in-country initiatives which positively interact with the Partnership Programme.
- *Leverage private sector partnerships* relevant for addressing the countries' sustainable development challenges. From stronger regulation and planning through the Danish cooperation follows market maturation and demands for technology solutions in fields where Danish companies have know-how and key competences as the EE cooperation with Mexican industries in Mexico is one example on.

2.2 Development engagement partner

DEA Energy Partnership draws on staff and expertise within DEA and MEUC. The current period include funding for 16.5 full time equivalent staff per year as well as operational costs. The extension period will include 14 full time equivalent staff per year.

The modality of the cooperation between DEA and the key counterparts in the four targeted countries is a Government-to-Government cooperation (GtG).

Besides being founded upon MoU between governmental partners, the GtG approach is featured by the direct engagement from the MEUC/DEA during the entire course of the cooperation and preferable starting already at the programming stage. The engagement from DEAs side may in practice span from strategic advice and technical supervision of the cooperation to distinct technical advisory support, which all builds on Danish public sector institutional competencies within energy sector transition. This could also be institutional competencies from outside the MEUC/DEA as for example the Danish Transmission System

Operator (TSO) with which DEA for example has facilitated the partnership on technical cooperation with the Mexican equivalent (CENACE) as well as cooperation with the national power and transmission company in South Africa (ESKOM).

When it comes to the role of DEA in its capacity as a public energy sector institution under the MEUC, partner feedback confirms that DEA adds further value to the cooperation. The fact that DEA draws on its own experience and share lessons learned from the Danish energy sector transition is very valuable. Peer exchanges with DEA is in high demand from partners as DEA experts are policy practitioners themselves with an understanding of policy processes and combines this with technical advisory support at a high level of technical integrity.

Another key feature of the GtG approach is that the direct engagement from the MEUC/DEA is combined with in-country day-to-day management and permanent presence during the cooperation. The specific in-country modalities differ somewhat between cooperation and countries, but key features are the posting of (programme) advisors either with the governmental counterparts or with the Danish embassies and preferable with a solid experience with the Danish energy sector transition and preferable posted for a longer term to ensure continuity. It not only serves purposes of bridging government partners in the countries with DEA in its capacity as provider of technical advisory support. It also provides for visibility, for building trustful relationships with partners and for wider networking opportunities as basis for longer term cooperation and essential for efficiently supporting processes favorable for mitigation oriented development. Furthermore, the approach provides for more easy access to higher levels of government in partner countries and within the State Owned Enterprise sector (in China).

The organizational set-up includes high-level Steering Groups in all countries combined with MoUs signed by the government in partner countries. The inclusion of Danish embassies in the modality further add to the strength of the GtG approach and underscores the commitment from the Danish government side to the joint cooperation.

2.3 Theory of Change

The overall development objective - as set out in the project document for the current two-year period - is to assist partner countries with transition to low carbon economies in the long run and to prepare the countries to participate in a new, global climate agreement.

The targeted outcome is that China, Mexico, South Africa and Vietnam were further enabled in reaching ambitious climate and energy goals through knowledge sharing and support within planning, regulation and implementation of EE, RE and climate change mitigation policy in an GtG cooperation between MCEB/DEA and corresponding climate and energy authorities.

The support from Denmark is based on the countries' own request and demand for new and more intelligent energy solutions. The rationale is that Denmark offers unique experience from energy sector transition, which is in demand and valuable to share, transfer and adapt into the national context of countries embarking on ambitious policies for energy efficiency, renewable energy and climate change mitigation.

The change logic is in summary, that *if* DEA supports with outputs in terms of:

- Policy mainstreaming recommendations;
- Building in-country knowledge (domestic studies/research/scenarios etc.);
- Transfer of Danish experience and sharing of knowledge and;
- Facilitate demonstration in the countries of technologies and best practices in fields of EE.

then institutional impact (i.e. outcome level results) will be achieved in terms of:

- Improved regulation frameworks for RE and EE;
- Enhanced policy development- and evaluation capacity among DEAs counterparts;
- Improved RE planning frameworks and strengthened implementation frameworks for EE in the countries and finally;
- Increased awareness from stakeholders.

These outcomes are all building blocks for the countries being further enabled in reaching RE, EE and climate change mitigation goals which would be required in order for the countries to shift into a low carbon development path as is the overall development objective of the engagement of the MEUC/DEA. This is well aligned with the goal of the Danish Climate Envelope as per the Guiding Principles of the Climate Envelope (February 2016).

A successful achievement of outcomes from DEAs support rests on a set of assumptions that explains the change logic:

- i) Government in partner countries retains its commitment to climate change mitigation and related targets on energy
- ii) Partner institutions have ownership to the cooperation
- iii) Staff of direct partner institutions remains in posts long enough to take up results from the cooperation and to carry through change
- iv) Underlying programs are well administered and coordinated
- v) DEA makes available adequate staff resources

While the above constitutes the common change logic for DEAs engagement, there are individual theories of change – including assumptions and risks - for the individual country engagements as described in Annex C.

2.4 Risks

Risks of program failure are already monitored for the four countries. No new or additional risk factors beyond those having emerged so far are envisaged for the prolongation as such. Detailed risk assessment by country is found in Annex A³ and in country-wise risk matrices Annex B.

In summary, the key risk factors monitored across countries that exposes DEA Energy Partnership programme to risk of program failure are:

³ In response to the recommendation R7 of the appraisal team the detailed risk assessment found in Annex A and Annex B is related to DEA support for each country programme separately and reflect both contextual risks and institutional risks

- i) Lack of commitment from government to climate change mitigation and related targets on energy
- ii) Lack of ownership to the cooperation from key partner institutions
- iii) Severe staff turnovers and resource constraints in partner institutions
- iv) Poor coordination and lack of progress of underlying programs
- v) DEA fails to make available timely and adequate staff resources

Lack of commitment from government in partner countries would constitute a programmatic risk of outputs not leading to the desired outcomes i.e. that the envisaged institutional impact of the cooperation on the short term is not backed by high level policy makers. There has been concerns over whether South Africa would retain its commitment to the RE-agenda, but as also confirmed by the recent review by the MFA, there is at the moment indeed a window of opportunities and it is backed by the South African government.

For the second programmatic risk, the MOIT in Vietnam did previously not have sufficient ownership to the LCEE program, but for the continued cooperation in the extension period the risk of lack of ownership from Vietnamese counterparts it is deemed to be minor. The same applies for the partner institutions in the other countries, which all demonstrates a genuine commitment and support to the cooperation with Denmark, except for DoE in South Africa who is challenged in taking on full ownership to the EE cooperation. The risk is continuously mitigated through high level participation from both sides in the individual SCs steering of the bilateral programmes.

For the remaining period the third programmatic risk arising from high employee turnover is deemed to be an issue only with INECC (Mexico), whereas resource constraints and understaffing occurs with many counterparts including CENACE, SEMARNAT and INECC (Mexico), DoE (South Africa) and MOIT (Vietnam). The staffing and capacity concerns has both in Mexico and South Africa been mitigated through provisioning of local consultants/short term advisors to remedy the lack of resources in partner institutions to absorb the technical assistance (TA) provided through the cooperation.

For the fourth listed programmatic risk, the programme with South Africa was delayed during the first half of the programme period due to poor coordination and monitoring. Furthermore, cumbersome decision making procedures on the South African side delayed procurement of TA under the programme and thereby also DEAs TA. During 2015 important progress has been made (through the appointment of a new program coordinator at the embassy, the establishment of a Management Committee and better progress reporting) and the risk of inefficient programme management has been reduced significantly and deemed mitigated in the rest of the period. For the other countries, coordination within the programmes and with the DEA Energy Partnership programme is sufficient and progress is largely on track. Still, the pace of the GIF in Vietnam is challenged by cumbersome decision procedures in MOIT and parts of the cooperation in Mexico have been delayed mainly due to resource constraints with some partners.

The timely availability of adequate staff resources by DEA is obviously a critical factor to the success of DEA Energy Partnership Programme on delivering the technical expertise in demand from partner institutions. Strength of the GtG cooperation is that DEA houses

specialist expertise in a range of areas in demand from partner institutions which, however, sometimes requires a call for experts from other departments in DEA than where the partnership program is located. The challenge is continuously monitored and addressed also at DEA management level and sought mitigated through timely planning of resources and timely request from partner institutions in particular when it comes to TA requiring missions by DEA. Still, it is occasionally a challenge to both sides of the cooperation. On the other hand, the extended core team of the wider DEA Energy Partnership Program allows responding in a very flexible way to requests from partners and for redirection of staff resources to tasks in highest demand.

2.5 Outcome- and output indicators

In response to *inter alia* comments made by Danida's External Grant Committee in 2014, the results framework and indicators originally identified as per the project document for the present 2-year period (LCTUII/China) have been revised in 2015 and theories of change for DEAs engagements in the four countries have been developed. It is for the proposed one year prolongation decided to stay with the strategic results framework and attached indicators already in place and approved by the Steering Committee (SC) and upon which the annual progress reporting draws. In addition, MEUC/DEA will, in accordance with the upcoming general monitoring guidelines for the Danish Climate Envelope soon to be decided, develop and report on one core indicator to the MFA (this will include selection of a baseline and target for the intervention following the agreed monitoring guidelines).

Due to the scope and complexity of the overall engagements with technical advisory support to- and technical supervision of three bilateral programs each having individual results frameworks and China with no underlying bilateral program, the strategic results framework operates with series of generic indicators at the outcome level.

In renewable energy, targeted outcomes are that China, Mexico, South Africa and Vietnam were further enabled in reaching national RE-goals. Generic outcome indicators are: Regulation frameworks improved; partner institution's policy development capacity enhanced; planning frameworks improved and; stakeholder awareness increased.

In energy efficiency, targeted outcome is that China, Mexico, South Africa and Vietnam were further enabled in reaching national EE-goals. Generic outcome indicators are: Regulation frameworks improved; partner institutions policy development capacity enhanced; implementation frameworks strengthened and; stakeholder's awareness increased.

In climate change mitigation, targeted outcome is that Mexico, South Africa and Vietnam were further enabled in reaching national climate change mitigation goals. Generic outcome indicators are: Climate finance mechanisms/tools/instruments supported; partner institutions policy evaluation and development capacity were enhanced and; stakeholder awareness increased.

These targeted outcomes are well in alignment with the theory of change set out in the Guiding Principles of the Climate Envelope. Means of verification is qualitative assessment drawing upon partner institutions assessment of progress.

The intervention logic is that engagement outcomes are targeted through engagement outputs. The structuring of outputs into four overall output categories across the individual country cooperation originates from the project document for the present 2-year period i.e. this is carried over to the extension period. The four thematic outputs are:

Output 1 Climate: Climate change mitigation policy mainstreaming supported including in finance mechanism/tools development.

Output 2 Energy efficiency: EE-policy mainstreaming supported in building regulation, EMS dissemination and regulation enforcement.

Output 3 Renewable energy: RE-policy mainstreaming supported in regulation, market rules, grid codes etc.

Output 4 Technical supervision: Technical supervision by DEA has been rendered to the bilateral programmes in Mexico, South Africa and Vietnam.

As with the outcome level, the results framework operates with generic output indicators on DEAs engagements. These comprise: Policy mainstreaming supported; in-country knowledge provided; Danish experience transferred and knowledge shared; in-country demonstration of technologies and best practices supported. The specific output indicators are set out in the annual work programmes – as they are closely linked to activities undertaken by DEA which again are closely linked to the bilateral programmes - and monitored and reported in DEA Energy Partnership Programme annual reports.

2.6 Outputs - China

DEAs intervention in China will in the extension period focus on support and TA to CNREC regarding policy formulation, planning and regulation as well as implementation of initiatives and activities towards increased use of renewable energy i.e. it falls within the overall output on RE. A long term goal is furthermore to increase integration between Chinas Energy Research institutes RE division (CNREC) and its EE division.

CNREC

DEA's support will be closely linked to the 'Boosting Renewable Energy' program. Targeted outputs from the program in 2016/17 with contribution from DEA are the following:

- CNREC's modelling capacity is further enhanced in a collaborative effort with DEA, NREL and GIZ.
- Together with CNREC, 2030 and 2050 scenarios for the 2016-China Renewable Energy Outlook (CREO) publication are developed in 2016 including input regards RE friendly grid development and operation and; input regards power system flexibility;
- Together with CNREC, 2020 and 2025 scenarios are developed by end of 2017 as input to the review of Chinas 13th five year plan.
- Together with CNREC, the China Thermal Power Transition program is developed by the end of 2017
- Together with CNREC, a report on market measures to activate the demand side for flexibility is developed by 2016

In addition, DEA has a seat in CNREC's management committee, which meets twice a year and holds the responsibility for the overall progress and resource allocation.

NECC

Besides assistance from DEA to CNREC, the China-cooperation will be extended to cover energy efficiency in addition to renewable energy. This will be through assistance directed to NECC. DEA has since 2014 by own means funded preparation of and the initial cooperation with NECC, which is appointed by NDRC to lead energy efficiency work in China. Going forward DEA Partnership Programme will provide Danish support and TA for analysis and policy development to NECC, and hereby share Danish experiences in planning, regulation, technical measures as well as technology solutions. There will be a specific focus on district heating (including potentials for co-generation and excess heat from industries and biomass) and energy management and specific pilot projects for increased use of district heating and energy efficiency are being planned based on Danish experiences and supported from the International Energy Agency (IEA). A work plan with agreed targeted outputs for DEA assistance to NECC will be developed.

2.7 Outputs - Mexico

The extension period of DEA Energy Partnerships Programme coincide with the third year of the CCMEP where presently ongoing programme activities will be completed and new will be undertaken for remaining programme funds. As per the upcoming work plan for the last year of the CCMEP, DEA expects to contribute to the targeted program outcomes with following key-input:

Climate change mitigation:

- Share and transfer of Danish experience and knowledge: DEAs technology catalogue approach and methodology are shared and transferred in peer exchange with INECC and SENER; the Danish technology catalogues on transport and biomass/bioenergy technologies are shared with INECC and TA by DEA is provided to develop equivalent catalogues for Mexico. These outputs are integral part of programme activities hosted by INECC that seeks to strengthen enabling environment for low-carbon technologies and strengthen capacity on post-2020 GHG-emissions target setting;
- Building in-country knowledge: Peer-exchange with INECC and TA on mitigation modelling is provided by DEA to INECC as part of programme activity on economic modelling of Mexico's NDC that seeks to strengthen capacity on post-2020 target setting;
- Building in-country knowledge: Peer exchange with INECC and SENER on development of a NAMA on the sugar industry is provided by DEA including assistance with engaging potential Danish climate finance funds/mechanisms. The output is related to an ongoing program activity that seeks to enhance tracking by SEMARNAT on the national special program on climate change;

Renewable energy:

- Building in-country knowledge in use of Balmorel model and development of Renewable Energy Outlook with enhanced long term scenarios; share and transfer Danish experience and knowledge in development and use of scenarios for long term

planning in SENER and academia and sharing process and results with INECC. These outputs will improve the RE planning in Mexico.

- Share and transfer Danish experience and knowledge on bioenergy use, and show potential in selected case studies. The output will be part of a biomass roadmap, and will be used in SENER as well as in SEMARNAT for planning and project development.

Energy efficiency:

- Share and transfer Danish experience and knowledge in EE in building codes and how to enforce it. In-country knowledge built through training of key persons to improve enforcement of the EE criteria in the codes. The output is enhanced knowledge and capacity in CONUEE and the selected states/municipalities
- Technical advisory support in the approval process of the Mexican EE strategy that has to be in place by end 2016. The output is an approved EE strategy.
- Share and transfer Danish experience and knowledge on how to develop and implement supportive measures that incentivize industry to engage in EMS. The output is design and implementation of a voluntary agreement scheme for selected industrial sectors that leads to EE gains.

In addition, there will be outputs attached with strategic guidance and technical supervision and participation in coordination together with program advisors and PSF.

2.8 Outputs – South Africa

For the remaining period, DEA will continue supporting ongoing and supplementary programme activities expected to be initiated for undisbursed programme funds. Following outputs from TA from DEA in 2016/17 are expected:

- In-country knowledge provided: A framework for a RE data base and a statistical survey for the purpose of RE-planning by DoE and ESKOM is provided by DEA and a training concept in renewable energy is provided for South African Renewable Energy Technology Centre. Furthermore, DEA provides a review to ESKOM on network operation and control of distribution systems.
- Policy mainstreaming advice is provided enhancing in-house capacity in DoE, especially regarding the post-2015 National Energy Efficiency Strategy. Furthermore, supports policy mainstreaming through a review by DEA of the South African building codes.
- In-country knowledge is built and Danish experience shared for pilot projects through technical reviews and through a capacity building workshop on how to collect, store and analyse reliable data and information on electricity usage in public and municipal building.
- Policy mainstreaming advice by DEA to DoE through review of the upcoming outline on South Africa's carbon offset administrative and reporting system.

In addition there will be outputs attached with technical supervision of the program. Amongst other, DEA supports the procurement process managed by DoE and SANEDI through participation in technical evaluation of bids. Also, DEA will drive a lessons-learned workshop at the end of the extension period with partners to evaluate results, and progress and recommendations looking ahead.

2.9 Outputs - Vietnam

The cooperation with MOC within the LCEE program will continue and DEA will follow-through ongoing activities till completion. DEAs assistance for the remaining period is focusing on:

- Support to the implementation of demonstration projects (the last outstanding sub-component under the LCEE building component)
- Assist MOC on ad-hoc basis with reviews of regulation and similar (add-on to the LCEE)

MOIT considers the GIF to be a cornerstone in the future EE promotion in industries. In a time of a constrained government budget, MOIT is interested in developing national funding mechanisms off state budget such as the EE obligation scheme which has been in place for a decade in Denmark, as well as other funding mechanisms. MOIT has therefore requested continued DEA support to the consolidation of the mechanism. DEAs assistance for the remaining period is focusing on:

- Improving the effectiveness of the GIF administration; strengthening the TA capacity of the organisation and; improving the effectiveness of decision making procedures. The target is to have a draft proposal for an effective institutional setup presented for MOIT
- Expanding the scope of technology solutions supported by GIF through assistance to the drafting of at least three additional three technical guidelines
- Develop the framework for a consolidated GIF and negotiated with key potential partners and as possible entering agreements with future donors/partners for the consolidation of the Facility.
- Support to planning and follow-up on demonstration projects for EE in industries using Danish technology

Extended funds requested for the DEA Energy Partnership Programme will be used to engage in new activities requested from MOIT. Accordingly, DEAs assistance is focusing on:

- Assist MOIT in strengthening the policy implementation capacity through sharing of Danish experience with high-level staff of MOIT and related ministries and agencies with key mandates in the energy sector. This is attained through a delegation visit to Denmark with participation of several ministries and followed-up by further high-level policy dialogue.
- Capacitate the Institute of Energy to do in-depth power sector analysis of integration of RE in the power sector through technical management by DEA of a capacity building program for power sector planners, most notably Institute of Energy.
- Technical support by DEA to development of an Energy Outlook report based on scenarios developed by the planner trained.

3 Monitoring Mechanisms

The accountability of DEAs engagement is ensured through DEAs regular monitoring and reporting to the SC and thereby to the MFA and the MEUC and includes: annual work plans and annual reports with reporting on output indicators and early results at outcome level. In response to the appraisal team's recommendations to adjust the reporting system a simplified reporting system will be introduced by reporting on Key Project Indicators (KPI) during the extension period. The KPI format is under development and will be approved by the SC.

ToRs for DEA missions, end-of-mission reports or delegation study-reports is prepared for all DEA missions and delegation visits/internships, which also feed into the monitoring and reporting system. The end-of-mission report is used to discuss with counterparts and the Danish Embassy the output produced, its relevance and possible next steps to be taken. In addition, the ToR and the end-of-mission report clearly explains the linkage between the bilateral programme and the TA and technical supervision by DEA and so highlight the reference between the bilateral programme and DEA Energy Partnership Programme.

As per the project document on the present 2-year period, a Mid-term review should have been carried out in 2015 to discuss details of an exit strategy given that completion of the bilateral programmes does not coincide with completion of the support to DEA for its engagement in the programmes. Given the proposed one year prolongation, the Mid-term review was postponed to 2016. since it should be focused on informing decision on a new programme. The decision by MFA and MEUC on whether to conduct the mid-term review is pending

Also, the project document foresees an independent assessment of the target set for the outcome indicators defined for the support to DEA will be completed four months before funds expire. The independent assessment is to be based on systematic interviews of all involved government partner institutions in order to gauge the degree to which knowledge and experience have been transferred to and utilized by corresponding government institutions. Decision on the independent assessment is pending decision on a new programme.

Results of DEA engagement should obviously been seen in the context of the bilateral programmes. While a Mid-term review of the bilateral programme with Mexico is expected in 2016, the bilateral programmes with Vietnam and South Africa were Mid-term reviewed respectively in March 2015 and December 2014 and the South African Programme was reviewed again in March, 2016. The RED programme and the CNREC was evaluated ultimo 2014⁴.

In September 2015, DEA made its own survey of results⁵ achieved as per the monitoring and evaluation framework and largely based up on feed-back from partners in the countries. Hence, the exercise comprised survey missions to South Africa, Vietnam and Mexico to meet with key government partners. With regard to the cooperation with

⁴ Delman, J 2014 The Danish RED programme and China National Renewable Energy Centre (CNREC) – Report from final technical review mission, Copenhagen University

⁵ Monitoring – Annual Survey, DEA September 2015

Chinese partners, the survey was primarily informed by an external review including a review-mission to China.

Table 3 Reviews and evaluations of DEA Partnership Programme 2014-2016

Timeline	Country	
2014, December	China	Evaluation of RED-programme (CNREC)
2014, December	South Africa	Mid-term review of the bilateral programme
2015, March	Vietnam	Mid-term review of the bilateral programme
2015, September	China, Mexico, South Africa and Vietnam	Survey by DEA
2016, March	South Africa	Mid-term review of the bilateral programme
2016, August/September	Mexico	Mid-term review of the bilateral program

Furthermore, the extension of DEA Partnership Programme will give rise for a consolidating period at MEUC/DEA in order to explore modalities for a possible second phase of MEUC/DEAs GtG engagements to be supported by the Climate Envelope. In this consolidating period stepping stones for a future GtG cooperation by MEUC/DEA will be considered and it is foreseen that a programme of future interventions will be developed during the one year extension. Alternatively, an exit strategy will be decided.

4 Overview of Management Set-up

DEA Energy Partnership Programme

Support to DEA Energy Partnership Programme 2016-17 will still be governed by the SC consisting of representatives from the MEUC, DEA and MFA as defined in the current project document from April 2014. The SC is chaired by MEUC, and decisions are made by consensus. The secretary to the SC (ex officio member) is a designated DEA staff member. Its responsibilities include approving annual work plans and budget for DEA as well as annual technical and financial progress reports. Should the Mid-term review of the Energy Partnership Programme be decided, the SC will approve its terms of reference for and the report, monitor implementation of agreed review recommendations and discuss overall progress and identified pertinent issues.

To support the appraisal team’s recommendations to simplify and thereby streamline the flow of information it has been decided to introduce a DEA Energy Partnership Management Committee (MC) consisting of representative from the MEUC and DEA, which will meet on a regular basis. The main objective of the MC will be to more closely follow project implementation across the bilateral programmes based on KPI reporting provided by the DEA country managers (KPI reporting format to be developed). The MC will also be responsible for preparing SC meetings etc. The MC will to the extent possible ensure more strategic management and better coordination between the bilateral programmes and the DEA input described in this project document.

Bilateral programmes

The overall administrative responsibility of program funds rests with the MFA, in Vietnam and South Africa through the embassies. In Mexico, the MFA channels program funds

through the PSF and for a smaller part directly to Energinet.dk. Responsibility for financial progress reporting to the MFA lies with the contracted entities (COWI for the PSF and Energinet.dk). The program advisor reports to the MFA on progress in implementation on quarterly basis.

The MFA has the responsibility for the upcoming Mid-term review of the CCMEP, to which DEA also will provide inputs to the terms of reference and be resource persons during the review process. Tasks of the country SC include approval of terms of reference and of the Mid-term review report.

The overall steering of the bilateral programs rests with the program's steering committees. The country SCs approves annual work programs and budgets and has the overall responsibility for monitoring progress including outcome, outputs and activities. The SC in Vietnam is co-chaired by Vice Minister for Industry and Trade and the Ambassador of Denmark. MOC and MEUC/DEA are members of the SC. In South Africa, the SC is co-chaired by the Director of the DoE and the Deputy Director of DEA. In Mexico the SC is co-chaired between the Vice Minister for SEMARNAT, the Vice Minister for SENER and the Deputy Director of DEA. Key-partner institutions also attend in the SC. In Mexico and South Africa, the embassies are also members of the SCs, albeit in Mexico only as observer. The GtG cooperation in China is steered by a SC chaired by NEC. SC members include the National Development and Reform Commission, CICC, the Danish embassy and the Chinese ministries of finance and science.

Modalities for in-country management differ. In China, CNREC manages the Boosting Renewable Energy program and DEA has a seat in the Management Committee of the program. In Vietnam, there is a Project Management Unit hosted by MOIT. Day-to-day management is with the embassy in Hanoi. In South Africa - after a difficult start of the program - a management committee was established to strengthen coordination, progress and monitoring of the program. In Mexico, day-to-day program management and coordination is with the PSF and the international program advisor, except for the cooperation between CENACE and Energinet.dk. Working Groups (one per program component) attended by partners, program advisors, the PSF and DEA coordinates annual work program and attached budgets to be presented to the SC for approval.

In general DEA quality assures annual work plan and budgets in all three countries, also in light of the need to precisely define the DEA inputs, activities and results vis-a-vis the need for complementary inputs delivered by other TA providers.

Coordination between bilateral programmes and DEA Energy Partnership Programme

DEA is assigned the role of technical supervision of the bilateral programs in South Africa, Vietnam and Mexico and provides advisory support on strategic program orientation, but planning and management of program implementation, monitoring and reporting on progress to the country SCs is formally not the responsibility of DEA in any of the countries. Conversely, while the country SC approves the bilateral programmes annual work plans and budgets, it does not have competence to decide on resources of the DEA Energy Partnership Program – this is anchored at the SC located at MFA as mentioned in the section above.

The budget for DEA Energy Partnership Programme year 3 is outlined in the table below with an overall budget total of 13 million DKK and 14 full time equivalent staff. The salaries are based on a full time equivalent staff cost per year DKK 624.596. Operational costs include travels, workshops, consultancies etc. Travel expenses constitute 30% of the operational budget as stipulated in the Government decision (K-udvalg). Travel expenses and corresponding TA in country is outlined in table 6. The budget is outlined on four outputs (table 4) and on partner countries (table 5) as specified in the tables below.

Table 4 Output Budget

Output budget	2016	2017	
In 1.000 DKK	2nd half	1st half	Period total
Output 1, Climate	920	920	1840
Salaries	620	620	1240
Operational	300	300	600
Output 2, Energy Efficiency	1495	1495	2989
Salaries	915	915	1829
Operational	580	580	1160
Output 3, Renewable Energy	3354	3354	6709
Salaries	2324	2324	4649
Operational	1030	1030	2060
Output 4, Supervision	731	731	1462
Salaries	541	541	1082
Operational	190	190	380
Sub-total, salaries	4400	4400	8800
Sub-total, operational	2100	2100	4200
Total	6500	6500	13000

The budget on Supervision covers technical supervision of the bilateral programmes in Mexico, South Africa and Vietnam (as per the technical supervision task assigned to DEA) plus the budget on management showed in table 5 which covers administration of the DEA Energy Partnership Programme (budget control, financial and technical reporting etc.)

Table 5 Budget divided by country engagement

Output budget	2016	2017	
In 1.000 DKK	2nd half	1st half	Period total
China	2.774	2.774	5.548
Salaries	1.749	1.749	3.498
Operational	1.025	1.025	2.050
Vietnam	693	693	1.387
Salaries	468	468	937
Operational	225	225	450
South Africa	693	693	1.387
Salaries	468	468	937
Operational	225	225	450
Mexico	1.980	1.980	3.961
Salaries	1.405	1.405	2.811
Operational	575	575	1.150
Management	359	359	718
Salaries	309	309	618
Operational	50	50	100
Sub-total, salaries	4.400	4.400	8.800
Sub-total, operational	2.100	2.100	4.200
Total	6.500	6.500	13.000

Differences in level of efforts between countries refer to several concerns:

- Ability by partner institutions to absorb the assistance
- Ambitions on climate change mitigation
- Number of institutions in partner countries involved

Through the preceding RED program, China has proved to have sufficient capacity for absorbing the assistance and the Sino-Danish cooperation indicates also a notable impact on Chinese RE-planning, which furthermore holds interesting opportunities for Danish technology solutions. Also, CNREC and NECC are able to engage in the DEA Partnership with sufficient capacity.

Mexico's commitments for low-carbon transition are quite ambitious and the cooperation directly feeds into policy formulation and planning mechanisms including those attached with the INDCs and which are currently high on the agenda of DEAs counterparts. DEA is supporting two ministries and a number of affiliated institutions. Demand for peer exchanges and mainly short term capacity building is high and it supplements - with specialist expertise - the capacity provided through the posting of long term advisors with

the two ministries. Furthermore, in order to reach desired outputs and outcomes of the CCMEP, it is required to maintain the level of support from the first two years. The CCMEP is on track despite the delay in having program advisors and the PSF in place during the first year of program duration.

South Africa and Vietnam have submitted a less ambitious INDC than Mexico and DEA is involved with fewer institutions than in Mexico. The opportunity for DEA to provide tangible TA to the bilateral program in South Africa has until recently proved to be constrained for reasons of challenges with program structure and multiple levels of decision-making on the South African side. While this largely has been mitigated by now it is not justified to allocate a higher level of resources for the extension period.

In Vietnam, level of effort from the previous program period is also assessed to be adequate and is hence maintained for the extension period.

Accordingly, China and Mexico have been prioritized as stated in table 5.

For travel expenses 1.3 million DKK have been reserved according to the government decision. The number of travels and corresponding field/home time is outlined below in table 6.

Table 6 Numbers of travel and field/home time

County	No. of travels	No. of travel days	No. of person equivalent days in total	Field/Country days ratio (%)
China	20	400	1060	38
Vietnam	10	150	284	53
South Africa	9	90	284	32
Mexico	20	320	850	38
Management	1	5	170	3
Grand total	60	965	2650	36

Person equivalent days are calculated based on a day norm of 7.4 hours. DEA is restricted to spend no more than 30 % of the operational budget on travel, however, DEA will prioritise longer stays in-country, which corresponds to 36 % time spend in field. This also reflects the findings in the appraisal report to prioritize longer stays.

In response to demand from partners, DEA TA is often highly specialized and supplementary to TA from in-country advisors. Hence, TA provided by DEA in the field should be seen in the context of TA provided by long term advisers posted with government partners under the individual bilateral programs, in the context of short term advisors as well as in the context of demand by counterparts for short or longer term stay for capacity building and peer exchanges with DEA. These factors explain the comparatively high field/country ratio for Vietnam, where there is no advisors posted with counterparts. It is also worth noting that some activities attached to TA assignments do not require in-country presence and is not more cost effectively carried through from home-office and there is extensive interaction between DEA staff in Copenhagen and partner staff between

missions, both via Skype and e-mail and through partner visits in Denmark. The composition of the DEA expert teams working in individual countries in regards to number of experts and continuity of efforts largely reflects partners demand for specialist expertise.

Financial management of the programme, including budgeting, accounting, auditing and reporting will follow standard Danish Government procedures. MEUC has the responsibility for monitoring implementation of support to DEA including budget control. Payment to DEA will be made up front in two instalments: 50% of the total budget at project start upon submission of an invoice from DEA to MFA and 50% by 1st of February 2017.

The final accounts will be submitted to the MFA no later than 6 months after completion of activities. Accounting and auditing will follow the MFA general guidelines for accounting and auditing of grants channelled through governmental, parastatal and international organisations.