HOW TO DEVELOP A NAMA BY SCALING-UP ONGOING PROGRAMMATIC CDM ACTIVITIES ON THE ROAD FROM POA TO NAMAS

Study of South Pole Carbon Asset Management Ltd on behalf of KfW Bankengruppe and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

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Foreword

Use of carbon markets as a foundation for advancing climate policies of developing countries

The Federal Ministry for the Environment (BMU) cooperates with a large number of developing countries on fostering carbon markets as an instrument within the global climate protection regime. One long term commitment of BMU has been the development and support of the programmatic CDM. BMU promotes programmatic CDM projects, the so-called PoAs (Programmes of Activities) and the development of NAMAs (Nationally Appropriate Mitigation Actions). NAMAs serve as vehicles for developing countries to contribute to global climate protection, while at the same time creating a mechanism for industrialised nations to support these efforts financially. Conceptually, there are a number of areas where both NAMAs and PoAs can supplement each other. Therefore, how to further develop and integrate both mechanisms in practice is a topic high on the agenda.

In order to promote and develop programmatic CDM and JI projects, BMU established the PoA Support Center Germany with KfW about 3 years ago. The project is financed within the framework of the CDM/JI Initiative. Currently there are more than 30 projects in the Center's portfolio. The term NAMAs was first introduced in Bali in 2008. At the 2009 Climate Conference in Copenhagen, developing countries were asked to submit their initial ideas on NAMAs to the Climate Secretariat. At the same time a clear definition of NAMA is still lacking. This causes some insecurity but on the other hand leaves space for different concepts. Against this background, BMU and KfW discussed possible options for combining and integrating PoAs and the yet-to-be defined NAMAs. As a result, Southpole was commissioned to investigate how NAMAs could be developed from existing PoA activities, and propose a course of action based on the experiences at hand. To put it succinctly, Southpole's study encourages stakeholders to continue along the current path as one possibility to further advance the NAMA concept. One of the key points of discussion on NAMAs is of course financing: How can international financing, in the framework of supported NAMAs and/or credited NAMAs be combined with respective national resources (unilateral NAMAs) – and how can all be combined with carbon market finance.

It is clear that the demarcation between national and international contributions will need to be designed according to the country-specific situation as well as the concrete sectoral set-up. Experiences taken from the programmatic CDM can help speed up the development of new mechanisms, such as NAMAs, and ease mobilizing the carbon market's financing power for international climate financing. In this regard, the CDM has a twofold bridging function, allowing it to continue playing an important role in enhanced climate protection in the future.

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Executive Summary

> *"Imagine you are the head of the DNA in a developing country. Your Minister of Environment calls on you to please come up with a concrete design for a pilot NAMA for your country. She wants something very concrete and workable. You have never done this before but you then have a brilliant idea: why not just look at the PoA that was submitted for approval recently and see whether you can use it and its operational design elements as a starting point for the design of a concrete NAMA. What steps do I have to take to get there?"*

This report examines how planned and ongoing CDM Project of Activities (PoAs) could be used as a starting point to scale-up mitigation actions as National Appropriate Mitigation Actions (NAMAs). The report includes four country studies that have existing PoAs that could potentially serve as a basis for the design of a NAMA in the respective sector.

No clear consensus about the exact nature of NAMAs has been reached yet. Regulatory clarity and practical guidance have to still be developed in order to design and implement a new NAMA mechanism. The current lack of common definitions and rules provides an opportunity to explore best methods and ways forward for NAMA implementation and to develop valuable lessons for the robust design of future mechanisms.

The case studies were conducted in India, Nepal, Tunisia and Uganda, and are meant to serve as a basis to develop a project proposal for one or two of the four country studies to develop a pilot NAMA out of an existing or planned PoA. The PoAs are analyzed using a step-by-step approach that is implemented though four modules:

- **Module 1**: Describes the PoA, its scope, eligibility criteria and implementation arrangements and identifies the GHG emission categories targeted by the PoA.

- **Module 2**: Analyses the suitability for scaling-up of the PoA's four main design elements (eligibility criteria, baseline setting procedure, MRV process and PoA management). The outcome of this process helps identify if the PoA design a) is already fully applicable, b) needs to be adjusted or c) cannot be used and a new NAMA design is needed.

- **Module 3**: Evaluates the domestic policy and institutional framework to assess whether the existing framework is supportive of NAMA implementation.

- **Module 4**: Identifies follow-up actions for NAMA readiness based on the need for adjustments and new designs as identified in module 2.

Table 1 lists the four PoAs that have been used as case studies and the proposed direction of scaling-up to NAMA level. Table 2, below, shows the summary results of the case studies.

Table 1: PoA case studies and NAMA scope

Country	PoA Design Scope	NAMA Design Scope
Uganda	Small Scale Renewable Energy	Grid connected renewable energy development
India	Energy Efficiency in SME Steel Industry	Energy Efficiency in Energy Intensive SME Industries
Nepal	Domestic Biogas Development	Low Carbon Rural Development
Tunisia	Energy Efficient Roofs	Low Carbon Housing

Table 2: Summary of Case Study Assessments

	India			Uganda			Nepal			Tunisia		
	Ap	**Ad**	**ND**	**Ap**	**Ad**	**ND**	**Ap**	**Ad**	**ND**	**Ap**	**Ad**	**ND**
Eligibility criteria		✓			✓	✓(*)		✓			✓	
Baseline setting		✓		✓		✓(*)		✓				✓
MRV procedure		✓		✓		✓(*)		✓				✓
Management		✓			✓	✓(*)	✓				✓	
Total		**4**		**2**	**2**	**(*4)**	**1**	**3**			**2**	**2**

Note: Ap: Applicable Ad: Adaptable ND: New Design

The extent to which a PoA can be used for scaling-up to a NAMA level varies considerably among the different case studies. The analysis shows that the Indian PoA is the most applicable to NAMA scaling-up, followed by Uganda and Nepal. The Tunisian case study indicates that the PoA, in its actual design, cannot serve as a basis for the NAMA design.

The political and institutional framework in which a NAMA would operate differs considerably. For example, there seems to be little political support for a NAMA approach in Nepal. Tunisia, on the other hand, has shown strong interest in implementing NAMAs and a PoA could in fact be replaced by a NAMA. Table 3 below gives an overview of the political and institutional frameworks of the different case studies.

Table 3: Summary of Framework Assessments

	India			Uganda			Nepal			Tunisia		
	Yes	**No**	**Uk**	**Yes**	**No**	**Uk**	**Yes**	**No**	**Uk**	**Yes**	**No**	**Uk**
Domestic political support for NAMA?			✓			✓		✓		✓		
Domestic institutional capability?	✓			✓			✓			✓		
PoA NAMA co-existence possible?			✓	✓			✓				✓	
NAMA integration likely during next decade?	✓					✓			✓	✓		
Total	**2**		**2**	**2**		**2**	**2**	**1**	**1**	**3**	**1**	

Note: Uk: unknown

Based on the information presented above consideration should be given to launching a pilot NAMA based on a PoA in Uganda and India. Furthermore, the report draws five general lessons learnt and respective conclusions from the PoA case studies:

Lesson learnt No. 1:
"Tried and tested PoA elements can serve as useful building blocks when designing NAMAs."

Some design and implementation elements of PoAs could easily be used to scale-up to a NAMA. These include elements of setting eligibility criteria, baseline setting and MRV. In general, the more project specific parameters are in the PoA, the more difficult it is to generalize and scale-up to a NAMA.

Conclusion: There should be a systematic assessment of NAMA applicability of different existing CDM methods and an analysis on how existing CDM methods can be further refined to increase the share of standardized elements in baseline setting, definition of eligibility criteria and MRV. This would help the UN CDM EB and the AWG LCA to understand the integration potential, and it could help NAMA designers to use the CDM experience systematically.

Lesson learnt No. 2:
"In many cases a promising approach to scale up a PoA to a NAMA is to complement existing PoA elements with the introduction of a new policy/regulation (or the adjusting an existing policy)."

One purpose of the PoA approach is to support the implementation of policies. The report shows that the stronger the integration of the PoA with domestic policies (e.g. Uganda: PoA as a central element to increase payments in addition to feed-in-tariffs; Nepal: PoA as central element to finance construction subsidies to users), the better the chances are for successful scaling-up.

Conclusion: Ensure strong policy integration in the design of PoAs to facilitate scale-up to NAMAs.

Lesson learnt No. 3:
"The co-existence of NAMAs (including future "credited NAMA") with PoAs in the same sector is possible if double-counting is avoided using a robust approach."

The PoA approach is the only short-term solution to create the "crediting" functionality within a NAMA (unilateral or supported). More details need to be worked out, but there is a strong appeal for the use of the existing PoA approach versus a not yet operational credited NAMA approach.

Conclusion: The only and most robust solution in the short-term is to i) issue CERs to the PoA and then ii) deduct those issued CERs from the NAMA achievement. In the midterm, the PoA reform agenda at the CDM EB needs to connect with the ongoing AWG-LCA discussion on NAMA, especially crediting NAMA, to address the double-counting issue (as well as other issues to facilitate co-existence and maximize the utilization of lessons-learnt in the CDM in the context of NAMA design). The UNFCCC is already engaged in informal dialog on this subject.

Lesson learnt No. 4:

"While many PoA elements can serve as a good basis for NAMA design, the real-life experience with PoAs is still very limited. PoAs need to gain in importance, numbers and volumes to really serve as significant cornerstone for NAMAs."

The suitability of PoA to support scaling-up must be improved by implementing the reform agenda that has already been identified by the Conference of Parties (COP). Connection the relevance of PoA in the context of scaling-up in the NAMA context can create additional momentum.

Conclusion: Continue to reform CDM in general and PoA rules in particular in order to gain more real-life experience which will serve the development of NAMAs.

Lesson learnt No. 5:

"The international climate-policy community has to gain much more practical experience with scaled-up mechanisms"

Many design steps from PoAs to NAMAs still remain highly speculative as the NAMA concept is not yet defined clearly. Facilitating first pilot NAMAs will help to get first-hand experience on how

NAMAs could be established and managed. Such information will be very useful to facilitate the negotiation process to define the operational rules for NAMAs.

Conclusion: Launch pilot NAMAs to learn from the practical experience of so doing, communicate lessons-learnt.

1. Context

This report examines how planned and ongoing CDM Project of Activities (PoAs) could be used as a starting point to scale-up mitigation actions as National Appropriate Mitigation Actions. The report is meant to serve as a basis to develop a project proposal for one or two of the four country studies to develop a pilot NAMA out of an existing or planned PoA.

The Kyoto Protocol's first commitment period is coming to a close at the end of 2012, and the current international negotiations of the UN Framework Convention on Climate Change (UNFCCC) are focusing on what a future climate regime might look like. Despite the fact that there is broad agreement that mitigation actions have to be scaled up significantly if the global community is to succeed in preventing dangerous climate change, the global community is far from reaching a unified global agreement on mitigation goals. At the heart of the impasse is the debate about 'common but differentiated' responsibility, in other words, the question of how emissions from developing nations can be mitigated, taking into account the responsibility (share of historic, current and future emissions) and capacity (income) of all Parties. Several new market and funding mechanisms are currently being discussed, among them, sectoral approaches and National Appropriate Mitigation Actions (NAMAs) to be taken by developing nations.

NAMAs were introduced in the 2007 Bali Action Plan to encourage mitigation actions from developing countries, without requiring them to make binding commitments. NAMAs are currently only very broadly defined as:

> *Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of: (…) (ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner;*

The post Bali Action Plan period has failed to reach a clear consensus about the exact nature of NAMAs. Accordingly, the 43 NAMA proposals by Non-Annex 1 Parties that have been submitted vary dramatically in their extent and content, ranging from national emission reduction strategies to project activities at the local level. [1]

Furthermore, it remains unclear how such NAMA action will be financed and accounted for. In the NAMA literature, three types of financial mechanisms are normally identified:

- **Unilateral NAMAs.** These are NAMAs that are financed by the host country.

- **Supported NAMAs.**[2] These are NAMAs that are financed by the international community via ODA or the Green Climate Fund.[3] At the recent COP meeting in Cancun, the CMP

[1] A summary of all NAMA submissions can be found here: http://unfccc.int/resource/docs/2011/awglca14/eng/inf01.pdf

[2] Art. 4.1 (b) of the Bali Action Plan commits all Parties to "Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change...;" and clarifies that "The extent to which developing country Parties will effectively implement their commitments un-

agreed to establish a registry that will list all NAMAs and their support. The CDM believes that such a registry will help developing countries find donor countries that will financially support NAMAs (Ecofys 2011).

- **Credited NAMAs.** These are NAMAs that are financed through the generation of CERs or other types of carbon certificates in national or international carbon markets. The decision on what type of credits such NAMAs would generate has been postponed to COP 17 in Durban. What role the private sector will play in funding mitigation actions under NAMA is still very unclear and many market participants have voiced their concern that current NAMA approaches do not leave enough room for the private sector.

For NAMAs to be successful in actually reducing emissions, regulatory clarity and practical guidance are urgently needed. Many efforts are currently underway to explore how NAMAs and other new mechanisms could be designed and implemented.[4]

The current lack of common definitions and rules provides an opportunity to explore best methods and ways forward for NAMA implementation and to develop valuable lessons for the robust design of future mechanisms. This report explores how future NAMA activities could be informed by current activities under the CDM. Specifically, the report explores how Programmes of Activities (PoAs) could be used as a starting point for scaling up NAMA activities.

Programmes of Activities (PoAs) have been launched by the CDM Executive Board (CDM EB) in an effort to reduce transaction costs in the CDM and expand the mechanism's applicability to micro project activities. A PoA allows for bundling of many micro projects into one single project. Whereas stand-alone CDM projects must be approved individually by the CDM EB, a PoA needs to be registered only once by the CDM EB. After that, it can include an unlimited and unspecified number of individual projects without recourse to the CDM EB. Furthermore, the COP/MOP decided in 2005 that local, regional or national policies cannot be considered as regular CDM projects, yet such policy measures can be used under a PoA approach.[5]

der the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology...".

3 The Green Climate Fund was approved at meeting in Copenhagen: "We decide that the Copenhagen Green Climate Fund shall be established as an operating entity of the financial mechanism of the Convention to support projects, programme, policies and other activities in developing countries related to mitigation including REDD-plus, adaptation, capacity-building, technology development and transfer." More information can be found here: http://unfccc.int/cancun_agreements/green_climate_fund/items/5869.php

A summary of fast track financing can be found here: http://www.wri.org/publication/summary-of-developed-country-fast-start-climate-finance-pledges

4 At the UNFCCC meeting in Bangkok of April 2011, a NAMA workshop was held, and it was decided that Parties should prepare a program of work with the following priorities: Common procedure for NAMA baseline preparation and Common procedure for the description of a NAMA (NAMA design elements)

Another recent OECD meeting on MRV and Carbon Markets (March 2011) also highlighted the need for more guidance and clarity for NAMAs and other new mechanisms. For relevant documents, see http://www.oecd.org/document/31/0,3746,en_2649_34361_47513375_1_1_1_1,00.html

5 CDM Executive Board, at its 47th meeting decided: "A programme of activities (PoA) is a voluntary coordinated action by a private or public entity which coordinates and implements any policy/measure or stated goal (i.e. incentive schemes and voluntary programmes), which leads to anthropogenic GHG emission reductions or

PoA projects have not been implemented widely. This is, in part, due to its complexity, but it is also because some CDM regulations have proven to be stumbling blocks.[6]

Currently there are 84 PoAs at validation and eight registered (June 2011, UNEP Risoe, CDM Pipeline http://www.cdmpipeline.org). Despite difficulties, the on-the-ground experience with PoAs is relevant and can inform the design of NAMAs. A NAMA that is designed by scaling up an existing PoA can build on the existing know-how that has been developed for designing and implementing the PoA, such as baseline setting, monitoring requirements, and governance. In other words, "NAMA readiness" can be strengthened by taking advantage of the capacity that has already been built for the implementation of PoAs.

This report analyses the potential relationship between PoAs and future NAMA activities. The report includes four country studies that have existing or planned PoAs that could potentially serve as a basis for the design of a NAMA in the respective sector. The case studies were conducted in India, Nepal, Tunisia and Uganda, countries with different positions on NAMAs:

- Uganda and Nepal have not yet submitted NAMA plans to the UNFCCC.
- India communicated that it will voluntarily reduce the emissions intensity of its GDP by 20–25% by 2020 compared with 2005 levels. It added that emissions from the agriculture sector would not form part of the assessment of its emissions intensity. India stressed that the proposed domestic actions will not have a legally-binding character. India did not elaborate how NAMAs will interact with the CDM.
- Tunisia explicitly mentioned that the use of the CDM is not excluded from its NAMA actions. Tunisia lists a range of mitigation aims in numerous sectors, yet does not specify an emissions reduction target. Tunisia stressed the voluntary nature of these actions and underlined the importance of the need for international financial support, technology transfer and capacity-building.

Structure of the Report

The report systematically analyses the characteristics of the case-study PoAs and their applicability for NAMA design:

- **Chapter 2** lays out the methodological framework that was developed to evaluate the existing PoAs in order to evaluate the potential of using design elements to scale up to a NAMA approach.
- **Chapter 3** includes all four case studies, including a domestic biogas PoA in Nepal, an energy-efficiency PoA in the Indian steel sector, a Ugandan renewable energy PoA and an energy-efficiency PoA in the Tunisian building sector.
- **Chapter 4** includes recommendations and next steps toward piloting NAMAs.

net anthropogenic greenhouse gas removals by sinks that are additional to any that would occur in the absence of the PoA, via an unlimited number of CDM programme activities (CPAs). "

[6] See results of call for public input of the 55th meeting of the CDM Executive Board. The submissions can be accessed here: http://cdm.unfccc.int/public_inputs/2011/poa/index.html

One of the most important aspects of NAMAs, which we do not further elaborate on in the case studies, includes how the achieved emissions reductions from NAMAs will be accounted for to avoid double counting with PoAs. Because this issue is vital for ensuring that real emissions reductions are achieved, we briefly discuss it now, fully aware that this is an area that needs further elaboration and research. More considerations on this have been included in the Annexes.

It is unlikely that the Kyoto Protocol will be followed by a unified, international agreement with binding emissions targets. Instead, Parties are moving to "a pledge and review" approach where nations make their individual mitigation commitments that are, only to a limited extent or not at all, coordinated internationally. [7] Parties are currently discussing if such multinational approaches would allow for a common allowance unit that would be tracked by a UN managed International Transacting Log or if post-Kyoto will consist of independent tracking systems and credits which are only loosely linked (similar to what we currently see in the voluntary offset market).

One of the main challenges lies in ensuring that there is no double counting among all the proposed mechanisms (i.e. the different types of NAMAs as well as other existing or emerging mechanisms such as the CDM or sectoral crediting). It remains unclear how the emissions reductions from crediting mechanisms (such as credited NAMAs) would be accounted for in the national emissions pledges; in other words, whether both developed (buyer) and developing (seller) countries would be able to count emission reductions from crediting mechanisms towards their respective pledges, or whether only buyers will get to count them, as is currently the case under the CDM and JI.[8]

Avoiding double counting when designing NAMAs is vital if climate pledges are to be effective. Although the Parties will discuss a possible new crediting mechanism for NAMAs at COP 17 in Durban, it is likely that a new mechanism will take years to develop.

Because of the many unknowns and uncertainties surrounding NAMA design and rules it is important to gain on-the-ground experience on how such mechanisms could be implemented. Such activities can inform the top-down policy debates that will be necessary to fully develop this new policy mechanism. The following case study analysis is meant to contribute to the ongoing discussions.

In the interim, there is need for simple and robust solutions. In relation to the double-counting risk, this report makes a straight-forward recommendation on 2 steps: (i) *issue CERs to the PoA for eligible CPA, (ii) and then deduct those issued CERs from the NAMA achievement*. Please find more considerations on this issue in Chapter 6.1.

[7] Participants at the first UNFCCC workshop on developing country NAMAs held during AWG-LCA in Bangkok in April 2011, suggested that s NAMA design elements, such as baseline setting procedure and a NAMA design template should be harmonized but *not* NAMA target setting (following 'pledge and review' approach).

[8] In addition to the 43 developing countries that have submitted NAMAs (many of them including quantified emission reduction pledges), 42 developed countries have also submitted emission reduction pledges, which together have been projected to reduce emissions by up to 4 billion tons (Gt) CO2e in 2020 from "business as usual." A recent study modelled the impact of potential double counting and found that it could effectively reduce the ambition of current pledges by up to 1.6 billion tons CO_2e in 2020 - equivalent to 10% of the total abatement required in 2020 to stay on a 2°C pathway (Erickson et al 2011).

2. Methodology

The report analyses four case studies to a) demonstrate how concrete PoAs might serve to design NAMAs in a bottom-up process and b) select two concrete cases for the actual development of a pilot NAMA design out of an existing PoA.

This study contributes to the current discussion by providing guidance and practical examples how NAMAs could be designed using familiar elements from the CDM in general and from CDM Programmes of Activities in particular. The study explicitly wants to present an alternative to a top down NAMA design approach.

The methodology comprises four modules which present a step-by-step approach on how to scale-up an existing or planned PoA to a NAMA. The authors were guided by the following scenario:

> *"Imagine you are the head of the DNA in a developing country. Your Minister of Environment calls on you to please come up with a concrete design for a pilot NAMA for your country. She wants something very concrete and workable. You have never done this before but you then have a brilliant idea: why not just look at the PoA that was submitted for approval recently and see whether you can use it and its operational design elements as a starting point for the design of a concrete NAMA. What steps do I have to take to get there?"*

The authors' answer is that, to get there, you must take four steps:

- Step 1. Understand the PoA (Module 1)
- Step 2. Analyze the four key PoA design elements[9] (Module 2)
- Step 3. Evaluate the framework (Module 3)
- Step 4. Design the NAMA based on outcomes of the first three steps (Module 4)

These four steps/modules are described in more detail below.

[9] The four key PoA design element comprise: a) eligibility criteria, b) baseline setting c) monitoring, reporting and verification requirements and d) management set-up.

2.1 Module 1: Introduction of the PoA

The PoA is described briefly in terms of its eligibility criteria, scope and the main implementation arrangements as per the PoA design document, including an analysis of the legislative framework in which the PoA is developed, and its fit with the existing domestic policies. This module also provides a categorization of the sources of GHG emissions that experience emission reductions as a result of CPA implementation. These sources are characterized in accordance with IPCC's GHG inventory categories. GHG Inventory Sources according to IPCC GHG Emission Categories are not included in a PoA's design documents but shall be analyzed as these categories are important when designing MRV procedures for the NAMA below (as MRV procedures tend to be aligned with National GHG inventories).

The key questions that need to be answered when completing this module are:

- What is the PoA's scope (technical and geographical)?
- How is the PoA management structure set-up?
- What are the basic implementation arrangements?
- What is the PoA's fit with existing national policies and the regulatory framework?
- What are the main GHG emission sources within the PoA that will deliver ERs?

2.2 Module 2: Analyze operational design elements

This module looks at the concrete design elements of the PoA and analyzes them with regard to their applicability for the design of a NAMA. Based on this analysis, each PoA element is categorized into one of the following categories:

- PoA design elements that can be applied directly without modification (this could include, i.e., the process for the determination of baselines for specific activities),
- PoA design elements that are relevant but require some adjustment (this could include, for example, baseline setting procedures for activities that are not included in the PoA but would be covered by the NAMA), and
- PoA design elements that cannot be used for the NAMA design. Hence, new elements are required to complete the NAMA design (this could include, for example, a process for the setting of NAMA targets).

The PoA design elements that are investigated include: a) eligibility criteria, b) baseline setting, c) MRV procedures, and d) management.

Table 4 below highlights the guiding questions to assess NAMA Suitability of PoA Design Elements of Module 2.

Table 5: Guiding Questions to Assess NAMA Suitability of PoA Design Elements

PoA Element	Guiding key questions
Eligibility criteria	- What are the PoA's eligibility criteria? - Should the eligibility criteria be adjusted to include additional activities under a NAMA, such as expansion to other sectors and intervention-types? - Should the eligibility criteria be adjusted to be able to scale-up activities through the involvement of additional implementation entities? - Is the PoA limited to a region? Should its geographical coverage be increased to a national scale? - Should the eligibility be adjusted to target emission reductions from the same IPCC GHG emission categories under a NAMA?
Baseline setting	- How is the baseline set in the PoA? - Is the baseline setting applicable to a NAMA? - Can the baseline be adapted by introducing standardization elements? - Can the baseline be simplified in the context of a NAMA? - Can the PoA baseline be used to set targets for the NAMA?
MRV procedures	- What are the key monitoring requirements of the PoA? - Are the PoA monitoring requirements workable in a NAMA context or would they be too difficult to implement? - Can a NAMA-level GHG inventory and its related MRV system be upgraded and operated using the PoA as a starting point? - Who is responsible for monitoring and managing the verification process? - What is the capacity of the relevant entities in the PoA to estimate, collect and manage GHG emissions in a NAMA context?
Management	- How is the PoA management structure set-up? Who is managing the CME? - Could the CME play a crucial role in managing a NAMA? - If not, would it be possible to transform the PoA CME into an entity with the institutional capacity to manage a NAMA? - Are the current incentives/regulations sufficient to successfully manage a NAMA? If not, what additional incentives/regulations would be needed to successfully manage a NAMA?

2.3 Module 3: Evaluate Framework

This module evaluates the political and institutional framework in which a NAMA would operate. Four key questions shall guide the evaluation:

- Is there sufficient domestic political support for the implementation of a NAMA?
- Is the current host country's institutional capacity sufficient to implement the policies/regulations needed for a NAMA?
- Could the PoA co-exist with a future NAMA targeting the same (sub-)sector?
- Is a pilot NAMA likely to be integrated into domestic policies within a decade?

These four key questions are discussed and for each of them it is concluded whether the topic has a positive or a negative impact on the NAMA and its co-existence with a PoA.

2.4 Module 4: Conclusions and next steps

Modules 1 to 3 assess the suitability of the PoA for scaling-up to a NAMA in general and which and how PoA elements can be used in NAMA design in particular. The concluding questions that need to be answered at this final stage are:

- Is scaling-up the existing PoA to a NAMA a feasible option and a good idea? The response will be based on the outcome of the analysis (Modules 1-3).
- Which would be the main advantages of scaling-up into a NAMA? This will summarize the main benefits of expanding the analyzed PoA into a NAMA.
- Which are the main design elements of such a NAMA? A summary outline of the proposed NAMA is presented in a standardized NAMA Draft Design Sheet.
- Which would be the proposed follow-up activities? A list of proposed next steps and follow up activities is suggested.

2.5 Potential benefits of scaling-up a PoA to a NAMA

The main idea of this conceptual approach is to analyze how the design of a NAMA can be built upon on a scaled-up version of the existing PoA framework whenever possible vs. the alternative of designing a NAMA based on a conceptual framework that does not (yet) exist in practice. The main differences of this approach are the following:

1. Bottom-up vs. Top-down: with this approach, a NAMA framework is designed by scaling-up an existing PoA initiative (using a 'bottom-up" approach), instead of being derived from an existing or planned domestic policy (in a "top-down" fashion);
2. Operational vs. conceptual: the proposed approach builds on existing and operational international cooperation mechanisms, on established procedures and standardized and clear guidelines, so it could be readily and easily implemented; on the other side, having

to develop new rules for a new "NAMA mechanism" - which is currently under discussion and still in a conceptual stage- would delay any real NAMA implementation *sine die*.[10]

3. Building on existing CDM capacities vs. starting anew: a NAMA that is designed by scaling up an existing PoA can rely on existing capacities in relation to: i.e., the technical expertise with design, implementation and operation of concrete emission reduction activities, MRV and government procedures. By using these capacities as a starting point, they can then be scaled up to strengthen "NAMA readiness".

This bottom-up approach thus offers the following inmediate benefits:

a) there is no need to wait for the outcome of negotiations and for the operationalization of a new institutional NAMA mechanism (that could take years);
b) a PoA is an existing, useful and workable framework that could trigger a short-term implementation of NAMAs while at the same time fostering carbon market development (i.e. towards incrementally "scaled-up PoA") ;[11]
c) the design of an eventual future NAMA mechanism could benefit from the lessons learnt, the improved capacities and the best practices established in the PoA to NAMA process.; and
d) this approach is consistent with one of the explicit objectives of the PoA, which is to facilitate the implementation of any domestic mitigation policy, measure or stated goal by including a potentially unlimited number of activities in a mitigation program.[12] Therefore, the "PoA to NAMA" approach directly and immediately strengthens implementation of domestic mitigation policies.

The generic benefits listed above could potentially lead to the following immediate results:

1. A rapid and cost-effective scaling up of appropriate actions under existing international climate cooperation mechanisms with strong participation and control of host countries, as a result of the strong integration of the PoA with domestic policies, NAMA targets and NAMA level MRV,
2. Stronger investment incentives, as a result of a more supportive and predictable incentive regime (domestic and international support plus more bankable carbon credit revenues),
3. Potential increased value of surplus, non-program emission reductions (representing real reductions within the NAMA system) as result of accounting differences for quantification of ER under different MRV approaches (CDM vs. i.e. IPCC rules), the avoided loss of non-recognized CER as result of delayed CDM registration (or rejection), rejected issuance requests and/or reduced CER volumes as result of gaps in CDM monitoring data, and accounting of emission reductions at non-program sources due to successful NAMA support activities and the indirect effects an integrated PoA will create, i.e. by reducing barriers to commercial (non-supported) market development.

[10] Principles of a NAMA mechanism were agreed in the Bali and Cancun meetings within the context of the Ad Hoc Working Group on Long-term Cooperative Action, but specific rules and procedures related to their concrete design, implementation, financing, MRV requirements are still being negotiated.

[11] The UNFCCC launched a request for public input on "scaling-up" PoA in March 2011.

[12] See Annex 38 EB 32 for reference.

3. Case Studies

3.1 India energy efficiency of SME steel furnaces

Summary Analysis: PoA to NAMA Evaluation

Country: India	PoA: Energy Efficiency in SME Steel Industry

Module 1: Introduction to the PoA

The objective of this PoA is to improve the energy efficiency of hot and cold steel rolling furnaces in India's small & medium-size (SME) steel industry by 20 - 50%. According to 2007 GHG emission estimates, the iron & steel sector is the second largest contributor of industrial emissions with 117 mil tonnes CO_2 p.a.

Module 2: Analyze operational design elements

Assessment of PoA elements regarding their applicability for the design of a NAMA

	Applicable	Adaptable	New design
Eligibility criteria		✓	
Baseline setting		✓	
MRV		✓	
Management		✓	

Comments: A NAMA could be designed by expanding the eligibility criteria to include furnaces and burners of similar size for other industries, such as SME in cement, pulp & paper, glass industries, etc).

The PoA method is adaptable and the procedure for generating the baseline data from the steel industry can be applied to obtain baseline data from the same main equipments in other industries. Nevertheless, data gaps in the steel and other industries will have to be filled, and MRV procedures implemented and strengthened, because annual GHG emissions data from the iron & steel industry is currently available for only the industry as a whole but not separately for SME steel mills. MRV procedures could also be applied to other industries and would follow the same MRV methodologies as in the steel industry.

The existing institutional arrangements for PoA management (and for the eventual future NAMA) will need to be strengthened. ISTSL can expand its technical and energy audit activities to other SME sectors; SIDBI has already existing financial lending relationships with these other sectors; and while BEE (Bureau for Energy Efficiency) collects activity data (energy consumption data) for large scale units only, it could be tasked to expand its coverage to SME as well.

Module 3: Evaluate Framework

Assessment of domestic policy and regulatory environment preparedness for NAMA

	Yes	No	Unknown
Domestic political support for NAMA?			✓
Domestic institutional capability?	✓		
PoA NAMA co-existence possible?			✓
NAMA integration into domestic policy likely within a decade?	✓		

Comments: India's mitigation pledge is a 20-25% emission intensity reduction target per unit of GDP by 2020 compared to 2005 (equal to a reduction of 1.3%-1.7% per year).

While India has made a clear commitment to domestic actions (and started to implement them), it has not stated clearly how and to what extent it intends to deploy domestic, supported or credited NAMAs. With over 1.000 CDM projects, 10 PoAs, and the recently launched energy efficiency and renewable certificate trading schemes, India has the required institutional capacity to implement NAMAs.

The Indian Govt. is currently shaping domestic policies to promote energy efficiency of SMEs. It has already stated that it would consider scaling-up the existing Energy Efficiency Certificate (EEC) scheme to include SME if its first phase (focusing on large energy users) is successful. While a co-existence of a PoA with a NAMA is technically feasible, its actual compatibility will depend on the design of future domestic policy and its fit in relation to a) avoidance of double counting and b) ensuring efficient use of support to promote EE in the SME industries.

Module 4: Conclusions and Next Steps

The analysis concludes that the India PoA EE for the SME steel industry is a good candidate for scaling-up to NAMA. The following next steps are proposed:

- Evaluate/assess the potential for expansion of furnaces and burners in similar energy-intensive SME industrial sectors, including power and steam generation, fertilizer, cement, aluminum, textile, pulp & paper, glass, etc.
- Develop MRV procedures for collecting and analyzing activity data for this equipment type, (e.g. energy use fuel requirements, output) and design MRV infrastructure (e.g. who collects what, how often, and under what mandate).
- Develop standardized baselines for this equipment based on CDM method AMS II.D version 12.
- Assess CME performance and capacity constraints for scale-up into NAMA.
- Offer support to the Indian Govt. to design a conceptual framework for a NAMA in this sector and explore its interaction with a PoA.

For the proposed NAMA design based on this PoA, please see the NAMA design table below.

Detailed Analysis: PoA to NAMA Evaluation

Module 1: Introduction to the PoA

Description of the PoA - India Energy Efficiency in SME Steel Industry	
Key questions	**Answers**
What is the PoA's scope (technical and geographical)?	The objective of the proposed POA is to improve the energy efficiency of SME steel industry in India, leading to reduction of GHG emissions to the atmosphere. The proposed efficiency measures include the installation of fuel efficient low excess air burners, automated control systems for excess air and furnace temperature control, waste heat recovery through the addition/retrofitting of recuperators and improved insulation of furnaces. In a typical SME steel industry furnace these measures can reduce energy consumption by up to 20 to 50%.
How is the PoA management structure set-up?	Small Industries Developx1ment Bank of India (SIDBI) is the CME at the cluster level (involving one or several SME steel industrial facilities within a cluster). SSC CPAs to be included in this PoA can comprise a single facility or multiple facilities within the same cluster. The coordinating entity undertakes the responsibility of facilitating the arrangement of technology, contracts with equipment suppliers, financial loans from potential lenders, monitoring of implementation and monitoring of emission reductions achieved due to the Program of Activity. India SME Technology Services Ltd. (ISTSL), a nationally active technical service provider for SME industries in India, is supporting SIDBI in this PoA and is providing technical assistance to different entities at the CPA level and to the PoA on a whole.
What are the basic implementation arrangements?	SIDBI & ISTSL would help in implementation of the proposed energy efficiency improvements at the cluster level involving one or several SME steel industrial facilities within a cluster. SSC CPAs to be included in this PoA can comprise a single facility or multiple facilities within the same cluster. The coordinating entity undertakes the responsibility of facilitating the arrangement of technology, contracts with equipment suppliers, financial loans from potential lenders, monitoring of implementation and monitoring of emission reductions achieved due to the Program of Activity. Small Industries Development Bank of India (SIDBI) also provides lines of credit and loans for the financing of energy efficiency investments for SME in cooperation with KfW.
What is the PoA's fit with the existing national policies and the regulatory framework?	In its Copenhagen Accord related communications, the Government of India announced a 20-25% emission intensity reduction target per unit of GDP by 2020 compared to 2005 (equal to 1.3%-1.7% per year). It has not defined a separate target for the SME sector. This aggregate figure might serve as a starting point for the formulation of a NAMA target. India was able to achieve a 30% emission intensity reduction between 1994 and 2007 (or 1.4% per year) which means that its 25% by 2020 target represents a small improvement compared to past trends. The planned PoA has been developed in cooperation with Indian regulatory authorities to address a niche/gap of existing regula-

	tions. Even though the PoA has not been developed with the intention to scale it up into a NAMA, it supports and supplements a number of domestic policy initiatives which are directly linked to climate change mitigation. In particular, the Government of India has announced two mechanisms: the renewable energy credit, and the energy efficiency certificate trading mechanisms as means to achieve India's domestic emission intensity targets. However, participation under these schemes is limited to large energy users (e.g., iron & steel facilities which consume more than 30,000 metric tonnes of oil equivalents (MTOE) per year).
What are the main GHG emission sources within the PoA that will deliver ERs?	The PoA generates emission reduction from reducing CO2 emissions only. IPCC category: Reducing GHG emissions from the use of fossil fuels in SME steel mills (reported under Industrial Emissions [Stationary Sources], Iron & Steel Sector in the National Inventory). According to 2007 GHG emission estimates, the iron & steel sector is the second largest contributor of industrial emissions with 117 mil tons CO_2 per year.

Module 2: Analyze Operational design elements

Operational element analyzed:	**Eligibility criteria**
PoA India Energy Efficiency in SME Steel Industry	
Key questions	**Answers**
What are the PoA's eligibility criteria?	The following criteria apply for inclusion of a SSC CPA in the PoA: - A bilateral agreement shall be signed between the CME and the industrial facility that is participating in the SSC CPA, specifying all roles, responsibilities and duties of each entity. - Each participating industrial facility shall agree to invest voluntarily in implementing the specified energy efficiency measures and agree to share the CDM revenues with the CME. - Each SSC CPA shall consider a set of inter-related measures that are aimed at reducing emissions of greenhouse gases that would not have occurred in the absence of the CPA. - Each SSC CPA shall apply the approved small-scale baseline and monitoring methodology AMS II.D version 12. - Newly-built furnaces will not be allowed within a SSC CPA. - Energy efficiency improvements in each facility will be limited to and consist of at least one of the six identified energy-efficiency improvements. - Changing the type of fuel used at the industrial facility is forbidden, but changing the fuel from one quality or grade to another quality is allowed.

Should the eligibility criteria be adjusted to include additional activities under a NAMA by: a) expanding to other sectors and intervention- types, b) involving additional implementing entities, c) expanding geographical coverage to a national scale, and d) targeting additional ER within the same IPCC GHG emission categories under a NAMA?	a) Yes. Similar large-scale interventions targeting furnaces and boilers should be included. However, scaling-up to large mills could create overlaps with other government programs, namely the energy efficiency scheme for large industrial facilities (which should be avoided). Inclusion of potentially "non-additional" activities, i.e. activities that are implemented autonomously by the industry after the successful removal of barriers. b) Yes. Mandatory participation of facility operators, which is not permitted under a PoA approach by means of establishing and enforcing energy efficiency standards, in conjunction with a set of incentives to facilitate implementation. c) No. PoA is already targeting national scale. d) Yes. Targeting of activities that result in GHG emission reductions outside CDM method II.D, such as biomass co-firing and fuel switch. In aggregate, scaling-up outside of the PoA within a NAMA framework could contribute towards substantial additional emission reduction activities.

Conclusion regarding applicability for NAMA design

Applicable ☐ **Adaptable ☒** **New design ☐**

The NAMA design should be explored on the basis of expanded eligibility criteria, covering furnaces and burners of similar size in other industries, such as SME in cement, pulp & paper, glass industries. The rationale for scaling-up into this direction is the observation that the PoA method is directly applicable and that process for collecting baseline data from the steel industry can also be applied in other industries.

To be evaluated is the potential for the inclusion of similar large-scale interventions for SMEs and non-SME that do not fall under the Indian EEC scheme.

Operational element analyzed:	Baseline Setting
PoA India Energy Efficiency in SME Steel Industry	
Key questions	**Answers**
How is the PoA baseline set?	The PoA baseline is set In accordance with CDM method AMS II.D as "historic energy use of the equipments to be replaced/upgraded" and "demonstration of the remaining lifetime of the replaced equipment" for all CPA.
Is the PoA baseline setting procedure generally applicable for NAMA baseline setting?	The baseline setting procedure is adaptable to a NAMA. If India's NAMA targets were to be defined as a percentage reduction of GHG emission intensity in comparison to a base year which is highly compatible to the current practice baseline approach of the PoA. Baselines for PoA activities are defined using monitoring data from individual activities, whereas a NAMA baseline is based on industry averages, that means that PoA baseline data could be used for the preparation of a NAMA-level benchmark.
If yes, how could it be applied and would the use of standardized/simplified procedures be feasible?	CPA-level baselines should be based on actual performance on the facility level. The collection of these data is necessary to facilitate the identification and implementation of energy efficiency measures; it is also straightforward as it is limited to monitoring past energy use, fuel types and output production. This process should be facilitated by the use of standardized forms and monitoring and reporting procedures. CPA-level baseline data should be compiled to establish benchmarks: data from CPAs could be collected by ISTSL (with support of international experts as needed) and aggregated by Bureau for Energy Efficiency (BEE) to formulate a) current average practice and b) current best practice baselines for key equipments in the targeted industries, differentiated by unit size categories. The current average practice baselines are directly applicable to the formulation of an aggregate NAMA baseline. These benchmarks can also be used to support the identification of the mitigation potential on the facility level. Average and best practice benchmarks can be used to pre-assess the energy savings potential for a given CPA facility by comparing facility-specific performance to these benchmarks.
If no, what would a feasible procedure to develop a NAMA baseline irrespective of the PoA be?	Not applicable.
Conclusion regarding ability for NAMA design	
Applicable ☐ **Adaptable ☒** **New design ☐** The study recommends using CPA-level activity and production data to develop aggregate current average practice and current best practice benchmarks for key equipments in the targeted industries (differentiated by unit size categories), and to use the current average practice benchmark to extrapolate a NAMA baseline. The current best practice benchmark is recommended to support the definition of a NAMA target that is based on a) the dissemination of best current practices, and b) the introduction of best available technologies within the industries covered by the NAMA.	

Operational element analyzed	MRV Procedures
PoA India Energy Efficiency in SME Steel Industry	
Key questions	**Answers**
What are the key monitoring requirements of the PoA?	The PoA requires the introduction of CDM-style MRV processes for all CPA in accordance with AMS II.D. Key parameters to monitor include historic energy use. The CME intends to implement the MRV for all participating facilities, including new facilities under a scaled-up PoA (similar processes for other sectors). Especially the generation of baseline data, will facilitate the extrapolation of NAMA-level baseline emission data.
To what extent can PoA monitoring requirements be translated into a NAMA context?	With the introduction of a NAMA, MRV activities have to be expanded to all GHG emitting sources within the NAMA. While the quality of the MRV system for non-PoA sources does not need to adhere to CDM standards, their introduction is straightforward because of the low complexity of AMS II.D which only requires the monitoring of energy and fuel use and the availability of the required information at facility level. All facilities included under the NAMA will adhere to facility-level monitoring procedures. In relation to reporting and verification, non-PoA activities do not need to follow the same rigid procedures of the CDM. However, verification on the basis of sampling would increase the environmental integrity of the NAMA (i.e. as a prerequisite for NAMA crediting).
Who is responsible for NAMA monitoring and managing the verification process?	India's National GHG Inventory reports data from the iron & steel industry as a whole on an annual basis but not separately for SME steel mills. BEE collects activity data (energy consumption data) for large scale units only, and energy/emissions data for SME steel mills is not available at any central location, so there is no formal reporting of energy/emissions in the sector. Even the exact number of total SME steel mills in India is not known. Fuel type and energy consumption varies a lot among the mills. With the current data availability it would be very difficult to define total or specific emissions from this sector. The data may not even be available for all the clusters. Facility-level data exist but is not collected from facilities that don't participate in the PoA. Therefore, additional reporting and data collection procedures will need to be implemented as a pre-requisite for NAMA. Existing MRV requirements for PoA participants will provide a useful contribution towards the estimation of overall NAMA emissions. It is recommended to engage the same entities involved with PoA related MRV efforts to manage NAMA MRV as well.
What is the capacity of the relevant entities in the PoA to estimate, collect and manage GHG emissions in a NAMA context?	The introduction of a NAMA could possibly increase the number of included facilities by one or two orders of magnitude. This will challenge the existing capacities of ISTSL and BEE. Therefore, a capacity development program for NAMA preparedness should focus on a) MRV automatization (IT based), b) increasing the capacities of ISTSL and BEE, and c) accrediting new entities (i.e. energy audit experts, verification entities) to support related tasks.

Conclusion reg. applicability for NAMA design

Applicable ☒ **Adaptable☒** **New design ☐**

Data gaps in the iron & steel industry and similar sectors will have to be filled (and MRV procedures strengthened) because activity and GHG emissions data is only available as a whole on an annual basis, and not separately for SME steel mills to authorities (thus far). MRV procedures are directly applicable to other industries and would follow the same MRV method as in the steel industry. At the same time, facility operators have this data (probably not systematically organized) and the introduction of a (voluntary or mandatory) reporting system is therefore required.

Operational element analyzed: PoA India Energy Efficiency in SME Steel Industry	Management
Key questions	**Answers**
How is the PoA management structure set-up? Who is managing the CME?	Small Industries Development Bank of India (SIDBI) is the CME at the cluster level (involving one or several SME steel industrial facilities within a cluster). India SME Technology Services Ltd. (ISTSL), an Indian nationally active technical service provider for SME industries, is providing technical support to SIDBI in implementation and monitoring of the PoA. SSC CPAs to be included in this PoA can comprise a single facility or multiple facilities within the same cluster. The coordinating entity undertakes the responsibility of facilitating the arrangement of technology, contracts with equipment suppliers, financial loans from potential lenders, monitoring of implementation and monitoring of emission reductions achieved due to the Program of Activity.
Could the CME play a crucial role in managing a NAMA? If not, would it be possible to transform the PoA CME into an entity with the institutional capacity to manage a NAMA?	Yes. ISTSL, in cooperation with BEE, could provide technical and audit services to identify cost-effective mitigation options and support project implementation and monitoring of GHG emissions on the NAMA level. SIDBI and other banks could expand their lending for energy efficiency investments that are paid back out of energy savings. The expansion to other sectors might create capacity constraints on the involved entities that need to be addressed through a set of actions, including: a) process efficiency (automatization wherever possible), b) accrediting new entities for the performance of key tasks, and c) increasing the capacities of ISTSL and SIDBI. NAMA design should be coordinated under the National Mission for Enhanced Energy Efficiency (NMEEE), which should also act as the domestic supervisory authority.
Are the current incentives/regulations sufficient to successfully manage a NAMA? If not, what additional incentives/regulations would need to be set up?	The Government of India provides a range of incentives to encourage emission reductions in SME steel facilities consisting of: - Enforcement of regulation (but not including performance standards or energy efficiency targets) - Financial incentives in the form of a dedicated fund - Credit Linked Capital Subsidy Scheme - Technology promotion - Capacity-building Income from Carbon Credits (in case of PoA participants) ISTSL and SIDBI can identify and deliver mitigation actions in the steel sector. It appears that the institutional framework and incentives that are currently in place are sufficient to facilitate energy efficiency investments. However, an assessment of the existing program should be carried out after a period of time to gain experience with the existing scheme.
Conclusion reg. applicability for NAMA design **Applicable ☐** **Adaptable ☒** **New design ☐** CME performance in relation to the existing PoA scope will have to be evaluated, and capacity constraints that would result from scaling-up will have to be properly assessed.	

Module 3: Evaluate Framework

Framework Analysis PoA India Energy Efficiency in SME Steel Industry	
Key questions	**Answers**
Domestic political support for NAMA (does the host-country support the idea of NAMA)?	India has presented its overall plans for the mitigation of GHG to the UNFCCC. According to these plans, India intends to achieve a 20%-25% reduction of GHG intensity per unit of GDP by 2020. India has also launched a number of domestic policies to achieve this target but has not provided details neither on the interaction of such domestic policies with its NAMA voluntary commitment, nor on the use of domestic vs. supported NAMA and the use of market mechanisms, including international crediting mechanisms. The authors think that it is in India's self-interest to explore the design of domestic policies in the context of NAMA and the interaction between different policy instruments. The authors think that India would politically support a pilot activity to explore the design of a NAMA on the basis of an ongoing PoA activity to better understand the co-existence and interaction between a PoA, the various NAMA approaches and its domestic policies. The concept of a pilot NAMA that is developed out of an existing PoA should be presented to the relevant government authorities (i.e. via India's DNA).
Domestic institutional capacity	India has demonstrated its capacity to successfully design, establish and enforce sophisticated, broad-based, domestic climate change mitigation regulations. It has recently scaled up its plans for achieving substantial, economy-wide emission reductions that are documented in its NAMA communications with the UNFCCC and action plans, such as the National Mission for the Energy Efficient Economy.
NAMA integration into domestic policy likely within a decade?	India is already implementing domestic policies in accordance with its NAMA submission to the UN. This includes plans to promote energy efficiency of SMEs. The government has already stated that it would consider scaling-up the existing EEC schemes to include SMEs if its first phase (focusing on large energy users) is successful. It is expected that India will provide more detailed information on the integration of its domestic policies with its NAMA-related communications to the UNFCCC, in accordance with the work plan of the AWG-LCA and in the context of bilateral activities related to NAMA readiness and implementation of pilot NAMAs. Key developments should be integrated into the design of a pilot NAMA.

Conclusion regarding the applicability for NAMA design

	Yes	No	Un-known
Domestic political support for NAMA?			✓
Domestic institutional capacity	✓		
PoA NAMA co-existence possible?			✓
NAMA integration likely during next decade?	✓		

India has an adequate level of capacity and has a regulatory framework and existing domestic policies that are aligned with NAMA submissions.

Therefore, as long as there is political support, there is a potential for applicability of designing a pilot NAMA on the basis of the existing PoA.

Module 4: Conclusions and Next Steps

- Is scaling-up the existing PoA to a NAMA a feasible option and a good idea?

Given the outcome of the analysis, the conclusion is that the India PoA EE for the SME steel industry would be a very good candidate for scaling-up to a NAMA.

- Which would be the main advantages of scaling-up into a NAMA?

The integration of the Indian Energy Efficiency certificate schemes and the SME steel PoA into a NAMA would strengthen the continuity of the domestic policy framework and the scope will be increased to cover all energy efficiency activities. However, the potential link of the NAMA to the external carbon markets should ensure that there is no encumbrance of CERs (see NAMA Design sheet for details).

- Which are the main design elements of such a NAMA?

NAMA Draft Design Sheet

Country: India	Sub sector: EE in SME Productive Industries
Scope and target	**Scope**: to improve the energy efficiency of furnaces and burners in energy-intensive SME industries throughout India, through: - installation of fuel-efficient, low excess air burners - automated control systems for excess air and furnace temperature control - waste heat recovery through the addition/retrofitting of recuperators - improved insulation of furnaces. **Target:** to reduce energy consumption by at least 20% per unit of production.
Eligibility criteria	- All furnaces & burners operating in energy-intensive SME industries that are not covered under the India EEC scheme. - Each CPA facility (within the NAMA) confirms that it invests voluntarily in implementing the specified energy efficiency measures and agrees to share CDM revenues with the CME. - Each CPA (within the NAMA) shall apply the approved baseline setting and monitoring methodology AMS II.D (applicable version). - Newly built furnaces shall meet EE benchmark and shall not be eligible. - Energy efficiency improvement measures that do not comply with AMS II.D and switching to lower carbon fuels are permitted under the NAMA
Fit with existing activities / value-added	- The NAMA contributes to India's 20-25% emission intensity reduction target per unit of GDP by 2020 compared to 2005 (equal to 1.3%-1.7% per year). - It supplements energy efficiency certificate trading mechanisms that are targeting large industrial energy users and that could be merged in the future.
Baseline	- NAMA-level baseline data for SME is currently missing. - NAMA baseline should be established using standardized benchmarks that are defined as energy use or carbon intensity/ton of output. - Depending on actual emission reductions compared to standardized baseline and NAMA target, each PoA CPA needs to contribute a share of its CERs to NAMA target.
MRV procedures	- Government should introduce a simplified process for the monitoring, reporting & verification of activity data for all facilities covered by this NAMA; this process could be based on sampling energy & fuel use and production data (BEE managed) (see "Table 8: Follow-up Activities for NAMA Readiness" for additional detail). - CPA within the NAMA report in accordance with CDM requirements.
Proposed structure	- NAMA coordinated under National Mission for Enhanced Energy Efficiency - NAMA-level monitoring and reporting by BEE - Technical advisory (feasibility analysis, support of implementation) and financial support by ISTSL and SIDBI
Incentive system/ regulations	- All activities shall be eligible for the financial support provided under the 2001 Energy Conservation Act and SIDBI EE financing facility.
Link NAMA – Carbon market	- The NAMA shall not encumber the CER granted to the PoA and issued CER need to be deducted from NAMA achievements when determining NAMA target compliance. However, the NAMA could purchase CER from this PoA (or any other) to cover an eventual shortfall of emission reductions on the NAMA level.

Which would be the proposed follow-up activities?

The following next steps are proposed:

- Evaluate/assess the potential for expansion of furnaces and burners in similar energy-intensive SME industrial sectors, including power and steam generation, fertilizer, cement, aluminium, textile, pulp & paper, glass, etc.
- Develop clusters for key equipments/processes and MRV procedures, including sampling procedures, for the collection and analysis of fuel use and activity data per cluster to facilitate a robust estimation of GHG emissions, i.e. in accordance with an IPCC tier 2 or tier 3 approach.
- Design a corresponding MRV system (e.g. who collects what, how often, and under what mandate).
- Develop standardized baselines for this equipment type based on CDM method AMS II.D version 12.
- Assess CME performance and capacity constraints for scale-up into NAMA.
- Offer support to the Indian Government to design a conceptual framework for a NAMA in this sector and explore its interaction with a PoA.

3.2 Small-Scale PoA in East Africa covering Renewable Energies

Summary Analysis PoA to NAMA Evaluation

Country: Uganda Small Scale PoA covering Renewable Energy in East Africa

Module 1: Introduction to the PoA

The objective of the proposed PoA is to support the development of small renewable energy projects of less than 15 MW capacity in Uganda and neighboring East African countries.

Module 2: Analyze Operational design elements

Assessment of PoA elements regarding their applicability for the design of a NAMA

	Applicable	**Adaptable**	**New design**
Eligibility criteria		✓	✓**(*)**
Baseline setting	✓		✓**(*)**
MRV procedure	✓		✓**(*)**
Management		✓	✓**(*)**

Comments **(*)***:* A NAMA could be designed by expanding eligibility criteria to include all types of grid-connected renewable energy technologies. The CDM baseline setting procedure for grid-connected power is already based on a benchmark and directly applicable to a NAMA. The quality of fuel-use data and emission factors should be upgraded.

Module 3: Evaluate Framework

Assessment of domestic policy and regulatory environment preparedness for NAMA

	Yes	**No**	**Unknown**
Domestic political support for NAMA?			✓
Domestic institutional capability?	✓		
PoA NAMA co-existence possible?	✓		
NAMA integration likely during next decade?			✓

Comments: Thus far, Uganda has not provided a statement on its political support for NAMA.

Uganda has deregulated its power sector and launched a (limited) feed-in-tariff scheme for the promotion of renewable energy (which has produced some investments). The basic mechanisms for the operation of a NAMA incentive system are in place but should be strengthened via a NAMA support mechanism.

Because of its LDC status, Uganda is in no urgent need to introduce NAMA because its CER will be eligible in the EU post 2012 carbon market. Uganda could be motivated to scale-up to a NAMA if such NAMA brought additional benefits exceeding benefits provided through the PoA.

Experience elsewhere shows that revenues from the sale of CER are not sufficient to facilitate an uptake of renewable energy development activities but needs to be supported by a reliable and attractive system of feed-in-tariffs. Therefore, co-existence of PoA and NAMA is deemed feasible.

Module 4: Conclusions and Next Steps

The analysis concludes that the Uganda PoA is a good candidate for scaling-up to NAMA. Such (supported) NAMA could be used to strengthen the Ugandan feed-in-tariff for renewable energy and expand the reach of the PoA to other project types and improving access to grid power.

The following next steps are proposed:

- To prepare a concept paper on the design of a supported NAMA that would strengthen the existing feed-in-tariff system by providing an additional payment for delivered green power and identifies other barriers to scaled-up RE development activities.[13]
- To conduct a high-level policy dialogue with the Government of Uganda regarding their interest to participate in a pilot NAMA in relation to the development of grid-connected renewable energy.
- To design next steps regarding the concrete design of a supported NAMA based on supplemental payments for RE and associated supporting activities.

For the proposed NAMA design based on this PoA, please see the NAMA design table below.

Detailed Analysis: PoA to NAMA Evaluation

Module 1: Introduction to the PoA

Description of the PoA Uganda –Small Scale PoA covering Renewable Energy in East Africa	
Key questions	**Answers**
What is the PoA's scope (technical and geographical)?	The objective of the proposed PoA is to support the development of small hydro-power and other renewable energy (RE) projects of less than 15MW capacity in Uganda and neighboring East African countries. It seeks to originate CER through the avoided installation of grid-connected, fossil-fuel based electricity generators. In Uganda, electricity generation from fossil sources generated 708 ktons and biomass combustion for energy 13.8 mil t of CO2 emissions in 1995. The total (not yet developed) potential for small hydro-power development in Uganda is 200 MW, and in East Africa approximately 2300 MW, most of which is located in Kenya (1700 MW).
How is the PoA management structure set-up?	The CME for the proposed PoA is SPEAR (Uganda) Ltd, a joint venture of the Uganda Carbon Bureau Ltd. (UCB) and South Pole Carbon Asset Management, a specialized PoA service company.
What are the basic implementation arrangements?	The CME is expected to: - Increase awareness and capacity development for small-hydro developers, - Manage the carbon credit issuance and monetization process on behalf of all CPA, and - Facilitate access to carbon financing, including, over time, pre-payments on future carbon revenues.

[13] I.e. see for example the GET FIT concept for the design of such output-based payments which could form the basis of such supported NAMA: http://www.dbadvisors.com/content/_media/GET_FIT_-_042610_FINAL.pdf

	With its strict focus on carbon asset management, the CME cooperates with RE project developers, financial institutions and regulators.
What is the PoA's fit with the existing national policies and the regulatory framework?	The PoA strongly supports Uganda's efforts to promote RE development via a feed-in-tariff scheme.
What are the main GHG emission sources within the PoA that will deliver ERs (IPCC categories)?	The PoA seeks to reduce GHG emissions and generate carbon credits through the avoided installation of grid-connected fossil-fuel based electricity generators.

Module 2: Analyze Operational design elements

Operational element analyzed	**Eligibility criteria**
PoA Uganda –Small Scale PoA covering Renewable Energy in East Africa	
Key questions	**Answers**
What are the PoA's eligibility criteria?	The following criteria apply for inclusion of a CPA in the PoA: - Small hydro or other grid-connected RE facility with a planned capacity less than 15 MW, - Satisfy CME technical and financial due diligence criteria, - Agree to join the PoA voluntarily and accept the terms of the CME, - Shall apply approved baseline and monitoring method AMS I.D, and - Be located in Uganda or other East African countries if their participation does not delay the registration of the PoA. - Changing the type of fuel used at the industrial facility is forbidden, but changing the fuel from one quality or grade to another quality is allowed.
Should the eligibility criteria be adjusted to include additional activities under a NAMA by: a) expanding to other sectors and intervention-types, b) the involvement of additional implementing entities, c) expanding its	a) Yes. Scaling-up options include: - the PoA uses CDM method AMS I.D which allows for the inclusion of all grid-connected RE technologies, - the PoA also allows the inclusion of large-scale interventions, including hydro, as long as CDM-specific additional requirements are met, - b) Yes. The limited scope of services provided by the CME allows for the cooperation with a broad range of other intermediaries who are interested in the financing of renewable energy in the region. c) No. PoA is already targeting national scale.

geographical coverage be increased to a national scale, d) target additional ER within the same IPCC GHG emission categories under a NAMA?	d) Yes. Targeting of activities that result in GHG emission reductions outside CDM method AMS I.D , such as fuel-switching activities. In aggregate, scaling-up outside of the PoA within a NAMA framework could contribute towards substantial additional emission reduction activities. The NAMA will not include the displacement of non-renewable biomass use, use of fossil fuels by the user and off-grid, fossil-fuel based electricity generation through activities that expand access to grid-based electricity.
Conclusion reg. applicability for NAMA design **Applicable ☐** **Adaptable ☒** **New design ☐** A NAMA would focus on the development of grid-connected renewable energy power generation activities that are supported through feed-in-tariffs and carbon credits (via inclusion in a scaled-up PoA when eligible (possibly excluding certain large-hydro projects).	

Operational element analyzed	**Baseline Settings**
PoA Uganda –Small Scale PoA covering Renewable Energy in East Africa	
Key questions	**Answers**
How is the PoA baseline set?	The PoA baseline is set in accordance with CDM method AMS I.D on basis of its guidance for the calculation of carbon intensity of grid-connected power which is then applicable to all CPA.
Is the PoA baseline setting procedure generally applicable for NAMA baseline setting?	The baseline setting procedure is generally applicable for activities that entail replacement of existing or planned grid-connected fossil power generation with clean power.
If yes, how could it be applied and would the use of standardized/simplified procedures be feasible?	AMS I.D uses a carbon intensity benchmark for grid-connected power generation. Additional standardization is not required.
If no, what would a feasible procedure to develop a NAMA baseline irrespective of the PoA be?	Not applicable.
Conclusion regarding applicability for NAMA design **Applicable ☒** **Adaptable ☐** **New design ☐** CDM baseline setting procedures in relation to determining the carbon intensity of grid-connected electricity are directly applicable for NAMA baseline setting.	

Operational element analyzed	MRV Procedures
PoA Uganda –Small Scale PoA covering Renewable Energy in East Africa	
Key questions	**Answers**
What are the key monitoring requirements of the PoA?	The PoA requires the periodic determination of the carbon intensity of the Ugandan power grid. The prime monitoring data is electricity produced, which makes the monitoring of the PoA relavtivly simple. Currently a more detailed GEF calculation (that may include national-level information on power generation, fuel-use, transmission losses and supply-side power generation expansion plans) is planned for Uganda at PoA Level.
To what extent can PoA monitoring requirements be translated into a NAMA context?	Yes, in part. The MRV requirements of AMS I.D are already sufficient for NAMA MRV purposes.
Who is responsible for NAMA monitoring and managing the verification process?	In relation to AMS I.D, data for the estimation of grid carbon intensity has been collected and managed by the Energy Regulatory Authority using data from IPP and the Uganda Electricity Board. However, it is the PO of each individual project that will be responsible for each project's electricity productions figures. These monitoring requirements are in line with most requirements for grid feed-in in East Africa.
What is the capacity of the relevant entities in the PoA to estimate, collect and manage GHG emissions in a NAMA context?	The CME has the required professional expertise to apply method AMS I.D, including the collection and management of GHG emissions data on the PoA level. It relies on additional information provided by the Energy Regulatory Authority to complete NAMA-level MRV requirements. The quality of these data could be improved via the introduction of country-specific emission factors.
Conclusion regarding the applicability for NAMA design	
Applicable ☒ **Adaptable ☐** **New design ☐**	
PoA MRV procedures for the determination of grid power carbon intensity are directly applicable for NAMA MRV.	

<table>
<tr><th colspan="2">Operational element analyzed | Management</th></tr>
<tr><td colspan="2">PoA Uganda –Small Scale PoA covering Renewable Energy in East Africa</td></tr>
<tr><th>Key questions</th><th>Answers</th></tr>
<tr><td>How is the PoA management structure set-up? Who is managing the CME?</td><td>The CME is a joint venture of the Uganda Carbon Bureau Ltd. (UCB) and South Pole Carbon Asset Management, a specialized PoA service company. The CME is expected to:
- Increase awareness and capacity-development for small renewable energy developers
- Manage the carbon credit issuance and monetization process on behalf of all CPA, and
- Facilitate access to carbon financing, including, over time, prepayments on future carbon revenues.
In particular, the proposed arrangement involves a range of operational activities covering the implementation and management of each SSC-CPA by the CME (SPEAR).

<table><tr><th>Entity</th><th>Management Responsibilities and Arrangements</th></tr><tr><td>SPEAR (CME)</td><td>• Maintain relationships with all CPA project implementers.
• Periodically collect monitoring data.
• Prepare monitoring reports for emission reduction verification.</td></tr><tr><td>Project implementer (SSC-CPA)</td><td>• Implement all renewable energy plant project activities (construction, daily operation, and maintenance of plant).
• Prepare monitoring data.</td></tr></table>
In addition to the above management tasks, SPEAR will implement the following operational elements to ensure the proper management and oversight of the proposed SSC-PoA:
(i) A record keeping system for each SSC-CPA under the PoA
(ii) A system/procedure to avoid double accounting e.g. to avoid the case of including a new SSC-CPA that has been already registered either as a CDM project activity or as a CPA of another PoA,
(iii) The SSC-CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity.
(iv) The provisions to ensure that those operating the SSC-CPA are aware of and have agreed that their activity is being subscribed to the SSC-PoA;</td></tr>
<tr><td>Could the CME play a crucial role in managing a NAMA? If not, would it be possible to transform the PoA CME into an</td><td>The CME has the professional expertise and capacity to provide NAMA- relevant support services in relation to MRV, including:
- automated monitoring of RE production data,
- collection of project emissions from RE facilities,
- design and implementation of high quality data collection and processing system for the determination of grid carbon inten-</td></tr>
</table>

entity with the institutional capacity to manage a NAMA?	sity in compliance with AMS I.D, - monetizing Carbon Credits for CPA owners Being a private entity, the CME is not suited to manage NAMA-related support services related to the processing of feed-in-tariff payments. This service should be provided by the Ugandan agency that handles power purchase payments.
Are the current incentives/regulations sufficient to successfully manage a NAMA? If not: what additional incentives/regulations would need to be set up?	The Government of Uganda provides negotiated feed-in-tariffs to encourage private investment in renewable energy development. These tariffs are usually low, limiting actual development of RE facilities. Additional support could be made in the form of: - concessional financing for the construction of new RE facilities, and - supplementary support payments to feed-in-tariffs (per delivered green kWh) to increase the financial attractiveness of new RE development (financed via a supported NAMA).
Conclusion regarding the applicability for NAMA design **Applicable ☐** **Adaptable ☒** **New design ☐** While the CME can provide technical NAMA support services, the management of NAMA incentives (in the form of feed-in-tariffs, support payments) should be managed by the entities that are already involved in the off take of grid power. Traditional finance providers, including international financial institutions can provide soft loans to RE developers.	

Module 3: Evaluate Framework

Framework Analysis	
Key questions	Answers
Domestic political support for NAMA (does the host-country support the idea of NAMA)?	Uganda has neither submitted a communication regarding its intention to implement NAMA nor provided a statement on its political support for NAMA thus far.
Domestic institutional capacity	Uganda has deregulated its power sector and launched a domestic feed-in-tariff scheme for the promotion of renewable energy. While activity within the sector is low, the main mechanisms that are required to operate a NAMA incentive system (in the form of a feed-in-tariff for grid-connected power) are operational. NAMA MRV related gaps exist but can be mitigated.
NAMA integration in domestic policy likely within PoA's crediting period?	Having LDC status, carbon credits from a Ugandan POA will continue to be eligible for sale into the EU post 2012. This means there is no pressure on Uganda to scale-up mitigation action through NAMAs because of EU demands for more meaningful participation by developing countries. The main reason for NAMA integration would be the availability of support (in addition to carbon credit revenue). The political momentum for developing a NAMA could be strengthened by demonstrating such benefits using a relevant case study.

	If successful, such an initiative could possibly take place within the PoA crediting period.

Conclusion regarding the applicability for NAMA design

	Yes	No	Unknown
Domestic political support for NAMA?			✓
Domestic institutional capability?	✓		
PoA NAMA co-existence possible?	✓		
NAMA integration likely during next decade?			✓

Uganda has an adequate level of capacity and has a regulatory framework in place. There will be potential for designing a pilot NAMA on the basis of the existing PoA as long as there is political will and international support and hands on assistance is provided.

Module 4: Conclusions and Next Steps

- Is scaling-up the existing PoA to a NAMA a feasible option and a good idea?

The analysis concludes that the Uganda PoA is a good candidate for scaling-up to NAMA.

- Which would be the main advantages of scaling-up into a NAMA?

The NAMA system will have a more systematic political support which can facilitate e.g. policy elements like an integrated feed-in tariff for renewable energy projects under the NAMA. Furthermore a NAMA set-up will potentially enable access to new sources of finance (e.g. the Green Fund).

- Which are the main design elements of such a NAMA?

NAMA Draft Design Sheet

Country: Uganda	Sub sector: Grid-connected RE Development in East Africa
Scope and target	**Scope**: to support the development of grid-connected renewable energy generation through a feed-in-tariff and carbon credit generation. **Target**: to increase the share of renewable energy in the generation mix above baseline levels.
Eligibility criteria	- All grid-connected RE technologies such as hydro, solar, geothermal, and wind, - Large-scale interventions, including hydro, - Fuel-switching activities.
Fit with existing activities / value-added	- The NAMA strongly supports Uganda's existing support mechanisms for the development of renewable energy.
Baseline	- The NAMA baseline is constructed (and identical) to the PoA baseline using AMS I.D as the average carbon intensity of the power grid using the combined margin approach.
MRV procedures	- NAMA MRV is based on CDM MRV requirements according to method AMS I.D. - Data for estimating grid carbon intensity has been collected and managed by the Energy Regulatory Authority using data from independent power producers and the Uganda Electricity Board. Data quality can be improved by upgrading reporting requirements from power producers & introducing country-specific emission factors.
Proposed structure	- The CME has the professional expertise and capacity to provide NAMA relevant support services in relation to MRV, including: - Automated monitoring of RE production data, - Collection of project emissions from RE facilities, - Design/implementation of high quality data collection and processing system for the determination of grid carbon intensity in compliance with AMS I.D, - Managing the carbon credit origination and monetization for PoA activities. - Being a private entity, the CME is not suited to manage NAMA-related support services related to the processing of feed-in-tariff payments. This service should be provided by the Ugandan agency that handles power purchase payments.
Incentive system/ regulations	The Government of Uganda provides negotiated feed-in-tariffs to encourage private investment in renewable energy development. These tariffs are usually low which has limited actual development of RE facilities. Additional support could be made in the form of: - Concessional financing for the construction of new RE facilities, and - Supplemental support payments to fit-in-tariffs (per delivered green kWh) to increase the financial attractiveness of new RE development (financed via a supported NAMA).
Link NAMA – Carbon market	Having LDC status, carbon credits from a Ugandan POA will continue to be eligible for sale into the EU post 2012. This means there is no pressure on Uganda to scale-up mitigation action through NAMA s because of EU demands for more meaningful participation by developing countries. This also means that a NAMA design and support mechanisms will be supplemental to and thus co-exist with the PoA.

Which would be the proposed follow-up activities?

The following next steps are proposed:

- To prepare a concept paper on the design of a supported NAMA that would strengthen the existing feed-in-tariff system by providing an additional payment for delivered green power and identifies other barriers to scaled-up RE development activities.
- To conduct a pre-feasibility analysis regarding a new POA that would target the displacement of NRB with grid power and determine overall mitigation potential, design, institutional structure.
- To conduct a high-level policy dialogue with the Government of Uganda regarding their interest to participate in a pilot NAMA in relation to the development of grid-connected renewable energy.
- To design next steps regarding the concrete design of a supported NAMA based on supplemental payments for RE and associated supporting activities.

3.3 Domestic Biogas Development PoA in Nepal

Summary Analysis: PoA to NAMA Evaluation

Country: Nepal	PoA: Domestic Biogas Development

Module 1: Introduction to the PoA

The Biogas Support Program (BSP) aims to implement household biogas applications. Only the replacement of non-renewable biomass (NRB) is counted as emission reduction under the Clean Development Mechanism (CDM). The PoA is national in scale and BSP has national reach. However, according to the PoA DD, BSP implementation capacity is limited to 20.000 units per year.

Module 2: Analyze Operational design elements

Assessment of PoA elements regarding their applicability for the design of a NAMA

	Applicable	Adaptable	New design
Eligibility criteria		✓	
Baseline setting		✓	
MRV procedures		✓	
Management	✓		

Comments: PoA eligibility criteria limit the scaling-up potential within the PoA, but could be expanded within a NAMA framework which could include the overall bio-digester market in Nepal, additional activities that reduce the utilization of NRB, fossil-fuels and fertilizer, thus promoting low carbon rural development. Existing PoA MRV procedures can be used and scaled-up to cover a broader range of NAMA level activities. Surveys would be implemented on the NAMA-level and the overlap between PoA activities and other CDM activities would be captured via NAMA-level registration of all activities. The NAMA MRV would capture emission reduction benefits that cannot be accounted for within the CDM, thus showing a much larger quantity of emission reductions.

Module 3: Evaluate Framework

Assessment of domestic policy and regulatory environment preparedness for NAMA

	Yes	No	Unknown
Domestic political support for NAMA?		✓	
Domestic institutional capability?	✓		
PoA NAMA co-existence possible?	✓		
NAMA integration likely during next decade?			✓

Comments: While having agreed to the Copenhagen Accord, the Government of Nepal has neither submitted a NAMA communication to the UNFCCC nor set domestic policy objectives or targets for relevant emission categories covered by this potential NAMA. Being an LDC, Nepal will have full access to European carbon markets post 2012. Consequently, it might think that it is under no pressure to adopt NAMA. The Nepalese Government currently does not see the additional merit of a NAMA in comparison to the current institutional and support arrangements.

The current PoA is co-financed by users, a domestic subsidy and international support. A scaled-up NAMA would rely on the same funding sources and the income from the origination of carbon credits to provide the necessary incentives for the development of a low carbon rural economy. The PoA is most likely to co-exist with a NAMA as the carbon credit income is a potentially substantial and required source of funding. NAMA design needs to address the a) avoidance of double counting and b) ensure efficient use of support, taking into account benefits for users and their willingness and capacity to pay for such benefits.

Module 4: Conclusions and Next Steps

The Nepal Domestic Biogas Development PoA is technically a good candidate for scaling-up to NAMA but the political support to develop a pilot project might not currently exist. The following next steps are proposed:

- Await top policy support for NAMA prior to entering into a policy dialogue with the Nepalese Government regarding the potential benefits of a NAMA vs. PoA approach to low carbon rural development.
- Evaluate/assess the expansion potential within NAMA through mandatory inclusion of all bio-digesters regardless of their registration with AEPC, inclusion of other NRB use reducing activities and displacement of fossil fuels and fertilizer.
- Develop a NAMA baseline and benchmarks for the key activities included in the NAMA on the basis of IPCC 2006 (Above Ground Biomass Carbon Stock, GHG from Fertilizer methods).
- Conduct a pre-feasibility study into the design of a potential "green investment support" mechanism (or credited NAMA) to monetize emission reductions that can be captured on the NAMA level only.

For a more detailed summary on a NAMA design based on this PoA, please see NAMA design tabel below.

Detailed Analysis: PoA to NAMA Evaluation

Module 1: Introduction to the PoA

Description of the PoA Nepal Domestic Biogas Development	
Key questions	**Answers**
What is the PoA's scope (technical and geographical)?	The Biogas Support Program (BSP) aims to implement household biogas applications. These applications displace firewood and fossil fuels with biogas from animal waste and human excreta. The biogas is used as a fuel for cooking or lighting. Following the methodological guidance under PoA, only the replacement of non-renewable biomass (NRB) is counted as emission reduction under the Clean Development Mechanism (CDM). Target group under the BSP are households with at least one head of cattle (generally cows or buffalos) who currently use non-renewable biomass (firewood) and/or fossil fuels (kerosene and/or LPG) for cooking and lighting purposes. The objective of the current phase IV of BSP is to further develop and disseminate biogas plants as a renewable energy solution in rural Nepal, while better addressing poverty, social inclusion and regional balance issues, and at the same time ensuring sustainability of the sector. It currently supports implementation of around 20,000 digesters per year under this PoA.
How is the PoA management structure set-up?	The BSP is centrally managed by Alternative Energy Promotion Centre (AEPC) with the support of Biogas Sector Partnership Nepal (BSP-NEPAL), the implementing agency of the AEPC.

What are the basic implementation arrangements?	AEPC is a government entity that executes all renewable/alternative energy programs in Nepal, including BSP. Its main objectives are disseminating and promoting renewable energy technologies and mitigating environmental degradation. AEPC is responsible for administrating the government subsidy, coordinating with all relevant stakeholders and monitoring BSP-NEPAL and BSP. BSP-NEPAL facilitates pre-qualified biogas manufacturing and installation companies (currently 16 manufacturing and around 62 installation companies) to promote quality digesters and regularly monitors their work. The owners of the digesters are the households that invest in the digesters and thereby obtain an alternative fuel source to firewood and fossil fuel. BSP is supported by the Nepalese government and international donors including the German Development Bank (KfW) and the Netherlands Development Agency (SNV funded by DGIS). Despite this support, the BSP has not been able to develop into a commercial activity in Nepal. Besides investment subsidy to user households, BSP needs funding on program level to maintain its activities.
What is the PoA's fit with the existing national policies and the regulatory framework?	The PoA is highly consistent with Nepal's rural energy and poverty alleviation objectives.
What are the main GHG emission sources within the PoA that will deliver ERs	The PoA accounts for CO2 emission reductions. The PoA reduces GHG emissions through the avoided use of unsustainable firewood, which is captured within the CO2 Emissions and Removals from Soils (IPCC 1996)/Change in Above Ground Biomass Carbon Stock (2006) category. According to IPCC 2006, one TJ of energy from biogas that displaces the use of unsustainable firewood, reduces CO2 emissions by 122 tons (to be pro-rated depending on local share of non-renewable biomass in fuel-wood use) .

Module 2: Analyze Operational design elements

Operational element analyzed: PoA Nepal Domestic Biogas Development	**Eligibility criteria**
Key questions	**Answers**
What are the PoA's eligibility criteria?	The criteria for enrolling CPAs under this program are: - All digesters listed in the CPA should be household biogas digesters with a sludge and gas holding capacity range of up to 10 m3. - A CPA should not exceed the small-scale limits. - Each digester listed in the CPA should have a unique number. These numbers will be used to confirm that each digester is counted only once and not already developed under a different CDM project or CPA. - All digesters listed in the CPA should be located in Nepal. - All digesters listed in the CPA should be implemented under the BSP which provides technical guarantees and ensures that the digester is subject to BSP's quality control programs. - The owners of all digesters listed in the CPA should have signed an agreement that allows AEPC to market the CER from the installation and operation of the digester.
Should the eligibility criteria be adjusted to include additional activities under a NAMA by: a) expanding to other sectors and intervention-types, b) the involvement of additional implementing entities, c) expanding its geographical coverage be increased to a national scale, d) target additional ER within the same IPCC GHG emission categories under a NAMA?	a) Yes, by including additional activities that reduce - NRB use (i.e. energy efficient stoves, community reforestation), - fossil-fuel use (i.e. solar lights) and - fertilizer use (i.e. use of organic fertilizer), thus promoting low carbon rural development. b) Yes, by: - introducing mandatory inclusion requirements of new bio-digesters in the NAMA, regardless of AEPC support and central registration by AEPC using GPS coordinates, - including digesters regardless of household income thresholds or digester unit size thus capturing all bio-digesters that are constructed autonomously as result of barrier removal effects, therefore accelerating market penetration and emission reductions. - strengthening BSP capacity and allowing other entities to act in similar capacity (i.e. other professional entities could be licensed to issue BSP technical guarantees and quality control checks to accelerate CPA implementation). - decentralization through the involvement of additional, licensed partners, include higher-income households in the program and larger, possibly community-based, bio-digester designs. c) No, because there is a national program already. d) Yes, see a)

Conclusion regarding the applicability for NAMA design

Applicable ☐ **Adaptable ☒** **New design ☐**

NAMA design should target low carbon rural development, including the overall bio-digester market in Nepal which has an estimated overall potential of 600.000 to 1.9 million installed units, of which roughly 200.000 have been installed already over a 15 year period since 1995 (estimates vary by study), In addition, the NAMA should cover the substitution of NRB, fossil fuels and fertilizer use.

Operational element analyzed:	**Baseline Settings**
PoA Nepal Domestic Biogas Development	
Key questions	**Answers**
How is the PoA base-line set?	The PoA baseline is set in accordance with CDM method AMS I.E on the basis of an existing and static status-quo, default factors and data from periodic firewood demand and supply surveys for different regions and digester unit sizes. It is worth mentioning that under the same method, fossil fuels and fertilizer use can also be considered.
Is the PoA baseline setting procedure generally applicable for NAMA baseline setting?	The PoA baseline setting procedure is usable in parts. The PoA (as well as previous CDM interventions in the Nepalese Domestic Biogas sector) has delivered detailed biomass demand and supply data for various regions. This historic data can be used for the construction of a NAMA baseline (which would also be based on historic emissions). Additional surveys are required to create a baseline for fossil-fuel and fertilizer use.
If yes, how could it be applied and would the use of standard-ized/simplified proce-dures be feasible?	AMS I.E requires the use of fossil fuels (in this case, kerosene) for the calculation of the baseline scenario within the PoA even though the actual fuel displaced is NRB, which has a higher emis-sion factor and provides the option to choose an “estimated aver-age amount of biomass replaced per household” to determine per unit emission reductions. A NAMA baseline should be determined using IPCC (2006) methods in combination with default biomass use figures of AMS I.E. The same procedure should be adopted to address fossil-fuel and fertilizer use.
If no, what would a feasible procedure to develop a NAMA baseline irrespective of the PoA?	Not applicable
Conclusion regarding applicability for NAMA design	
Applicable ☐ **Adaptable ☒** **New design ☐**	
The existing CDM/PoA experience provides key input data into the establishment of a NAMA baseline. However, due to the conservativeness of AMS I.E in relation to assump-tions over the fuel that is displaced (kerosene vs. NRB), the NAMA baseline should be de-termined using IPCC (2006) methods and biomass emission factors. A new NAMA base-line for the displacement of fossil fuels and fertilizer needs to be developed.	

Operational element analyzed:	MRV Procedures
PoA Nepal Domestic Biogas Development	
Key questions	**Answers**
What are the key monitoring requirements of the PoA?	According to AMS I.E, the PoA registers the number of installed biogas systems, takes samples of their actual performance, surveys firewood and fossil fuel use, and monitors increased use of NRB by non-participants as well as overlap in baselines between PoA activities and other CDM projects to calculate emission reductions from the use of biogas systems in a conservative manner. The calculation of CER is based on estimated average amounts of biomass replaced per household.
To what extent can PoA monitoring requirements be translated into a NAMA context?	Biomass demand and supply surveys, biomass use surveys and registration of installed biogas units can be used for the construction of benchmarks that can be extrapolated for the estimation of NAMA-level emissions. Such NAMA MRV could also be used to capture leakage effects that otherwise have to be monitored on the PoA-level.
Who is responsible for NAMA monitoring and managing the verification process?	NAMA MRV should be managed through the BSP. BSP has already operationalized the key processes and only requires a marginal expansion of its role: a) increasing the geographical coverage of biomass use, demand and supply surveys, b) calculation of GHG emissions using IPCC methods vs. AMS I.E, c) including a number of monitoring parameters to capture fossil-fuel and fertilizer displacement, d) managing data from non-BSP facilitated biogas digesters (i.e. by requiring digester manufacturers and/or digester owners to register their installation with BSP, i.e. in the context of a quality assurance/guarantee scheme), and e) systematic involvement in annual or bi-annual national NRB use surveys, i.e. as part of the annual Nepal Energy report that is prepared by the Water and Energy Commission Secretariat. BSP already monitors 9,708 biogas plants in 57 (out of 75) districts that were installed in 2003-2004 and 9,688 biogas plants in 55 districts that were installed in 2004-2005.
What is the capacity of the relevant entities in the PoA to estimate, collect and manage GHG emissions in a NAMA context?	Considering its extensive experience in the bio-digester industry, AEPC with support from BSP and with a formal mandate, could manage the MRV of this NAMA. The merits of a capacity-strengthening program, with a focus on a) MRV automatization (IT based), and b) accrediting new entities to provide supporting technical services, should be examined.
Conclusion regarding applicability for NAMA design	
Applicable ☐ **Adaptable ☒** **New design ☐** NAMA MRV could be based on adapted PoA MRV. NAMA MRV should use PoA input data but use IPCC 2006 methods for the estimation of NAMA-level emissions. NAMA MRV should be managed by AEPC under an increased scope of services.	

Operational element analyzed: PoA Nepal Domestic Biogas Development	Management
Key questions	**Answers**
How is the PoA management structure set-up? Who is managing the CME?	AEPC is the coordinating and managing entity of this PoA. BSP-NEPAL facilitates pre-qualified biogas manufacturing and installation companies (currently 16 manufacturing and around 62 installation companies) to promote quality digesters and regularly monitors their work. The owners of the digesters are the households that invest in the digesters and thereby obtain an alternative fuel source to firewood and fossil fuel. BSP is supported by the Nepalese government and international donors including the German Development Bank (KfW) and the Netherlands Development Agency (SNV funded by DGIS). - KfW, DGIS/SNV and World Bank fund a critical mass of digesters, after which economies of scale shall make the program commercially viable, - the World Bank makes payments conditional on CER deliveries and other performance targets, - carbon credit revenues are an integral part of funding continued operation. Thus far, the BSP has not been able to develop into a commercial activity in Nepal. Besides investment subsidy to user households, BSP needs funding on program level to maintain its activities.
Could the CME play a crucial role in managing a NAMA? If not, would it be possible to transform the PoA CME into an entity with the institutional capacity to manage a NAMA?	Yes. AEPC with support from BSP and under a government regulatory mandate could play a crucial role in the identification, capacity building, implementation and monitoring of the NAMA. At the same time, BSP could de-centralize its role through the involvement of additional, licensed partners. Relatedly, it could include also higher-income households in the program and larger, possibly community-based, bio-digester designs. The expansion to other activities might create capacity constraints on the involved entities that need to be addressed through a set of actions, including: a) process efficiency (automatization wherever possible), b), increasing the capacities of AEPC and BSP and c) accrediting new entities for the performance of key tasks.
Are the current incentives/ regulations sufficient to successfully manage a NAMA? If not: what additional incentives/regulations would need to be set up?	The current incentives/regulations include: - investment subsidies and support in providing micro-credit facilities to reduce the investment barrier to households, - international support, - sale of carbon credits, - quality control & assurance to ensure long-term performance, - supporting innovation (i.e. digester design and monitoring, - awareness raising, - capacity-building targeting digester construction companies, and - motivating and training new biogas companies in remote areas to expand their coverage and expansion to non-served areas,

	AEPC faces capacity-and budgetary constraints for expansion, necessitating additional support/income streams. One source of additional income could be through a credited NAMA or green investment support schemes that would capitalize on additional emission reductions that could be captured on the NAMA-level or other output-based support schemes.[14]

Conclusion regarding the applicability for NAMA design

Applicable ☒ **Adaptable ☐** **New design ☐**

The NAMA can be managed by the PoA CME. The need for and design of capacity strengthening activities as a consequence of scaling-up needs to be examined in detail.

[14] In fact, the BSP is a participant in the World Bank's Global Partnership on Output-Based Aid which makes payment for providing access to clean, reliable energy. See also: http://www.gpoba.org/gpoba/project/P103979

Module 3: Evaluate Framework

Framework Analysis PoA Nepal Domestic Biogas Development	
Key questions	**Answers**
Domestic political support for NAMA (does the host-country support the idea of NAMA)?	While having agreed to the Copenhagen Accord, the Government of Nepal has neither submitted communication to the UNFCCC related to NAMA nor set domestic policy objectives or targets for relevant emission categories covered by this potential NAMA. Being an LDC, Nepal will have full access to European carbon markets post 2012. Consequently, it might think that it is under no pressure to adopt NAMA. The Nepalese Government currently does not see the additional merit of a NAMA in comparison to the current institutional and support arrangements. In fact, according to an unofficial statement by AEPC, Nepal considers NAMA to be "entry-level obligations" (for more advanced developing countries) that does not befit its own development status. Politically support for a pilot NAMA could materialize if the additional benefit of a NAMA-PoA-only approach were demonstrated to top government officials.
Domestic institutional capacity	Nepal does not yet have experience with the design, establishment and enforcement of broad-based, domestic climate change mitigation regulation. However, the biogas program is a national program that could be upgraded to a NAMA.
Is a pilot NAMA likely to be integrated into domestic policies within a decade?	Having LDC status, Nepal will have access to EU carbon markets post 2012. Consequently, the government might not feel the need to introduce NAMAs unless it can be convinced that NAMA is beneficial. To this end, we suggest engaging the government in discussions designed to illustrate the benefits of NAMA (e.g., explaining how other LDCs have benefited from the NAMA approach) and designing a credited NAMA or Green Investment aid scheme. It is expected that Nepal will provide more detailed information on its domestic policies, its NAMA-related communications to the UNFCCC, and the integration of both, in accordance with the work plan of the AWG-LCA and in the context of bilateral activities related to NAMA readiness and implementation of pilot NAMAs.

Conclusion regarding the applicability for NAMA design

	Yes	**No**	**Unknown**
Domestic political support for NAMA?		✓	
Domestic institutional capability?	✓		
PoA NAMA co-existence possible?	✓		
NAMA integration likely during next decade?			✓

The Nepal Domestic Biogas Development PoA is technically a good candidate for scaling-up to NAMA, but the political support to develop a pilot project might not currently exist.

Module 4: Conclusions and Next Steps

- Is scaling-up the existing PoA to a NAMA a feasible option and a good idea?

The Nepal Domestic Biogas Development PoA is technically a good candidate for scaling-up to NAMA, but the political support to develop a pilot project might not currently exist.

- Which would be the main advantages of scaling-up into a NAMA?

A NAMA approach would capture all emission reductions occurring within the system, therefore strengthening the existing domestic policies and supplementing the existing support for domestic biogas development.

- Which are the main design elements of such a NAMA?

NAMA Draft Design Sheet

Country: Nepal	Sub sector: Low Carbon Rural Community Development
Scope and target	**Scope:** The NAMA seeks to implement various measures towards low carbon intensity, poverty reduction, food security in rural areas centered on household biogas applications, NRB fossil-fuel and fertilizer use reduction. The NAMA would be based on the ongoing household biogas development program, the AEPC PoA and other existing CDM bundled project (also under the BSP), an existing voluntary carbon project, and the existing and potentially scaled-up donor support program. **Target**: To reduce NRB, fossil-fuel and fertilizer use through various activities centered around the wide-spread installation of domestic biogas units in rural areas which has an estimated overall potential of around 1 million units, of which roughly 200.000 have been installed already over a 15 year period since 1995 (estimates vary by study).
Eligibility criteria	- All household biogas systems, regardless of prior participation to the PoA, prior registration to AEPC, digester size or household income threshold. - Activities of households that comprise reduction of NRB use, fossil fuel use and use of fertilizer - Household applications that do not comply with PoA eligibility criteria higher income households, large unit sizes participate in NAMA MRV process only.
Fit with existing activities / value-added	The NAMA supplements the existing support for domestic biogas development and is implemented within the same institutional set-up. It also reinforces existing domestic policies regarding access to clean, reliable energy services and poverty alleviation.
Baseline	The NAMA baseline is an extrapolation of the PoA baseline using input data that was originated in the context of the PoA initiative but using IPCC (2006) emission accounting methods. The baseline is defined as "CO_2 Emissions and Removals from Soils as Result of use of NRB for fuel-wood use" as well as CO_2 Emissions from the use of synthetic fertilizer.
MRV procedures	NAMA MRV is based on bi-annual national user surveys of biomass use, demand and supply surveys and default values for the average amount of biomass replaced per household. The data is collected through AEPC and in cooperation with the Water and Energy Commission Secretariat as part of the annual Nepal Energy report (which is also an input into Nepal's National Communication).
Proposed structure	The NAMA is designed as an extension of the existing BSP whereby AEPC provides the required technical services. AEPC manages NAMA MRV and processes support payments alongside existing subsidy/support/carbon credit payments.
Incentive system/ regulations	Activities within the NAMA receive different levels of support within the existing (and expanded) support schemes that reflect user willingness to pay and taking into account access of PoA eligible activities to carbon market revenues.
Link NAMA – Carbon market	Considering Nepal's LDC status, NAMA design will supplement revenues from carbon credit sales.

Which would be the proposed follow-up activities?

The following next steps are proposed:

- Evaluate/assess the expansion potential within NAMA through mandatory inclusion of all bio-digesters regardless of their registration with AEPC.
- Evaluate/assess the expansion potential within NAMA by inclusion of other NRB use reducing activities and displacement of fossil fuels and fertilizer.
- Develop a NAMA baseline and benchmarks for the key activities included in the NAMA on the basis of IPCC 2006 (Above Ground Biomass Carbon Stock, GHG from Fertilizer methods).
- Conduct a pre-feasibility study into the design of a potential “green investment support” mechanism (or credited NAMA) to monetize emission reductions that can be captured on the NAMA level only.
- Enter into a policy dialogue with the Nepalese Government regarding the potential benefits of a NAMA vs. PoA approach to low carbon rural development.

3.4 Tunisia Building Energy Efficiency PoA

Summary Analysis: PoA to NAMA Evaluation

Country: Tunisia	PoA: Building Energy Efficiency

Module 1: Introduction of the PoA

The purpose of this PoA is to reduce emissions from fuel combustion activities (electricity generation, CHP, heat plants) and residential fuel combustion by improving the energy efficiency of the Tunisian building sector (new and existing building stock). The implementation of the PoA is managed by the National Agency for Energy Conservation (ANME) under the authority of the Ministry of Industry, Energy and SME.

Module 2: Analyze Operational design elements

Assessment of PoA elements regarding their applicability for the design of a NAMA

	Applicable	Adaptable	New design
Eligibility criteria		✓	
Baseline setting			✓
MRV procedures			✓
Management		✓	

Comments: NAMA design would focus on the implementation of "low hanging fruit" using NAMA support. Approximately 30% of all buildings-related CO_2 emissions can be avoided at a net benefit, while new buildings can achieve as much as 80%. However, the NAMA baseline emissions will have to be designed as the product of the top 20% benchmark level and the gross floor area of the building units. MRV procedures for the NAMA need to be developed. The eligibility criteria and implementation arrangements of the PoA could be used as a basis for the NAMA.

Module 3: Evaluate Framework

Assessment of domestic policy and regulatory environment preparedness for NAMA

	Yes	No	Unknown
Domestic political support for NAMA	✓		
Domestic institutional capacity	✓		
PoA NAMA co-existence possible		✓	
NAMA integration likely during next decade?	✓		

Comments:
Tunisia has an adequate level of capacity, a regulatory framework and existing domestic policies that are aligned with NAMA. Therefore, there is a potential for applicability of designing a pilot NAMA on the basis of the proposed PoA.

Module 4: Conclusions and Next Steps

While the Tunisian Residential Building Energy Efficiency sector is a good NAMA candidate, the proposed PoA will require substantial new design. The following steps are proposed:

- Evaluate/assess the expansion potential within NAMA (preparation of a study and a set of surveys to identify cost-efficient measures for emission reductions in the building sector in the different regions of the country).
- Define and implement a building code, depending on the current technical capacity and socio-economic conditions of Tunisia.
- Assess CME performance and capacity constraints for scale-up to NAMA and develop a capacity-development program.
- Support the Government with designing a NAMA conceptual framework and analyzing its interaction & co-existence with a PoA (contingent on political developments in Tunisia).

Detailed Analysis: PoA to NAMA Evaluation

Module 1: Introduction to the PoA

Description of the PoA PoA Tunisia Building Energy Efficiency	
Key questions	**Answers**
What is the PoA's scope (technical and geographical)?	The purpose of this PoA is to reduce GHG emissions from fuel combustion activities (electricity generation, CHP, heat plants) as well as residential fuel combustion by improving the energy efficiency of the Tunisian building sector (new and existing building stock). The PoA is limited to thermal insulation of the roofs of private houses (new and existing buildings). The measures are implemented at the national level and concern all private houses in Tunisia. The PoA is based on the Promo-Isol program, which is a pilot project targeting 20,000 buildings in the next three years. The building sector is ranked third largest energy consumers in Tunisia and draws more than 30% of the country's natural resources. In addition, according to estimates, this sector is expected to be ranked second in terms of energy consumption by 2020 and to become the largest energy consumer in 2030. The construction rate of new buildings is very high (from 1 million in 1975 to 2.7 millions in 2007). In parallel, the quality of housing and the dwelling sizes have increased as well. As a result, the energy consumption per household has risen from 0.31toe/household in 1990 to 0.41toe/household in 2006).
How is the PoA management structure set-up?	The implementation of the PoA (coordination of activities, overall responsibility for MRV related tasks) is managed by the National Agency for Energy Conservation (ANME), a non-administrative public entity under the authority of the Ministry of Industry, Energy and SME.
What are the basic implementation arrangements?	Promo-Isol is based on a subsidy of 20% of the cost of roofing insulation 4DT/m2 for a maximum size: 200 m². In addition, bank credit to a maximum of 3 to 40 DT / m² can be granted over a period of 5 to 10 years at a rate of four MMR. The payback for the consumer is reduced from 5 to 13 years. ANME is the main actor and grants come from the FNME. The current business model foresees that the installer companies receive the money for the material and installation works only after the work has been completed. This bears the risk of cash flow constrains for the installer companies and hence a limited willingness to participate in the PoA. The appropriateness of the capacity building for the installer companies as well as the subsequent success of the installer companies to convince the owner of buildings to participate in the program will be a key factor for success. The willingness of the building owners to participate in the scheme is difficult to assess and as of now it is not known whether this model is sufficiently attractive to convince as many house owners as it has been estimated.
What is the PoA's fit with the existing national policies and	The Government of Tunisia has announced and implemented a number of domestic policies, incentive structures and associated outcomes/targets which are implemented using domestic resources

the regulatory framework?	and international support. It has also submitted its proposed NAMA to the UNFCCC with explicit reference to actions related to energy efficient buildings. However, in its UN communications it has not set a quantified target level. The Government is supportive of the approval of PoA(s) to further incentivize energy efficiency in buildings.
What are the main GHG emission sources within the PoA that will deliver ERs (IPCC categories)?	The PoA seeks to reduce CO_2 from fuel combustion activities (electricity generation, CHP, heat plants) as well as residential fuel combustion by improving the energy efficiency of the Tunisian building sector. These fall under IPCC's Scope 1 and 2 emission categories.

Module 2: Analyze Operational design elements

Operational element analyzed: PoA Tunisia Building Energy Efficiency	**Eligibility criteria**
Key questions	**Answers**
What are the PoA's eligibility criteria?	The main eligibility criteria for PoA inclusion are: - Existing or new building construction - Maximum roof size of 200m2 - Buildings must be located in Tunisia
Should the eligibility criteria be adjusted to include additional activities under a NAMA by: a) expandingn to other sectors and intervention-types, b) the involvement of additional implementing entities, c) expanding its geographical coverage be increased to a national scale, d) target additional ER within the same IPCC GHG emission categories under a NAMA?	a) Yes. Tunisia is currently developing a second PoA in the building sector that focuses on the implementation of solar water heaters. It could be considered beneficial to merge these two PoA considering that this would create synergies and improve the effectiveness of support considering that an integrated mitigation action (solar heaters plus improved insulation) would reduce unit installation costs. However, this is complicated by the fact that the solar-water-heating PoA is already at an advanced validation stage, complicating the revision of eligibility rules and, the improved feasibility of the integrated intervention might compromise the additionality of that intervention. Developing these actions within a NAMA framework offers substantial scaling-up potential because of the limitations of CDM rules in relation to additionality, multi-method approaches and activity-level MRV. b) No. A national institutional set-up already exists. c) Yes. The project can be scaled up to national scale. d) See a)

Conclusion regarding the applicability for NAMA design

Applicable ☐ Adaptable ☒ New design ☐

NAMA design would focus on the implementation of "low hanging fruit" using NAMA support.

As introduced above, globally, approximately 30% of all-buildings-related CO2 emissions can be avoided at a net benefit. New buildings can achieve the largest savings: as much as 80% of the operational costs of standard new buildings can be saved through integrated principles at often little extra costs. The eligibility criteria of the PoA can be used as a basis for the NAMA design.

Operational element analyzed: PoA Tunisia Building Energy Efficiency	Baseline Settings
Key questions	**Answers**
How is the PoA baseline set?	The baseline is the energy consumption of residential buildings without insulation. There is no national inventory of GHG emissions that could be use for this particular sector. Thermal insulation has been obligatory in new buildings in the public sector according to the Decision of the Council of Ministers of the 28th April 2005. For other sectors, labels will be produced to record performance running from levels 1 to 8. Four categories of building will be recognized in the labeling scheme. The first two regulatory texts have been issued for offices and multi-occupancy apartments. However, these regulations only target commercial buildings and the new construction of collective buildings. Existing private buildings as well as newly self-constructed private building are not covered.
Is the PoA baseline setting procedure generally applicable for NAMA baseline setting?	The idea of the NAMA would be to develop a new order to generalize the thermal regulation of buildings to individual private residential houses and to existing buildings. A NAMA target would therefore require a reduction of emissions compared to the status-quo. This would also mean that PoA baselines would need to be adjusted to contribute to reaching this target unless it is argued that PoA-eligible activities are higher up on the least-cost mitigation cost curve and require the full incentive. In that case, NAMA design would need to ensure that the domestic NAMA target is delivered by non-PoA eligible activities.
If yes, how could it be applied and would the use of standardized/simplified procedures be feasible?	Not applicable.
If no, what would a feasible procedure to develop a NAMA baseline irrespective of the PoA be?	To determine the baseline, a benchmark approach could be used. The baseline emissions could be calculated by a building performance approach or by a building calibrated simulation approach. Based on the emissions monitored in the baseline building units, the first approach determines the baseline emissions based on the benchmark analysis. All the baseline buildings units are benchmarked on their specific emissions and the average level of specific emissions among the building units with the top 20% performance is determined as the top 20% performance benchmark level. The baseline emissions will be calculated as the product of the top 20% benchmark level and the gross floor area of the project building units. The second approach is based on computer simulation using a calibrated model, which stimulates the baseline emissions every year taking into account actual weather conditions. The average energy consumption and building characteristics of the top 20% performer building units are the inputs of the calibration of the baseline energy simulation model.

	In order to determine the energy consumption, the existing approach defined in the Ministerial Order of June 01 2009 can be used. This Order describes in detail the approach to be followed to determine the minimum specifications for the building's thermal performance and the thermo physical properties of the building's envelope.

Conclusion regarding the applicability for NAMA design

Applicable ☐ **Adaptable ☐** **New design ☒**

As mentioned above, the NAMA baseline emissions will have to be calculated from scratch as the product of the top 20% benchmark level and the gross floor area of the project building units.

Operational element analyzed: PoA Tunisia Building Energy Efficiency	**MRV Procedures**
Key questions	**Answers**
What are the key monitoring requirements of the PoA?	The small-scale methodology AMS II. E is the only applicable methodology for the PoA under consideration. AMS II.E only provides very generic guidelines for the baseline determination and no guidelines at all for the project energy consumption/emissions. A new methodology is currently being developed "Energy Efficiency and fuel switching measures in new buildings". This methodology is based on a benchmarking approach. However, it is limited to the construction of new buildings.
To what extent can PoA monitoring requirements be translated into a NAMA context?	For existing buildings, surveys would be required to establish the thermal efficiency of the building stock as well as energy use for space conditioning differentiated by buildings that participate in the program and all other buildings. The MRV for program participants should meet the MRV requirements of the CDM. Total participation numbers, traceable through financial records associated with the subsidy, are used to extrapolate total savings. A random sample is chosen for non-participants. For new buildings, the same procedure could be adopted, possibly with a stronger focus on the installation of meters that exclusively measure energy use for space conditioning (usually natural gas for heating and electricity for air conditioners). However, the complexity of determining the energy demand for a building, as well as the energy savings and related emission reductions of a complete building by only changing one measure (roof insulation), is not feasible on a reliable basis. Too many interrelated measures and parameters (e.g. air flow, efficiency factor of heating system, inside and outside air-temperature, electrical appliances in the house, behaviour of residents) determine the total energy consumption of a building.
Who is responsible for NAMA monitoring and managing the verification process?	ANME has conducted surveys on residential energy use, energy saving potentials (including some benchmarks) and GHG emissions and emission reductions. Recent data on aggregate energy use of buildings is not available but might exist on the level of the Tunisian Company of Electricity and Gas. Combined with housing stock and construction data, the datasets mentioned above could be integrated into a reliable system (incl. emission registry) for the estimation of GHG emissions within the NAMA system.

What is the capacity of the relevant entities in the PoA to estimate, collect and manage GHG emissions in a NAMA context?	ANME has proved to be successful in implementing such policies in Tunisia, as shown by the results of the programmes PROSOL aimed at revitalizing the declining Tunisian solar-water-heater market. All necessary institutions are already in place, in the context of the regulation on other types of building (commercial, collective, and health buildings). However, only the alignment of the existing regulation with concrete action on the ground will allow the implementation of the program. ANME's capacity will have to be expanded for this NAMA.

Conclusion regarding the applicability for NAMA design

Applicable ☐ **Adaptable ☐** **New design ☒**

MRV procedures for the PoA are not applicable to the NAMA so the NAMA-level MRV will have to be developed anew. However, the main entities that are responsible for PoA-level MRV have the mandate and the experience to manage the NAMA-level MRV as long as their capacity development is adequately supported.

Operational element analyzed	**Management**
PoA Tunisia Building Energy Efficiency	

Key questions	**Answers**
How is the PoA management structure set-up? Who is managing the CME?	PoA Coordinator is the National Energy Conservation Agency, a non-administrative public entity under the authority of the Ministry of Industry, Energy and Small and Medium Enterprises. The mission of ANME consists in implementing the State policy in the field of energy conservation (e.g. promotion of energy efficiency, renewable energies and energy substitution). ANME tasks include: - Providing & managing an investment subsidy to insulation costs. The subsidy is under discussion with the Ministry of Finance. - Accreditation of the installers/operators and the applied insulation materials eligible to the program. - Establishing the list of accredited controllers of insulation works. - Awareness rising and communication about the program - Training/capacity building of service providers - Quality control of the installations - Monitoring and Evaluation of the programme activities These actions will require the involvement of the municipalities and important financing to ensure the training of a sufficient amount of installers and to develop the capacity-building of the controllers.
Could the CME play a crucial role in managing a NAMA? If not, would it be possible to transform the PoA CME into an entity with the institutional capacity to manage a NAMA?	The agency supports initiatives and actions which aim at effectively reducing GHG emissions from conventional energy consumption and has the mandate and institutional capacity to take over responsibility for a NAMA. However, an extension of the capacity would be required for its implementation. Technology, financing and capacity building programs should not be problematic to implement since similar programs have already been developed in Tunisia ANME. In any case, the expansion to other intervention-types (i.e. building materials, energy efficient construction, windows, lighting, air-conditioning etc.) as well as policy instruments (i.e. building codes, energy efficiency standards, etc.) will need the inclusion of other implementing partners.

Are the current incentives/regulations sufficient to successfully manage a NAMA? If not: what additional incentives/regulations would need to be set up?	The main element of the existing incentive program is a subsidy of 20% of the cost of roofing insulation at 4 DT/m2 for a maximum roof size of 200m2 and an additional bank credit of 3-40 DT/m2 with a 5-10 year term granted by FNME resulting in a 23% reduction of heat consumption and 18% on air conditioning. The existing program targets 20,000 units per year (total annual construction of eligible buildings is 40,000 per year and the existing building stock is 1.4 mil units). Expansion to other measures is possible, such as wall and window insulation, installation of solar water heaters or passive solar design. Additional costs would have to be financed.

Conclusion regarding the applicability for NAMA design

Applicable ☐ **Adaptable ☒** **New design ☐**

While the existing management structure in place is recognized as strong and capable, it is recommended that the performance of the CME in relation to the existing PoA is evaluated and that the capacity constraints that would result from scaling-up to NAMA are properly assessed.

Module 3: Evaluate Framework

Framework Analysis	
PoA Tunisia Building Energy Efficiency	
Key questions	**Answers**
Domestic political support for NAMA (does the host-country support the idea of NAMA)?	The Government of Tunisia has announced and implemented a number of domestic policies, incentive structures and associated outcomes/targets which are implemented using domestic resources and international support. It has also submitted its proposed NAMA to the UNFCCC with explicit reference to actions related to energy-efficient buildings. However, in its UN communications it has not set a quantified target level. The Government is supportive of the approval of PoA(s) to further incentivize energy efficiency in buildings. The Quadrennial programme of the Tunisian Government (2008 – 2011) has identified large savings (400,000 toe/year by 2011) to be achieved by better lighting, better thermal performance and standards for appliance. 25% of those saving could be achieved by better thermal insulation.
Domestic institutional capacity	The institutional framework for the support of renewable energies and energy efficiency in Tunisia is well developed. Renewable energy is part of the responsibility of the Ministry of Industry, Energy and Small and Medium Enterprises. It is supported by the National Agency for Energy Conservation (ANME), which plays an important role in fostering research and development as well as designing and implementing policies and strategies.
NAMA integration in domestic policy likely within PoA's crediting period?	It is a possibility that the PoA considered for this case study may never be approved as there are several concerns on the use of the applicable methodology, the additionality at PoA level, and the baseline setting. Therefore, it is likely that a NAMA for building-

	energy efficiency may be in place before (or without) the PoA that is described here. In any case, the NAMA design could benefit from the proposed PoA design

Conclusion regarding the applicability for NAMA design

	Yes	No	Unknown
Domestic political support for NAMA	✓		
Domestic institutional capacity	✓		
PoA NAMA co-existence possible		✓	
NAMA integration likely during next decade?	✓		

Tunisia has an adequate level of capacity and has a regulatory framework and existing domestic policies that are aligned with NAMA. Therefore, there is a potential for applicability of designing a pilot NAMA on the basis of the proposed PoA. However, the NAMA will require a lot of new design and therefore the institutional environment will have to ensure the capacity and resources are properly devoted to this.

Module 4: Conclusions and Next Steps

- Is scaling-up the existing PoA to a NAMA a feasible option and a good idea?

The analysis concludes that while the Tunisia Residential Building Energy Efficiency would be a good candidate for scaling-up to NAMA, the amount of insight that the PoA offers towards NAMA design is relatively limited and will require designing new baseline settings and MRV procedures. This will require a lot of ground work and preparation (particularly conducting surveys and establishing benchmarks).

- Which would be the main advantages of scaling-up into a NAMA?

A NAMA framework will represent a comprehensive national strategy for incresing energy efficiency in buildings, will broaden the scope and applicability of the existing PoA, will remove uncertainties related to the additionality of EE activities and will reduce the need to manage non-enforcement and encumbrance of CER rights.

- Which are the main design elements of such a NAMA?

NAMA Draft Design Sheet

Country: Tunisia	Sub sector: Residential Building Energy Efficiency
Scope and target	**Scope:** to implement household level building codes for energy efficiency, such as the implementation of minimum energy performance standards for all (new and existing) private houses in Tunisia. **Target**: to reduce up to 30% of buildings-related CO2 emissions at a net benefit by 2020.
Eligibility criteria	All private households, existing or new, regardless of prior participation to the PoA, household size or income threshold. Each household that participates also in the PoA shall agree to implement voluntarily the upgrades & share CDM revenues with the CME.
Fit with existing activities / value-added	The NAMA scheme would represent a national strategy for building efficiency and contribute to emission reduction in the building sector which is considered the largest in terms of ER potential. It will contribute to the presidential program goal of constructing 70 000 energy efficient buildings by 2014 in accordance with thermal regulations for new buildings and development of the use of thermal insulation standards for new and existing buildings. These building standards were introduced for office buildings and residential apartment buildings. The NAMA would be an extension of this regulation.
Baseline	The baseline emissions will have to be calculated by a building performance approach or by a building calibrated simulation approach. Based on the emissions monitored in the baseline building units, the first approach determines the baseline emissions based on the benchmark analysis. All the baseline buildings units are benchmarked on their specific emissions, and the average level of specific emissions among the building units with the top 20% performance is determined as the top 20% performance benchmark level. The baseline emissions will be calculated as the product of the top 20% benchmark level and the gross floor area of the project building units. In order to determine the baseline and the benchmark, both in the case of existing buildings and newly constructed buildings, extensive surveys on the energy consumption of houses would be needed. - In the case of new buildings, the surveys can be conducted on samples of buildings constructed in the last 5 years. - In the case of existing building, surveys would be conducted among buildings constructed the same years. A sample group would be chosen as well. - Sampling groups will be chosen in the different climatic zones of Tunisia. Three zones have been defined. Heating and cooling requirements are obviously different in each of them. The second approach is based on computer simulation using a calibrated model, which stimulates the baseline emissions every year taking into account actual weather conditions. The average energy consumption and building characteristics of the top 20% performer building units are the inputs of the calibration of the baseline energy simulation model. In order to determine the energy consumption, the Ministerial Order of 01 June 2009 describes in detail the approach to be followed to determine the minimum specifications in terms of thermal performance of the building and thermo physical properties of the envelope of the building.

MRV procedures	The MRV procedures will also have to be designed for the NAMA differentiating new and existing buildings. For existing buildings: - Documenting the specifications of the equipment replaced. A survey would need to be conducted to assess the "typical" thermal characteristics of existing private houses in Tunisia. - Calculating the energy savings due to the measures installed by comparing the energy need of the existing building prior to the insulation and after the insulation. For new buildings: - Metering the energy use of building (would require the installation of flow meters for the heating system and metering the total electricity consumption of the building on a continuous basis). - Calculating the energy savings of the new building from business-as-usual scenario obtained by statistics of the building stock and the building type with thermal characteristics of the thermal envelop and the energy consumption of newly constructed buildings in the past 3-5 years. A comprehensive survey would be required as the energy need of a building depends on various parameters, such as characteristics of the building envelop, level of humidity, inside and outside temperatures, behavior of residents.
Proposed structure	NAMA design and management coordinated under National Energy Conservation Agency (ANME), including: - Providing and managing the investment subsidy to insulation costs. - Accreditation of the operators, controllers and insulation materials eligible. - Awareness rising and communication about the program - Training and capacity building of service providers (Installers, Controllers) - Quality control of the installations - Technical advisory (feasibility analysis, implementation support) and financial support - Monitoring and Evaluation (including MRV) and CER monetization These actions require the involvement of the municipalities and important financing to ensure the training of installers and to develop the capacity of the controllers. The local banks will provide loan to end users (owner of the building) in order to finance the remaining amount of the initial investment cost. Operators/Installers (Insulation companies): market prospecting, client access to the subsidy and loan program, implementation of the insulation in accordance with the standards and rules established by the NAMA. The network of controllers to control systematically the thermal insulation works performed at the buildings and certify to the genuineness and the quality of work. This network, which should cover all regions, will be eligible for: Architects, Construction Consulting Engineers, and control companies.
Incentive system/ regulations	All end users shall be eligible for the financial support provided under the ongoing support schemes (20% of the cost of roofing insulation at 4 DT/m2 for a maximum roof size of 200m2 and an additional bank credit of 3-40 DT/m2 with a 5-10 year term granted by FNME resulting in a 23% reduction of heat consumption and 18% on air conditioning).
Link NAMA – Carbon market	PoA eligible activities are likely to comprise a small share of total mitigation actions. This reduces the need to manage non-enforcement and encumbrance of CER rights.

Which would be the proposed follow-up activities?

The following next steps are proposed:

- Evaluate/assess the expansion potential within NAMA (preparation of a study and a set of surveys to identify cost-efficient measures for emission reductions in the building sector in the different regions of the country).
- Define and implement a building code, depending on the current technical capacity and socio-economic conditions of Tunisia.
- Assess CME performance and capacity constraints for scale-up into NAMA and develop a capacity development program.
- Offer support to the Tunisian Government to design the NAMA conceptual framework and to analyze its potential interaction and co-existence with a PoA.

4. Recommendations and Conclusions

This section identifies the two most promising PoA case studies for scaling up and the concrete actions to prepare for the implementation of a pilot NAMA based on the assessment in chapter 3 above (assessment of PoA operational design elements that could make a useful contribution to NAMA design (NAMA readiness).

It also extracts the main general "lessons-learnt" from this exercise and provides a summary outlook on the contribution of the CDM to the design of NAMA.

4.1 Next Steps towards a Pilot NAMA: Assessment of Case Studies

Module 2 analyzed the concrete design elements of the four PoA case studies with regard to their applicability for the design of a NAMA. Each PoA element is graded into one or more of the following categories:

- PoA design elements that can be applied directly without modification,
- PoA design elements that are relevant but require some adjustment, and
- PoA design elements that cannot be used for the NAMA design. Hence, new elements are required to complete the NAMA design.

The results of this analysis are summarized in the table below. According to this analysis, the design of the Uganda PoA is the most applicable to NAMA scaling-up, followed by India, Nepal and then Tunisia. The Tunisia PoA finding suggests that the PoA does not have much to offer for NAMA design. In fact, the analysis has shown that a NAMA approach might be more suited to facilitate mitigation actions in the housing sector than a PoA approach.

Table 6: Summary Assessment of PoA Design Elements for NAMA Design

	India			**Uganda**			**Nepal**			**Tunisia**		
	Ap	**Ad**	**ND**	**Ap**	**Ad**	**ND**	**Ap**	**Ad**	**ND**	**Ap**	**Ad**	**ND**
Eligibility criteria		✓			✓			✓			✓	
Baseline setting		✓		✓				✓				✓
MRV procedure		✓		✓				✓				✓
Management		✓			✓		✓				✓	
Total		**4**		**2**	**2**		**1**	**3**			**2**	**2**

Note: Ap: Applicable Ad: Adaptable ND New Design

Module 3 analyzed the political and institutional framework in which a NAMA would operate. The results of this analysis are summarized in Table X. According to this analysis, the Nepal case study is not suited for a pilot NAMA because of the current lack of political support for a NAMA approach. Such support could increase over time. The findings from the Tunisia case-study suggest that a PoA could be replaced by a NAMA approach.

Table 7: Summary Assessment of Framework Factors for NAMA Design Feasibility

	India			Uganda			Nepal			Tunisia		
	Yes	No	Uk	Yes	No	uk	Yes	No	uk	Yes	No	uk
Domestic political support for NAMA?			✓			✓		✓		✓		
Domestic institutional capability?	✓			✓			✓			✓		
PoA NAMA co-existence possible?			✓	✓			✓				✓	
NAMA integration likely during next decade?	✓					✓			✓	✓		
Total	**2**		**2**	**2**		**2**	**2**	**1**	**1**	**3**	**1**	

Note: uk: unknown

4.2 Draft NAMA Design Candidate 1: India

The India PoA EE for the SME steel industry contains a number of design elements that are applicable or adaptable for NAMA design. The Table below describes the basic design of a pilot NAMA that is derived from PoA design.

Table 8: NAMA Design India

Country: India	**Sub sector: EE in SME Productive Industries**
Scope and target	**Scope**: to improve the energy efficiency of furnaces and burners in energy-intensive SME industries throughout India, through: - installation of fuel efficient low excess air burners - automated control systems f. excess air/furnace temperature control - waste heat recovery through the addition/retrofitting of recuperators - improved insulation of furnaces. **Target**: to reduce overall energy consumption by at least 20% per unit of production.
Eligibility criteria	- All furnaces & burners operating in energy-intensive SME industries that are not covered under the India EEC scheme. - Each CPA facility (within the NAMA) confirms that it invests voluntarily in implementing the specified energy efficiency measures & agrees to share CDM revenues with the CME. - Each CPA (within the NAMA) shall apply the approved baseline setting and monitoring methodology AMS II.D (applicable version). - Newly built furnaces shall meet EE benchmark and shall not be eligible. - Energy efficiency improvement measures that don't comply with AMS II.D & switching to lower carbon fuels are allowed under the NAMA
Fit with existing activities / value-added	- The NAMA contributes to India's 20-25% emission intensity reduction target per unit of GDP by 2020 compared to 2005 (equal to 1.3%-1.7% per year). - It supplements energy efficiency certificate trading mechanisms that is targeting large industrial energy users and could be merged into that scheme in the future.

Baseline	- NAMA-level baseline data for SME is currently missing. - NAMA baseline should be established retroactively and be disaggregated to the facility level (by using standardized benchmarks that are defined as energy use or carbon intensity/ton of output (delivered energy or product)) for different types of equipment and equipment capacity categories. - Depending on actual emission reductions compared to baseline and NAMA target, each PoA CPA possibly needs to contribute a share of its CER to NAMA target.
MRV procedures	- Government should introduce a simplified process for the monitoring, reporting & verification of activity data for all facilities covered by this NAMA; this process could be based on sampling energy & fuel use and production data (BEE managed) (see "Table 8: Follow-up Activities for NAMA Readiness" for additional detail). - CPA within the NAMA report in accordance with CDM requirements.
Proposed structure	- NAMA design coordinated under National Mission for Enhanced Energy Efficiency - NAMA-level monitoring and reporting by BEE - Technical advisory (feasibility analysis, support of implementation) and financial support by SIDB and ISTSL
Incentive system/ regulations	- All activities shall be eligible for the financial support provided under the 2001 Energy Conservation Act and SIDBI EE financing facility.
Link NAMA – Carbon market	- The introduction of a NAMA shall not encumber the CER granted to the PoA and all such issued CER therefore need to be deducted from the overall emission reductions achieved by the NAMA when determining NAMA target compliance. However, the NAMA could purchase CER from this PoA (or any other) to cover an eventual shortfall of emission reductions on the NAMA level.

In accordance with the methodological approach of this study, this expansion requires the adjustment of some PoA design parameters before they are fully applicable for a NAMA. The list below identifies a set of follow-up actions that should be implemented to facilitate NAMA readiness.

Table 9: Follow Up Activities for NAMA Readiness

India EE for Energy-Intensive SME Industries Follow-up Action for NAMA Readiness	
Eligibility criteria	- Evaluate/assess the potential for expansion of furnaces and burners in similar energy-intensive SME industrial sectors, including power and steam generation, fertilizer, cement, aluminum, textile, pulp & paper, glass, etc. - Create a useful classification system/ categories of equipments (size, etc) for the development of category-specific benchmarks.
Fit with existing activities / value-added	- Obtain detailed information on the applicability of the Indian energy efficiency scheme (current phase) and its planned future expansion. - Assess the potential interaction between a PoA, the NAMA and the EEC scheme.
Baseline	- Develop standardized baselines for this equipment type based on CDM method AMS II.D, applicable version.
MRV procedures	- Develop clusters for key equipments/processes and MRV procedures, including sampling procedures, for the collection and analysis of fuel use and activity data per cluster to facilitate a robust estimation of GHG emissions, i.e. in accordance with an IPCC tier 2 or tier 3 approach. - Design a corresponding MRV system (e.g. who collects what, how often, and under what mandate).
Proposed structure	- Assess CME performance and capacity constraints for scale-up into NAMA.
Incentive system/ regulations	- Assess performance of the existing incentive system after first year of PoA operation.
Link NAMA – Carbon market	- Offer support to the Indian Govt. to design a conceptual framework for a NAMA in this sector and explore its interaction with a PoA.

4.3 Draft NAMA Design Candidate 2: Uganda

The Uganda PoA contains a number of design elements that are applicable or adaptable for NAMA design. The Table below describes the basic design of a pilot NAMA that is derived from PoA design. The proposed (supported) NAMA would strengthen the Ugandan feed-in-tariff for renewable energy and expand the reach of the PoA to other project types.

Table 10: Uganda NAMA Draft Design Sheet

Country: Uganda	Sub sector: Grid-connected RE Development in East Africa
Scope and target	**Scope**: to support the development of grid-connected renewable energy generation through a feed-in-tariff and carbon credit generation. **Target**: to increase the share of renewable energy above baseline levels.
Eligibility criteria	- all grid-connected RE technologies, - large-scale interventions, including hydro, - fuel-switching activities.
Fit with existing activities / value-added	The NAMA strongly supports Uganda's existing support mechanisms for the development of renewable energy.
Baseline	The NAMA baseline is constructed (and identical) to the PoA baseline using AMS I.D (average carbon intensity of the power grid using the combined margin approach).
MRV procedures	NAMA MRV is based on CDM MRV requirements according to method AMS I.D. Data for estimating grid carbon intensity has been collected and managed by the Energy Regulatory Authority using data from IPP and the Uganda Electricity Board. Data quality can be improved by upgrading reporting requirements from power producers & introducing country-specific emission factors.
Proposed structure	The CME has the professional expertise and capacity to provide NAMA relevant support services in relation to MRV, including: - automated monitoring of RE production data, - collection of project emissions from RE facilities, - design/implementation of high quality data collection and processing system for the determination of grid carbon intensity in compliance with AMS I.D, - managing the carbon credit origination and monetization for PoA activities. Being a private entity, the CME is not suited to manage NAMA-related support services related to the processing of feed-in-tariff payments. This service should be provided by the Ugandan agency that handles power purchase payments.
Incentive system/ regulations	The Government provides negotiated feed-in-tariffs to encourage private investment in renewable energy development. These tariffs are usually low which has limited actual development of RE facilities. Additional support could be made in the form of: - concessional financing for the construction of new RE facilities, and - supplemental support payments to fit-in-tariffs (per delivered green kWh) to increase the financial attractiveness of new RE development (financed via a supported NAMA).
Link NAMA – Carbon market	Having LDC status, carbon credits from a Ugandan POA will continue to be eligible for sale into the EU post 2012. This means there is no pressure on Uganda to scale-up mitigation action through NAMA s because of EU demands for more meaning participation by developing countries. This also means that NAMA design and support mechanisms will be supplemental to and thus co-exist with the PoA.

In accordance with the methodological approach of this study, this expansion requires the adjustment of some PoA design parameters before they are fully applicable for a NAMA. The list below identifies a set of follow-up actions that should be implemented to facilitate NAMA readiness.

Table 11: Follow Up Activities for NAMA Readiness

Country: Uganda **Sub sector: Grid-connected RE Development in East Africa**	
Scope and target	- n.a.
Eligibility criteria	- n.a.
Fit with existing activities / value-added	- To prepare a concrete design of a supported NAMA based on supplemental payments for RE and associated supporting activities.
Baseline	- n.a.
MRV procedures	- Improve the quality and efficiency of data collection (including automation), develop country-specific fuel emission factors.
Proposed structure	- See above under “fit with existing activities”
Incentive system/ regulations	- See above under “fit with existing activities”
Link NAMA – Carbon market	To conduct a high-level policy dialogue with the Government exploring the interest to participate in a pilot NAMA for the development of grid-connected renewable energy.

4.4 General Lessons Learned and Conclusions

We draw five general lessons learnt and respective conclusions from the PoA case studies that we analyzed to determine how PoAs could help in the design and implementation of NAMAs:

Lesson learnt No. 1:
"Tried and tested PoA elements can serve as useful building blocks when designing NAMAs."

Table 11 specifies conditions under which the different PoA elements are applicable for NAMA design or not.

Table 12: General Applicability of PoA Design Elements in Relation to NAMA Design

PoA Design Criteria	Applicable for NAMA	Non-applicable for NAMA
Eligibility Criteria	Technical criteria that provide an "objective" basis to assess eligibility of a facility or activity (type of facility, unit sizes, type of intervention).	Criteria that are subject to interpretation, i.e. driven by additionality assessment.
Baseline Setting	Standardized elements that have been developed for CDM methodologies: - large-scale benchmarks (carbon intensity of power grid, national or regional NRB usage rates) - deemed savings (Nepal: average per household biomass use) - status-quo baselines: (India: historic energy use per unit of output for key equipments) - modelled baselines (Tunisia: based on building standards)	Baseline setting procedures that are very specific to single installations or based on baseline option ranking.
MRV	Based on deemed savings and inventory of activities/interventions (Nepal) Focus on large emission sources with simple MRV requirements that facilitate cost-effective MRV on facility level (e.g. India, Uganda case study)	Project-level accounting of leakage (e.g. Tunisia case study) Project-level accounting of small emission sources
Implementation and Operation	CME already operating at same scale as NAMA and is an integral part of existing support mechanisms.	CME involved in small sub-set of NAMA scope.

Conclusion: There should be a systematic assessment of NAMA applicability of different existing CDM methods and an analysis on how existing CDM methods can be further refined to increase the share of standardized elements in the baseline setting, definition of eligibility criteria, and MRV. This would help UN CDM EB and AWG LCA to understand the integration potential and could help NAMA designers to use the CDM experience systematically.

Lesson learnt No. 2:
"In many cases a promising approach to scale up a PoA to a NAMA is to complement existing PoA elements with the introduction of a new policy/regulation, or the adoption of an existing one."

One purpose of the PoA approach is to support the implementation of policies. This report has shown that the stronger the integration of the PoA with domestic policies (e.g. Uganda: PoA as a central element to increase payments in addition to feed-in-tariffs; Nepal: PoA as a central element to finance construction subsidies to users), the better are the chances for successful scaling-up.

Conclusion: Ensure strong policy integration in the design of PoAs to facilitate the scaling-up to NAMAs.

Lesson learnt No. 3:
"The co-existence of NAMAs, including future credited NAMA, with PoAs in the same sector is possible if double-counting is avoided using a robust approach."

The PoA approach is the only short-term solution to create the crediting functionality within a NAMA (unilateral or supported). More details need to be worked out, but there is a strong appeal for the use of the existing PoA approach vs. a not yet operational credited NAMA approach.

Conclusion: The only and most robust solution in the short-term is to i) issue CERs to the PoA and then ii) deduct those issued CERs from the NAMA achievement. In the midterm, the PoA reform agenda at the CDM EB needs to connect with the ongoing AWG-LCA discussion on NAMA, especially crediting NAMA to address the double-counting issue (as well as other issues to facilitate co-existence and maximize the utilization of lessons learnt in the CDM in the context of NAMA design). There is already informal dialogue on this within the UNFCCC.

Lesson learnt No. 4:
"While many PoA elements can serve as a good basis for NAMA design, the real-life experience with PoAs is still very limited. PoAs need to gain in importance, numbers and volumes to really serve as significant cornerstone for NAMAs."

The suitability of PoA to support scaling-up must be improved by implementing the PoA reform agenda that has already been identified by the COP. The potential importance of PoAs in the design of NAMA could create additional momentum to streamlining PoA rules.

Conclusions: Continue to reform CDM in general and PoA rules in particular in order to gain more real-life experience which will serve the development of NAMAs.

Lesson learnt No. 5:
"The international climate policy community has to gain much more practical experience with scaled-up mechanisms."

Many design steps from PoAs to NAMAs still remain highly speculative as the NAMA concept is not yet clearly defined. Facilitating first pilot NAMAs will help to get first-hand experience on how NAMAs could be set up and managed. Such information will be very useful to facilitate the negotiation process to define the operational rules for NAMAs.

Conclusion: To launch a pilot NAMA, learn from the experience and communicate lessons-learnt.

4.5 Ending Scenario

Let's go back to the initial scenario laid out in Chapter 2:

> *"Imagine you are the head of the DNA in a developing country. Your Minister of Environment calls on you to please come up with a concrete design for a pilot NAMA for your country. She wants something very concrete and workable. You have never done this before but you then have a brilliant idea: why not just look at the PoA that was submitted for approval recently and see whether you can use it and its operational design elements as a starting point for the design of a concrete NAMA. What steps do I have to take to get there?"*

After following the four-step instructions, the DNA will be able to report back to the Minister with a detailed analysis of the existing PoA design (Module 1). More in particular, the DNA would have some precise results regarding the applicability of its four key design elements (Module 2) to be used as NAMA building blocks, and the status of the existing political and institutional framework (Module 3) in relation to the country's "NAMA preparedness". Last but not least, the DNA will also come back to the Minister with a draft NAMA Design, some considerations about its overall feasibility and appropriateness, and a list of concrete next steps that could be pursued to follow the NAMA path (Module 4). We conclude the report with a sequence which happened just after the DNA reported back to the Minister:

> *It seems your Minister of Environment is very happy about the concrete design for a pilot NAMA which you (the DNA) just presented her. Before leaving the meeting you take the opportunity to summarize your opinion: "In my view, PoAs can serve as very useful building blocks when designing NAMAs. I even anticipate a fruitful co-existence of PoAs with NAMAs in the same sector. However, one of the key topics which need further research and enough attention in the negotiations is the question how to avoid double-counting of emission reductions between NAMAs and PoAs."*

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6. Annex - Considerations on Double Counting

As mentioned in Chapter 1, one of the main challenges of transitioning from PoA to NAMA lies in ensuring that there is no double counting among all the proposed mechanism (i.e. the different types of NAMAs as well as other existing or emerging mechanisms (such as the CDM or sectoral crediting). It furthermore remains unclear how the emissions reductions from crediting mechanisms (such as credited NAMAs) would be accounted for in the national emissions pledges; in other words, whether both developed (buyer) and developing (seller) countries would be able to count emission reductions from crediting mechanisms towards their respective pledges, or whether only buyers will get to count them, as is currently the case under the CDM and JI.[15] Cleary, avoiding double counting when designing NAMAs is vital if climate pledges are to be effective. Although the parties will discuss a possible new crediting mechanism for NAMAs at COP 17 in Durban, it is likely that such a new mechanism will take years to develop. We therefore focus our brief discussion below on how CER generation could potentially be affected if PoAs were scaled up into NAMAs.

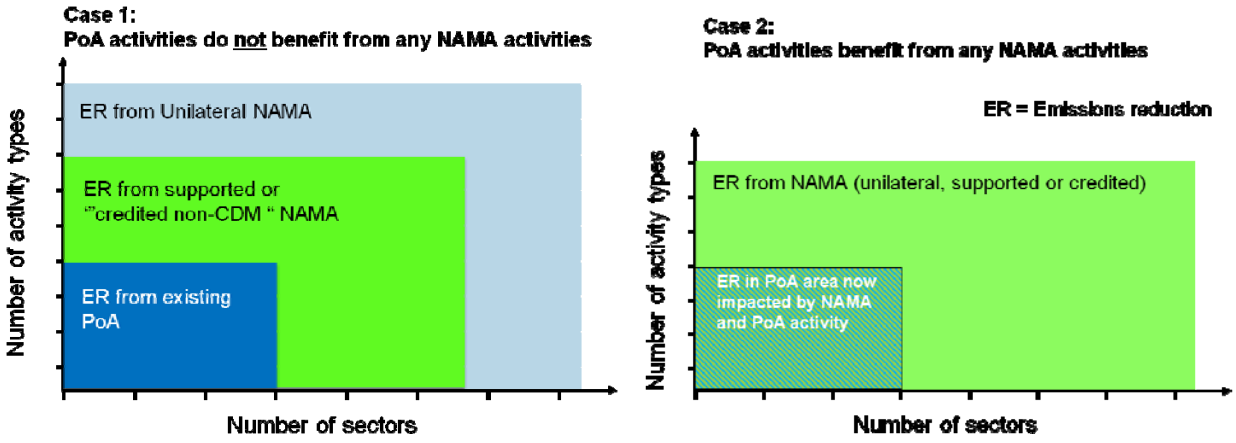
Case 1: PoA activities do not benefit from any NAMA activities

A PoA could be part of a sector-wide NAMA yet target a distinct activity type or sector than can be clearly distinguished from and remains unaffected by other NAMA initiatives. For example, a hypothetical NAMA in the residential building sector could consist of a PoA that funds solar water heaters (deemed a 'credited NAMA'), a supported NAMA that distributes efficient lighting (CFBs) and a unilateral NAMA which includes government grants for building shell upgrades. In such cases where PoA activities can be clearly distinguished from the other NAMA activities, continued CER issuance would be possible without double counting emissions reductions.

[15] In addition to the 43 developing countries that have submitted NAMAs (many of them including quantified emission reduction pledges), 42 developed countries have also submitted emission reduction pledges, which together have been projected to reduce emissions by up to 4 billion tons (Gt) CO_2e in 2020 from "business as usual." A recent study modeled the impact of potential double counting and found that it could effectively reduce the ambition of current pledges by up to 1.6 billion tons CO2e in 2020 - equivalent to 10% of the total abatement required in 2020 to stay on a 2°C pathway (Erickson et al 2011).

Figure 1, on the left (Case 1) illustrates this case. CERs would be issued for the emissions reductions achieved in the dark blue area. Neither the supported (green area) nor the unilateral activity (light blue area) would generate credits.[16]

Figure 1: PoA and NAMA interactions



Case 2: PoA activities benefit from the NAMA activity

In cases where the NAMA includes measures that would also cover the sector in which the PoA was implemented, CER generation would need to be adjusted in some way to avoid double counting. **Figure** 1, on the right (Case 2) illustrates this case. Such a NAMA could include a sector-wide benchmark or a subsidy such as a feed-in tariff. Because our case studies looked at how existing PoAs could be scaled up, all our case studies fall into this category. CER generation could potentially be adjusted as follows:

- **CER generation ceases**: A PoA could simply be replaced by a (larger) NAMA. In this case CER generation would stop once the NAMA incentives are in place.
- **Reduced CER generation/ adjusted baseline:** In case of a sector wide benchmark, only emissions reductions that go beyond the benchmark could be credited: There is precedent for such a benchmark approach under JI: adipic and nitric acid JI projects both have to use a much more stringent baseline than the same project types implemented under the CDM because either EU regulation or business-as-usual was assessed at those levels. In the case of adipic acid for example, 90% abatement is defined as business-as-usual and only abatement above 90% is credited. Under current UNFCCC rules such an approach would have to be implemented through the UNFCCC (methodology change) and could not be implemented by the host country.
- **Tax on CERs**: In cases of a sector wide subsidy, a host country could decide to tax CER revenues to recoup part of the costs of the subsidy.
- **CER rendered to the government**: It is conceivable that a host country would require that the CERs are rendered to the government.

[16] If the 'supported NAMA' was instead defined as a 'credited non-CDM NAMA' the credits generated would include the green area. It is to date unclear how such a credited NAMA mechanism would work (e.g. a capped system with an ex-ante distribution of allowances or a CDM-like system that generates credits ex-post).

- **CERs continue to be issued fully to the project participant.** Under current rules once a PoA is registered it is likely to continue to generate CERs, independent of any NAMAs (see E-minus rule[17]).

It is unclear if there will be unified rules on how CER generation has to be adjusted in case 2 (i.e. which of the adjustments spelled out above would actually be implemented). It is furthermore important to note that in Case 1 and Case 2 the issue of how credited NAMAs would be accounted for in national pledges would still need to be resolved.

[17] E- Minus rule: The CDM EB decided that the impacts of policies that give comparative advantage to lower emissions technologies can be excluded in establishing a baseline scenario if they have been implemented since the adoption of the Marrakesh Accords (11/11/2001). The rationale for this is to ensure that the CDM does not create a perverse incentive for Host Parties not to introduce policies which would contribute to emission reductions. http://cdm.unfccc.int/EB/052/eb52annagan3.pdf