PARTNERSHIP FOR MARKET READINESS (PMR)

POLICY ANALYSIS WORK PROGRAM:

REPORT OF FY17 ACTIVITIES AND PROPOSAL FOR FY18

PMR Note PA16 2017-1

March 6th, 2016

Draft version, for review and endorsement

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I. INTRODUCTION

1. In an effort to inform the Partnership Assembly (PA) about the progress and outcomes of the work that has been carried out under the PMR's Policy Analysis Work Program (PAWP) in FY17 and share proposed FY18 activities for feedback, the PMR Secretariat prepared this *Note on Policy Analysis Work Program: Report of FY17 Activities and Proposal for FY18* (PMR Note PA16 2017-1). The Note begins with a background of the PAWP (Section II), then describes work progress, with a particular emphasis on on-going and new activities in FY17 (Section III), and finally outlines the future activities for FY18 (Section IV). With regards to FY18, the March 2017 version of this Note captures the proposed activities up to PA16. The Note will be updated as additional PAWP activities, particularly at the country-level, are put forward.

II. BACKGROUND

2. The Policy Analysis Work Program (PAWP) was officially launched at PA9 in 2014. Through Resolution No. PA9/2014-3, the PA allocated an envelope of US$5 million for FY15 to support countries' efforts to establish post-2020 mitigation scenarios and identify a package of effective and cost-efficient policies—including carbon pricing instruments—to help achieve mitigation ambition. At the same time, the PA approved a procedure under which the PMR Secretariat was requested to inform the PA, prior to each resource allocation, on the scope and timelines of the analytical studies and resource allocation related to this work stream.

3. The same procedure was subsequently extended at PA12 in May 2015 and was applied in FY16, with an understanding that the scope of work would cover upstream policy analytical work and should assist in the analysis of carbon markets or other carbon pricing instruments. The PA, through Resolution No. PA12/2015-1, allocated US$3 million from the remaining balance of the approved funding in FY15 towards FY16. While this work facilitated the efforts of Implementing Country Participants (ICPs) in preparing their mitigation component for intended nationally determined contributions (INDCs) under the UNFCCC process, it was also recognized that a systematic and long term support to countries in strengthening their modeling capacity is critical and goes beyond COP21.

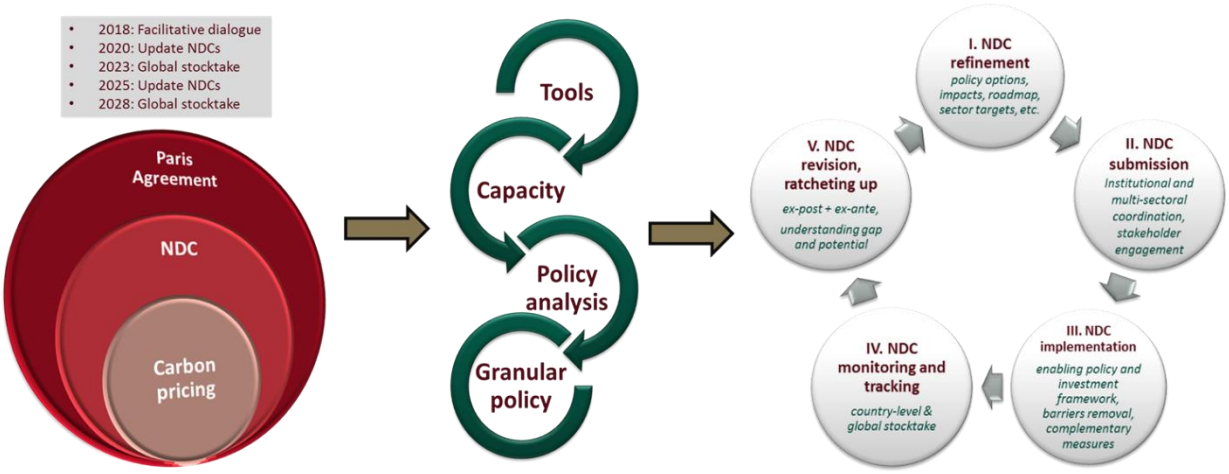
4. At PA14 in April 2016, a process was established for ICPs to apply for additional PAWP funding under the new process for funding additional activities (Resolution No. PA 14/2016-7). The PMR Secretariat also presented the *Note on Policy Analysis Work Program: Report of FY16 Activities and Proposal for FY17* (PMR Note PA14 2016-2), which informed the PA about the progress made during FY16 and proposed future PAWP framework and activities based on the outcomes of the PMR Technical Workshop on *Post-2020 Mitigation Scenarios and Carbon Pricing Modelling* (Workshop Report) held in Brasilia in February 2016. With relevance to Nationally Determined Contributions (NDCs) and carbon pricing instruments, the PAWP aims to provide support for:

    (i) The development and application of modeling tools and approaches;
    (ii) Capacity building in modeling and policy analysis;

(iii) The modeling and analysis of policy impact and policy interaction; and
(iv) The modeling and analysis of policy design options and their implications.

5. At PA15 in October 2016, the PMR Secretariat presented Policy Analysis Work Program: Update of Activities, which sharpened the focus of the PAWP on supporting the refinement and implementation of NDCs within the above framework of activities. This strategic vision emphasized the need of PAWP to provide timely and customized analytical support along the Paris Agreement milestones and throughout the NDC implementation cycle (including update and submission, implementation, monitoring and tracking, and increasing ambition), while recognizing that carbon pricing instruments are key to effective NDC implementation and the ratchet-up mechanism (Figure 1).

Figure 1: PAWP strategic vision



III. UPDATE ON FY17 ACTIVITIES

A. Country-level activities

6. Significant progress has been made to date under the PAWP through its country-level activities. The work program has so far contributed to policy analysis and modeling exercises relevant to the development of I/NDCs and assessment of carbon pricing instruments in Brazil, Chile, China, Colombia, Costa Rica, Morocco, Peru, South Africa, and Vietnam.[1] The country-level activities that have been on-going or initiated during FY17 include:

(i) Chile

7. In FY17, the PAWP assisted the Ministry of Energy to prepare an action plan for implementation of the NDC in the energy sector. The work includes the following:

[1] See, PMR Note PA14 2016-2, for details of country activities that had been completed in the past

(i) a study of existing analysis to identify potential technical and behavioral mitigation options and to identify a set of policy measures/instruments for the energy sector that could contribute to the achievement of Chile's NDC;
(ii) modeling work to assess selected policy instruments in order to understand the impact that these instruments could have on achieving Chile's NDC and other relevant policy goals in the energy sector; and
(iii) recommended policy instruments to be included in the energy sector's implementation plan, identifying actions and timelines, barriers and solutions, and public and private funding required.

8. This activity developed a hybrid modeling framework that links P-E2BIZ (a bottom-up energy sector model based on LEAP) and Chile's computable generable equilibrium (CGE) model. This modeling tool provides a foundation for further development and future application in the context of Chile's NDC.

(ii) Colombia

9. In the context of developing an NDC implementation strategy, the Ministry of Environment and Sustainable Development (MADS) requested PAWP support on (i) macro-economic modeling and assessment of explicit price-based instruments (carbon tax, emissions trading) to implement emissions reductions targets conducive to achieving Colombia's NDC mitigation contribution, and (ii) modeling and preliminary analysis of core ETS design options and, accordingly, development of recommended ETS design roadmap.

10. The macro-economic work provides advisory assistance to support the technical team of the National Planning Department (DNP) and MADS that are in charge of the identification and prioritization of economic instruments that may support GHG mitigation objectives, through providing expert advice and input to the adaptation of DNP's national CGE model (MEG4C). The purpose of model adaptation is to introduce robust capabilities that will allow the assessment of sectoral and macroeconomic effects caused by the introduction of carbon pricing instruments in determined sectors of the Colombian economy. The activity also provides technical support and capacity building on model simulation, scenario development, analyzing model results.

11. The objective of the ETS analysis is to develop a roadmap for the design and piloting of a greenhouse gas emissions trading system (ETS) in Colombia. This exercise analyzes different ETS design options, conducts gap analysis in Colombia's current institutional structures and legal framework for operating a nation-wide ETS, and recommends options to address such gaps, provides step-by-step practical guidance and roadmap for the design and piloting of an ETS in Colombia, and undertakes cross-cutting activities including support to awareness raising, capacity building and stakeholder consultations.

(iii) Costa Rica

12. Building upon the previous phase of PAWP work, the Ministry of Environment and Energy (MINAE) had requested to extend the modelling and analytical support from PAWP, with the overarching objective of deepening the analysis of the emission reduction objectives made in its NDC and exploring decarbonization pathways to achieve these objectives. To this end, the new PAWP activity develops a country-specific modeling framework and analytical tool, and a capacity building program for key

stakeholders in Costa Rica. The current modeling framework is based on the TIMES model, focuses on the energy and transport sectors, and is designed to allow incorporation of other NDC-relevant sectors at a later stage. The TIMES-Costa Rica model is expected to be soft-linked to a national CGE model.

13. Apart of the development of modeling tool, this exercise identifies policies and measures that are politically, technically, and economically feasible for Costa Rica and constructs a baseline scenario that is made up of existing actions and policies; develops a planned policy scenario, which includes the baseline scenario and already-planned actions/policies as determined by national decision-makers; and designs enhanced policy scenarios, which involve additional plausible actions that would bring the country in line with meeting its NDC mitigation target.

(iv) Morocco

14. The PAWP work in Morocco aims to develop and demonstrate new tools tailored to support policy and financial planning for NDC implementation. This is carried out in response to the need of the government of Morocco for mobilizing analytical and policy efforts necessary for NDC implementation and its vision to translate NDC objectives into a business-oriented roadmap of policies and actions that can provide clear and strong incentives to low-carbon investment, both at the national level and with international support. The new tools are based on the analytical and modeling approach that enables the design and evaluation of a range of potential policy reform packages to achieve national NDC targets, taking into account the financial perspective of lower carbon choices for investors and consumers. The current phase of work focuses on Morocco's building sector and measures such as energy efficiency and building-integrated renewable energy technologies.

15. The key innovation of this activity is in the development of a detailed representation of the investors' financial perspective in the modeling framework to inform a realistic and effective strategy to incentivize uptake of energy savings, through the incorporation of investors' and consumers' perspectives and the parameters that affect their investment decisions including transaction costs, barriers and risks, taxes and subsidies, and other financial incentives. The purpose is to explore a granular design of policy and reform packages that create enabling conditions for firms, households, and individuals to take mitigation actions that would not be financially attractive without such policy changes. This work also informs the government on the flows of commercially viable investment and budgetary requirements relative to different policy packages, and discusses potential ways to combine, in a balanced way, different forms of financial support, including grants, concessional finance and international support, such as climate and carbon finance.

16. The PAWP also support the government of Morocco in undertaking a rapid assessment of potential carbon pricing options with the goal of developing a carbon pricing roadmap for the country looking forward. This task is based on a qualitative analysis of existing information, evidence, and lessons learned domestically as well as internationally. The main focus is to identify opportunities and impacts of introducing domestic carbon pricing (to be further investigated), for example, by exploring the possibilities to improve the alignment of the existing fiscal policy with Morocco's ambitious NDC targets and business climate. This work complements very well the Moroccan MRP that explores the

opportunities for Morocco to participate in the international market-based mechanisms established under Article 6 of the Paris Agreement.

(v) Turkey

17. This PAWP activity supports the Ministry of Environment and Urbanization (MoEU) in building capacity for effective NDC implementation, in particular through the development of sectoral emissions mitigation marginal abatement cost curves (MAC) curves for key sectors (i.e. energy, industry and transport) of the Turkish economy. Using the developed MAC curves, the abatement potential and cost of different mitigation options will be assessed and compared first from the point of view of society, and then from the viewpoint of economic agents who will be implementing these options. Recommendations will be made on the design of a comprehensive mitigation strategy including packaging and timing of various policy and financing actions (including different scenarios of carbon pricing) to influence the investment and consumption decisions.

18. The model(s) and supporting tools used and/or developed with data collected to populate them will be handed over to the MoEU for future use. Appropriate guidance and training will be provided to build capacity with technical staff of the MoEU and other key stakeholders. The output of the assignment will provide the decision-makers and key stakeholders within the public and private sectors with quantitative analysis and information on the net costs and benefits of emission mitigation policy and technology options. Hence, it will provide critical inputs to the discussions at the national level; and, help the MoEU formulate fact-based stakeholder engagement activities and mobilize political support towards implementing low carbon policies and technologies.

(vi) Vietnam

19. The Government of Vietnam is in the process of finalizing actions under its NDC through 2020 based on the NDC targets and is aware that it requires strengthening of existing policies and introduction of new policy actions. The objectives of this PAWP activity are to (i) support the Government of Vietnam (GoV) in identifying policy actions to achieve the GHG emission reduction targets under its INDC and other relevant government targets across policy sectors; (ii) advise the GoV on the impact of climate policy actions shaped for the implementation of the stated climate policy targets by economic actors, on resource planning and on leveraging international financial and technical transfers for the GHG emission reduction activities in Vietnam; and (iii) build analytical and technical capacity for the GoV's future policy planning and review and update of GHG emission reduction targets and implementation strategies per Vietnam's socio-economic development strategy.

20. For this particular exercise, the World Bank task team purpose-built POL-EFFECT model for Vietnam with the current phase of work focusing on the power generation sector. The modeling tool allows a simulation of alternative packages of enabling policy and regulatory framework that targets the various actors in the power sector at a granular scale. The POL-EFFECT model represents investor's perspective and consists of two sub-modules namely Investor Choice Model (project-level investment decision) and Sectoral Scenario-based Model (aggregate project-level activities to sector-level scenarios toward analyzing NDC target and other sector-wide implications).

Table 1: Overview of country-level activities

Country	Description	Framework	Relevance for NDC
Chile	Modeling of policy options and developing implementation plan for NDC in energy sector	Bottom-up energy and CGE models in tandem (2050)	Energy sector contribution and action plan
Colombia	Macro-economic modeling of carbon pricing instruments Modeling of ETS design options and design roadmap	CGE adaptation and soft-linking with bottom-up energy (2040) Qualitative assessment; gap analysis	Inform choice of carbon pricing instrument/s to support economy-wide NDC mitigation targets
Costa Rica	Developing modeling framework, database, and technical capacity for exploring decarbonization pathways to achieve NDC target	Bottom-up model with focus on energy and transport; aggregation framework for other sectors (2050)	Energy and transport sector contributions. Policy actions toward NDC
Morocco	Developing NDC implementation strategies Rapid assessment of potential carbon pricing options	Bottom-up model with current focus on the building sector (2030). Plan to cover other NDC-relevant sectors. Investors' perspective approach Policy analysis and roadmap for carbon pricing; qualitative assessment	Support NDC implementation
Turkey	Support for strengthening local modeling capacity and tools for effective NDC implementation	Marginal Abatement Cost curve tool (linked with CGE under MRP activity); Investors' perspective approach	Refinement of NDC; Support NDC implementation
Vietnam	Assessing policy and reform packages that stimulate investments toward meeting NDC targets	Bottom-up energy model (power, industry), and Marginal Abatement Cost curve tool (2050) Investors' perspective approach	Support NDC implementation

B. Program-level activities

21. This section provides an update of program-level activities carried out under the PAWP in FY17, including (i) the Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing", (ii) the report on "Interactions between Energy and Carbon Pricing and Policies", and (iii) the scoping of Carbon Pricing Simulation Tool. In addition, the PMR contributed to the delivery of a "Regional Dialogue on Nationally Determined Contributions (NDCs) in

Latin America & the Caribbean," co-organized by UNDP, UNFCCC, the International Partnership on Mitigation and MRV, and the PMR.[2]

(i) Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing"

22. As countries look to refine and implement their NDCs according to the milestones and process set out in the Paris Agreement, the needs emerge for technical and analytical capacity to support the NDC cycle through its development and submission, implementation, monitoring and tracking, as well as ratcheting up the ambition level (see figure below). Indeed, the ability to conduct underlying modeling and analytical work is critical to determining the scale, scope and pace of transitioning to alternative low-emission pathways and associated costs and benefits. Such work will also be fundamental to putting together an enabling framework of policies and measures, including carbon pricing instruments, in view of implementing NDCs. Beyond this, under the Paris Agreement countries commit to evaluating how their NDCs perform over time and to what extent and how the NDCs can be strengthened in order to help close the current global mitigation gap.

23. The Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing", convened on December 6th–8th in San José, Costa Rica, and organized by the PMR Secretariat in collaboration with the Ministry of Environment and Energy of Costa Rica, brought together more than 80 participants comprising a diverse group of policy makers, technical practitioners, and experts and researchers who are involved in the analytics underlying NDC implementation planning efforts in their respective countries, and international experts working on this topic. The objectives of the workshop were to:

- Identify critical gaps and common challenges with respect to analytical/modeling tools and technical readiness at the country- and international-level, taking into account relevant Paris Agreement milestones;
- Share NDC-relevant analytical approaches and modeling tools based on experiences gained under the PMR and through the international research and policy-making communities;

[2] https://mitigationpartnership.net/regional-dialogue-nationally-determined-contributions-latin-america-caribbean-0

- Provide hands-on and interactive training on such analytical approaches and modeling tools; and
- Further build a network of colleagues, peers, and experts and provide a forum for sharing experiences and perspectives on planning for NDC implementation.

24. The workshop was organized into 3 days along the NDC cycle and through the lens of analytical and technical needs to support NDC implementation, recognizing that carbon pricing instruments could be key to effective implementation of NDCs towards the goals set out in the Paris Agreement. Day 1 discussed the analytical challenges of refining and updating NDCs. Day 2 highlighted emerging analytical questions that arise in the context of NDC implementation, while Day 3 shifted the focus to the analytical needs to support increasing NDC ambitions. Throughout the workshop, hands-on and interactive sessions shared and demonstrated modeling tools that are useful for the different stages of NDC development and implementation, while highlighting real-world cases that provide good practices and lessons learned. The PMR Secretariat has prepared the workshop report that captures the essence of the discussions and the materials used during the event for the benefit of those in the PMR community and beyond.

(ii) Reconciling Carbon Pricing and Energy Policies in Developing Countries

25. The manuscript of "Reconciling Carbon Pricing and Energy Policies in Developing Countries", jointly developed between the World Bank Energy and Extractives Global Practice and the PMR, is currently undergoing a peer review and quality enhancement process and will be published in the summer 2017. The report provides an in-depth analysis of energy policies (e.g. taxation, markets, subsidies, regulation) in developed and developing countries, and how these have evolved over time. It also explores potential convergences and conflicts between the objectives of energy policies (e.g. energy security and affordability, and competitiveness) and carbon pricing instruments, and discusses how these can be brought into accord. An analytical framework has been developed to analyze those issues.

26. Putting a price on carbon is one of the main instruments that countries have been considering to reduce emissions. An increasing number of developing countries are exploring the relevance of these instruments in their own contexts, and some are already implementing carbon pricing instruments to achieve the mitigation goals articulated in their NDCs. However, in volatile energy markets, carbon pricing should not be seen as a silver bullet. The introduction of carbon pricing in complex energy markets and existing policy environment can lead to unexpected effects – it can contribute to achieving certain energy policy objectives, while in conflict with others. Therefore, carbon pricing should be viewed as endogenous from the energy sector perspective, and policy makers should strive for an integrated design of carbon pricing and energy policies towards a robust and consistent policy/reform package. Beyond the energy sector, the PMR Secretariat is also considering further work and collaboration on policy interactions in other key sectors – such as transport.

(iii) Carbon Pricing Simulation Tool – Phase I

a) Rationale

27. Different modeling approaches are appropriate for different policy questions and country characteristics. A mix of modeling tools are required to address complex policy questions that are typically found in the context of the development and implementation of NDCs and carbon pricing policies. From this perspective, modeling exercise is best set up using detailed, country-specific frameworks, such as those developed/planned under the country-level PAWP activities. However, there are important international dimensions and linkages that go beyond the scope of country-specific work. These, in turn, call for a complementary tool that explicitly captures cross-country aspects (e.g. international/regional policy cooperation, external factors and international policy spillovers that affect the determination/design of country-level policies, and international trade and competitiveness). It is important to emphasize that such international frameworks cannot replace country-level modeling, and will only provide additional perspective to the policy discussion, through model and result comparison.

28. The existing modeling tools (bottom-up, top-down, and hybrid) for carbon pricing modeling, whether country- or international-level, are complex and are not suitable for direct/hands-on utilization and application by policy makers and non-modelers. Therefore, there is a need for a carbon pricing modeling tool whose design is oriented towards policy makers, for the purposes of policy analysis/discussion, developing consensus around emission and policy scenarios, and capacity building.

29. In response to the challenges outlined above and the outcomes of the Technical Workshop on "Post-2020 Mitigation Scenarios and Carbon Pricing Modeling" and the Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing", the PMR Secretariat plans to develop a Carbon Pricing Simulation Tool that would be made available and accessible for the PMR participants, and would have the following features:

    - *Platform (front-end):* Web-based, user-friendly simulation tool, with flexibility in policy choice and ambition levels;
    - *Geographical coverage:* Global, with disaggregation for individual ICPs (and other PMR participants/partners as needed);
    - *Target policies:* Explicit and implicit carbon pricing policies (domestic policies and international cooperation, as part of overall policy package);
    - *Impacts:* GHG emissions across NDC-relevant sectors, relative to NDC and global targets, key macroeconomic indicators (e.g. GDP growth, competitiveness, international trade), sectoral/structure changes, co-benefits, economic implications;
    - *Underlying model (back-end):* Existing IPCC-grade, multi-country hybrid modeling framework.

    A comparison between the proposed Carbon Pricing Simulation Tool and other similar tools is provided in Annex I of this Note

b) Potential utilization

30. Using the Carbon Pricing Simulation Tool, the ICPs would be able to simulate carbon pricing policies as part of their policy package, compare modeling results with the national models and understand the differences, consider options for international/regional cooperation, as well as support the steps of NDC preparation and implementation as envisaged in the Paris Agreement. The Carbon Pricing Simulation Tool could be housed and maintained by the PMR Secretariat and/or a partner institution, and would be used as a common foundation for the PMR to deliver analytical and modeling support, and capacity building activities to ICPs focusing on policy makers/non-modelers.[3]

c) Current status

31. The PMR Secretariat presented the concept and design of the Carbon Pricing Simulation Tool at PA14 and PA15 for feedback and input. The PMR Secretariat has received overall positive feedback from the PMR participants, and initial expression of interest from a few ICPs (including Chile, Mexico, and South Africa) to participate as pilot countries. This activity will be conducted in phases, with the first phase commencing in the latter part of FY17 with selected ICPs. In FY17, the work will include (i) development of the Carbon Pricing Simulation Tool itself, and (ii) development of country-specific scenarios for the above three ICPs.[4]

32. Based on the outcomes of the Technical Workshop on "Post-2020 Mitigation Scenarios and Carbon Pricing Modeling", and the technical consultation with modeling experts in the margins of the Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing", the PMR Secretariat concluded that there is a strong rationale for the development of Carbon Pricing Simulation Tool and the envisaged work plan are technically feasible from the tool development viewpoint. The PMR Secretariat will also explore partnering with organizations that have extensive experience and expertise in developing similar tools, for example, the World Resources Institute, the Euro-Mediterranean Center on Climate Change, the University of Maryland/Pacific Northwest National Laboratory, and the government of the United Kingdom. For quality assurance purpose, the tool will be peer-reviewed by modeling experts in the IPCC community.

33. Terms of Reference for the first phase of Carbon Pricing Simulation Tool are being prepared, with an estimated budget envelope of US$ 250,000 for the first phase of the Carbon Pricing Simulation Tool. The PMR Secretariat expects to hire a consulting firm to execute this phase of work starting in FY17 with expected completion in FY18. The firm will work closely with the PMR Secretariat and in coordination with relevant stakeholders/partners.

[3] Capacity building for expert modelers and model users are typically planned as part of country-level PAWP activities.

[4] All individual ICPs will be included in the Carbon Pricing Simulation Tool. However, the Tool requires additional efforts to tailor closely to country-level policy scenarios. The first phase begins in FY17, and is to be completed in FY18.

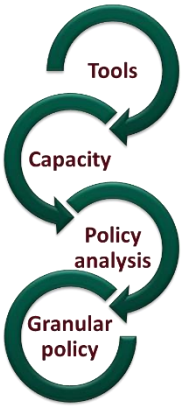
IV. PROPOSED ACTIVITIES IN FY18

34. The PMR Secretariat presented the strategic vision of PAWP and proposed its support framework at PA14 (PMR Note PA14 2016-2) and PA15 (Policy Analysis Work Program: Update of Activities PA15). Box 1 provides an overarching framework for activities at the country- and program-levels under the PAWP. Table 2 presents the matrix of future PAWP activities vis-à-vis the overarching framework.

Box 1: Overarching framework for future PAWP support

The PAWP will support activities, at the country- and program-levels, that assist ICPs in the implementation of NDCs and development of carbon pricing instruments, and fall within the following framework:

- Development and application of modeling tools and approaches;
- Capacity building in modeling and policy analysis
- Modeling and analysis of policy impact and policy interaction; and
- Modeling and analysis of policy packages, design options, and their implications



A. Country-level activities

35. Consideration of new country-level activities under the PAWP follows the process, as described in the PMR Note PA14 2016-1 on "Strategic Orientation for the Future of the PMR – Proposal for the Use of Additional Funds" in the category of Policy Analysis activities (Resolution No. PA 14/2016-7). The proposals for funding of country-level activities, which is possible since July 2017, are reviewed based on the following considerations:

    a) Overall mitigation strategies and (Intended) Nationally Determined Contribution (INDC/NDC);
    b) Level of political support to carbon pricing and clarity on the institutional arrangement for implementation;
    c) Scope of work and additionality of proposed activities;
    d) Budget and timeline; and
    e) Output and expected outcome of the implementation

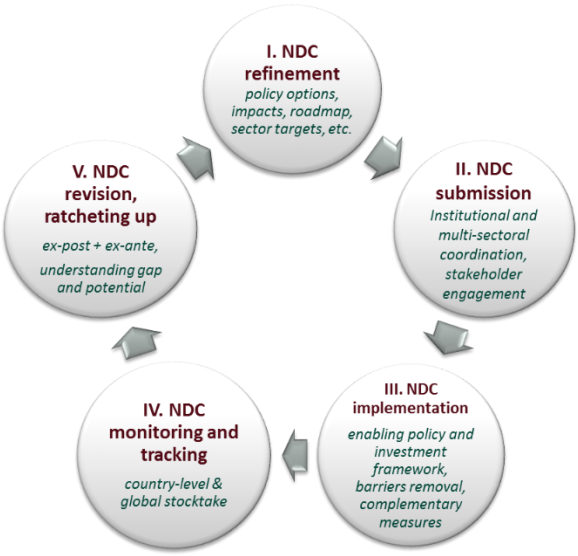
(i) Scope of work

36. The scope of work for future country-level activities under the PAWP includes the categories of activities defined within the overarching framework provided in Box 1.

37. The PAWP supports ICPs in developing activities that will effectively support the NDC process as part of their overall mitigation strategy, positioning the work and developing the rationale for modeling activity from the NDC's perspective while building on other past/on-going activities, identifying critical gaps with respect to modeling and NDC, and framing the modeling work and questions to address those gaps, taking into account the stage of NDC development and implementation (Figure 2).

The PAWP supports ICPs in utilizing carbon pricing as a means to strengthening policy packages as part of the NDCs, through understanding the Participant's current status and challenges with regard to carbon pricing instruments and related policies, assisting the identification of relevant carbon pricing policy questions, and designing the analysis and scope of modeling activity in response specifically to these questions.

Figure 2: NDC cycle and analytical needs



38. The review of any proposed activity related to the PAWP evaluates whether and how it formulates a well-targeted proposal for support that would result in analytical and modeling outputs that are additional and/or complementary to other activities already planned/undertaken with PMR support, while avoiding duplication with other work outside the scope of the PMR.

(ii) Process

39. Since the beginning of FY17, all country-level activities under the PAWP are expected to be carried out within an integrated approach for funding additional activities under the PMR. For more information, please refer to the PMR Note PA14 2016-1 on "Strategic Orientation for the Future of the PMR – Proposal for the Use of Additional Funds" in the category of Policy Analysis activities (Resolution No. PA 14/2016-7).

40. Based on the above considerations, the specific criteria laid out in PMR Note PA14 2016-1 and the availability of funding, interested ICPs are invited to submit proposals with a clear scope of activity and work plan, taking into account the availability of appropriate modeling tools and data, and the need for enhancing technical/analytical capacity locally to carry out the activity. The proposal will also describe specific tasks for PAWP support and associated budget and timeline.

41. The PMR Secretariat provided a template for proposals related to country-level PAWP support (annex to PMR Note PA14 2016-1), which shall be used by ICPs for the submission of proposals for PAWP support. In order to guide and facilitate interested ICPs in developing such a proposal, the PMR Secretariat has further prepared a draft "Country-level Policy Analysis -- Proposal Tool" (Annex I of PMR Note PA14 2016-2).

(iii) Thailand – proposal for additional funding for FY18

42. Thailand has submitted a proposal for additional funding related to policy analysis activities for FY18 on the topic "*Impact of carbon pricing instruments on national economy and contribution to NDC*." This proposed PAWP work comprises three activities: (i) economic modeling of carbon pricing instruments including carbon tax, ETS, and crediting mechanism to contribute to Thailand's NDC mitigation goal, (ii) modeling and analytical work aimed at identifying the interaction between the carbon pricing policies and existing national and sectoral policies, and (iii) capacity building and dissemination of knowledge and understanding of the effectiveness of the carbon pricing instruments for the mitigation goal achievement.

43. This PAWP activity is expected to start in Q1 FY18 and complete in Q2 FY19, and is proposed as a jointly funded work between the government of Thailand (US$ 71,000) and the PMR (US$ 500,000). The review and approval process would normally follow the electronic decision-making process, as described in PMR Note PA14 2016-1. However, given the specific timing of this proposal which comes just before PA16 in New Delhi, Thailand agreed to submit and present its proposal for endorsement at the said PA, and not electronically. The draft funding proposal was circulated to the PMR participants on February 27, 2017, for review and feedback.

B. Program-level activities

44. The objective of the program-level activities is to supplement the country-level support using the same framework as set out above, through addressing analytical/modeling topics and issues with strong international dimensions and cross-country implications, responding to policy questions that are of common interests among the ICPs (particularly those that cannot be captured in the country-level work and require international modeling framework), and providing peer advice and facilitating technical exchange among the participants and the wider group of experts and practitioners (see Table 2 below). While country-specific activities are most critical, there is value addition in undertaking collective work at the program-level. For FY18, the PMR Secretariat proposes two main activities, as laid out below.

Table 2: Matrix of PAWP support in FY18 and beyond

Activity	***Development and application of modeling tools and approaches***	***Capacity building in modeling and policy analysis***	***Modeling and analysis of policy impact and policy interaction***	***Modeling of policy design options and their implications***
Country-level activities	**ICP's proposal** (in-depth, detailed country-specific modeling)	**ICP's proposal** (targeting local technical experts, local modelers/institutions)	**ICP's proposal** (country-specific issues)	**ICP's proposal** (in-depth, country-specific modeling)
Program-level activities	**Carbon Pricing Simulation Tool** (global model, linkages between ICPs and other regions, support linking national model to international framework/scenarios)	**Carbon Pricing Simulation Tool** (targeting policy makers, non-modelers, general audience, peer exchange, model comparison)	**Carbon Pricing Simulation Tool** (international dimensions, and cross-country issues)	N/A
	Global and regional workshops (consolidate all country- and program-level activities around the overarching framework)			

(i) Annual global event: policy analysis and carbon pricing modeling to support NDC implementation

45. The Technical Workshop on "Paving the Way for NDC Implementation: Analyzing Policy Options and Modeling Carbon Pricing", which took place during December 6th-8th, 2016, in San José, Costa Rica, provided an overview of the needs for assistance on NDC implementation throughout the NDC cycle (update, submission, implementation, monitoring and tracking, raising ambition level) from the analytical/technical perspective, and share relevant modeling tools and analytical approaches that are available to support this entire process.

46. As a follow up to this, a global knowledge and capacity building event is tentatively planned in Q2/Q3 of FY18. Within the context of PAWP and its analytical support on NDC implementation and carbon pricing, the primary objectives of this event are to provide a platform for in-depth discussions around:

    (i) the progress on—and the contributions to—the Facilitative Dialogue in 2018 from the PMR's perspective;
    (ii) key analytical challenges and modeling topics underpinning NDC update exercise that has to be completed by countries at least 9 to 12 months ahead of the 2020 session; and
    (iii) share the latest development and outcomes of the IPCC Special Report on 1.5°C and related global greenhouse gas emission pathways (due for release in 2018) that are relevant for NDC update and carbon pricing modeling.

47. The PMR Secretariat will consult with PMR participants and partners on the scope, design, and organization of the global event, and will take into account the rules and modalities of the Paris Agreement's enhanced transparency framework that emerge between now and COP23. Additional regional workshops and trainings may be organized around a target group of countries or on a topic of common interests among the ICPs in FY18. However, further consultation is required to determine the need for such regional events.

(ii) Carbon Pricing Simulation Tool – Phase II

48. Building on the work undertaken in Phase I, the second phase of Carbon Pricing Simulation Tool will provide an opportunity for additional 4-5 interested ICPs to take part and develop/simulate detailed country-specific scenarios with the tool. During this phase, the work will include (i) enhancement of the global scenarios within the tool based on the outcomes of the Facilitative Dialogue in 2018, the progress on NDC updates toward 2020 session, the IPCC Special Report on 1.5°C, and new developments of carbon pricing policy and other international climate policy around the world up to that point; and (ii) the addition of 4-5 ICPs with detailed representation of alternative scenarios that support the development/implementation of their carbon pricing instruments and NDCs. Phase II is expected to start in FY18 and complete in FY19.

(iii) Budget

49. Overall, the proposed budget envelope for all program-level activities for FY18 is US$ 430,000. This comprises (i) US$ 250,000 for the second phase of the Carbon Pricing Simulation Tool,[5] and (ii) US$ 180,000 for an annual global event and a regional workshop/training.

V. ACTION BY THE PA

50. The PA is invited to provide feedback on the proposed activities under the PAWP for FY18. Implementing Country Participants are invited to express their interest in receiving support for additional activities at the country- and the program-levels within the scope and framework of PAWP set out in this Note.

[5] The total budget of the Carbon Pricing Simulation Tool covering FY17 (Phase I) and FY18 (Phase II) is estimated at US$ 500,000. This estimate assumes that 8-10 ICPs are interested to develop specific carbon pricing and/or NDC scenarios, within the Carbon Pricing Simulation Tool, that are consistent with their country-level models and overall mitigation strategy, during FY17-18. Additional resources will be necessary for further inclusion of ICPs. The estimate includes tool development only. Consultation and review process will be conducted through existing PMR events.

Annex I: Comparison between the Carbon Pricing Simulation Tool and other similar tools

*Characteristics/ Tool***	**Carbon pricing modeling**	**Including all individual ICPs**	**International dimensions and cross-country linkages**	**GHG emissions and sectors in INDC**	**Relevant impacts beyond GHG emissions**	**Hands-on use by non-modelers**	**Underlying model**
Global Pathway Calculator *(UK, WRI)*	No	No	No	All	Yes	Yes	Bottom-up
WITCH model simulator *(CMCC/FEEM)*	Yes	No	Yes	All	Yes	Yes	Dynamic Optimization (IPCC)
LEAP *(SEI)*	No	No (country-level)	No	All	Limited	No	Bottom-up (peer-reviewed)
RunGTAP *(Purdue)*	Yes	Yes	Yes	Partial	Yes	No	Top-down CGE (peer-reviewed)
EFFECT *(World Bank/ESMAP)*	Limited	No (country-level)	No	Partial	Limited	No	Bottom-up
MAGICC *(NCAR et al)*	No	No (global)	No	All	No	Yes	GCMs/IAMs (IPCC)
EVALUATE *(World Bank, Enerdata)*	Yes	No	Limited (emission trading only)	Partial	Limited	Yes	Econometric, partial equilibrium (Peer-reviewed)
Proposed Carbon Pricing Simulation Tool *(World Bank/PMR)*	Yes	Yes	Yes	All	Yes	Yes	Hybrid CGE-bottom-up (IPCC)

***Different models and simulation tools are designed for different purposes. The only objective of this comparison is to illustrate the way in which the proposed Carbon Pricing Simulation would be designed to address specific needs of ICPs in the context of PAWP program-level activities.*