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Lesson Learned in Developing NAMAs/MRV in Greater Jakarta Area (Jabodetabek)

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1. Introduction

Nationally Appropriate Mitigation Actions (NAMAs) was introduced seven years ago in the Bali Action Plan. Currently there is no internationally agreed definition of NAMA. The Cancun Agreements (2011) refer to NAMAs in the following:

1/CP.16-48. Agrees that developing country Parties will take nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a deviation in emissions relative to 'business as usual' emissions in 2020;

1/CP.16-61. Also decides that internationally supported mitigation actions will be measured, reported and verified domestically and will be subject to international measurement, reporting and verification in accordance with guidelines to be developed under the Convention;

As there is no internationally agreed procedure for NAMAs development, developing countries have been attempting to develop NAMAs project/program according to their own interpretation of NAMAs broad definition. The general guiding principles that are used in developing mitigation actions that can be regarded as NAMAs are that the actions have to be nationally appropriate (in line with the national development agenda), in support to sustainable development concept, and that the reported mitigation achievement must be credible which means they must be measurable, reportable and verifiable. In terms of financing, basically there are three types of NAMAs namely domestically funded (unilateral NAMAs), supported NAMAs (international support, bilateral, multilateral) and credited NAMAs (international carbon market). In terms of the type of actions there are two types of NAMAs namely Project NAMAs and Policy NAMAs.

Since 2013, UNDP through its LECB program which is implemented by BAPPENAS and UKP4 has been assisting Indonesia government in capacity building activities related to low emission development. One of the capacity building activities is assisting regional government of JABODETABEK to develop NAMA project/program in their respective region (city/kabupaten or provincial level). The regional governments that participated in the LECB program are: DKI Jakarta Province, Kota Tangerang, Kota Bogor, Kabupaten Bogor, Kota Depok, and Kota Bekasi.

The NAMA projects are expected to be in support to the fulfilment of Indonesian non-binding commitment to reduce its emissions 26% lower than Indonesian baseline (BAU) emissions in 2020. In addition to the NAMA development, the LECB program also includes capacity building for the development of MRV for the NAMA project. The mitigation action sectors covered in the LECB program are energy use in transport and industry. The target of the LECB program is to develop at least one NAMA in transport sector and one NAMA in industry sector. The type of NAMA covered in LECB is not predetermined; it can be unilateral or supported NAMAs and it might be project NAMAs or policy NAMAs.

2. LECB NAMAs/MRV project activities

As the name imply, the main activities of LECB NAMAs/MRV is to build the capacity of officers of regional government of JABODETABEK in developing NAMAs/MRV projects. The format of capacity building activities include project meetings, in class training/courses, visits to regional government offices to introduce NAMAs/MRV, facilitate stakeholder discussions, guide data collection, and assist the development of NAMAs. The participants of the capacity building activities are officers of regional government of JABODETABEK. Communication between LECB project team with regional gov-

ernment is facilitated through regional government officers that function as liaison officers of the LECB. Each regional government has one liaison officer. The focal points of the regional governments are either Regional Planning Agency (Bappeda) or Regional Environmental Agency (BLH). The stakeholder of each regional government are relevant regional offices (Dinas) such as Office of Transportation, Office of Industry, Office of Cooperatives, etc.

3. NAMA Requirement/Criteria

Currently there is no agreed criteria/requirement for NAMA projects. Therefore, the LECB project developed the NAMA requirement using the broad definition of NAMA as guiding principles and also using NAMAs Framework developed by BAPPENAS as reference.

Since the LECB NAMA is considered as pilot project, it is preferable that the selected regional NAMA project can be replicated in other regions. Other requirement that should be satisfied in accordance to the Indonesian NAMAs framework is that the proposed NAMA has to be one of the RAN or RAD. To determine whether an identified mitigation action plan is in line with the region's development agenda, the plan is check against the region's development plan document (RPJMD). This check is also meant to determine the level of possibility of a plan to be actually implemented; the possibility of a plan implementation is higher if the plan is stated in the regional development plan. In other words, the leadership of the regional government is assumed to be more committed to implement the selected action plan if it is stated in the regional development plan.

4. Methodology

To obtain the weighting factor (priority) of the impor-

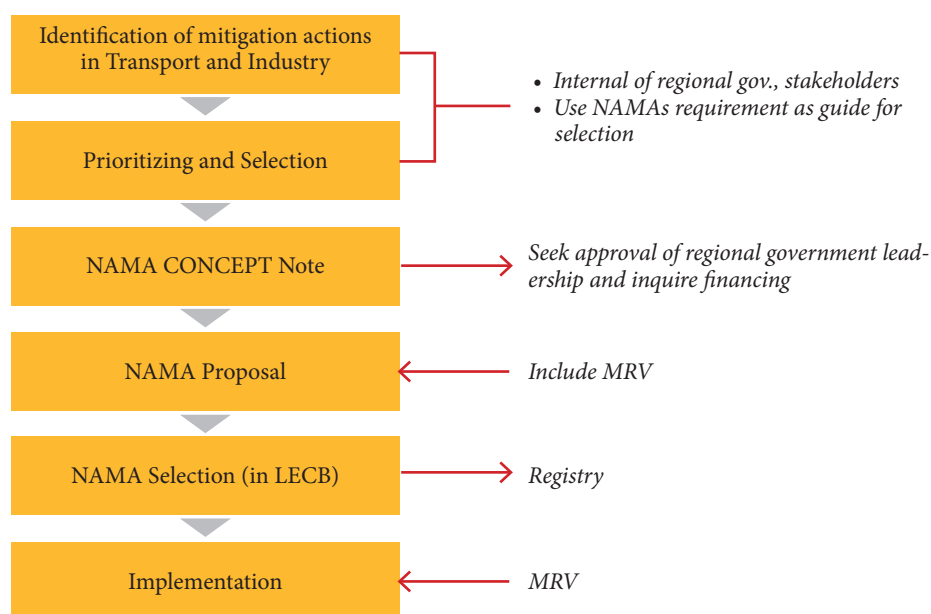
tance of different NAMA criteria, a decision tool "Analytic Hierarchy Process" (AHP) was used involving climate change experts. The AHP result in the following list of importance (in decreasing order): mitigation potential, readiness of implementation, readiness of funding, cost of mitigation, co-benefits, supporting policy and the potential for replication.

NAMA Development Process

The LECB NAMAs/MRV program began with invitation to regional government of JABODETABEK to attend socialization meeting to announce the existence of capacity building programs for the development of NAMAs/MRV projects. Regional governments are invited to prepare lists of mitigation actions that are to be regarded as NAMA candidates and to be developed further become NAMA projects. Mitigation action plans that are to be included in NAMA project are those related to energy use in transport and industry. The LECB project meeting also discuss the capacity building needs of the regional government for NAMAs/MRV development. From the discussion it was found that except for DKI Jakarta, the knowledge of the regional governments in NAMAs/MRV is still very limited. The regional government officers expect that the capacity building program start with the very basic of climate change issues, GHG emission estimations, inventory of GHG and mitigation actions for NAMAs. Meanwhile, the consultant develops the simplest step by step approach for NAMA development. Figure 1 shows the step-by-step procedures of NAMA development.

During all NAMA development process UKP4 and the consultants provided guidance and assistance to the NAMA team of each regional government. As shown in Figure 1, the process begins with identification of mitigation actions in transport and industry sector.

Figure 1. NAMA development process



This is done by regional government NAMA team by conducting meeting with relevant stakeholder. In the meeting the LECB NAMA consultant encourages the regional government NAMA team to explore all plan of actions and initiatives related to GHG emission reductions. Documents such RAN/RAD and RPJMD are consulted. Difficulties in interpreting RAD sometime arises as the Kota/Kabupaten were not involved in the development of RAD, which was prepared by Provincial Government. The regional NAMA team and stakeholder then prioritized and selected some action plans to be developed further into NAMA Concept Note. The criteria for selection are primarily the readiness of the action plans, which is indicated by the availability of a feasibility study, and the availability of data for estimating GHG reduction.

The component of Concept Note includes:

- Description of mitigation action
- Baseline emission
- Emission reduction potential
- Feasibility study document
- Project organization
- Proposal for financing
- Supporting policy of mitigation actions

- Co-benefit or impact of mitigation action
- Plan of Implementation
- Proposal for MRV

The data needed for developing NAMA project includes:

- The emission reduction potential:
 - Calculated based on baseline and mitigation scenarios
 - Methodology of emission calculation
 - Assumptions used in the emission calculation (estimation of growth, activity data, emission factor etc.)
- Results of Feasibility Study:
 - The required investment fund
 - Plan of investment
 - Techno-economic assumptions
- Project organization including the stakeholder involved in the mitigation actions
- Description of impact (other than emission reduction):
 - Job creation
 - Poverty eradication
- Description of risks including potential barriers to be encountered by the project

- Supporting policy and regulation
- The beneficiary of the mitigation actions (parties that will obtain the direct benefit of the project, such as the number of persons that will receive CNG conversion kits, number of parties that will be involved in the utilization of used cooking oil for biodiesel production, etc.)

NAMAs Candidates

After exploring plan of actions in each regional governments (based on RAN/RAD or RPJMD), there are a number of candidates to be considered for NAMAs. As the capacity building of LECB is directed to regional government officers, the plan of actions considered are those directly under control of the regional governments. The candidates for each regional government can be shown in Annex. 2

5. The Proposed NAMAs

After reviewing the list of NAMA candidates and checking the readiness for NAMA proposal, the regional governments have selected 4 NAMA candidates (Table 2).

The BRT NAMAs include investment for gas fueled buses, construction of corridors and CNG filling station

investments in DKI Jakarta, feeder bus investment in Kota Bogor and Tangerang. The building sector is selected to substitute the industry sector as the regional governments do not have mitigation project in industry. In this context it is assumed as the building sector is part of commercial sector which is considered as a branch of industrial sector.

Although the NAMA team have been introduced to the existence and the possibility to develop NAMAs under supported NAMAs scheme, all of the regional government expect that the NAMA project is funded domestically from national budget (unilateral NAMAs). Considering the size of the investment, BRT NAMAs could probably further discussed for funding in supported NAMAs or through Public Private Partnership (PPP).

The MRV of BRT NAMA is to be based on the annual records of fuel consumption, number of passengers, and kilometer and sample survey to determine the fraction of passengers moving from personal transport to BRT. The MRV for Solar PV NAMAs is to be based on the amount of electricity consumption of the building sector of the NAMA project that is supplied from the solar PV. The infrastructure for measuring the is kWh meter installed at the PV system. The MRV for

Table 2. NAMA candidates of JABODETABEK

No.	Title	Emission reduction in 2020 (ton CO ₂ e)	Cost of Investment
1	Bus Rapid Transport (BRT) Development in JABODETABEK	692,000	Rp. 3.9 trillions
2	Energy Efficiency and Green Design of DPRD DKI Jakarta Building	1058	n.a.
3	Utilization of Used Cooking Oil Biodiesel in Building Sector Toward Green Building – Kota Bogor	278	Rp. 1.4 billion
4	Installation of Solar PV in Building Sector Toward Green Building – DKI Jakarta	56	Rp. 3.35 billion

Biodiesel NAMA is to be based on records of biodiesel production and sales to the building sector. For DPRD Green Building NAMAs, the indicator to be used to measure the emission reduction is the amount of electricity consumption of the DPRD DKI Jakarta building when it is put in operation in 2015. The infrastructure for measuring the is kWh meter installed at the equipment related to the efficiency measures. The verification of the achievement of the mitigation actions is to be carried out by domestic institutions. The MRV processes for the four NAMAs will follow Permen MRV (KLH Ministerial Regulation No.15/2013), the detail of which is still under development.

6. Lesson Learned

There are a number of lessons learned from implementing LECB NAMAs/MRV programs with NAMA team of JABODETABEK governments. The first impression from the LECB is that in general the regional government officers have a limited capacity in the area of climate change. They expect that the in class training should encompass from GHG inventory to mitigation actions to NAMAs/MRV. As inventory is beyond the scope of the LECB program, the in class training is limited to those closely related to NAMAs/MRV.

Several consecutive in class training have been carried out to fulfill the needs of the regional government NAMA team. Since the NAMA team of regional government is not a fixed assignment, the officers that follow the earlier training program often time are replaced by other officers. Therefore, the training contents have to be modified to accommodate the request of new comers. The accumulation of knowledge that is expected from a consecutive training therefore cannot be fully achieved.

To motivate the regional government NAMA team in exploring mitigation initiatives, data collection and clarification, the consultant team has to frequently contact the NAMA team and conduct site visits for discussions in regional government offices. Direct discussions through visits are carried out as hands-on training to the regional government officers. Visits and discussion are often times have to be rescheduled when the regional government NAMAs team has to work on other matters. In future programs, it is recommended that the leaderships of regional government to establish a more committed regional government NAMA team by assigning a more fixed team for the NAMA development.

Annex. 1 – NAMAs Requirements

NAMA requirement using the broad definition of NAMA as guiding principles and also using NAMAs Framework developed by BAPPENAS as reference. The NAMAs requirement includes:

- it has to result in GHG emission reduction,
- it has to be in support to the region's development agenda/objectives,
- it has to be within the context of sustainable development,
- it has to be finance-ready,
- it has to be cost effective,
- it has to obtain commitment from the regional government that the NAMAs is to be implemented,
- it has to be as much as possible to generate co-benefit, the impact of mitigation actions could be MRV-ed.

Annex. 2 – Lists of Mitigation Actions

Kota Bogor	
No.	Mitigation actions
1	Biodiesel from used cooking oil
2	Management of working hours (Shift) of public transport
3	Public transport re-routing
4	Conversion to CNG
5	Terminal at city border
Kota Depok	
1	One day no car and Car free day
2	Utilization of biogas from slaughter house Tapos
3	Construction of bicycle lane
4	Green Building
DKI Jakarta	
1	Busway
2	Feeder busway
3	Monorail
4	Freight Transport Operation Scheduling
5	Ecodriving
6	Green Building for Non-Government Office
7	Smart Street Lighting Installation
8	Green Building for Government and Non-Government Office
9	Green Building for
10	Fuel Economics
11	Biofuel for Transport
Kota Tangerang	
1	Mass Transport (to support trans Jabodetabek)
2	Local Mass Transport
3	Integrated Terminal for Public Transport
4	Terminal Development
5	Area traffic control system (ATCS)
6	Train for Batu Ceper to Cengkareng Airport
7	Car Free Day
8	Pedestrian for walk
9	Bicycle Lane