REPUBLIC OF INDONESIA
BAPPENAS

REPUBLIC OF INDONESIA
CLIMATE CHANGE PROGRAM LOAN
MONITORING SUPPORT ACTIVITIES

POLICY MATRIX MONITORING
FINAL REPORT

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

GLOBAL GROUP 21 JAPAN, INC. (GG21)

INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES (IGES)

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Abbreviations

ADB	Asian Development Bank
AFD	Agence Française de Dévelopement
APBN	State Budget of Revenues and Expenditures
ATCS	Area Traffic Control Systems
AusAID	The Australian Government's Overseas Aid Program
BAPPEDA	Regional Body for Planning and Development
BAPPENAS	The National Development Planning Agency, Republic of Indonesia
BAU	Business as Usual
BIG	Geospatial Information Agency (Badan Informasi Geospatial)
BKF	Fiscal Policy Agency, Ministry of Finance, Republic of Indonesia
BMG	The Meteorology and Geophysics Agency
BMKG	The Agency of Meteorology, Climatology and Geophysics, Republic of Indonesia (renamed from BMG in September 2008)
BNPB	The National Disaster Management Agency, Republic of Indonesia
BPBD	Local Disaster Management Agency, Republic of Indonesia
BPDAS	Watershed Management Technical Units
BPN	National Land Agency
BRT	Bus Rapid Transit
CC-DAK	Climate Change Special Allocation Fund
CCPL	Climate Change Program Loan
CCT	Clean Coal Technology
CFL	Compact Fluorescent Light Bulbs
CFS	Climate Field School
CH_4	Methane
CMEA	Coordinating Ministry for Economic Affairs, Republic of Indonesia
CMPW	Coordinating Ministry for People's Welfare, Republic of Indonesia
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COD	Commercialized Operation Date
COP	Conference of the Parties
COREMAP	Coral Reef Rehabilitation and Management Program
CVI	Coastal vlunerability index
CY	Calendar Year
DAK	Special Allocation Fund (Dana Alokasi Khusus)
DEN	National Energy Council
DG	Directorate General

DKI	Special Region (Derah Khusus Ibukota)
DME	Energy Self-Sufficient Village Program
DNPI	National Council on Climate Change
EEIMS	Energy and Emissions Information Management System
FIT	Feed-in Tariff
FLEGT	Forest Law Enforcement Governance and Trade
FMU	Forest Management Unit
FNC	The First National Communication to the United Nations Framework Convention on Climate Change
F/S	Feasibility Study
FY	Fiscal Year
GEF	Global Environment Facility
GG21	Global Group 21 Japan, Inc.
GHG	Greenhouse Gas
GIZ	German International Cooperation Agency (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GOF	The Government of France
GOI	The Government of Indonesia
GOJ	The Government of Japan
ha	Hectare
HA	Natural Forest (Hutan Alam)
HTI	Industrial Forest Plantation (Hutan Tanaman Industri)
HTR	Community Forest Plantation (Hutan Tanaman Rakyat)
ICCSR	Indonesia Climate Change Sectoral Roadmap
ICCTF	Indonesia Climate Change Trust Fund
IDR	Rupiah
IGA	Investment Grade Audit
IGCC	Integrated Gasification Combined Cycle
IGES	Institute for Global Environmental Strategies
INAGOOS	Indonesia Global Ocean Observing System
INCAS	Indonesia's National Forest Carbon Accounting System
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IUP	Geothermal Mines Concession
IUPHHK	Timber forest products utilization permit (Izin Usaha Pemanfaatan Hasil Hutan Kayu)
Jabodetabek	Combined area of Jakarta, Bogor, Depok, Tangerang, and Bekasi
JCM	Joint Crediting Mechanism

JICA	Japan International Cooperation Agency
JTA	Jabodetabek Transportation Authority
KEN	National Energy Policy
KPHL	Protection Forest Management Unit
KPHP	Production Forest Management Unit
KRAPI	Climate Change Risk and Adaptation Assessment Guideline for local level (Pedoman Kajian Risiko dan Adaptasi Perubahan Iklim)
kW	Kilowatt
kWh	Kilowatt hour
LUCF	Land Use Change and Forestry
LULUCF	Land Use, Land-use Change, and Forestry
MEMR	Ministry of Energy and Mineral Resources, Republic of Indonesia
MMAF	Ministry of Marine Affairs and Fisheries, Republic of Indonesia
MOA	Ministry of Agriculture, Republic of Indonesia
MOE	Ministry of Environment, Republic of Indonesia
MOF	Ministry of Finance, Republic of Indonesia
MOFR	Ministry of Forestry, Republic of Indonesia
MOHA	Ministry of Home Affairs, Republic of Indonesia
MOI	Ministry of Industry, Republic of Indonesia
MOPW	Ministry of Public Works, Republic of Indonesia
MRT	Metropolitan Rapid Transit
MRV	Measurement, Reporting and Verification
MW	Megawatt
NAMA	Nationally Appropriate Mitigation Actions
NAPA	National Adaptation Programme of Action
NGOs	Non-governmental Organizations
ODA	Official Development Assistance
PBB	Performance Based Budgeting
PDPT	Disaster and Climate Change Resilient Coastal Village (Pengembangan Desa Pesisir Tangguh)
PIP	Indonesia Investment Agency
PIPIB	Indicative Moratorium Map
PISP	Participatory Irrigation Sector Project
PLN	State Electricity Company, Republic of Indonesia
POLA	Water Resources Management Strategic Plans (Pola Pengelolaan Sumber Daya Air)
PPA	Power Purchase Agreement
PTLP	Geothermal Power Plant (Pembangkit Listrik Tenaga Panas)
PSAP	Provincial Strategy and Action Plan

RAD-GRK	Regional Action Plan on Green House Gas Emissions Reduction
RAN-API	National Action Plan of Climate Adaptation
RAN-GRK	National Action Plan on Green House Gas Emissions Reduction
RAN-PI	National Action Plan Addressing Climate Change
REDD	Reducing Emissions from Deforestation and forest Degradation
REDD+	An enhanced concept of REDD including the objectives of conservation, the sustainable management of forests and enhancement of forest carbon stocks
REFF-BURN	Integrated Program for Reducing Emissions from Fossil Fuel Burning
RENSTRA	Strategic Plan
RIKEN	National Master Plan for Energy Conservation
RKP	Government Action Plan
RPJMN	National Medium-Term Development Plan
RUEN	National Energy Plan
RUPTL	Electricity Supply Business Plan
SC	Super Critical Technology (of Coal Power Plant)
SC	Steering Committee (of CCPL)
SIGN	National Greenhouse Gas Inventory System
SIIAM	The Supporting Implementation of Irrigation Asset Management Project
SMIEE	Emissions and Energy Management Information System
SNC	The Second National Communication to the United Nations Framework Convention on Climate Change
SOP	Standard Operation Procedure
SRI	System of Rice Intensification
SVLK	Timber Legality Verification System
TDL	Electricity Basic Tariffs
TKPSDA	Water Resource Management Coordination Team
TTM	Technical Committee / Technical Task Force Meeting (of CCPL)
UKP4	Presidential Working Unit for Supervision and Management of Development
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USC	Ultra-Super Critical Technology (of Coal Power Plant)
USD	United States Dollar
VPA	Voluntary Partnership Agreement (between European Union and the Republic of Indonesia)
WKP	Mining Work Area (of Geothermal) (Wilayah Kerja Pertambangan)
WS	River Basin (Wilayah Sungai)

I. Introduction

The Indonesia Climate Change Program Loan (CCPL)

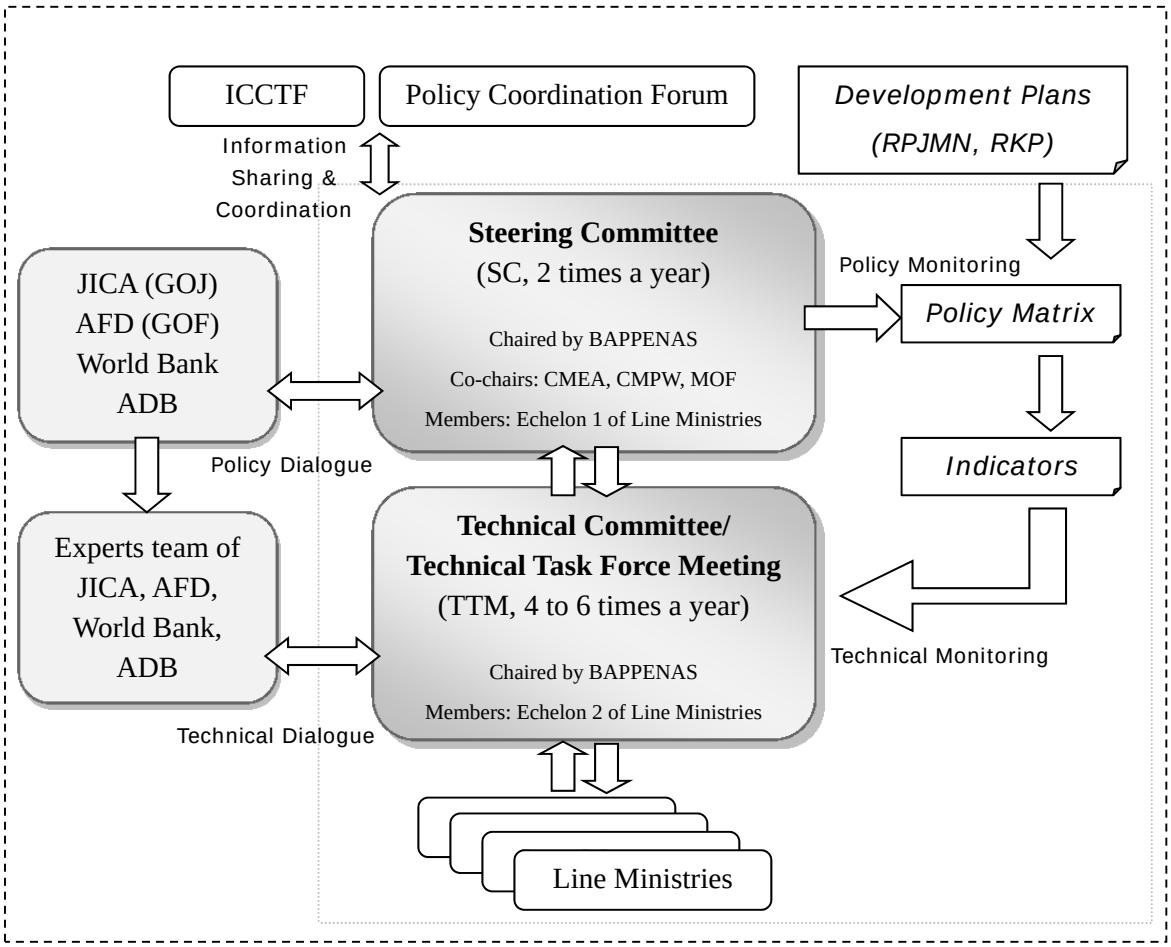
The Government of the Republic of Indonesia (GOI) has actively addressed climate change issues through the introduction of a number of laws, plans, and guidelines; as well as implementing mitigation and adaptation measures on the ground level. Furthermore, the GOI has played an important role in the international negotiations on the climate change issues, particularly through hosting the 13th Conference of Parties of the United Nations Framework Conventions for Climate Change (UNFCCC-COP13) in 2007 at Bali.

In order to encourage the GOI's efforts of institutional reforms and on-the-ground activities to strengthen climate change policies, the Government of Japan (GOJ) decided to respond to the GOI's call for a cooperation program. In 2008 the GOI and the GOJ agreed to launch Indonesia Climate Change Program Loan (CCPL). In the same year the Government of France (GOF) also decided to provide a co-financing loan through Agence Française de Développement (AFD). Multilateral development institutions also joined; the World Bank in 2010 and the Asian Development Bank (ADB) in 2011.

CCPL supports the GOI to mainstream climate policies through the following mechanisms:
1) Large scale general budget support is provided so as to encourage further mainstreaming of climate change policies;
2) Policy dialogues among the GOI and development partners are periodically held to share information on latest status of climate change policies in Indonesia i.e., progress challenges, and future directions of necessary policy actions; and
3) Related cooperation projects/programs could also be examined and provided on the basis of above dialogues.

Accurate understanding of current conditions is inevitable to effectively implement above mechanisms. The GOI and development partners prepared two means to grasp the issues, progress, and challenges of climate change policies: the "Policy Matrix" listing targets/actions of climate change policies selected from the GOI's development plans including *the Medium-term National Development Plan (RPJMN 2010-0214)* and *Government Action Plan (RKP)*; and the joint monitoring activity on the progress and attainments of targets/actions in the matrix.

Figure 0-1 Coordination Structure of CCPL



The Policy Matrix

The Policy Matrix is composed of **the sectors, outcome areas and indications of yearly policy targets/actions**.

The sectors: six to eight sectors were selected and climate related policy actions are included in the Policy Matrices for CCPL Phase 1 (2007-2009) and Phase 2 (2010-).

From 2007 to 2009, the climate change policies of the following sectors were covered in the Policy Matrix: Land Use, Land Use Change and Forestry (LULUCF); Energy; Water Resource; Water Supply and Sanitation; Agriculture; Marine, Coral, and Fisheries; Disaster Management and Disaster Risk Reduction; and Crosscutting issues. During the period the GOI has achieved notable progress toward strengthening of climate change policies. Just to name a few: *National Action Plan Addressing Climate Change (RAN-PI)* in 2007; *The Indonesia Climate Change Sectoral Roadmap (ICCSR)* in 2009; the establishment of National Council on Climate Change (DNPI) in 2008; the launch of Indonesia Climate Change Trust Fund in 2009; the preparation of

the Second National Communication (SNC) to be submitted to UNFCCC by 2011; and creation of new sections/teams dealing with climate change related policies in a number of line ministries including the Ministry of Forestry (MOFR), Ministry of Energy and Mineral Resources (MEMR), Ministry of Agriculture (MOA); and Ministry of Environment (MOE). A number of policy actions included in the CCPL Policy Matrix dealt with these developments.

In developing the new Policy Matrix (for 2010 and beyond), the GOI and the development partners agreed to put more priority on upstream policies, and categorize them as "Key Policy Issues (Upstream Strategies)" to be placed on top of the Policy Matrix, instead of the former "Crosscutting issues."

From September 2010 till July 2011, JICA cooperated with the GOI in conducting the activities including: 1) monitoring/evaluation of the progress/attainments of 2010 Policy Matrix; and 2) preparation of 2011 Policy Matrix and beyond. In March 2012 JICA resumed its activities of monitoring and evaluation of the CY2011 policy matrix, and organized a monitoring support team composed of the experts from Global Group 21 Japan Inc. (GG21) and Institute for Global Environmental Strategies (IGES). On the basis of the results of the two missions (as of September 2012) and subsequent follow-up activities, GG21 and IGES developed this interim report to describe the status of 2011 policy targets/actions, as well as the analysis of future policy directions.

Figure 0-2: Structure of CCPL Policy Matrix (2007-2009)

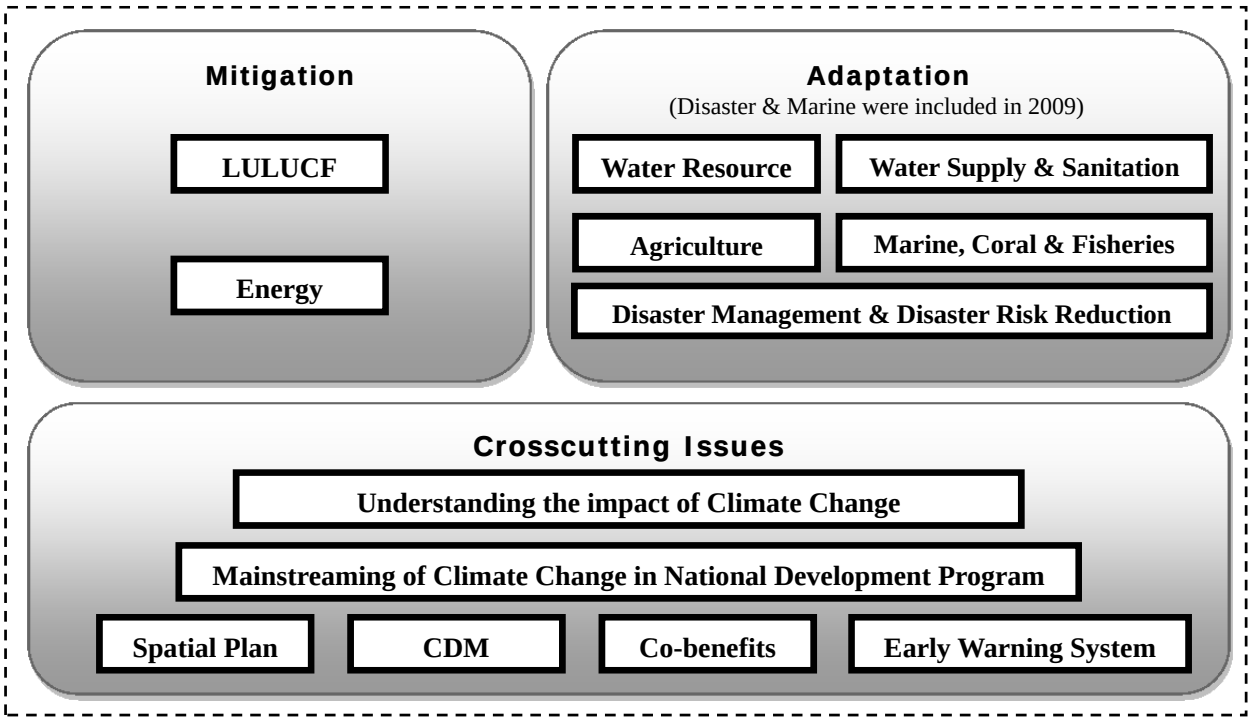
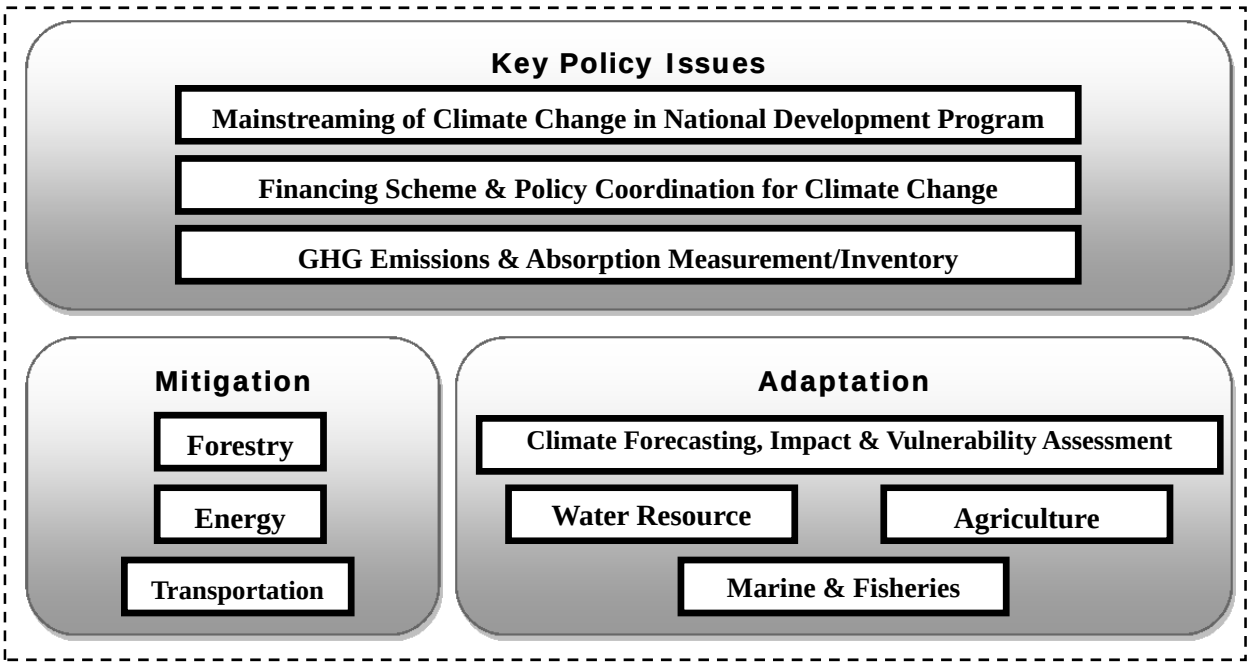


Figure 0-3: Structure of CCPL Policy Matrix (2010, 2011 and Future Policy Directions)



The outcome areas: the GOI identifies several goals to be attained for the medium- to long-term climate change policies in each sector: some of them were stipulated as **outcome areas** in the CCPL Policy Matrix. Note that the sectors of Forestry, Energy and Transportation covered three to four outcome areas. Each outcome area contains several indications of targets/actions aiming at attaining the same outcome.

For instance, the CY2011 Policy Matrix set five outcome areas for the Energy sector as follows:

(1) The outcome for renewable energy development [1]: Improve energy security and reduce future GHG emissions from electricity generation through new geothermal projects within an improved policy framework for private sector participation.

Toward this "outcome" two to five indications of yearly policy targets/actions were set.

(2) The outcome for renewable energy development [2]: The promotion of renewable energy development is improved by monitoring, evaluating and revising the new regulations.

Toward this "outcome" two indications of yearly policy targets/actions were set.

(3) The outcome for energy efficiency [1]: GHG emissions are reduced (or strategies for reducing GHG emissions are formulated) by enhanced energy efficiency in energy intensive sectors through the use of new technology and the rehabilitation, renovation, and replacement of existing facilities.

Toward this "outcome" one to two indications of yearly policy targets/actions were set.

(4) The outcome for energy efficiency [2]: Demand side management becomes a major part of government regulations and eventually contribute to fiscal budget management.

Toward this "outcome" an indication of yearly policy target/action was set.

(5) The outcome for pricing: Energy consumption is better controlled by a more cost-oriented pricing mechanism, contributing to reducing both GHG emissions and energy subsidies

Toward this "outcome" an indication of yearly policy target/action was set.

The indications of yearly policy targets/actions: yearly milestones of actions toward the attainment of the aforementioned medium- to long-term goals of each outcome area were extracted from the action plans of the relevant ministries/agencies of the GOI, and specified as **the indications of policy targets/actions** in the Policy Matrix. Additionally, **the indications of "future policy directions"** were also specified for the years beyond 2012.

This report organizes the analysis of 2011 policy targets/actions and related future/on-going actions in the orders of "outcome areas" so as the readers could have comprehensive view(s) on the targets, progress, challenges and future directions toward attaining "outcomes" instead of simply understanding the details of individual targets/action. The status of 2011 policy targets/actions are analyzed in terms of their progress and attainments and obstacles/challenges. Future policy directions are analyzed in terms of their relevance and impacts to overall development of Indonesian climate change policies.

II. Analysis on the 2011 indicators and future policy directions

1. Key Policy Issues

1.1 Mainstreaming Climate Change in the National Development Program

Sector overview

Past Development in the previous phases of the CCPL

Climate Change issues have not been covered in the Indonesian national development planning process until recently. Since 2007, the GOI started to mainstream climate change issues in its national development policies, and it has prepared key documents such as *National Action Plan addressing Climate Change* (2007), *National Development Planning: Indonesia Responses to Climate Change* (2007) and *ICCSR* (2010). At the same time, *RPJMN 2010-2014* (2010) also identified climate change as one of the thirteen national priorities, and as one of the four issues to be dealt with via cross-sectoral efforts[2].

Development in the previous phases of the CCPL (Climate Change Program Loan)

Policy actions for mainstreaming of climate change issues were covered by the previous phase of CCPL. For instance, the following policy targets/actions were included as the "Crosscutting issues" on the CCPL Policy Matrix in CY2008 and 2009: drafting *SNC* to be submitted to the UNFCCC, integrating climate change issues and policies in *RKP2009* and the *RPJMN 2010-2014*, and preparatory study for fiscal incentive mechanism to facilitate renewable energy development. Most of above policy targets/actions showed good progress during the previous phase (2007-2009).

Table 1-1: Key Documents describing GOI's commitment on climate change issues (2007-2009)

Title	Year	Publisher/ Coordinator	Contents
National Action Plan addressing Climate Change (RAN-PI)	2007	MOE	Objectives, strategies, and action plans for mitigation and adaptation.
National Development Planning: Indonesia Responses to Climate Change	2007	BAPPENAS	Sectors, policy actions, and funding sources for mitigation and adaptation in Indonesia.

[2] BAPPENAS (2010) *RPJMN 2010-14*. Book II, Chapter I. The other three issues are: poverty alleviation; development of small islands and coastal areas; and child protection.

As mentioned earlier, the GOI and development partners agreed to re-categorize the policy targets/actions for mainstreaming and to place them on the top of the new Policy Matrix from CY2010 and beyond.

Directions for CY2011 CCPL and beyond

The CY2010 CCPL Policy Matrix specified four actions toward further mainstreaming of climate change policies: finalization of *ICCSR*; legitimization by issuance of a presidential decree on *RAN-GRK*; submission of voluntary mitigation action plan based on the Copenhagen accord to UNFCCC; and revision of *National Action Plan addressing Climate Change* (*RAN-PI*, MOE, 2007).

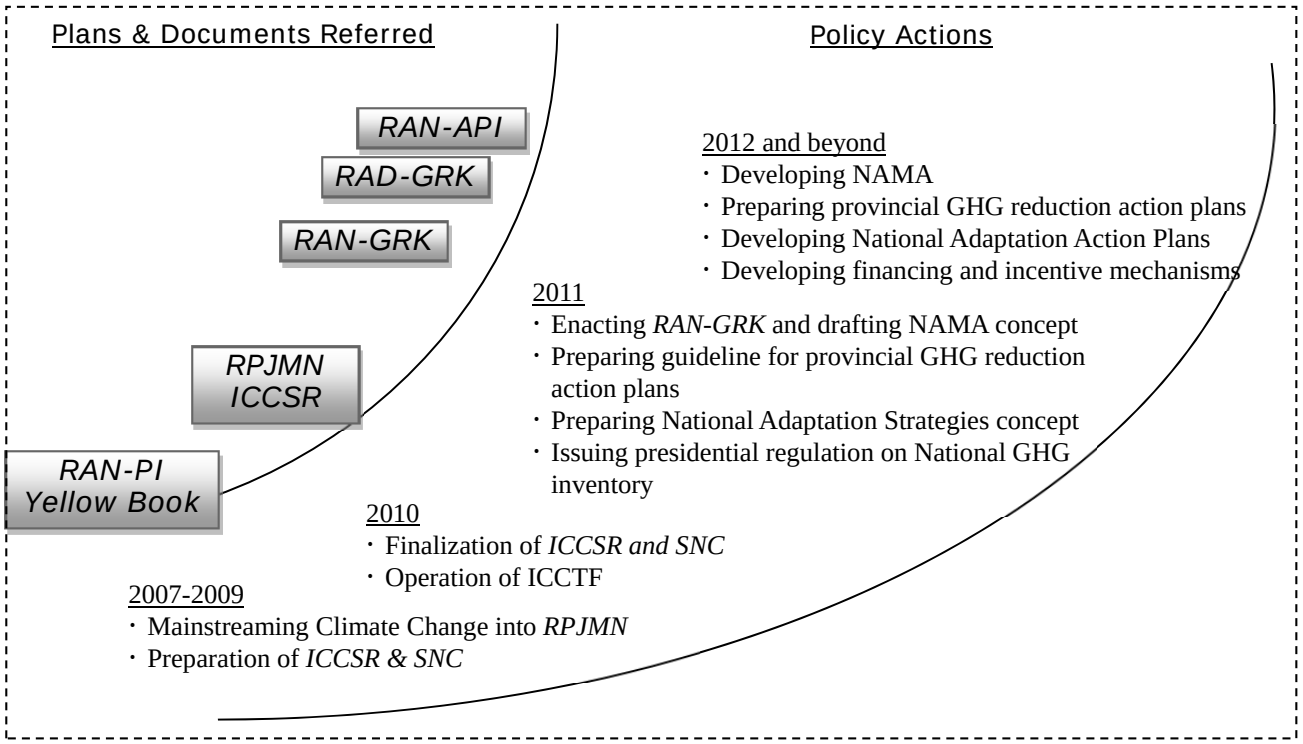
Of these four actions, finalization of *ICCSR* and submission of voluntary mitigation action to UNFCCC were completed as scheduled. The presidential regulation on *RAN-GRK* was issued in September 2011. However, it was decided that *RAN-PI* would not be revised in 2010 for two reasons: mitigation policies have already been updated and integrated in *RAN-GRK*, and adaptation policies would be developed as *National Action Plan for Climate Change Adaption (RAN-API)* by 2013.

Table 1-2: Key Documents describing GOI's commitment on climate change issues (2010-)

Indonesia Climate Change Sectoral Roadmap (ICCSR)	2010	BAPPENAS	Conditions, sectors, and actions for mitigation and adaptation in Indonesia from 2010 to 2030.
The Medium-term National Development Plan (RPJMN 2010-2014)	2010	GOI (BAPPENAS)	Plan of policy actions and budgets of all sectors from 2010 to 2014.
The Second National Communication (SNC)	2010	MOE	National report to UNFCCC on GHG emissions, impacts of climate change, and mitigation and adaptation policies.
National Action Plan for Greenhouse Gas Emissions Reduction (RAN-GRK: Presidential Regulation No. 61/2011)	2011	GOI (BAPPENAS)	Sectors, policy actions, and funding sources toward the National target of reducing GHG emissions 26% less than Business as Usual (BAU) by 2020.
National GHG Inventory System (SIGN) (Presidential Regulation no.71/2011)	2011	GOI (MOE)	General framework of National GHG inventory system. Duties and roles of relevant national ministries and local governments.

The following figure shows the highlights of Key Policy Issues of climate change policies including the past development from 2007 to 2009, actions of 2010 and 2011, and future directions beyond 2012.

Figure 1-1: Highlights of past development and future directions of Key Policy Issues



Outcome Area:
Climate Change program is implemented in all related ministries towards the achievement of national target (26% GHG emissions reduction from BAU in 2020).

◆ **Background of the outcome area**

Now that the GOI has developed its national-level plans on climate change policies, the following areas need to be focused on:
1) Developing concrete policies including Nationally Appropriate Mitigation Actions (NAMA) and National Adaptation Program of Action (NAPA) and directing/facilitating policies at sector level through further legal development;
2) Ratification and legitimization of internationally agreed mechanisms; and
3) Mainstreaming climate change issues at local level and supporting/promoting development of climate change action plans of the local governments.

For the first category, i.e. directing/facilitating sector policies, the GOI has formulated a roadmap to integrate climate change issues into the National Development Plans. The roadmap contains results of scientific projections on the impact of climate change, vulnerable areas and sectors, and related development issues with a 20-year timeframe (2005–2025). It also lists priority policy sectors to be integrated into the National Development Plan. BAPPENAS issued *ICCSR* in 2010.

At the same time, the GOI has also prepared for legitimization of *RAN-GRK*. Based on the declaration of Dr. H. Susilo Bambang Yudhoyono, the President of the Republic of Indonesia at the G20 Summit on September 2009, *RAN-GRK* specifies actions to be taken in various sectors to attain the target of reducing 26% (or 41% with international support) of GHG emissions compared to BAU in 2020. BAPPENAS took charge of drafting the presidential regulation to ratify *RAN-GRK*. The presidential regulation was issued on20 September 2011.

Whereas the action plan for mitigation has been developed, progress in adaptation policies fell behind. Further development of framework policy on adaptation was among the urgent issues. While MOE prepared *the National Action Plan Addressing Climate Change* (*RAN-PI*, MOE, 2007) to specify basic directions, it mainly depends on the data as of 2000. It has been recognized that the plan needs to be updated based on some important changes in the basic conditions, namely, progress of international discussions related to climate issues, enhanced international cooperation schemes, and development of more detailed data on GHG emissions

and vulnerability in Indonesia. BAPPENAS started initiation of National Adaptation Strategies, rather than revising the adaptation part of *RAN-PI*.

For the second category, i.e. ratification/legitimization of international schemes, the GOI was supposed to develop its voluntary mitigation action plan based on the Copenhagen Accord "taken note" at the 15th Conference of Parties of the UNFCCC in December 2009. The Copenhagen Accord included a mechanism in which a) Non-Annex I countries were to develop and submit their voluntary mitigation actions to UNFCCC, to which b) international society was to support the implementation. Upon this accord the GOI has announced that a list of potential NAMAs was submitted to UNFCCC in January 2010.The list covers sectors of peatland, forestry, agriculture, energy, waste and transportation without going into details of the activities.

Lastly, central government is supporting the local governments' efforts of formulating their action plans on climate change policies mainly with two measures: setting a guideline of the provincial level action plans, and convening workshops for the local governments' officers to disseminate knowledge on climate change and to gain understanding of the necessity to formulate action plans. As mandated by the presidential regulation on *RAN-GRK*, provincial governments have developed Provincial Action Plans on Green House Gas Emissions Reduction (RAD-GRK). Other measures including financing incentives are to be discussed in section 1.2.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the four policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY2011 Indication (1) **Use *Midterm Development Plan (RPJM)* and *RAN-GRK* as a basis to prepare the draft the concept of nationally appropriate mitigation action.**
Ministry/Agency in charge: BAPPENAS; Coordinating Ministry for Economic Affairs (CMEA); and the Coordinating Ministry for People's Welfare (CMPW)
CY2011 Status: Attained
CY2011 Progress/Attainments: BAPPENAS further prepared a concept of NAMAs in early 2011. Based on the concept, GOI issued Guideline of *RAN-GRK* for further developing NAMA, in 2011. The guideline contains: - Introduction to *RAN-GRK*;

- *RAN-GRK* Development towards Nationally Appropriate Mitigation Actions;
- National GHG Emissions Reduction Strategy in Key sectors;
- Funding mechanism;
- MRV; and
- Local GHG Emissions Reduction Strategy in Key sectors.

Currently *RAN-GRK* is recognized as a basic NAMA in Indonesia. GOI is planning to further developing NAMA.

Obstacles/challenges observed (if any):

For developing NAMAs in Indonesia, further development of technical aspects is to be required including refinement of BAU calculation.

Future policy action/target to follow the progress of this indication:

[1] Draft mitigation action.

Expected impacts:

BAPPENAS has been working toward preparation of draft NAMA/mitigation actions with preparation of RAD-GRKs at the province level. RAD-GRK further promotes mainstreaming climate change issue into government agenda at the local level. RAD-GRKs must be used as references for preparation of next local mid-term development plans.

Progress/Attainments/Challenges observed:

A total of 27 provinces out of 33 issued RAD-GRKs with governor regulations in 2012.

Further to technical issues, further clarification on conceptual issue such as relation between *RAN-GRK* and RAD-GRK and relation between *RAN-GRK* and REDD+ is expected.

Recommendations (if any):

Not specified.

CY2011 Indication (2)

Issue a guideline for provincial action plans based on *RAN-GRK*.

Ministry/Agency in charge: BAPPENAS

CY2011 Status: Attained

CY2011 Progress/Attainments:

A guideline of RAD-GRK *(Guideline for Developing Local Action Plan for Green House Gas Emissions Reduction)* based on Presidential Regulation No. 61/2011 on *RAN-GRK* was launched in January 2012. The Guideline was issued by BAPPENAS as a circular of Minister/Head of BAPPENAS, Minister of Environment, and Minister of Home Affair.

The guideline is utilized as a basic reference for the local governments for *RAD-GRK*

development and contains:

- Substances and structures of *RAD-GRK*;
- Process and Procedure for *RAD-GRK* Development; and
- Organization of *RAD-GRK* Development.

Obstacles/challenges observed (if any):

The guideline was developed, whilst trainings and direct assistances for developing RAD-GRK were necessary.

Future policy action/target to follow the progress of this indication:

[2] Draft provincial action plans for contributing to 26% reduction.

Progress/Attainments/Challenges observed:

As of December 2012, 27 provinces published RAD-GRK and issued governor regulations. Five provinces established RAD-GRK and are preparing governor regulations, and only West Papua province was still finalizing RAD-GRK.

Review of each RAD-GRK to examine the coherence of BAU baseline, mitigation scenario, and mitigation action plans is necessary, as well as making them consistent with *RAN-GRK* targets of emissions reduction. Furthermore, the incorporation to the local medium-term development plan to secure its implementation is expected.

Expected impacts:

Provincial action plan would provide directions for both provincial and district/city government to introduce and implement a low carbon development approach.

Recommendations (if any):

Not specified.

CY2011 Indication (3)

Conduct socialization for preparing the draft provincial action plans in 2 regions for contributing to 26% reduction based on the Presidential decree.

Ministry/Agency in charge: BAPPENAS

CY2011 Status: Attained

CY2011 Progress/Attainments:

GOI conducted workshops on promoting mitigation actions at provincial level in Medan and other locations in collaboration with JICA in 2011.

After GOI prepared the guideline of RAD-GRK, GOI conducted events for socialization for preparation of provincial mitigation action plans in five locations based on geographical area (Palembang, Denpasar, Balikpapan, Semarang, and Makassar) between February-March 2012.

Further to previous events, BAPPENAS organized the following events to invite relevant local government officers:

- Training for GHG inventory and calculation of BAU baseline for key sectors;
- Technical socialization in Bandung in May 2012;
- *RAD-GRK* progress meeting in Bali in July 2012; and
- Event for finalization of *RAD-GRK* in Bandung in September 2012.

In addition to socialization events and workshops, Government ministries, agencies and relevant institutions including the Secretariat for RAN/RAD-GRK provided direct assistances for certain provinces with support from donors including JICA and GIZ. Sub Project 1 of the Project of Capacity Development for Climate Change Strategies in Indonesia provided support for RAD-GRK preparation in North Sumatra, South Sumatra and West Kalimantan.

Obstacles/challenges observed (if any):

Technical capacity in developing RAD-GRK varies among provinces especially in BAU baseline, mitigation scenario, and mitigation action plans.

Future policy action/target to follow the progress of this indication:

[3] Incorporate climate change program into regional midterm development plan at Provincial level.

Progress/Attainments/Challenges observed:

RAD-GRK is recognized to provide inputs to the next regional midterm development plan at the provincial level according to the *RAD-GRK guideline* and results of an interview with RAN/RAD-GRK secretariat. BAPPENAS and the sectoral working groups on climate change with the facilitation of the Secretariat for RAN/RAD-GRK development have been reviewing the provincial RAD-GRK documents. After the review, the documents are expected to be incorporated into the regional development plans.

Expected impacts:

By incorporating the climate change program into the regional development plans, it is expected that the sustainability of the programs addressing climate mitigation will be enhanced in term of financial/budgeting aspects.

Recommendations (if any):

It is recommended that the GOI and development partners coordinate for supporting planning and implementation process of the next regional midterm development plan, particularly in its climate change related components. In this regard, it would be significant to integrate several relevant initiatives such as RAD-GRK, REDD+ Strategy and Masterplan for Acceleration and Expansion of Indonesia Economic Development and arrange mechanism for implementation particularly at provincial level.

CY2011 Indication (4)

Prepare a concept note of national adaptation strategies.

Ministry/Agency in charge: BAPPENAS

CY2011 Status: Attained

CY2011 Progress/Attainments:

The concept note of the draft national strategy for mainstreaming adaptation was prepared in 2011. To develop the concept note and strategy, BAPPENAS established an Advisory Council consisting of national experts from relevant sectors. The concept note was developed by the Chair of the Advisory Council established by BAPPENAS, and utilized by sectoral members of the Council as a guide for developing the draft national adaptation strategy. A series of consultation meetings was held to invite comments and inputs from line ministries.

Obstacles/challenges observed (if any):

Not specified.

Future policy action/target to follow the progress of this indication:

[4] Draft national adaptation strategies.

Progress/Attainments/Challenges observed:

Prior to formulating *RAN-API* the GOI has developed several key strategies and documents addressing climate change adaptation. Among them the following two documents were closely examined while *RAN-API* was drafted.

1) *Rencana Aksi Nasional Adaptasi Perubahan Iklim Indonesia (Indonesia National Action Plan of Climate Change Adaptation)* was issued by DNPI in February 2011. Though the document has exactly same title as *RAN-API*, it was separately developed by DNPI through its research activities and stakeholder consultation. It specifies priority actions toward climate change adaptation in the sectors of: agriculture; health; marine, coastal, fisheries and small islands; water resources; roads and bridges; spatial plan; and human settlements. However, it does not describe implementation plans and necessary funds in detail.
2) *The Strategy for Mainstreaming Adaptation into National Development Planning has been developed by BAPPENAS since 2012* for the objectives of clarifying the measures and steps to develop a process and system for planning, implementation, evaluation and improvement of adaptation. Toward these objectives, the gaps and barriers of adaptation actions are examined including the barriers in stakeholder coordination, geographical variations and imbalances, limitation of fiscal and human/technological capacity, and difficulty in measurement and verification. The strategy provides recommendations to overcome gaps for developing and implementing adaptation policies and measures in relevant sectors or regions. The strategy was substantially finalized in November 2012

and to be issued in 2013.

RAN-API is designed as the guiding principle of integrating the strategies of mainstreaming climate change adaptation as well as specific actions to be carried out in sector/regional levels into medium- to long- term National Development Plans and the annual Work Plans.

RAN-API was drafted by BAPPENAS, BMKG, DNPI and MOE in cooperation with German International Cooperation Agency (GIZ), JICA and ADB. Two national consultants (professors) worked on the concept document developed by July 2012. The synthesis report was produced and circulated at the Doha UNFCCC meeting in December 2012. The full report of *RAN-API* consisting of five chapters covering climate change overview in Indonesia, adaptation strategy and policy action, and implementation mechanism is expected to be published in 2013 following current stakeholder consultations.

Expected impacts:

The National Adaptation Strategy and Action Plan are directed to support a sustainable development that is adaptive to climate change by enhancing economic resilience, livelihood resilience, and environmental services of the ecosystem. The Strategy and RAN-API set adaptation strategy and policy actions on priority sectors of marine and fishery, health, agriculture, water resources and climate related disaster management; and cross-sectors in short-term development plan (2013-2014). Both documents would be utilized as a background study for the National mid-term development plan (RPJMN) of 2015-2019, and long-term adaptation policy directions.

Recommendations (if any):

National adaptation strategy and action plan development processes could employ bottom up and top down approaches covering multi-stakeholder's needs and interests in particular those of vulnerable communities.

◆ **Further recommendations related to the outcome area**

As was mentioned above, further development of technical aspects and clarification of several conceptual issues are to be recommended:

- Further clarify relation between *RAN-GRK* and RAD-GRK with clear definition. i.e. is RAD-GRK inside or outside 26% reduction (or *RAN-GRK*);
- Further clarify the roles of the private sector, citizens and other stakeholders. Mitigation actions by those actors could be integrated in achievement of national mitigation target;
- Further clarify the relationship between *RAN-GRK* and REDD+ (national strategy and action plan);
- Further clarify how to treat and implement credited NAMAs (including Joint Crediting

Mechanism: JCM). Clarify relation between 26%, 41%, and credited activities. Further clarify respective definitions of 26 % and 41 %; and

- Develop criteria of NAMA.

As was mentioned above, further development of the technical aspects is to be recommended:

- Develop and finalize simplified methodologies to calculate emissions reductions (at least for key) activities in RAN/RAD-GRK (if not yet done). All stakeholders can use standard methodologies;
- Develop unified baseline/BAU at national and local level. Further coordination of assumption for BAU: each sector uses same assumption; each province use same assumption for determining BAU; and
- Clarify further definition of BAU including treatment of (newly developed) policies

Further processes of preparation and implementation of RAN/RAD-GRK are expected:

- Develop detailed plan / business plan based RAN/RAD-GRK with (list of) detailed project documents until 2020 which include detailed information i.e. when, where, what kind of projects to be implemented with which finance sources;
- Need feasibility check on whether sectoral targets are to be achieved;
- Conduct cost effective analysis of mitigation options to develop the above detailed plans for effective allocation of budgets under the budget constraints;
- Prepare guideline, modality and procedures for crediting NAMA once after developing crediting NAMA concept;
- Clarify financial arrangement, especially for the programs and actions toward additional 15% reduction (note: those to attain 26 % reduction would be financed by APBN and APBD);
- Develop (donor) needs matching mechanism for RAN/RAD GRK implementation;
- Clarify how to treat loan and grant; and
- Provide MRV methodology with guidelines for RAN/RAD-GRK.

For national adaptation strategy and action plan further major steps include:

- Finalizing the adaptation strategy and action plan;
- Implementing the plan.

International development partners including Japan and France may explore potential cooperation for some of the above issues and provide support to fill gaps such as human and technical capacity and financing means for ensuring realization of implementation of mitigation actions.

1.2 Financing Scheme and Policy Coordination for Climate Change

Sector overview

The climate change policies encompass many sectors and actors, involving both the central and the local governments. However, it is often observed that the local governments and other stakeholders have insufficient financial, technical and human resources for planning and implementing climate change policies. Thus, policy coordination on climate change among ministries and local governments is important. While technical and human resources constraints are being addressed in the outcome area 1.1 “Mainstreaming Climate Change in the National Development Program,” providing financing scheme constitutes a key for a successful implementation of climate change policies.

Directions for CY2011 CCPL and beyond

Bearing these concerns in mind, the CY2011 Policy Matrix included actions related to: 1) the Indonesia Climate Change Trust Fund (ICCTF), such as development of Investment Strategy and revision of the current standard operation procedure (SOP) and preparation for selection of national trustee of ICCTF; 2) implementation of Performance Based Budgeting (PBB) related to climate change policies and programs; 3) preparation of concept for incentives for pro climate change policies and actions.

Outcome Area:
Policy coordination on Climate Change is enhanced and linked to National Budget and Planning processes.

◆ **Background of the outcome area**

According to the Yellow Book (July 2008 edition), the investment requirement for climate change policies is estimated to be USD 0.5 billion to 4.5 billion, which amounts to 0.13% to 1% of GDP. Considering the size of the investment, the GOI decided to establish the ICCTF to pool and coordinate funds from a variety of sources such as international donors and the private sector, to finance Indonesia's climate change policies and programs.

The ICCTF is led by the GOI to ensure that international and private sector support are aligned with national development plans, in accordance with the principles of the Jakarta Commitment (2008). The ICCTF was launched on 14 September 2009.

The Innovation Fund for public sector programs and projects has become operational in the second half of 2010, and the Transformation Fund for public-private sector programs and projects is expected to become operational in future.

Based on several steering committee meetings of ICCTF, chaired by vice minister of BAPPENAS and mainly participated by deputy minister of BAPPENAS, MOE, National Council on Climate Change (NCCC) and relevant ministries, three projects were selected in September 2010 from more than 100 proposals from line ministries for utilizing the innovation fund. The three projects are: 1) Research and Development on Technology of Sustainable Peat management to Enhance Carbon Sequestration and Mitigate Greenhouse Gas Emissions; 2) Implementation of Energy Conservation in industrial sector; and 3) Public Awareness, Training and Education Program on Climate Change Issues for All Level of Societies in Mitigation and Adaptation.

Under the PBB for climate change, budget allocation would be made on the basis of the achievement of agreed milestones and outcomes related to climate change programs and policies of line ministries. Following the concept of PBB for climate change originated from BAPPENAS and MOF in 2009, the 2010 Policy Matrix included an action to "conduct a study on the implementation possibility of PBB." Rather than conducting the PBB study, GOI further advanced related policies including the Government Regulation No. 90/2010 on arrangement of Work plan and Budget of Ministries/Agencies which includes the PBB issue.

DAK (Special Allocation Fund, or Dana Alokasi Khusus in Indonesian) is a fund allocated from State Budget to local government (province or district/municipality) to be used for funding the national priority specific program/sector to be executed by the local government. The implementation of DAK has commenced since the application of regional autonomy by the issuance of Law No. 25/1999 and Law No. 33/2004 concerning the Fiscal Balance between the Central and Local Governments, and the Government Regulation No. 55/2005 concerning the Transfer Fund.

As shown in the following table DAK's share in the total central budget was 2% in 2010 audited budget.

Table 1-3: Fiscal Transfer from the central government to the regional governments

Title of funds	Amount (IDR trillion)	Share in total central government budget (%)
Total transfers to regions	**345**	**33**
Fiscal balancing Fund (Dana Perimbangan)	317	30
Revenue sharing funds (DBH)	92	9
General Allocation Fund (DAU)	204	19
Special Allocation Fund (DAK)	**21**	**2**
Special Autonomy and Adjustment Funds	28	2
Special Autonomy Fund	9	1
Adjustment Fund	19	2

Source: MOF, *Budget Statistics 2006-2012*. http://www.anggaran.depkeu.go.id/Content/11-08-19,%20DataPokokInggris2006-2012.pdf (Accessed on 14 October 2011).

In 2010, DAK was distributed covering 14 categories, of which the largest are education, health and transport infrastructure. There are existing DAK programs relevant to climate change in the environment, sanitation, energy, and forestry sectors.[3]

The DAK could be used for a number of programs related to climate change and funding under other DAK programs could be made contingent on good performance on climate change programs. Thus, in the CY2010 policy actions, the phrase "Improve the existing design of climate change DAK or special incentives concept for local government" was included.

[3] Ministry of Finance (2011). *Ministry of Finance Green Paper follow up: Regional Incentive Mechanism for emissions reductions from land based sector*. p.74. Jakarta: Ministry of Finance and Australia Indonesia Partnership.

Although establishment of DAK for climate change was proposed by Directorate of Environment, BAPPENAS and discussed many times, the GOI decided not to establish DAK for the sector, because climate change is a cross sectoral issue and a single ministry in charge of DAK for climate change could not be specified. To operate DAK in a sector, a specific ministry could be assigned to manage the DAK.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the four policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY2011 Indication (1) **Complete an Investment Strategy and revise the current standard operation procedure (SOP) for ICCTF.**
Ministry/Agency in charge: BAPPENAS; and the ICCTF Trustee
CY2011 Status: Attained
CY2011 Progress/Attainments: BAPPENAS issued the *ICCTF business plan 2011-2020* in November 2011. It explains the (investment) strategies of ICCTF in three priority sectors; namely, Land-based Mitigation Window Strategy, Energy Window Strategy and Adaptation and Resilience Strategy in the section of "Target and strategy of ICCTF up to 2020." Chapter II of the business plan explains the process to implement ICCTF and includes steps to receive funds from contributors, project selection process and process of the fund disbursement. SOP of ICCTF was issued in 2011. The investment strategies align with the climate policies in Indonesia such as *RAN-GRK*. SOP of ICCTF stipulates legal duties, operation procedures, etc. In accord with recently developed policies on trust fund such as Presidential Regulation No. 80/2011 on the Trust Fund, SOP was revised. Further revision of SOP is ongoing in order to harmonize key issues in the regulation and adapt to the transition of the Fund Manager from Interim Trustee (UNDP) to National Fund Manager. The SOP is expected to be finalized before the transition period concludes in 2014. Major points of revisions include project assurance (quality control, evaluation), financial assurance, and institutional arrangement. New regulation on ICCTF is expected to be issued to establish ICCTF as a national trust fund under the Presidential Regulation No.80/2011 in 2013-2014. Although current PREP-ICCTF was established before the enactment of Presidential Regulation No. 80/2011 and it can continue

to exist, it can only exist to manage the remaining funds under Interim Trustee (UNDP). Therfore, the new regulation is needed for continuing ICCTF operation after 2014. It is under discussion whether the new regulation is to be regulated under Presidential Regulation or BAPPENAS Ministerial Regulation.

Obstacles/challenges observed (if any):

There remain issues such as capacity of project implementer (Executing Agency/EA, Implementing Agency/IA and Project Management Unit/PMU) to adapt to a new project management system and to comply with robust monitoring, evaluation and reporting system in project implementation.

Standardized monitoring and evaluation procedures have to be followed.

Future policy action/target to follow the progress of this indication:

[1] Continue to support the funding mechanism for Climate Change projects under the Indonesia Climate Change Trust Fund (ICCTF).

Progress/Attainments/Challenges observed:

The second round of selection of climate change projects was conducted. Three new projects were approved by the ICCTF Steering Committee Meeting on 29 November 2012: 1) Enhancing sustainable management of community-based wood pellets production as biomass energy to support low carbon economy and climate change mitigation in Bangkalan, Madura of East Java by Ministry of Forestry; 2) Health vulnerability: assessment, mapping, and community-based adaption on dengue haemorrhagic fever and malaria diseases by Ministry of Health; 3) Sustainable management of degraded peatland to mitigate GHG emissions and optimize crop productivity by Ministry of Agriculture. In addition, the SC Meeting agreed to extend the PREP-ICCTF by 2014.

Expected impacts:

ICCTF currently supports pilot projects which are linked to actions on RAN/RAD-GRK to support the achievement of 26% target. In the short term, ICCTF also supports the finalisation and review of RAD-GRK and National BAU Baseline calculation.

Recommendations (if any):

Not specified.

CY2011 Indication (2)

Prepare selection of the National Trustee of ICCTF through discussion between BAPPENAS and MOF.

Ministry/Agency in charge: BAPPENAS; and the ICCTF Trustee

CY2011 Status: Attained

CY2011 Progress/Attainments:

GOI enacted Presidential Regulation No. 80/2011 on the trust fund institution. Overall structure of ICCTF and selection of its National trustee should be in accordance with this regulation. The regulation stipulates organisational structure and duties of trust fund institutions consisting of trustee institution/board of trustee and Trust Fund Management. It further stipulates rules for project/activity implementation and rules of reporting, monitoring and evaluation, etc. The duties of the Trust Fund Management. are to a) handle the administration and finance of the Trust Fund in accordance with the principles of administration and finance management as agreed upon in the Grant Agreement; b) report the administration and finance management of the Trust Fund to the Board of Trustees; and c) conduct payments to related parties on the instruction of the Board of Trustees.

The following rules in the Presidential Regulation No. 80/2011 are quite relevant to selection of the Trust Fund Management (National Trustee). The Article 11 regulates the Trust Fund Management which may consist of a) Ministries/Institutions; b) multilateral institutions; c) Non-Governmental Organizations; d) national business entities; and/or e) foreign financial institutions. The Article 12 is on the selection of the Trust Fund Management: it regulates rule of assignment of Trust Fund Managers. In the case of Ministry/Institution, multilateral institutions or Non-Governmental Organizations, assignment as Trust Fund Managers through appointments is based on the Grant Agreement. National business entities and foreign financial institution are appointed as Trust Fund Managers based on the selection results in accordance with the stipulations of the legislation on the procurement of goods/services unless otherwise provided in the Grant Agreement.

The concept of overall structure of ICCTF was developed by BAPPENAS. While ultimately, ICCTF will consist of steering committee, technical committee, secretariat and national fund manager, currently steering committee, technical committee, secretariat and interim trustee form it. Previously, interim trustee was considered for transformation into national trustee but a national fund manager was created. The Mandiri Bank was recently endorsed as the National Fund Manager during the Steering Committee Meeting on 29 November 2012. Some of the roles of interim trustee are managed by the secretariat.

Obstacles/challenges observed (if any):

The Mandiri Bank will operate ‘cashier’ function of ICCTF. Transition processes are under way in cooperation with UNDP as current interim Fund Manager. This transition period is expected to end by 2014 assuming all remaining funds under UNDP will be totally disbursed.

Future policy action/target to follow the progress of this indication:

No action/target is proposed.

Progress/Attainments/Challenges observed:

In addition to implement 3 new projects in 2012-2014, ICCTF plans to:

- Prepare for full appointment of National Fund Manager;
- Apply as National Implementing Entity (NIE) of the UNFCCC Adaptation Fund and application for Green Climate Fund; and
- Fully function as an Innovation Fund and Transformation Fund.

Expected impacts:

The above activities would provide better availability of finances to climate change programs.

Recommendations (if any):

To achieve the aforementioned plans, some preparation is expected including the improvement of institutional capacity and further development of management system, procedures and mechanisms to comply with international fiduciary standards

CY2011 Indication (3)

Implement PBB for policies, programs and activities of line ministries related to climate change.

Ministry/Agency in charge: Directorate of Environment, BAPPENAS; and Fiscal Policy Office (BKF), MOF

CY2011 Status: Attained

CY2011 Progress/Attainments:

Performance Based Budgeting (PBB) has been introduced since 2011. Climate change programs of the line ministries are part of overall PBB process.

Based on RPJMN, the Medium Term Expenditure Framework and President's 11+3 priorities, climate change is classified as one of the priority areas. As such, the climate change budget performance of line ministries will be monitored through trilateral meeting attended by BAPPENAS, MOF and line ministries for preparation of next year's budget, prior to national consultation process in April every year.

Based on the result of monitoring by this trilateral meeting, the performance of climate change programs of line ministries will be reflected to next year's Government RKP (Annual Work Plan); to be issued by a presidential decree in May of every year. During the third week of May of every year, budget discussions in parliament start before the formal budget proposal by the President in August.

Since 2011, the RKP has a category of climate change (mitigation, adaptation and supporting activity) with allocation of funding for the years to come.

Obstacles/challenges observed (if any):

Not specified

Future policy action/target to follow the progress of this indication:

[2] Continue implementing PBB for line ministries related to CC.

Progress/Attainments/Challenges observed:

GOI continued implementation of PBB in 2012.

Related to PBB, an online budget monitoring system to efficiently monitor the budget performance with the support of the World Bank Project called SPAN, is expected to be operational in 2014.

Expected impacts:

Since the climate change policies and programs of line ministries were incorporated into the overall PBB system of the GOI, it is expected that this would provide the line ministries with an incentive for an efficient and effective implementation of their climate change policies and programs.

Recommendations (if any):

Not specified.

CY2011 Indication (4)

Prepare concept for providing incentives for climate change.

Ministry/Agency in charge: Directorate of Environment, BAPPENAS; and BKF, MOF

CY2011 Status: Attained

CY2011 Progress/Attainments:

MOF conducted studies for providing incentives and developed a few reports including "Instruments and Mechanisms for Funding of Green House Gas Emissions Reduction Program - Land Based Sector (cooperation under MOF and GIZ)" and "Ministry of Finance Green Paper follow up: Regional Incentive Mechanism for emissions reductions from the land based sector (by Ministry of Finance (MOF) in cooperation with AusAID).

The recommendations in the studies are utilized for policy development. MOF has started preparation of policies for providing further incentives for climate change.

Obstacles/challenges observed (if any):

Not specified.

Future policy action/target to follow the progress of this indication:

[3] Finalize concept of climate change incentives.

Progress/Attainments/Challenges observed:

MOF has been conducting studies on several topics including public financing issues of DAK

forestry and revolving fund for energy efficiency, economic instruments and incentives for green car, street lighting and solar producers and FIT, in collaboration with donors including Australia, UK, JICA, GIZ and UNDP. In addition, MOF conducted the first phase of the Climate Public Expenditure and Institutional Review (CPEIR) project including availability of government budget for implementing RAN/RAD-GRK and development climate related budget code in their budget system in 2012.

MOF has been considering options of possible fiscal transfer scheme for implementing RAD-GRK such as 1) further utilization of grant fund (Dana Hibah) in the short-term and 2) reform of DAK and Local Incentive Fund (Dana Insentif Daerah: DID) for in the medium- and long-term for mitigation actions at the local level.

MOF has started preparation of policies for providing further incentives for climate change. MOF is expected to continue providing further policies on incentives..

Expected impacts:

Policies on incentives will positively induce relevant stakeholders toward mitigation actions

Recommendations (if any):

Not specified.

◆ **Further recommendations related to the outcome area**

- Further addressing broader incentive issues such as fuel subsidy is expected
- Further preparation of financing mechanism for private mitigation actions or projects

1.3 GHG Emissions & Absorption Measurement Inventory

Sector Overview

Accurate estimation of GHG emissions is an urgent issue for Indonesia toward its mitigation target. The GOI had already aggregated data and estimated GHG emissions when it prepared *the First National Communication (FNC)* with support from the Global Environment Facility (GEF) and United Nations Development Program (UNDP). Since 2007 the GOI has worked on the revision and updating of data as a part of the preparation of *the SNC*. Main reports of *the SNC* were finalized by 2009, and *the SNC* was completed with improvement including the refined estimation of GHG emissions of LULUCF sector in 2010. Then, SNC was successfully submitted to UNFCCC on 14 February 2011.

Furthermore, GHG inventory requires periodical review and update, on account of the fluctuation of annual GHG emissions from LULUCF sector due to the global climate factors (such as El Niño), and the raising emissions from energy, transportation, and industry sectors owing to the rapid economic growth. The GOI (MOE) established SIGN unit as a hub for National GHG Inventory System (SIGN). The GOI continues working on developing a national system to periodically review and update the GHG inventory.

Directions for CY2011 CCPL and beyond

Based on the above development, a follow-up action was included in the CY2011 CCPL Policy Matrix: related to further development of GHG inventory such as the technical guideline.

Outcome Area:
Monitoring mechanism for carbon emission and absorption is established through National GHG Inventory System.

◆ Background of the outcome area

Indonesia signed the UNFCCC in June 1992 and submitted its *FNC* in 1999 including the GHG emissions inventory and the general description of mitigation policies to be taken. However the MOE has recognized that several aspects of *FNC* needs revisio*n*: outdated data (the GHG emissions inventory was based on the data from 1990 to 1994); limited scope (some important GHG emissions sources and areas thought to be vulnerable to the impact were not covered); and insufficient attention to the dynamics of condition (such as change of population and economic growth).

In 2007, MOE started development of *SNC* which was to be submitted to UNFCCC by 2011. In November 2009, MOE summarized the salient points in a 47 page paper titled *The Summary for Policy Makers*. MOE finalized the full report of *the SNC* (including data correction related to forest and peatland) in 2010.

Furthermore, MOE established the SIGN unit in charge of inventory under the Assistant Deputy for Climate Change Impact Control and it is supposed to take charge of coordination related to the National GHG Inventory System. The inventory system focuses on the following three objectives: improvement of methodologies, activity data and emissions factors; strengthening of institutional arrangements, functions, and operations of archiving, updating, and managing of GHG inventory data; and increasing awareness of local governments on the importance of the GHG inventory and development of mitigation strategies. In addition, the presidential regulation on the National GHG Inventory System was drafted by MOE and finalized through consultation with related ministries including CMPW.

◆ CY2011 Policy Actions and Future Directions

The following table shows the indication of the policy target/action set for CY2011 (specified in boldface), the progress/attainment observed, and the future policy action/target to follow the progress.

CY2011 Indication (1)

Finalize draft Presidential Regulation on National GHG Inventory

Ministry/Agency in charge: MOE

CY2011 Status: Attained

CY2011 Progress/Attainments:

The presidential regulation on the National GHG Inventory System was issued in 2011 to provide a policy and institutional framework on the GHG Inventory System in Indonesia. It stipulates future preparation of GHG inventory at the national level and local level (provincial and district and city levels).

For further implementation of the Inventory System, MOE decided to issue a general guideline for national GHG inventory before a technical guideline for inventory in the waste sector. The general guideline was drafted in February 2012 and finalized by July 2012 by MOE yet further efforts within relevant ministries and agencies are needed.

MOE completed the general guidelines of inventory: *Books of Guidance on the Conduct of National GHG Inventory*. They consists of:

a. Book I: *General Guidance*

b. Book II – (1) Volume 1 – Methodology on GHG Emissions Calculation of Energy Supply and Demand Activities, (2) Volume 2 – *Methodology on GHG Emissions Calculation of Industrial Process and Product Use*, (3) Volume 3 - *Methodology on GHG Emissions Calculation of Agriculture, Forestry, and Other Land Uses*, (4) Volume 4 - *Methodology on GHG Emissions Calculation of Waste Treatment Activities.*

The guidelines are expected to be legalized with a ministerial regulation.

CY2011 Indication (2)

Develop Technical Guidance for waste sector inventory development as a pilot sector.

Ministry/Agency in charge: MOE

CY2011 Status: Attained

CY2011 Progress/Attainments:

Technical guideline for inventory in waste sector is under preparation. A pilot study of municipal waste was conducted and completed on characterisation of municipal solid waste at dumpsites toward GHG Inventory in North Sumatra and South Sumatra (with support of JICA). The waste sector guideline is to be developed based on the report of the pilot study. Studies on waste water have been processed and will be incorporated in the guideline upon completion.

MOE also prepared sectoral-based manuals such as a land base sector manual, a general

guideline for further implementation of the GHG Inventory. The manuals are to be officially launched in December 2012.

MOE has also convened several capacity buildings in GHG Inventory Calculation training courses for 33 Provincial Environment Agencies since June 2011.

Obstacles/challenges observed (if any):

Further coordination on data sharing is expected with line ministries for national GHG inventory development.

Future policy action/target to follow the progress of this indication:

[1] Implement SIGN with the close coordination among relevant institutions and prepare for the National GHG Inventory

Progress/Attainments/Challenges observed:

MOE established the SIGN Centre by upgrading the SIGN unit in January 2013, which could lead to reinforcing MOE's hub functions of implementing national GHG inventory system.

Expected impacts:

Sustainability of inventory system could be enhanced by establishment of the SIGN Center.

Recommendations (if any):

Further strengthening coordination among the SIGN Center and relevant institutions is recommended to smooth development and implementation of .the inventory system.

Future policy action/target to follow the progress of this indication:

[2] Start preparation for guidelines and methodology including MRV (Measurement, Reporting and Verification), to be conducted by each of the Ministries/ Agencies and Local Governments.

Progress/Attainments/Challenges observed:

MOE started preparation of MRV guideline with GIZ. GOI conducted studies with GIZ on the current monitoring system. Still, the roles of relevant ministries and agencies shall be discussed and agreed before preparing details of MRV system.

BAPPENAS is in charge of overall "MER (monitoring, evaluation and reporting, the term they prefer to MRV) for *RAN/RAD-GRK* while other organizations monitors and report the progress of actions on *RAN-GRK.*

To start with, BAPPENAS is preparing to conduct MER by utilising the existing monitoring mechanism for national development plan achievements as mandated by the Government Regulation No. 39/2006. A guideline for the provincial governments' MER on RAN/RAD-GRK is expected to be finalized by middle of 2013. This mechanism is expected to be further developed toward a standardized MRV.

On REDD+ (an enhanced concept of REDD = reducing emissions from deforestation and land degradation) issues, WG of MRV under the national REDD+ Task Force is preparing the framework of MRV agency.
Expected impacts: MER guideline will provide basis for MRV on the programs and actions including identification of what would be the achievements of RAN/RAD-GRK
Recommendations (if any): Further clarification of roles of each relevant institution is recommended to smooth development and implementation of Indonesian MRV system.

◆ **Further recommendations related to the outcome area**

As mentioned earlier, further clarification of roles of each relevant institution in GOI is recommended in order to smooth development and implementation of Indonesian MRV system. Synchronization and coordination of several initiatives (i.e. initiatives by different sectors) on MRV inside GOI is also expected.

2. Mitigation

2.1 Forestry

Sector overview

The latest statistics estimate is that the total of terrestrial forest in Indonesia is 131.28 million ha, covering approximately 70% of the country[4]. On the other hand, the deforestation rate during the period 2000-2009 reached 1.5 million ha per year and 2 million ha in peatland forest was lost during this period[5]. Deforestation, forest degradation (including land use, land use change) and peat fires are considered to be the major contributors (about 60%) to GHG emissions in Indonesia. Therefore, the forestry sector is the most important sector for Indonesia‘s effort to pursue its national target of reducing GHG emissions by 26% less than BAU by 2020 while sustaining a 7% annual growth rate.

The following conditions are commonly ascribed as the causes of deforestation and land degradation: illegal logging; corruption; large demand for timber wood in industry; financial weakness of timber producers; unclear and instable area definitions (usages, tenancy, management agencies of forests); insufficient capacity of the local governments and institutions to manage forests; and forest fire.

In this context, the government works on climate mitigation in LULUCF sector in mainly three areas of activities: sustainable peatland management; reduction in rate of deforestation and land degradation; and development of carbon sequestration projects in forestry and agriculture, as were described in *the Indonesian Voluntary Mitigation Actions* submitted to UNFCCC in 2010.

MOFR, in charge of the activities for the above purpose, sets its directions of policies in forestry sector in the *RENSTRA (Strategic Plan) 2010-2014* as follows: support of sustainable economic growth and welfare; improvement of environmental quality and sustainability; adaptation to climate change impact; and improvement of disaster management. The specific activity areas which MOFR anticipates as climate change mitigation are improvement of the peatland management, rehabilitation of forest and land and prioritized watersheds, and decreasing deforestation rate.

[4] Forest Watch Indonesia (2011). *Portrait of Indonesia Forest, 2000-2009*. Bogor.
[5] Ibid.

Past Development in the previous phases of the CCPL

The areas of activities covered in the past CCPL Policy Matrix were: forest management and governance; peatland conservation; REDD+; and afforestation and reforestation. Most of the planned policy actions in these four outcomes areas were attained, and especially the actions on afforestation and timber legality (governance) exceeded the target.

Directions for CY2011 CCPL and beyond

Following the achievements in the above outcome areas, the forestry sector outcomes and indicators included in the CY2011 focused on: (1) improved forest governance and management; (2) institutional and regulatory framework to conserve and restore peatland; (3) national REDD+ framework. Overall, good attainments were observed on achieving most of the policy actions. GOI has made efforts for the improvement of forest governance management. Also progresses have been made in developing a national REDD+ system, which include formulation of the National Strategy of REDD+ and the issuance of Presidential Instruction on the Moratorium. Accordingly, Indonesia can be seen as one of the most advanced countries in readiness activities. However, attainments of the policy actions related to peatland have been delayed and not fully achieved. This can be largely attributed to the lack of scientific data and complication of policy-making process regarding peatland.

These outcome areas will be further stressed for the climate mitigation objective beyond 2012. The following actions are particularly highlighted: (1) development of Forest Management Units (FMUs) in state-designated forest areas for improved forest governance and management; (2) development of REDD+ strategic action plan at both national and provincial levels, as well as institutional arrangements for REDD+ implementation; (3) peatland management and conservation through developing regulatory framework and accurate and consistent mapping.

2.1.1 Forest Management and Governance

Outcome Area:
Forest governance and management is improved through the establishment of improved rules on Forest Management Units (FMUs), financial scheme for local governments, and timber legality.

◆ **Background of the outcome**

The Government has set the long-term forest management plan, including institutional strengthening of forest management as one of key targets.

Establishment of the FMUs or KPH in Indonesian is the first step toward reaching this goal. FMU is a forest and land use management institution at the field level to meet a series of objectives explicitly determined in a long-term management plan. Each FMU has clear boundaries demarcated and a management institution which will be responsible for undertaking forest management. Accordingly, establishment of FMU at site level can be seen as a major means for improving management of forest resources and controlling deforestation and forest degradation.

All state-designated forest area in Indonesia is expected to be managed under FMUs covering national, provincial and district level. FMUs consist of Conservation Forest Management Unit (KPHK) – which is under the responsibility of the central government, Protection Forest Management Units (KPHL) and Production Forest Management Units (KPHP), partly relegated to the region – provincial and district governments.

In Strategic Plan, the GOI targets to determine about 530 units of Protection and Production FMU (KPHL and KPHP) in 28 provinces and about 70 units of Conservation FMU (KPHK), as well as to establish 120 Protection and Production FMUs, (20% of determined FMUs) by 2014. To further accelerate the establishment of FMUs, MOFR set up the working group (specified in MOFR Decree No. 25/2009) which supports local governments to obtain feedback comments for their drafts. Also the Minister of Home Affaires issued Regulation No. 61/2010 regarding Guidelines on KPHP and KPHL Organisation and Working Procedures, which provided a legal framework for the establishment of KPHL and KPHP organisations. Through these developments, establishment of FMUs could be more effectively promoted through legalizing the standard operation procedures; and enhancing support to FMUs human/financial resources.

At the same time, funding of local governments need to be strengthened for all actions of forest

management and rehabilitation. The Special Allocation Fund of Forestry Sector (Forestry DAK) was introduced to meet this objective. This consists of revenues from the central government budget that are allocated to regional governments to assist in financing 'special needs'. These include, for example, activities to rehabilitate forest and critical land – one of the national priorities. The Forestry DAK implementation is expected to rehabilitate 15,000 to 20,000 ha of critical forest and land under responsibility of local governments per year, complimentary to program on National Movement on Forest and Land Rehabilitation (GERHAN) that potentially covers 2.4 million ha.

◆ CY2011 Policy Actions and Future Directions

The following table shows the indications of the five policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1)

Establish FMUs in 3 Provinces

Ministry/Agency in charge: MOFR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

During CY 2011, 12 FMUs (KPHL and KPHP) were established as models of site-based management units which is feasibly can be managed efficiently and sustainably. Efforts have been continually made by the MOFR, resulting in a total of 59 model FMUs established by September 2012. Of these, 56 FMUs have an organisational plan, 49 units have a personnel plan, and 55 units have a forest management plan.

Table 2-1: Achievement of FMU

	Strategic Plan Target	Achievement in 2010	Achievement in 2011	Estimated Achievement in 2012	Total up to 2012
FMU	120	9	12	39	60

Source: MOFR (2012)[6]

In addition, the MOFR has determined areas of additional 77 units of KPHL and KPHP, which cover 22,437,710 ha. Consequently, as of May 2012, the Production and Protection FMUs areas have been determined in 25 provinces with a total of 481 units, which cover 78,966,312 ha in total (total KPHLs are 170 units covering about 21,555,089 ha; total KPHPs are 311 units covering about 57,411,233 ha; and DI Yogyakarta in which KPHL and KPHP are not distinguished covering about 16,357 ha).

[6] MOFR, Indonesia (2012). *Rencan Kerja Thun (Work Plan) 2013*.

Obstacles/challenges observed (if any):

Based on the discussion with the Head of Forest Management Area Establishment Division (MOFR), challenges related to FMUs include:

- Limited financial source;
- Limited human resources and institutional capacities at local level; and
- Lack of a common view among stakeholders about the role and responsibilities of the FMUs and their engagement.

Establishment and operation of FMUs is largely dependent on Central government initiative and budget. Budget support from local governments remains limited, and FMUs have not yet reached to a stage to attract investment from the private sector. Proposed budget for establishing one unit of FMU is about 5 billion to 6 billion IDR/year.[7] However, so far the fund being allocated for development of one FMU has been only 1.5 billion to 2.6 billion IDR. Sustainable financial means to secure the performance of FMUs will become crucial.

Social function of FMU also needs to be stressed. At the site level, communities and concessionaries have occupied a large part of Production FMU areas. For instance, in Production FMU in Lkitan, about 75% of the areas are occupied[8]. Therefore, development of FMUs could be engaged with stakeholders' involvement and accompanied with a conflict resolution mechanism. This may include: coordinating sectors in reviewing forest area; conducting participatory mapping and; supporting communities to secure their legal access to the forest area.

Accordingly, the necessary capacities of FMU's personnel include not only forest management skills but also financial management skill, as well as the ability to coordinate various stakeholders and address social aspects.

CY 2011 Indication (2)

Issue Ministerial Regulations for supporting the implementation of FMUs in provinces and districts.

Ministry/Agency in charge: MOFR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

MOFR issued two ministerial regulations: P.41/Menhut-II/2011 on Facilitation Standards, and P. 42/Menhut-II/2011 on Technical Competence of HR Protection and Production FMUs.

[7] Based on the discussion with Director of Forest and Water Resource Division of National Planning and Development Agency (BAPPENAS).

[8] Rizaldi, B. (2012). *Sustainable Forest Management, Forest Based Carbon, Carbon Stock, CO_2 Sequestration and Green Product in Order to Reduce Emission From Deforestation and Forest Degradation.*

Later P.41/Menhut-II/2011 Facilitation Standards was amended by P.54/Menhut-II/2011.
These regulations standardize requirements on human resources and supporting facilities and infrastructures for the Production and Protection FMUs (KPHL and KPHP). P.42/Menhut-II/2011, for instance, defines administrative requirements, such as rank and level of formal education. In addition, it describes the competency requirements substantiated with a certificate of competency issued by the Profession Certification Institution in the forestry sector.

In line with the development of regulatory framework, establishment of FMUs could be more effectively promoted through enhancing support to FMUs human/financial resources.

Obstacles/challenges observed (if any):
Developing FMU is expected to stimulate to bring investments and to facilitate climate change funds in the forestry sector. However the current regulatory framework for FMU does not provides details on economic activities of FMU and authority of FMU in this regard.

In addition, the regulatory framework allows FMUs to manage state forest areas, but does not include non-forest areas. This would limit possibility and options of FMU to assist in addressing drivers of deforestation and forest degradation.

CY 2011 Indication (3)

Issue Technical Guidance for using Forestry DAK for FY 2012.

Ministry/Agency in charge: MOFR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:
Technical Guidance for using Forestry DAK for FY 2012 was issued by in 2011 MOFR.

Objectives of Forestry DAK for FY 2012 include Forest and Land Rehabilitation (RHL) and Forest security activities. With these objectives, the mechanism of Forestry DAK has been improved in terms of areas and activities eligible to be funded. Forestry DAK for FY 2012 can be applicable for the following activities: (1) rehabilitation of critical forest and land prioritized; (2) development of the forest security means and infrastructures; (3) Development of the Forestry Extension Means and Infrastructures; (4) Development of Means and Infrastructures for the management of Grand Forest Park; and (5) Development of FMU Operational Means and Infrastructure.

In addition, since 2009, the total amount of Forestry DAK and number of local administration using Forestry DAK have been increasing (see next table). In 2008 and 2009, DAK funds in the forestry sector were IDR 100 billion and distributed to 100 districts. In 2012, Forestry

DAK amounts to almost IDR 490 billion covering 362 districts.

Table 2-2: Allocation of Forestry DAK between 2008 and 2012

Year	Amount of DAK Forestry (* million IDR)	District governments	Provincial Government
2008	100,000	100	-
2009	100,003	100	-
2010	249,950	232	6
2011	400,000	324	35
2012	489,763	362	20

Source: Bureau of Planning, MOFR

Obstacles/challenges observed (if any):

While Forestry DAK has been improved in terms of activities eligible to be funded, the application of DAK funding is only allowed for infrastructures and equipment. DAK funds cannot be used for providing services, project administration, research, training or business trip.

Another challenge of the Forestry DAK is associated with its monitoring system. The current monitoring system based on financial reports submitted by local governments is ineffective to assess use of the Forestry DAK in delivering outputs. Also there have been limited sitevisits conducted by MOFR and BAPPENAS.

Future policy action/target to follow the progress of the above indications:

Development of FMUs is considered as a key policy within the forestry sector in Indonesia. In the current Strategic objectives in MOFR's RENSRTA 2010-2014, priority has been given to design 600 FMUs areas covering the state-designated forest areas and establish 120 FMUs to an operational level. To meet these objective, GOI has been increasing its budget allocation for FMU development: IDR 12 billion (in 2010), 23 billion (in 2011), 103 billion (in 2012), and IDR 158 billion will be allocated for FY 2013 and 2014, respectively.

In addition, MOFR established the FMR Secretariat in 2012 to support development and sustainability of FMUs. Main tasks of the Secretariat include:

- Development of human resources for FMUs at local level;
- Stimulate stakeholders' engagement in FMUs; and
- Streamlining FMU support from the different MOFR directorates, at central and regional level.

Furthermore, based on the discussion with the Head of Forest Management Area Establishment Division (MOFR), the following aspects will be emphasized to stimulate establishment and development of FMUs:

- The regulatory framework for FMU will be further strengthened to guide financial

activities of FMUs;

- Support and emphasis on particular activities of model FMUs to disseminate FMU; and
- Application of the Forestry DAK as an incentive mechanism for local governments to establish FMUs.

Relevance of the future direction/expected outcome:

FMU has implications for the positive outcomes of various forestry activities, including forest delineation, forest rehabilitation, timber production as well as forest monitoring for MRV. Establishment of FMU therefore is an important enabling condition for the implementation of sustainable forest management, to support government commitment to reduce GHG emissions from forestry and peatland sector. Indeed, ICCSR specifies FMU development and establishment as an important measure to achieve carbon sequestration in forest areas. Also formation of FMU is recognized as an important step toward improving forest and peatland management by the National REDD+ Strategy by REDD+ Task Force under the Presidential Delivery Unit for Development Monitoring and Oversight (UKP4).

The Forestry DAK implementation is expected as a substantial means of implementing the regional incentive mechanism to rehabilitate the critical land as well to accelerate FMU formulation at provincial and district levels.

Recommendations (if any):

Several issues need to be addressed to ensure FMUs development and performance in terms of sustainable forest management and climate change mitigation, which include:

(1) Accurate cost estimation of FMU and preparation of long-term financial / investment plan;

(2) Establish indicators and baseline to assess performance of FMUs in terms of forest management and carbon emissions;

(2) Monitoring and reporting system for FMUs and sharing lessons learned across the different regions;

(3) Creating various incentives for promoting community-based forest management within FMUs; and

(4) Creating incentives for private sector to invest in forest-related activities within FMUs such as sustainable forest management, ecotourism and ecosystem restoration.

In addition, FMUs could be developed within broader government's strategy and action plan regarding climate change mitigation both at national and provincial levels, such as RAN/RAD-GRK process or ongoing National Action Plan of REDD+.

2.1.2 Peatland Conservation

Outcome Area:
An institutional and regulatory framework to conserve and restore peatland is improved.

◆ **Background of the outcome area**

Indonesia has around 21 million ha of peatland covering about 12 % of the land area, of which half is still forested. About 11 millions are protected by law either as their thickness is more than three meters or they are on conservation or protection forest lands. About 3 million ha of peatlands are classified as conversion forest, 7 million ha as production forest and 6 million ha are outside forest lands.

While the uncertainties on peat emissions are very high due to uncertainties on the emissions processes themselves, it is estimated that in 2005 CO_2 emission from Peatlands reached to 850 million CO_2 tonnes which accounts for about 41.4 % of total CO_2 emission (DNPI 2010).[9] Accordingly, conservation and managements of peatland would represent significant impacts on reduced emissions and climate benefits.

In recent years, the GOI has issued or has been preparing a number of regulations on the management of peatland area issue. MOE published the National Strategy and Action Plan for wetlands management in 1996. The plan was revised in 2004 to cover the rising issue of climate change and decentralization. Peatland was included as part of the wetlands area. Later in 2006, the Ministry of Home Affairs published the National Strategy and Action Plan for peatland sustainable management in expectation that this document could be guidance for peatland management strategy by relevant local governments.

On the rehabilitation issue, earlier in 2007, the GOI issued Presidential Instruction (INPRES) No. 2/2007 regulating the rehabilitation of degraded peatland in Central Kalimantan covering a former Mega Rice Project area of 1.3 million ha. MOFR issued Ministerial Decree No. 55/2008 on master plan for peatland conservation and rehabilitation in Central Kalimantan.

On forest fire control, the GOI has developed a series of policies such as the MOA Regulation No. 14/Permentan/PL.110/2/2009 on the Guidance for the Utilization of Peatland for Palm Oil; the Government Regulation No. 4/2001 forbidding all forest and land fires; the MOFR Decree

[9] DNPI (2010). *Indonesia's Greenhouse Gas Abatement Cost Curve*

Kepmen No. 260/Kep-II/1995 on Guidelines for Prevention and Control of Forest Fires, supplemented by the implementation guidelines; the Director General of Forest Protection and Nature Conservation Decree No. 243/Kpts/DJ.VI/1995 on Technical Guidelines for Forest Fire Prevention and Control in concession areas and other land use; the Director General of Estate Crops Decree No. 38/KB.110/DJ.BUN/05.95 on Technical Guidelines for Land Clearance without Burning to Develop Plantations.

The above situation implies different jurisdictions and sectoral interventions over peatland management involving MOFR, the Ministry of Agriculture (MOA), the Ministry of Environment (MOE), and the Ministry of Public Works (MOPW). In addition, reducing emissions from peatlands requires a variety of management issues such as very strict water management to balance emissions and the productivity of the system, as well as fire control to insure against further removal of aboveground biomass[10].

Accordingly, peatland conservation and management requires improvements in governance and coordination between state agencies with a specific focus on management integrity. The draft of National REDD+ Strategy considers that the lack of coordination between several authoritative agencies has caused overlapping land claims, conflict on the use of forested areas, resulting in deforestation and forest degradation. Regarding land use planning, different state institutions and ministries have used different maps as the basis for the issuing of management permits. A key step toward this effort is development of a single coherent map of forest and peatland.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the two policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1) **Produce the Map of Peatland Hydrological Unit (Kesatuan Hidrologis Gambut) in Sumatra and Kalimantan.**
Ministry/Agency in charge: MOE
CY 2011 Status: Substantial Progress
CY 2011 Progress/Attainments: The Map of Peatland Hydrological Unit of Sumatra island at scale 1: 250,000 was produced in 2012 by MOE. On the other hand, the Map of Kalimantan has not yet been completed by

[10] Murdiyarso, D., Dewi, S., Lawrence, D., Seymour, F., (2011). *Indonesia's forest moratorium: A stepping stone to better forest governance?*. Bogor: CIFOR.

MOE in 2012. MOE plans to prepare it in 2013.

The Map of Sumatra illustrates areas of Peatland Hydrological Unit as follows:

- Inter-provincial peat hydrological unit, which is a peat hydrological unit located at two or more provinces;
- Inter-regent/municipality peat hydrological unit, which is a peat hydrological unit located at two districts/municipalities or more; and
- Peat hydrological unit located in a single district.

The Map of Peatland Hydrological Unit is expected to support the implementation of the drafted Government Regulation on Protection and Management of Peat Ecosystem prepared by MOE[11]. The draft regulation is currently under the policy coordination process among concerned ministers. According to the Inland Water Ecosystem Degradation Control Division in MOE, this new regulation will define the Hydrological Unit of the Peat Ecosystem, and provide guidance on how to protect and manage the Hydrological Unit. Remarkably it aims to provide criteria for the protected area within the Hydrological Unit, concerning areas under jurisdictions of other ministries such as MOFR and MOA.

Furthermore, as a part of mandate given to MOFR within the Presidential Instruction No. 10/2011, MOFR has published a series of maps for the moratorium known as an Indicative Moratorium Map (PIPIB in Indonesian), which illustrates the areas of primary natural forest and peatland covered by the moratorium at national scale. Other agencies involved in the PIPIB process are Geospatial Information Agency (Badan Informasi Geospatial in Indonesian or BIG[12]), National Land Agency (BPN), and UKP4, as well as MOA.

The PIPIB which enables operational implementation of the moratorium is perceived as a basis for *One Map Initiative*. Previously different state institutions and ministries have used different maps as the basis for the issuance of management permits, resulting in overlapping land claims, land conflict and poor management as a whole. the Presidential Instruction No. 10/2011 however, instructs the MOFR to enact the PIPIB and other institutions to coordinate activities according to the PIPIB. Thus the PIPIB is an important step to coordinate licensing and spatial planning of relevant agencies for natural forest and peatland management. In addition, making the PIPIB publically available makes it easier for stakeholders to monitor and, thus, it is a strong tool to improve transparency of forest governance.

[11] Drafting process of the regulation started in 2006. Previously the regulation was titled Government Regulation on Controlling Peat Ecosystems.

[12] BIG (Geospatial Information Agency) was established based on National Coordinating Agency for Surveys and Mapping (Bakosurtanal).

Obstacles/challenges observed (if any):

A key challenge regarding peatland mapping is related to the fact that there has not been a clear definition of peatland in Indonesia. Also there is a limitation in data availability to create maps on peatland, especially related to area and depth.

Currently different ministries such as MOFR, MOE and MOA use different definitions for their respective management objectives[13]. For instance, MOE defines 'peat soil' as soil developed from tropical forest biomass production. Likewise MOFR defines 'peat forest' in a qualitative manner referring to organic matters as material which forms 'peat'. MOA's definition have both qualitative and quantitative features of peat, however its scope is narrow focusing on agricultural development. Consequently 'peat' areas include uncertainties or need to be developed towards broader objectives for land use and protection.

Based on the analysis of authoritative definitions of 'peat' in Indonesia, ICCC (Indonesia Climate Change Center) /DNPI calls for a clear and operable definition of 'peat' based on sound science for the purpose of peatland delineation and GHG emissions control.

CY 2011 Indication (2)

Finalize a draft of Government Regulation on Swamp and conduct coordination among relevant ministries.

Ministry/Agency in charge: MOPW

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

MOPW has been preparing a Government Regulation on Lowland[14]. The draft regulation was completed and currently is under the policy coordination process within the government. The regulation is expected to be enacted in 2013. The Government Regulation on Lowland, once issued, would replace a revision of previous Government Regulation No. 27/1991 on Swamp which is considered outdated and is to be revised after issuance of new Law No. 7/2004 on Water Resource.

According to the Directorate of Irrigation and Low Land of MOPW, the Government

[13] Indonesia Climate Change Center (ICCC) (2012). *Policy Brief: Peatland Definition - From Uncertainty to Certainty*. Jakarta: ICCC/DNPI.

[14] According to MOPW, the English translation of the title of the new regulation is *the Government Regulation on Lowland*.

Regulation will provide definition of 'Lowland' which was agreed through the process of inter-ministerial discussion based on the definition made by the WACLIMAD project[15]. Furthermore, the regulation will provide guidance on management and protection of "Lowland", considering jurisdictions of other ministries: if there is any peat in the area, MOPW would receive technical recommendation from MOE; If the area is located in a forest area, MOFR would provide technical recommendation.

Obstacles/challenges observed (if any):

Since different jurisdictions and sectoral interventions over peatland include several ministries such as MOPW, MOFR, MOA, and MOE; formulation of government regulation regarding peatland complicates the policy-making process. Although the GOI has made progress on coordination through the enactment of "Moratorium" and implementation of the WACLIMAD project, further coordination efforts are needed to accommodate the different perspectives and interests of these ministries.

Future policy action/target to follow the progress of the above indications:

The policy coordination for formulating the Government Regulation on Lowland will be continually undertaken in parallel with the process for the Government Regulation on Protection and Management of Peat Ecosystem. Both government regulations are expected to be issued in 2013. In line with this, MOPW and MOE will prepare several ministerial regulations and decrees to support implementation of the Government Regulations respectively.

The Maps of Peatland Hydrological Unit of Kalimantan and Papua islands will be produced by MOE in 2013. In addition, MOE aims to develop an inventory of Peat Ecosystem characteristic in terms of physical, chemical, and biological aspects.

In line with formulation of Government Regulation on Lowland, MOPW will produce a Lowland map to support implementation of the regulation.

These initiatives to produce peat-related maps will be coordinated with BIG and collaborating with other relevant ministries, so that the maps would be consistent and shared within the government.

Relevance of the future direction/expected outcome:

Appropriate regulatory frameworks, as well as accurate peatland maps are crucial for the establishment and implementation of an effective conservation and management of the

[15] WACLIMAD is a technical cooperation project between BAPPENAS, the Government of the Netherlands and the World Bank on developing the national strategy of lowland management. The project has assisted coordination among relevant ministries and regional authorities by way of a series of dialogue to discuss options for a common policy framework and management strategy for the lowlands which include most of the peatland in Indonesia.

peatland. The new Government Regulations prepared by MOPW redefine the objectives and measure of Lowland management toward sustainable use, better control over water resources, and mitigating potential water damage in swamp area. The implementation of the peatland mapping will improve the GHG inventory and provide a basis for peatland management.

Recommendations (if any):

It is recommended to develop the peatland inventory and mapping methodology in a close coordination among relevant ministers and state agencies. It is also recomended to establish a mechanism to share experiences and lessons learnt from the Joint Crediting Mechanism-Feasibility Study (JCM-FS) and other relevant studies for developing methodologies to estimate carbon emissions from peatland.

Currently, different ministries have been preparing/will prepare their peat-related maps. This includes MOE (Hydrological unit map), MOPW (Lowland map) and MOFR (PIPIB under the moratorium). Accordingly, these maps could be based on same information and date on land use, peat depth and area,(under the *One Map Initiative*), so that the maps serves as basic communications and cooperation instruments among the stakeholders of forest and peatland management. To meet this objective, roles and responsibilities of relevant ministries and state organisations with respect to the initiative could be clarified. Simultaneously, clear and operable definition of ‘peat’ needs to be developed based on sientice within the government.

2.1.3 REDD+

Outcome Area:
Emissions from deforestation and forest degradation is reduced through the implementation of a national REDD framework.

◆ **Background of the outcome area**

Indonesia has been actively engaged in the international negotiations on REDD+ and has been described as an 'epicenter' for REDD+ activities. In 2009, the government confirmed its participation in two international initiatives to support REDD+ readiness activities: the Forest Carbon Partnership Facility (FCPF) and the UN-REDD Program. At the national level, various activities are underway to formulate a REDD+ Strategy, a number of state organisations have taken up the issue of REDD+ and institutional reforms have been in progress, a legal framework to regulate REDD+ has been developed, and work on a national reference emissions level and on establishing a system to monitor GHG removals and emissions from forests is underway. In parallel with REDD+ readiness activities at national level, a number of sub-national REDD+ activities mostly at project level are underway. As of January 2012, 45 REDD+ demonstration projects have been recorded. Nine of these are considered as official pilot projects or demonstration activities, supported primarily by bilateral donors and other partners.

MOFR has been the lead agency in the development and regulation of national REDD+, reflecting its mandate to govern the nation's state forest lands. During the 2008-2009, MOFR issued two regulations and two decrees related to REDD+. The P. 36/Menhut-II/2009, for instance defines the procedures for licensing commercial use of carbon sequestration and/or storage in production and protection forests. Furthermore, in order to respond to the scope of REDD+ and need of a principle for implementing the forest carbon related activities, in April 2012, MOFR issued a new Ministerial Regulation P.20/Menhut-II/2012 on Implementation of the forest carbon. This regulation provides criteria for forest carbon related activities (implementation of forest carbon) and recognizes FMU as one of the implementation organisations.

Another key ministry in national REDD+ implementation is MOE, which is responsible for coordinating GHG emissions, preparing reporting to UNFCCC, and for developing a national system of GHG Inventory. In addition, the increased complexity of, and the significant anticipated benefits from, REDD+ has led to the increased involvement of other institutions, such as BAPPENAS, MOF, and Provincial and District Governments. In particular,

BAPPENAS which is responsible for the coordination and synchronisation of sectoral plans has also taken initiatives in shaping the National Mitigation Action Plan and developing the National REDD+ Strategy.

Furthermore, as part of the total USD 1 billion cooperation scheme with the Government of Norway, Indonesia created a Task Force under UKP4 which is currently assessing implementing mechanism for REDD+ in Indonesia. After the expiration of the first REDD+ Taskforce, the President signed a decree to form a new REDD+ Taskforce in September 2011 (Presidential Decree No. 25/2011), with the following overall mandate: (a) preparing the establishment of REDD+ Agency; (b) coordinating the formulation of national REDD+ Strategy; (c) preparing REDD+ instruments and funding mechanisms; (d) preparing the establishment of REDD+ MRV institutions; (e) implementing REDD+ activities in the pilot provinces; (f) monitoring the implementation of the moratorium.

With respect to its membership, the Taskforce led by the chairman of UKP4 includes: (1) MOF, (2) MOA, (3) MOFR, (4) Ministry of Energy and Mineral Resources, (5) BAPENAS, (6) MOE, (7) National Land Authority, (8) Cabinet Secretariat, and (9) Presidential Work Unit for Development Monitoring and Control.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the two policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1) **Issue presidential instruction on Moratorium.**
Ministry/Agency in charge: UKP4; and CMEA
CY 2011 Status: Attained
CY 2011 Progress/Attainments: After a delay of five months, Presidential Instruction No. 10/2011regarding the Suspension of Granting New Licences and Improvement of Natural Primary Forest and Peatland Government (known as the Moratorium) was enacted in May 2011. The residential Instruction No. 10/2011 forms a part of the implementation of the government's policy to reduce emissions from deforestation and degradation (REDD) by 26 % while maintaining 7 % economic growth, as well as partial fulfilment of obligations under the letter of intent with the Government of Norway to assist low emissions development strategy.

The Presidential Instruction No. 10/2011 provides instructions to three Ministries (Forestry, Home Affairs and Environment) and the head of five agencies (Presidential Delivery Unit for Development Oversight, BPN, National Coordination Agency, National Coordination Agency for Spatial planning, Bakosurtanal and the REDD+ Taskforce, as well as governors and heads of district governments.

The Moratorium is valid for two years, under which the MOFR is stipulated to suspend issuance of new licenses within primary natural forest and peatland, improve governance policies for land use permits and enact the PIPIB to demonstrate the areas protected under the moratorium. The MOE is instructed to improve governance in business activities proposed within the PIPIB. In addition, the instructions to the Head of National Spatial Planning Coordination Agency are to accelerate consolidation of PIPIB and revise land use governance through cooperation with Governors, Regencies Mayors and Head of the REDD+ Taskforce. Accordingly, the Moratorium is expected to have positive impacts on reforming the license process and spatial planning beyond protecting primary natural forest and peatlands for two-year period.

However, two ministries relevant to carbon emissions from the land use sector are not involved in the Presidential Instruction: MOA and MEMR. Their exclusion from the Moratorium may be linked to their roles in securing the nation's food and energy issue. Article 2 of the Presidential Instruction states that implementation of vital national development such as geothermal, oil and natural gas, electricity, land for rice and sugarcane is an exception to the Moratorium. Other exceptions include: forests covered by concession 'already approved in principle' by the MOFR; the extension of existing licenses for forest exploitation and/or use of forestry area as long as the business license remains valid; and concessions for ecosystem restoration, which would grant concessionaires rights to the land for 65 years with a possible 35-year extension.

Obstacles/challenges observed (if any):

One of the challenges of the Moratorium is related to the implication of the terms used in the Inpres No. 10/2011: the term 'natural primary forest' had never been used in Indonesian forestry policy. Also delineation of peatland remains problematic. ICCC (2012)[16] argues that the authoritative definitions of peatland by MOFR, MOA and MOE are too general and qualitative for delineating and mapping peatland in Indonesia. Accordingly, interpretations of the terms and resulted protected areas under the Moratorium have been an issue of debate

[16] Indonesia Climate Change Center (ICCC) (2012). *Policy Brief: Peatland Definition - From Uncertainty to Certainty*. Jakarta: ICCC/DNPI.

among the different sectors including business, public and environmental sectors.

Another debate on the Moratorium is associated with interpretation of additional protected areas by its enactment. The PIPIB does not differentiate the primary natural forest and peatland which have been already protected before the Moratorium. Consequently, the interpretation of the PIPIB varies depending on the method/criteria for setting the baseline to estimate additional protection. Accordingly, the different estimations were made by different institutions. For instance, while the Center for International Forestry Research (CIFOR) estimates 22.5 million ha of additional protection by the Moratorium, while the World Resources Institute (WRI) concludes it as only 11.3 million ha[17].

CY 2011 Indication (2)

Finalize National Strategy of REDD+

Ministry/Agency in charge: REDD+ Taskforce/UKP4

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

National Strategy of REDD+ was finalized in June 2012 by the REDD+ Taskforce, which is available at http://www.satgasreddplus.org/. Later in September 2012, the National Strategy was officially recognized by the Decree of Chairman of REDD+ Task Force[18].

The Strategy is consists of five pillars: (1) Development of a REDD+ Institutional system; (2) Review and strengthening of policies and regulations; (3) Launching of strategic programs; (4) Shifts in paradigms and work culture; and (5) Multi-stakeholder participation.

Obstacles/challenges observed (if any):

The Strategy is expected to serve as a guideline for the development of sub-national REDD+ action plans and be mainstreamed into the development processes. However, it is not yet clear whether all provinces would develop their REDD+ Strategy and Action Plan. Furthermore mainstreaming of REDD+ remains challenging due to rigidity in the planning system of GOI.

Future policy action/target to follow the progress of the above indications:

The following formulation of the National Strategy of REDD+, the Strategy Working Group (WG) of REDD+ Task Force has started the process to develop the National Action Plan of REDD+, which will define short term programs that GOI could focus on. As of January 2013, the final document had been completed by Strategy WG and had been submitted to the head

[17] While CIFOR's study (Murdiyarso et al. 2011) is based on a map of areas designated for conservation and protection by MOFR to set the baseline against which to estimate additionality, WRI's study (Austin et al. 2012) considers steep slopes and deep peat to be included in the baseline according to Indonesian law.

[18] The Decree of the Chairman of Task Force for the preparation of REDD+ Agency No. 02/SATGAS REDD+/09/2012 on National Strategy of REDD+ Indonesia.

of the Task Force. Simultaneously, the Provincial Strategy and Action Plan (PSAP) of REDD+ are currently under development in 11 provinces. As of January 2013, three provinces finished their PSAP (Jambi, East Kalimantan and West Papua); West Sumatra and Riau are supposed to submit theirs by the end of January 2013; South Sumatra and Papua are drafting their PSAP; Central Kalimantan and Central Sulawesi have the strategies approved by the governor but need to make them more aligned with the National Strategy; and West Kalimanstan and Ache are at the early stage of PSAP development.

Relevance of the future direction/expected outcome:

The National Strategy of REDD+ provides a basis and direction for integrated governance and regulatory systems to ensure the implementation of the REDD+ scheme from upstream to downstream. The Strategy suggests the full implementation of REDD+ to be started in 2014.

One ongoing National Action Plan of REDD+ and PSAP will provide short-term goals and ensure linkage with what must happen at the national level with sub-national priority. In addition, these strategic documents focus on: troubleshooting of problems for REDD+; creating enabling conditions for REDD+ actions; developing a mechanism to ensure REDD+ implementation does benefit people.

Recommendations (if any):

Progress in REDD+ at both national and provincial level is desired to be in accordance with ongoing RAN/RAD-GRK process. This includes several issues such as institutional and organisational arrangements, allocation of emissions reduction, monitoring and reporting system, and identification of eligible mitigation actions under REDD+ or RAN/RAD-GRK. Support and capacity building especially to the provincial governments in this regard are critical.

2.2 Energy

Sector overview

Energy and industry sector is reported to generate about one fourth of GHG emissions in Indonesia in 2005[19]. The sector is one of key and growing sectors of mitigation along with LULUCF. Considering the rapid and steady growth of GDP in Indonesia (projected to be as rapid as 6.6% per year during 2010-2014, and 7.2% per year during 2015-2030[20]) it is expected that GHG emissions from energy sector will continue to further increase without policy interventions.

Past Development in the previous phases of the CCPL

In the previous phase of CCPL, four main areas were covered: 1) geothermal development, 2) all other renewable energy development, 3) improvement of energy efficiency and conservation, and 4) rural electrification through Energy Self-Sufficient Village Program (DME).

In geothermal development, in order to provide incentive to private power developers, the purchasing price of geothermal power was set at 9.7 cents/kWh.[21] The feasibility study (F/S) for an exploration fund that would mitigate commercial risk during the initial exploratory stage of geothermal power development was completed.

In other renewable energy development, the establishment of the Directorate General of New and Renewable Energy and Energy Conservation (NREEC/EBTKE) has made the management easier. Previously geothermal is under the Directorate General for Mineral and Coal and Geothermal (DJMINERBAPABUM) of MEMR while other NRE and EEC were under the Directorate General for Electricity and Energy Development (DJ LPE). Now under DJ EBTKE, the synergies are more intertwined among stakeholders so that the role of EBTKE to achieve the targeted 17% share in total fuel mix and less than 1 energy elasticities can be achieved by 2025 (Presidential Regulation no 5/2006 on *the National Energy Policy (KEN)*. In the first year of its

[19] *SNC* estimates that out of 1,7901,371.89 Gg CO_2e of total GHG emissions including Land Use Change and Forestry (LUCF) sector, 369,799.88Gg or about 20.7% was from Energy sector, while 48,733.38Gg, or about 2.7% was from Industrial process. (*Second National Communication, Executive Summary*, xi).

[20] MOE (2010). *Indonesia Second National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC)*". Chapter V page 4. http://unfccc.int/files/national_reports/non-annex_i_natcom/submitted_natcom/application/pdf/indonesia_snc.pdf (Accessed 21 January 2013).

[21] MEMR Ministerial Regulation No. 32/2009 on Standard Purchase Price of Electricity Power by PLN from Geothermal Electricity Power Station.

establishment, the director general announced the vision 25/25 which revised the NRE target in the supply mix as 25% instead of 17% by the year 2025. He also initiated the REFF_BURN concept as the mechanism to reduce CO_2 emission in the energy sector because imlementing EEC and NRE will decrease energy consumption and increase the use of renewable energy.

The updated *KEN* which will be issued by the National Energy Council (DEN) has incorporated the vision 25/25 as the revised target for NRE. The DJ EBTKE is also preparing the the renewable blue print which will ebe stipulated in the coming Governemnt Regulation on Renewable Energy.

As for improvement of energy efficiency and conservation, energy audit program covering total 240 building and industries, and introduction of energy-saving household appliances, e.g., compact fluorescent light bulbs (CFL), were covered. Ministry of Industry (MOI) has started working on an industrial CO_2 reduction road map for the cement and steel sectors.

DME aims to provide electricity generated by renewable energy to rural areas and to foster income generation and employment creation through economic activities induced by newly installed power supplies. In total, 633 villages were supplied electricity from 2007 to 2009.[22]

Directions for CY2011 CCPL and beyond

The GOI plans to increase the share of renewable energy to 15% of total energy sources by 2025[23]. GHG emissions reduction in energy sector covers the areas of: renewable energy development; improvement of energy efficiency; adjustment of energy price (or energy subsidy); and promotion of clean energy technology.

CY2011 Policy Matrix has three pillars of policy actions: renewable energy development, energy efficiency, and electricity pricing. The policy actions for renewable energy development focus on the promotion of renewable energy sources, especially geothermal. The actions for energy efficiency address the issues from both the supply side and demand side. Electricity pricing, based on the GOI's subsidy policies, influences both of these issues, and deals with the GOI's effort to gradually shift to market-based pricing.

Renewable energy development was progressed by way of improvement of policy framework to promote geothermal power plant development; regulating the scheme of purchasing price of electricity from geothermal plants; signing power purchase agreements (PPAs) with independent

[22] JICA 2010. *Republic of Indonesia, Climate Change Program Loan (2007-2009), Program Evaluation Report.*
[23] *The Blue Print of Presidential Regulation No. 5/2006.*

power producers (IPPs); issuance of MEMR regulation on the incentives to develop renewable energy; and issuance of presidential decree assigning State Electricity Company (PLN) to conduct acceleration of power plant development using renewable energy. All of these targets were attained.

On energy efficiency, continuous efforts will be taken to decrease energy intensity by around 1% per year on average until 2025 through enhancing energy efficiency and conservation measures. The 2010 CCPL Policy Matrix set two actions as follows: study on the national framework of CO_2 emission reduction, and development of energy conservation master plan. The first target was a preparatory process for technical guidance on reducing CO_2 emission in cement industry, which MOI plans to issue as the ministerial decree. The study has progressed as planned, and the technical guidance was finalized in 2011. Additionally, MOI put its Grand Strategy for Energy Conservation into practice from September 2010, including assessments of technical needs and training of energy managers for 50 enterprises in steel and pulp & paper industries. The first phase of the Grand Strategy implemented by MOI and funded by ICCTF dealt with the implementation of energy conservation and emissions reduction in 35 steel companies and 15 pulp and paper companies in 2011 could be highlighted as an important achievement. It is envisioned that the same approach could be replicated to other industrial sectors in the coming years.

The second target aimed at revision of *the National Master Plan for Energy Conservation (RIKEN)* containing targets, key policy programs, and specific conservation measures such as periodical energy audit, implementation and monitoring of energy management system, and introduction of energy efficiency standards and labelling system for appliances. *RIKEN* has been revised by 2010 as scheduled, and will be issued after the launching of *KEN*.

On pricing issue, the policy action on the roadmap of improving energy subsidy policy was attained. The roadmap was completed in January 2010. Since the roadmap contains several options, depending on the level of tariff changes, no revisions were needed after the tariff increase in 2010. After coordinating with the Parliament, it was decided that the roadmap would not be made public. In 2011, MEMR focused on reducing PLN's production cost to reduce the electricity subsidy. In 2012, MEMR continued to prepare for implementation actions based on the roadmap, including regulations.

2.2.1 Renewable Energy Development

Outcome Area:
Improve energy security and reduce future GHG emissions from electricity generation through new geothermal projects within an improved policy framework for private sector participation.

◆ **Background of the outcome area**

Utilization of geothermal is the key to attaining the energy mix target in 2025. Nevertheless the high risk at the initial stage and low power purchasing price are major obstacles to promote geothermal development.

The GOI has addressed this issue mainly by two measures, namely, setting the ceiling price on PLN's purchase of geothermal power, and providing incentives to independent geothermal power providers.

1) Setting the ceiling price on PLN's purchase of geothermal power
The MEMR Regulation No. 32/2009 on Standard Purchase Price of Electricity Power by PLN from Geothermal Electricity Power Station set the ceiling price to 9.7 cents/kWh in 2009. This was updated when MEMR issued Ministerial Regulation No. 22 in 2012 increasing the FIT from 9.7c/kWh to a range of FIT depending on the type of connection (high or medium voltage) and region. For high voltage the lowest is Sumatera at USD 0.10 and the highest is on Papua at USD 0.17/kWh. Yet, the high risks of exploration drilling and unclear bidding procedures for concessions remained as significant barriers for further promotion.

2) Providing incentives to independent geothermal power producers
The incentives are planned to be provided by way of setting up Feed-in Tariff (FIT), fiscal incentives (thru MOF Ministerial Regulation No. 24/2010 and exploration fund schemes.

Upon above development, the GOI intends to continue reducing the risks for geothermal developers and the incremental cost gaps for PLN as the off taker. One of the indicators for the increase of geothermal utilization would be the number of signed PPAs between off-takers and geothermal developers. In this regards, the GOI will continue to increase new geothermal projects.

As of October 2012, existing capacity is 1,281 MW with potential to add Ulubelu 1x55 MW within the year.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indication of the two policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress.

CY 2011 Indication (1)

Prepare draft Ministerial Decrees on Fund Manager Assignment and Financial Mechanism (disbursement and funding management).

Ministry/Agency in charge: BKF, MOF

CY 2011 Status: Exceedingly Attained

CY 2011 Progress/Attainments:

MOF issued Regulation No. 3/PMK.011/2012 which covers the procedures for management and accountability of Geothermal Fund facilities. It also designates the Indonesian Investment Agency (PIP) as the Geothermal Fund Manager as stipulated in the MOF Decree No. 286/KMK/011/2011. PIP is currently conducting detailed feasibility studies to disburse funding for 2 geothermal exploration projects worth USD 60 million and one exploitation project worth USD 132 million.

Obstacles/challenges observed (if any):

The GOI already allocated IDR 1.16 trillion in the APBN (State Budget of Revenues and Expenditures) for geothermal revolving fund. This is currently not an obstacle but it may affect the financial sustainability of the geothermal revolving fund should numerous projects would simultaneously start as the current operations only utilizes national government funding with no additional funding from external sources being considered yet.

Another remaining challenge is land acquisition, on how to secure permits for geothermal development since most of proposed projects are in production, protected and conservation forest areas. There is already an MOU between MEMR and MOFR to coordinate this matter but effective operationalization of the agreement remains to be seen. Geothermal activity in Indonesia is broadly governed under the Geothermal Law (Law No. 27/2003). The government is in the process of revising Law 27/2003 which wrongly classifies geothermal energy extraction as a mining activity, making it difficult for geothermal energy companies to enter various forested areas where most hotspots are located. Further, the implications of the new Land Acquisition Bill, which took effect on 12 January 2012, allowing the government to acquire civilian land to facilitate the development of new infrastructure projects, including geothermal infrastructures, remain unclear.

CY 2011 Indication (2)

Issue a ministerial decree on PLN's obligation to purchase geothermal power from projects of Crash Program II.

Ministry/Agency in charge: BKF, MOF

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

MEMR issued Regulation No. 2/2011 obliging PLN to purchase geothermal power at a maximum price of USD 0.097/kWh. This is replaced by the recent MEMR Regulation No. 22/2012 on FIT for geothermal increasing the FIT from USD 0.097/kWh to USD 0.115 to USD 0.165/kWh depending on the provincial location. Specific price for Papua is USD 0.185/kWh.

To gurantee geothermal development as part of its fast track program to respond to a loomig national power shortage, the government has agreed to issue a Gurantee Letter assuring that state electricity company PT PLN will pay the electricity purchased from independent power producers including geothermal power plants. In this regards, MOF issued Regulation No. 77/PMK.01/2011 to set out the details and framework under which the Government of Indonesia through the MOF will provide Viability Guarantees (SJKU) to PT PLN in respect of certain power projects. The guarantee is to be made available on a case by case basis for power projects carried out by IPPs stipulated by MEMR pursuant to Presidential Regulation No. 4/2010 on the Second 10000 MW Fast Track Program.

This regulation was signed on 6 April 2011 and further revised to MOF Regulation No. 139/PMK.011/2011 signed on 22 August 2011.

Obstacles/challenges observed (if any):

Previous FIT of USD 0.097/kWh was deemed low and not enough to attract geothermal project developers to invest into the country's potential geothermal market. This is now being mitigated by the recent regulation increasing the FIT for geothermal. The increased tariff will help facilitate more geothermal projects going forward.since (a) 10-17 cents/kWh is better than the previous cap at 9.7 cents/kWh; and (b) a guaranteed price will make it easier for the developers to get loans.

Provision of Viability Guarantees (SJKU) also intended to enhance the bankability of geothermal projects and is expected to improve the financing climate for power sector in the country. The SKJU, however, would only cover payments for purchases of electricity by PT Perusahaan Listrik Negara (PLN) should the state-run power company be unable to fulfil its financial commitments to private electricity producers (IPP). Thus it only relates to the risks

after the project has commenced commercial operation (until either the expiry of the PPA or some other date stipulated in the guarantee. The coverage under the guarantee might not extend for electricity generated during the start-up and commissioning of the plant considering that the regulation itself does not provide further details regarding the form or content of the guarantee, except that it is to be set forth in a letter signed by the Minister of Finance and addressed to the IPP.

For the developers such a guarantee is a relatively weak form of financial support and is unlikely to provide the level of comfort that sponsors and lenders have obtained in the past. There is still no protection to investments made during the exploration and construction of geothermal power plants. This kind of condition will open windows for further negotiations before both the off takers and producers can come to an agreement and PPA be signed.

Future policy action/target to follow the progress of the above two indications:

[1] Continue to improve policy framework design to promote geothermal development, and operate exploration fund.

Expected impacts:

More PPAs could be facilitated.

Progress/Attainments/Challenges observed:

The MOU between MEMR and MOFR to coordinate the issuance of licenses for geothermal development projects is a good indication. While it is expected that the process for revising Law 27/2003 will take time as it needs Parliament approval, preliminary actions are taking place.

The fast resolve to revise and increase the FIT for geothermal is also a positive indication. However, this cannot be implemented directly because the GOI needs to first revise the Government Regulation No. 59/2007 on the mechanism for tendering WKP (Geothermal Working Area). Currently the tender selection was based on the lowest price for producers to sell to PLN. By implementing FIT, the price is alredy fix and thus the basis now will be on the work program and commitment. The GOI expected the revised Government Regulation will be issued at the beginning of 2013 and the tendering process can be conducted with the revised Government Regulation as early as March 2013.

There are now 58 WKPs for geothermal development with 19WKPs existing and 39 new WKPs under the Geothermal Law no.27/2003.

Currently from the 11 WKPs waiting for PPAs to be signed in 2012 only 5 has been finalized. The first two PPAs signed on March 2, 2012, are the Muara Laboh and Rajabasa geothermal power plants operated by PT Supreme Energy Muara Laboh and PT Supreme Energy

Rajabasa, on behalf of PT Supreme Energy, International Power (IPR - GOF SUEZ Asia) and Sumitomo Corporation. The projects will generate 220 MW each and the commercialized operation date (COD) will be in 2016. The SKJU for these projects has also been issued by the MOF during the signing of the PPAs. These projects are the first two projects under the Second 10,000 MW Fast Track Program and thus served as a showcase projects for future geothermal power plant projects and as precedents for how the associated government guarantee framework will operate.

The next PPA signed was with PT Supreme Energy Rantau Dedap, on behalf of PT Supreme Energy, GDF Suez, and Marubeni Corporation on 12 November 2012. The Rantau Dadap geothermal plant have a total capacity of 220 MW and COD January 2017 for unit I and March 2017 for Unit II.

The PPA with PT Giri Indah Sejahtera, as holder of the license (IUP) to develop WKP in Ungaran mountain, Semarang, Central Jawa, was signed on 26 December 2012. The PPA was for the Ungaran geothermal plant with a capacity of 55 MW and COD 2017.

On January 2013, PT. PLN signed PPA with PT. Sejahtera Alam Energy (SAE) on behalf of PT. Tri Energy. The PPA was for the Baturaden geothermal plant with a total capacity of 220 MW. The first 110 MW will be in operation by 2017 while the remaining every two years onward.

There are still PPAs to be signed in 2013 including amongst other: PLTP (Geothermal Power Plant: Pembangkit Listrik Tenaga Panas in Indonesian) Sokoria in Flores 1 x 30 MW; PLTP Tangkuban Perahu II in West Jawa, 2 x 30 MW; PLTP Rawa Dano in Banten 1 x 110 MW;; PLTP Guci 1 x 55 MW; PLTP Cisolok Cisukarame 1 x 50 MW, and PLTP Tampomas 1 x 45 MW in West Jawa.

The policies needed to create and operationalize the Geothermal Fund are already in place. It is too early to make any judgement on its performance but it seems it is gearing in the right direction as planned.

Recommendations (if any):

The FIT, guarantee letter (SJKU) and the Geothermal Fund had been developed to enhance development of the geothermal fields. The MEMR has also signed MOUs with the Ministry of Forestry on the issue of WKPs inside the protected forest areas. Thus, the GOI has provided policy framework that will enhance investment for geothermal development. The increase in numbers of PPA signed are good indicators for the achievement. Nevertheless, there are still uncertainties if geothermal developers will be able to meet their COD. In this

regard, an update study needs to be conducted on the situation of geothermal development analysing the effectiveness of the current policy and regulative framework including the geothermal fund and other incentives provided by the MOF.

◆ **Further recommendations related to the outcome area**

Improve energy security and reduce future GHG emissions from electricity generation through new geothermal projects within an improved policy framework for private sector participation.There still remain actions to increase geothermal projects particularly from the IPPs. These include the following measures:

- Accelerate the finalization of PPAs from the existing WKPs that won tender for developement after the enforcement of Geothermal Law 2003.
- Enhance provincial and district governemnt expertise and understanding on energy scenarios and development and the importance of geothermal energy in securing energy and mitigating GHG. This will raise interest and ownership and benefits of the project for the provincial and district level and can avoid the difficulty that geothermal developers are facing in the local level in terms of permits, land acqusition, etc.
- Increase the local capacity in the tendering proces of geothermal WKPs (GWAs) to be at the international practices rather than existing tendering practices.

Avoid the practice of transferring licenses as in the case for coal development does not occur in geothermal development. The regulative frameworks to attract private geothermal developers should not be misused by brokers. Geothermal developers with PPAs should have sufficient funds to develop the geothermal fields to ensure the project will be in time and not postponed. In this regard, the GOI could secure the funds by ensuring that the developers have stored in the banks the amount required for exploration until the first successful drilling. In addition the GOI could impose a penalty for developers not delivering the electricity as indicated in the COD and have the prerogative to replace to other developers after 3 years of no progress.

Outcome Area:
The promotion of renewable energy development is improved by monitoring, evaluating and revising the new regulations.

◆ **Background of the outcome area**

Indonesia could create green job opportunities, and reduce the GHG emissions from the burning of fossil fuel through better utilization of its huge renewable energy potential. Additionally, development of renewable energy would also contribute to self-sufficiency of energy, particularly in remote or local areas.

However, renewable energy has not significantly increased its share in the total primary energy mix for decades albeit a number of laws and regulations for promoting renewable energy development have been issued so far. The GOI has even embarked on the DME program to enhance the use of local energy (mainly renewable energy). But, the expected target has also not being met.

In this regard, the GOI proposed to monitor, evaluate and revise new regulations so as to improve the promotion of renewable energy development. This proposal has been considered as outcome area 2 under the Renewable Energy Development.

◆ **CY2011 Policy Actions and Future Directions**

The following tables show the indications of the three policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (3) **Issuance of Ministerial Decree 22/2011 to replace Ministerial Decree no 24/2010 (PPN DTP).**
Ministry/Agency in charge: The Center for Climate Change Funding Policy and Multilateral Cooperation, BKF, MOF
CY 2011 Status: Attained
CY 2011 Progress/Attainments: MOF provided incentives for promoting renewable energy in 2010 through the issuance of Ministerial regulation No. 21/2010 on Tax And Custom Facilities For Renewable Energy Utilization (PPH) and No. 24/2010 on Exemption_of_VAT_on_Exploration_Goods (PPN

DTP). The MOF regulation on the PPN-DTP expired on 31 December 2010 and had been renewed therough the Ministerial Regulation No. 22/PMK.011/2011, issued on 7 February 2011. This MOF regulation no 22/PMK 011/2011 expired on 31 December 2011. In 2012, MOF issued regulation no 27/PMK 011/2012 on the adjustment of the value added tax and sales tax on luxury goods on the import of taxable goods exempted from import duty including goods imported for the purpose of Upstream Oil and Gas and Geothermal Business Activities.

Obstacles/challenges observed (if any):

MOF regulations was to provide incentives for the development of new and renewable energy. Nevertheless, the high initial investment cost which resulted in a higher production cost of NRE as compared to conventional energy had made it difficult for producers to develop NRE. The Government has also issued MOF regulation no 130/PMK.011/2011 on provision of exemption facilities or reduction of income tax (tax holiday). In this regulation, industries in the field of renewable resources are considered one of the industries falling under the category “pioneer” industries. As such, these industries are eligible for the corporate Income Tax relief or reduction facility. Efforts are also being pursued to improve financing mechanism for NRE projects including local bank capacities.

CY 2011 Indication (4)

Draft Ministerial Regulations on Feed in Tariff (FIT) for solar and wind.

Ministry/Agency in charge: The Directorate of Various New and Renewable Energy, MEMR

CY 2011 Status: Substantial Progress

CY 2011 Progress/Attainments: The Ministerial Regulation on FIT for solar and wind is currently being drafted while that on FIT for hydropower projects (large and small scale) is ready for issuance.

Obstacles/challenges observed (if any):

The consultations with stakeholders to come up with FIT for solar and wind are still on-going. Some of the points considered are the high capital costs for wind which will be located in remote areas and the back-up system costs for solar. Also, the FIT for solar and wind is more complicated to design since the GOI do not produce the technology necessary to generate power from solar and wind. It may be difficult to justify the FIT as it could be viewed as support of imports instead of supporting domestic industry or other renewable energy that utilizes available natural resources.

Future policy action/target to follow the progress of the above indications:

[1] Prepare regulations on FIT for Renewable Energy.

Expected impacts:

Increased production and utilization of renewable energy.

Progress/Attainments/Challenges observed:

Ministerial Regulation No. 4/2012 issued on the FIT for biomass, biogas and power generated from municipal solid waste. MEMR is in the process of issuing other ministerial regulations on FIT for hydro, solar and wind. The MEMR regulation No. 22/2012 on Assignment of PT PLN (Persero) to Purchase Electricity from Geothermal Power Plant and Geothermal Power Purchase Benchmark Price by PT PLN (Persero) covers the Feed in Tariff Mechanism (FIT) for geothermal energy .

Recommendations (if any):

The FIT is expected to offset the generation costs of renewable energy. To fully utilize and engage small scale renewable energy providers, measures to facilitate the costs of connecting to the main grid to be able to sell to PLN could also be addressed.

CY 2011 Indication (5)

Draft Blueprint(s) on geothermal, hydro and solar.

Ministry/Agency in charge: The Directorate of Various New and Renewable Energy, MEMR

CY 2011 Status: Substantial Progress

CY 2011 Progress/Attainments:

No progress yet, awaiting for Parliament approval of *KEN*.

Obstacles/challenges observed (if any):

The draft of the blueprinst will involve stakeholders for developing solar and wind energy. Although the official blueprint for geothermal in still in the process, but lessons learnt from developing geothermal energy in the past years should be considered for the solar and wind energy development. Lengthy stakeholders meeting, negotiations shoud be avoided in developing the draft blueprint.

Although the blueprint document for each renewables are still in the devleopment stage, but in presentations from MEMR, it seemed that roadmap has been formulated for solar, wind, etc. The challenges will not be on the development of document but rather in the implementation of the programs so as to be in line with the roadmap.

Future policy action/target to follow the progress of this indication:

[2] Publish Blueprint on Renewable Energy.

Expected impacts:

Increased production and utilization of renewable energy.

Progress/Attainments/Challenges observed:

GOI recognizes that is it desirable to publish a Blueprint on Renewable Energy and prepare a detailed plan for its preparation and implementation. However, the current focus is to draft a

government regulation for renewables similar to the government regulation for energy conservation. The issuance of FITs for renewables will cushion the delay in publishing a Blueprint on Renewable Energy so as not to hamper the target contribution of renewable energy in the energy mix.

Recommendations (if any):

The programs to accelerate development of renewable energy have delayed the development of the official blueprint on renewable energy. Each renewable such as geothermal, solar, bio-fuels, hydro, biomass, etc. has defined activities to promote its development. Many COD has been proposed for generating electricity from renewables as developers continue to construct the power plants. Several isolated renewable power generation are also ongoing. GOI could conduct a stock take of these developments in the renewable sector, review, analyze the development and revise the current renewable energy blueprint draft and finalized so as the blueprint would serve as directions for promoting renewable energy development.

◆ **Further recommendations related to the outcome area**

The following issues could be addressed to further promote renewable energy development:

- Financial intermediary system for funding renewable energy development, associated with capacity development of the local banks and other financial institutions, needs to be reinforced. Potential coordination with development partners could be further explored for establishing financial intermediary systems, facilitating capacity development projects of power producers, and for promoting investment to local industries in this field.
- To ensure sustainability of renewable energy systems, 1) monitoring of renewable energy programs could be introduced under public funding, and 2) follow-up activities based on periodical monitoring of the performance of the developed systems could be explored. Currently, insufficiency of technological capacity raises running cost, and hinders sustainable operation of renewable energy plants. Hence, potential follow-up activities include capacity development for power producers on repair and maintenance, and local industries to produce spare parts and equipment.

2.2.2 Energy Efficiency

Outcome Area:
GHG emissions are reduced (or strategies for reducing GHG emissions are formulated) by enhanced energy efficiency in energy intensive sectors through the use of new technology and the rehabilitation, renovation, and replacement of existing facilities.

◆ **Background of the outcome area**

Energy intensity in Indonesia was 0.22 toe/thousand USD of GDP in 2007, while it was 0.19 toe in Thailand, 0.20 toe in Malaysia, and 0.13 toe in the Philippines[24]. This means that Indonesia consumes more energy than the other three countries to produce the same value.

In 2006, the GOI issued the President Regulation No. 5/2006 on the National Energy Policy and specified the targets to reduce energy intensity by 1% per year, and to lower energy elasticity below 1 by 2025.

Government Regulation No. 70/2009 on energy conservation was issued in November 2009. To implement this regulation several challenges were identified such as lack of sectoral roadmaps, energy audit system, and energy efficiency labelling.

Supported by international agencies, MOI has been preparing CO_2 reduction roadmaps in steel and cement industries. Those roadmaps were originally planned to be finalized by 2008, but delayed due to coordination with stakeholders.

In the cement industry, MOI had aimed at finalizing the draft of ministerial regulation by 2010. On the other hand consultation with stakeholders in steel industry still continues. The target of this outcome area in the CY2010 CCPL Policy Matrix concerns the preparation of the technical guidance of cement industry.

Additionally, MOI gained ICCTF's support to implement the Grand Strategy for energy conservation in the industrial sector. The Grand Strategy has four stages of actions during the period from 2010 to 2020 as follows: energy conservation and reduction of CO_2 emission; implementation of Eco-label; promotion of CO_2 emission reduction; and establishment of an energy services company. The first stage targeting 35 steel enterprises and 15 pulp & paper

[24] International Energy Agency and Organisation for Economic Cooperation and Development (2009). *World Energy Outlook 2009*. Paris: I.

enterprises was launched on 23 November 2010.[25] The launch of the Grand Strategy could also be highlighted as a prominent achievement of energy efficiency and conservation policies in 2010.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the four policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1) **Complete the first phase of the Grand Strategy (F/S, on-line system).**
Ministry/Agency in charge: The Center for Environment and Green Industry Assessment, MOI
CY 2011 Status: Exceedingly Attained
CY 2011 Progress/Attainments: Completed the first phase of the Grand Strategy (MOI) which is the implementation of energy conservation and emissions reduction in 35 steel companies and 15 pulp and paper companies funded by ICCTF. There were 7 outputs achieved: - Energy conservation baseline and reduction of CO_2 emission in the 50 companies plus the 9 cement companies (total 59 companies); - Established the Emissions and Energy Management Information System (SMIEE); - Capacity building for around 500 human resources in the Industrial and in the Local and Central government on Energy conservation and CO_2 emission reduction; - Finalized General Guidelines for the implementation of the MOI's PREP-ICCTF project and the Technical Guidelines for the energy conservation and CO_2 emission reduction (11 documents); - Completion of Pre-Feasibility Study (Pre-F/S) for Energy Conservation and CO_2 Emission Control in the 50 industries; - Formulate Investment Grade Audit (IGA) for 38 industries (remaining 12 industries has low EEC percentage for IGA formulation); - Increasing awareness of the Central and Provincial government towards the climate change issue through training, workshop, discussion, coordination meetings, various

[25] ICCTF Website http://www.icctf.or.id/node/39 (Accessed 24 January 2013).

cooperation, and programs proposed related to climate change.

The fifth to the seventh outputs are additional achievements non-included in the Phase 1 of the Grand Strategy.

Obstacles/challenges observed (if any):

The Industrial Energy Conservation and Emissions Reduction (IECER) grand strategy program phase -1 has enhanced HRD in the iron and steel, and the paper and pulp industries; improved the communication and coordination between stakeholders; and encouraged industries to implement energy conservation and emissions reduction in line with the total national target of CO_2 emission reduction of 26%-41%. Nonetheless, the program was limited to 50 industries (35 steel companies and 15 pulp & paper companies) in addition to the cement industries for which enrgy efficiency improvement were conducted with support from AFD. Financial constraint has slowed down the program which is expected to be accelerated again from 2013 onwards. Beside the Phase-1 activities (Implementation of Energy Conservation and CO_2 Emission Reduction in Industrial Sector), the other phases of the IECER to be implemented will be

1. Phase 2 : Promotion of CO_2 emission reduction through several pilot project in energy voracious industries such as steel, pulp and paper industries;
2. Phase 3: Establishment of Energy Services Company (ESCO)
3. Phase 4 : Eco-Label Implementation

Future policy action/target to follow the progress of this indication:

[1] Replicate the same approach to other industrial sectors

Expected impacts:

Mainstreaming of energy conservation measures in other industrial sectors.

Progress/Attainments/Challenges observed:

For the cement companies covered by AFD TA, their current emissions level was calculated and recommendations for its reduction were made. The cement industry is requesting for incentives to implement the recommendations. The incentives need to be examined.

ICCTF funding was provided for 25 steel companies and 15 pulp & paper companies. Other industries (ceramics, textile, fertilizer, food and beverage, electronics and petrochemical) will need funding for diagnosing their energy consumption.

It is envisioned that 2 Ministerial Decrees will be drafted for the steel and pulp and paper industries CO_2 emission roadmap to be implemented in 2013 using APBN budget.

Recommendations (if any):

Currently the ministerial regulation for the steel and paper and pulp industries will soon be

issued. Once issued, the implementation of the roadmap in either the cement, steel and paper and pulp industries will still require a more detail study to be conducted (pre FS/FS). This is particularly important for the high-cost actions in the road-map. The financial mechanism provided for EEC programs and/or climate change can be explored further for funding sources in the implementation of the roadmap.

CY 2011 Indication (2)

Draft the CCT (Clean Coal Technology) roadmap for Indonesia.

Ministry/Agency in charge: Director for Electricity Program Development, DG of Electricity, MEMR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

The CCT Roadmap has been completed. The drafting of the CCT Roadmap was funded by JICA.

Obstacles/challenges observed (if any):

The implementation of the CCT Roadmap by the GOI following the recommended technology and time frame will be the future challenges.

Future policy action/target to follow the progress of this indication:

[2] Conduct a study to introduce new and more energy efficient technology, and survey the potential of energy efficient technology for electricity generation.

Expected impacts:

Achieve increased energy savings by adopting new and more energy efficient technologies.

Progress/Attainments/Challenges observed:

Completed with the drafting of the CCT Roadmap for Indonesia.

Recommendations (if any):

Introduction of more energy efficient technology for electricity generation can be part of the CDM or other mechanisms such as as the Bilateral Offset Credit Mechansim (BOCM). As an example , SHARP Co. of Japan introduced thin-film cell for PV generation for Indonesia by conducting a pre-FS on the possibility of constructing PV using thin-film technology of total 100 MW.

CY 2011 Indication (3)

Finalize Technical guidance as a ministerial decree regarding the cement industry.

Ministry/Agency in charge: The Center for Environment and Green Industry Assessment, MOI

CY 2011 Status: Attained

CY Progress/Attainments:

This was completed with the issuance of Ministerial Decree No. 12/M-IND/PER/1/2012.

Obstacles/challenges observed (if any):

The incentives for the cement industry to comply with the technical guidance need to be explored further.

Future policy action/target to follow the progress of this indication:

[3] Finalize the CCT roadmap and start the implementation of the roadmap.

Expected impacts:

The CCT Roadmap will outline the promotion of clean coal technology in Indonesia including proposed policy and/or regulation framework.

Progress/Attainments/Challenges observed:

The CCT Roadmap for Indonesia has been completed. It also includes a pre-feasibility study of a model power plant of 1,000MW.

Recommendations (if any):

Activities related to the CCT roadmap has been limited to those initiated and funded by JICA. The CCT roadmap could be adopted first by the GOI by incorporating the findings and recommendation of the FS study on the CCT roadmap in the revised National Electricity General Plan (RUKN) currently being drafted (2012-2030).

CY 2011 Indication (4)

Draft Framework of REFF Burn (Reducing Emissions from Fossil Fuel Burning) as an integrated approach to mitigate emissions from fossil fuel in energy sector.

Ministry/Agency in charge: The Directorate for Energy Conservation, DG of New Energy, Renewable and Energy Conservation (EBTKE), MEMR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

The draft, “REFF-Burn: An Integrated Program for reducing Emissions from Fossil Fuel Burning” was prepared.

Obstacles/challenges observed (if any):

REFF-Burn is only a concept of categorizing the different stages of fossil combustion and the possible ways to reduce emissions from fossil fuel burning. The actions required are expected from the specific program itself.

Future policy action/target to follow the progress of this indication:

[4] Finalize REFF Burn.

Expected impacts: Provide an integrated approach to mitigate emissions from fossil fuels used in the energy sector.

Progress/Attainments/Challenges observed: EBTKE has already drafted the REFF-Burn document. Some of the policies included in REFF-Burn are now being implemented. However, the REFF-Burn draft needs updating to reflect current developments.

Recommendations (if any):
No further recommendations.

◆ **Further recommendations related to the outcome area**

No further recommendations.

Outcome Area:
Demand side management becomes a major part of government regulations and eventually contribute to fiscal budget management.

◆ Background of the outcome area

The Energy Law No. 30/2007 stipulated that national energy conservation is the responsibility of Central and local government, business entities and the society. For those conducting energy conservation, the government will provide incentives. If not, the government will provide disincentives. The details of implementing energy conservation and provision of incentives and disincentives will be regulated by a Government Regulation. In this regards, the GOI issued the Government Regulation No. 70/2009 on Energy Conservation.

The Government Regulation No. 70/2009 stipulated that implementation of energy conservation would be based on *RIKEN* which contains the target, policy actions, programs and measures of energy conservation. Thus, *RIKEN* is the framework plan for the implementation of a national energy conservation program. It outlines the strategies and activities to support the government's energy policy through general policy instruments, namely: information, incentives, regulation and pricing. It also aims to enhance public awareness and attitude towards energy conservation and create the appropriate climate that is conducive for energy conservation endeavours. *RIKEN* is formulated based on *the General National Energy Plan (RUEN)* and will be updated every five years. The existing *RIKEN* was issued in 2005 and the updated *RIKEN* still awaits issuance of *RUEN*.

◆ CY2011 Policy Actions and Future Directions

Formulation of the updated *RIKEN* was completed even though not issued yet. In this regards, no policy target/action for this outcome area is set in CY2011 Policy Matrix. However the following table shows the future policy actions/targets to follow the past development in this outcome area.

CY 2011 Indication (1)

No policy target/action for this outcome area is set in CY2011 Policy Matrix.

CY 2011 Status: N.A

CY 2011 Progress/Attainments:

The concept document of *RIKEN* has been completed in 2010. However, it has not been officially issued awaiting the issuance of *RUEN* which will be finalized and issued after the issuance of *KEN*.

Obstacles/challenges observed (if any):

The updated RIKEN was completed in 2010. With the progress in the last two years, the updated documents has been revised accordingly prior to its issuance which is still uncertain because *KEN* is still in the process of finalization prior to submission to the Parliament as stipulated in the Energy Law no 30/2007.

Future policy actions/targets to follow the past development in this outcome area:

[1] Issue *RIKEN/the master plan for energy conservation*.

[2] Start to implement the master plan of energy conservation, including energy efficiency standards, energy audit program with a monitoring and evaluating framework, of fiscal incentives options, and the industry energy conservation.

Expected impacts:

Demand side management becomes mainstreamed across key sectors.

Progress/Attainments/Challenges observed:

The issuance of the completed *RIKEN* is withheld pending the issuance of *KEN*. According to MEMR (TTM on 6 June 2011) *RIKEN* will not be issued even it is finalized. *RIKEN* requires issuance of *RUEN* because in the Government Regulation No. 70/2009 it is stipulated that the basis for *RIKEN* is *RUEN*. *RUEN* can only be issued after *KEN* is finalized and issued. Both *KEN* and *RUEN* is the responsibility of DEN. The expected issuance of *KEN* was announced to be March 2013 since it has now in the process at the Parliament. Issuance of *RUEN* has not been announced but will follow immediately since the draft has been finalized as in the case of *RIKEN*.

Detailed implementation plan of *RIKEN* needs to be prepared. Nevertheless, some regulations are already put in place. MEMR issued regulations controlling the use of oil fuel/BBM (No.12/2012), electricity saving (No. 14/2012), and saving of water use (No. 15/2012).

In regards to energy saving appliances, MEMR issued regulation No. 6/2011 on energy labelling for CFL containing the procedures and prerequisite performance test for CFL lamps. Similar regulation will be issued for the other appliances such as air condition, refrigerator, television, electronic ballast, etc. MEMR is also developing MEPS (Minimum Energy Performance Standards) which for 2012-2013 will be focused on electric motor and air condition. The MEPS will : 1) control circulation of inefficient product; 2) avoid import of inefficient product; and 3) encourage importer and local manufacturer to make efficient products.

Recommendations (if any):

The *RIKEN* issuance is still an uncertainty but the EEC program on demand side management is progressing steadily. Government could ensure that the *RIKEN* document is updated

continously with the plans and outcomes of the EEC program stipulated from the PP 70/2009. Monitoring the EEC programs is necessary to evaluate if the achievements are in line with the targeted savings.

◆ **Further recommendations related to the outcome area**

For steady implementation of energy conservation projects in private enterprises to be stipulated in *RIKEN*, MEMR and MOI facilitate training of energy managers and auditors. MEMR has the targets of qualifying 50 managers or auditors in 2011, and 100 per year from 2012 to 2014.

The roles and the necessary qualifications of energy managers and energy auditors are set in the Government Regulation No. 70/2009 on Energy Conservation so as to ensure the capacity of them. On 23 March 2011, the Governemnt established the institution that will officially designated to qualify energy managers and auditors. This institution is known as the Professional Certification Institute of the Energy Conservation Expert Association (LSP-HAKE). The standard competency for energy manager and energy auditor in building and industry has been developed. Some of the regulations issued include:

- The MEMR Regulation No. 13/2010 and No. 14/2010 was issued on Competency Standard for Energy Manager;
- Ministry of Manpower and Transmigration Regulation No. 321 and No. 323/MEN/XII/2011 on Standard Work Competence of Indonesia or Energy Manager (SKKNI Manajer Energi);
- Ministry of Manpower and Transmigration Regulation No. 614/MEN/IX/2012 on Standard Work Competence of Indonesia for Energy Auditor (SKKNI Auditor Energi); and
- MEMR regulation No. 14/2012 on Energy Management.

2.2.3 Pricing

Outcome Area:
Energy consumption is better controlled by a more cost-oriented pricing mechanism, contributing to reducing both GHG emissions and energy subsidies.

◆ **Background of the outcome area**

Subsidy to fossil fuel is one of the major obstacles to diversifying energy sources. Since 2004, the Government has embarked on some programs to reduce the subsidy of oil fuel and electricity. Subsidy on kerosene was planned to be reduced by substitution to LPG in household and street vendors. This resulted in significant decrease of kerosene consumption, which had impact on the CO_2 emission. Subsidy on electricity is dealt by increasing the electricity basic tariff. This would increase PLN's income while decreasing the gap between their expenditure.

Removing subsidy will eliminate ineffective and inefficient use of cheap energy. People will consume energy wisely and thus reduce the GHG emissions. The Government budget would be used more effectively and efficiently for development purposes. The elimination, however, must be done gradually and carefully. Direct impact of fuel price increase will be in the increase in inflation. In this regard, the Government formulated roadmap to reduce both oil and electricity subsidies.

In the context of CCPL, the focus is on the electricity subsidy. The purpose of the electricity subsidy roadmap was to reduce the government expenditure for electricity subsidy. The document is not made public. The roadmap provides different options for reducing the subsidy. For increasing of the TDL (electricity basic tariff), the roadmap provide calculation for different levels of increase (10%, 15% and so on).

For the non-TDL increase option, the alternatives were to reduce PLN's production cost. This can be achieved through switching from oil-fuel based generation to coal which will reduce the production cost. Other options include use of gas and renewable energy and even nuclear. Thus, this option involves ways to decrease production cost which will also reduce the electricity subsidy.

◆ CY2011 Policy Actions and Future Directions

The following table shows the indication of the policy target/action set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy action/target to follow the progress of the indication.

CY 2011 Indication (1)

Evaluate production cost and subsidies of electricity.

Ministry/Agency in charge: The Electricity Price and Subsidy Sub-Directorate under the Bureau for Electricity Business Development, DG of Electricity, MEMR; or the Bureau of Electricity Program Development, DG of Electricity, MEMR

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

MEMR proposed a IDR 6.1 trillion cut in electricity subsidy for 2012. Based on APBN 2012, the subsidy for electricity is IDR 44.96 trillion. Compared to 2011, it is more than Rp20 trillion lower.

Obstacles/challenges observed (if any):

Electricity subsidy reduction is a political issue when it comes to setting up tariff. Based on the 2009 Electricity Law Chapter X Part Two Article 34 Section 1, the Government could set the electricity tariff with approval from the Parliament (DPR). The Parliament has decided no tariff increase for 2011 and 2012. The priority is on reducing fuel (BBM) subsidy which is almost 3 times the electricity subsidy.

Future policy action/target to follow the progress of this indication:

[1] Continue to prepare for implementation actions based on the road map, including the regulation.

Expected impacts:

Increased implementation of cost-oriented pricing mechanism to reduce energy subsidies as well as GHG emissions. Implementation of this policy action will provide the GOI with a clearer picture on electricity subsidy level. Since this evaluation is conducted throughout the year, by mid of the year, some anticipation on modification of subsidy level (to increase or reduce) can be envisioned. If the result would be a reduction in the subsidy, then it will indicate that PLN has become more efficient since it was able to reduce their production cost. Thus, PLN was able to produce electricity in a more cost-effective way. The generation mix achieved would also be more cost effective.

Progress/Attainments/Challenges observed:

Getting Parliament's approval to reduce electricity subsidy by increasing tariff remains a huge challenge.

Recommendations (if any):

On the policy direction concerning subsidy expenditure for electricity in 2012, the following measures could be considered:

1) continue improving electricity transmission to reduce losses; and

2) increase supply of gas and coal for generating electricity (fuel input)

Future subsidy management measures for electricity could consider the following measures:

1) Gradual electricity tariff adjustment;

2) Eliminating electricity subsidy to middle class and high class consumer tariff group; and

3) Increase power generation fuel input mix with coal, gas and geothermal.

For the year 2013, the Parliament, on September 2012, has approved the electricity tariff hike proposed by the government. On 21 December 2012, the Minister of Energy issued the Minister Regulation No. 30 Year 2012 concerning the Electricity Tariff. The Electricity tariff adjustment will start to commence on January 1, 2013 with average increase 15% and carried out quarterly at average of 4.3% per quarter. Customers with power of 450 VA and 900 VA have no increase.

There are 4 (four) tariff category to which non subsidy tariff be imposed, namely:

1. Customer of Large Household (R3 power of ≥6600 VA);
2. Customer of Medium Business Scale (B-2 between 6600 VA up to 200 Kva);
3. Customer of Large Business Scale (B-3 ≥200 Kva); and
4. Customer of Medium Government Office (P-1 between 6600 VA to 200 Kva).

◆ **Further recommendations related to the outcome area**

Government need to implement the policy to remove electricity subsidy as targeted. At the same time, Government needs to establish a credible, well-functioning targeted cash transfer system for low-income households. This is an increasingly urgent prerequisite for cutting universal fuel subsidies.The recent Energy Minister Regulation no 30 year 2012 on electricity tariff increase will be applied in 2013. This adjustment of the electricity tariff aims to support the economic growth and to increase the ratio of electrification. In this regards, it is necessary to study the implementation of automatic tariff adjustment toward non subsidized electricity customers. If sucessful, it can be extended to 2014, and so on.

2.3 Transportation

Sector overview

The transportation sector accounted for almost 37% of final energy consumption in Indonesia in 2009.[26] This was the second largest share when compared to other industries. In particular, road transportation accounted for 42% of domestic fuel consumption. CO_2 emission from the transportation sector have been steadily increasing, from about 40 million tons in 1995 to over 54 million tons in 2000 and to around 68 million tons in 2005.[27]

The rapid increase of energy consumption in the transportation sector is ascribed mainly to an increase of personal vehicles and growing movements of passengers and cargoes.

The GOI has three major strategies to reduce GHG emissions from the transportation sector: to reduce the volume of transportation; to shift means of mobility; and to improve energy and carbon efficiency.

Of these three strategies “to shift”, or in other words ”modal shifting”, has the largest reduction potential, while “to avoid/reduce” would be the most cost-effective.

Past Development in the previous phases of the CCPL

In the CY2010 Policy Matrix, Modal Shifting (for “shifting measures of mobility”) and Traffic Management (for “avoiding/reducing volume of transportation”) were selected as the two outcome areas to be specified. The policy targets/actions for the former area were: development of Bus Rapid Transit (BRT) and improvement of pedestrian facilities and bicycle lanes. Both of them showed substantial progress, although they did not “attain” the original target in 2010.

The action set to improve traffic management, namely establishment of an area traffic controlling system (ATCS) in Bogor and Surakarta was attained.

In addition to these developments, the Ministry of Transportation (MOT), BAPPENAS, and the development partners were aware of the importance of covering fundamental strategies for transportation development in the CCPL. Thus, in the CY2011 CCPL Policy Matrix, it was agreed that Overall Transportation Policy would be included as a new outcome area.

[26] MEMR (2011). *Handbook of Energy and Economy Statistic 2010.*
[27] MEMR Ibid.

2.3.1 Overall Transportation Policy

Outcome Area:
Transportation policy is enhanced enough to avoid deteriorating traffic congestion.

◆ **Background of the outcome area**

The three main strategies of mitigation policies in the transportation sector are: "to avoid/reduce (the total volume of transportation)", "to shift (means of mobility)", and "to improve (the energy efficiency of transportation)". Specific policy actions to pursue these strategies include legal/institutional reforms through road pricing and gas mileage standards, infrastructure development through development of efficient and reliable public transport system like railway, BRT and Metropolitan Rapid Transit (MRT), installation and improvement of ATCS, and technical development including better combustion engines.

As a wide range of policies need to be implemented, development of comprehensive transportation policies at both the national and the regional levels is necessary. In particular, master plans or strategic plans of transportation policies for rapidly developing metropolitan areas are among urgent matters.

◆ **CY2011 Policy Actions and Future Directions**

The following table shows the indication of the two policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy action/target to follow the progress in this outcome area.

CY 2011 Indication (1) **Formulate the revised Jabodetabek transportation master plan (BAPPENAS/CMEA).**
Ministry/Agency in charge: CMEA and BAPPENAS
CY 2011 Status: Attained
CY 2011 Progress/Attainments: The Jabodetabek transportation master plan has been completed.
Obstacles/challenges observed (if any): Although the Jabodetabek master plan has been completed, it has no legal framework yet.

CY 2011 Indication (2)

Draft Presidential Regulation for the Jabodetabek Transportation Authority (JTA) (CMEA).

Ministry/Agency in charge: CMEA and BAPPENAS

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

The draft Presidential Regulation is currently under review by the Cabinet. The transportation sector remains a high priority for reforms in Indonesia. Discussions are expected to resume towards a decision with the election of a new governor of Jakarta.

Obstacles/challenges observed (if any):

The creation of JTA is political in nature with implications on other areas of governance that is why it is taking a long time to come up with a decision.

Future policy actions/targets to follow the progress of the above indications:

[1] Finalize Presidential Regulation for the Jabodetabek Transportation Authority (JTA)

Expected impacts:

Better decision-making and management of Jabodetabek transportation system

Progress/Attainments/Challenges observed:

There is no regulation yet to create JTA. Some sectors propose that a law for JTA that would be higher than a presidential regulation would be preferred to cover funding and implementation; however no official decision has been made yet. The draft Presidential Regulation is being reviewed by the Cabinet. A decision may be made by the new Jakarta governor.

Recommendations (if any):

No further recommendation other than wait and see what will be the decision of the new Jakarta governor and other key decision makers.

◆ **Further recommendations related to the outcome area**

Lessons can be learned from the experiences of other metropolitan cities that addressed their transport problems in an integrated manner by creating a centralized transport authority.

2.3.2 Modal Shifting

Outcome Area:
The increase rate of car users remains at a low level, and is less than that of users of public transportation.

◆ **Background of the outcome area**

ICCSR specifies the scope of modal shifting as:

> "to satisfy each citizen's remaining transport needs using the most environmentally friendly transport modes possible."[28]

Toward this objective, the following three activity areas are promoted:

1) Improvement of urban public transportation (BRT, MRT, railways, obligation of urban authority to provide public transportation);

2) Promotion of non-motor mobility (improving pedestrian and bicycle facilities, improving traffic rules); and

3) Betterment of energy and carbon efficiency (regulating traffic management policy; preventing overload; improvement of stations, ports, and airports).

Ultimately, promotion of non-motor mobility (NMT) would be the most effective in terms of energy conservation and GHG emissions reduction. MOT pursues this goal by improving walking and cycling environments to encourage people to shift to NMT.

Avoiding increases in the number of private vehicles (or in other words, shifting as many trips to public transport vehicles as possible) is also an important objective of modal shifting. To achieve this, a reliable and efficient public transport system must be put in place to encourage private car users to shift to use comfortable mass transport modes. Indonesia developed its first BRT in Jakarta in 2004. Ideally, a full BRT system combine the advantages of a rail system (dedicated right-of-way, which greatly improves punctuality and reliability) with the advantages of a bus system (low construction and way maintenance costs, low vehicle costs, right-of-way not required for entire length, and the ability of feeder bus services to join a trunk busway). TransJakarta Line 1 initially run on dedicated lane so reliability was ensured but the additional lines use lanes where mixed traffic are allowed affecting the busway performance. Since then more than ten lines have been developed in Jakarta and other large cities, including Bogor, Surabaya, and Yogyakarta but traffic congestion remains a problem. Jakarta MRT aims to

[28] BAPPENAS (2010). *ICCSR, Summary Report Transportation Sector,* March 2010.

alleviate the traffic congestion when it becomes operational in 2016. In addition, improving the railway system surrounding Jabodetabek is importants to reduce traffic jam.

◆ CY2011 Policy Actions and Future Directions

- No policy targets/actions for this outcome area are set in the CY2011 Policy Matrix.
- No policy action/target is proposed for this sector.

2.3.3 Traffic Management

Outcome Area:
Traffic management is enhanced enough to avoid deteriorating traffic congestion.

◆ **Background of the outcome area**

Of the three major strategies of the transportation sector, "to avoid/reduce" the distance/volume of travel is considered to be the most cost effective toward CO_2 emission reduction.[29]

Ideally, this strategy needs to be incorporated at an initial stage of urban design. Careful land-use planning will enable human activities (business, shopping, leisure, and other economic and social activities) without unnecessarily increasing the distance and volume of travel.

On the other hand, intelligent systems for urban traffic management that rely on IT, such as sensing, wireless communication, and computing, could be introduced at a later stage of development to combat traffic congestion. Control of signals to correspond to traffic volume and variable speed limits are examples of measures introduced as intelligent transportation systems. In addition, parking management is also considered to be effective in the urban areas of Indonesia.

Currently, the "3 in 1 system" is implemented in major roads in Jakarta to reduce traffic demand during peak hours. Under the 3-in-1 system, which was enacted in 1994, private cars must have at least three people in them to enter main thoroughfares from Blok M in South Jakarta to Kota in West Jakarta during morning and afternoon rush hours on weekdays. The system is deemed inefficient since motorists can cheat the system by paying jockeys — the infamous passenger surrogates who wait on the side of roads leading to 3-in-1 zones — to ride in their cars through the zones for a fee. The city is planning to replace the 3-in-1 system with the much-anticipated electronic road pricing (ERP) system.

ATCS, which aims to achieve optimum traffic performance through minimization of intersection delays and creating continuous traffic flow, is also an effective measure to reduce congestion and thus contribute to reduced total volume (or time) of traffic. ATCS has already been introduced in large cities of Indonesia, such as Jakarta (1994), Bandung (1997), and Surabaya

[29] BAPPENAS Ibid.

(1998).[30]

◆ **CY2011 Policy Action and Future Directions**

The following table shows the indication of the policy target/action set in CY2011, the progress/attainments observed, and the future policy action/target to follow the progress in this outcome area.

CY 2011 Indication (1)

Issue Government Regulation 32/2011 of Traffic Management and Engineering, which consists of Electronic Road Pricing (ERP) arrangement.

Ministry/Agency in charge: MOT

CY 2011 Status: Attained

Progress/Attainments/Challenges observed:

The Government Regulation (PP) No. 32/2011 was issued on June 21, 2011. The PP has regulated steps to be taken by the regional administration to implement the ERP, which includes planning, managing traffic, procurement, and preparing road facilities. However, a road-pricing levy was not included as a tax or retribution in the 2009 Regional Tax and Retribution Law, so another PP from MOF is needed to categorize ERP fees as a tax or retribution. A Government Regulation from MOF is in the process of being composed and adjusted to Law No. 28/2009 on Regional Taxes and Regional Retributions, including whether the ERP tariff serves as a regional retribution or a regional tax.

Obstacles/challenges observed (if any):

Other than the regulatory issues, infrastructure required to implement ERP are not yet in place and may require another two years or more before it can be fully implemented.

Future policy action/target to follow the progress of this indication:

No action/target is proposed.

◆ **Further recommendations related to the outcome area**

Lessons can be learned from the experiences of other cities that have successfully implemented ERP like in Singapore.

[30] Tamin Z. Ofyar, (2001). *The Development of the Real Time Integrated Traffic Information System for Indonesia*.

3. Adaptation

3.1 Climate Forecasting and Impact and Vulnerability Assessment

Sector overview

Being an archipelagic country with a large segment of its population living on fishery and agriculture, Indonesia is vulnerable to the impacts of climate change. The El Niño and La Niña phenomena and extreme meteorological conditions have caused serious damage.

Furthermore, "the increasingly high temperatures are exacerbating the extreme regional weather and climate anomalies associated with El Niño."[31] In fact, increasing incidences of floods, landslides, forest fires, droughts, high tides, and diseases were observed in Indonesia. These incidents may cause large-scale loss of human life and in production of agriculture, fishery, livestock and other industries.

Effective planning and implementation of an adaptation program requires accurate forecast of climate change impacts on the economy and society of the country and region.

Past development in the previous phases of the CCPL

The CCPL Policy Matrix in the previous phase covered the development of systems for information-sharing and early-warning by BMKG. BMKG, renamed in 2008 from the former BMG (the Meteorology and Geophysics Agency), expanded the Early-Warning System for Tsunami after the Asian Tsunami in 2004 and has been further developing an Early-Warning System covering Tsunami, Climate and Meteorology.

As is stated in *ICCSR*, among the issues addressed during the initial six years (2010-2015) out of the long-term Roadmap till 2030, the GOI places the highest priority on forecast of climate change impact, vulnerability assessment, and development of an adaptation information system.

By the end of 2010, the GOI made progress toward further development of climate forecasting and impact/vulnerability assessment. This progress included the following: BMKG started developing climate modeling as the basis for development of impact and vulnerability assessment; MMAF (Ministry of Marine Affairs and Fisheries) put INAGOOS (Indonesian Global Ocean Observing System) into operation to cope with climate change; and MOE started preparation of criteria concerning the impact of climate change.

[31] MOE Ibid.

The GOI and development partners implement a number of cooperation programs/projects addressing the above issues; above all, JICA's Project of Capacity Development for Climate Change Strategies in Indonesia (2010 to 2015) could be highlighted. Under the second sub-project (of three) titled "Capacity Development for Vulnerability Assessment," JICA provides technical support for the establishment of systems for vulnerability studies, climate change forecasting and verification, evaluation of adaptability, and strengthened coordination among stakeholders. Additionally, GIZ and AusAID cooperate with MOE in the project called KRAPI (Pedoman Kajian Risiko dan Adaptasi Perubahan Iklim, or Climate Change Risk and Adaptation Assessment Guideline for local level in English). The KRAPI project aims to support local governments in applying meso-level and multi-sectoral approach of vulnerability assessment.

Directions for the CY 2011 CCPL and beyond

The GOI continuously develops scientific data on climate forecasting as well as expected impacts caused by climate change. At the same time, the GOI prepares laws, regulations, and guidelines to best utilize the accumulated data for planning and implementing adaptation policies. To further support these initiatives, the CY2011 CCPL Policy Matrix includes five targets; namely, 1) completion of the climate model scenario, 2) development of a climate database, 3) vulnerability assessment in Bali and West Nusa Tenggara, 4) completion of the INAGOOS strategic plan, and 5) development of a list of criteria of standard of environmental degradation of climate change.

Outcome Area:
Strengthening of institutional and regulating framework and capacity for scientific research on adaptation.

◆ **Background of the outcome area**

The GOI plans and implements climate adaptation projects/programs mainly in the following sectors: water resources; agriculture; marine, coral, small islands, and fishery; disaster management; and health (infectious diseases). The strengthening of legal and institutional systems and continuous accumulation of scientific knowledge will underpin the effective planning and implementation of adaptation measures. Thus, the GOI places high priority on assessment of vulnerable regions and sectors; identification of adaptation programs; enhancement of forecast capacity for high tides, flood, and drought; and development of a system for information-sharing and early warning.

The information-sharing and early-warning system is developed mainly by BMKG. BMKG expanded the Early-Warning System for Tsunami after the Indian Ocean earthquake and tsunami (2004), and has been further developing a Tsunami Early Warning System (TEWS), Climate Early Warning System (CEWS), and Meteorology Early Warning System (MEWS). BMKG also has initiated development of climate change model scenarios with the aim of completion by 2013.

INAGOOS was launched in August 2005 by the Indonesian Minister of Marine Affairs and Fisheries. The purpose of INAGOOS is to make comprehensive and sustained observations of ocean climate phenomena and natural and human-induced disasters by setting up a monitoring system and its predictive schemes for the coasts, straits, and the adjacent areas of the Indonesian seas.[32]

At the same time, the GOI has been working on vulnerability assessments to identify areas and sectors in need of adaptation.

[32] A.R. Farhan and S. Lim. (2010) "Integrated Coastal Zone Management towards Indonesia Global Ocean Observing System (INA-GOOS): Review and Recommendation", in *Ocean & Coastal Management*, 53 (2010) p.425, http://www.gmat.unsw.edu.au/snap/publications/farhan&lim2010a.pdf. (Accessed on 9 August 2011).

◆ CY2011 Policy Actions and Future Directions

The following table shows the indications of the five policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1) **Complete 7 climate change modeling scenario.**
Ministry/Agency in charge: BMKG
CY 2011 Status: Attained
CY 2011 Progress/Attainments: The seven modeling scenarios were completed. BMKG's Center for Climate Change and Air Quality conducted various climate change-modeling scenarios (more than 7 models) from various countries' models, including those of the UK, Japan, Norway, and CSIRO-Australia, and adapted them to Indonesia's circumstances.
Obstacles/challenges observed (if any): High-capacity computers for modeling and human resources development in the Center are required, followed by further reinforcement of BMKG's branch offices/stations (technical implementing units/stations: Medan (North Sumatra), Ciputat (Jakarta), Denpasar (Bali), Makassar (South Sulawesi), and Jayapura (Papua).
CY 2011 Indication (2) **Develop climate database including 5 parameters (rainfall, temperature, humidity, wind and sunlight).**
Ministry/Agency in charge: BMKG
CY 2011 Status: Attained
CY 2011 Progress/Attainments: Development of the Climate Database was completed with an additional parameter of atmospheric pressure.
Obstacles/challenges observed (if any): Not identified.
CY 2011 Indication (3) **Continue vulnerability assessment studies: complete 1st phase in Bali (current and past vulnerability in food security and water availability), start one in West Nusa Tenggara.**
Ministry/Agency in charge: BMKG
CY 2011 Status: Attained
CY 2011 Progress/Attainments:

Since 2010, vulnerability assessment studies were conducted in East, Central, and West Java provinces. Assessment in Bali province was underway (as of November 2012).

For Bali, phase 1 (vulnerability assessment for food security) was expected to be completed in 2012, and vulnerability assessment for water availability will be terminated in 2013 (information as of November 2012)

For West Nusa Tenggara, the vulnerability assessment was started in 2011. BMKG is in charge of assessing climate exposure, while the local consultant working for JICA's TA project is conducting sensitivity analyzes of agriculture (particularly paddy) and of the adaptive capability of farmers.

Obstacles/challenges observed (if any):
Not identified.

Future policy action/target to follow the progress of the above indications:

[1] Prepare Vulnerability Maps for other areas.

Progress/Attainments/Challenges observed:
Assessment in North Sumatera was launched in late 2012. Additionally, the GOI convened a grand launch event for vulnerability studies in June 2012. There, the vulnerability maps of three provinces that were already developed were officially handed over to the provincial governments.

In 2013, vulnerability assessment for other islands will be made.

A project called "Strengthening IPCC's Climate Change Scenarios" will start in 2013. The project will aim at (1) processing IPCC climate change projection data into Indonesia-specific data, and (2) processing climate change scenario projection data to support adaptation policy-making in climate-sensitive sectors.

Relevance of the future direction/expected outcome:
As was described in *ICCSR* and other key documents, the accumulation of scientific knowledge on the impact of climate change and the mapping of local vulnerability are amongst the most urgent tasks for climate adaptation. The GOI plans to develop local vulnerability maps as well as adaptation information system(s) by 2015 that will be the basis for planning and implementation of all other adaptation policies.

For TEWS, MEWS, and CEWS, the GOI plans to improve system management and the area coverage of early-warning data and information to reach a wider segment of the public quicker and more accurately.

Recommendations (if any):

Development of the optimum climate modeling and database, capacity building of managing staff, and improvement of standardized computers at BMKG are required. Further reinforcement of implementing units/stations at the local level is also necessary.

For the vulnerability and other studies, coordination with other ministries and agencies seems to be a remaining challenge. For example, the BMKG vulnerability studies need to be shared with the MOE's study on criteria concerning the impact of climate change, and vice versa.

CY 2011 Indication (4)

Complete Strategic Plan (2011-2014) for INAGOOS.

Ministry/Agency in charge: MMAF

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

Strategic Plan 2011-2014 for INAGOOS was published in the Indonesian language in December 2011 for internal use within the R&D Agency. In early 2012, it was circulated to relevant ministries/agencies to obtain comments.

Since then, INAGOOS has become a strategic communication forum for various agencies, including BIG, BMKG, Agency for Technology Research and Application (BPPT), the Navy's Hydro-oceanography Office, MMAF's Research and Development Agency for Marine and Fisheries (Balitbang KP), National Agency for Space and Aviation (LAPAN), Indonesian Institute of Sciences (LIPI)'s Research Center for Oceanography (P2O-LIPI), LIPI's Research Center for Geotechnology (GEOTEK-LIPI), and MEMR's Research and Development Center for Marine Geology (P3GL)[33].

INAGOOS is included in Annex II of *RAN-GRK*, stipulated under Presidential Regulation No. 61/2011, as one of the supporting activities for reducing GHG emissions.

Obstacles/challenges observed (if any):

INAGOOS involves a number of institutions working on ocean data observation, and thus requires development of a network system and protocol for information exchange. Institutional capacity varies among institutions.

Future policy action/target to follow the progress of this indication:

[2] Implement INAGOOS into operational oceanography.

Progress/Attainments/Challenges observed (if any):

The initial draft of RENSTRA INAGOOS was developed by MMAF and then reviewed at an inter-ministry/agency meeting held in May 2012. To reflect the results of the review meeting

[33] INAGOOS RENSTRA (Indonesian Global Ocean Observing System).

and finalize RENSTRA by the end of 2012, working groups were organized in November 2012 to discuss the issues of ocean and climate observation, marine instrumentation, national ocean survey, and database and data exchange. The meeting recommended points to consider, including the necessity of coordination and clear division of roles among ministries/agencies, in particular with regard to the data resulting from each institution and exchange mechanism.

INAGOOS is currently handled by the Center for Assessment & Engineering for Marine and Fisheries (BPOL) with AFD's support. AFD provides USD 30 million, of which 52.7% are in the form of a loan and 47.3% are a grant, for the implementation of INAGOOS under a project called INDENSO (Infrastructure Development of Spatial Oceanography). The fund is utilized for preparing buildings, laboratories, and office equipment such as PCs.

An action plan for INGOOS implementation will be prepared.

Relevance of the future direction/expected outcome:
INAGOOS is designed to make comprehensive and sustained observations of ocean climate phenomena and natural and human-induced disasters by setting up a monitoring system and its predictive schemes for the coasts, straits, and adjacent areas of the Indonesian seas.

Operational oceanography is a series of activities to systematically measure the seas and oceans and atmosphere for long time spans, and to rapidly interpret and disseminate the resultant data. Thus, implementation of INAGOOS as operational oceanography will provide the GOI with the capacity needed to analyze past, present, and future conditions, including the variability of ocean climate.

Recommendations (if any):
Not identified.

CY 2011 Indication (5)

Prepare List of Criteria of Standard of Environmental Degradation of Climate Change Impact.

Ministry/Agency in charge: MOE

CY 2011 Status: Attained

CY 2011 Progress/Attainments:
The MOE has finalized its assessment on the impacts of climate change in the sectors of agriculture, forestry, and coastal areas, and published reports in December 2011. In 2012 the MOE developed a list of standard criteria of environment degradation related to the impacts of climate change.

The standard criteria include parameters, quantitative/qualitative data, and predictive damage

indicators for the above three sectors. The standards for agriculture and forestry are based on actual measurements, while those for coral reefs are based on estimated values due to insufficiency of actual measurements in Indonesia's territorial seas.

Obstacles/challenges observed (if any):

The development of the list for coral reefs was delayed compared to the other sectors due to insufficiency of data actually measured in Indonesia's territorial seas; the MOE ultimately used estimated data instead. Further studies (obtaining serial data and their analysis) and stakeholder consultation are desired.

Future policy action/target to follow the progress of this indication:

[3] Issue a Government Regulation on the criteria of impact of the climate change.

Progress/Attainments/Challenges observed:

Upon finalization of the lists for the three sectors, the MOE will prepare an early draft of Government Regulation by the end of 2012. However it is still uncertain if the criteria will be issued as a Government Regulation.

Relevance of the future direction/expected outcome:

The list of criteria of impacts of climate change will provide stakeholders with basic information as well as the standards for recommended policies that anticipate impacts in three sectors, namely, forestry, agriculture, and coral reefs.

Recommendations (if any):

To further improve the accuracy of the criteria particularly for coral reefs and coastal areas, MOE and/or MMAF might consider measures for strengthening the capacity of observation/monitoring of the coral reefs. Both ministries could seek financial and/or technical cooperation with international development partners including JICA.

◆ Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for the sector "climate forecasting and vulnerability assessment" during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set the indicator "completion of two or more pilot activities of INAGOOS by 2014 (c.f. no activities have been completed as of 2010)." The GOI has already launched projects that are expected to be completed by 2014.

◆ Further recommendations related to the outcome area

Not identified.

3.2 Water Resources

Sector overview

The GOI has been conducting assessment of climate impacts and risks in local areas. It is expected that possible climate change impacts on water resources in Indonesia will include water scarcity, flood, and drought. Several climate change studies have suggested that temperatures have increased consistently with significant decreases and/or increases in rainfall in many parts of Indonesia, with different, but significant, trends in different areas. In addition to the observed rise in sea level, a rise in sea level by varying degrees is also predicted in many coastal areas of Indonesia that will lead to inundation and saltwater intrusion in coastal cities. Due to this variability and change in the climate, various regions in Java and the eastern islands of Indonesia face water shortages every year. Also, wider areas are projected to have water scarcity in the future. *SNC* shows an expected scenario of water balance under certain assumptions[34]. According to the scenario, the districts with no water surplus throughout the year will increase significantly from approximately 14% of the total of 453 districts to 19% by 2025 and 31% by 2050. Water shortages will undoubtedly have a negative effect on various sectors, including households, agriculture, forestry, energy, and industry.

Past Development in the previous phases of the CCPL

As mandated by Act No. 7/2004 on water resources, from 2008 to 2010, the GOI has advanced policies and institutions related to water resource management[35]. Firstly, the Government Regulation No. 42/2008 on water resource management was issued. The regulation contains four main topics, namely 1) definition of water resource management; 2) policy and guidelines for water resource management; 3) provision of river areas, watersheds, water quality management, water utilization zones, water allocation, water resource facilities, and water resource development; and 4) role of the National Water Resource Council.

Secondly, institutions and organizations for water resource management were also developed both at the national and local levels. The National Water Resource Council and Provincial Water Resource Councils were established and have begun undertaking the responsibility of preparing

[34] 1) Population increases as estimated by the Bureau of Statistics, 2) forest cover decreases at a rate of 1% per year and deforestation occurs in all districts, 3) rice field area decreases at a rate of 50,000 ha per year in Java but increases at a rate of 150,000 ha per year outside Java, and 4) Human Development Index (in Indonesia) continues to improve. (*SNC*, IV-20).

[35] Act No. 7/2004 on water resources mandates the GOI and stakeholders to do water resource 1) conservation, 2) utilization, 3) potential damages management, 4) information system strengthening, 5) and community empowerment.

and implementing strategic development plans for the water resources and river basins under their jurisdictions. River basin centers (Balai Wilayah Sungai) and river basin offices (Balai Besar Wilayah Sungai),[36] which are the agencies responsible for developing basin-level water resource management plans, were established covering 69 river basins in Indonesia. Balai Wilayah Sungai and Balai Besar Wilayah Sungai were strengthened through the recruitment of engineers and establishment of "Dissemination Units." Additionally, Balai Wilayah Sungai and Balai Besar Wilayah Sungai worked on preparing water resource management strategic plans (POLA).[37] Highlights of institutional development for water resource management by the end of 2010 include development of 8 POLAs and establishment of 18 Provincial Water Resource Councils and 21 Coordination Teams for Water Resources Management in River Basins (Tim Koordinasi Pengelolaan Sumber Daya Air (TKPSDA): teams designated for each river basin to discuss and design water resource management plans and patterns, program and activity plans, water allocation, hydrological information systems, and human and financial resources management). These achievements will enable effective project development and implementation at river basins to reduce the risks of flood and water scarcity.

The major supporters for the GOI's water resources and irrigation policies include the World Bank through the Water Resources and Irrigation Management Project (2005–2010) and Dam Operation Improvement and Safety Project (2009–2013); ADB through the Participatory Irrigation Sector Project (PISP) I & II (2005–2011) and ICWRMP (Integrated Citarum Water Resource Management Investment Program) I & II (2008–2013); and JICA through the p Project Type Sector Loan for Water Resources Development II (2001–2011), Decentralized Irrigation System Improvement Project in the Eastern Region of Indonesia (2004–2012), and assistance by the Integrated Water Resources Policy Advisor.

Directions for the CY2011 CCPL and beyond

The GOI further aims to continuously strengthen the capacity of river basin management by preparing action plans and strategies. The action set for the CY2011 CCPL Policy Matrix (namely, drafting of master plans in 2 river basins) as well as future actions (i.e. completing the

[36] Balai Wilayah Sungai and Balai Besar Wilayah Sungai are also called river basin organizations (RBO).

[37] What is called POLA in this report is water resources management strategic plan (Pola Pengelolaan Sumber Daya Air). Water resources management was held based on: a) water resources management policy at the national level, provincial level, and district/city level; b) river basin and ground water cavity as decided; and c) POLA based on basin area. POLA are drafted by the water resources coordinator or the TKPSDA and submitted to the Minister of Public Works.
Note, however, that Indonesian word "pola" is a general noun meaning "patterns."

master plans and issuance of a guideline for preparing master plans) will contribute to such an objective of the GOI.

Outcome Area:
Improving water resource management including Climate Change adaptation measures in integrated manner to strengthen the resilience to the increasing drought and flood risks, specifically in nationally strategic river basin in Java Island.

◆ **Background of the outcome area**

To improve capacity in water resource management, the GOI has been developing organizations to oversee river basins since 2006. River basins were identified by the MOPW Decree No. 11/2006 and Presidential Decree No. 12/2012,[38] and then stipulated the organization and standard operation procedures of Balai Wilayah Sungai (river basin centers) in MOPW Decree No. 12/2006, and Balai Besar Wilayah Sungai (river basin offices) in MOPW Decree No. 13/2006. Balai Wilayah Sungai and Balai Besar Wilayah Sungai, organized by the central government in each river basin, are responsible for water resource management, including planning, development, operation, and maintenance, as well as the preparation of POLA. Balai Wilayah Sungai and Balai Besar Wilayah Sungai are conducting capacity building activities that include sending technical staff to those institutions.

To further improve water resource management, TKPSDA, the entities to coordinate among stakeholders in river basins overlapping multiple regions, have been organized in eight National Strategic River Basins and six Cross-provincial River Basins by 2009.

The GOI has been developing POLA for further planning and policy development.

◆ **CY2011 Policy Action and Future Directions**

The following table shows the indication of the policy target/action set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress in this outcome area.

CY 2011 Indication

Complete draft of master plans for 2 River Basins in Java Island (Cimanuk-Cisanggarung and Brantas River Basins) which include climate change adaptation measures.

[38] MOPW Decree No. 11/2006 identifies the five categories of river basins as follows: a) five International River Basins; b) 27 Inter-provincial River Basins; c) 37 National Strategic River Basins; d) 51 Inter-regency/city River Basins; and e) 15 Regency/City River Basins.

Ministry/Agency in charge: MOPW

FY 2011 Status: Substantial Progress

FY 2011 Progress/Attainments:

The following table shows the progress/attainments of the policy target/action observed in CY2011, as well as the future policy actions/targets to follow the progress in this outcome area.

Preparation of a master plan involves three stages, namely, water resource inventory, drafting and legalization. The Masterplan development for the two river basins on Java Island entered to the second stage, i.e. the preparation of the basic design and pre-feasibility studies.

The third stage (legalization: issuance of Ministerial Decree) will be completed in 2013. It should also be noted that four additional POLAs were approved by MOPW as the basis for preparing policies and strategies for management of all river basins of Belawan-Ular-Padang, Batanghari, Parigi-Poso, and Lasolo-Konaweha.

Obstacles/challenges observed (if any):

Further efforts could be put into accelerating the development and implementation of the master plans. Specifically, MOPW could convene workshops inviting local organizations to support the development of master plans as well as providing the guideline for preparing master plans.

It should also be pointed out that policies to improve river basin management often require relocation of a large number of inhabitants. This may sometimes produce bi-products or negative impacts to the livelihoods of the relocated people as well as the natural/socio-economic environment of the destination areas. MOPW conducts feasibility studies and communication meetings prior to implementing the master plans. It is also desired that MOPW prepare ex-post monitoring and evaluation focusing both on positive and negative impacts.

Future policy actions/targets to follow the progress of this indication:

[1] Complete master plans for 2 River Basins in Java Island (Cimanuk-Cisanggarung and Brantas River Basins) which include climate change adaptation measures.

[2] Prepare Ministerial Decree on Guideline of master plan.

Progress/Attainments/Challenges observed (if any):

Drafting of master plans for 2 river basins on Java Island will be completed in 2012, and the Ministerial Decree on the guideline of master plans will be completed in 2013.

Relevance of the future direction/expected outcome:

Master plans of river basins are prepared based on POLA achievement. Therefore, the developed master plans will serve as the basis for relevant institutions to conduct necessary activities to improve in an integrated manner water resource management for balancing water demand and supply and strengthening resilience to increasing drought and flood risks, specifically in nationally strategic river basins on Java Island. Activities and projects to be conducted for the above objectives may include improvement of storage capacity and inter-basin transfer of water from surplus to deficit regions.

Recommendations (if any):

Preparing master plans on water resource management in all National Strategic River Basins and issuing a guideline or standards of procedures for the master plans are recommended.

These master plans, prepared based on POLA achievement, are required toward implementing activities for safeguarding water balance and disaster prevention by 2030 as specified in *ICCSR*. The activities and projects for better water resource management need to be replicated in areas outside Java, as water shortages and increase of flood and drought risks are also projected on other islands, particularly Sulawesi, Sumatra, and Bali.

In order to attain the outcomes of CCPL actions, the followings are necessary: a) further strengthening of water resources management policies; b) improvement of POLA and master plans to take into considerations the quantitative impacts of climate change and the adaptation measures; and C) capacity development of Balai Wilayah Sungai and Balai Besar Wilayah Sungai to implement water resources management based on POLA and master plans including climate change adaptation measures in integrated manner.

JICA has been implemented several projects for the purpose as mentioned above. First, JICA has been dispatched the Integrated Water Resources Policy Advisors since 2008. The advisors assisted to formulate guideline for the master plans, which would contribute to promote preparation of the master plans. This kind of policy advisors are important tool to facilitate development policies stipulated in CCPL. Additionally, “The Project for Assessing and Integrating Climate Change Impacts into the Water Resources Management Plans for Brantas and Musi River Basins” will be started from 2013. In this project, recommendations for reflecting climate change impacts on POLA and master plans shall be formulated. Besides, guidelines to be applicable to POLA and master plans in other river basins in Indonesia, taking climate change issues into account, will be also prepared. It will contribute to improve the quality of POLA and master plans to reflect quantitative climate change adaptation and mitigation properly. Furthermore, JICA implemented “Capacity Development

Project for River Basin Organizations (RBOs) in Practical Water Resources Management and Technology in Indonesia" from 2008 to 2011, and now is planning the phase 2 project, which will be started after 2013. Through these projects, water resources management by river basin organizations based on POLA and master plans will be enhanced. In this way, JICA will assist to follow CCPL actions which will be done by the Indonesian side continuously.

Hence, It is recommended that MOPW make the most use of these assistances to further improve its water resources management including climate change adaptation.

◆ **Achievement of the outcome indicators set by BAPPENAS/JICA**

An outcome indicator for measuring medium-term attainment was set for the water resources management sector; namely, “completion and approval of POLA at 12 or more river basins by 2012 (c.f. completed at 3 river basins as of 2010).” The GOI has already approved POLA for 12 basins as of July 2012. Thus the target has already been achieved.

◆ **Further recommendations related to the outcome area**

As was stated above, it is desired that MOPW prepare ex-post monitoring and evaluation that focus on both positive and negative impacts to the livelihoods of the relocated people as well as the natural/socio-economic environment of the destination areas at an early stage of developing and implementing the master plans, in addition to the feasibility study conducted in advance.

3.3 Agriculture

Sector overview

Expected changes in spatial rainfall patterns, the length of the wet season, and inter-seasonal variability will have serious implications for the agriculture sector. Studies have suggested that rice production in Java is likely to decrease by about 1.8 million tons from the current production level in 2025, and by 3.6 million tons in 2050[39]. When the impact of rice field conversion to non-agriculture lands in Java is incorporated, the production loss will increase to 5.2 million tons in 2025 and 13.0 million tons in 2050[40].

In addition, the change in temperature and rainfall may lead to an increase in crop diseases. Studies suggest that sea level rise has an impact on production in rice and corn.

Past development in the previous phases of the CCPL

During the first phase of the CCPL, the GOI advanced policies and institutions related to agriculture, which included implementing and increasing the scale of the System for Rice Intensification (SRI) and Climate Field School (CFS) programs at the local level, developing an irrigation asset management system, and creating (Semi[41]) Dynamic Cropping Calendar Maps. The SRI and CFS programs directly influence farming activities, forging a link between climate policies and farmers' livelihood. The MOA conducted 145 units of CFS in 2007, 155 units in 2008, and 180 units in 2009. However, the SRI and CFS programs have a few challenges in common: firstly, the actual impacts of them to food security and climate change adaptation are yet to be validated; and secondly, both programs remain very limited in scale compared with the total area of paddy and total number of farmers, and thus further scaling-up efforts are needed provided the aforementioned impacts are proved. In 2010, the GOI continued to implement CFS, SRI, and land development and management without burning. However, review and evaluation of these activities have not taken place, even though they are a necessary step toward further improvement as well as dissemination and scaling up of these programs.

[39] Boer, R. A. Buono., A. Rakhman, and A. Turyanti. (2009). "Historical and Future Change of Indonesian Climate" in *Technical Report on Vulnerability and Adaptation Assessment to Climate Change for Indonesia's Second National Communication*. Jakarta: MOE and UNDP.
[40] MOE Ibid.
[41] "Semi" means that the initial cropping calendar maps were prepared only in hard copies. Currently, the same maps have become on-line (=fully dynamic) cropping calendar maps.

The GOI gained support in climate change-related sectors mainly from the following partners: JICA through Supporting Implementation of Irrigation Asset Management (SIIAM) launched in 2009; and ADB through PISP.

Directions for the CY2011 CCPL and beyond

Food security is one of the national priorities set in the 2010-2014 RPJMN to achieve self-sustained crop production by implementing 6 policy components. Adaptation to climate change is one of the components. In particular, with regard to rice production, the GOI is aiming for a national surplus of 10 million tons by 2014 by implementing land extension and intensification, improving infrastructure, and diversifying crop consumption patterns. To respond to anticipated extreme climate, SRI and Integrated Crop Management Field School are considered as two of the major means to achieve the target. CFS continues to be implemented but is expected to be scaled back due to a restricted budget for the project. The implementation of Presidential Instruction No. 5/2011 as the legal framework for providing technical and financial assistance to farmers will remain significant in anticipating and responding to extreme climate.

Outcome Area:
Strengthening of institutional and regulating framework to improve resilience of farm production and reduce drought risk.

◆ **Background of the outcome area**

The GOI has implemented SRI and CFS programs as adaptation measures at the local level.

SRI, a method of increasing rice production, is characterized by the combination of technologies that include 1) transplanting young seedlings; 2) reducing plant population; 3) maintaining aerated soil conditions; and 3) active aeration of the soil. It is considered to have positive impacts in terms of water conservation and yield, improved resilience of farm production, and reduced drought risk, although the extent of these effects still requires scientific analysis.

CFS is a program to provide farmers with appropriate information and technologies to 1) understand the impacts of climate change on temperature, precipitation pattern, pests, and diseases; and 2) cope with the risks of flood, drought, and pests. During the previous phase of the CCPL from 2007 to 2009, 100 to 200 CFS packages were conducted that benefited between 2,000 and 5,000 farmers a year.

In addition to the above programs, the GOI has initiated land development and management without burning by promoting composting and charcoal and briquette production. During the period of 2011-2014, the GOI plans to conduct programs for land development and management without field burning on 300,500 ha.

◆ **CY2011 Policy Actions and Future Directions**

The following table shows the indications of the two policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy action/target to follow the progress in this outcome area.

CY 2011 Indication (1) **Issue a Presidential Instruction on security measures for rice production in facing extreme climate.**
Ministry/Agency in charge: CMEA and BAPPENAS
CY 2011 Status: Attained
CY 2011 Progress/Attainments:

The Presidential Instruction No. 5/2011 was issued in March 2011. The instruction obliges the MOA and 13 other GOI agencies to cooperate with provincial governments to anticipate and provide quick response to extreme climate by allocating technical and financial supports in securing national rice production.

Farmers' groups are provided with 1) labor for seeding & cultivating at one time (instead of by rotation) to mitigate the damage of brown hopper attack, and 2) technical assistance for better irrigation management.

Additionally, MOA issued the Ministerial Regulation No. 45/2011 to coordinate the roles and functions of MOA's technical and research institutions at the central and local levels in supporting a national surplus of 10 million tons of rice by 2014.

Obstacles/challenges observed (if any):

The MOA is mandated by the Government Regulation No. 38/2007 to maintain water user associations (WUA/P3A) in tertiary networks, while secondary and primary networks of irrigation are maintained by MOPW. In response, the MOA has been engaged inpreparation of a ministerial regulation on development and empowerment of WUAs.

Concerning the climate-change impacts of flooding and water shortages, the WUAs will spearhead and play a significant role in managing water utilization for their paddy fields, in particular. The responsibility for managing WUAs will be relegated to local government in 2013.

Under this framework, the Directorate of Water Management will build a "center of excellence for climate change," especially in relation to water management, starting in 2012. It will have a database of WUAs in Indonesia, tertiary irrigation networks, the institutional capacity building of WUAs, and networking by stakeholders. This program will need technical and financial support from a relevant funding agency.

CY 2011 Indication (2)

Prepare a draft of Technical Guidance related to Climate Field School (CFS) and System of Rice Intensification (SRI) based on the Presidential Instruction.

Ministry/Agency in charge: MOA

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

CFS technical guidance is issued every year. Since the objectives of the field school are different among major providers (i.e. DGFC [Food Crops], DGAIF [Agricultural Infrastructure and Facilities), DGLWM [Land and Water Management] and BMKG), they issue guidance respectively.

Highlights of CFS guidance by DGFC mainly include measures focusing on pest and disease control caused by climate change, while DGAIF focuses on water management in non-irrigated areas. DGFC completed 247 units in 30 provinces, and DGAIF realized 1,001 units in 14 provinces. CFS under DGLWM mainly benefits the WUAs. In 2011, it was renamed the Climate Adaptation and Anomaly Field School.

SRI technical guidance is also updated every year. In 2011, 599 units were completed. The GOI sees SRI as one of the activities to cope with food insecurity issues, and is attempting to increase the target area of SRI coverage from 13,000 ha in 2011 to 200,000 ha in 2013.

Obstacles/challenges observed (if any):

Further efforts could be put into review and validation of the impacts of these programs and replication or dissemination of them as advanced cases over wider areas of the country. The programs of SRI, CFS and land management without burning have a few challenges in common: firstly, the actual impacts of them to food security and climate change adaptation are yet to be validated; and secondly, both programs remain very limited in scale compared with the total area of paddy and total number of farmers, and thus further scaling-up efforts are needed provided the aforementioned impacts are proved. The MOF and BAPPENAS could explore fund allocation schemes to facilitate SRI, CFS, and land management without burning using local governments' initiatives.

Future policy action/target to follow the progress of the above indications:

[1] Continue the 2011 progress to finalize actions

Progress/Attainments/Challenges observed (if any):

Measures to respond to extreme climate as specified in the Presidential Instruction No. 5/2011 are being put into practice also in 2012.

The technical guidance for SRI and CFS for 2012 was also issued as scheduled.

Major challenges in the adaptation policies of agriculture are, according to the MOA, summarized as follows:

1) The measures (both technical and socio-economic ones) need to be tailored to suit diverse local contexts existing throughout the country. On this account, further technical assistance is required to develop and disseminate adaptation measures particularly in the 12 major rice producing areas;

2) The projects have not yet undergone analysis. Evaluation of the effectiveness and impacts of the projects, including those by third parties, are desired;

3) Budget allocation is decreasing particularly from 2012, resulting in a significant decrease in the number of CFS projects.

Relevance of the future direction/expected outcome:

The MOA sees SRI (DGIAF) and Integrated Crops Management Field School (DGFC) as one of the four major means to achieve the national target of producing 10 million tons of rice in 2014 (land optimization and extension, rice consumption decrease, management improvement are the other measures).

Recommendations (if any):

The GOI has already identified necessary programs and projects to deal with food security issues in anticipation of climate change, including institutional and organizational development (such as agricultural insurance systems), ground-level projects (such as SRI, CFS and land without burning), and GP3K (Corporation-based Production Increase Movement). Since these measures are expected to strengthen food production as well as rural societies and economies, their steady implementation is desired.

At the same time, review and evaluation of the effectiveness of these activities at the ground level is necessary to accelerate the dissemination of projects in forms more suited to the diverse local contexts found throughout the country.

◆ **Further recommendations related to the outcome area**

- As was mentioned above, steady implementation of the food security programs and projects is desired.
- International development partners including Japan and France may explore potential cooperation with some of the prioritized policies, namely:
  - Assessment and design of index-based crop insurance to support farmers as well as communities suffering from crop failures caused by flood and drought;
  - Assessment, review, or implementation of projects under the GP3K, or the Corporation-based Food Production Increase Movement), in particular those related to partnership among farmers' groups and state enterprises. Support for the center of excellence for climate change to be created by the Directorate of Water Management, MOA.

3.4 Marine and Fisheries

Sector overview

Indonesia consists of 17,000 islands and is vulnerable to the impacts of climate change. Potential threats to the coastal areas and small islands in Indonesia include:

- Sea level rise/inundation: The average of sea level rise in Indonesia is estimated to be 0.6 cm per year, which means that the sea level will rise by 25 cm by 2050 and 50 cm by 2100. This means that about 25% to 50% of the urban area in the largest cities of the country, such as Semarang, Surabaya, Jakarta, and Medan, will become inundated. At the same time, outer islands of Indonesia could also be affected. If it happened in combination with tidal pattern change, a 50-cm of rise in the sea level could lead to the inundation of five islands[42].
- Warmer sea-surface temperature: The average sea-surface temperature in Indonesian seas is projected to increase by 0.65 C (±0.05 C) in 2030. Warmer temperature seriously damages the coral reefs of Indonesia, which are the largest in the world. Coral bleaching is a significant threat to fish because it damages the habitats of thousands of species and increases the risk of coastal erosion.
- Increased frequency of extreme events: The frequency of extreme events, such as El Niño and La Niña, is also projected to increase. As a consequence, more storms, cyclones, and higher waves may hit the coastal areas.

Indonesia, having most of its largest cities and 50% to 60% of its total population in coastal areas, could be heavily damaged by the above threats. For instance, higher risk of extreme events could threaten human lives as well as houses and other infrastructure in coastal communities. Damage to coral reefs and fish populations directly affects the economy by decreasing fish and aquaculture production.

Past development in the previous phases of the CCPL

The main objective of adaptation policies in the fisheries sector and for coastal areas and islands is to make the livelihoods of the coastal population more resilient to the threat of sea level rise, higher surface temperature, and extreme weather events.

Such an objective cannot be attained merely by the efforts of the central and local governments to conduct large scale programs/projects. The key to success is, rather, active participation of the community populations in activities for a) income generation and management; b) conservation,

[42] MOE Ibid. Chapter IV, p44. (Accessed 21 January 2013).

management, and rehabilitation of resources; and c) management of risks in extreme events. On this account, the GOI tries to facilitate communities' and people's participation through a number of policy actions in this sector.

The Policy Matrix in the previous phase of the CCPL mainly covered actions related to the Coral Reef Rehabilitation and Management Program (COREMAP) for the marine, coral, and fisheries sector. The GOI has attempted to strengthen coastal and island communities. The COREMAP program, for instance, was launched in 1998 with the objectives of conservation, rehabilitation, and sustainable use of marine/coral resources as well as improvement of community welfare. A wide range of activities in the program contributes to, among other aims, making coastal societies and economies more resilient, community-based income generation and management, rehabilitation of mangrove and coral, and setting of marine protection areas.

Additionally, an MMAF program called the "Climate Resilient Villages Program" was added to the CCPL Policy Matrix in 2010. This is a five-year program that targets 10 coastal areas in Northern Java. Its aim is capacity development for coastal communities concerning adaptation to climate change.

Directions for the CY2011 CCPL and beyond

As described above, the policy actions specified in the previous CCPL matrix have contributed to building resilience of coastal areas and the fisheries sector, mainly through the implementation of projects in support of fishermen and their communities. More specifically, resources have been allocated for improving land utilization, maintenance and control, evaluation, rehabilitation, development, and conservation of coastal environments.

Whereas these community-level activities need continuous efforts, it is also important to develop scientific knowledge toward better implementation. In this sense, it is appropriate that the 2011 CCPL matrix listed three policy targets related to better understanding and planning of coastal regions and oceans.

Outcome Area:
Strengthening of institutional and regulating framework to manage coastal zones and small islands.

◆ **Background of the outcome area**

While continuing on-the-ground projects under COREMAP and so on, the GOI has also attempted to strengthen institutional capacity toward better adaptation of coastal regions and small islands as well as the fisheries sector. In particular, accumulation and analysis of scientific data related to the conditions of coastal areas, fisheries, and marine resources are absolutely necessary for the sake of medium- or long-term planning for building resilience of coastal communities. At the same time, it is also important to build better coordination or cooperation frameworks among relevant ministries/agencies, local governments, and development partners.

In this light, the three targets in the 2011 CCPL matrix reasonably address these issues by 1) developing a 5-year plan of the Climate Resilient Villages Program; 2) preparing a strategic plan for coastal vulnerability recommendations; and 3) updating marine carbon research.

The Climate Resilient Villages Program is a program that incorporates climate and disaster adaptive capacity development of coastal communities into a five-year village development plan. The five-year development plan covers five aspects of human resource and natural resource management, economic/entrepreneurship, and environment and infrastructure development. The program was initiated in eight coastal municipalities/regencies (Tuban, Pacitan, Demak, Pekalongan, Subang, Bekasi, Jakarta Utara, and Serang) in Northern Java. A pilot project was undertaken at Tanjung Pasir village, District of Tangerang, to develop and implement the development plan[43].

The strategic plan for coastal vulnerability recommendations is based on the results of coastal vulnerability studies conducted by the Research and Development Center for Marine and Coastal Resources since 2008. The areas studied include Semarang, Central Java (in 2008 and 2009), Carocok and West Sumatra (in 2010 and 2011). The collected data have been (or will be) elaborated as the Coastal Vulnerability Index (CVI). The data are expected to contribute to the RENSTRA for coastal vulnerability research that is under preparation.

[43] The difference was that at Tanjung Pasir village, they established the plan and implemented it, while in the other villages, they only established a 5-year development plan, such as building infrastructure to cope with sea level rise, community awareness etc, as described in the policy actions.

At the same time, more accurate data collection and analysis are required on the vulnerability of coastal areas and CO_2 flux in the ocean. The Center for Marine and Coastal Research and Development launched the first RENSTRA of Marine Carbon Research in 2008 based on a pilot study in Banten Bay in 2008 as well as the results of other studies conducted since 2005. In 2010 a second version of RENSTRA was published that mentioned research cooperation with Germany during the years from 2010 to 2014. Following these developments, a third version was scheduled to be issued in 2011 with more mention of international cooperation as well as the transfer of data into blue carbon research, which encompasses coastal vegetation in such areas as conservation of mangroves, sea grasses, and salt marsh grasses toward effective carbon sequestration.

◆ CY2011 Policy Actions and Future Directions

The following tables show the indications of the three policy targets/actions set for CY2011 (specified in boldface), the progress/attainments observed, and the future policy actions/targets to follow the progress of each indication.

CY 2011 Indication (1)

Develop climate resilient village plan for 5 years, including detail engineering, implement the design and develop the community resilience through workshop and training in Tanjung Pasir.

Ministry/Agency in charge: MMAF

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

The Strategic Plan has been successfully finalized in 2011 entitling “2011-2015 Development Plan of Tanjung Pasir Village, Teluk Naga Sub district, Tangerang District, Banten Province.” The climate resilient strategy was incorporated into the Development Plan.

The development of RENSTRA includes the following activities:
- Village problem identification and concept development (in collaboration with FEMA, IPB) including institutional strengthening;
- Infrastructure planning including Detail Engineering Design (DED) and village mapping; and
- Infrastructure-building including the building of dikes along rivers close to villages, and mangrove restoration.

Along with this component, community awareness regarding the possible impact of climate change was enhanced through a theatre setting that utilized a role-playing game involving 25

students and youths.

Obstacles/challenges observed (if any):

Not specified.

Future policy action/target to follow the progress of this indication:

[1] Develop Guidelines of disaster and Climate Change resilient coastal village.

[2] Implement the climate resilient village plan.

Progress/Attainments/Challenges observed (if any):

This pilot project in Tanjung Pasir village was further developed as a new program, namely the Disaster and Climate Change Resilient Coastal Village (*Pengembangan Desa Pesisir Tangguh* – PDPT) for 2012 – 2014. This program was launched in 15 December 2011 by the Minister of Marine and Fisheries and became the "icon" of this DG Marine, Coastal and Small Island together with PUGAR (Community Salt Development). The PDPT Program has been initiated at 48 villages of 16 districts (3 villages each) in 16 provinces starting 2012.

Relevance of the future direction/expected outcome:

According to MMAF, the PDPT program adopted a South Korean development strategy (called *saemaul undong*) that puts emphasize on revitalizing village values that were lagging behind urban/industrial development. The PDPT program seeks to improve human resources and capacity building as well as economic, environmental and infrastructure improvement, and to increase resilience to the impacts of disaster and climate change. Since the pilot project in Tanjung Pasir village has been established, replication to other targeted villages is necessary. Standard guidelines for PDPT to be derived from lessons learned when implementing projects are necessary.

Recommendations (if any):

PDPT would become one of the programs run by MMAF as part of a government program to improve the welfare of fishermen and other coastal populations by incorporating socially, economically, and ecologically sustainable development, including enhancing village resilience to disaster and climate change impacts.[44] Out of 10,640 coastal villages across Indonesia, the PDPT program is targeting 6,640 coastal villages without better fishing port facilities since they are assumed as inferior in economic conditions. Donors' participation is necessary, and the MMAF is inviting other stakeholders to provide support. Recently, USAID

[44] The GOI established a working group on fisherman livelihood improvement programs involving 12 ministries/agencies and led by MMAF, and regulated by Presidential Decree No 11/2011.

adopted this program at 100 villages in Nusa Tenggara Barat and Sulawesi Tenggara by establishing a project named Indo Marine and Climate Support (IMACS).[45]

CY 2011 Indication (2)

Prepare draft/concept Strategic Plan on Coastal Vulnerability Recommendation for Marine and Coastal Resources in Indonesia.

Ministry/Agency in charge: MMAF

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

An early draft with an outline of the Strategic Plan on Coastal Vulnerability Recommendation for Marine and Coastal Resources has been prepared. Data updates were completed from a coastal vulnerability study continued from Semarang, Central Java (2008-2009), and Carocok, West Sumatra (2010-2011). Other areas in Indonesia were added using existing remote sensing data; however, they lack ground verification.

The Strategic Plan is expected to be the grand design for coastal management/development policy at the national level, while INAGOOS is the design for ocean/marine policy. The outline of Strategic Planning includes compilation of disaster sources causing coastal vulnerability based on geodynamic factors (earthquake, tsunami, landslide, etc.) and ocean-atmosphere interaction factors (such as floods, cyclone, storm surge, freak wave, tidal floods, etc.). Data compilation on marine and coastal resource carrying capacity is necessary to understand coping capacity formulation that represents the different resource characteristics of each area.

RENSTRA also provides a review of existing national laws and regulations that could potentially be in conflict such that of spatial plannings in provincial and district/city levels, during implementation either at the national or local level, particularly during decentralization.

Obstacles/challenges observed (if any):

Not specified.

CY 2011 Indication (3)

Review and update Strategic Plan for Blue Carbon Research in Indonesia 2011-2014.

Ministry/Agency in charge: MMAF

[45] USAID (2013). *Indonesia Marine and Climate Support (IMACS) Project*. http://indonesia.usaid.gov/en/USAID/Activity/271/Indonesia_Marine_and_Climate_Support_IMACS_Project. (Accessed 21 January 2013).

CY 2011 Status: Attained

CY 2011 Progress/Attainments:

MMAF continues research to develop the 3rd edition of the Strategic Plan. At the same time, it initiates conversions concerning knowledge and research from coastal and marine carbon to the blue carbon issue.

Strategic Planning on Marine Carbon Research in Indonesia was initiated in 2008. It was published for the first time in 2009; an updated 2nd edition was published in 2010. In 2011, MMAF received technical support that included equipment from the Tokyo Institute of Technology. Some of the highlights of the third edition include: 1) extension of research cooperation with Japan and the USA, and possibly with UNEP as well as other international organizations and NGOs from 2012 to 2014; and 2) initiation of knowledge transfer (or interpretation) from the coastal marine carbon study into blue carbon study, which encompasses coastal vegetation toward effective carbon sequestration.

As of August 2012, a review and updating of RENSTRA was made public through an unofficial website for blue carbon research in Indonesia named Blue Carbon Forum (a Facebook site). It receives 500 visitors a week, including NGOs and stakeholders.

Obstacles/challenges observed (if any):

Future policy action/target to follow the progress of this indication:

No action/target is proposed.

Progress/Attainments/Challenges observed (if any):

MMAF continues its effort to develop blue carbon research, specifically focusing on the following issues:

1) Research on the variability of CO_2 flux in areas other than the Banten Bay pilot area will be continued in view of developing data that properly represent all Indonesian seas.

In this regard, the Ministry of Research and Technology is preparing a budget proposal for expanding the pilot area to areas other than Banten Bay. The proposed study will be jointly implemented with two international cooperation programs: Science for Protection of Indonesian Coastal Marine Ecosystem (SPICE) with Germany; and Tropical Coastal Marine Ecosystem and Carbon Dynamics Under Climate Change (TROMEC) with Japan.

2) The Blue Carbon Center will be established within the Research Center for Marine and Coastal Resources.

Relevance of the future direction/expected outcome:

According to UNEP, the rationale of the Blue Carbon initiative lies in the fact that “(c)oastal and marine ecosystems are believed to be able to complement the role of forests (Green Carbon) in taking up carbon emissions through sequestration”. The potential of marine and

coastal ecosystems in helping mitigate climate change will be maximized in countries like Indonesia that are experiencing rapid loss of broad mangrove cover and coral reefs.

Recommendations (if any):

The method for publishing data could be improved. The current Facebook site (Blue Carbon Indonesia) is not intuitively designed to help visitors obtain relevant information. Launching a portal site under MMAF's website is recommended.

◆ **Further recommendations related to the outcome area**

The above initiatives will produce inputs for the policy development of integrated coastal zone and small islands management, as mandated by Law No. 27/2007. The policy consisting of strategic plan, zoning plan, management plan and action plan is necessary to integrate a long-term adaptation strategy to the climate change resulted from the above initiatives. In addition, it could also integrate the management of upland (watershed) and coastal areas, as well as the cross-sectors involved. For those reasons, harmonisation and synergy with spatial plannings at regional level and coordination among sectors involved are necessary.

The progress and attainments of the target of "a threefold increase of fisheries production by 2014 (compared to 2010)" need detailed examination.

Additionally, assessment with a wider perspective of the impacts of food security measures is recommend, as food (in)security is not determined by mere increase of production. To properly understand the positive and negative impacts of food policies, various factors that include volatilities of production and price, distribution systems, demographic compositions, and other socio-economic conditions need to be studied.

III. Conclusion and Recommendations

◆ Progress and attainments of Policy Targets/Actions in the CCPL Policy Matrix

The CCPL process, which started in 2008, reached its final stage in 2011. The GOI showed notable progress in most of the 42 policy actions/targets specified in the 2011 Policy Matrix: 1 target was attained and surpassed, 35 targets were attained, and substantial progress was observed for other 6 actions/targets. Furthermore, the policy actions/targets specified as future policy directions are mostly in good progress. The GOI takes its own initiatives to steadily implement these policies even after the cancellation of CCPL loan in 2011.

Throughout the period of 2008 to 2012, the GOI has carried out a number of legal and institutional reforms at the national level to mainstream climate change issues in its overall development strategies, and established and/or improved financial schemes and incentive mechanisms to promote climate policies at various levels. The GOI has improved its information sharing and coordination mechanisms to address mitigation and adaptation issues that require coordinated approach among relevant ministries/agencies through establishment of DNPI, REDD+ Taskforce, Cross Ministries Climate Change Working Group, RAN/RAD-GRK Secretariat and new divisions in charge of climate change policies within several ministries. At the same time, progress was observed in the development of action plans addressing mitigation as well as institutional reforms at the local level. For the years beyond 2012, progress has been also made in the mainstreaming of climate mitigation at the local level; the successful preparation of RAD-GRK in almost all provinces was illustrative only. Additionally, climate adaptation policies have also been strengthened through, as an example, development of *RAN-API*.

The GOI has worked on the above issues in close cooperation with international development partners, including those that participated in the CCPL. Opportunities for monitoring activities and policy dialogues presented by the CCPL were utilized for better information-sharing and coordination among the stakeholders in the GOI as well as development partners. Therefore, we view the CCPL as having contributed to the above achievements as one of the major cooperation schemes addressing issues in Indonesia. Furthermore CCPL-related technical assistance and studies extended by Japan and AFD[46] are contributing to the GOI's capacity

[46] JICA supports capacity development of Indonesian national and local officers in the areas of: (a) NAMA preparation; (b) vulnerability assessment; and (c) GHG inventory system through its Project of Capacity Development for Climate Change Strategies.
Additionally, JICA provides technical assistance projects including: Wild Fire and Carbon Management in Peat-forest in Indonesia; JABODETABEK Urban Transportation Policy Integration; and the studies on risk mitigation for promoting private investment in geothermal

development for designing climate change policies and their implementation.

◆ **Prospects and recommendations on the future directions for climate policies in Indonesia**

- Formulation of national-level climate change policies and their implementation at the local level requires close coordination with different stakeholders; i.e. provincial and regency governments and the local population. During the CCPL period, DNPI and ICCTF were established with the aim of coordinating stakeholders and managing financial resources; and in particular, the Climate Change Policy Coordination Forum,[47] which first meeting was held in February of 2011, is expected to play a catalytic role to efficiently and effectively manage climate change funding and policy actions by providing opportunities for dialogues as well as sharing comprehensive information about climate change programs for better collaborations.[48] Thus, further efforts for large-scale consensus-building are indispensable. As a specific recommendation here, mechanisms such as forums could be further established and utilized among stakeholders for information-sharing, coordination and implementation on climate change activities at the provincial level.

- It is strongly recommended that the above coordination mechanism involve relevant stakeholders promotes climate friendly development by integrating mitigation/adaptation policies and developmental policies. The GOI could further explore ways to develop its capacity to: 1) effectively bring stakeholders relevant to development into the coordination forum; 2) systematically and objectively analyze the benefits and drawbacks of required policies; and 3) compensate disadvantaged stakeholders in an impartial manner, if necessary. International development partners could examine possible cooperation concerning the above issues.

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development and energy conservation.
AFD provides financial support for a study to enhance energy efficiency of energy intensive industries such as cement.

[47] The Climate Change Policy Coordination Forum is facilitated by BAPPENAS and co-chaired by Vice-Minister of BAPPENAS and Head of Secretariat of DNPI/Presidential Special Staff on Climate Change. ICCTF Secretariat also serves as the Forum secretariat. The forum is planned to be held at least twice a year.
Sitorus, S. (2011). "Climate Change Finance and Development Effectiveness: Reviewing Experience and Charting the Way Ahead". Presented at Informal Lunchtime Meeting, CDDE, Bangkok, 4 April 2011.

[48] BAPPENAS (2011). "Indonesia Climate Change Trust Fund (ICCTF): Indonesia towards a Low Carbon Economy and Enhance Resilience to Climate Change". http://www.icctf.or.id/sites/default/files/resource/Booklet.pdf . (Accessed 28 February 2013).
Indonesia Adapting to Climate Change (2013). "About DNPI". http://adaptasi.dnpi.go.id/index.php/main/contents/54. (Accessed 28 February 2013).

- As for the future financing for climate change programs to be supported by the ICCTF, a collaboration with JICA's Partnership with the Private Sector could be examined.

- Further strengthening of local stakeholders' capacity is among the most urgent issues to be addressed toward carrying out climate policies across the country. Capacity development of local entities such as BAPPEDA in charge of coordinating climate change policy andprograms at provincial level is of special importance. Development partners could effectively cooperate with national ministries by providing them with technical assistance for their activities to strengthen local governments.

- Providing incentives particularly to local governments would be an effective way to involve all relevant stakeholders from the national and local governments as well as private enterprises in climate mitigation and adaptation. Here, the development of incentive mechanisms such as the geothermal exploration fund and progress in energy subsidy policy reform are commendable. Further provision of incentives covering other sectors (for instance, climate-resilient food production) are encouraged.

A P P E N D I X

Appendix 1	CCPL Phase I Policy Matrix (Agreed in July of 2009)
Appendix 2	CCPL Phase II Policy Matrix (Agreed in April of 2010)
Appendix 3	National Action Plan on Green House Gas Emissions Reduction (RAN-GRK)
Appendix 4	National Action Plan of Climate Change Adaptation (RAN-API) Synthesis Report
Appendix 5	National Strategy on REDD+
Appendix 6	Indonesia Climate Change Sectoral Roadmap (ICCSR)
Appendix 7	Ministry Decree on Indonesia Climate Change Trust Fund (ICCTF)
Appendix 8	Presidential Regulation on National Greenhouse Gas Inventory System (SIGN)
Appendix 9	Indonesia Voluntary Mitigation Actions

*Appendices 3 to 9 are attached as soft copies (PDF format).

Indonesia: Policy Matrix for Climate Change Program Loan (Phase Ⅰ)

Note 1: This matrix is based on the "National Action Plan Addressing Climate Change" prepared by the Government of Indonesia.
Note 2: All actions are categorized into three groups:
A: legal/regulatory reform (including overall planning), B: institutional/budgetary reform (including specific planning), and C: model transactions.
Note 3: All status of actions are categorized into four groups: Exceed ◎, Attained ○, Substantial Progress △ and unfulfilled ×

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
1 Mitigation					
1.1 LULUCF Sector					
1.1.1 Forestry					
	- Carbon absorption capacity is increased through the reforestation activities of 2007-2009 - Carbon dioxide absorbed of 2007 (CO2e/year) = 58.6 million ton (*) - Carbon dioxide absorbed of 2008 (CO2e/year) = 70.2 million ton (*)	A. Reforestation Maintenance of previous planting from Gerhan Program of 2005-2006 (514,488 ha) [C] Replant 722,380 ha of critical forest through The National Movement on Forest and Land Rehabilitation (Gerhan) program in 2007 [C] Develop plan for next Gerhan program [B]	Maintenance of previous planting from Gerhan Program 2006-2007 (722,380 ha) [C]	Maintenance of previous planting from Gerhan Program of 2007-2008 [C]	MOFR (Ms. Indriastuti, Director General, DG of Land Rehabilitation and Social Forestry, MOFR)
			Replant 354,026 ha of critical forest through Gerhan [C]		MOFR (Ms. Indriastuti, Director General, DG of Land Rehabilitation and Social Forestry, MOFR)
			Develop plan for next forest rehabilitation 1.1 million ha [B]	Review mechanism and impacts of GERHAN program (2003-2009) and DAK Bidan Kuhutanan (Special Allocation Fund for Reforestation) to strengthen national forest rehabilitation policy for 2010-2014. [B]	MOFR (Ms. Indriastuti, Director General, DG of Land Rehabilitation and Social Forestry, MOFR)
	*(*) The formula used to estimate CO2 absorption amount is: above-ground net biomass growth (=13) * C.F. (carbon fraction of dry matter) * 44/12 * 4/3*	B. Peat Land Issue a Presidential Instruction no. 2/2007 on Revitalization and Rehabilitation of Peat Land in Central Kalimantan. [C]	Issue a master plan on peat land rehabilitation in Central Kalimantan. [B]	Implement the master plan on peat land: 1. Rehabilitation = 1,600 ha 2. Conservation = *finalize coordination with Central Kalimantan Government's spatial planning in order to convert 308,000 ha production forestry into conservation area* in Central Kalimantan [C]	Bappenas, MOFR, MOA, and Central Kalimantan Government (Mr. Basoeki Karyaatmadja, Director, Center for Forestry Planning & Statistics, MOFR, Mr. Djoko Winarno, Directorate of Forest and Land Rehabilitation Management)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
			Select locations (e.g. national parks, peat land) to conduct REDDI pilot projects. [C]	Conduct REDDI pilot projects [C]	MOFR (Ms. Nur Masripatin, Secretary, Secretariat of Agency for Forestry Research and Development, MOFR)
	Deforestation and degradation is reduced through the scheme of REDDI.	Complete preparatory work to launch REDDI. [A]	Develop incentive and monitoring mechanisms for REDDI. [B]	- Issue Ministerial Decree on Mechanism and Procedures of REDD under UNFCCC Framework. [A] - Prepare and submit Readiness Plan (R-Plan) to FCPF (Forest Carbon Partnership Facility).[B]	MOFR (Ms. Nur Masripatin, Secretary, Secretariat of Agency for Forestry Research and Development, MOFR)
	Forest management is improved.	Issue a Government Regulation (PP) no. 6/2007 on Forest Planning Management and Forest Utilization. [A]	Establish Forest Management Units in 6 provinces. [B]	Establish a Model Forest Management Unit in all provinces.[B]	MOFR, provincial governments (Mr. Soetrisno, Director General of Forest Planning, MOFR)
		Review an existing guideline on forest fire prevention in national parks. [B]	Issue a Forest Fire Prevention Guideline. [B]	Issue Standard Operation Procedures (SOP) and equipment standards of the Forest Fire Prevention Guideline. Socialize the Forest Fire Prevention Guideline at provincial and district levels.	MOFR (Mr. Sonny Partono, Director, Directorate of Forest Fire Control, MOFR)
			Final Draft of Government Regulation on Integrated Watershed Management. [A]	Issue a Government Regulation on Integrated Watershed Management. [A]	MOFR (Dr. Silver Hutabarat, Director of Watershed Management, Directorate General of Land Rehabilitation and Social Forestry, Ministry of Forestry)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
1.2 Energy Sector					
1.2.1 Power Plant					
	Geothermal [Short-term target (by 2009)] The institution of geothermal energy development though private investment is improved. [Long-term target (by 2025)] Installed capacity is increased from 857MW in 2007 to 9,500MW in 2025. Reduction of CO2 emission =approximately 57.9 million t / year	Issue a Government Regulation No.59/2007 on geothermal business activity. (Ar.9, Ar.13, and Ar.33) [A]	Issue Ministerial Regulations on "electricity geothermal base price" and "geothermal permit". [A]	Design a Feed-in-Tariff scheme for IPP-based Geothermal development. [A] Design an exploration fund scheme to promote Geothermal development at exploration stage. [A]	MEMR (Mr. Sugiharto Harsoprayitno, Director of Geothermal Enterprise Supervision and Groundwater Management, MEMR)
		Ministry of Finance Decrees No.177 and 178/2007 on Taxes Incentive [A] Issue a Ministerial Decree No.005/2007 on assignment of preliminary survey [A]	Update a Government Regulation No.1/2007 on Investment Incentive [A]		MOF (Mr. Joko Wiyono, Head of Center for Revenue Policy, Fiscal Policy Office)
	Renewable Energy [Short-term target (by 2009)] The institution of renewable energy development is improved. [Long-term target (by 2025)] The share of renewable energy (including bio fuel but except for geothermal) is increased to at least 10% of total energy supply in 2025. Target for CO2 emission reduction is 17% from BAU (Business as usual) in 2025. (Geothermal and other renewable energy and energy conservation)	Enact the Law no. 30/2007 on Energy (promote renewable energy development). [A]	Expedite establishment of the National Energy Council (Dewan Energi National: DEN). [B]	Finalize a Draft of President Regulation on Guideline of Formulation of National Energy Plan (RUEN) [A]	MEMR (Mr. Purwono, Director General of Energy and Electricity Utilization, MEMR)
			Expedite the issuance of Government Regulations of the Energy Law on "energy tariff and incentive policy of new-renewable energy" and "demand and supply". [A]	Finalize Draft Government Regulations of "New and Renewable Energy Development" and "Energy Demand and Supply" [A]	MEMR (Ms. M. Ratna Ariati, Director of Renewable Energy and Energy Conservation, DGEEU, MEMR)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
1.2.2 Industry, Domestic (household) and commercial					
	[Short-term target] energy intensity is reduced by 1% every year. [Long-term target] Energy elasticity decrease to less than one by 2025. Energy intensity is reduced to 12-18 % by 2025.		Expedite the issuance of the Government Regulations on energy conservation including fiscal incentive and disincentive, following the Energy Law no. 30/2007. [A]	Issue a Government Regulation on "Energy Conservation" [A]	MEMR (Ms. M. Ratna Ariati, Director of Renewable Energy and Energy Conservation, DGEEU, MEMR)
		The energy audit is conducted for 200 firms and industries and energy efficiency label is introduced for CFL. [C]	Continue the energy audit system and 41 firms receive the audit and expand the energy efficiency label system. [C]	Design a mid-term energy audit and efficiency program, including medium term targets, incentive mechanisms, and monitoring and evaluation framework. [A] Conduct energy audit for 40 firms. [C] Issue ministerial regulation(s) for energy efficiency labeling system for CFL, TV, and refrigerator. [A]	MEMR (Ms. M. Ratna Ariati, Director of Renewable Energy and Energy Conservation, DGEEU, MEMR)
			Prepare Road Map of CO2 emission reduction in major sectors such as cement and steel by Energy Conservation based on improved database of energy consumption and CO2 emission. [A]	Issue a ministerial regulation on CO2 roadmap. [A] Design a CO2 roadmap implementation program, including incentive mechanisms, and monitoring and evaluation framework. [A]	MOI (Ms. Endang Supartini, Director of Center for Resource, Environment and Energy R&D, MOI)
			Drafting a Ministerial Regulation on CO2 emission reduction with target amount by sector (e.g. Cement, Steel). [A]		MOI (Ms. Endang Supartini, Director of Center for Resource, Environment and Energy R&D, MOI)
1.2.3 Others					
	Access to energy, including electricity, is enhanced by using renewable energy in rural villages.	Start Energy Self-sufficient Village Program. [C]	Strengthen the coordination and monitoring framework for Energy Self-sufficient Villages Program among various line ministries. [B]	Implement Energy Self-Sufficient Village Program among various line ministries under coordinated monitoring framework. [B]	Coordinating Ministry for Economic Affairs (Ms. Musdalifah, Coordinating Ministry of Economic Affairs)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
2 Adaptation					
2.1 Water Resource Management, Water Supply and Sanitation					
2.1.1 River Management					
	Improving water resource management in integrated manner to strengthen the resilience to the increasing drought and flood risks, specifically in nationally strategic river basin in Java island.	Prepare a Government Regulation (PP) on water resource management. [A] Prepare a Presidential Decree (Perpress) on water resource council. [A]	Finalize a draft of Government Regulation on water resource management. [A]		PU (Mr. Sugiyanto, Director of Water Resources Management, DGWR, PU)
			Issue a Presidential Decree on Water resource council. [A] Prepare a coordinated entity on water resource management (National Water Resource Council). [B]	Establish a coordinated entity on water resource management (National Water Resource Council). [B] Issue Presidential Decree for council menbers nomination to operationalize National Water Resources Council. [B]	PU (Mr. Sugiyanto, Director of Water Resources Management, DGWR, PU) (Mr. Imam Ansholi, Head of secretariat of National Water Resource Council, PU) (Mr. Widagdo, Director of River, Lake and Reservoir, DGWR, PU)
			Prepare integrated water resource management plans (POLA) with climate change assessment in national strategic river basins in Java island. [A]	Finalize integrated water resource management plans (POLA) in national strategic river basin in Java under the coordination of related river basin water resource council. [A]	PU (Mr. Sugiyanto, Director of Water Resources Management, DGWR, PU) (Mr. Imam Santoso, Head of Subdit River Basin Planning)
			Establish river basin management offices 'Balai' and ' Balai Besar'. [B]	Strengthen river Basin management offices 'Balai' and ' Balai Besar'. [B]	PU (Mr. Sugiyanto, Director of Water Resources Management, DGWR, PU) (Mr. Widagdo, Director of River, Lake and Reservoir, DGWR, PU)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
2.1.2 Water Supply and Sanitation					
	Ensure access to sustainable potable water supply and sanitation services for non and under served populations. (Increase the rate of household access to safe water and sanitation facilities from 50 % in 2004 to 68% in 2009, and 65.3% to 75% in 2009.)	Prepare community based water supply and sanitation program (PAMSIMAS) targeted for 5,000 villages with 1,000 replication by 2012. [C]	Develop community based water supply and sanitation facilities in 990 villages under PAMSIMAS [C] Launch "Community based rural water supply and sanitation program (PAMSIMAS) targeted for 5,000 villages with 1,000 replication [C]	Develop community based water supply and sanitation facilities in 1,650 villages under PAMSIMAS. [C]	PU (Directorate of Water Supply Development, Directorate General of Human Settlements, PU)
		Review programs on water supply and sanitation system in capitals of kecamatan (IKK) , and prepare improved investment plan on 85 villages of IKK system expansion. [C]	Review programs on water supply and sanitation system in capitals of kecamatan (IKK) , and prepare improved investment plan on 310 villages of IKK system expansion. [C]	Implement construction of 156 IKKs. [C]	PU (Directorate of Water Supply Development, Directorate General of Human Settlements, PU)
		Develop community based waste water program (SANIMAS) in 128 locations. [C]	Develop community based waste water program (SANIMAS) in 129 locations. [C]	Develop community based waste water program (SANIMAS) in 110 locations. [C]	PU (Mr. Susmono, Director of Environmental Sanitation Development, Directorate General of Human Settlements, PU)
			Issue a Ministerial Decree on strategy and policy for Sanitation Management . [A]	Design operation standard for sewerage service providers including corporate governance, tariff setting, service quality, and technical guidance. [B]	PU (Mr. Susmono, Director of Environmental Sanitation Development, Directorate General of Human Settlements, PU)
		Issue a guideline on community-based 3R (Reduce, Reuse and Recycle) project based on a Ministerial Decree on solid waste management in 2006. [A]	Issue a Ministerial Decree on strategy and policy for Drainage Management. [A]	Issue a Ministerial Decree on Strategy and Policy for Drainage Management. [A]	PU (Mr. Susmono, Director of Environmental Sanitation Development, Directorate General of Human Settlements, PU) (Mr. Danny, Director of Bina Program, Directorate General of Human Settlements, PU)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
2.2 Agriculture					
	Strengthening of institutional and regulating framework to improve resilience of farm production and reduce drought risk.	Issue a Ministerial Decree on irrigation management. [A]	Develop an irrigation asset management information system. [B]	Issue and implement guideline for strengthening operation on irrigation asset management information system. [B]	PU (Mr. Imam Agus Nugroho, Director of Irrigation, DGWR Dr. Agus Suprapto K, Direktorat BINA Program)
		Issue a Ministerial Decree of PU on Water Use Association (P3A) (No.33/PRT/M/2007) [A] Issue a Ministerial Decree on farmer's association (No. 273/2007). [A]	Amend a Ministerial Decree on farmer's association (No. 273/2007) to combine a function with P3A. [A]	Issue and implement guideline to combine P3A and farmers association function and develop pilots in 10 districts. [A]	MOA (Mr. Ir. Hiliman Manan, DG of Land and Water Management) PU (Mr. Imam Agus Nugroho, Director of Irrigation, DGWR)
		Carry out System for Rice Intensification (SRI) practice in 14 provinces (59 packages). [C]	Carry out System for Rice Intensification (SRI) practice in 9 provinces (66 packages). [C]	Carry out System for Rice Intensification (SRI) practice in 21 provinces (111 packages) (MoA) and 9 provinces (60 packages) (PU) [C].	PU (Mr. Imam Agus Nugroho, Director of Irrigation, DGWR) MOA (Mr. Ir. Hiliman Manan, DG of Land and Water Management)
			Carry out the Climate Field School Program (100 units) [C]	Carry out the Climate Field School Program (159 units) [C]	MOA (Mrs. Ir. Ati Wasiati Hamid, Director of Crops Protection, DG of Food Crops, Dr. Sumardjo Gatot Irianto, Director of Water Management, DG of Land and Water Management)
		Establish 'Research and Development Consortium' to strengthen agricultural research capacities responding to Climate Change. [B] Carry out the Climate Field School Program (167 units) [C] Complete a 'Dynamic Cropping Calendar Map' with long term meteorological forecast in Java.[C]	Complete a 'Dynamic Cropping Calendar Map' with long term meteorological forecast in Sumatra. [C]	Complete a ' Semi Dynamic Cropping Calendar Map' with long term meteorological forecast in Sulawesi and Kalimantan. [C]	MOA (Dr. Ir. Irsal Las, Head / Director General, Indonesian Center for Agricultural Land Resources Research and Development)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
3 Cross-Sectoral Issues					
3.1 Understanding the Impact of Climate Change					
	The First National Communication, submitted to the UNFCCC in 1999, is updated.	Form a working group to revise the National Communication. [B]	Implement studies for the second National Communication. [B]	Finalize draft of the second National Communication. [B]	KLH (Ms. Sulistyowati, Assistant Deputy for Climate Change Impact Control)
3.2 Mainstreaming Climate Change in the National Development Program					
	Policy coordination on climate change is enhanced.	Issue a National Action Plan Addressing Climate Change. [A]	Establish a steering committee for climate change program coordination based on a Ministerial Decree. [A]	Fully operationalize the steering committee for coordinating climate change program. [B]	Bappenas (Mr. Edi Effendi Tedjakusuma, Director of Environment)
	Policies to respond to climate change are linked to the national budget.	Draft a National Development Planning Response to Climate Change (Yellow Book). [A]	Finalize "the Development Plan Response to Climate Change" Book . [A]	Draft the Medium Term National Development Plan for 2010-2014 that integrate program action and measures to respond to climate change [A].	Bappenas (Mr. Edi Effendi Tedjakusuma, Director of Environment)
			Include actions to respond to climate change in the Annual Government Work Plan for 2009. [A]	Conduct Comprehensive and Sectoral assessment (Road Map) on climate change planning and programming. [A]	Bappenas (Mr. Edi Effendi Tedjakusuma, Director of Environment)
3.3 Improving Spatial Planning					
	Spatial plans are improved to incorporate climate change concern.	Enact the Law no. 26/2007 on Spatial Management. [A]	Enact the Government regulation No. 26/2008 on National Spatial Plan [A]	Continue monitoring and evaluating the implementation of National Spatial Plan to Provincial and Regency/City Spatial Plan [B]	PU (Mr. Iman S. Ernawi, Directorate General, Directorate General of Spatial Planning, PU)
			Monitoring and evaluating the implementation of National Spatial Plan to Provincial and Regency/City Spatial Plan. [B]		PU (Mr. Iman S. Ernawi, Directorate General, Directorate General of Spatial Planning, PU)
	Spatial plan network at the national level is enhanced.	Issue Presidential Regulation no. 85/2007 on Spatial Data Network. [A]	Improve/computerize spatial plan data managed by data centers. [C]	Start developing a spatial plan database, connecting relevant central governmental agencies. [C]	Bakorsurtanal (Mr. Agus Prijanto, head, bureau of planning and general)

Sector	Outcome	CY2007 Actions	Indication of CY2008 Actions	Indication of CY2009 Actions	Responsible Institutions (GOI focal point)
3.4 CDM					
	To meet the total number of CDM projects stipulated in National Action Plan	National Commission for Clean Development Mechanism (NC-CDM) approved 13 CDM project in 2007. [C]	Continue to approve and implement CDM projects to achieve NAP target [C]	Continue to approve and implement CDM projects 20 CDM projects a year [C]	KLH (Ms. Sulistyowati, Assistant Deputy for Climate Change Impact Control) DNA may move to DNPI/National Council on Climate Change
3.5 Co-benefits					
	Planning/Implementation capacity of co-benefit approach is enhanced through model transactions.	Conclude a Joint Statement, promoting the co-benefits approach, between GOI and GOJ. [A]	Identification/survey on 5 cities and conducting 2 F/S on 2 selected cities [C]	Complete F/S on selected locations.	KLH (Ms. Sulistyowati, Assistant Deputy for Climate Change Impact Control)
3.6 Fiscal Incentives					
	Develop fiscal incentive framework for GHG emission reduction with promoting private led investment		Conduct study on medium and long term fiscal incentives (tax and non tax) and appropriate energy price system for energy diversification and conservation. [C]	Prepare comprehensive fiscal incentive study as a basis of tax and non-tax reform for GHG emission reduction in geothermal sector [C]	MOF (Mr. Askolani, Head, Fiscal Policy Office)
3.7 Early Warning System					
	Data and information regarding meteorological early warning system available	Installed 47 Automatic Weather Stations (AWS). [C] Installed 7 Weather RADARs. [C]	Installed 7 Automatic Weather Stations (AWS). [C]	Install 19 Automatic Weather Stations (AWS). [C]	BMG (Dr. Andi Eka Sakya, Executive Secretary)
			Installed 4 Weather RADARs. [C]	Install 8 weather RADARs. [C]	BMG (Dr. Andi Eka Sakya, Executive Secretary)
			Installed 20 Digital raingauges. [C]	Install 11 Digital rain gauges. [C]	BMG (Dr. Andi Eka Sakya, Executive Secretary)

Indonesia: Climate Change Program Loan (Phase II)
(Policy Matrix, as of April 21st, 2010)

Sector	Outcome Area	Prior Actions to be recognized (2007-2009)	Indication of CY2010 Actions	Responsible Institutions	Further Indication of CY2011 and 2012 Actions
1 Key Policy Issues (Upstream Strategy)					
1.1 Mainstreaming Climate Change in the National Development Program					
	Climate change program is implemented in all related ministries towards the achievement of national target (26% GHG emission reduction from BAU in 2020)	National Action Plan Addressing Climate Change, National Council on Climate Change by Presidential Decree, and "Development Plan Response to Climate Change." were issued. The steering committee for climate change program loan coordination was established. Comprehensive and Sectoral Assessment and Planning Process (Road Map) on climate change were prepared.	Finalize Indonesia Climate Change Sectoral Roadmap (ICCSR).	BAPPENAS	Prepare Nationally Appropriate Mitigation Action (NAMA) in accordance with midterm development plan (RPJM) and ICCSR. Draft provincial action plan for contributing to 26% reduction. Incorporate climate change program into regional midterm development plan (RPJMD) at Kabupaten level.
			Issue a presidential decree on National Action Plan for 26% GHG voluntary reduction.	CMPW CMEA BAPPENAS	
			Submit mitigation actions and commitments under Copenhagen Accord to UNFCCC, based on commitments by the president, policy documents and policy dialogues.	BAPPENAS DNPI	
			Revise a "National Action Plan Addressing Climate Change (2007)".	DNPI	
1.2 Financing Scheme and Policy Coordination for Climate Change					
	Policy coordination on climate change is enhanced and linked to National Budget and Planning processes.	Climate actions were incorporated into Medium Term Development Plan (and annual and longer term budgets). Indonesia Climate Change Trust Fund (Oct 2009) was launched.	Implement innovative funding mechanism for climate change through the Indonesia Climate Change Trust Fund (ICCTF).	BAPPENAS	Continue to support the funding mechanism for climate change projects under the Indonesia Climate Change Trust Fund (ICCTF).
			Conduct a study on the implementation possibility of Performance Based Budgeting (PBB), for programs and policies of line ministries related to climate change.	MOF	Finalize the design of DAK for Climate Change or special incentives concept for local government
			Improve the existing design Climate Change DAK or special incentives concept for local government	Bappenas, MOF	
		National Disaster Management Agency (BNPB) was established, and National Action Plan for Disaster Risk Reduction (NAP-DPR 2010-2012) was finalized. Institutional strengthening of BNPP was initiated in 2008, and Incorporated mainstreaming of DRR in the context of climate change adaptation into the medium term development plan (RPJM, 2009) was done.	Continue the efforts to establish Local Disaster Management Agency (BPBD) in all provinces	BNPB	2011: Implement Disaster Risk Reduction (DRR) program activities according to the National Action Plan for DRR 2012: Implement comprehensive risk financing framework combining mechanisms including reserve (on-call) budget, stand-by financing, and weather derivatives.
1.3 GHG Emission & Absorption Measurement					
	Monitoring mechanism for carbon emission and absorption is established through National GHG Inventory System.	Finalize Second National Communication to UNFCCC.	Submit main report of 2nd National Communication to UNFCCC.	KLH	Implement SIGN with the close coordination among relevant institutions and prepare for the National GHG Inventory.
			Develop the GHG Inventory System (SIGN) through official process and design an Indonesian national MRV System	KLH	

Sector	Outcome Area	Prior Actions to be recognized (2007-2009)	Indication of CY2010 Actions	Responsible Institutions	Further Indication of CY2011 and 2012 Actions
2 Mitigation					
2.1 Forestry					
2.1.1 Forest Management and Governance					
	Forest governance and management is improved through the establishment of improved rules on FMUs, financial scheme for local governments, and timber legality.	Government Regulation on Forest Planning Management and Forest Utilization was issued. 29 model FMUs are planned for 27 provinces, and 13 were approved by the Minister of Forestry.	Design norms, standards and procedures on how Forest Management Units (FMUs) manage forests. (Ministerial Decree was issued in 2010 and will be applied to the newly established FMUs)	MOFR Local Gov'ts MOHA	Strengthen the regulatory framework for FMU management institutions at local level for conservation, protection, and production FMUs (implementing and technical guidance)
			Design a concept on intergovernmental transfer DAK mechanism to finance and improve the incentives for local governments through strengthening forest management activities toward emissions reductions.	MOF MOFR	Formalize intergovernmental transfer mechanism to finance local government forest activities. 2012: Evaluate and improve intergovernmental transfer mechanism to finance local government forest activities.
		Ministerial regulations was issued for Timber Legality Verification System (Sistem Verifikasi Legalitas Kayu, SVLK) for establishing a national timber legality standard and a system for verification and monitoring to assist in reducing illegal logging and forest destruction.	Implement and monitor performance of GOI regulation on timber legality. Assess capacity for oversight, certification and monitoring in national standards agency.	MOFR	Strengthen the implementation of regulatory framework to enhance on going implementation of GOI regulation on timber legality by monitoring and evaluation.
2.1.2 Peatland Conservation					
	An institutional framework to conserve and restore peatland is improved.	The master plan on peat land rehabilitation in Central Kalimantan was issued. National budget for implementation on the master plan in Central Kalimantan has been allocated (around 739 Million Rp. in national budget). BPDAS has completed the annual planning for rehabilitation.	Coordinate among ministries to control peatland emissions implementation under the framework of presidential regulation.	Menko Ekon Bappenas	Issue a presidential regulation which includes special measures for peatland conservation and peatland water management to minimize carbon emissions.
			Implement key steps in national multi-sector policy dialogue (seminar proceedings, policy principles) toward establishing a legal framework for the national strategy for lowlands with the focus on balancing development and conservation considering peatlands as major source of GHG emissions.	MOFR PU MOA KLH	
2.1.3 REDD					
	Emissions from deforestation and forest degradation is reduced through the implementation of a national REDD framework	National Readiness Program for REDD was launched; Completed preparatory analysis, issued consolidated report, developed regulatory framework and selected locations, and initiated REDDI pilot projects (with several donors and NGOs). The GOI has submitted a Readiness Program Proposal to the FCPF and initiated a REDD program with UN REDD Support (FAO-UNDP-UNEP)	Complete the Ministerial Decree on Mechanism and Procedures of REDD by defining roles and responsibilities of government agencies, local communities, and the private sector in managing carbon assets.	MOFR MOF	Establish a national registry of REDD to track implementation of REDD activities and payments in a national carbon registry.
			Conduct/implement REDD demonstration activities (at least 3), specify results in specific locations and partners.	MOFR	Assess & develop framework for forest fiscal management, including incentives for regional stakeholders.
					Study the possibility to establish an accreditation system to place a premium over REDD projects conserving biodiversity.
2.1.4 Afforestation and Reforestation					
	Carbon sink capacity is increased through reforestation activities.	Maintenance of previously planted area and replant in critical forest through Gerhan were done. Develop plan and review mechanism and impacts of GERHAN program for next forest rehabilitation activities were done.	Rehabilitation of protected areas consisting replanting of 100 thousand ha and develop technical design for another 100 thousand ha.	MOFR	Design an improved monitoring system of reforestation program (with supporting from development partners will be consulted with Ministry of Forestry) 2012: Design new procedure for rehabilitation monitoring in place, covering growth of trees along time.
				MOFR	Maintain plantation areas conducted in 2010.
			Issue a ministerial decree on forest land allocation for timber plantation (HTI and HTR).	MOFR	Initiate steps to simplify regulations and taxation to reduce complexity for forest plantation and climate change investment by the private sector.

Sector	Outcome Area	Prior Actions to be recognized (2007-2009)	Indication of CY2010 Actions	Responsible Institutions	Further Indication of CY2011 and 2012 Actions
2.2 Energy					
2.2.1 Renewable Energy Development					
	Improve energy security and reduce future GHG emissions from electricity generation through new geothermal projects within an improved policy framework for private sector participation.	Government regulation on geothermal business activity, MOF decrees on Taxes incentive, and MEMR decree on assignment of preliminary survey were issued. Ministerial Regulation No. 32 year 2009 on Purchase Standard Price of Electricity Power by PT PLN from Geothermal Electricity Power Station was issued on December 4, 2009	Improve policy framework design for promoting geothermal development to facilitate arrangements / deals between developer and off-taker. Identify financing needs to mitigate upstream risk of geothermal projects.	Menko Ekon MOF Men PAN (supported by MEMR)	Continue to improve policy framework design to promote geothermal development, and provide exploration fund to mitigate upstream risk for eastern part of Indonesia.
			Issue draft regulation to clarify the scheme of compensation for the incremental cost of geothermal electricity to off-taker.	MOF (MEMR)	
			Demonstrate progress by signing PPAs (at least 1) of geothermal projects.	MEMR MOF Bappenas (PLN)	
	The promotion of renewable energy development is improved by monitoring, evaluating and revising the new regulations.	The Law no. 30/2007 on Energy (promote renewable energy development) was enacted. National Energy Council (Dewan Energi National: DEN) was established. Ministerial Regulation No31/2009 on the purchasing price of electricity from renewable energy was issued in Nov. 2009.	Ministerial regulation (MOF) No. 21/2010 (PPH) and No. 24/2010 (PPN DTP) on incentives for renewable energy development was issued in January 2010.	MEMR MOF	Review the impact of Ministerial Regulation No.31/2009 and propose a new or revised regulation to promote renewable energy development further and more effectively, and Draft (or issue) a regulation on improved framework for renewable energy development.
			Presidential Decree No. 4, 2010 on assignment to PLN to conduct acceleration of power plant development using renewable energy, coal, and gas has been issued on January 8, 2010.	MEMR MOF	
2.2.2 Energy Efficiency					
	GHG emissions are reduced (or strategies for reducing GHG emissions are formulated) by enhanced energy efficiency in energy intensive sectors through the use of new technology and the rehabilitation, renovation and replacement of existing facilities.	(no prior action from 2007-2009 under CCPL)	Conduct a study on a national framework for emission reductions in the cement sector.	MOI MEMR	Replicate the same approach to other industrial sectors Conduct a study to introduce new and more energy efficient technology, and survey the potential of energy efficient technology for electricity generation.
	Demand side management becomes a major part of government regulations and eventually contribute to fiscal budget management.	Ministerial Regulation No. 70 year 2009 on Energy Conservation was issued on December 16, 2009. National system of energy audits for major firms in key sectors were developed and implemented.	Prepare a master plan for energy conservation including the energy efficiency standards, energy audit program with a monitoring and evaluating framework, of fiscal incentives options, and the industry energy conservation, with the sectoral approach, with MEMR and MOI.	MEMR MOF MOI	Start to implement the master plan of energy conservation, and start the implementation of the programs in the master plan, including energy efficiency standards, energy audit program with a monitoring and evaluating framework, of fiscal incentives options, and the industry energy conservation.
2.2.3 Pricing					
	Energy consumption is better controlled by a more cost-oriented pricing mechanism, contributing to reducing both GHG emissions and energy subsidies	(no prior action from 2007-2009 under CCPL)	Finalize a road map for improving subsidy policy of electricity	MEMR MOF (PLN)	Preparation for Implementation actions based on the road map, including the regulation.

Sector	Outcome Area	Prior Actions to be recognized (2007-2009)	Indication of CY2010 Actions	Responsible Institutions	Further Indication of CY2011 and 2012 Actions
2.3 Transportation					
2.3.1 Modal Shifting					
	The increase rate of car users remains at a low level, and is less than that of users of public transportation.	(no prior action from 2007-2009 under CCPL)	Develop BRT (Bus Rapid Transit) in 2 cities : Tangerang, and Sarbagita Area (Denpasar, Badung, Gianyar, Tabanan) Bali.	MOT	Continue development BRT in other cities.
			Improve pedestrian facilities in Bukit Tinggi and develop bicycle lane in Sragen.	MOT	Continue development of pedestrian facilities and bicycle lanes in other cities.
2.3.2 Traffic Management					
	Traffic management is enhanced enough to avoid deteriorating traffic congestion.	(no prior action from 2007-2009 under CCPL)	Develop ATCS (Area Traffic Control System) in Bogor and Surakarta	MOT	Continue development ATCS in major cities.
2.3.3 Better Combustion Engines and Fuels					
	Using better combustion engines and fuels prevails.	(no prior action from 2007-2009 under CCPL)		MOT	Install converter kit for public transportation 1000 unit/year in major cities
3 Adaptation					
3.1 Climate Forecasting and Impact and Vulnerability Assessment					
	Strengthening of institutional and regulating framework.	73 Automatic Weather Stations, 19 weather RADARs, and 31 Digital rain gauges were installed. Study for Ocean Carbon, and marine and coastal vulnerability to sea level rise were conducted.	Start developing the climate modeling as the basis of the development of impact and vulnerability assessment.	BMKG	Prepare Vulnerability Map in priority area.
			Implement INAGOOS to cope with climate change.	MMF	Implement INAGOOS into operational oceanography
			Prepare an academic paper for Government Regulation to the criteria of the impact of climate change.	KLH DNPI	Prepare a National Action Plan of Adaptation (NAPA) for Climate Change based on impact assessment (KLH, DNPI, BAPPENAS, and BMKG)
3.2 Water Resources Sector					
	Improving water resource management in integrated manner to strengthen the resilience to the increasing drought and flood risks, specifically in nationally strategic river basin in Java island.	Presidential Decree on Water resource council was issued, and the National Water Resource Council (NWRC) has been established and met several times. Based on that, integrated water resource management plans (POLA) with climate change assessment in national strategic river basins in Java island were prepared, and 3 POLA are finalized and proceeded for Ministerial Decree (Bengawan Solo, Brantas and Cimanuk river basins).	Continue to implement strategic assessment of the water future of Java, and prepare an action plan for priority interventions incorporating climate change, urbanization, economic development and food security to become an integral part of the River Basin Strategic Water Management Plans (Pola WS) and the framework for the River Basin Master Plans, with the national target of 2010 : completing 12 provincial water resource council, 12 Coordination Team for Water Resources Management in River Basins (TKPSDA) and 8 Integrated Water Resources Management Plan (POLA).	PU	Complete master plans for the Java River Basins which include climate change adaptation measures, by enacting ministerial decree.

Sector	Outcome Area	Prior Actions to be recognized (2007-2009)	Indication of CY2010 Actions	Responsible Institutions	Further Indication of CY2011 and 2012 Actions
3.3 Agriculture Sector					
	Strengthening of institutional and regulating framework to improve resilience of farm production and reduce drought risk.	Ministerial Decree on irrigation management. Develop an irrigation asset management information system was issued. System for Rice Intensification (SRI) practice (total: 345 packages) and the Climate Field School Program (total: 468 units) were carried out.	Evaluate performance, then improve and scale up actions for adaptation in agriculture including climate field school, System for Rice Intensification (SRI), and to enforce land development and management without burning as part of an overall plan (Minister of Agriculture Decree No. 26/Permentan/OT.14/2/2007).	MOA	Continue the 2010 progress to improve and scale up actions for adaptation in agriculture including climate field school, System for Rice Intensification (SRI), and to enforce land development and management without burning as part of an overall plan (Minister of Agriculture Decree No. 26/Permentan/OT.14/2/2007)
3.4 Marine and Fisheries Sector					
	Strengthening of institutional and regulating framework to manage coastal zones and small island.	The Indonesian National Plan of Actions (NPOA) of Coral Triangle Initiatives on Coral reef, fisheries and food security (CTI-CFF) was launched, and detailed NPOA was improved. Manage and Rehabilitate coral reef in 15 districts within 8 provinces (COREMAP) were carried out.	Develop a strategy for coastal community resilience to cope with climate change, including the plan of climate resilient village in 8 districts in northern coast java, implementing study on coastal vulnerability in relation to sea level rise in Java and Bali, research on the variability of CO2 Flux in Banten Bay.	MMF	Implement the strategy for coastal community resilience to cope with climate change.

Republic of Indonesia

Presidential Regulation of The Republic of Indonesia No. 61 Year 2011

on

The National Action Plan for Greenhouse Gas Emissions Reduction

PRESIDENT OF
THE REPUBLIC OF INDONESIA

PRESIDENTIAL REGULATION OF THE REPUBLIC OF INDONESIA
NUMBER 61 YEAR 2011
ON
THE NATIONAL ACTION PLAN
FOR GREEENHOUSE GAS EMISSIONS REDUCTION

WITH THE GRACE OF GOD THE ALMIGHTY

THE PRESIDENT OF THE REPUBLIC OF INDONESIA,

Considering :

a. that the Indonesian geographic position is very vulnerable to the impacts of climate change so that it is necessary to make every effort to cope with the problems through climate change mitigation;

b. that within the framework of following up the agreement on Bali Action Plan at the 13th Conference of Parties (COP) of the United Nations Frameworks Convention on Climate Change (UNFCCC) and the results of COP-15 in Copenhagen and those of COP-16 in Cancun, and of fulfilling the commitment of the Indonesian government in the G-20 meeting in Pittsburg to reduce greenhouse gas emissions by twenty six percent (26%) on its own and by forty one percent (41%) if it receives international aid, by the year of 2020 from the condition without any action (business as usual/BAU), therefore it is necessary to take measures to reduce greenhouse gas emissions;

c. that under the considerations as specified in the points of letter a and letter b it is necessary to enact the Presidential Regulation regarding the National Action Plan for Greenhouse Gas Emissions Reduction;

In view of...

In view of :

1. Article 4 paragraph (1) of the 1945 Constitution of the Republic of Indonesia;

2. Law No. 6 Year 1994 on the Ratification of the United Nations Frameworks Convention on Climate Change (State Gazette of the Republic of Indonesia of the Year 1994 under No. 42, Supplement to the State Gazette of the Republic of Indonesia under No. 3557);

3. Law No. 17 Year 2003 on the State Finances (State Gazette of the Republic of Indonesia of the Year 2003 under No. 47, Supplement to the State Gazette of the Republic of Indonesia under No. 4286);

4. Law No. 17 Year 2004 on the Ratification of Kyoto Protocol - on United Nations Frameworks Convention on Climate Change (State Gazette of the Republic of Indonesia of the Year 2004 under No. 72, Supplement to the State Gazette of the Republic of Indonesia under No. 4403);

5. Law No. 25 Year 2004 on the National Development Planning System (State Gazette of the Republic of Indonesia of the Year 2004 under No. 104, Supplement to the State Gazette of the Republic of Indonesia under No. 4421);

6. Law No. 17 Year 2007 on the National Long-term Development Plan (RPJP) 2005 - 2025 (State Gazette of the Republic of Indonesia of the Year 2007 under No. 33, Supplement to the State Gazette of the Republic of Indonesia under No. 4700);

7. Law No. 31 Year 2009 on Meteorology, Climatology and Geophysics (State Gazette of the Republic of Indonesia of the Year 2009 under No. 139, Supplement to the State Gazette of the Republic of Indonesia under No. 5058);

8. Law...

8. Law No. 32 Year 2009 on Environmental Protection and Management (State Gazette of the Republic of Indonesia of the Year 2009 under No. 140, Supplement to the State Gazette of the Republic of Indonesia under No. 5059);

9. Government Regulation Number 10 Year 2011 on the Procedures for Foreign Loans Procurement and for Grants Acceptance (State Gazette of the Republic of Indonesia of the Year 2011 under No. 23);

10. Presidential Regulation No. 5 Year 2010 on the National Medium- term Development Plan (RPJMN) 2010 - 2014;

HAS DECIDED:

To enact : THE PRESIDENTIAL REGULATION ON THE NATIONAL ACTION PLAN FOR GREENHOUSE GAS EMISSIONS REDUCTION.

Article 1

In this Presidential Regulation, meant by:

1. National Action Plan for Greenhouse Gas Emissions Reduction hereinafter referred to as RAN-GRK is a work plan document for the implementation of various activities both directly and indirectly to reduce greenhouse gas emissions in accordance with the national development targets.

2. Regional Action Plan for Greenhouse Gas Emissions Reduction hereinafter referred to as "RAD-GRK" is a work plan document for the implementation of various activities both directly and indirectly to reduce greenhouse gas emissions in accordance with the regional development targets.

3. The Greenhouse Gasses hereinafter referred to as GHG are the gasses contained in the atmosphere both naturally and anthropogenically which absorb and re-emit infrared radiation.

4. GHG emissions are the discharge of GHGs into the atmosphere in a certain area at a certain period of time.

5. The level of GHG emissions is the amount of annual GHG emissions.

6. Climatic/climate change is the change in the climate caused either directly or indirectly by human activities so as to cause global change in the atmospheric composition and in the natural climatic variability observed in a certain comparable period of time.

7. Mitigation of climate change is the effort to control and to reduce the risks of the impacts of climate change through activities that may reduce the emissions and/or increase the absorption of GHGs from various emission sources.

8. Core activities are those having a direct impact on the reduction in GHG emissions and on the absorption of GHGs.

9. Supporting activities are those having no direct impact on the reduction in GHG emissions, but supporting the implementation of the core activities.

Article 2

(1) RAN-GRK consists of core and supporting activities.

(2) The activities of RAN-GRK comprise the following matters:
a. Agriculture;
b. Forestry and peat land;
c. Energy and transportation;
d. Industry;
e. Waste management;
f. Other supporting activities.

(3) RAN-GRK as specified in the Attachment I and Attachment II constitutes inseparable part of this Presidential Regulation.

Article 3

RAN-GRK constitutes a guide to:

a. Ministry/Institution to conduct the planning, implementation, monitoring and evaluation of the action plan to reduce the GHG emissions.

b. Local government in the compilation of RAD-GRK.

Article 4

RAN-GRK will become a reference to the public and businesspeople in the planning of and in the reduction in the GHG emissions.

Article 5...

Article 5

(1) The Minister/ institutional Head conducts RAN-GRK in accordance with their respective duties and functions.

(2) The implementation and monitoring of RAN-GRK, as specified in the paragraph (1) are coordinated by the Coordinating Minister for Economic Affairs.

(3) The implementation of RAN-GRK in each ministry and/or institution is further regulated by the Minister and/or institutional Head in accordance with their respective duties and powers.

Article 6

(1) In order to reduce GHG emissions in the respective provincial areas, the Governors should develop RAD-GRK.

(2) The compilation of RAD-GRK will refer to the following matters:
   a. RAN-GRK as specified in the Article 2; and
   b. Regional development priority.

(3) The compilation of RAD-GRK is completed and enacted by a Gubernatorial Regulation not later than twelve (12) months effective from the enactment of this Presidential Regulation.

(4) RAD-GRK, as specified in the paragraph (3) is submitted to the Minister for National Development Planning and/or Head of BAPPENAS and the Minister of Home Affairs.

Article 7

The compilation of RAD-GRK is facilitated by the Minister of Home Affairs together with the Minister for National Development Planning and/or Head of BAPPENAS and the Minister of the Environment.

Article 8

The guidelines to the compilation of RAD-GRK are enacted by the Minister for National Development Planning and/or Head of BAPPENAS not later than three (3) months effective from the enactment of this Presidential Regulation.

Article 9

(1) RAN-GRK may be reviewed periodically in accordance with the national need and international dynamic development.

(2) Review on RAN-GRK is conducted by the Ministry/Institution and coordinated by the Minister for National Development Planning/ Head of BAPPENAS.

(3) The results of the review of RAN-GRK is reported by the Minister for National Development Planning/ Head of BAPPENAS to the Coordinating Minister for Economic Affairs with a copy thereof forwarded to the Coordinating Minister for People's Welfare.

(4) The results of the review may be made the basis for adjustment of RAN-GRK.

Article 10...

Article 10

(1) The Minister and/or Institutional Head report(s) the activities of RAN-GRK, as specified in the Article 5 to the Coordinating Minister for Economic Affairs with a copy forwarded to the Coordinating Minister for People's Welfare, the Minister for National Development and Planning and/or Head of BAPPENAS and the Minister of the Environment periodically at least once (one time) a year or from time to time when required.

(2) Coordinating Minister for Economic Affairs reports the implementation of an integrated RAN-GRK to the President at least once (one time) a year form time to time when required.

Article 11

The funding of RAN-GRK as specified in the Article 2 is derived from the State Revenues and Expenditures Budget (APBN), Regional Revenues and Expenditures Budget (APBD) and other legal and unbinding sources in accordance with the prevailing laws and regulations.

Article 12...

PRESIDENT OF
THE REPUBLIC OF INDONESIA

Article 12

This Presidential Regulation comes into force as of the date of enactment.

Enacted in Jakarta

On September 20, 2011

PRESIDENT OF THE REPUBLIC OF INDONESIA

[Signed]

DR. H. SUSILO BAMBANG YUDHOYONO

True copy of the original

SECRETARIAT OF THE CABINET OF RI

Deputy, Economic Affairs

[Signed]

Retno Pudji Budi Astuti