REPUBLIC OF INDONESIA
BAPPENAS

REPUBLIC OF INDONESIA
CLIMATE CHANGE PROGRAM LOAN
MONITORING SUPPORT ACTIVITIES

POLICY MATRIX MONITORING
FINAL REPORT
(SUMMARY)

MARCH 2013

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 Développement
APBN	State Budget of Revenues and Expenditures
ATCS	Area Traffic Controlling System
AusAID	The Australian Government's Overseas Aid Program
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
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
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
JICA	Japan International Cooperation Agency
JTA	Jabodetabek Transportation Authority
KEN	National Energy Policy
KPHL	Protection Forest Management Unit
KPHP	Production Forest Management Unit
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
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
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)
PP	Government Regulations
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
RPP	Draft of Government Regulation

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)

Introduction

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 2009, Dr. H. Susilo Bambang Yudhoyono, the President of the Republic of Indonesia announced the national target to reduce GHG emissions by 26% less than BAU by 2020 (up to 41% less with international support).

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 GOJ and the GOI 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.

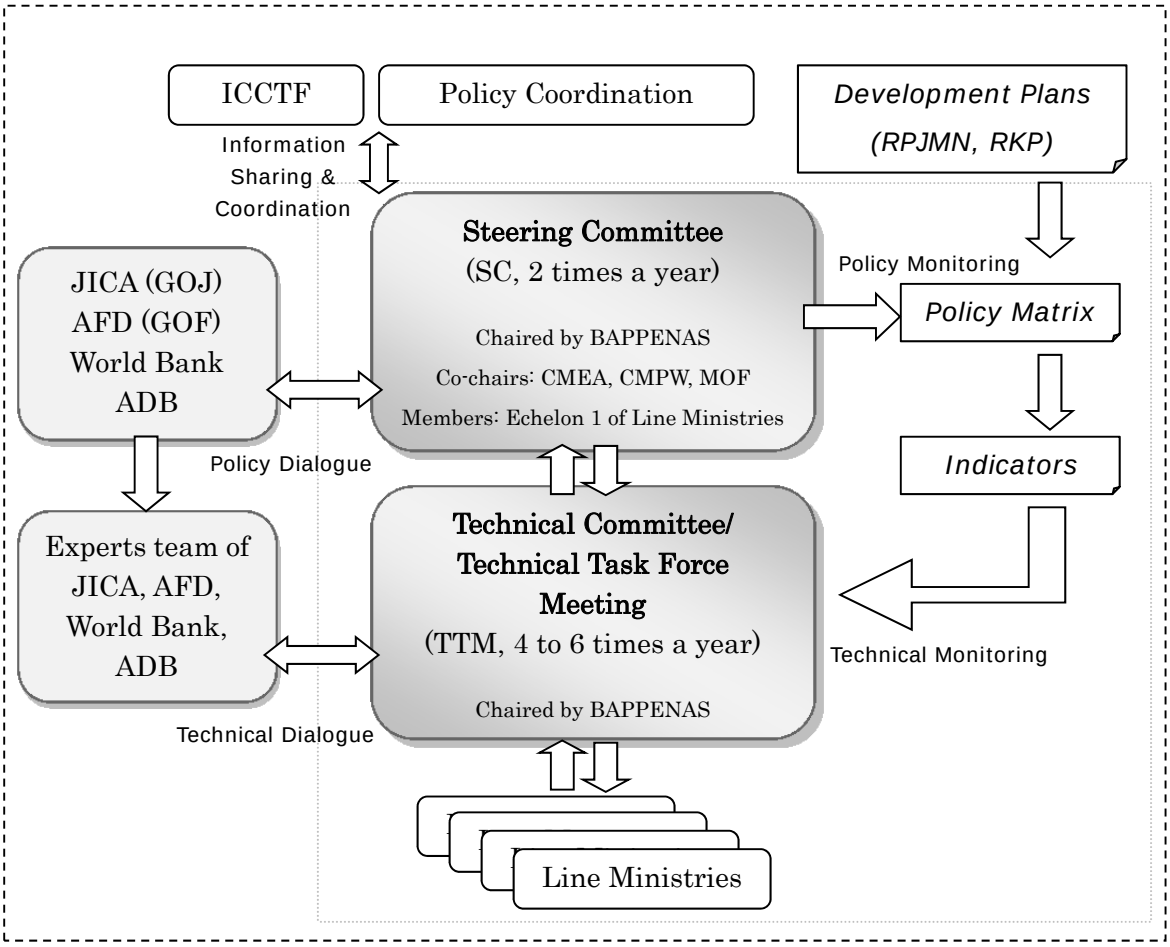
CCPL supports the GOI to mainstream climate policies through the following mechanisms:
1) Large scale general budget support is provided so as to encourage further mainstreaming of climate change policies;
2) Policy dialogues among the GOI and development partners are periodically held to share information 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 to serve as the basis of policy dialogues among stakeholders.

The CCPL Policy Matrix has been monitored and reviewed every year through the discussions and agreements among all stakeholders since it was first formulated in 2008. The 2011 Policy Matrix, agreed at the 7th steering committee in July 2011, was prepared to be consistent with *the National Action Plan on Greenhouse Gas Emissions Reduction (RAN-GRK)* and specified the status of

progress/attainments of 2010 policy actions, the policy actions/targets to be carried out in 2011, and the directions of the policies in 2012 and beyond.

Figure 0-1 Coordination Structure of CCPL



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.

While developing the new Policy Matrix (for 2010 and beyond), the GOI and the development partners agreed to put more priority on upstream policies for further mainstreaming of climate change issues, establishment of financial schemes and improvement of policy coordination, and GHG emissions and absorption measurement. The three issues were categorized as the Key Policy Issues and were 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 CY 2011 policy matrix, and organised a monitoring support team composed of the experts from Global Group 21 Japan Inc. (GG21) and Institute for Global Environmental Strategies (IGES).

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

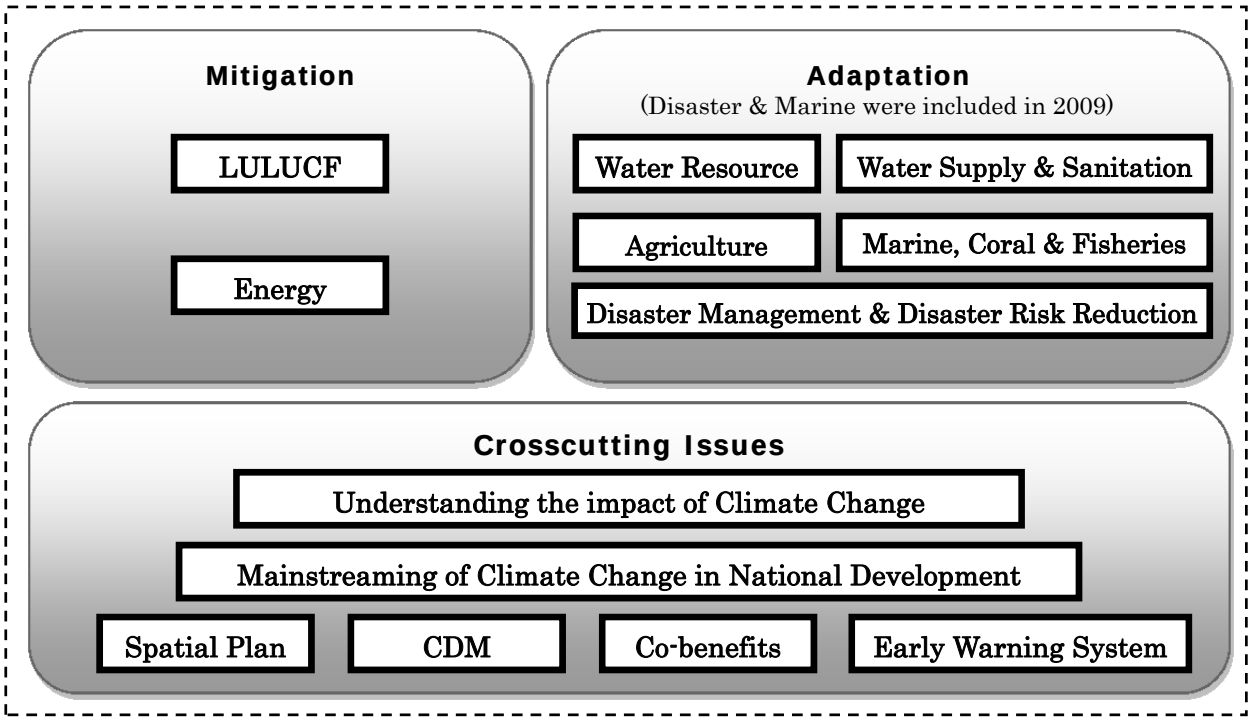
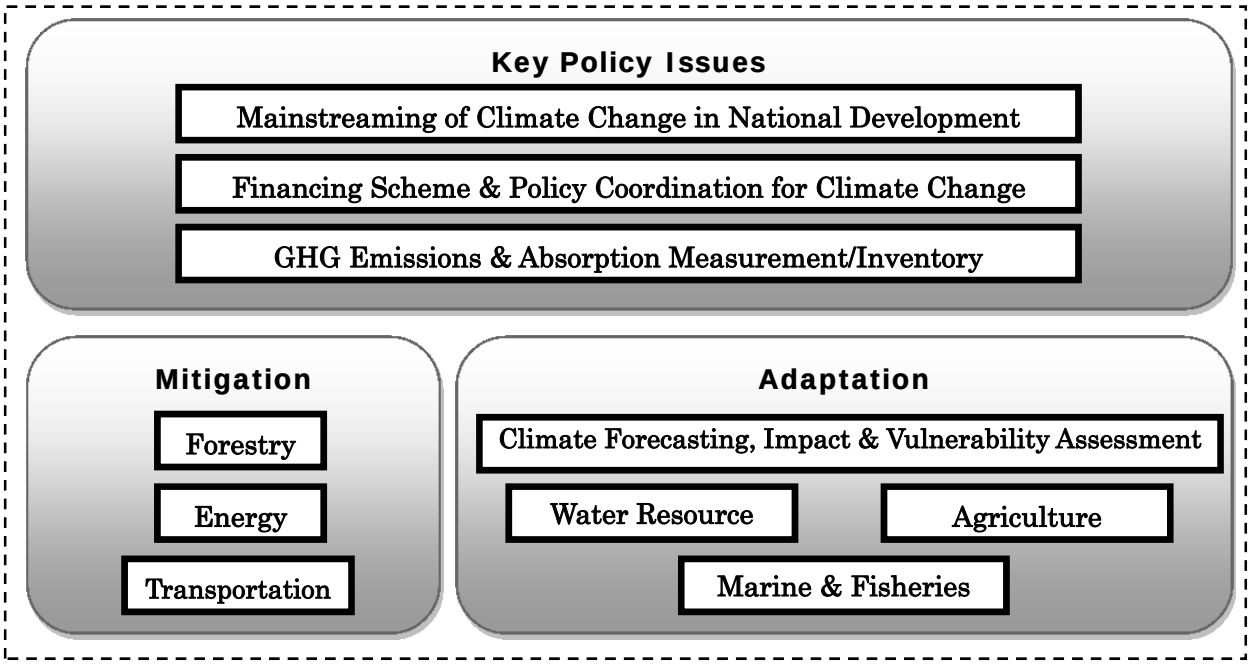


Figure 0-3: Structure of CCPL Policy Matrix (2010, 2011 and Future Policy Directions)



2011 Policy Matrix includes the policy targets/actions for key policy issues, forestry, energy, transportation and adaptation.

To study the progress/attainments of the policy targets/actions listed in the above mentioned sectors the monitoring support team visited Jakarta three times in 2012 (April to May, July to August, and October to November) and once in 2013 (January to February). The monitoring support team found that of the 41 policy targets/actions set for 2011, 2 targets were exceedingly attained, 35 were attained, and substantial progress was shown for the other 4 targets.

This final report describes the progress/attainments and obstacles/challenges of 2011 policy targets/actions, as well as the prospects of the directions of climate change policies in 2012 and beyond.

Status of the policy targets/actions

1. Key Policy Issues

1.1. Mainstreaming Climate Change in the National Development Program

Sector overview

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].

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 CY 2008 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 the above policy targets/actions showed good progress during the previous phase (2007-2009).

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 CY 2010 and beyond. The CY 2010 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[3]; 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 plan to UNFCCC were completed as scheduled. The presidential regulation on *RAN-GRK* was issued in September 2011.

Directions for CY 2011 CCPL and beyond

Based on the above progress the 2011 Policy Matrix specified the four actions/targets of: 1) drafting the concept of the Nationally Appropriate Mitigation Actions (NAMA); 2) issuing the guideline on the

[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.
[3] http://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/indonesiacphaccord_app2.pdf. (Accessed on 12 October 2012).

Provincial GHG emissions reduction action plans (RAD-GRK); 3) conducting socialization activities[4] for RAD-GRK development at two locations; and 4) drafting the concept of the National Adaptation Strategy. All of the four actions were attained as scheduled.

For 2012 and beyond the GOI further aimed at: 1) drafting of NAMA; 2) preparing of RAD-GRKs in all provinces; 3) mainstreaming of climate change issues in provincial medium term development plans, and 4) drafting of the National Adaptation Strategies. Of 33 provinces in Indonesia, 16 finalized RAD-GRK as the governors' decrees by November 2012. Furthermore, with regard to the Adaptation Strategy, the GOI finalized the *National Action Plan on Climate Change Adaptation (RAN-API)* and released the synthesis report at the COP18 in Doha.

Some of the above achievements were materialized through the close coopearation between the GOI and development partners: just to name a few, one of the sub-projects under JICA's Project of Capacity Development for Climate Change Strategies in Indonesia (2010 to 2015) provides technical supports related to RAD-GRK development including socialization activities and direct support for RAD-GRK drafting in the provinces of South Sumatera, North Sumatera and West Kalimantan. Additionally, the project provides expert advice for the development of the National Adaptation Strategies.

CY 2011 Indication/action attainment status set in

1.1. Mainstreaming Climate Change in the National Development Program and future direction

CY 2011 Indication	Status
(1) Use *Midterm Development Plan (RPJM)* and *RAN-GRK* as a basis to prepare the draft the concept of nationally appropriate mitigation action.	Attained
(2) Issue a guideline for provincial action plans based on *RAN-GRK*.	Attained
(3) Conduct socialization for preparing the draft provincial action plans in 2 regions for contributing to 26% reduction based on the Presidential decree.	Attained
(4) Prepare a concept note of national adaptation strategies.	Attained
Future policy action/target	
(1) Draft mitigation action.	
(2) Draft provincial action plans for contributing to 26% reduction.	
(3) Incorporate climate change program into regional midterm development plan at Provincial level.	
(4) Draft national adaptation strategies.	

[4] The socialization activities were conducted in a number of manners. For instance, the regional workshops were convened in February 2011 inviting the representatives of the provinces at the five regions of: Sumatera; Java; Kalimantan; Sulawesi, Maluku and Papua; and Bali and Nusa Tenggara. Thematic training was also conducted on the issues of: baseline and inventory (May 2012); forestry and energy (July 2012); and formulation of the plans (September 2012).

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for Mainstreaming Climate Change in the National Development Program during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set indicators as follows: 1) RAD-GRKs are prepared in all 33 provinces by 2012 (c.f. 0 province had as of 2010); and 2) the MRV agency is established by 2012 (c.f. it was not established as of 2010). Substantial progress has been seen for the two indicators; however, further information is required to confirm the status.

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. Thus, policy coordination on climate change among ministries and local governments is important. Additionally, 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. Therefore, it is important to provide financial support to the local governments planning and implementing climate policies.

Bearing these concerns in mind, the CY 2010 Policy Matrix included four actions as follows: 1) supporting climate change related projects under the framework of the Indonesia Climate Change Trust Fund (ICCTF); 2) conducting feasibility studies on Performance Based Budgeting (PBB) related to climate change policies and programs; 3) designing the special allocation fund (DAK) for climate change policies; and 4) establishing the local disaster management agencies (BPBDs) at all provinces.

The ICCTF, the fund established by BAPPENAS aims to provide financial support mainly to the GOI's projects on forestry, energy, and climate adaptation[5]. The United Nations Development Program (UNDP) has acted as the temporal trustee; however, BAPPENAS has intended to appoint a domestic bank as the new trustee. The actions/targets related to the ICCTF were exceedingly attained since it launched project finance ahead of the schedule.

BPBDs were established in all of the provinces by the end of 2011.

However, the targets of the feasibility study on PBB and the design of the climate change related DAK were not fully attained: although the GOI launched the studies on PBB, the potential of PBB for climate policies have not been covered; the GOI held discussion on DAK for climate change related projects, yet did not put it into action.

[5] ICCTF has obtained financial support totalling USD 11.25 billion by the governments of the United Kingdom, Australia, and Sweden by November 2011.

Directions for CY 2011 CCPL and beyond

Following the above attainments, the CY 2011 Policy Matrix included four actions as follows: 1) development of the investment strategy of the Indonesia Climate Change Trust Fund (ICCTF); 2) revision of the standard operation procedure (SOP) and preparation for selection of national trustee of ICCTF; 3) implementation of Performance Based Budgeting (PBB) related to climate change policies and programs; and 4) preparation of concept for incentives for pro climate change policies and actions. All of the above targets were attained.

The GOI has continuously made progress in 2012 on the fiscal incentive issues including: 1) continuous support for climate change projects/programs by the ICCTF; 2) implementation of PBB for the government ministries/agencies working on climate related activities; and 3) completion of the concept design of the fiscal incentive scheme.

CY 2011 Indication/action attainment status set in
1.2. Financing Scheme and Policy Coordination for Climate Change and future direction

CY 2011 Indication	Status
(1) Complete an Investment Strategy and revise the current standard operation procedure (SOP) for ICCTF.	Attained
(2) Prepare selection of the National Trustee of ICCTF through discussion between BAPPENAS and MOF.	Attained
(3) Implement PBB for policies, programs and activities of line ministries related to climate change.	Attained
(4) Prepare concept for providing incentives for climate change.	Attained
Future policy action/target	
(1) Continue to support the funding mechanism for Climate Change projects under the Indonesia Climate Change Trust Fund (ICCTF).	
(2) No action/target is proposed.	
(3) Continue implementing PBB for line ministries related to CC.	
(4) Finalize concept of climate change incentives.	

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for the Financing Scheme and Policy Coordination for Climate Change during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set an indicator of the establishment of BPBDs in all 33 provinces by 2012 (c.f. 18 provinces had as of 2010). The target has already been attained by 2011.

1.3. GHG Emissions & Absorption Measurement Inventory

Sector Overview

Accurate estimation of GHG emissions is an urgent issue for Indonesia toward its mitigation target. Since 2007 the GOI 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 February 14, 2011.[6]

Furthermore, the GOI has worked on the development of the system of GHG inventory with periodical review and update. The target included in the 2010 Policy Matrix, namely the establishment of the National GHG Inventory System (SIGN) was attained in October 2010.

Directions for CY 2011 CCPL and beyond

Based on the above development, the CY 2011 CCPL Policy Matrix included two actions as follows: 1) finalization of the presidential regulation on the National GHG inventory; and 2) development of the technical guideline. The presidential regulation was signed by the president; and the guideline was prepared for the waste management sector. For beyond 2012 the GOI further aims to strengthen the implementation structures to develop the inventory with actual data, and the development of the MRV systems with clearly defined roles of the organizations.

The GOI and development partners cooperated in attaining the above progress: JICA's Project of Capacity Development for Climate Change Strategies in Indonesia (2010 to 2015) provides technical supports on the preparation of the technical guideline on the National GHG inventory as a trial case.

CY 2011 Indication/action attainment status set in
1.3. GHG Emissions & Absorption Measurement Inventory and future direction

CY 2011 Indication	Status
(1) Finalize draft Presidential Regulation on National GHG Inventory	Attained
(2) Develop Technical Guidance for waste sector inventory development as a pilot sector.	Attained
Future policy action/target	
(1) Implement SIGN with the close coordination among relevant institutions and prepare for the National GHG Inventory.	
(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.	

[6] Ministry of Environment, Indonesia. (2010). *Indonesia Second National Communication Under The United Nations Framework Convention on Climate Change (UNFCCC)*. http://unfccc.int/files/national_reports/non-annex_i_natcom/submitted_natcom/application/pdf/indonesia_snc.pdf. (Accessed 21 January 2013).

2. Mitigation

2.1. Forestry

Sector overview

The latest statistics estimate that the total of terrestrial forest in Indonesia is 131.28 million ha, covering approximately 70% of the country[7]. 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[8]. 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 7% annual growth rate.

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 above purpose, sets its directions of policies in the 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 prioritised watersheds, and decreasing deforestation rate.

Directions for CY 2011 CCPL and beyond

The 2011 CCPL Policy Matrix specified seven policy targets/actions for the three outcome areas of: forest management and governance; peatland conservation; and REDD+. The actions on afforestation and timber legality (governance) exceeded the target.

The above attainments have been indirectly supported by the international cooperation projects including the following:

- Wild Fire and Carbon Management in Peat-forest in Indonesia contributes to the institutional development for peatland management and REDD+ by providing technical support including the definition of peatland as well as MRV.
- Project on Capacity Building for Restoration of Ecosystems in Conservation Areas contributes to the increase of carbon absorption capacity in the forest area by supporting the

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

development of technologies to restoration of ecosystems and formulation of the guideline.

- Project for facilitating the implementation of National Forestry Strategic Plan (FFORTRA) contributes to the monitoring activities by providing information obtained from the studies on REDD+ activities.

2.1.1. Forest management and governance

All three targets, namely, 1) the establishment of Forest Management Units (FMU); 2) issuance of the ministerial regulation; and 3) the guidance for using forestry DAK, were attained in 2011. In 2012 and years ahead the GOI is expected to continuously establish and strengthen FMUs.

CY 2011 Indication/action attainment status set in
2.1.1. Forest management and governance and future direction

CY 2011 Indication	Status
(1) Establish FMUs in 3 Provinces	Attained
(2) Issue Ministerial Regulations for supporting the implementation of FMUs in provinces and districts.	Attained
(3) Issue Technical Guidance for using Forestry DAK for FY 2012.	Attained
Future policy action/target	
(1) Establish remaining FMUs (28 FMUs, as a final target number, are to be established in total by 2014).	
(2) Strengthen the regulatory framework for FMU management institutions at local level for conservation, protection, and production FMUs (implementing and technical guidance).	
(3) Evaluate and improve intergovernmental transfer mechanism through DAK to finance local government forest activities.	

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for the forestry management and governance during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set an indicator of the establishment of FMUs in all 33 provinces by 2014 MOFR reports that 481 FMUs in 25 provinces have been designed by July 2012, and 28 model FMUs in 19 provinces were established by 2011.

2.1.2. Peatland Conservation

The two actions for peatland conservation showed substantial progress, yet did not fulfill the targets within 2011. MOE developed the hydrological map for Sumatera in July 2012. The Ministry of Public Works (MOPW) has drafted the government regulation on swamp to be further consulted with related ministries including the Ministry of Law and Human Rights. The reasons for delay are ascribed to the

insufficiency in the scientific data on peatland, and the complicated authorities and duties among the government ministries.

CY 2011 Indication/action attainment status set in
2.1.2. Peatland Conservation and future direction

CY 2011 Indication	Status
(1) Produce the Map of Peatland Hydrological Unit (Kesatuan Hidrologis Gambut) in Sumatra and Kalimantan.	Substantial Progress
(2) Finalize a draft of Government Regulation on Swamp and conduct coordination among relevant ministries.	Attained
Future policy action/target	
(1) Finalize a national- scale mapping.	
(2) Establish better coordination mechanism on peatland.	

2.1.3. REDD+

The presidential instruction on the two-year suspension of new concessions of forest (also known as the Moratorium) was issued in May 2011, and the draft of the National REDD+ Strategy was released in August 2011. The strategy was further revised by the REDD+ Taskforce[9] before rereleased in June 2012, and was enacted by the Decree of Chairman of Task Force for REDD+ Agency[10] in September 2012. The REDD+ Taskforce takes initiative in the further development of the REDD+ mechanisms including preparation of the REDD+ agency as well as the MRV agency.

CY 2011 Indication/action attainment status set in 2.1.3. REDD+ and future direction

CY 2011 Indication	Status
(1) Issue presidential instruction on Moratorium.	Attained
(2) Finalize National Strategy of REDD+.	Attained
Future policy action/target	
(1) Issue National Strategy of REDD+.	

[9] As part of the total USD 1 billion cooperation scheme with the Government of Norway, Indonesia created a Task Force under UKP4 in 2010. 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 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. The members of the 10 working groups under the taskforce are selected from the government organizations as well as non-government organizations.

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

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for REDD+ during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set an indicator of the issuance of the National REDD+ Strategy by 2012. The final draft of the National REDD+ Strategy was released by the REDD+ Taskforce June 2012.

2.2. Energy

Sector overview

The energy and industry sector reportedly generated about one fourth of GHG emissions in Indonesia in 2005[11]. The sector is one of the 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[12]) it is expected that GHG emissions from the energy sector will continue to further increase without policy interventions.

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 an incentive to private power developers, the purchasing price of geothermal power was set at 9.7 cents/kWh.[13] 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, establishment of the National Energy Council (DEN) was a prominent achievement. DEN's responsibilities include designing *the National Energy Policy (KEN)*, the national energy plan and the response to national energy crisis. DEN has started to prepare the blueprint of the new directorate general for new and renewable energy.

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

[11] *SNC* estimates that out of 1,7901,371.89 Gg CO_2e of total GHG emissions including Land Use Change and Forestry (LUCF) sector, 369,799.88 Gg or about 20.7% was from the Energy sector, while 48,733.38 Gg, or about 2.7% was from Industrial processes. (*Second National Communication,* Executive Summary, xi).
[12] MOE, Ibid. Chapter V page 4.
[13] MEMR Ministerial Regulation No. 32/2009 on Standard Purchase Price of Electricity Power by PLN from Geothermal Electricity Power Station.

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.[14]

Directions for CY 2011 CCPL and beyond

The GOI plans to increase the share of renewable energy to 15% of total energy sources by 2025[15]. 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.

The CY 2011 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.

2.2.1. Renewable Energy Development

The 2011 Policy Matrix took further steps. For further promoting renewable energy development, the barriers of the geothermal power development were dealt with via various institutional reforms including provision of a revolving fund, appointing the fund manager, introduction of the obligation to PLN to purchase the electricity from the geothermal developers at a maximum USD 0.097/Kw, establishment of the Feed-in Tariff (FIT), and development of the blueprints of renewable energy sources.

Two of the above targets for the revolving fund were attained: the Government Investment Center (PIP) was assigned as the fund manager, and the MEMR regulation No.03/PMK.011/2012 on the management procedure and accountability in investment was issued. The obligation to PLN was also introduced by the MEMR decree[16].

Development of other renewable energy sources was also progressed by the MOF decree No. 22/2011 to replace No. 24/2010 and the introduction of Feed-in Tariff (FIT) schemes. MEMR regulation 04/2012 specified the purchasing price of electricity generated by medium to small scale biomass, biogas, urban waste and surplus power in the public or community owned enterprises. However, the

[14] JICA (2010). *Republic of Indonesia, Climate Change Program Loan (2007-2009), Program Evaluation Report.*
[15] *The Blueprint of Presidential Regulation No. 5/2006.*
[16] MEMR formulated a regulation to further raise the purchasing price in August 2012.

regulation on FIT for hydro, solar and wind power was not completed; while the statement for hydro power was finalized, those for solar and wind power are still under revision. Additionally, the blueprints of geothermal, hydro and solar power were not completed since the superior plan, namely the National Energy Policy (KEN), has not yet been approved by the diet.

The GOI would further develop the renewable energy sources by, for instance, operation of the geothermal exploration fund, implementation of FIT for solar, wind and hydro power, and finalization of the blueprints.

CY 2011 Indication/action attainment status set in

2.2.1. Renewable Energy Development and future direction

CY 2011 Indication	Status
(1) Prepare draft Ministerial Decrees on Fund Manager Assignment and Financial Mechanism (disbursement and funding management).	Exceedingly Attained
(2) Issue a ministerial decree on PLN's obligation to purchase geothermal power from projects of Crash Program II.	Attained
(3) Issuance of Ministerial Decree 22/2011 to replace Ministerial Decree no 24/2010 (PPN DTP).	Attained
(4) Draft Ministerial Regulations on Feed in Tariff (FIT) for solar and wind.	Substantial Progress
(5) Draft Blueprint(s) on geothermal, hydro and solar.	Substantial Progress

Future policy action/target
(1) Continue to improve policy framework design to promote geothermal development, and operate exploration fund.
(2) Prepare regulations on FIT for Renewable Energy.
(3) Publish Blueprint on Renewable Energy.

2.2.2. Energy Efficiency

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.

Four policy actions contributing to the attainment of the above goals were set in the 2011 Policy Matrix, and all of them were attained:

1) The activities under the First Stage of the Energy Conservation Grand Strategy[17] including: the setting of baseline of GHG emissions at 59 enterprises and factories; development of the information system on energy use and GHG emissions;
2) Drafting of the Roadmap for Clean Coal Technology (CCT);
3) Finalization of the Ministry of Industry regulation on the technical guidance on GHG emissions reduction in the cement industry; and
4) Drafting of the REFF-BURN (Reducing Emissions from Fossil Fuel Burning) Framework.

In 2012 and years ahead, the GOI would carry out the master plans and roadmaps drafted so far, and apply the energy conservation policies implemented in the paper, steel and cement industries to other industries.

CY 2011 Indication/action attainment status set in

2.2.2 Energy Efficiency and future direction

	CY 2011 Indication	**Status**
(1)	Complete the first phase of the Grand Strategy (F/S, online system).	Exceedingly Attained
(2)	Draft the CCT (Clean Coal Technology) roadmap for Indonesia.	Attained
(3)	Finalize Technical guidance as a ministerial decree regarding the cement industry.	Attained
(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.	Attained

	Future policy action/target
(1)	Replicate the same approach to other industrial sectors
(2)	Conduct a study to introduce new and more energy efficient technology, and survey the potential of energy efficient technology for electricity generation.
(3)	Finalize the CCT roadmap and start the implementation of the roadmap.
(4)	Finalize REFF Burn.
(5)	Issue *RIKEN/the master plan for energy conservation*.
(6)	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.

[17] The Grand Strategy on Energy Conservation was developed by MOI with financial support from ICCTF. The first phase of the strategy is implemented during the period from September 2010 to June 2011, and covers projects including feasibility and needs assessments on the energy conservation measures in the private enterprises, training of energy conservation managers at 50 factories in the steel and paper industry, and development of online information systems for the managers.

2.2.3. Pricing

GOI attempts to reduce both oil and electricity subsidies through the initiatives including the roadmap of subsidy reduction (formulated in January 2010, but not publicized). Since 2011 MEMR has focused on the revision of PLN's production costs and launched the study on the relation between the production costs and electricity subsidy. In 2012, MEMR proposed a reduction of electricity subsidy by IDR 6.1 trillion compared to the previous year.[18]

CY 2011 Indication/action attainment status set in 2.2.3. Pricing and future direction

CY 2011 Indication	Status
(1) Evaluate production cost and subsidies of electricity.	Attained
Future policy action/target	
(1) Continue to prepare for implementation actions based on the road map, including the regulation.	

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for the energy sector during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set three indicators as follows: 1) Capacity of geothermal power generation reaches 1,521 MW by 2012 (c.f. 27% increase compared to 2010); 2) 71 geothermal development areas are specified by 2014 (c.f. 41 areas were set by 2010); and 3) more than 200 enterprises (accumulated) introduce the energy management system (0 enterprise in 2010).

1) Total capacity of geothermal power plants added up to 1,231 MW as of July 2012, and was expected to increase another 110 MW by the end of 2012. Thus, the total capacity would be 1,341 MW by the yearend, which fells slightly under the target.
2) 54 geothermal development areas have been set by September 2012. The GOI is expected to carry on further enhancement.
3) The target number of the enterprises introducing the energy management system was already attained: 50 enterprises under MOI as well as 185 under MEMR have introduced the system by July 2012.

2.3. Transportation

Sector overview

The transportation sector accounted for almost 37% of the final energy consumption in Indonesia in 2009[19]. This is the second largest as compared to the industries. Particularly, road transportation

[18] IDR 44.96 trillion of energy subsidy was earmarked in the 2012 budget plan.
[19] Ministry of Energy and Mineral Resources (2011). *Handbook of Energy and Economy Statistic 2010*.

weighs 42% of domestic fuel consumption. CO_2 emissions 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[20].

The rapid increase of energy consumption in the transportation sector is ascribed mainly to the increase of personal vehicles, and growing movements of passengers and cargoes. The 2010 Policy Matrix set policy targets/actions for development of Bus Rapid Transit; improvement of pedestrian facilities; and bicycle lanes; and development of the area traffic controlling system (ATCS) in Bogor and Surakarta.

Directions for CY 2011 CCPL and beyond

The Ministry of Transportation (MOT), BAPPENAS, and the development partners were aware of the importance to cover fundamental strategies of transportation development in CCPL. Thus, the 2011 CCPL Policy Matrix placed more emphasis on the Overall Transportation Policy as well as further development of the Traffic Management systems.

2.3.1. Overall Transportation Policy

The policy targets/actions set in the overall transportation policy, namely the revision of the Jabodetabek (the capital region composed of Jakarta, Boror, Depok, Tangeran and Bekasi) transportation master plan and the draft of the Presidential Regulation on the Transportation authority (JTA), were attained.

With regard to the revision of the master plan, JICA cooperates in the Study on Integrated Transportation Master Plan for Jabodetabek (SITRAMP) and other feasibility studies on the trial projects toward the implementation of the new master plan, capacity development of the target groups engaged in the formulation of the urban transportation plans, and drafting of the Presidential Regulation.

CY 2011 Indication/action attainment status set in
2.3.1. Overall Transportation Policy and future direction

CY 2011 Indication	Status
(1) Formulate the revised Jabodetabek transportation master plan (BAPPENAS/CMEA).	Attained
(2) Draft Presidential Regulation for the Jabodetabek Transportation Authority (JTA) (CMEA).	Attained
Future policy action/target	
(1) Finalise Presidential Regulation for the Jabodetabek Transportation Authority (JTA)	

[20] Ibid.

2.3.2. Traffic Management

2011 Policy Matrix specified an action to improve the traffic management systems, namely, the issuance of the Government Regulation on Traffic Management and Engineering. The Regulation 32/2011 was issued as scheduled. The regulation specifies the detailed design of the Electronic Road Pricing (ERP) including the treatment of the tolls. The improvement of the traffic management would contribute to mitigate the traffic jam in the capital region.

CY 2011 Indication/action attainment status set in
2.3.2. Traffic Management and future direction and future direction

CY 2011 Indication	Status
(1) Issue Government Regulation 32/2011of Traffic Management and Engineering, which consists of Electronic Road Pricing (ERP) arrangement[21].	Attained

[21] Already issued as Government Regulation 32/2011 in 2011.

3. Adaptation

3.1. Climate Forecasting and Impact and Vulnerability Assessment

Sector overview

Being an archipelagic country with a high percentage of the population living on fishery and agriculture, Indonesia is vulnerable to impacts of climate change. Furthermore, "the increasingly high temperatures are exacerbating the extreme regional weather and climate anomalies associated with El Nino."[22] In fact, increasing numbers of floods, landslides, forest fires, droughts, high-tides, and diseases are being observed in Indonesia. These incidents might cause large-scale losses in human lives and production losses in the agriculture, fishery, livestock and other industries.

Effective planning and implementation of adaptation program requires accurate forecast of climate change impacts on the economy and society of the country and region. As stated in *ICCSR* the GOI places the highest priority on the issues of: forecast of climate change impact; vulnerability assessment; and development of adaptation information system among the issues addressed during the initial six years (2010-2015) out of the long-term Roadmap till 2030.

The CCPL Policy Matrix in the previous phase covered the development of the systems of information-sharing and early-warning by BMKG (renamed in 2008 from former BMG, the Meteorology and Geophysics Agency).

Directions for CY 2011 CCPL and beyond

Toward further development of climate forecasting and impact/vulnerability assessment, the GOI made progress by the end of 2011 including: BMKG completed development of the climate modeling scenarios as well as the climate database including the five parameters; vulnerability assessment studies were continued in Bali and West Nusa Tenggara; MMAF (Ministry of Marine Affairs and Fisheries) completed the Strategic Plan of INAGOOS (Indonesian Global Ocean Observing System) for the period from 2011 to 2014; and MOE drafted the list of the criteria of the impact of climate change.

For the years beyond 2012 the GOI plans further actions including: development of a vulnerability map in other provinces; implementation of INAGOOS into operational oceanography; and issuance of the list of criteria of environment degradation. These actions are expected to contribute to the accurate understanding and prospect of the impacts of climate change, as well as implementation of effective measures to attain resilience.

[22] 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 supports for the establishment of the systems of: vulnerability studies; climate change forecasting and verification; evaluation of adaptability; and strengthened coordination among stakeholders.

CY 2011 Indication/action attainment status set in

3.1. Climate Forecasting and Impact and Vulnerability Assessment and future direction

CY 2011 Indication	Status
(1) Complete 7 climate change modeling scenario.	Attained
(2) Develop climate database including 5 parameters (rainfall, temperature, humidity, wind and sun light).	Attained
(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.	Attained
(4) Complete Strategic Plan (2011-2014) for INAGOOS.	Attained
(5) Prepare List of Criteria of Standard of Environmental Degradation of Climate Change Impact.	Attained
Future policy action/target	
(1) Prepare Vulnerability Map for other areas.	
(2) Implement INAGOOS into operational oceanography.	
(3) Issue a Government Regulation on the criteria of impact of the climate change.	

Achievement of the outcome indicators set by BAPPENAS/JICA

In order to measure the outcomes of the policy actions for the sector of "Climate forecasting and vulnerability assessment" during the CCPL Phase 2, JICA, in consultation with BAPPENAS, has set an indicator, namely, "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 the projects, which are expected to be completed by 2014.

3.2. Water Resources

Sector overview

The GOI has been conducting assessment on climate impacts and risks in local areas. It is expected that possible climate change impacts to water resources in Indonesia are 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. Due to this variability and change in the climate, various regions in Java and the eastern islands of Indonesia face a water shortage every year. Also, wider areas are projected to have water scarcity in the future[23]. Water shortages would undoubtedly have a negative effect on various sectors including households, agriculture, forestry, energy, and industry.

During the period from 2008 to 2010 GOI progressed in the development of a number of policies and institutions to improve water resource management: the government regulation No.42/2008 on water resource management was issued;[24] the National Water Resource Council and the Provincial Water Resource Councils were established; and the development strategy on water resource was started. Additionally, the water resource management offices (Balai and Balai Besar)[25] were established at 69 river basins, and started working on the formulation of water resource management strategic plans (POLA).[26]

Directions for CY 2011 CCPL and beyond

The GOI further aims to continuously strengthen the capacity of river basin management through preparing action plans and strategies. The action set for CY 2011 CCPL Policy Matrix, namely, completing the drafts of master plans in two river basins was not attained as scheduled: of the three steps of formulating the master plans, inventory development of the water resources, drafting and legalization, the plans for the two river basins were still at the second stage, namely, drafting as of 2012. The issuance of the MOPW regulation on the master plans is expected in 2013.

CY 2011 Indication/action attainment status set in 3.2. Water Resources and future direction

CY 2011 Indication	Status
(1) Complete draft of master plans[27] for 2 River Basins in Java Island (Cimanuk-Cisanggarung and Brantas River Basins) which include climate change adaptation measures.	Substantial Progress

[23] Currently 14% of all 453 districts have no month with water surplus throughout a year. This ratio is expected to rise to 19% by 2025 and 31% by 2050. (*SNC*, Ch. IV, p20).
[24] The regulation specified 1) the definition of water resource management; 2) the policies and guideline of water resource management policies; 4) regulations on the river basins, development and allocation of water resource; and 4) the roles of the National Water Resource Council.
[25] Balai Wilayah Sungai and Balai Besar Wilayah Sungai are also called river basin organizations (RBO).
[26] 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.”
[27] Master plan in this report means water resources management plan (also called RENCANA in Indonesian) which shall be prepared in every river basin based on POLA.

Future policy action/target
(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.

Achievement of the outcome indicators set by BAPPENAS/JICA

An outcome indicator for measuring the 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 three river basins as of 2010)." The GOI has already approved POLA for 12 basins by July 2012. Thus, the target has already been achieved.

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 suggested that the rice production in Java is likely to decrease by about 1.8 million tons from the current production level in 2025, and 3.6 million tons in 2050[28]. Incorporating the impact of rice field conversion to non-agriculture lands in Java, the production loss will increase to 5.2 million tons in 2025, and 13.0 million tons in 2050[29]. In addition, the change in temperature and rainfall may increase crop diseases. Studies suggest that sea level rise has impact on production in rice and corn.

During the first phase of CCPL, the GOI has 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 irrigation asset management system; creating (Semi[30]) Dynamic Cropping Calendar Maps. 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 has not been taking place, though it is a necessary step toward further improvement

[28] 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.
[29] MOE, Ibid.
[30] "Semi" means that the initial cropping calendar maps were prepared only in hard copies. Currently, the same maps have become online (=fully dynamic) cropping calendar maps.

as well as dissemination and scale up of these programs.

The GOI gained support on the sector related to climate change mainly from the following partners: JICA for Supporting Implementation of Irrigation Asset Management (SIIAM) launched in 2009; and ADB for the 'Participatory Irrigation Sector-Project' (PISP).

Directions for CY 2011 CCPL and beyond

The 2011 Policy Matrix included two policy actions/targets, namely, 1) the Presidential Instruction on security measures for rice production in facing extreme climate; and 2) Technical Guidance related to Climate Field School (CFS) and System of Rice Intensification (SRI). The Presidential Instruction specifies measures to cope with the expected vermination of brown plant hopper due to the precipitation change, such as the short-period seeding and harvesting, and ordered the local governments to provide the necessary labor force. The guideline on CFS and SRI has been issued once a year by each agency in charge of the projects. BMKG and two directorates general in MOA have successfully issued the guideline in 2011 and 2012. These policies, as well as other measures including further improvement of irrigation asset management, are expected to contribute to the attainment of the GOI's target of producing 10 million tons of rice in 2014.

CY 2011 Indication/action attainment status set in 3.3. Agriculture and future direction

CY 2011 Indication	Status
(1) Issue a Presidential Instruction on security measures for rice production in facing extreme climate.	Attained
(2) Prepare a draft of Technical Guidance related to Climate Field School (CFS) and System of Rice Intensification (SRI) based on the Presidential Instruction.	Attained
Future policy action/target	
(1) Continue the 2011 progress to finalize actions	

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; warmer sea surface temperature causing coral bleaching and damage to the habitats of thousands of species; increased risk of coastal erosion; and increased frequency of extreme climate-engendered events.

Indonesia, having most of the largest cities and 50% to 60% of the total population in its coastal areas, would be heavily damaged by the above threats. For instance, higher risk of extreme climate-engendered events threatens human lives as well as houses and other infrastructure in the

coastal communities. Damage to coral reefs and fish populations directly affect the economy by decreasing the fish and aquaculture productions.

GOI has worked on the strengthening of communities in the coastal areas and small islands. Examples are the COREMAP program launched in 1998 supported a number of activities by the fishermen and their communities on, for instance, improvement of land use, assessment and management of the coastal environment and so on.

The CCPL Policy Matrix in the previous phase focused on the ground level activities for the strengthening of coastal communities, and the studies on coastal vulnerability and CO_2 emission and flux in the ocean. All policy targets/actions in the previous phase were attained.

Directions for CY 2011 CCPL and beyond

2011 Policy Matrix set three actions: two of them are related to the resilience of the coastal communities and another is on the improvement of the scientific knowledge on the carbon emission and flux in the ocean. All the targets were attained as scheduled. For 2012 and beyond MMAF would further promote the program of climate resilient villages.

CY 2011 Indication/action attainment status set in
3.4. Marine and Fisheries and future direction

CY 2011 Indication	Status
(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.	Attained
(2) Prepare draft/concept Strategic Plan on Coastal Vulnerability Recommendation for Marine and Coastal Resources in Indonesia.	Attained
(3) Review and update Strategic Plan for Blue Carbon Research in Indonesia 2011-2014.	Attained

Future policy action/target
(1) Develop Guidelines of disaster and Climate Change resilient coastal village.
(2) Implement the climate resilient village plan.

Conclusion

The CCPL process, which started in 2008, reached its final stage in 2011. The GOI showed notable progress in most of the 41 policy actions/targets specified in the 2011 Policy Matrix: 2 targets were exceedingly attained; 35 targets were attained; and substantial progress was observed for the other 4 actions/targets.

Throughout the period of 2008 to 2012, the GOI has carried out a number of legal and institutional reforms at 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. 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 been strengthened through, just for 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. The opportunities of monitoring activities and policy dialogues of CCPL were utilized for better information sharing and coordination among the stakeholders in the GOI as well as the development partners. Therefore, we can conclude that the CCPL, as one of the major cooperation schemes addressing the issues in Indonesia, contributed to the above attainments. Furthermore CCPL-related technical assistance and studies extended by Japan and AFD are contributing to the GOI's capacity development for designing climate change policies and their implementation.