**REPUBLIC OF INDONESIA**
**BAPPENAS**

# REPUBLIC OF INDONESIA
# CLIMATE CHANGE PROGRAM LOAN (III)
# MONITORING SUPPORT ACTIVITIES

## FINAL REPORT

## OCTOBER 2011


## JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

## GLOBAL GROUP 21 JAPAN, INC. (GG21)
## INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES (IGES)


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## List of Authors[1]

**Yoshitaro Fuwa**

Senior Consultant, Global Group 21 Japan Inc.

**Jun Ichihara**

Policy Researcher, Programme Management Office, Institute for Global Environmental Strategies

**Atsushi Watabe**

Associate Researcher, Programme Management Office, Institute for Global Environmental Strategies

1 The three authors compose the CCPL (III) monitoring support team. The preparation of the report was substantially supported by Ms. Cecilya Malik, and Mr. Muchamad Muchtar.

## Abbreviations

| | |
|---|---|
| ADB | Asian Development Bank |
| AFD | Agence Française de Dévelopement |
| APBN | State Budget of Revenues and Expenditures |
| AusAID | The Australian Government's Overseas Aid Program |
| BAPPENAS | The National Development Planning Agency, Republic of Indonesia |
| BAU | Business as Usual |
| 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 |
| CC-DAK | Climate Change Special Allocation Fund |
| CCPL | Climate Change Program Loan |
| CCT | Clean Coal Technology |
| 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 Emission 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 |
| 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 |
| 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<br>(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 |
| PISP | Participatory Irrigation Sector Project |
| PLN | State Electricity Company, Republic of Indonesia |
| POLA | Integrated Water Resources Management Patterns and Plans (Pola Pengelolaan Sumber Daya Air) |
| PP | Government Regulations |
| PPA | Power Purchase Agreement |
| RAD-GRK | Regional Action Plan on Green House Gas Emission Reduction |
| RAN-GRK | National Action Plan on Green House Gas Emission Reduction |
| RAN-PI | National Action Plan Addressing Climate Change |
| REDD | Reducing Emissions from Deforestation and 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 |
| 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) |

# *Executive Summary*

## Background and overview

The Government of the Republic of Indonesia (GOI) has actively addressed climate change issues, e.g. hosting the 13th Conference of Parties of the United Nations Framework Conventions for Climate Change (UNFCCC-COP13) in 2007 at Bali, and preparation of National Action Plan addressing Climate Change in the same year.

In order to encourage the GOI's efforts for addressing climate change, the Government of Japan (GOJ) introduced the Climate Change Program Loan (CCPL) in 2008. Development partners also joined as co-financiers: the Government of France (GOF) through Agence Française de Développement (AFD) in the same year, the World Bank in 2010 and the Asian Development Bank (ADB) in 2011[2].

Under the CCPL framework, the GOI and development partners select important climate change policies and programs of the GOI for each year, jointly review and discuss the monitoring results and, if these results are positive, provide large-scale general budget supports.

The Consortium of Global Group 21 Japan Inc. (GG21) and Institute for Global Environmental Strategies (IGES) was entrusted by Japan International Cooperation Agency (JICA) to support the CCPL monitoring activities from November 2010 to July 2011, and conducted three missions in Indonesia. This report is based on these missions and follow-up activities. It describes the achievement of CY2010 policy actions, analyses CY2011 indicators and draws lessons and recommendations.

**In the first phase of CCPL (2007-2009),** policy actions were basically achieved. The climate change policies of 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; (a) preparation of *The Indonesia Climate Change Sectoral Roadmap (ICCSR);* (b) establishment of National Council on Climate Change (DNPI) in 2008; (c) launch of Indonesia Climate Change Trust Fund (ICCTF) in 2009; (d) preparation of *the Second National Communication (SNC)* to be submitted to UNFCCC by 2011; and (e) creation of new

2 Annual loan commitments are :
2008: JICA USD 300 Million, AFD USD 200Million
2009: JICA USD 400 Million, AFD USD 300Million
2010: JICA USD 300 Million, AFD USD 300Million, World Bank USD 200 Million

sections/teams dealing with climate change related policies in a number of line ministries including Ministry of Forestry (MOFR), Ministry of Energy and Mineral Resources (MEMR), Ministry of Agriculture (MOA); and Ministry of Environment (MOE). Many of these actions were those included in the CCPL Policy Matrix.

Thus, during the CCPL Phase I, the GOI addressed compiling basic data and strengthening institutions (including funding institution) on climate change, incorporating mitigation and adaptation policies.

**In the CCPL Phase II (2010-2012)**, it was agreed to put more priority on upstream policies, and categorize them as "Key Policy Issues (Upstream Strategies)" to be placed at the top of the Policy Matrix, substituting former "Crosscutting issues."

Following items were identified as the outcome areas in the CCPL Phase II Policy Matrix:

1. Key Policy Issues (Upstream Strategies)
    1.1. Mainstreaming Climate Change in the National Development Planning
    1.2. Enhanced Policy Coordination and Financing Scheme and for Climate Change
    1.3. Creation of GHG (Greenhouse Gas) Emission and Absorption Measurement Inventory
2. Mitigation
    2.1. Forestry sector including the outcome areas of: improved forest governance and management; improved institutional and regulatory framework to conserve and restore peatland; emission reduction through the implementation of a national REDD+ (Reducing Emissions from Deforestation and Degradation plus conservation, the sustainable management of forests and enhancement of forest carbon stocks) framework; and Increased Carbon sink capacity through reforestation activities.
    2.2. Energy sector including the outcome areas of: improved policy framework for private sector participation in geothermal power generation; improved renewable energy development; enhanced energy efficiency in energy intensive sectors; demand side management; and improved cost-oriented pricing mechanism.
    2.3. Transportation sector including the outcome areas of: enhanced transportation policy to avoid deteriorating traffic congestion; increased shift from private cars to public transportation; and enhanced traffic management.
3. Adaptation
    3.1. Climate Forecasting and Impact and Vulnerability Assessment to strengthen institutional and regulating framework and capacity for scientific research on adaptation.

3.2. Water Resources sector to improve water resource management including climate change adaptation measures,

3.3. Agriculture sector to strengthen institutional and regulating framework to improve resilience of farm production and reduce drought risk, and

3.4. Marine and Fisheries sector to strengthen institutional and regulating framework to manage coastal zones and small islands.

**The result of achievement of 2010 policy actions** was: out of total 36 actions, three actions were evaluated as Exceeding, 24 as Attained, 9 as Substantial Progress, and 0 as Unfulfilled.

In the **Key Policy Issues (Upstream Strategies)**, major achievements in 2010 were: (a) inauguration of *ICCSR*[3]; (b) submission of Indonesian Voluntary Mitigation Action by the GOI to UNFCCC; (c) implementation of innovative funding mechanism for climate change through ICCTF[4]; and (d) finalization of measurable, reportable and verifiable GHG Inventory System.

Major achievements in **Mitigation** were**:** (a) establishment of 22 model Forest Management Units (FMUs) and their management regulations in the forestry sector; (b) studies for policy framework for risk mitigation mechanism for geothermal development and budget allocation for such mechanism, and finalization of *the National Masterplan for Energy Conservation (RIKEN)*; and (c) development of Area Traffic Control System (ATCS).

Major achievements in **Adaptation** were**:** (a) start of developing climate change modeling scenarios; (b) study on vulnerability assessment in Java; and (c) continuation and scale-up of actions in water resources, agriculture, and marine and fisheries sectors.

On the other hand, **common challenges** in implementing 2010 policy actions were: (a) development of national-level climate change policies and implementation of the policies at local level needs close coordination with different stakeholders, e.g. provincial and regency governments and local population; and (b) providing local governments with institutional and funding supports and incentives.

In preparing of **2011policy actions**, basic principles were: (a) align with *the National Action Plan on Reduction of Greenhouse Gas Emissions (RAN-GRK)*, to attain 26% of GHG less compared with Business-As-Usual (BAU) scenario in 2020 and *Government Annual Action Plan (RKP)*; and (b) continue to focus on upstream policies and strategies.

**Major 2011 policy actions for Key Policy Issues (Upstream Strategies)** are**:** (a) use *National Medium-term Development Plan (RPJMN)* and *RAN-GRK* as a basis to prepare the draft the

3 The mitigation part of ICCSR will be used as a basis for preparation of Nationally Appropriate Misigation Actions.
4 See ICCTF part of the Section 1.1.2 of the main text for the details.

concept of Appropriate Mitigation Actions (NAMA); (b) issue a guideline for provincial action plans based on *RAN-GRK*; (c) prepare a concept note of national adaptation strategies; (d) complete an Investment Strategy and revise the current standard operation procedure (SOP) for ICCTF; (e) implement performance based budgeting (PBB) for policies, programs and activities of line ministries related to climate change; (f) prepare concept for providing incentives for climate change; and (g) finalize the draft Presidential Regulation on National GHG Inventory.

Major 2011 policy actions in **Mitigation** are**:**

In the **Forestry sector, (**a) establish FMUs in three Provinces and Issuance of Ministerial Regulations for supporting their implementation; (b) issue of Technical Guidance for using Forestry Special Allocation Fund (Dana Alokasi Khusus; DAK) for 2012; (c) produce the Map of Peatland Hydrological Unit and finalize a draft of Government Regulation on Swamp; and (d) finalize National Strategy of REDD+[5].

In the **Energy sector,** (a) mitigate risk associated with geothermal development by selecting fund manager for revolving fund and prepare Standard Operation Procedures of the fund; (b) draft Blueprint(s) on geothermal, hydro and solare energy development; (c) draft Framework of REFF-BURN (Integrated Program for Reducing Emissions from Fossil Fuel Burning); and (d) evaluate production cost and subsidies of electricity.

In the **Transport sector,** (a) formulate the revised Jabodetabek[6] transportation master plan; and (b) draft Presidential Regulation for the Jabodetabek Transportation Authority (JTA).

Major 2011 policy actions in **Adaptation** are**:** (a) complete seven climate change modelling scenarios; (b) develop climate database; (c) complete vulnerability assessment studies in Bali (1st Phase) and start one in West Nusa Tenggara; (d) continuation and scale-up of actions in water resources, agriculture, and marine and fisheries; (e) develop climate resilient village plan for 5 years; (f) prepare a Concept Strategic Plan on Coastal Vulnerability; and (g) review and update Strategic Plan for Blue Carbon Research in Indonesia 2011-2014.

The relevance of these 2011 policy actions and their impacts to overall development of Indonesian climate change policies, are analysed in the main report.

## Conclusion

Started in 2008, the CCPL process has entered into the 3rd year. Many of CCPL policy actions have been achieved and the GOI has made notable progress in terms of planning, creation of

5 An enhanced concept of REDD including the objectives of conservation, the sustainable management of forests and enhancement of forest carbon stocks

6 Combined area of Jakarta, Bogor, Depok, Tangerang, and Bekasi

regulatory system, development of institutions, including data collection system and funding mechanism for climate change programs and projects. *RAN-GRK* and its associated programs and their monitoring in the CCPL framework the GOI will be an endeavour that deserves international attention in the context of climate change negotiations in the UNFCCC on measurable, reportable and verifiable NAMA. CCPL-related technical assistance and studies extended by Japan and AFD[7] are contributing to the GOI's capacity development for designing climate change policies and their implementation.

## Overall recommendations[8]

(a) Formulation of national-level climate change policies and implementation of them at local level needs close coordination with different stakeholders, i.e. provincial and regency governments and local population. Thus, further efforts for large scale consensus building are indispensable. Specifically, it is recommended to create a forum among stakeholders for information-sharing and coordination on climate change activities at provincial level.

(b) Proactive involvement of different stakeholders in planning and implementation of climate change policies should be further facilitated. To this end, providing incentives particularly to local governments would be effective. The National Development Planning Agency (BAPPENAS) and Ministry of Finance (MOF) are recommended to organize a committee to examine the incentives to local governments addressing climate change issues.

(c) Further enhancing synergy-effect among the GOI and development partners for planning and implementation of climate change related programs will be important[9]. It is recommended that the CCPL Steering Committee Meeting be held back-to-back with the Climate Change Policy Coordination Forum organized by BAPPENAS.

The monitoring support team sincerely hopes that the CCPL process will make further contribution for Indonesia to continue achieving growth to become a low carbon and climate-resilient society.

7 JICA supported by capacity development for: (a) NAMA preparation; (b) Vulnerability Assessment; and (c) GHG inventory system. JICA funded studies on risk mitigation for promoting private investment in geothermal development and for energy conservation. AFD funded a study for enhancing energy efficiency of energy intensive industries, e.g. cement.

8 For the recommendations related to each sector, see the end of each section in the main report.

9 The reporting of the results of 7th CCPL Steering Committee to the Climate Change Policy Coordination Forum organized by BAPPENAS inviting other donors, is a good first step toward this direction.

# *Analysis*

## Introduction

The Government of the Republic of Indonesia 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 Government of Indonesia (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 introduce a large 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 AFD (Agence Française de Développement). 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.

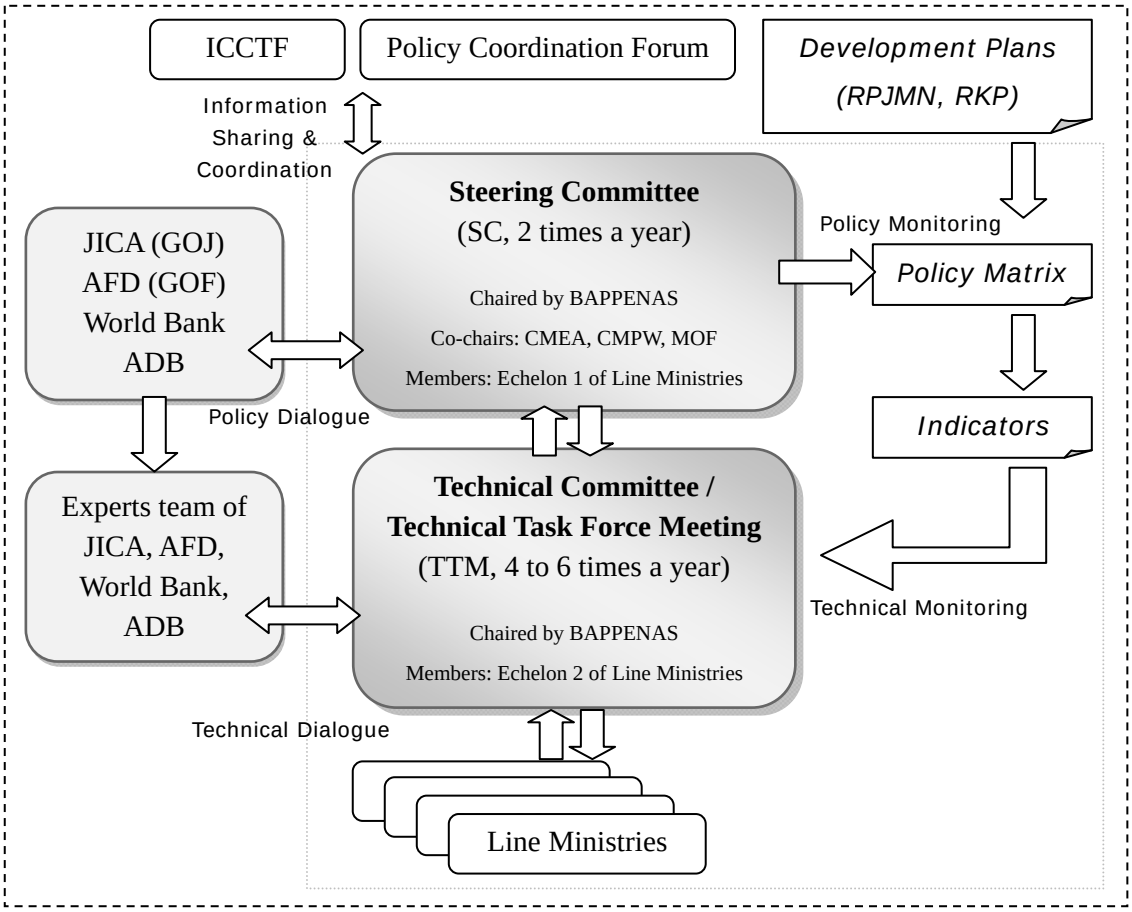


Figure 0-1 : Coordination Structure of CCPL

From 2007 to 2009, the climate change policies of 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: *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 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 development.

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.”

In the latter half of 2010, JICA started its activities of 1) monitoring/evaluation of the progress/attainments of 2010 Policy Matrix; and 2) preparation of 2011 Policy Matrix and beyond, in close cooperation with the GOI. Global Group 21 Japan Inc. (GG21) and Institute for Global Environmental Strategies (IGES) were entrusted by JICA to support the above activities from November 2010 to July 2011, and conducted three study missions in Indonesia. On the basis of the results of these missions and subsequent follow-up activities, GG21 and IGES developed this report to describe the status of 2010 policy targets/actions, as well as the analysis of 2011 indicators.

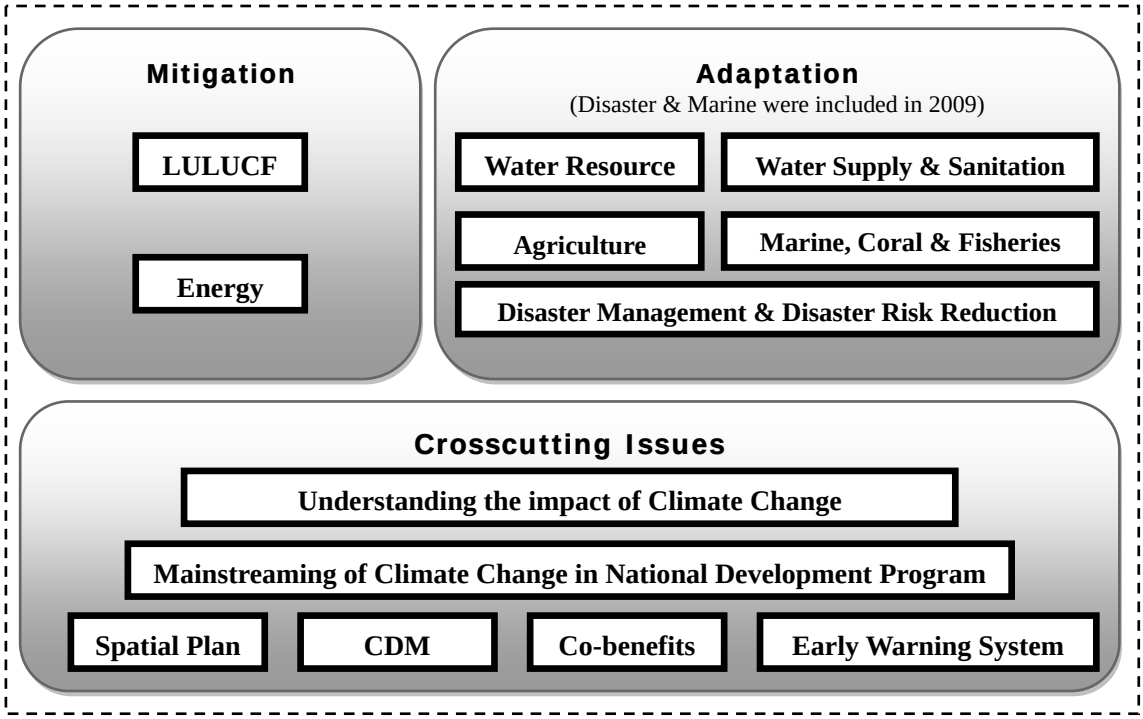


Figure 0-2 : Structure of CCPL Policy Matrix (2007-2009)

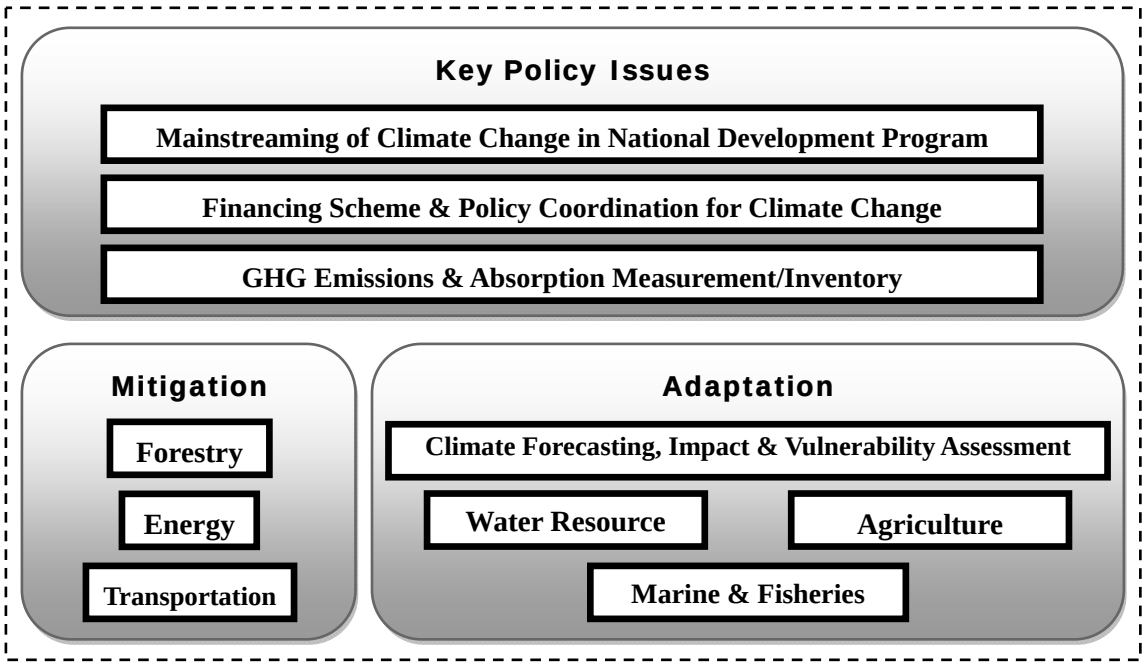


Figure 0-3 : The structure of CCPL Policy Matrix (2010-)

The status of 2010 policy targets/actions will be analysed in terms of their progress and attainments and obstacles/challenges. 2011 indicators are analysed in terms of their relevance and impacts to overall development of Indonesian climate change policies.

# *1. Key Policy Issues*

## 1.1. Mainstreaming Climate Change in the National Development Program

### Sector overview

Climate Change issues have not been covered in Indonesian national development planning process until recently. Since 2007, the GOI started to include mainstream climate change issues in its national development policies, and it has prepared: *National Development Planning: Indonesia Responses to Climate Change (2008)* and *ICCSR*. At the same time, *RPJMN 2010-2014* also identifies climate change one of the thirteen national priorities, and as one of the four issues to be dealt with cross-sectoral efforts[10].

**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 *RKP 2009* 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 Climate Change Policies

| Title | Year | Publisher | 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*** | 2008 | BAPPENAS | Sectors, policy actions, and funding sources for mitigation and adaptation in Indonesia. |
| ***2009 Government's Action Plan (RKP)*** | 2009 | BAPPENAS | Plan of policy actions and budgets of all sectors for 2009. |
| ***Indonesia Climate Change Sectoral Roadmap (ICCSR)*** | 2009 | 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 | BAPPENAS | Plan of policy actions and budgets of all sectors from 2010 to 2014. |

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

| Title | Year | Publisher | Contents |
|---|---|---|---|
| ***The Second National Communication (SNC)*** | 2011 | 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)*** | 2011 | BAPPENAS | Sectors, policy actions, and funding sources toward the National target of reducing GHG emissions 26% less than Business as Usual (BAU) by 2020. |

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 CY2010 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 *National Action Plan on Reduction of Greenhouse Gas Emissions (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. However, it was decided that *RAN-PI* would not be revised in 2010 for two reasons: mitigation policies have already been updated in *RAN-GRK*, and adaptation policies would be developed as National Adaptation Strategies by 2013. The presidential decree on *RAN-GRK* is expected to be issued in 2011.

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.

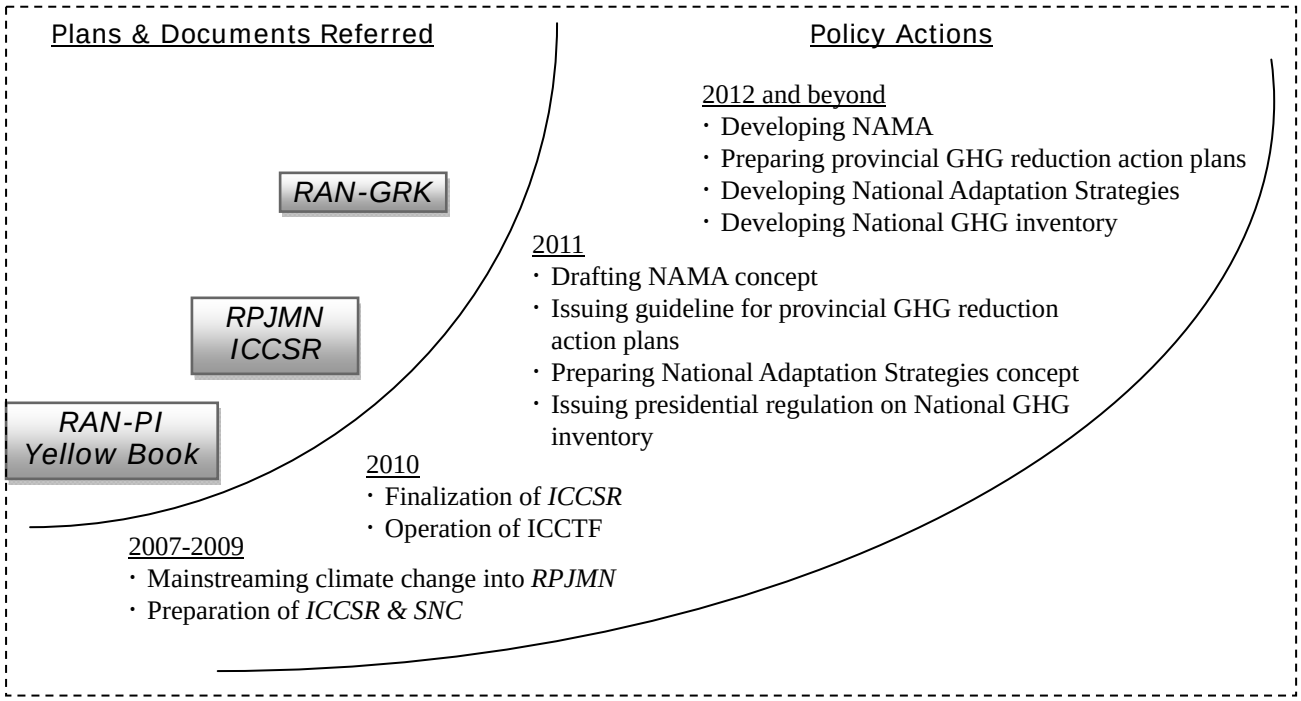


Figure 1-1: Highlights of past development and future directions of Key Policy Issues

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) directing/facilitating policies at sector level through further legal development;
2) ratification/legitimization of internationally agreed mechanisms;
3) developing concrete policies including Nationally Appropriate Mitigation Actions (NAMA) and National Adaptation Program of Action (NAPA); and
4) 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 *the Synthesis Report: Indonesia Climate Change Sectoral Roadmap* in December 2009, and undertook the final process of the full-report.

At the same time, the GOI has also prepared for legitimization of *RAN-GRK*. Based on the declaration of President Yudhoyono 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 decree to ratify *RAN-GRK*. The presidential decree was issued on September 20, 2011.

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 15$^{th}$ Conference of Parties of the UNFCCC in December 2009. The Copenhagen accord included a mechanism in which a) Non-Annex I countries develop and submit their voluntary mitigation actions to UNFCCC, to which b) international society

supports the implementation. Upon this accord the GOI has announced that it will submit its plan to UNFCCC by January 2010.

For the third category, revision of *the National Action Plan Addressing Climate Change* (*RAN-PI,* MOE, 2007) was among the urgent issues. While MOE prepared the current *RAN-PI* 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. When the National Council on Climate Change (DNPI) was established in 2008 as an inter-ministries council on climate change issues, it was decided that the new plan would be developed under the council.

Lastly, BAPPENAS 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 specifically on the issues.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The four policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Finalize *Indonesia Climate Change Sectoral Roadmap (ICCSR)*.**

Status: Attained

*ICCSR* was published in March 2010.

*ICCSR* contains the results of scientific projections of climate change, namely, surface temperature, sea level rise, precipitation change, and increase in chances of extreme weather developed on the basis of Intergovernmental Panel on Climate Change (IPCC)'s three scenarios of climate change. It also specifies areas and sectors vulnerable to the impacts, and relevant development policies in four 5-year timeframes from 2010 to 2030.

The priority policy sectors covered in *ICCSR* are: 1) forestry, 2) energy, 3) transportation, 4) industry, 5) waste management, 6) agriculture, 7) marine and fisheries, 8) water and 9) health.

The climate mitigation part of *ICCSR* would be further utilized as a basis of developing Indonesian National REDD+ (Reducing Emissions from Land Degradation and Deforestation

plus conservation, the sustainable management of forests and enhancement of forest carbon stocks) strategies and NAMA. Similarly, the climate adaptation part will be utilized as a basis of developing National Adaptation Strategies.

**Indication (2)**

**Issue a presidential decree on *National Action Plan for 26% GHG voluntary reduction*.**

Status: Substantial Progress

The Directorate of Environment, BAPPENAS finalized the draft of *RAN-GRK* in October 2010. *RAN-GRK* contains detailed strategies and selected policy actions for green house effect reduction in five sectors: Forestry and Peatland Management; Agriculture; Energy and Transportation; Industry; and Waste Management. *RAN-GRK* also specifies policies, resources, and mechanisms of financing GHG emissions reduction; directions of Monitoring, Evaluating, and Reporting; and support for provincial action plans (RAD-GRK) preparation.

*RAN-GRK* is considered to be the national commitment to the global climate change, as is described in *the Master Plan for Acceleration and Expansion of Indonesia Economic Development (MP3EI)* published by the Coordinating Ministry for Economic Affairs (CMEA) in May 2011.

The draft of the presidential decree ratifying *RAN-GRK* has already been finalized and underwent the legal check at CMEA. Final review and approval process at the President's Office (Cabinet Secretary) is finished and the decree is ready to be signed.

**Indication (3)**

**Submit mitigation actions and commitments under Copenhagen Accord to UNFCCC, based on commitments by the president, policy documents and policy dialogues.**

Status: Attained

As a commitment to *the Copenhagen Accord* which was "taken note" at the 15th Conference of Parties of the UNFCCC in December 2009, the GOI, as one of Non-Annex I countries was supposed to develop and submit its voluntary mitigation action to UNFCCC, which could be supported by international society.

After ministerial coordination on Indonesian voluntary mitigation actions and commitments, it was first sent to DNPI, and then was submitted to UNFCCC from DNPI on 30 January 2010.

**Indication (4)**

**Revise *the National Action Plan Addressing Climate Change (2007)*.**

Status: Substantial Progress

The GOI withdrew its plan of revising *the National Action Plan Addressing Climate Change* (*RAN-PI*, MOE, 2007) for the following two reasons: mitigation actions have already been updated by the development of *RAN-GRK*; and adaptation actions will be updated in the National Adaptation Strategies which will be prepared by 2013.

**Challenges identified in implementing CY2010 policy actions**

The presidential decree ratifying *RAN-GRK* was issued on September 20, 2011.

The national level policies for climate change need to be implemented at local level. Awareness raising, consultation with stakeholders, capacity development, designing institutional and financial support and incentive mechanism will be future challenges.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following four policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Use *Midterm Development Plan (RPJM)* and *RAN-GRK* as a basis to prepare the draft the concept of Nationally Appropriate Mitigation Actions). |

[Ministry/Agency in charge: BAPPENAS; CMEA; and the Coordinating Ministry for People's Welfare (CMPW)]

There is no clear definition of NAMA and several types of proposed NAPAs in the international negotiation. NAMA is supposed to be composed of list of policy actions contributing to reducing GHG emissions in a certain country. The expected outcomes, impacts and costs of policy actions would be described so as to facilitate international support although the standard and format has not yet been internationally agreed. The GOI has already analysed most of necessary data, and listed up important policy actions while it prepared recent documents such as *SNC*, *ICCSR*, *RPJMN (2010-2014)* and *RAN-GRK*. The concept note of NAMA, which serves as the methodological basis of Indonesian NAMA is supposed to reflect the ideas and issues in the existing documents.

For monitoring of this indication, it is desired to obtain the (draft) concept note of NAMA, more concretely the (draft) general guideline of *RAN-GRK* for developing NAMA framework for

national and local governments. The guideline is expected to include the following major components: vision (guiding principle and objectives); methodology; steps to prepare NAMA/SOP (Standard Operation Procedure): SOP on monitoring and reporting every year; criteria for selection of projects and activities; and SOP on the review of NAMA (based on monitoring and progress of international negotiation). For the current *RPJMN 2010-2014*, it already exists and is difficult to change. However, the guideline will work for monitoring and evaluation of current *RPJMN* and will support preparation of next *RPJMN*. The office in charge of this issue is Directorate of Environment, BAPPENAS.

| |
|---|
| [2] Issue a guideline for provincial action plans based on *RAN-GRK*. |

| |
|---|
| [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]

While *RAN-GRK* states the necessary actions to attain 26% (or 41% with international support) of GHG emissions reduction in Indonesia, many actions are to be implemented on the local level. Considering that provincial action plans would be mandated and development of the plans is critically important for appropriate implementation and monitoring of policy actions, BAPPENAS undertakes to support activities for the local governments preparing their action plans (RAD-GRK). BAPPENAS works on supporting local governments with two relevant measures: issuance of guidelines; and convening socialization and workshops.

For monitoring of these two indications, it is necessary to obtain the guideline for provincial action plans and materials and reports of socialization and workshops, and to interview officer(s) in charge of the workshops. The office in charge of the issues is Directorate of Environment, BAPPENAS.

| |
|---|
| [4] Prepare a concept note of national adaptation strategies. |

[Ministry/Agency in charge: BAPPENAS]

To ensure the feasibility of the adaptation policies stated in the national adaptation strategies, the ideas, issues, and actions stated in the GOI's existing plans need to be sufficiently taken into account. BAPPENAS works on the concept note on the basis of existing documents, as a basis of developing the National Adaptation Strategies.

For monitoring of the indication, it is necessary to obtain the concept note of the national adaptation strategies. The office in charge is Directorate of Environment, BAPPENAS.

**Expected impacts of the above policy actions in the outcome area**

On the basis of the concept documents for NAMA and national adaptation strategies, the GOI will develop mitigation and adaptation plans in the internationally accepted forms in early 2010s (twenty-tens) in view of attaining its medium and long term targets with further international support.

The guideline and socialization activities would facilitate local governments' efforts of formulating their local action plans for mitigation, and thus would contribute to attain the national target of 26% GHG emissions reduction (or 41% with international support) compared to BAU in 2020. The experience of Indonesia, a large archipelagic country with the population of more than 200 million, will be an internationally notable reference case for addressing climate change.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Draft mitigation action.
- Draft provincial action plans for contributing to 26% reduction.
- Incorporate climate change program into regional midterm development plan at Provincial level.
- Draft national adaptation strategies.

**Followings are challenges to properly implement these policy actions;**

- Building up scientific data related to climate change impacts, identifying bottlenecks and associated risks will be crucial. Thus, vulnerability assessments need to be conducted in each province.

**Further recommendations related to the outcome area**

- Vulnerability assessments should be conducted in each province and identified risks need to be addressed in the National Adaptation Strategies.
- The assessments results need to be shared with development partners to ensure their participation to adaptation programs.
- Crosscutting policy issues need special attention so as not to be insufficiently covered both in NAMA and the National Adaptation Strategies, while the two documents are separately

prepared.

- In addition to the guideline and socialization activities for local mitigation action plans, it is also necessary to provide technical, financial and institutional supports for the local governments to prepare their adaptation plans designing incentive mechanism is essential.

## 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 local governments tend to face constraints, financial, technical and human, in 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 CY2010 CCPL and beyond**

Bearing these concerns in mind, the CY2010 Policy Matrix included actions related to: 1) the Indonesia Climate Change Trust Fund (ICCTF), a funding mechanism to promote implementation of climate change policies; 2) conduct a study on Performance Based Budgeting (PBB) related to climate change policies and programs; 3) incentives concept for the local governments including DAK (Dana Alokasi Khusus; Special Allocation Fund); and 4) establishment of Local Disaster Management Agencies (BPBDs).

The first action on ICCTF was exceedingly achieved, with three projects selected to be supported. The last action on establishment of BPBDs was attained as scheduled.

The second and third actions progressed but they need further deliberations within the relevant ministries.

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 investment, the GOI decided to establish the ICCTF to pool and coordinate funds from a variety of sources such 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 2012.

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, 2010 Policy Matrix included an action to "conduct a study on the implementation possibility of PBB."

The concept of DAK for climate change was developed in "*Ministry of Finance Green Paper: Economic and Fiscal Policy Strategies for Climate Change Mitigation in Indonesia"* published by MOF and Australia Indonesia Partnership in 2009. DAK is a fund allocated from State Budget to local government (province or district/municipality) to be used for funding national priority specific programme/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 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 1-2 : Fiscal Transfer from the central government to the regional governments

| Title of funds | Amount (Rp 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: "*Budget Statistics 2006-2012"* MOF. http://www.anggaran.depkeu.go.id/Content/11-08-19,%20DataPokokInggris2006-2012.pdf (Checked 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.[11]

The DAK could be used to pay 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.

On disaster management, efforts to establish BPBDs have started since 2009. At the central government level, National Disaster Management Agency (BNPB) was created in 2008. In the same year, BNPB Regulation No.3/2008 and The Ministry of Home Affairs (MOHA) Regulation No.46/2008 defined the obligations of local governments to establish BPBDs in charge of disaster management planning and coordination among relevant authorities at local level. By the end of 2009, BPBDs were established in 18 out of total 33 provinces.

## ◆ CY2010 Policy Actions

### Status of CY2010 Policy Actions

The four policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

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

**Indication (1)**

**Implement innovative funding mechanism for Climate Change through the Indonesia Climate Change Trust Fund (ICCTF).**

Status: Exceedingly Attained

Based on several steering committee meetings, BAPPENAS selected 3 projects in September 2010 from more than 100 proposals from line ministries for utilizing innovation fund. The 3 projects are:

1) Research and Development on Technology of Sustainable Peat management to Enhance Carbon Sequestration and Mitigate Greenhouse Gas Emission

   (Executing Agency: Indonesian Agency for Agricultural research and Development, MOA. Total cost; USD 0.8 million);

2) Implementation of Energy Conservation in industrial sector

   (Executing Agency: Center for Research and Development Resource Environment and Energy, Ministry of Industry. Total cost; USD 2.7 million); and

3) Public Awareness, Training and Education Program on Climate Change Issues for All Level of Societies in Mitigation and Adaptation

   (Executing Agency: Center for Climate change and Air Quality, the Agency of Meteorology, Climatology and Geophysics (BMKG). Total cost; USD 1.1 million).

The Project 1) will test GHG mitigation technology on a large scale (5ha of demonstration plot in South and Central Kalimantan, Jambi and Riau) and in different peat maturity stages with the objective of evaluating the effectiveness of promising technologies to sustain peatland production, increase Carbon sequestration and reduce GHG emissions. The result of the study is expected to contribute to the NAMA plan related to peatland management.

The Project 2) will produce ; (1) baseline for energy conservation and $CO_2$ emission in steel industry and pulp & paper industry, (2) references for implementing energy conservation and $CO_2$ emission reduction, (3) human resource with relevant skills, (4) integrated information system, (5) national guidelines and ministerial regulation on for energy conservations and $CO_2$ emission reduction, and (6) executed pilot project (No Cost & Low Cost), (7) concept of pilot projects for implementing integrated system for energy conservations, and $CO_2$ emission reductions, and (8) increase of provinces and local governments' awareness on climate change issues. The Project will involve 50 steel industries and 30 pulp & paper industries.

The Project 3) aims at (1) enhancing awareness of climate change and global warming issue to targeted communities (Farmers, Fishermen, Forestry Community, Students, Government Officials, Mass Media and poor people in the city), (2) increasing capacity of public in adapting and mitigating to climate change and introducing practical and appropriate actions in

everyday life, and (3) proposing global warming and climate change as part of national and education curriculum.

The Secretariat of ICCTF will monitor implementation of these activities.

**Indication (2)**

**Conduct a study on the implementation possibility of Performance Based Budgeting (PBB) for programs and policies of line ministries related to climate change.**

Status: Substantial Progress

In 2009, BAPPENAS and MOF issued Technical Guidance of PBB and program matrix of 2010 as well. MOF tried to coordinate with JICA and Australian Government's Overseas Aid Program (AusAid) for the study and a PBB study team was created within MOF, but no output was produced, due to the reorganization within the MOF to create the Centre for Climate Change Funding Policy and Multilateral Cooperation (Pusat Kebijakan Pendanaan Perubahan Iklim dan Kerjasama Multilateral), organized under the Fiscal Policy Agency (BKF) of MOF.

Evaluation Division of BAPPENAS was expected to conduct evaluation activities from January 2011 until April 2011. The Directorate General (DG) of Budget of MOF and the Directorate of Ministries Funding Allocation of BAPPENAS would examine the evaluation report for revising budget plan by June 2011. MOF would then announce the revised budget.

PP (Government Regulation) No.90/2010 was issued on arrangement of Work plan and Budget of Ministries/Agencies which includes the PBB issue (replaced PP No.21/2004).

**Indication (3)**

**Improve the existing design of Climate Change DAK (Special Allocation Fund) or special incentives concept for local governments.**

Status: Substantial Progress

Establishment of Climate Change Special Allocation Fund (CC-DAK) was proposed by Directorate of Environment, BAPPENAS. However, through repeated discussions, the GOI decided not to establish this CC-DAK. While a single ministry or agency needs to be assigned to take charge of a DAK scheme as customary, it was difficult to assign one for CC-DAK as climate change policies are planned and implemented by various ministries.

There are 19 sectors in DAK in 2011 and budget of IDR 25 trillion has been allocated. Additionally, an additional budget of USD 10 million has been allocated for forestry as climate change related DAK. To link this USD 10 million with climate change related actions conducted in 18 other sectors, technical criteria for budgeting should come from technical

ministry and recognized by Director of Budgeting System under DG Budget of MOF.

While BAPPENAS proposal for establishment of CC-DAK was rejected, DAK in forestry sector is categorized as "climate change related", supporting policies/actions addressing climate change issues. Ministry of Forestry (MOFR) has developed technical guidance for using DAK by enacting ministerial regulation annually by referring to the Minister of Finance Regulation: MOFR issued Regulation No.03/Menhut-II/2010 in 2010 and MOFR Regulation No.03/Menhut-II/2011 in 2011. The improvement of technical guidance includes detailed descriptions on criteria, type and number of activities to be funded with budget allocation, and quarterly and annually reporting system from local governments.

Additionally, DAK for other ministries cover some programs more or less related to climate change issues in the areas of, for instance, water, sanitation, marine and fisheries, agriculture, environment, and rural electricity.

**Indication (4)**

**Continue the efforts to establish Local Disaster Management Agencies (BPBD) in all provinces.**

Status: Attained

32 BPBDs in provinces of total 33 have already been completed in 2010.

BPBD in Papua is still in the construction phase and should be completed in 2011.

**Challenges identified in implementing CY2010 policy actions**

On ICCTF, following issues remain to be further monitored:

1) Funding to ICCTF. The focus will be whether enough funding will be secured to operationalize the transformation fund in 2012.
2) Select efficient ICCTF Trustee and securing sufficient staff in the secretariat for monitoring the ICCTF funded projects.

On PBB and incentive for climate change, BAPPENAS and MOF need to coordinate to prepare the concept and share it with relevant stakeholders.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following four policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Complete an Investment Strategy and revise the current standard operation procedure (SOP) for ICCTF. |

| |
|---|
| [2] Prepare selection of the National Trustee of ICCTF through discussion between BAPPENAS and MOF |

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

Climate Change Funding is mentioned in Chapter 5 of *RAN-GRK* and ICCTF is taken up as one of funding mechanisms. ICCTF is also mentioned in Chapter 3 of *SNC*. These actions will improve the efficiency of ICCTF operation to focus on climate change programs and projects and will reduce transaction costs.

For monitoring of these policy actions, *'Blueprint for Indonesian Climate Change Trust Fund, ICCTF'*, Republic of Indonesia, September 11, 2009 could be referred. Directorate of Environment, BAPPENAS could provide further information.

| |
|---|
| [3] Implement PBB for policies, programs and activities of line ministries related to CC. |

| |
|---|
| [4] Prepare concept for providing incentives for climate change. |

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

Efficient implementation of climate change policy is in line with the basic objective of *RAN-GRK*. These actions will increase the incentive of technical ministries and local governments to efficiently implement climate change policies.

For monitoring these policy actions, Directorate of Environment, BAPPENAS, and the Center for Climate Change Funding Policy and Multilateral Cooperation, BKF, MOF could provide information.

**Expected impacts of the above policy actions in the outcome area**

The discussions at ICCTF Policy Coordination Forum and Technical Committee for ICCTF, where line ministries are represented, could enhance the policy coordination on climate change and link to the national budget and planning process.

PBB and providing incentives to regional governments for climate change policy will deepen policy discussions among central and local governments and link to the national budget and planning process.

**Future policy directions**

To follow up the CY2011 policy actions and to ensure the above stated impacts, future policy direction is indicated in the Policy Matrix as follows:

- Continue to support the funding mechanism for climate change projects under the Indonesia Climate Change Trust Fund (ICCTF).

**Further recommendation related to the outcome area**

- Funding and staffing will be the key for successful implementation of ICCTF. It is recommended to continue information-sharing and efforts for gaining understanding on the ICCTF for further funding both from donors and private sector.
- Providing incentives to both line ministries and regional governments will be important for successful climate change policies. Continued discussions among relevant authorities, BAPPENAS and MOF in particular, to come up with concrete actions are recommended.
- Though disaster management sector was deleted from CY2011 policy actions, it is hoped that further support be given to local governments disaster management and disaster risk reduction efforts.

## 1.3. GHG Emission & Absorption Measurement Inventory

### Sector overview

Accurate estimation of GHG emissions is an urgent issue for Indonesia toward its mitigation target. The Government of Indonesia has 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 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, apart from LULUCF sector of which the estimation of GHG emissions which underwent a correction process.

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 (such as *el-nino*), and the raising emissions from energy, transportation, and industry sectors owing to the rapid economic growth. The GOI works on establishing a national system to periodically review and update the GHG inventory.

**Directions for CY2010 CCPL and beyond**

Based on the above development, two follow-up actions were included in the CY2010 CCPL Policy Matrix: submission of the *SNC* to UNFCCC; and establishment of the National GHG Inventory System (SIGN). Both of them were attained as scheduled.

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 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 of 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 summarised the salient points in a 47 page paper titled "*the Summary for Policy Makers*." MOE also undertook the finalization process of the full report of *the SNC* (including data correction related to forest and peatland).

Furthermore, MOE recognized that it is essential to establish a system for quality assurance and control (QA/QC) for GHG emissions inventory. A plan to establish the National GHG Inventory System (SIGN) was proposed by MOE as one of Indonesia's priority programmes on climate change issues.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Submit main report of the Second National Communication to UNFCCC.**

Status: Attained

After finalization of the data on GHG emissions and absorption in LULUCF sector, MOE has completed the final report of *the SNC* in November 2010 and submitted to the National Council on Climate Change (DNPI).

Then DNPI submitted *the SNC* to UNFCCC on February 14, 2011, within the time limit.

**Indication (2)**

**Develop the GHG Inventory System (SIGN) through official process and design an Indonesian National MRV (measurement, reporting, and verification) System.**

Status: Attained

This indicator targets the development of institution in charge of inventory rather than realising the inventory itself which still needs further efforts among relevant stakeholders. MOE established the SIGN unit in charge of inventory in 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 emission 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.

The presidential regulation on the National GHG Inventory System was drafted by MOE and finalized through consultation with related ministries including CMPW. The finalized draft was then sent to the cabinet secretary.

The National GHG Inventory System is supposed to aggregate and integrate data obtained/analysed by agencies in charge of each sector (Presidential Working Unit for Supervision and Management of Development (UKP4) for forestry sector for instance). General directions and authorities of MRV system are also described in the draft of the presidential regulation.

**Challenges identified in implementing CY2010 policy actions**

Not identified.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following two policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Finalize draft Presidential Regulation on National GHG Inventory. |

| |
|---|
| [2] Develop Technical Guidance for waste sector inventory development as a pilot sector. |

[Ministry/Agency in charge: MOE]

Above policy actions proposed to follow up on the past activities of establishing the National GHG Inventory System. The first action aims to legalize the system, and the second one aims to facilitate the activities to be conducted under the SIGN unit.

For the development of the Inventory System, it is necessary to strengthen the capacity of sectors and local governments to collect and analyse necessary data as is stated in *SNC*[12], and technical guidance for the sector and local governments need to be developed through the experiences in pilot sectors. JICA has provided a technical assistance project for development of National GHG Inventory System.

Monitoring of the above actions require a) obtaining the final draft of the presidential decree and the draft guideline; and b) interviewing officers in charge of pilot activities and guideline development. The Assistant Deputy for Mitigation and Atmospheric Protection and the Head of GHG Inventory Division at MOE could provide further information.

**Expected impacts of the above policy actions in the outcome area**

The National GHG Inventory System would serve as one of the essential systems of Indonesian mitigation actions to attain the target of 26% (or 41%) GHG reduction, as this is designed to enable accurate understanding of GHG emissions and absorption in all relevant sectors and areas.

As was specified in *ICCSR*, the GOI place its first priority on activities related to data collection and knowledge management in the initial stages of the roadmap. Therefore the collected, analysed, and shared data as the outputs of the above activities would underlie the all mitigation policies in Indonesia for coming decades, so does the vulnerability assessment and mapping for the adaptation policies.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

12 MOE, 2010, II-30

- Implement SIGN with the close coordination among relevant institutions and prepare for the National GHG Inventory.
- Start preparation for guidelines and methodology including MRV (Measurement, Reporting and Verification), to be conducted by each of the Ministries/ Agencies and Local Governments.

**Further recommendations related to the outcome area**

The preparation of mitigation and adaptation programs will require data to be produced by the National GHG Inventory System and vulnerability assessments.

To implement the mitigation and adaptation programs, coordination among stakeholders, capacity building and incentives, financial and fiscal, will be necessary.

To secure climate change funding, strengthened synergy among the GOI, local governments and development partners will be important.

# *2. Mitigation*

## 2.1. Forestry

### Sector overview

Current estimation of forest area covered by natural forests in Indonesia is 86 million ha (*Forestry Statistics of Indonesia, 2009*). Recent report reveals deforestation rate from 2000-2009 reached 1.5 million ha per year and 2 million ha in peatland forest during this period[13]. 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 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.

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 the case of Indonesia, 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 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.

**Development in the previous phases of the CCPL**

The areas of activities covered in the past CCPL Policy Matrix were: afforestation; establishment and improvement of REDD+ institutions; establishment of forest management units; preparation of government regulation to manage watershed. Most were attained or substantially progressed.

13 *Portrait of Indonesia Forest, 2000-2009*, Bogor: Forest Watch Indonesia, 2011.

**Directions for CY2010 CCPL and beyond**

Those actions are continued in the CY2010 Policy Matrix with inclusion of peatland management issue. Four outcome areas were covered: forest management and governance, peatland conservation, REDD, and afforestation and reforestation. Most of the planned policy actions in these four outcome areas were attained, and especially the action on implementing and monitoring performance on timber legality exceeded the target. However, two actions on coordination to improve the legal framework of peatland, and to issue a ministerial decree regulating mechanisms and procedures of REDD+ still need follow-up.

The following figure shows the highlights of mitigation policies in forestry sector including the past development from 2007 to 2009, actions of 2010 and 2011, and future directions beyond 2012.

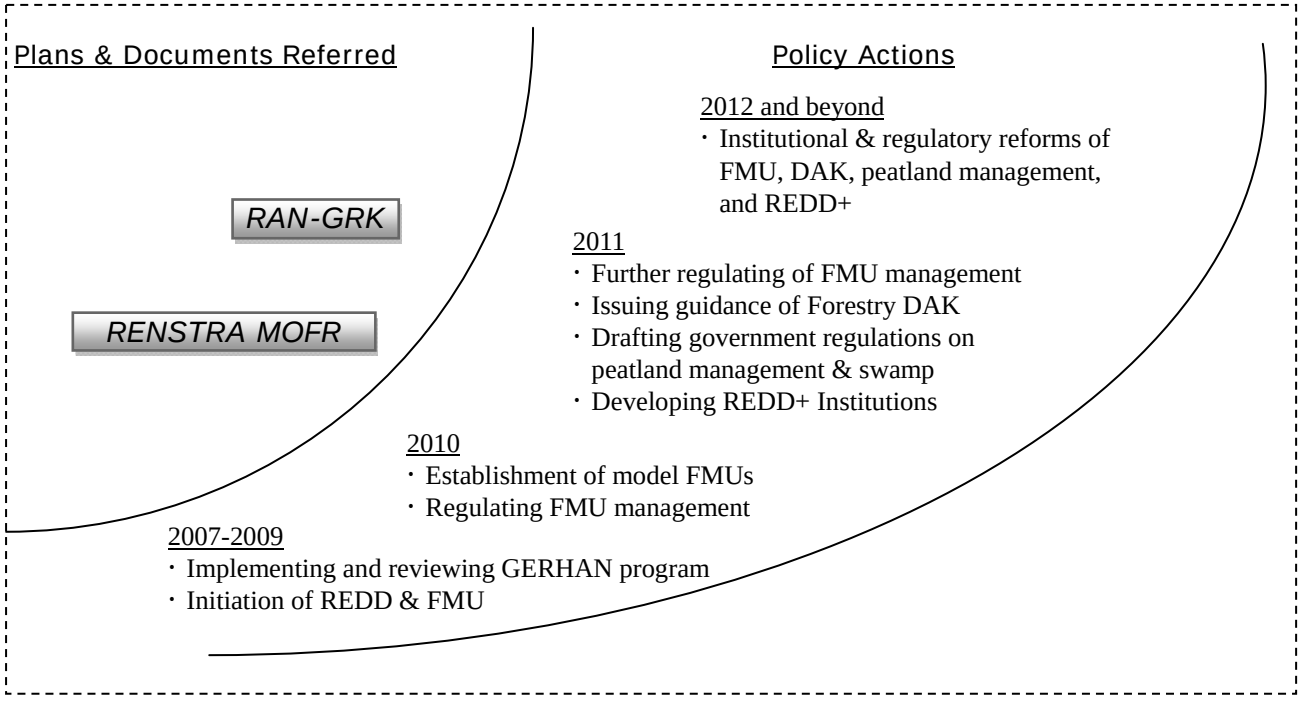


Figure 2-1 : Highlights of past development and future directions of Forestry sector

### 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 Forest Management Units (FMU, or KPH in Indonesian) is the first step toward reaching this goal. 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 (KPHK) – which is still under the responsibility of the central government, while Protection Forest Management Units (KPHL), and Production Forest Management Units (KPHP) are partly relegated to the region – province and district. The GOI targets to establish 340 FMUs by 2025. 23 provinces out of 33 have already drafted the technical design of FMUs by 2009. To further accelerate the establishment of FMUs, MOFR set up the working group (specified in MOFR Decree No.25/2009). The working group support local governments to obtain feedback comments for their drafts, and also refer to other areas' drafts. 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. Forestry DAK was introduced to provide financial support to regional administration for implementing central government project to rehabilitate forest and critical land – one of the national priorities. Forestry DAK was introduced, and has been improved for this purpose. (See 1.2. financing for detail).

Last but not least, strengthened actions to prohibit illegal logging are indispensable to manage forests more effectively, and to reduce GHG emissions. Nearly two-thirds of deforestation in Indonesia derives from undocumented timber production (*Sustaining Indonesia's forests: Strategy for the World Bank 2006-2009.* Washington D.C.: World Bank 2006). To promote legal harvest and sustainable timber trade in Asian timber producer and consumer countries, a strong commitment amongst Asian countries' ministers on Forest Law Enforcement and Governance (FLEG) was confirmed in 2001 by signing the Bali Declaration. Actions were also taken in the consuming countries side. European Union committed to the sustainable use of tropical forest

by filing Forest Law Enforcement Governance and Trade (FLEGT) Action Plan in 2003. Indonesia began piloting SVLK (timber legality verification system) by the issuance of a Ministerial Decree No.38/2009. SVLK is aimed to reduce/stop illegal trade of timber and timber products, promoting sustainable forest management and certified legal timber to domestic and international markets.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The three policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Design norms, standards, and procedures on how FMUs manage forests.**

Status: Attained

Complementing the design norms, standards, and procedures of FMUs management stipulated in the MOFR Ministerial Regulation No.6/Menhut-II/2010, MOHA issued a guideline of organization and procedure of protection and production FMUs in the province and district.

In addition, area designation and implementing unit establishment are required to establish FMUs. By June 2011, areas of Production and Protection FMUs in provincial level have been designated in 23 provinces out of 28. Areas for Conservation FMUs have been designated in 20 national parks. 22 FMUs as implementing unit of regional instrument have been established.

**Indication (2)**

**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.**

Status: Attained

Technical guidance of Forestry DAK for 2010 and 2011 were issued. Allocation was mainly dedicated for reforestation/land rehabilitation and procurement of facilities and infrastructure for supporting forestry awareness and forest patrol to avoid forest fires.

The DAK is improving in term of type of activities and type of area eligible to be funded. In addition to financing rehabilitation of forest and critical land, since 2009 Forestry DAK can also be used for procuring supporting facilities and infrastructure for forestry extension in local areas, such as motorcycle, computer, projector and etc.

For 2010 and 2011, MOFR adds eligible activities and area including provision of facilities and infrastructures for supporting forest patrol and for Grand Forest Park management.

**Indication (3)**

**Implement and monitor performance of GOI regulation on timber legality. Assess capacity for oversight, certification, and monitoring in national standards agency.**

Status: Exceedingly Attained

MOFR regulation and Director General decrees to support the implementation of timber legality measure were issued. Verification for SVLK is conducted by independent verifiers accredited by KAN (National Accreditation Committee) under BSN (National Standard Agency).

SVLK were firstly implemented for 11 timber industries by the state budget (APBN). Then a number of forestry companies implemented at their own expense. By the end of June 2011, 115 timber industries (IUPHHK), four forest concessions for natural forest (IUPHHK Hutan Alam/HPH), and one industrial timber plantation (IUPHHK-Hutan Industri; HTI (Industrial Forest Plantation)) have been implemented. Voluntary Partnership Agreement (VPA) with European Commission was signed on 4 May 2011 to improve the attractiveness of Indonesian timber products in the European market. Dissemination of SVLK has taken place in American, Japan, China and Australia.

**Challenges identified in implementing CY2010 policy actions**

Limited capacity of local human resource and insufficient financing mechanism are major factors hindering the implementation of FMU in regional level. Additionally, data and information on forest area is lacking of comprehensiveness, accuracy, and reliability. To manage about 120 million ha of forest area nationwide, 120 FMUs should be established requiring approximately IDR 7 billion/year for respective FMU[14].

An evaluation conducted by BAPPENAS for 2008 and 2009 showed that the DAK on Forestry was not optimally implemented in some points. The proportion usage of fund was also not quite in line with the technical guidance. Allocation for forest and land rehabilitation activities was rather smaller compared with that of civil construction for conservation of land and water, and of provision of facilities and infrastructure for forestry awareness. End-year project reporting was relatively lacking, only 50% of local governments for 2008 and 67% for 2009 reported. Nevertheless, as mentioned during the Forestry Sector Dialogue held at the MOFR on 22 February 2011, there is no available instrument or tool to monitor and control whether DAK funds are correctly used or not. It will be useful if such kind of instrument including monitoring of DAK funds and its implementation is developed for better performance.

14 According to the representative of BAPPENAS at the CCPL Focus Group Discussion on Forestry Sector, 16 June 2011.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following three policy actions/targets are stated in the CY2011 CCPL Policy Matrix. Two policy actions are related to FMUs establishment and one on Forestry DAK. Timber legality action is considered as completed.

| |
|---|
| [1] Establish FMUs in 3 provinces. |

| |
|---|
| [2] Issue Ministerial Regulations for supporting the implementation of FMUs in provinces and districts. |

[Ministry/Agency in charge: Directorate of Management Territory and Preparatory of Forest Utilisation Area (WP3H), DG Forestry Planning (Planology), MOFR]

MOFR plans to establish FMUs in three provinces in 2011 to meet the target of 28 provinces by 2014 which was set in *RENSTRA MOFR*. Following MOHA guidance, MOFR is expected to issue standardised requirements on human resources and supporting facilities and infrastructures for the FMUs. The establishment of FMUs is recognised as a core activity in Forest and Peatland sector of the *RAN-GRK*[15]. GHG emission reduction in the forestry and peatland requires special management that will be executed under forest administration of FMU.

For monitoring of policy and technical arrangement of FMUs, Directorate of Management Territory and Preparatory of Forest Utilisation Area (WP3H), DG Forestry Planning (Planology), MOFR could be contacted.

| |
|---|
| [3] Issue Technical Guidance for using Forestry DAK for FY 2012 |

[Ministry/Agency in charge: DG Finance Balancing, MOF; Directorate of Regional Autonomy, BAPPENAS; and Bureau of Planning and Foreign Cooperation, MOFR]

Technical Guidance is a routine action, which will be regulated under ministerial decree. In addition to previous eligible activities for funding, DAK for 2012 is expected to fund facilities and infrastructure of FMUs in local government.

Following the issuance of MOF decree to stipulate the amount of DAK budget for each sector, Forestry Planning Bureau of MOFR prepares the guidance.

15 *RAN-GRK*, p55 (English Version)

**Expected impacts of the above policy actions in the outcome area**

Establishment of FMUs is an important enabling condition for the implementation of sustainable forest management and forest governance, since the FMU is a managing unit in the field level. It will play significant a role in supporting government commitment to reduce GHG emissions from forestry and peatland sector, such as facilitating measurement unit of MRV, and hotpots reduction. Thus setting policy and technical arrangement of FMUs is a priority.

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.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Strengthen the regulatory framework for FMU management institutions at local level for conservation, protection, and production FMUs (implementing and technical guidance)
- Establish remaining FMUs (28 FMUs, as a final target number, are to be established in total by 2014).
- Evaluate and improve intergovernmental transfer mechanism through DAK to finance local government forest activities.

**Further recommendations related to the outcome area**

For the improved forest governance through timber legality, capacity building of stakeholders in timber production and marketing to meet the standardised requirements of SVLK is necessary. It is recommended to set up close monitoring system of accreditation implementation.

Apart from designation of FMU area in province, establishment of FMU in district/city level is necessary. To encourage district/city level to establish FMU, technical and financial incentives through the evaluated intergovernmental transfer mechanism should be improved.

For facilitating the process of FMU development, it is recommended to establish monitoring system on FMU financing and implementation. It is also recommended to develop monitoring system for implementation of DAK which potentially provides funding for FMU.

### 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 country's land area. Of the above figure, 5.6 million ha have been allocated for forestry, plantation and agriculture as of 2006. Despite prohibition for utilisation of peatland with peat layer thicker than 3 meters under Presidential Decree No.32/1990 on the management of protection areas, it is believed that over 2.5 million ha of peatland have been allocated for development[16].

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 wetlands area. Later in 2006, Ministry of Home Affairs published *the National Strategy and Action Plan for peatland sustainable management* in expectation that this document could be a guidance for peatland management strategy by relevant local governments.

In February 2009, MOA issued Ministerial Decree (Permentan) No. 14/Permentan/PL.110 /2/2009 concerning 'Guideline of peatland utilisation for oil palm cultivation' allowing provincial and district governments to issue permits for oil palm development. It allows also clearing peatland with peat layer thinner than 3 meters within the allocated agricultural land and for other production purposes.

On rehabilitation issue, earlier in 2007, the GOI issued Presidential Instruction (INPRES) No.2/2007 regulating the rehabilitation of degraded peatland in Central Kalimantan covering 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 the forest fire control, the GOI has developed series of policies such as MOA Regulation No.14/Permentan/PL.110/2/2009 on the Guidance for the Utilization of Peatland for Palm Oil; PP No.4/2001, forbidding all forest and land fires; MOFR Decree Kepmen No.260/Kep-II/1995 on Guidelines for Prevention and Control of Forest Fire, supplemented by the implementation

16 BAPPENAS. 2009. *Reducing carbon emissions from Indonesia's peat lands: Interim Report of a Multi-Disciplinary Study*.

guidelines; 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; 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 depicts different sectoral interventions over peatland area management involving MOFR, MOA, MOE, and Ministry of Public Works (MOPW).

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Coordinate among ministries to control peatland emissions implementation under the framework of presidential regulation.**

Status: Attained

In 2010, several coordination activities on peatland management were conducted. The GOI has made progress on policy coordination for peatland management toward enactment of 1) "moratorium" and 2) government regulation on controlling peat ecosystems.

The GOI has prepared a presidential instruction imposing a two-year "moratorium" on new permits. Several drafts of the moratorium were prepared and reviewed by different ministries including a draft prepared by CMEA involving MOFR and MOE and a draft by UKP4. The draft prepared by UKP4 was reportedly disseminated for inputs from relevant stakeholders including civil society groups, researchers, scientists and private sector players such as investors. For the finalization process, the GOI worked on coordination geared to securing agreement among the relevant parties with several unsettled issues in the moratorium. CMEA took the lead in coordinating various ministries: for example, it invited all relevant agencies for discussion on the draft presidential instruction at the end of October 2010. Finally the *"Presidential Instruction concerning the Suspension of New Licenses and Improved Governance of Primary Natural Forests and Peat Land"* was issued on May 20, 2011. However, the moratorium would not be effective for the areas with certain conditions, such as where permits have already been issued, and secondary forest areas.

The GOI is coordinating for the issuance of a government regulation (PP) on 'Environmental Damage Control on Peat Ecosystems,' initiated by MOE. The draft of the regulation obliges the GOI to prepare the inventory and maps of peat ecosystem to regulate utilization of each

area. Based on the inventory, general guidance on the measures to be taken by relevant governmental ministries and agencies for management and restoration of peatland will be provided. The guideline enables the responsible line ministries to design sector-wide programs. For instance, MOPW is in charge of water control while MOFR and MOA are responsible for fire control. Consultation on the draft regulation has started, with relevant organizations invited. The draft was reviewed by the Ministry of Law in 2011.

In addition, BAPPENAS, with the support from the Government of the Netherlands and World Bank, has started implementation of the WACLIMAD project since 2010. The main objective of the WACLIMAD process is to develop a National Lowland Management Strategy that provides the numerous central and local government agencies and other stakeholder with a clear framework for the conservation, use and management of the lowlands to attain overall government objectives and targets related to mitigation of climate change, reduction of carbon emissions, economic development, employment generation, food security, and conservation of bio-diversity. Toward the implementation of the project, BAPPENAS established a coordination team, consisting of relevant ministries and agencies and held series of dialogues to discuss options for a common policy framework and management strategy for the lowlands, and peatland. It worked as a forum for coordination on management of lowlands and peatland.

**Indication (2)**

**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 peatland as major source of GHG emissions with target in 2010.**

Status: Substantial Progress

MOPW has been preparing and drafting the government regulation on swamp. The regulation will define the objectives and measures of swamp management toward sustainable use of swamps, better control over water resource, and mitigation of potential water damage in swamp areas. Coordination issues will also be regulated. For instance, the regulation stipulates that the Board of Water Resources will be involved in the management of swamps as a water resource network. In a similar manner, the Commission for Swamp Reclamation will be assigned to manage reclaimed swamp. The draft government regulation has been discussed at inter-ministerial level. Consultation on the draft with the Ministry of Law will be conducted later. The draft regulation will be circulated to the ministries in 2011 for consultation.

The WACLIMAD project implemented policy dialogues for developing a National Lowland Management Strategy. It has reviewed current and draft regulations on lowland and peatland including the draft government regulation on swamp.

**Challenges identified in implementing CY2010 policy actions**

Although the GOI has made progress on coordination for peatland management related to enactment of "moratorium" and government regulations on controlling peat ecosystems and swamp as well as implementation of the WACLIMAD project, the formal coordination structure is still unclear and further development of coordination mechanism within the GOI is required for effective peatland management.

The regulations such as government regulations on controlling peat ecosystems and swamp for better peatland management should be further developed after coordination among relevant ministries and synchronization with relevant policies and regulations.

Limited recent inventory data and map regarding the exact extent and different definition by sectors adds the uncertainty over peatland management issue though peatland mapping projects are being implemented.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following two policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Produce the Map of Peatland Hydrological Unit (Kesatuan Hidrologis Gambut) in Sumatra and Kalimantan. |

[Ministry/Agency in charge: MOE]

MOE is currently working for the Map of Peatland Hydrological Unit (Kesatuan Hidrologis Gambut) in Sumatra and Kalimantan. Peatland Hydrological Unit consists of a peatland area(s) and surrounding water areas. This action is highly related to implementation of *RAN-GRK* includes following actions in 2010-2014:

- Inventory and mapping of peatland ecosystem hydrological Unit: Map with scale of at least 1:250,000, 20 million ha
- Inventory and mapping of peatland ecosystem characteristics.

MOE is expected to produce the map of those units in Sumatra and Kalimantan in the end of 2011. Output(s) of this policy action is the map(s) of Peatland Hydrological Unit itself. The office of Assistant Deputy for Inland Water Ecosystem Degradation Control is in charge of peatland issue including producing the map and preparing presidential decree on "Environmental Damage Control on Peat Ecosystems" in MOE.

| [2] | Finalize a draft of Government Regulation on Swamp and conduct coordination among relevant ministries. |
|---|---|

[Ministry/Agency in charge: MOPW]

MOPW has been preparing a draft Government Regulation on Swamp. This regulation, once enacted, would replace a revision of previous Government Regulation No.27/1991 on Swamp which is considered outdated and to be revised after issuance of new Law No.7/2004 on Water Resource.

*RAN-GRK* stresses peatland and swamp management and "Improvement, Rehabilitation and Maintenance of swamp reclamation network (including existing peatland)" is one of the relevant activities to be conducted by MOPW in the Annex of *RAN-GRK*.

Directorate of Irrigation and Swamp takes charge of this regulation in collaboration with other divisions such as the Bureau of Planning.

The office is drafting Government Regulation on Swamp and is expected to conduct consultation and coordination with relevant ministries and agencies in 2011.

The WACLIMAD project, collaboration between the Government of Indonesia and the Government of the Netherlands and World Bank, is assisting coordination among relevant ministries and regional authorities by holding 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. The dialogues are related to the drafts of regulations on peatland and swamp including a draft Government Regulation on Swamp under preparation by MOPW. Directors of BAPPENAS such as Directorate of Water and Irrigation and Directorate of Forestry & Water Resources Conservation are responsible for overall coordination within the GOI on the project.

**Expected impacts of the above policy actions in the outcome area**

Both policy actions are necessary for the establishment and implementation of effective peatland management. The Land Use Change and Forestry (LUCF) and peat fire is the largest GHG emission sources in Indonesia and mitigation efforts on the sector are one of the highlighted areas in *RAN-GRK*. The implementation of the peatland mapping will improve GHG inventory and scientific understanding of peatland and will provide basis for peatland management and implementation of regulations including that of "moratorium" and of peat ecosystem.

The second action would be one of the key regulations on peatland management, if inter-ministerial coordination is effectively conducted.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Finalize a national scale mapping.
- Establish better coordination mechanism on peatland.

**Further recommendation related to the outcome area**

To improve peat management there are three issues to be addressed:

1) Establishment of effective institutional framework for further coordination including relevant local governments. Peats are located under different land status (forest lands, agriculture land, etc) and managed under different authorities (MOFR, MOA, MOPW, MOE). Decentralization makes the coordination further complicated. An innovative mechanism or effective institutional framework should be developed within the GOI to coordinate various stakeholders to make peatland management more effective and coherent. As a first step of enhancing coordinating mechanism, it is suggested that BAPPENAS, CMEA and/or UKP4 organize an inter-ministerial coordination meeting of peatland management.

2) Priority should be given to improving GHG inventory of peatland by the improvement of emissions/removal factors and activity data for scientific understanding of peatland. It is desirable to create peatland maps with different resolutions as follows:

   - 1:50,000 scale for gross land management planning; and
   - 1:10,000 to 1:50,000 scale for forest management.

   Currently the GOI plans to prepare maps of peatland ecosystem hydrological units with scale of at least 1:250,000. However further efforts are required for creating maps with higher resolutions. Particularly 1:50,000 scale maps, which are currently used only in Java, need to be prepared in other areas to develop better land management plans. It is also suggested that existing maps be revised by reflecting recent data and newly obtained scientific knowledge on peatland ecosystem.

3) A national action plan or a roadmap together with effective regulations on peatland management should be further introduced.

### The WACLIMAD project

WACLIMAD is a technical cooperation project on developing the national strategy of lowland management, mainly through fostering policy dialogues and providing a TA project. The Government of the Netherlands provides financial support to WACLIMAD through the WASAP Trust Fund. WACLIMAD was launched in 2010. While the TA project will be terminated on December 31, 2011, policy dialogues may be continued.

*Objectives*. WACLIMAD is designed for the following purposes: (i) to establish a policy dialogue between key stakeholders and ministries involved in peatland and lowland management; (ii) to develop a common lowland database to support the dialogue and future actions by GOI; and (iii) to develop a national peat- and lowland management policy and strategy.

The national peatland and lowland management strategy, the main outputs of WACLIMAD, would provide stakeholders with a clear framework for the conservation, use and management of the lowlands. Based on the strategy, relevant ministries, local governments and other stakeholders carry out measures toward a series of national goals on carbon emission reduction, economic development, employment generation, food security, and bio-diversity conservation.

*Scope of Activities*. The WACLIMAD Dialogue brings together different ministries and regional authorities to discuss options for a common policy framework and management strategy for the lowlands which include most of the peatland in Indonesia. The dialogue pursues a balanced approach for both development and conservation in the lowlands, considering employment opportunities, food security, environmental conservation and climate change mitigation and adaptation.

In order to facilitate the policy dialogues, TA project is also provided. The TA project aims to prepare working papers on the following issues: (i) quick screening of the physical and socio-economic situation in the lowlands; (ii) development of a lowland data base and atlas; (iii) assessments of the institutional, legal and financial frameworks, human resources and knowledge gaps; and (iv) development of an action plan for the development and implementation of a national strategy .

*Organization*. As per ministerial decree (Kepmen BAPPENAS no. 40 of July 14, 2009) a coordination team and secretariat is established for the formulation of a national strategy for sustainable lowland management. The coordination team consists of DG level officials (echelon 1) in relevant ministries and under the chairmanship of BAPPENAS. The Secretariat consists of director level officials (echelon 2) in relevant ministries. A working group consisting of echelon 3 officials in relevant ministries is also established.

*Work schedule*. The original work schedule as presented in the Inception Report (November, 2010) distinguishes between the Policy Dialogue and the Technical Assistance. The Dialogue is presented in three phases: (i) dialogue set up which includes the agenda and procedures, to be completed in January 2011; (ii) strategy design (themes), to be completed before March 2011; and (iii) policy dialogue towards an action plan and lowland management strategy. The Technical Assistance work schedule provides for conclusion of the physical and socio-economic quick screening and assessments of the institutional framework in five provinces and 32 districts by December 2011.

*Status.* The WACLIMAD Dialogue and its supporting activities have found their approach and direction after a slow initiation process. Most participating ministries expressed their expectation on the outcome in terms of agreed macro-zoning maps (doable and allowable) providing a clear basis for implementation of land use related policies within the jurisdiction of each ministry. For this purpose several ministries indicated their desire for a more focused and intensive dialogue process. The focus areas for the dialogue process are:

a. the development of macro-zoning maps for five provinces indicating the different zones for development, conservation, restoration, and adaptive development to be used as an agreed basis for implementation of programs of the various ministries (doable and allowable). (initial maps to be completed by TA and discussed in regional consultation meetings in September 2011);
b. definitions of terminology, delineations and criteria adopted for macro-zoning that are acceptable and enforceable (focus of July 2011 Meeting); and
c. providing harmonized input for the finalization of the Draft Government Regulations (RPPs) on Swamps, Peatland and Coastal zones (special meetings at MOPW in July incorporating WACLIMAD recommendations/findings).

Local governments participating in the quick screening activities also expect continuous support to their efforts of managing lowlands and developing policies within their regional frameworks.

### 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

MOFR issued a few laws and regulations related to REDD+ (instead of setting up a single law). Two MOFR regulations and two MOFR decrees were issued during 2008 and 2009.

However, previously issued regulations and decrees have ambiguities, particularly regarding the mandates of related organizations, means of coordination, and rights of inhabitants.

On the other hand, REDD+ has been promoted and developed as one of major components to reduce GHG emissions in the international discussion on climate change. At the 13th Conference of Parties of the UNFCCC (COP13, Bali), parties agreed to support developing countries' capacity development regarding: data collection; calculation and monitoring of GHG emissions; and demonstration activities to enhance carbon stock capacity.

Indonesia has set 23.63 million ha (from 2007 to 2009), 6.15 million ha (from 2009 to 2012), and 10 million ha (from 2012 to 2015) for target areas of REDD+. The GOI does not implement demonstration activities, but established regulations and guidelines to enable project proponents to design and implement them. The GOI does not implement demonstration activities, but established regulations and guidelines to enable project proponents to design and implement them.

Prior to the full implementation of REDD+, the GOI started implementing Readiness Strategy (2009-2012) including policy from technical and methodological aspects. During this phase, development of REDD+ regulations, establishment of REDD+ agency and financial instrument, and MRV strategy are among the activities being prepared. National REDD+ Strategy and demonstration activities to draw lessons on different specific issues are also targeted to be developed during the Readiness Phase. 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 including REDD+ Agency, MRV agency, REDD+ Strategy.

Development of REDD+ regulation, ruling roles and responsibilities of actors involved in the REDD+, as well as implementing demonstration activities by donors and NGOs were covered

by this CY2010 Policy Actions. These activities are in continuation of policy actions covered by Readiness Program.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

Two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**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.**

| Status: Substantial Progress |
|---|
| UKP4 is preparing a presidential regulation on mechanism and procedures of REDD+ by defining roles and responsibilities of government agencies, communities, and the private sector in managing carbon assets. It is still under discussion in the Climate Change Task Force under UKP4 and MOFR.<br><br>The UKP4's REDD+ Task Force initial mandate expired on 30 June, 2010 and it is being extended based on presidential instruction for next term. BAPPENAS drafted the National Strategy for REDD+ and wait for the signing by President.<br><br>UKP4 started preparation on MRV system for REDD+. |

**Indication (2)**

**Conduct/implement REDD demonstration activities (at least 3), specify results in specific locations and partners.**

| Status: Attained |
|---|
| There are currently 36 REDD+ Demonstration Activities recorded in the MOFR including those of on the Ministerial Decree No.38, which varies in scope of activities, size, stages, and source of financing. From these varying demonstration activities, followings were learnt as important lessons: developing appropriate project according to local circumstances, establishment of Reference Emissions Level (or Reference Level) and development of Monitoring/Reporting procedure at the project level, conducting exercises on safeguards, securing stakeholders engagement, addressing drivers of deforestation and forest degradation at the local level. The locations of the projects and the numbers of demonstration activities are as follows[17]: |

17 www. redd-indonesia.org as of October 2010

Aceh 2 (projects); Jambi 2; Riau 3; South Sumatra 1; West Sumatra 5; East Java 1; Central Kalimantan 5; West Kalimantan 4; East Kalimantan 7; Gorontalo 1; West Sulawesi 1; North Sulawesi 1; East Nusa Tenggara 1; West Nusa Tenggara 1; Papua 1,

**Challenges identified in implementing CY2010 policy actions**

Not applicable. The draft of National Strategy for REDD+ has been prepared and awaits signing by the President.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following two policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Issue presidential instruction on Moratorium. |

[Ministry/Agency in charge: UKP4; and CMEA]

The GOI, under cooperation with Norway, was required to issue a regulation on moratorium of forest and peatland clearing by early 2011. In May 2011, Indonesia finally made Presidential Instruction No.10/2011 on suspension of granting new licenses and improvement of natural primary forest and peatland governance. The final arrangement was five months late and was weaker than originally proposed with existing concessions for forest clearing allowed to stand.

| |
|---|
| [2] Finalize National Strategy of REDD+. |

[Ministry/Agency in charge: UKP4]

As a result of discussion at COP16, countries implementing REDD+ are required to prepare national strategies or action plans (REDD+ under the AWG-LCA - Section at Decision 1/CP.16 (I)). The REDD+ National Strategy is expected to address the drivers of deforestation and forest degradation and formulates the required strategy to deal those causes by reducing emission and increasing the carbon absorption and storage from the forest conservation activities.

In Indonesia, the National Strategy of REDD+ was included in the earlier draft of *RAN-GRK* as one of cross-sectoral supporting activities. BAPPENAS took initial lead on the formulation of National Strategy, under the Directorate of Forestry and Water Resource Management. Although the National Strategy was initially expected to be issued in 2010, UKP4 has taken over the preparation of the strategy from BAPPENAS, and has prepared the final draft in August 2011.

The draft has been made available online to gather public comments on UKP4's REDD+ website[18] for 30 days from August 17, 2011.

**Expected impacts of the above policy actions in the outcome area**

By the issuance of the National Strategy of REDD+, the reduction of emission from deforestation and forest degradation as well as carbon sequestration will be implemented in an integrated way, from upstream to downstream, and within a framework of comprehensive low carbon development strategy.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy direction is indicated in the Policy Matrix as follows:

- Issue National Strategy of REDD+.

**Further recommendation related to the outcome area**

Indonesia has started REDD+ related policy and actions since 2007. There remain, however, issues including the setting up of National Coordinating Body for REDD+ agency, an independent institution for MRV, clarifying the scope of REDD+ and financing scheme. These issues should be settled in the coming years.

18 http://reddplus.ukp.go.id/

### 2.1.4. Afforestation and Reforestation

Outcome Area:
Carbon sink capacity is increased through reforestation activities.

## ◆ Background of the outcome area

Critical land area within and outside the forest in Indonesia required to be rehabilitated is approximately 100 million ha (*Forestry Statistics of Indonesia, 2009*). To minimize those critical lands, the GOI deploys National Movement on Forest and Land Rehabilitation (GERHAN) and activities by local government through forest and land rehabilitation. In addition, Indonesia revitalizes the forest utilization through reforestation activities in forest industries. These two policies are among the priority policies set by MOFR 2010-2014 Strategic planning. From these activities the GOI expects 500,000 ha of forest to be rehabilitated.

Indonesia has 61 million ha of production forest out of it 21 million ha are without forest cover and more is highly degraded (*Forestry Statistics of Indonesia, 2009*). It is estimated that out of about 9 million ha already under HTI concessions, only 4.3 million ha are actually planted. This forest status is a broad forestland classification; actually at a lower level of scale, production forest can include areas devoted to protection, biodiversity conservation or be allocated to local people use.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Rehabilitation of protected areas consisting replanting of 100 thousand ha and develop technical design for another 100 thousand ha.**

Status: Attained

The technical design (of each area) is completed, and planting process is finalized in 2010 at 100 thousand ha. List of areas planted by BPDAS (watershed management technical units of MOFR) is provided.

**Indication (2)**

**Issue a ministerial decree on forest land allocation for timber plantation (HTI and HTR (Community Forest Plantation)).**

Status: Attained

Ministerial Decree (SK.07/Menhut-II/2011) was issued in January 2011. The ministerial decree concerns on allocation of production forest area for IUPHHK (Izin Usaha Pemanfaatan. Hasil Hutan Kayu; timber forest products utilization permit).

The decree has confirmed that 35,410,311 ha of production forest within 26 provinces will gain business permit for timber plantation in the following categories:

- Business Permit for Timber Forest Product Utilization in Nature Forest (IUPHHK – HA) approx. 13,229,354 ha;
- Business Permit for Timber Forest Product Utilization for Ecosystem Restoration (IUPHHK-Ecosystem Restoration) approx. 7,460,278 ha;
- Business Permit for Forest Timber Product Utilization for Industrial Plantation Forest (IUPHHK-HTI) approx. 9,187,967 ha; and
- Business permit for Forest Timber Product Utilization for Community Plantation Forest (IUPHHK– HTR) approx. 5,532,712 ha.

The natural forest concession and ecosystem restoration were designated at areas that have been logged.

**Challenges identified in implementing CY2010 policy actions**

Not specified.

## ◆ CY2011 Policy Matrix and beyond

No action or future direction is proposed in the CY2011 Policy Matrix.

## 2.2. Energy

### Sector overview

Energy and industry sector is reported to generate about one fourth of GHG emission 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.

**Development in the previous phase of 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 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 blue print of the new directorate general for new and renewable energy.

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

19 *SNC* estimates that out of 1,7901,371.89 Gg CO2e 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 *Second National Communication*, Chapter V page 4.

21 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.[22]

**Directions for CY2010 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.

CY2010 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 power producers (IPPs); issuance of Ministry of Energy and Mineral Resources (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 $CO_2$ emissions reduction, and development of energy conservation master plan. The first target was a preparatory process for technical guidance on reducing $CO_2$ emissions in cement industry, which MOI plans to issue as the ministerial decree. The study has progressed as planned, and the technical guidance will be finalized by 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. Though the Grand Strategy has not been specified as a target of CY2010 policy matrix, it should be highlighted as an important step.

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

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 launch of *National Energy Policy* (*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 Diet, it was decided that the roadmap would not be made public. In 2011, MEMR will focus on reducing PLN's production cost to reduce the electricity subsidy.

The following figure shows the highlights of mitigation policies in the energy sector including the past development from 2007 to 2009, actions of 2010 and 2011, and future directions beyond 2012.

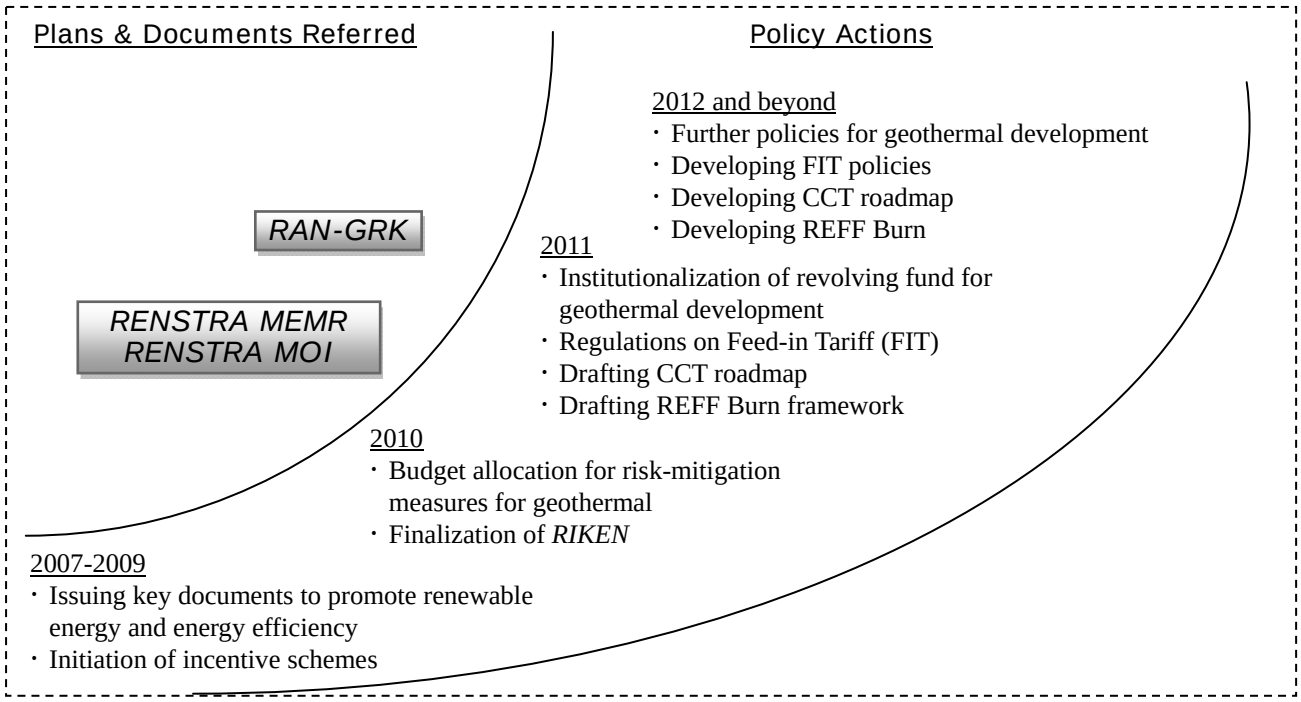


Figure 2-2: Highlights of past development and future directions of Energy sector

### 2.2.1. Renewable Energy Development

Outcome Area 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.

## ◆ Background of the outcome

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:

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. 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 (PPN-DTP) 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 through CY2010 policy actions.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The three policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**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.**

Status: Attained

During the tender process of geothermal development, the lowest price offered by the different developers is chosen by the GOI. The successful bidder then needs to sign PPA with PLN as off taker. The problem arises because the price quoted for bids is usually much higher than what PLN usually purchases from conventional coal fired power plants. Therefore, the policy framework design needs thorough discussion on the tender unit with PLN, so that the price offered during tender become acceptable.

For the above reasons the first target is to improve the current process and mechanism of tendering Mining Work Areas (Wilayah Kerja Pertambangan: WKP). The GOI offers WKPs of geothermal to developers. Developers calculate the price of electricity to be sold from developing the WKP based on location and difficulties etc. Candidates of WKPs are set at the following locations: Bora (Central Sulawesi), Suwawa (Gorontalo), Ma-rana (Central Sulawesi), Waisano (Nusa Tenggara Timur), and Ma-muya (North Maluku).

The second target aims at specifying the effective financial schemes for mitigating the upstream risk of developers and reducing the calculated price. MOF, MEMR and BAPPENAS conducted or are working on studies for policy framework for geothermal development, including a risk mitigation mechanism and tender process improvements. The studies conducted amongst others are as follows:

- MOF conducted studies toward introducing revolving fund for exploration drilling (supported by ADB);
- MEMR launched a study on geothermal development policy framework;
- MEMR and BAPPENAS conducted a study on geothermal development by IPPs in collaboration with JICA; and
- MEMR plans to formulate a presidential decree to obligate PLN to sign PPA with IPPs.

Based on the results of the studies, a fund of IDR 1.16 trillion for exploration drilling by the government was allocated in APBN 2011. Based on Public-Private Partnership scheme as described in the Presidential Decree No.13/2010, the fund will be used as one of the geothermal risk management schemes provided by the GOI for investors, particularly in promotion of geothermal field exploration. Although not specifically mentioned, the fund priority will be for exploration in the eastern part of Indonesia or Greenfield.

In addition, the GOI provided tax and fiscal incentives by enacting two MOF Decrees: MOF Decree of No.21/PMK.011/2010 on Tax and Fiscal Incentives for the Exploitation of Renewable Energy and No.22/PMK.011/2011 on VAT suspension on Imported Goods on

Upstream Oil and Geothermal Activities. IUP holders are entitled to receive incentives including income tax, VAT and import duty exemptions.

**Indication (2)**

**Issue draft regulation to clarify the scheme of compensation for the incremental cost of geothermal electricity to off-taker.**

Status: Attained

On January 8, 2010, the GOI issued the Presidential Decree No.4/2010 appointing PLN to accelerate power development under Crash Program II utilising renewable energy, coal and natural gas (and supporting transmission facilities), by itself and through cooperation with IPPs from whom PLN will purchase electricity.

The regulation stipulated that: 1) the capacity and location of the power plants will be regulated by MEMR; 2) the Government shall guarantee the business feasibility of PLN in accordance with prevailing laws and under provisions to be regulated by MOF; and 3) power plants will benefit from MOF regulated import duty exemptions and other facilities.

MEMR on 27 January 2010 issued Regulation No.2/2010 setting out the details of the location and capacity of each power plant to be implemented under Presidential Regulation No.4/2010. The list was revised on August 2010 with the issuance of MEMR Regulation No.15/2010. The program includes development of about 3,967 MW of geothermal powers out of the target 10,000 MW. IPPs are expected to develop 3,700 MW of geothermal power.

Although the list of projects was made available, investors were keenly awaiting for the release of MOF regulation which would guarantee business feasibility of PLN. The MOF regulation, still being drafted, would stipulate that the GOI would issue a guarantee letter that PLN can meet its obligation in purchasing the electricity from IPP as stated in the PPA. This will provide assurance to the IPPs to develop the geothermal energy since the electricity produced is guaranteed to be purchased by PLN.

PLN has been mandated to purchase electricity from geothermal plants for projects listed in Crash Program II as stated in MEMR Regulation No. 32/2009. In 2011 MEMR replaced its regulation No. 32/2009 with the newly issued regulation No.2/2011. Under the new regulation PLN is required to purchase electricity from geothermal power plants listed in Crash Program II at the tariff set in the Geothermal Mines Concession (IUP) tender, as long as the set price is lower than 9.7cents/kWh. If the price set at the IUP tender is above 9.7 cents/kWh, PLN can renegotiate with the IPP.

**Indication (3)**

**Demonstrate progress by signing PPAs (at least 1) of geothermal projects.**

Status: Attained

In terms of signed PPAs, six new PPAs were signed as of March 11, 2011 for a total of 435 MW of geothermal powers. The other 11 PPAs are also to be signed in the following locations:

- PLN with PT PGE (Pertamina Geothermal Energy) for WKPs before Geothermal Law No.27/2003 was issued in:
  - Lumut Balai (Units 1 to 4) with capacity 4x55 MW at price 7.53 cents/kWh
  - Ulubelu (Units 3 and 4) with capacity 2x55 MW, at price 7.53 cents/kWh
  - Lahendong (Units 5 and 6) with capacity 2x20 MW, at price 8.25 cents/kWh
  - Karaha (Unit 1) with capacity 30 MW at price 8.25 cents/kWh
  - Kamojang (Unit 5) with capacity 55 MW at 8.25 cents/kWh
- PLN with PT Westindo Utama Karya for the WKP in:
  - Atadei (NTT), with capacity 2x2,5 MW at 9.0 cents/kWh

**Challenges identified in implementing CY2010 policy actions**

The GOI already allocated IDR 1.16 trillion in the APBN for geothermal revolving fund. However, the MOF study has yet to identify the manager of this fund; the design of the scheme and procedures in utilizing the fund; and the priority area for the fund to be utilized. The purpose of the revolving fund will reduce the upstream risk of developers which hopefully can reduce the electricity price of developers to be in the range acceptable to PLN. Other studies are still on-going. Therefore even though the CY2010 policy actions were attained, there remain challenges ahead. Firstly, whether PLN would buy the electricity at the price quoted during the WKP tendering process is not assured. Secondly, who would fund the incremental cost gap remains uncertain. Thirdly, current WKP tender process has not accelerated development of the geothermal fields.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following three policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Select fund manager for revolving fund and prepare SOP for the fund. |

[Ministry/Agency in charge: BKF, MOF]

The GOI has allocated budget for revolving fund in the APBN 2011 for geothermal development. The MOF study conducted with ADB assistance will propose the manager for the fund and the SOP for the utilization of the fund.

Thus outcome will be appointed fund manager and mechanism for using the revolving fund.

To monitor the progress of above policy actions, the Center for Climate Change and Multilateral Financing Policy, BKF, MOF could be contacted.

| | |
|---|---|
| [2] | Prepare draft Ministerial Decrees on Fund Manager Assignment and Financial Mechanism (disbursement and funding management). |

[Ministry/Agency in charge: BKF, MOF]

The ministerial decree will serve as the legal basis for the Fund Manager to implement the financial mechanism of the Revolving Fund for geothermal exploration.

MOF has signed the decree on August 25 to designate Indonesia Investment Agency (PIP) as the manager for the revolving fund. Following the decree MOF started drafting two related regulations. One enables the GOI to transfer the fund to PIP's account. The other defines the SOP of the revolving fund such as amount and usages of the fund, and returning period.

To monitor the progress of above policy actions, the Center for Climate Change and Multilateral Financing Policy, BKF, MOF could be contacted.

| | |
|---|---|
| [3] | Issue a ministerial decree on PLN's obligation to purchase geothermal power from projects of Crash Program II. |

[Ministry/Agency in charge: The Directorate of Geothermal, Director General of EBTKE, MEMR]

This Ministerial decree will mandate PLN to buy the electricity from geothermal resources at the maximum of 9.7cents/kWh. This decree would avoid long negotiation for the PPAs signing. Increasing geothermal share in the total fuel mix for power generation will lower the fossil fuel share in the future. The decree is expected to accelerate the development of geothermal resources in the country to be 5795 MW or 5.4% share in the total mix of primary energy supply by 2014, according to *RENSTRA MEMR (2010-2014)*.

To monitor the progress of above policy actions, the Directorate of Geothermal, MEMR could provide further information.

**Expected impacts of the above policy actions in the outcome area**

The three outputs of the policy actions will remove the main barriers in the development of geothermal resources for power generation. Provision of revolving fund, selecting the Fund manager and setting the financial mechanism will reduce the upstream risk of geothermal development while mandating PLN to buy the electricity from the geothermal developers at a maximum 9.7cents/kWh will provide assurance on the downstream side. Since both will be legalised with a ministerial decree, the possibility for accelerating the geothermal development will increase. This will contribute to energy sector's GHG emissions reduction.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy direction is indicated in the Policy Matrix as follows:

- Continue to improve policy framework design to promote geothermal development, and operate exploration fund.

**Further recommendations related to the outcome area**

It is recommended to accelerate the status change of PT Geo Dipa Energi to an independent state owned enterprise, which is currently expected by December 2011.

PT Geo Dipa Energi, a company working for the cycle of geothermal power generation from exploration and exploitation, to power plant development and energy distribution, is currently jointly owned by Pertamina (having 67% of the PT Geo Dipa Energi's stock) and PLN (having the remaining 33%). It was planned to transfer Petamina's share to the GOI and launch Geo Dipa Energi as a state-owned company[24]. Being owned by the state has several obvious merits for Geo Dipa to accelerate its activities of renewable energy development under the Crash Program II. Firstly, as a state-owned company, Geo Dipa Energi's business would be guaranteed by the GOI. This would lower the burdens for IPPs while they raise funds and negotiate with PLN. Secondly, Geo Dipa Energi itself could easily develop its assets and gather more third party finance. The law to transfer Pertamina's share of Geo Dipa Energi's stock to the GOI was signed in February 2011. However, the Diet has yet to reach agreement to provide the capital for taking up.

24 "Pertamina to Transfer 67% Geo Dipa Energi Shares to Government" Indonesia Today, 09 August 2010. http://www.theindonesiatoday.com/Resources/Energy/pertamina-to-transfer-67-geo-dipa-energi-shares-to-government/News (checked as of 12 October 2011)

Outcome Area 2:
The promotion of renewable energy development is improved by monitoring, evaluating and revising the new regulations.

## ◆ Background of the outcome

Indonesia could create job opportunities, and reduce the GHG emissions from the burning of fossil fuel through better utilization of the huge potential of renewable energy. 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.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (4)**

**Issue Ministerial Regulation (MOF) No.21/2010 (PPH) and No.24/2010 (PPN DTP) on incentives for renewable energy development.**

Status: Attained

Ministerial Regulations No.21/2010 and No.24/2010 were issued in January 2010. The objectives of Regulation No. 21/PMK.011/2010 on Tax and Customs Facilities for the Utilization of Renewable Energy are as follows: 1) supporting the deployment of renewable energy; 2) securing energy supply; and 3) attracting investors and increasing the renewable energy business sector by giving the tax and customs facilities for the entrepreneurs who deal with renewable energy utilization business.

The facilities provided are as follows:

- Income Tax facilities including reduction from investment, acceleration of depreciation, and lower tax rate for dividend and compensation of losses;
- Exemption of Income Tax for Import machineries and equipment, not including spare part;
- Exemption of Value Added Tax;
- Exemption of Import Duty; and
- Tax paid by government.

The implementation of these facilities will comply with applicable existing tax and fiscal regulations.

The Minister of Finance Regulation No. 24/PMK.011/2010 on Valued Added Tax Paid by the Government for Import Goods utilized for Oil, Gas and Geothermal Exploration Upstream Activities provides incentives for exploration of geothermal resources and through valued added tax paid by the Government, including is conditions and procedures. This regulation was only for 2010.

MOF plans their revision of the MOF Regulation No.24/2010 to continue promoting development of renewable energy in 2011 and beyond. MEMR has been preparing three draft government regulations (RPPs) on “Energy Security”, “New and Renewable Energy” and “Direct use of Geothermal”.

- MEMR developed RPP on “Supply and Demand,” and it was renamed and has been modified to RPP on “Energy Security” taking the following reasons into account. First, the original scope of RPP on “Supply and Demand,” to make sure that demand is met at maximum from domestic source, could be simply put into “to secure energy supply as much from domestic source.” Secondly, Indonesia is also considering emergency preparedness.

RPP on “Renewable Energy,” which was drafted and revised to include new energy and renamed as RPP on “New and Renewable Energy,” due to the change of institutional structure with creation of the DG of New Energy, Renewable and Energy Conservation in MEMR. The new office in charge of the RPP has mandate to develop new energy as well as renewable energy and decided to extend its scope to include new energy.

**Indication (5)**

**Issue Presidential Decree No.4/2010 on assignment to PLN to conduct acceleration of power plant development using renewable energy, coal, and gas.**

Status: Attained

Decree No.4/2010 was issued in Jan 2010. Based on this MEMR issued Ministerial Decree No.2/2010 on detailed project list and capacity dated on January 27, 2010.

MEMR issued Ministerial Decree No.15/2010 on revised planning and project list based on *Electricity Generation Planning of PLN (RUPTL)* in August 2010.

**Challenges identified in implementing CY2010 policy actions**

Institutional framework for enhancing renewable energy, particularly on incentives and disincentives, needs to be further improved such as adding further regulations on tax and other incentives and electricity purchasing pricing. MEMR and MOF is discussing on the issues, according to MEMR at the Focus Group Discussion on Energy (17 June, 2011).

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following three policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Issuance of Ministerial Regulation to replace Ministerial Regulation No.24/2010 (PPN DTP). |

[Ministry/Agency in charge: The Centre for Climate Change Funding Policy and Multilateral Cooperation, BKF, MOF]

Output will be the issuance Ministerial Regulation (MOF) on PPN DTP also. This regulation is usually issued only for one year. Therefore in 2011, there should be the revised regulation.

To monitor the progress of above policy actions, the Centre for Climate Change Funding Policy and Multilateral Cooperation, BKF, MOF could be contacted.

| |
|---|
| [2] 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]

MEMR Regulation No. 5/2009 provided guideline on the electricity purchasing price of PLN from Cooperative or other Business entities (IPP) developing small scale renewable resources. In other words, the regulation set a general framework to estimate the FIT for all renewable

energy resources. As the development cost renewable energy varies depending on sources, the GOI is considering issuing regulation on the FIT for the different type of renewable energy sources, starting from one for solar and wind. While the current FIT mechanism set in MEMR Regulation No. 5/2009 has already been used for developing small scale hydro resources, the same mechanism is not favourable for solar and wind.

To monitor the progress of above policy actions, the Directorate of Various New and Renewable Energy could be contacted.

| [3] Draft Blueprint(s) on geothermal, hydro and solar. |
|---|

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

Outcome will be the draft blueprint on geothermal, hydro and solar. The blueprint for geothermal is most advanced among the three drafts. The blueprint itself is a document that serves as a foundation for arrangement of policy for development and exploitation of each kind of energy. It will at least contain the following:

- Policy regarding assurance of sufficiency of domestic energy supply;
- Public service obligation policy;
- Management of energy sources and the exploitation thereof.

To monitor the progress/attainments of above policy actions, the Directorate of Various New and Renewable Energy could be contacted.

**Expected impacts of the above policy actions in the outcome area**

These regulations and Blueprint will contribute to increase the development of power generation by renewable energy.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Publish Blueprint on Renewable Energy.
- Prepare regulations on FIT for Renewable Energy.

**Further recommendations related to the outcome area**

For further promoting renewable energy development, the following issues could be addressed.

- Financial intermediary system for funding renewable energy development, associated

with capacity development of the local banks and other financial institutions, needs to be reinforced.

- 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 repair parts and equipments.

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.

### 2.2.2. Energy Efficiency

Outcome Area 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.

#### ◆ 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[25]. 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 $CO_2$ emissions; implementation of Eco-label; promotion of $CO_2$ emissions reduction; and establishment of an energy services company. The first stage targeting 35 steel enterprises and 15 pulp & paper enterprises was launched on 23 November 2010[26]. The launch of the Grand Strategy could also

25 *World Energy Outlook 2009*, Paris: International Energy Agency, Organisation for Economic Cooperation and Development, 2009.
26 http://www.icctf.or.id/node/39

be highlighted as a prominent achievement of energy efficiency and conservation policies in 2010 .

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments were as follows:

**Indication (1)**

**Conduct a study on a national framework for emissions reductions in the cement sector.**

Status: Attained

As part of the Agence Française de Dévelopement (AFD) support (Phase-II) activity in Developing an Emission Reduction Scheme for the Cement Industry in Indonesia, MOI:

- Developed Preliminary Emission Reduction Scheme in line with *ICCSR* and the *RPJMN 2010 – 2014;*
- Conducted Workshop for Final Consultation; and
- Finalised a target in $CO_2$/t cement to be reached before 2020 and set the implementation plan to reach this target.

MOI planned to issue the technical guidance as a ministerial regulation by 2010.

Additionally, MOI prepared the Grand Strategy and implemented the first stage from September 2010 to June 2011, with financial support from ICCTF. The Grand Strategy covers programs for energy conservation and GHG emissions reduction in the industrial sector during the period from 2010 to 2020. The four main schemes of the Grand Strategy are as follows:

1) Implementation of energy conservation and reduction of $CO_2$ emissions;
2) Implementation of the Eco-label;
3) Promoting the reduction of $CO_2$ emissions; and
4) Establishment of an energy services company.

Under the first scheme from September 2010 to June 2011, MOI conducted a general survey on the potential of energy conservation in designated companies, and determined the baseline for energy conservation and emissions reduction. Steel and pulp & paper industries are selected due to their significant contribution to energy consumption. 35 steel companies and 15 pulp & paper producers were designated.

The first scheme also intends capacity building through training on energy management and

energy audits, and provision of integrated information systems for emissions reduction programs (see also "1.2. Financing Scheme and Policy Coordination for Climate Change" of this report for the outputs of the first scheme of the Grand Strategy).

**Challenges identified in implementing CY2010 policy actions**

None. The Report on Emission Reduction Scheme for the Cement Industry has been finalized and submitted to MOI and the Cement Association. The monitoring support team has not yet been able to analyse the report as it is kept confidential in compliance with a request from the Cement Association.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following four policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [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]

As earlier mentioned, MOI developed *the Grand Strategy of Energy Conservation and GHG Emissions Reduction*, composed of four stages to promote programs for energy conservation and GHG emissions reduction in the industrial sectors.

The first phase (stage) of *the Grand Strategy* mainly dealt in steel and pulp industries, which were the second and third focus for reducing GHG emission of the industrial sectors[27]. Selected targets were 35 steel industries and 15 pulp & paper industries from the following areas: Sumatra (Sumut, Riau, Jambi, and Sumsel); West Jawa (Banten, Jawa Barat, and DKI Jakarta (Jakarta Special Region)) and East Jawa (Centran and East Jawa). The activities include energy audit training and socialization program in six cities (Medan, Palembang, Surabaya, Cilegon, Semarang, and Bandung).

The first stage is supported by ICCTF as its 2nd project as mentioned in "*1.2 Financing Scheme and Policy Coordination for Climate Chan*ge" of this report, As one of the outputs of the first stage, MOI developed on-line system of the Grand Strategy[28]. The website shows the update information on the programs such as F/S guidelines, Energy and Emission Information Management System (EEIMS), and capacity development for local governments.

27 *RAN-GRK, ICCSR, RPJMN*
28 http://icctf.kemenperin.go.id/icctf/

The Center for Environment and Green Industry Assessment, MOI is in charge of this action.

| [2] Draft the CCT (Clean Coal Technology) roadmap for Indonesia. |
|---|

[Ministry/Agency in charge: Director for Electricity Programme Development, DG of Electricity, MEMR]

The outputs of this action plans would be

- Formulate a roadmap for introducing CCT to achieve higher power generation efficiency and GHG emission reduction;
- Formulate a high-efficiency coal-fired power development plan; and
- Transfer CCT and enhance human resource development program to Indonesian counterparts.

The CCT roadmap will help the GOI in its plans to reduce $CO_2$ emission from coal power plant by using more efficient and cleaner technologies such as Ultra-Super Critical Technology (USC) and Integrated Gasification Combined Cycle (IGCC). The current plan of PLN (*RUPTL 2010-2019*) assumes that a 4,000 MW coal power plants using USC or Super Critical Technology (SC) will be constructed to meet additional capacities estimated for the plan.

The general policy direction in *the RAN-GRK* specifically mentioned that energy saving and other clean technologies would be one of the options to be used in reduction the GHG emission[29].

Directorate for Electricity Programme Development, DG of Electricity, MEMR is in charge of this action.

| [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]

Output of this action would be the technical guidance for reducing GHG emission in the cement industries. The Guidance will include information on the emission reduction target, plan, efforts, community participation, and financing sources.

*RAN-GRK* stipulated that the cement industry is the largest GHG emissions source in industry sub-sectors since it produced GHG from two sources namely from its energy consumption and from the calcinations process in its production and is the tenth largest GHG emissions source in Indonesia (*SNC*, 2009), excluding emissions from Land Use Change and Forestry (LUCF).

29 *RAN-GRK, Section 4 (English Version as of September 17 2010*)

*ICCSR* for the industry sector also focused on the cement industry and the *RPJMN* of the MOI put priorities for the cement industry.

In this regard, technical guidance would be pertinent for achieving lower emission of GHG from the cement industries. The technical guidance shall stipulate the emissions reduction target for each cement plant, as well as the specific programs and technologies to be applied as follows:

- Emission inventory to be conducted at least once a year in accordance with the methodologies stipulated by MOI. The report will be submitted to the MOI at latest within two months after the end of a calendar year;
- Energy efficiency plan such as heat recovery;
- Use of a plan for blending material such as fly-ash;
- Use of alternative fuel plan such as biomass; and
- Emission reporting and supervision plan.

The Center for Environment and Green Industry Assessment, MOI is in charge of this action.

| |
|---|
| [4] Draft Framework of REFF Burn (Reducing Emission from Fossil Fuel Burning) as integrated approach to mitigate emission 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]

The Clean Energy Initiative was initiated by the DG of EBTKE, MEMR. In this regard the term REFF-BURN (Integrated Program for Reducing Emissions from Fossil Fuel Burning) was created to covers all activities in relation to Clean Energy Initiative. REFF-BURN is considered as NAMA for the Energy sector, just as is REDD+ for the forestry. However, the concept of REFF-BURN is from within Indonesia, and is not based on international practices.

In this regard, EBTKE drafted the framework for REFF-BURN and included this as one of the policy action under Outcome Area 1. The output would be the REFF-BURN framework which will cover also the sources of funding for REFF-BURN activities. REFF-BURN implementation means implementation of actions specified for reducing GHG emission. Thus it is in line with the policies under the *RAN-GRK*, *ICCSR* and *RPJMN*.

Directorate for Energy Conservation, DG of EBTKE, MEMR is responsible for this action. Additionally, the following two websites can be visited.

- http://www.reffburn.org/
- http://www.ebtke.esdm.go.id/

**Expected impacts of the above policy actions in the outcome area**

All of the policy actions specified above will have the following impacts:

- Reducing emission of GHG in the cement industries will start as soon as the technical guidelines will be made available.
- The outcome of Phase-I Grand Strategy will also serve as the basis for implementing GHG emission reduction and energy conservation in the steel and pulp & paper industries and can be adapted to the other industries such as textile.
- The on-line system of the Phase 1 Grand Strategy can be expanded to cement industries also.
- Having REFF-BURN framework formulated will enhance the CCT roadmap implementation since using CCT is one of phases in the REFF-BURN

The implication of these outputs if attained and implemented will make the 26% target achievable in most of the energy and industrial sector.

**Future policy directions**

To follow the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- 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.
- Finalize the CCT roadmap and start the implementation of the roadmap.
- Finalize REFF-BURN

**Further recommendation related to the outcome area**

The GOI identifies current challenges on energy efficiency improvement as follows:

- On the Government side: lack of funding scheme and limited capacity of test laboratory;
- On the side of energy services companies: limited competence of energy auditors and low financial capacity;
- On the side of financial institutions: insufficient understanding of the cost and benefits of energy efficiency projects, lack of successful cases, and asset-based lending; and
- On the side of energy consumers: low energy price, insufficient understanding of available technologies, and lack of finance.[30]

30 Maryam Ayuni (the Director for Energy Conservation, MEMR), “Current Progress and Future

To address such challenges, it is recommended to study funding schemes for energy efficiency and conservation projects. Potential funding schemes include promotion of direct investment in energy efficiency projects, and introduction of financial intermediary systems associated with capacity development of local financial institutions in line with cost benefit analysis .

Prospect on Energy Efficiency Policies: issues and Challenges" paper presented at CCPL Focus Group Discussion, June 17, 2011, Jakarta: BAPPENAS.

Outcome Area 2:
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 PP No.70/2009 on Energy Conservation.

The PP 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.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments was as follows:

**Indication (2)**

**Prepare a *master plan for energy conservation (RIKEN)* 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.**

| Status: Attained |
|---|
| The final draft is substantially completed and currently under finalization process, according to DG-EBTKE at TTM, June 6, 2011. |

**Challenges identified in implementing CY2010 policy actions**

Basically there was no delay. RIKEN was completed but cannot be issued without RUEN and KEN being issued first.

According to MEMR (TTM on 6th of June 2011) RIKEN will not be issued even it is finalized. RIKEN requires issuance of RUEN because in PP No.70/2010 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 and RUEN has not been announced lately. The latest one was for March 2011.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

No policy action for demand side management is specified in the CY2011 CCPL Policy Matrix.

It is noted, however, that the REFF-BURN framework set in the outcome area of "enhanced energy efficiency through the use of new technology" in CY2011 Policy Matrix, also encompasses demand side management.

**Expected impacts of the above policy actions in the outcome area**

No policy action for demand side management is specified in the CY2011 CCPL Policy Matrix

**Future policy directions**

Following the steady progress of preparing *RIKEN* by 2010, future policy directions are indicated in the Policy Matrix as follows:

- Issue RIKEN/the master plan for energy conservation.
- Start to implement the master plan of energy conservation, including energy efficiency standards, monitoring and evaluating framework, of fiscal incentives options, and the industry energy conservation.

**Further recommendation 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 PP No.70/2009 on Energy Conservation so as to ensure the capacity of them. However, no institution has been officially designated to qualify energy managers and auditors. Against such background, it is highly recommended for MEMR to establish an institution for qualifying energy managers and auditors, so as to accelerate energy efficiency and conservation projects included in *RIKEN*.

### 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 for public use, only internally. 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.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments was as follows:

**Indication (1)**

**Finalize a road map for improving subsidy policy of electricity.**

Status: Attained

The roadmap of subsidy reform was completed in January, 2010. The roadmap was originally planned to be stipulated as a official policy. However, as the result of discussion with the Diet, MEMR decided to develop it only for internal use in the ministry instead of publishing it.

On June 30, 2010, MEMR issued Regulation No.7/2010 on the TDL of PLN. In this regulation, the electricity basic tariffs for industries and business entities were increased but with a capping of maximum 18%. However, despite the initial agreement on increase of the tariff by 10% to 15%, tariff was raised by 20% to 30% shopping malls, hotels, and offices in October 2010. In January 2011 other industries were also subject to the similar increase. As this result, the cap of increasing tariff by 18% exists only in name. Finally, the GOI announced no increase of the TDL and still implement capping not more than 15%.

The GOI then issued Presidential Regulation No.8/2011 on Price Cap in February 2011. The regulation stipulates that MEMR has the mandate to decide the capping level considering the normal business aspect and the continuity of electricity supply. MEMR was also mandated to monitor the implementation of the regulation. The TDL per customers, as shown in the annexes to the regulation, was similar.

**Challenges identified in implementing CY2010 policy actions**

The roadmap has two approaches in reducing the subsidies. The first one is increasing the electricity based tariff, as done in 2010. The other is reducing production cost for power generation PLN which will reduce the gap between PLN earning and expenditure.

For tariff increase, the impact will be on inflation, and unemployment. For industries, increase of electricity tariff will result in higher cost of producing goods which consequently will increase the price of the goods. Thus, reducing competitiveness of these goods in the market. The most concern of the Government will be the lower income groups. The GOI will ensure that increase of electricity tariff will not burden this lower income group. Hence, these groups will not be affected by the increase in the tariff because Government will still allow subsidy for these

groups. However, impact on inflation and unemployment will also reduce their purchasing power.

For reducing production cost, some of the challenges include the continued increase of oil price which consequently influences also the price of the other fuels (such as coal and gas).

Other challenges include the delays in construction of the coal power plants under the crash program I and II, which obliges PLN to continue the generation by oil-based plants. The development of gas and renewable-based power plants under the 2nd Crash Program was also delayed.

On the contrary, PLN keeps satisfactory progress of its program to substitute diesel plants in remote areas and outer islands with local sources including solar.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following policy action/target is stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [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]

This policy action has the target to reduce the electricity subsidies without increasing the electricity basic tariff. Increase of electricity tariff often arouses political problems and disturbance. Having raised the tariff in late 2010, the GOI wants to avoid further disturbance and thus has no plan to do so again in 2011.

Evaluation of production cost implies monitoring the use of alternative fuels for power generation to replace oil-based fuel. Currently the government is increasing the use of coal, gas and renewable to 10GW under the first crash program and another 10GW under the second. In addition, PLN embarked on a program to use solar to replace their diesel plants in the outer islands and remote areas.

This policy action is part of the roadmap for reducing electricity subsidy, included in the long-term government plan. The unit in charge of this policy action would be the Electricity

Price and Subsidy Sub-Directorate under the Bureau for Electricity Business Development, DG of Electricity, MEMR[31].

**Expected impacts of the above policy actions in the outcome area**

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.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy direction is indicated in the Policy Matrix as follows:

- Continue to prepare for implementation actions based on the road map, including the regulation.

**Further recommendation related to the outcome area**

Not specified.

31 Note, however, that BAPPENAS asks MEMR to relegate the action to the Bureau for Electricity Program Development, DG of Electricity.

## 2.3. Transportation

### Sector overview

The transportation sector accounted for almost 37% of the final energy consumption in Indonesia in 2009[32]. This is the second largest as compared to the industries. Particularly road transportation weighs 42% of domestic fuel consumption. $CO_2$ emissions from 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[33].

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

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

**Directions for CY2010 CCPL and beyond**

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; and improvement of pedestrian facilities and bicycle lanes. Both of them showed substantial progress, though not “attained” the original target in 2010.

The action set to improve traffic management, namely establishment of 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 to cover fundamental strategies of transportation development in CCPL. Thus, CY2011 CCPL Policy Matrix it was agreed that Overall Transportation Policy was included as the new outcome area.

32 *Handbook of Energy and Economy Statistic 2010*, Ministry of Energy and Mineral Resources, 2011.
33 Ibid.

## 2.3.0. Overall Transportation Policy

Outcome Area 1:
Transportation policy is enhanced enough to avoid deteriorating traffic congestion.

### ◆ Background of the outcome

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)”. The specific policy actions to pursue these strategies include legal/institutional reforms through road pricing and gas mileage standard; infrastructure development through development of Bus Rapid Transit (BRT) and Area Traffic Control Systems (ATCS), as well as the technical development including better combustion engines.

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

### ◆ CY2010 Policy Actions

No action for Overall Transportation Policy was set in CY2010 Policy Matrix.

### ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following two policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Formulate the revised Jabodetabek transportation master plan. |

| |
|---|
| [2] Draft Presidential Regulation for the Jabodetabek Transportation Authority (JTA). |

[Ministry/Agency in charge: CMEA; and BAPPENAS]

CMEA has been revising Jabodetabek transportation master plan and is expected to issue it in 2011. CMEA and JICA have started a project called JABODETABEK Urban Transportation Policy Integration including revision of the Study on Integrated Transportation Master Plan for JABODETABEK (SITRAMP 2), which provides basis for the master plan. The draft master plan is ready for further discussion.

CMEA has been preparing a draft of presidential regulation for the Jabodetabek Transportation Authority (JTA). JABODETABEK Urban Transportation Policy Integration is assisting the preparation as well.

The following offices could provide further information.

- At BAPPENAS: Directorate of Transportation; Land Transport Division, Directorate of Transportation.
- At CMEA: Assistant Deputy for Infrastructure, Deputy Minister for Infrastructure and Regional Development.
- A JICA project at CMEA: Urban Transportation Policy Advisor, Deputy Minister for Infrastructure and Regional Development.

**Expected impacts of the above policy actions in the outcome area**

Those actions will provide basis for further development of policies such as guidelines. The revised Jabodetabek transportation master plan is expected to be enacted by presidential regulation and further guideline for the plan will follow it. After insurance of the presidential regulation for the JTA, establishment of the organization such as preparation of SOP and appointment of staffs will follow.

**Future policy directions**

Future policy direction for Overall Transportation Policy is not specified in the Policy Matrix.

**Further recommendation related to the outcome area**

Once the revision of Jabodetabek Transportation Master Plan is successfully completed by 2011, the projects will be launched to improve road and rail traffic in the area. The progress of these projects needs careful monitoring. It is also recommended to closely monitor and verify the impacts of these projects in terms of GHG emissions reduction.

While the Policy Matrix 2010 and 2011 mainly covered improvement of road and rail traffic in urban areas, other modes of transportation such as maritime and air transportation also have potential for GHG emissions reduction. The following programs specified in *RENSTRA MOT 2010-2014*, just to name a few need to be steadily implemented:

- Eco-Port Program for waste management, sanitation, and capacity development of environmental management in the port area; and
- Eco-Airport Program for reducing the impact to air quality, energy consumption, noise, and water pollution from aviation, airport operation, and travelling to and from airports.

### 2.3.1. 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

*ICCSR* specifies the scope of modal shifting as:

> to satisfy each citizen's remaining transport needs using the most environmentally friendly transport modes possible[34]

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

1) improvement of urban public transportation (BRT, 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 through improving environment of walking and cycling to encourage people to shift to NMT.

Avoiding increase of private vehicles, or in other words, shifting as many trips to public transport vehicles, is also an important objective of modal shifting. BRT, the urban public transportation system has been developed all over the world for this purpose. BRT system, using specially designed infrastructures such as bus lanes, stations and coupled bus has been introduced in many cities in the world to reduce traffic jam. Indonesia developed its first BRT in Jakarta in 2004. Since then more than ten lines were developed in Jakarta and other large cities including Bogor, Surabaya, and Yogyakarta.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The two policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

34 *ICCSR, Summary Report Transportation Sector,* March 2010.

**Indication (1)**

**Develop Bus Rapid Transit (BRT) in 2 cities: Tengerang, and Sarbagita Area (Denpasar, Badung, Gianyar, Tabanan) Bali.**

Status: Substantial Progress

The targeted BRT systems are being developed in Tangerang and Sarbagita.

Trans Sarbagita, the first BRT system in Bali Island, was launched on 17 August 2011 after a delay of more than a year. MOT provided 15 buses for the operation. Out of the three routes planned for Trans Sarbagita, the second route between Batubulan, Gianyar to Nusa Dua, Badung became the first to take passengers. Two other routes, i.e. the first route from Catur Muka Statue (Denpasar) to Garuda Wisnu Kencana Central Park (Badung) and the third route from Jl. Gatot Subroto Ngurah Rai International Airport, will also be in operation soon. Trans Sarbagita is designed to reduce traffic congestion in Bali's busy south, and reduce people's dependency on private vehicles. However, the actual effect of reducing congestion is yet to be monitored.

Trans Tangerang, was also planned to be launched in August 2011. However it has not yet been operated because of delay in the procedures of putting the 10 buses provided by MOT into operation.

**Indication (2)**

**Improve pedestrian facilities in Bukit Tinggi and develop bicycle lane in Sragen.**

Status: Substantial Progress

Improvement of pedestrian facilities in Bukit Tinggi finished Phase I in 2010, and will complete Phase II in 2011.

Bicycle road in Sragen is completed.

**Challenges identified in implementing CY2010 policy actions**

In developing BRT system, the coordination between the Ministry of Transport (DG Land and transport) and local government is important. The construction of BRT lanes and bus stops by the local government should be completed by the time the buses are provided by the Ministry of Transport.

## ◆ CY2011 Policy Matrix and beyond

No policy action or future direction for Modal Shifting is specified in the CY2011 CCPL Policy Matrix, as upstream policy issues in "2.3.0 Overall Transportation Policy" gained priority.

### 2.3.2. 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 transportation sector, "to avoid/reduce" the distance/volume of travel is considered to be the most cost effective toward $CO_2$ emissions reduction[35].

Ideally speaking, this strategy needs to be incorporated at an initial stage of urban design. The 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 of urban traffic management relying on the IT such as sensing, wireless communication, and computing could be introduced at the later stage of development to combat traffic congestion. Control of signals in relation to traffic volumes and variable speed limit are example of measures introduced as intelligent transportation system. In addition, parking management is also considered to be effective in the urban areas of Indonesia.

ATCS, aiming at achieving the optimum traffic performance through minimization of intersection delay and creating continuous traffic flow, is also an effective measure to reduce congestion and thus contribute to reducing total volume (or time) of traffic. ATCS has already been introduced in large cities of Indonesia such as Jakarta (in 1994), Bandung (in 1997), and Surabaya (in 1998)[36].

35 *ICCSR, Summary Report Transportation Sector,* March 2010.
36 Tamin Z. Ofyar, 2001 *The development of the real time integrated traffic information system for Indonesia*.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments was as follows:

| **Indication**<br>**Develop Area Traffic Control System (ATCS) in Bogor and Surakarta.** |
|---|
| Status: Attained |
| ATCS in Bogor and Surakarta were developed by December 2010. |

**Challenges identified in implementing CY2010 policy actions**

Not specified.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following policy action/target is stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Issue Government Regulation of Traffic Management and Engineering, which consists of Electronic Road Pricing (ERP) arrangement. |

[Ministry/Agency in charge: MOT]

The GOI tries to maximize traffic room capacity and optimize the use of road network and traffic movement by three measures: 1) improvement of road network use policy; 2) improvement of policy for traffic movement on the specific road networks; and 3) introduction of technologies and infrastructures to optimize traffic operation.

While ATCS developed in 2010 minimizes intersection delay and creates continuous traffic flow, ERP optimizes the traffic assignments by reducing less necessary or less urgent drives at heavily-trafficked highways and streets.

MOT prepared the Government Regulation No.32/2011 on Traffic Management and Engineering.

**Expected impacts of the above policy actions in the outcome area**

The Government Regulation No. 32/2011 will be followed by another government regulation on electronic road pricing. Introduction of ERP system is expected to be promoted by the two regulations, and will contribute to optimizing of network usage of roads and traffic movement and ensuring safer, better-ordered and smoother traffic.

**Future policy directions**

Future policy direction for traffic management is not specified in the CY2011 Policy Matrix.

**Further recommendation related to the outcome area**

It is recommended to accelerate the introduction of traffic management systems such as ATCS and ERP at traffic intersections and highways with high increase in traffic. To this end, development of overall transportation policies such as master plans is recommended, as was mentioned in the outcome area “2.3.0. Overall Transportation Policy.”

# *3. Adaptation*

## 3.1. Climate Forecasting and Impact and Vulnerability Assessment

### Sector overview

Being an archipelagic country with large number of population living on fishery and agriculture, Indonesia is vulnerable to impacts of climate change. El Nino and La Nina 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 Nino."[37] In fact, increasing numbers of floods, landslides, forest fires, droughts, high-tides, diseases were observed in Indonesia. These incidents might cause large-scale loss in human lives and in production of agriculture, fishery, livestock and other industries.

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

**Development in the previous phase of CCPL**

In the past phase of CCPL, the development of the system of information-sharing and early-warning by BMKG was covered. BMKG, renamed in 2008 from former BMG (the Meteorology and Geophysics Agency), expanded 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.

*ICCSR* identifies forecast of climate change impact, vulnerability assessment and development of adaptation information system, as the highest priority issues during the initial six years (2010-2015) out of the long-term Roadmap till 2030.

**Directions for CY2010 CCPL and beyond**

In the CY2010 policy actions, the following three actions were taken up and all of them were attained;

1) Start developing the climate modeling as the basis of the development of impact and vulnerability assessment.
2) Implement INAGOOS (Indonesian Global Ocean Observing System) to cope with climate change.
3) Prepare the criteria of the impact of climate change.

37 *Second National Communication,* Executive Summary p-xvi.

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

## ◆ Background of the outcome

Adaptation programs are planned and implemented mainly in the following sectors: water resource; agriculture; marine, coral, small islands and fishery; disaster management; and health (infectious diseases). The effective planning and implementation need to be underpinned by strengthening legal and institutional systems and accumulated knowledge. Thus, the GOI places high priority in assessment of vulnerable regions and sectors, identification of adaptation programs, enhancement of forecast capacity for high-tide, flood and drought, and development of system for information-sharing and early-warning.

The system of information-sharing and early-warning is developed mainly by BMKG. BMKG, renamed in 2008 from former BMG, expanded 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. BMKG also has initiated development of climate change model scenarios with the aim of completing by 2013.

INAGOOS was launched in August 2005 by the Indonesian Minister of Marine Affairs and Fisheries. The purpose of INAGOOS is to have comprehensive and sustained observations of ocean climate phenomena, and natural and human induced related disasters through setting up monitoring system and its predictive schemes for the coasts, straits, and the adjacent areas of the Indonesian seas.[38]

In view of identifying area and sectors in need of adaptation, vulnerability assessments have been launched, and an academic paper is being prepared to develop a government regulation.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The three policy targets/actions set in CY2010 Policy Matrix and the progress/attainments were as follows:

38 A.R. Farhan and S. Lim, "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 Aug.9, 2011

**Indication (1)**

**Start developing the climate modelling as the basis of the development of impact and vulnerability assessment.**

Status: Attained

BMKG has started developing climate change modelling scenarios utilizing UK modelling. BMKG has a plan to develop Indonesian Climate Model Scenario based on existing modelling such as UK, Japan, and other countries, and will make several scenarios until 2013.

BMKG has conducted vulnerability assessment studies in East, Central and West Java and has started creating climate database following the Australian model.

**Indication (2)**

**Implement INAGOOS to cope with climate change.**

Status: Attained

Ministry of Marine Affairs and Fisheries (MMAF) established INAGOOS Data Center in Jakarta and INAGOOS secretariat has been established in 2010.

Research Station for Coastal and Marine Vulnerability at Bungus, West Sumatra will be completed in 2011.

**Indication (3)**

**Prepare an academic paper for Government Regulation to the criteria of the impact of climate change.**

Status: Attained

The draft of the academic paper was prepared with the support from JICA with Research and Industry Institute (LEMBAGA AFILIASI PENELITIAN DAN INDUSTRI) of Bandung Institute of Technology.

Yet, in order to finalize it, MOE needs to conduct further studies (by obtaining serial data and analysis of them) and stakeholder consultation.

**Challenges identified in implementing CY2010 policy actions**

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 the criteria of the impact of climate change, and vice versa.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following five policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Complete 7 climate change modelling scenario. |

| |
|---|
| [2] Develop climate database including 5 parameters (rainfall, temperature, humidity, wind and sun light). |

| |
|---|
| [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]

These three policy actions, once achieved, will enable BMKG to have a consolidated climate database, conduct climate change modelling and Bali vulnerability assessment in food security and water availability. The importance of these activities is endorsed in Section 2.4 of *ICCSR*.

The offices which would provide further information for monitoring the above actions are as follows:

- On climate change modelling scenarios: Climate Change and Numerical Weather Prediction, Development and Research Center, BMKG .
- On climate database: Climate Change Information Center, BMKG.
- On vulnerability assessment studies: Center for Climate Change and Air Quality, BMKG

| |
|---|
| [4] Complete Strategic Plan (2011-2014) for INAGOOS. |

[Ministry/Agency in charge: MMAF]

The Strategic Plan for INAGOOS will identify priority actions to be undertaken during the *RPJMN* period in view of setting up a comprehensive monitoring of and prediction skills for the ocean and its interaction with the atmosphere in Indonesia waters and the surrounding oceans. Importance of these activities is endorsed in Section 2.4 of *ICCSR*.

MMAF is in charge of these actions. Under the MMAF, while, the Center for Maritime and Coastal Resources (BRKP) focuses on research policy and monitors the progress of studies conducted other research institutions under the MMAF, the actual research works is undertaken by BROK (Institute for Marine Research & Observation), in Perancak, Bali.

Research Resource Division, BRKP could provide further information for monitoring this action.

| |
|---|
| [5] Prepare List of Criteria of Standard of Environmental Degradation of Climate Change Impact. |

[Ministry/Agency in charge: MOE]

The objective of the study is to "describe the impact of climate change on ecosystems of Indonesia, especially terrestrial and freshwater ecosystem". The purpose of this study is to serve as a supporting document for the development of the Draft Regulation on Environmental Damage Standard Criteria Caused by Climate Change."[39] Importance of these activities is endorsed in Section 2.4 of *ICCSR*.

The Assistant Deputy for Climate Change Adaptation and the Division of Climate Change Vulnerability, MOE could provide information.

**Expected impacts of the above policy actions in the outcome area**

These policy actions will contribute to strengthening of institutional and regulating framework and capacity for scientific research on adaptation.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Prepare Vulnerability Map for other areas.
- Implement INAGOOS into operational oceanography.
- Issue a Government Regulation on the criteria of impact of the climate change.

**Further recommendations related to the outcome area**

- Vulnerability studies needs to be replicated in other areas for further strengthening institutional and regulating framework.
- The results of INAGOOS should be shared with other countries. The framework of UNESCO (United Nations Educational, Scientific, and Cultural Organization) /IOC (Intergovernmental Oceanographic Commission) will be appropriate for that purpose.

39 Bandung Institute of Technology, *ACADEMIC PAPER TERRESTRIAL AND FRESHWATER ECOSYSTEM*, draft as of October 2010.

## 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. In addition to the observed rise in sea level, a rise in sea level by varying degrees was also predicted in many coastal areas of Indonesia, leading to inundation and salt water 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 shortage 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[40]. According to the scenario, the districts with no water surplus throughout the year will increase significantly from approximately 14% of total 453 districts to 19% by 2025 and 31% by 2050. Water shortages would undoubtedly have a negative effect on various sectors including households, agriculture, forestry, energy, and industry.

**Development in the previous phase of CCPL**

From 2008 to 2010, the GOI has advanced policies and institutions related to water resource management. Firstly, the Government Regulation No.42/2008 on water resource management was issued. The regulation contains four main topics of: 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. National Water Resource Council and Provincial Water Resource Councils were established, and have begun undertaking the responsibility of preparing and implementing strategic development plans of the water resources and river basins under their jurisdictions. River basin centers (Balai Wilayah Sungai) and river basin offices (Balai Besar Wilayah Sungai), the agencies responsible for developing basin-level water resource management plans, were established covering 69 river basins in Indonesia. Balai

40 1) Population increases as estimated by the Bureau of Statistics, 2) forest cover decreases at 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 while 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)

Wilayah Sungai and Balai Besar Wilayah Sungai were strengthened through the recruitment of engineers and establishment of 'Dissemination Units'. Last but not least, Balai Wilayah Sungai and Balai Besar Wilayah Sungai worked on preparing Integrated Water Resource Management Patterns and Plans (POLA[41]). The above achievement would enable effective project development and implementation at river basins to reduce the risks of flood and water scarcity.

The major supports to the GOI's water resources and irrigation policies include: World Bank for Water Resources and Irrigation Management Project (2005–2010) and Dam Operation Improvement and Safety Project (2009–2013); ADB on Participatory Irrigation Sector Project (PISP) I & II (2005–2011) and ICWRMP (Integrated Citarum Water Resource Management Investment Program) I & II (2008–2013); JICA on project sector loan for Water Resource II (2001–2011) and decentralization irrigation system improvement project in the eastern region of Indonesia (2004–2012).

**Directions for CY2010 CCPL and beyond**

In 2010, the GOI further progressed toward strengthening the institutional capacity of river basin management. The target in the Policy Matrix was exceedingly attained by completing 18 Provincial Water Resource Councils, 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), and 8 POLAs.

41 What is called POLA in this report is the Integrated Water Resource Management Pattern and Plan (Pola Pengelolaan Sumber Daya Air). POLA is developed by Balai Wilayah Sungai or Balai Besar Wilayah Sungai as the basis for preparing policies and strategies for management of all river basins. Note, however, that Indonesian word "pola" is a general noun meaning "patterns."

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 on water resource management, the GOI has been developing the organizations to cover river basins since 2006. MOPW issued MOPW Decree No.11/2006 to identify river basins[42], 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 including sending technical staffs to those institutions.

To further improve the water resource management, TKPSDA, the entities to coordinate among stakeholders in river basins especially covering 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 the further planning and policy development.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments were as follows:

42 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 Strategic River Basins; d) 51 Inter-regency/city River Basins; and e) 15 Regency/City River Basins.

**Indication**

**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).**

Status: Exceedingly Attained

The GOI has advanced policies and institutions to improve water resource management. The GOI has established 18 provincial water resource councils in the following provinces: Nanggroe Aceh Darussalam, North Sumatera, West Sumatera, South Sumatera, Banten, Central Jawa, Yogyakarta, East Jawa, West Jawa, DKI Jakarta, West Nusa Tenggara, East Nusa Tenggara, North Sulawesi, Central Sulawesi, South Sulawesi, West Sulawesi, East Kalimantan and Maluku.

21 Coordination Teams for TKPSDA have been formed for the following river basins: Progo - Opak – Serang, Bengawan Solo, Jambo Aye, Pemali – Comal, Jratunseluna, Serayu – Bogowonto, Brantas, Pulau Lombok, Aesesa, Jeneberang, Paguyaman, Citanduy, Seputih-Sekampung, Mesuji Tulang Bawang, Teramang-Ipuh, Sangihe Talaud,Tondano Likupang, Cimanuk – Cisanggarung, Akuaman, Bodir-Kuto and Bima-Dompu.

In addition, MOPW has approved eight POLAs for the following river basins: Bengawan Solo, Cimanuk, Brantas, Progo - Opak – Serang, Jratunseluna, Seputih-Sekampung, Pulau Lombok, and Limonto Bolango Buni.

**Challenges identified in implementing CY2010 policy actions**

The GOI specifies several important activity areas of water resource management related to climate change adaptation by 2030 as follows:

- Vulnerability and risk assessment at regional level and in strategic zone;
- Revitalization of local wisdom, capacity development of communities, and promotion of participation in climate change adaptation;
- Enhancement of water conservation and reduction of hazards and disasters related to climate change;
- Increase in water supply using appropriate technology and development of local water resources; and

- Improvement of storage capacity and water infrastructure for safeguarding water balance and disaster prevention.

Since the specific actions in above areas are supposed to be carried out in each river basin, continuous effort should be put to establishing and strengthening the capacity of the organizations to manage the basins, i.e. Balai Wilayah Sungai and Balai Besar Wilayah Sungai.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following policy action/target is stated in the CY2011 CCPL Policy Matrix.

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

[Ministry/Agency in charge: Directorate of Water Resources Management, MOPW]

MOPW has been preparing drafts of master plans. The drafts for two River Basins in Java -Cimanuk-Cisanggarung and Brantas River Basins- are developed based on achievement of POLAs for those River Basins and will be completed in 2011.

The targeted action in the Policy Matrix in CY2011 follows one of development focused areas outlined in *RENSTRA MOPW (2010-2014, Chapter 4)*, which highlights improved water resource management in a sustainable manner aiming at maintaining and improving the water resilience influenced by the availability of water resources, water resource distribution pattern, and pattern of utilization of water resources.

The office in charge of this regulation is the Sub Division of River Basin Planning, Directorate of Water Resources Management, MOPW.

**Expected impacts of the above policy actions in the outcome area**

As mentioned above, master plans of river basins are prepared based on the POLAs achievements. Therefore the developed master plans would serve as the basis for relevant institutions to conduct necessary activities to improve water resource management in an integrated manner 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.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Complete master plans for two River Basins in Java Island (Cimanuk-Cisanggarung and Brantas River Basins) which include climate change adaptation measures.
- Prepare Ministerial Decree on Guideline of master plan.

**Further recommendation related to the outcome area**

It is recommended to prepare master plans on water resource management in all national strategic river basins, and to issue guideline or standards of procedures for the master plans.

These master plans, prepared based on the achievements of POLAs, are required toward implementing the 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 the areas outside Java since water shortage and increase of flood and drought risks are also projected in other islands, particularly Sulawesi, Sumatra and Bali.

## 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 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[43]. 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[44].

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.

**Development in the previous phase of CCPL**

In 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) programmes at the local level; developing irrigation asset management system; creating (Semi[45]) Dynamic Cropping Calendar Maps. The SRI and CFS programmes directly influence farming activities, forging a link between climate policies and farmers' livelihood. MOA conducted 145 units of CFS in 2007, 155 units in 2008 and 180 units in 2009. However, one of the major challenges is that the SRI and CFS programme remains very limited in scale compared with the total areas of paddy and total number of farmers and thus further scaling-up efforts are needed.

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 CY2010 CCPL and beyond**

In 2010, the GOI made a substantial progress for the action in the Policy Matrix with regard to implementation of CFS and SRI, and to land development and management without burning. Evaluation of these activities, however, has not taken place.

43 Boer, R. A. Buono., A. Rakhman, and A. Turyanti. 2009 Historical and Future Change of Indonesian Climate. In MOE *Technical Repoar on Vulnerability and Adaptattion Assessment to Climate Change for Indonesia's Second national Communication*. Jakarta : MOE and UNDP.

44 *Second National Communication.*

45 "Semi" means that the current cropping calendar maps are prepared only in hard copies. In future, the same maps are expected to become on-line (=fully dynamic) cropping calendar map.

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 programmes as adaptation measures at the local level.

SRI, a method of increasing rice production is characterized by the combination for technologies including: 1) transplanting of 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 on water saving and yield and improve the resilience of farm production and drought risk reduction, although the extent of the effects still requires scientific analysis.

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

In addition to the above programs, the GOI has initiated land development and management without burning by promoting the methods of composting and charcoal and briquette production. During the period from 2010 to 2020 the GOI plans to conduct the programs of land development and management without field burning at 1,800 ha, which is expected to contribute to GHG emissions reduction of 326 tons of $CO_2e$. [46]

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments was as follows:

46 *RAN-GRK (English Draft as of 4 October 2010),* p85.

**Indication**

**Evaluate performance, then improve and scale up actions for adaptation in agriculture including Climate Field Schools (CFS), 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).**

Status: Substantial Progress

200 units of CFS were completed in 29 provinces (163 districts) by DG of Food Crops (Sub-Division of Climate Change Adaptation). The DG of Agricultural Infrastructure (Sub Directorate of Land Extensions and land Management) completed 61 units in 59 districts of 10 provinces including North Sumatra province (Districts of Tanah Karo, Tapanuli Selatan, Asahan, Serdang Bedagai, Kota Padang Sidempuan, Labuhan Batu, Dairi); South Sumatra province (Districts of Musi Banyuasin, Musi Rawas, Muara Enim, OKU, OKU Selatan, Ogan Ilir); Lampung province (Districts of Lampung Barat, Lampung Selatan, Tulang Bawang, Way Kanan, Lampung Tengah, Pesawaran); West Java (Districts of Bekasi, Indramayu, Kuningan, Majalengka, Subang, Tasikmalaya, Sukabumi, Cirebon); Central Java province (Districts of Banyumas, Pati, Batang, Demak, Jepara, Karanganyar, Pekalongan, Blora, Grobogan); DI Yogyakarta province (District of Gunung Kidul); East Java (Districts of Bangkalan, Bojonegoro, Bondowoso, Kediri, Lamongan, Nganjuk, Ngawi, Pacitan, Situbondo, Tulungagung); South Sulawesi (Districts of Maros, Luwu, Bulukumba, Bantaeng, Sidrap, Enrekang, Luwu Timur); West Nusa Tenggara province (Lombok Tengah, Lombok Timur); East Nusa Tenggara province (Districts of TTU, Belu, Ende).

SRI was completed in 62 units of eight provinces (16 districts), covering 12,080 ha, which include West Java province (Districts of Sukabumi, Bogor); Central Java (Sragen, Pati, Cilacap, Pemalang, Purbalingga); DI Yogyakarta (Sleman); East Java (Lumajang, Ngawi, Pacitan); Jambi (Sarolangun); West Kalimantan (Singkawang); North Sulawesi (Minahasa Selatan); South Sulawesi (Maros, Soppeng).

With regard to land management without burning, MOA implemented 9 units encompassing 225 ha in three provinces (seven districts). Seven units in three provinces including Jambi province (districts of Tanjung Jabung Barat and Tanjung Jabung Timur covering 50 ha); South Sumatra province (Districts of Ogan Ilir, Ogan Komering Ilir and Muba covering 75 ha); and West Kalimantan province (Districts of Sanggau and Sambas covering 50 ha), were completed by DG of Food Crops, while two units in Jambi province (Districts of Tanjung Jabung Barat and Tanjung Jabung Timur covering 50 ha) were completed by DG of Plantation.

**Challenges identified in implementing CY2010 policy actions**

Although adequate performance evaluation of current policies and programs is a necessary condition for developing long term plans or roadmaps of adaptation measures such as CFS and SRI, the methods and results of the evaluation are unclear.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following two policy actions/targets are included in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Issue a Presidential Instruction on security measures for rice production in facing extreme climate. |

[Ministry/Agency in charge: CMEA; and BAPPENAS]

The presidential instruction (INPRES) is expected to instruct ministries and agencies to take measures to securing rice production against an extreme climate condition. This INPRES would strengthen adaptation efforts. Nevertheless, its instruction for land extension over forest area with intercropping model for rice agriculture should be a concern of relevant ministries/agencies to avoid the adverse impact. The issuance of this INPRES is of relevance to the national program of food security as indicated in *RPJMN 2010-2014* and *RAN-GRK* (Chapter 4.2.2) as one of the prioritized actions in the agriculture sector. Coordinating Ministry for Economic Affair is responsible to coordinate the implementation of this INPRES, while is responsible for evaluating BAPPENAS it.

| |
|---|
| [2] Prepare a draft of Technical Guidance related to Climate Field School (CFS) and System of Rice Intensification (SRI) based on the Presidential Instruction (MOA). |

[Ministry/Agency in charge: MOA]

CFS is currently implemented by:

1. Directorate Food Crops Protection, DG Food Crops, MOA;
2. Directorate Water Management, DG Agricultural Infrastructure and Structure, MOA; and
3. BMKG.

Each of the institutions is preparing general guidelines (Pedoman Umum), which will be regulated either under DG Decree for MOA or Head of BMKG Decree for BMKG and to be a

reference for field officers and relevant managing offices at province and district in implementing CFS. The major component of the general guidelines will be: modules and timeline of training, capacity development of farmers in dealing with climate change, etc. The guideline is prepared annually. Contents of the guideline is general because it applies nationally, so if necessary the Provincial Agriculture Office would publish operational guideline (Petunjuk Pelaksanaan), and District/Municipality Agriculture Offices could issued Technical guideline which adapts the technical guideline of MOA a to local needs.

For monitoring of this action, the following offices could be contacted.

- Unit of Adaptation, Sub-Directorate of Climate Change Impact, Directorate of Food Crops Protection, MOA.
- Directorate of Water Management, DG Land and Water Management, MOA.

SRI has been carried out by Directorate of Land Management, DG Land and Water Management, MOA, and DG Water Resource, MOPW. The general guideline (Pedoman Umum) of SRI is prepared by MOA to be a reference and guidance for officers at agriculture offices of provinces, districts, and municipalities as well as field officers in implementing SRI activities. The contents of the general guideline of SRI are similar to that of CFS, method and approach of implementation in the field; norm, standard, and criteria, as well as performance indicator. The guideline is prepared annually.

While SRI has also mitigation aspect (see *RAN-GRK* Chapter 4.2.2), CFS is fully focussed on contributing to famers' adaptation to climate change impact as indicated in policy direction of the agriculture sector of *RAN-GRK* (Chapter 4.2.2).

**Expected impacts of the above policy actions in the outcome area**

The implementation of the presidential instruction on food security will contribute to enhancing resilience of food production in case of extreme weather.

By the implementation of CFS and SRI, farmers will have better understanding and adaptation skills related to climate change impact, while achieving food security at the same time. The application of SRI could potentially reduce $CH_4$ emission from non-peat farming lands.

**Future policy directions**

The following future policy direction for agriculture sector is specified in the CY2011 Policy Matrix.

- Continue the 2011 progress to finalize actions.

**Further recommendation related to the outcome area**

Three different agencies of different ministries in Indonesia have implemented CFS, while two ministries have conducted SRI. As is often the case with a project or a program carried out by different agencies, sharing know-how and setting common technical guidance could further improve the efficiency, effectiveness, and impacts. On this account it is recommended that MOA and MOPW discuss the possibility to develop single guidance on CFS and SRI to be used by all relevant institutions.

## 3.4. Marine and Fisheries

### Sector overview

Indonesia consists of 17 thousand 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 0.6cm per year, reaching 25cm by 2050, and 50cm by 2100. This figure means about 25% to 50% of urban areas in the largest cities of the country, such as Semarang, Surabaya, Jakarta, and Medan will inundate. At the same time, outer islands of Indonesia could also be affected. 50cm of rise of sea level, if happened in combination with tidal pattern change, would lead to inundation of five islands[47].
- Warmer sea surface temperature: the average of sea surface temperature trend over the Indonesian sea is projected to increase 0.65C (±0.05C) in 2030. Warmer temperature seriously damages the coral reef in Indonesia, the largest in the world. Coral bleaching is a significant threat on fish by: damaging the habitats of thousands of species; and increasing the risk of coastal erosion.
- Increased frequency of extreme events: the frequency of extreme events, such as El Nino and La Nina is also projected to increase. As a consequence, more storms, cyclones, and higher waves hit the coastal areas.

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 events threatens human lives as well as houses and other infrastructure in the coastal communities. Damages in coral reef and fish population directly affect the economy by decreasing the fish and aquaculture productions.

**Development in the previous phase of CCPL**

The Policy Matrix in the previous phase of CCPL mainly covered actions related to Coral Reef Rehabilitation and Management Program (COREMAP) for Marine, Coral, and Fisheries sector. The Government of Indonesia has tried to strengthen the 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. Wide range of activities in the program contributes to making the coastal

47 *SNC*, Chapter IV, p44.

society and economy more resilient: community based income generation and management; rehabilitation of mangrove and coral; and setting of marine protection areas, just to name a few.

**Directions for CY2010 CCPL and beyond**

As described above, the COREMAP program has contributed to building resilience of coastal areas and fishery 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 environment. CY2010 CCPL Policy Matrix further focused on the ground-level activities to strengthen coastal communities, and set a target for developing a strategy for coastal community resilience. At the same time, CY2010 CCPL Policy Matrix also specified the target of conducting studies on coastal vulnerability and $CO_2$ flux to further address the research activities on coastal vulnerability and marine carbon cycle. Both were attained as planned.

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

## ◆ Background of the outcome area

The main objective of adaptation policies in 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 population in the areas in the activities for a) income generation and management; b) conservation, management, and rehabilitation of the resources; and c) management of risks in extreme events. On this account the GOI tries to facilitate communities' or people's participation in a number of policy actions in this sector. MMAF proposed the Climate Resilient Villages Program as a five year program in the 10 coastal areas in the Northern Java, aiming at capacity development for the coastal communities on adaptation to climate change.

At the same time, more accurate data collection and analysis is required on vulnerability of the coastal areas, and $CO_2$ flux in the ocean.

## ◆ CY2010 Policy Actions

**Status of CY2010 Policy Actions**

The policy target/action set in CY2010 Policy Matrix and the progress/attainments was as follows:

**Indication**

**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 of Java, implementing study on coastal vulnerability in relation to sea level rise in Java and Bali, research on the variability of $CO_2$ flux in Banten Bay.**

Status: Attained

The Directorate of Coastal and Marine, and the DG of MCSI of MMAF formulated the resilient village plans for eight municipalities/regencies (Tuban, Pacitan, Demk, Pekalongan, Subang, Bekasi, Jakarta Utara, Serang) by December 2010 through the process of: a) stakeholder consultation with local governments and communities on the climate change

impacts and adaptation measures that have already been taken; and b) survey and analysis on village potency, monograph, and vulnerability both in physical and socio-economic aspects, and hazard risks.

The Research and Development Center for Marine and Coastal Resources of MMAF worked on developing the coastal vulnerability index (CVI) for Java and Bali. CVI is an internationally accepted index quantifying the relative risk that physical changes will occur as sea-level rises calculated by, tidal range, wave height, coastal slope, shoreline change, geomorphology, and historical rate of relative sea-level rise. Computing of CVI finished for Java and West Sumatera in 2010.

MMAF has also conducted a study on $CO_2$ Flux in Banten bay, and has completed the $CO_2$ estimation methodology on the basis of data compiled from 2008 to 2010.

**Challenges identified in implementing CY2010 policy actions**

Not specified.

## ◆ CY2011 Policy Matrix and beyond

**Proposed policy actions/targets for CY2011 Policy Matrix**

The following three policy actions/targets are stated in the CY2011 CCPL Policy Matrix.

| |
|---|
| [1] Develop climate resilient village plan for five years, including detailed engineering, implement the design and develop the community resilience through workshop and training in Tanjung Pasir. |

| |
|---|
| [2] Prepare draft/concept Strategic Plan on Coastal Vulnerability Recommendation for Marine and Coastal Resources in Indonesia. |

| |
|---|
| [3] Review and update Strategic Plan for Blue Carbon Research in Indonesia 2011-2014. |

[Ministry/Agency in charge: MMAF]

The Climate Resilient Village Program was proposed by MMAF as one of its 11 priority programs calling for international support for the period from 2011 to 2014[48]. The three major

48 *List of Medium-term Planned External Loans and Grants 2011-12014*, BAPPENAS, 2011. Other priority programs proposed by MMAF are as follows:
- Application of Marine Technology for the Empowerment of Coastal Community;
- Arafura and Timor Seas Ecosystem Action Programme (ATSEA);
- Community-Based Coastal Environmental Management in Demak District (Mangrove For The

outputs of this program are: 1) climate change coastal village resilience master plan for five years; 2) training modules; and 3) implementation of adaptation measures (stated in the master plan). The first action stated in CY2011 CCPL Policy Matrix fulfils these outputs, and thus could be regarded as relevant to the national priority of development policies. The draft of the master plan needs to be obtained and analysed when the progress of this action is monitored.

While MMAF implements various programs/projects toward increased production of fisheries sector and improved welfare and resilience of coastal population, it also puts efforts in the innovation of science and technology. Strategic Plan of MMAF (2010-2014) places Research and Development of Marine and Fishery Science and Technologies as one of nine priority programs. Under this program several series of technological/scientific recommendations are planned to be provided in the following categories: a) fishing; b) aquaculture; c) marine science (including disaster risk mitigation and adaptation to climate change; d) non-biological coastal and marine resources; e) products/biotechnology; f) socio-economic impacts; and g) management/implementation. Of these categories the second target/action of CY2011 Policy Matrix is related to c) marine science and f) socio-economic impacts. MMAF has a target of issuing two recommendations per year for the former category and four for the latter. The (draft) recommendations need to be analysed for monitoring this target.

Last but not least, the role of Indonesia's seas in the carbon cycle could also be further explored. MMAF' has conducted studies on carbon absorption capacity of the marine resources. It is estimated that coral reefs, sea grass and mangroves can absorb roughly 0.3 gigatons of $CO_2$ each year[49]. Furthermore, at the 11th Special Session of UNEP Governing Council in Bali, MMAF launched the concept of Blue Carbon together with UNEP, FAO and UNESCO to further address the understanding and management of the ability of marine and coastal ecosystems,

The RENSTRA on Marine Carbon Research was initiated in 2008. MMAF published the first edition in 2009, and the second in 2010, containing the study results of carbon cycle in Indonesia and surrounding oceans, using the methodology of global marine carbon research.

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Future / MFF);
- Integrated Seaweed Industry Development to Produce Carrageenan and Bio Ethanol;
- Transforming the Management of Marine and Coastal Resources in Coral Triangle: A Region-wide Program to Safeguard Marine Biological Resources for Future Generation (Coral Triangle Initiative / CTI);
- Capacity Building of Fish Quarantine in Indonesia;
- Set-Net Fisheries Development as an Alternative Eco-Friendly Fishing Technology;
- Strategies for Fisheries By-Catch Management;
- The Development of Fisheries, Aquaculture, Post Harvest, and Small Island Management and Strengthening the Surveillance Capacity; and
- The Strengthening of Research and Development of Fisheries Science, Technology, and Human Resources of Marine Affairs and Fisheries Capacity Building.

49 Jakarta Post, February 18, 2010.

The results of the pilot studies in Banten Bay since 2008 were also included in RENSTRA. Additionally, during the period from 2011 to 2014, the following two strategies are specifically mentioned: 1) to build and enhance cooperation with other institutions including international development partners; and 2) to conduct comprehensive studies on carbon cycles in three coastal ecosystems, i.e. sea grass, mangrove, and coral, in the extended pilot areas including Sumatra east and Spermonde island.

**Expected impacts of the above policy actions in the outcome area**

On the basis of the specific outputs of the above policy actions, i.e. development of climate resilient village plans, recommendations for adaptation measures, and strategies on blue carbon researches, MMAF implements on-the-ground activities toward increased production of fisheries sector and improved welfare and resilience of coastal population.

**Future policy directions**

To follow up the CY2011 policy actions and ensure the above stated impacts, future policy directions are indicated in the Policy Matrix as follows:

- Develop Guidelines of climate resilient village.
- Implement the climate resilient village plan.

**Further recommendation related to the outcome area**

While climate resilient village plans will be highly effective for adaptation at the community level, upstream regional and national level programs are also needed. Particularly, coordination with spatial planning involving other relevant ministries such as MOWP, MOA, MOFR will be important toward further strengthening resilience of coastal communities and fishery sector against the impacts of climate change. Such strategic planning for addressing vulnerability of marine and coastal resources needs to be steadily pursued.

# *Conclusion and Recommendations*

## Conclusion

Started in 2008, the CCPL process has entered into the 4th year. Many of CCPL policy actions have been achieved. **Out of total 36 policy actions in 2010 policy actions, 3 actions were evaluated Exceeding, 24 Attained, 9 Substantial Progress, and 0 Unfulfilled**.

In the **Key Policy Issues (Upstream Strategies)**, major achievements in 2010 were: (a) inauguration of ICCSR; (b) submission of Indonesian Voluntary Mitigation Action by the GOI to UNFCCC; (c) implementation of innovative funding mechanism for climate change through (ICCTF); and (d) finalization of measurable, reportable and verifiable GHG Inventory System.

Major achievements in **Mitigation** were**:** (a) establishment of 22 model FMUs and their management regulations in the forestry sector; (b) studies for policy framework for risk mitigation mechanism for geothermal development and budget allocation for such mechanism, and finalization of *RIKEN*; and (c) development of Area Traffic Control System (ATCS).

Major achievements in **Adaptation** were**:** (a) start of developing climate change modeling scenarios; (b) study on vulnerability assessment in Java; and (c) .continuation and expansion of actions in water resources, agriculture, and marine and fisheries.

On the other hand, **common challenges** in implementing 2010 policy actions were; (a) implementation of national-level climate change policies at local level as well as development of national climate policies needs close coordination with different stakeholders, e.g. provincial and regency governments and local population, and (b) providing local governments with institutional and funding supports and incentives.

The **2011 policy actions** were prepared aligning with *RAN-GRK* and *RKP* and continue to focus on upstream policies and strategies, e.g. (a) prepare the draft the concept of NAMA; (b) issue a guideline for provincial action plans based on *RAN-GRK*; (c) prepare a concept note of national adaptation strategies; (d) complete an Investment Strategy and revise the current SOP for ICCTF; (d) implement PBB for policies, programs and activities of line ministries related to climate change; (e) prepare concept for providing incentives to line ministries and local governments for climate change policies and programs; and (f) finalize the draft Presidential Regulation on National GHG Inventory

Major 2011 policy actions in **Mitigation** are**:**

In the **Forestry sector, (**a) establish FMUs in three Provinces and Issuance of Ministerial Regulations for supporting their implementation; (b) issue Technical Guidance for using

Forestry DAK for 2012; (c) produce the Map of Peatland Hydrological Unit and finalize a draft of Government Regulation on Swamp; (d) finalize National Strategy of REDD+.

In the **Energy sector,** (a) mitigate risk associated with geothermal development by selecting fund manager for revolving fund and prepare Standart Operation Procedures of the fund; (b) draft Blueprint(s) on geothermal, hydro and solare energy development; (c) draft Framework of REFF-BURN; and (d) evaluate production cost and subsidies of electricity.

In the **Transport sector,** (a) formulate the revised Jabodetabek transportation master plan; and (b) draft Presidential Regulation for the JTA.

Major 2011 policy actions in **Adaptation** are**:** (a) complete 7 climate change modelling scenario; (b) develop climate database; (c) complete vulnerability assessment studies in Bali (1$^{st}$ Phase) and start one in West Nusa Tenggara; (d) continuation and scale-up of actions in water resources, agriculture, and marine and fisheries; (e) develop climate resilient village plan for five years; (f) prepare a Concept Strategic Plan on Coastal Vulnerability; and (g) review and update Strategic Plan for Blue Carbon Research in Indonesia 2011-2014.

## Overall recommendations[50]

(a) Formulation of national-level climate change policies and implementation of them at local level needs close coordination among different stakeholders, i.e. provincial and regency governments and local population. Thus, further efforts for large scale consensus building are indispensable. Specifically, it is recommended to create a forum among stakeholders for information-sharing and coordination on climate change activities at provincial level.

(b) Proactive involvement of different stakeholders in planning and implementation of climate change policies should be further facilitated. To this end, providing incentives particularly to local governments would be effective. BAPPENAS and MOF are recommended to organize a committee to examine the incentives to local governments addressing climate change issues.

(c) Further enhancing synergy-effect among the GOI and development partners for planning and implementation of climate change related programs will be important[51]. It is recommended to that the CCPL Steering Committee Meeting be held back-to-back with the Climate Change Policy Coordination Forum organized by BAPPENAS.

The monitoring support team sincerely hopes that the CCPL process will make further contribution for Indonesia to continue achieving growth while becoming a low carbon and climate-resilient society.

50 For the recommendations related to each sector, see the end of each section.

51 The reporting of the results of 7th CCPL Steering Committee to the Climate Change Policy Coordination Forum organized by BAPPENAS inviting other donors, is a good first step toward this direction.